



2 : FAQ Topics

2.1 Software

- PowerWriter For ARM (**Power Writer - For ARM**) : [PowerWriter For ARM](#)
- PowerWriter For RISC-V (**Power Writer - For RISC-V**) : [PowerWriter For RISC-V](#)

2.2 Hot questions

The following procedures are applicable to both the ARM series and RISC-V series clients.

2.1.1 Old drive interference

The common phenomenon is that the client recognizes two ports, the automatic connection turns gray, or KEIL cannot recognize the device, indicating that the device cannot be connected, and the driver in the device manager has an exclamation mark.

Treatment method reference:

[How to handle driver exceptions](#)

2.1.2 Unrecognized chip

The general reason is that the line sequence connection is wrong (the reference voltage VREF is fuzzy, resulting in a direct connection error of 5V) or the need for external power

supply or no signature.

Treatment method reference:

- [How to deal with chip connection failure](#)
- [The chip name is gray](#)

2.1.3 Programming

- PWLINK2 and PWLINK2 Lite support only online programming, PW200,PW300,PW400/**PWX1** Support online programming and offline programming.
- [How to programming online](#)
- [How to programming offline](#)

2.1.4 How to read the save chip data

The premise of reading the chip is that the chip is unprotected, which can be confirmed by reading the option byte.

[How to read and save the chip data](#)

2.1.5 Chip supported or not

The PowerWriter website allows you to query the adapted chip model.

- [Querying the chip model](#)
- [Submit the support chip form](#)

2.1.6 Automation machine

The signal source VCC of the machine needs to connect to the 5V pin of the writer.

How to connect the automation machine

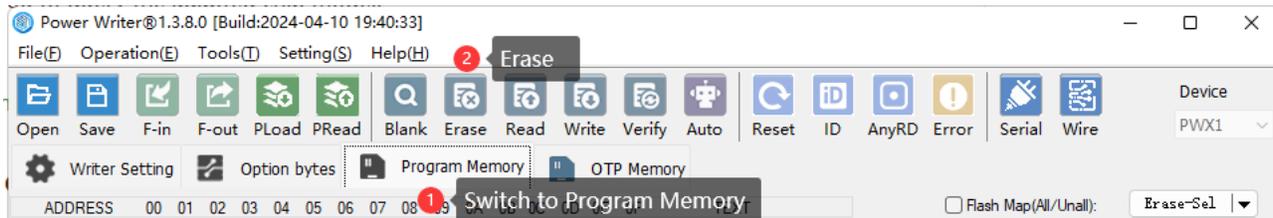
2.1.7 About Debugger

While supporting MDK as a debugger, IAR directly uses an IDE based on the eclipse framework without configuration.

- [Debugger use tutorial](#)
- [Common problems of debugger](#)

2.1.8 Correct operation of erasing

The following information is displayed on the log page after the erasing operation is performed: If the current page does not support erasing, see the following correct erasing operation:



Tags: [FAQ](#) [Hot search](#)

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Last updated on **Apr 15, 2024** by **Alan Chen**

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3.1.1 : Upgrade Service



TIP

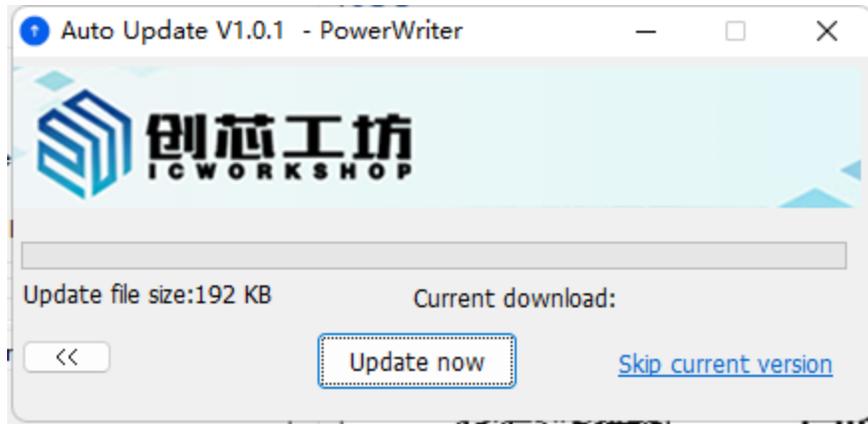
If it is used stably during the current programming process, you can skip this upgrade or turn off the upgrade function, see Menu -> Preferences -> Check for updates at startup.

All the software of ICWorkshop, as the product is positioned to adapt to more chips on the market, in order to continuously optimize the user experience, it is currently updated regularly (every two weeks), mainly including the following upgrades:

- Add Recently added adaptation chip brands or models.
- Based on user feedback, make appropriate improvements to some functions.

Each update will prompt the user to update through the form of automatic pop-up window, and with a detailed introduction of the updated content. In addition to the mandatory update of the main function, users can choose whether to update according to their own use.

Client upgrade pop-up window, click the left arrow in the lower left corner, there will be a simple explanation of this update, the right side is to allow users to skip this update, the pop-up page is as follows:



The following is an example of a recent upgrade record:



Firmware Upgrade pop-up window, you can skip this update by clicking No. The popup page looks like this:



CAUTION

- The upgrade of the upper PC and firmware of the PowerWriter® is synchronized. If the upgrade is not synchronized, an error may be reported on the new chip.
- You can also delete or change the file name update.exe in the PowerWriter® installation folder to disable the update function. However, you will miss the upgrade opportunity that is optimized for the function. Exercise caution when performing this operation.

Tags:

[FAQ](#)

[update](#)

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3.1.2 : Product Selection

3.1.2.1 : Characteristic comparison

Product Model	PWX1	PW300	PW200	PWLINK2	PW400	PowerDebugger
Universal serial port	√	√	√	√	√	√
Standard debugger	√	√	√	√	√(*Part)	√
Network debugger	x	x	x	x	x	√
RTTViewer	x	x	x	x	x	√
RTTScope	x	x	x	x	x	√
ITM Trace	x	√	√	x	x	x
Online programming	√	√	√	√	√	x
Factory mode	√	√	√	x	√	x

Product Model	PWX1	PW300	PW200	PWLINK2	PW400	PowerDebugger
Offline programming	√	√	√	x	√	x
Multiple projectes	√	x	x	x	x	x
Display	√	x	x	x	x	x
Programming times limit	√	√	√	x	√	x
ICWKEY authorized signature	√	√	√	x	√	x
Cloud Platform	√	√	√	√	√	√
Bluetooth	√	√	x	x	x	√
Instruction set	ARM/ Other	ARM	ARM	ARM	RISC-V	ARM

3.1.2.2 : Product purchase



Tmall



Taobao

Tags: [FAQ](#) [Type](#)

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3.1.3 : About Wiring



TIP

Due to different batches of devices, all devices may have different screen printing of shell materials. Before viewing this document, determine the device model and screen printing of shell materials.

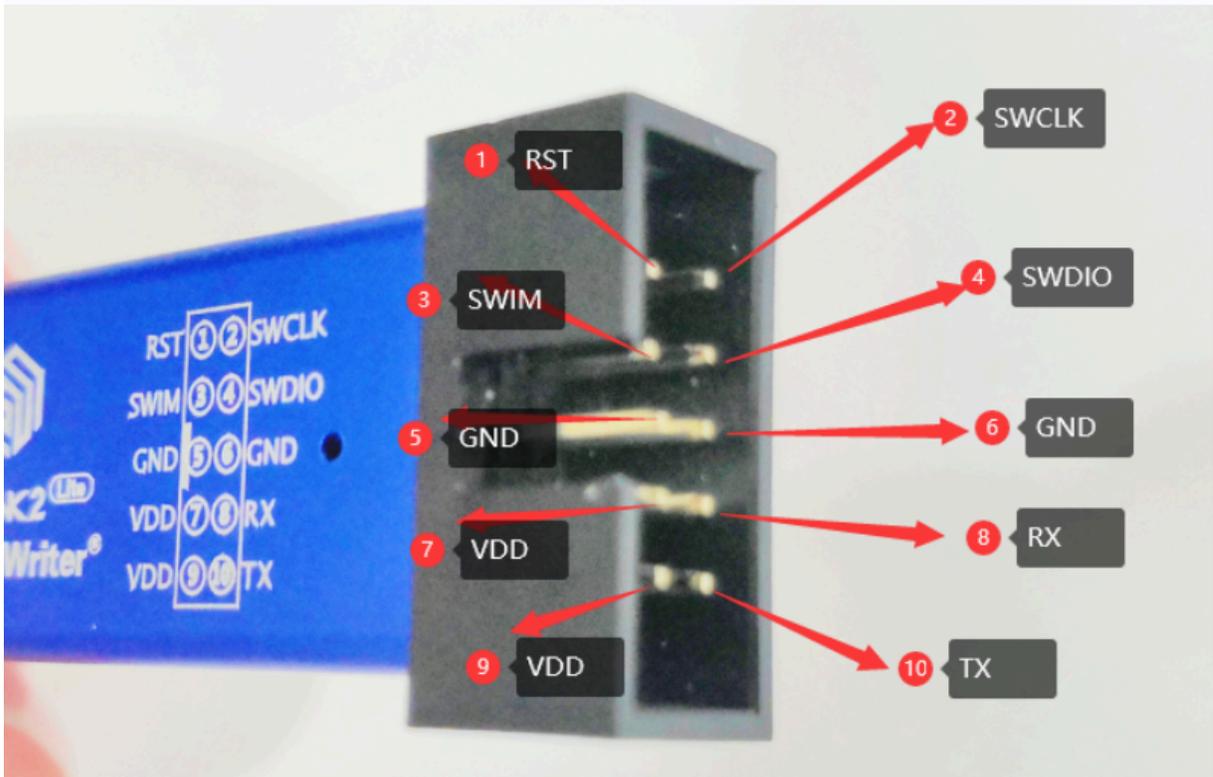
1 PWLINK2(lite)

Before using the device, please connect the client to view the connection diagram between the corresponding chip and the programmer.

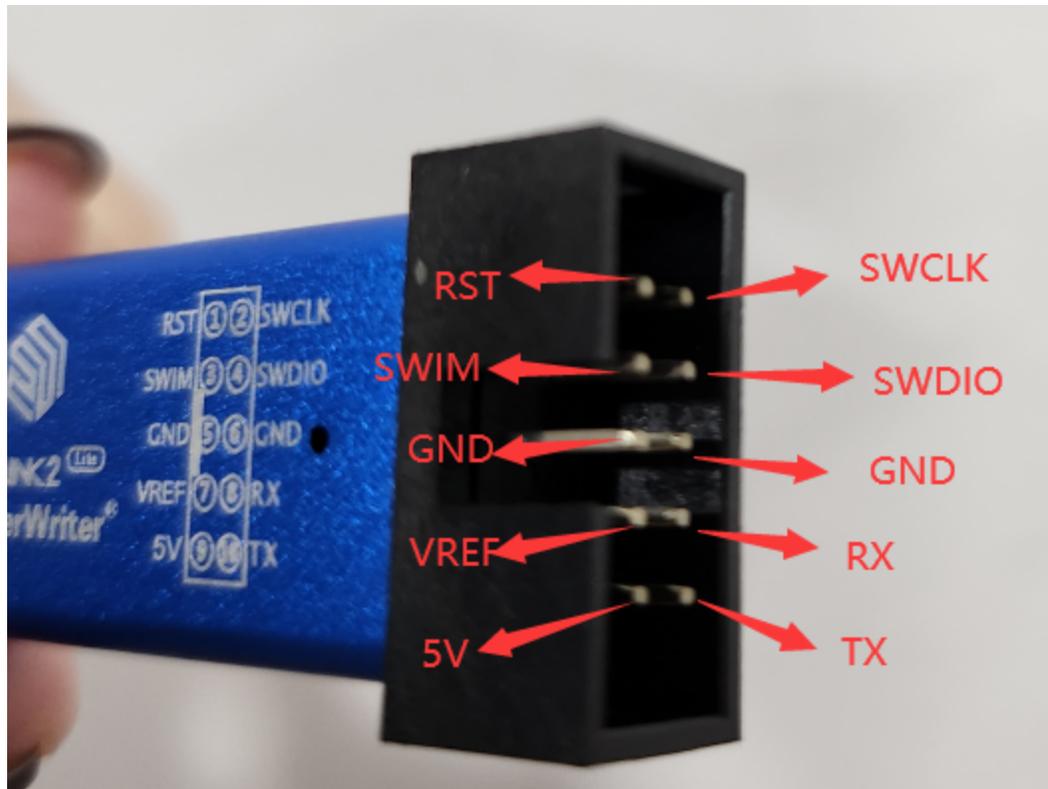
1.1 SWD connection type(ARM)

- When pins 7 and 9 of the device are VDD:

Chip pin : SWCLK、SWDIO、GND、VDD and PWLINK2(Lite)'s
SWCLK(2),SWDIO(4),GND(5) ,VDD(7)Pin docking:



- If the 7th pin of the power supply is VREF and the 9th pin is 5V: Chip pin: SWCLK, SWDIO, GND, VDD are connected to pins of SWCLK(2), SWDIO(4), GND(5), VREF(7) of PWLINK2(Lite). If the chip operating voltage is 5V, the chip VDD is connected to pin of 5V. Specific pin description see [Hardware working state description](#), the device pin distribution diagram is as follows:



1.2 SWIM connection type(STM8)

- If your programmer's power supply pin is 7-VDD 9-VDD: Please connect the pin SWIM RST GND VDD of the chip in your hand with the pin 3-SWIM 1-RST 5-GND 7-VDD of the programmer one by one. The pin distribution diagram of the programmer is shown in the figure above.
- If your programmer's power pin is 7-VREF 9-5V: Please connect the pin SWIM RST GND VDD of the chip in your hand with the pin 3-SWIM 1-RST 5-GND 7-VREF of the programmer one by one. If the working voltage of the chip is 5V, connect the pin VDD of the chip with the pin 5V. The pin distribution of the programmer is shown in the figure above.

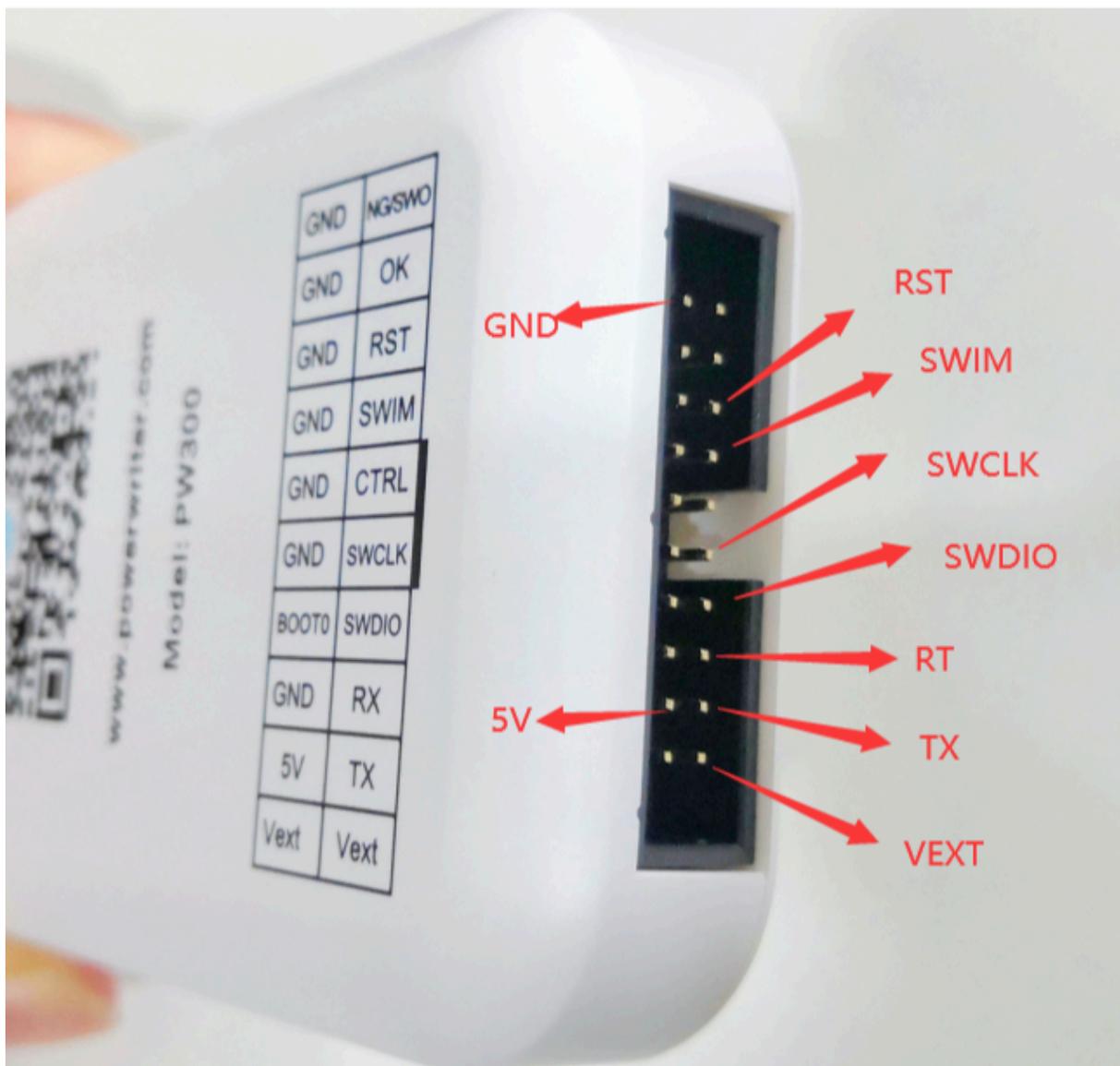
2 PW200 or PW300

Before using the device, please connect the client to view the connection diagram

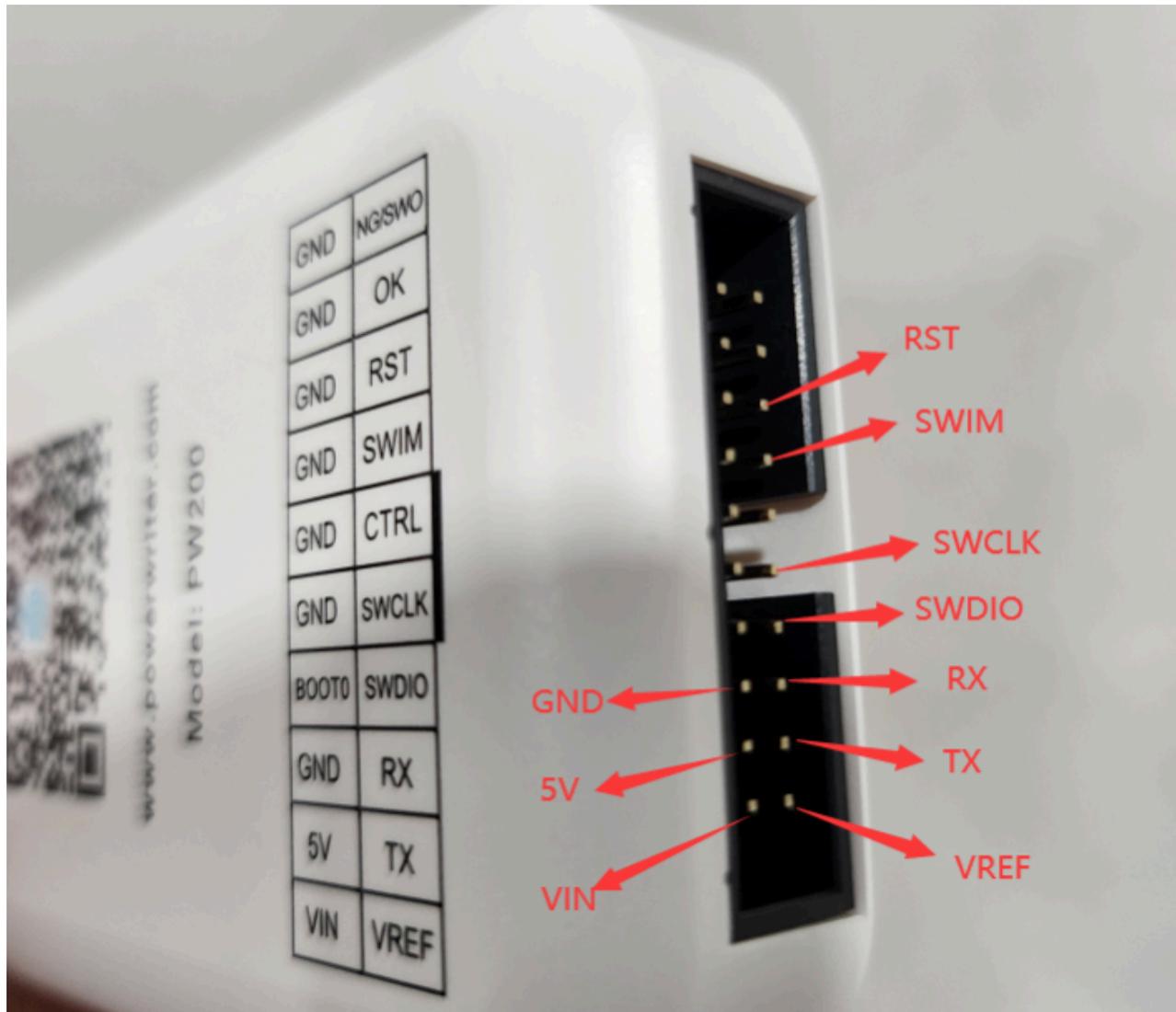
between the corresponding chip and the programmer.

2.1 SWD connection type(ARM)

- If the power pin of your programmer is 5V Vext Vext: Please connect the pin SWCLK SWDIO GND VDD of the chip in your hand with the pin SWCLK SWDIO GND VEXT of the programmer one by one. If the working voltage of the chip is 5V, connect the pin VDD of the chip with the pin 5V. The physical diagram of the pin distribution of the programmer is shown below.



- If the power pin of your programmer is 5V VIN VREF Please connect the pin SWCLK SWDIO GND VDD of the chip in your hand with the pin SWCLK SWDIO GND VREF of the programmer one by one. If the chip working voltage is 5V, connect the pin VDD of the chip with the pin 5V. Specific pin description see [Hardware working state description](#), the programmer pin distribution diagram is shown below.



2.2 SWIM connection type(STM8)

- If the power pin of your programmer is 5V VEXT VEXT Please connect the pin SWIM

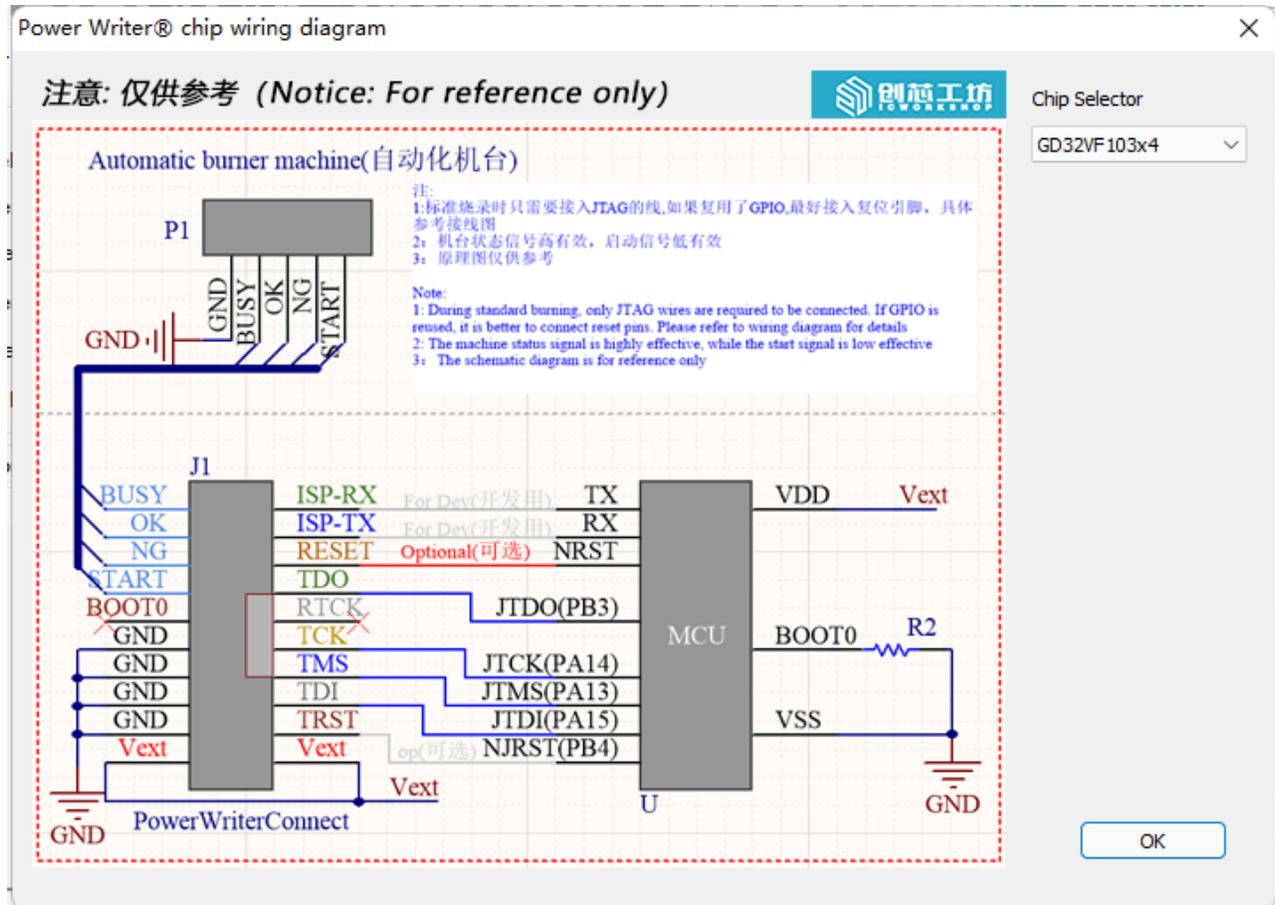
RST GND VDD of the chip in your hand with the pin SWIM RST GND VEXT of the programmer one by one. If the working voltage of the chip is 5V, connect the pin VDD of the chip with the pin 5V. The physical picture of the pin distribution of the programmer is shown in the figure above.

- If the power pin of your programmer is 5V VIN VREF Please connect the pin SWIM RST GND VDD of the chip in your hand with the pin SWIM RST GND VREF of the programmer one by one, then connect the pin VDD of the chip with the pin 5V, the physical picture of the pin distribution of the programmer is shown in the figure above.

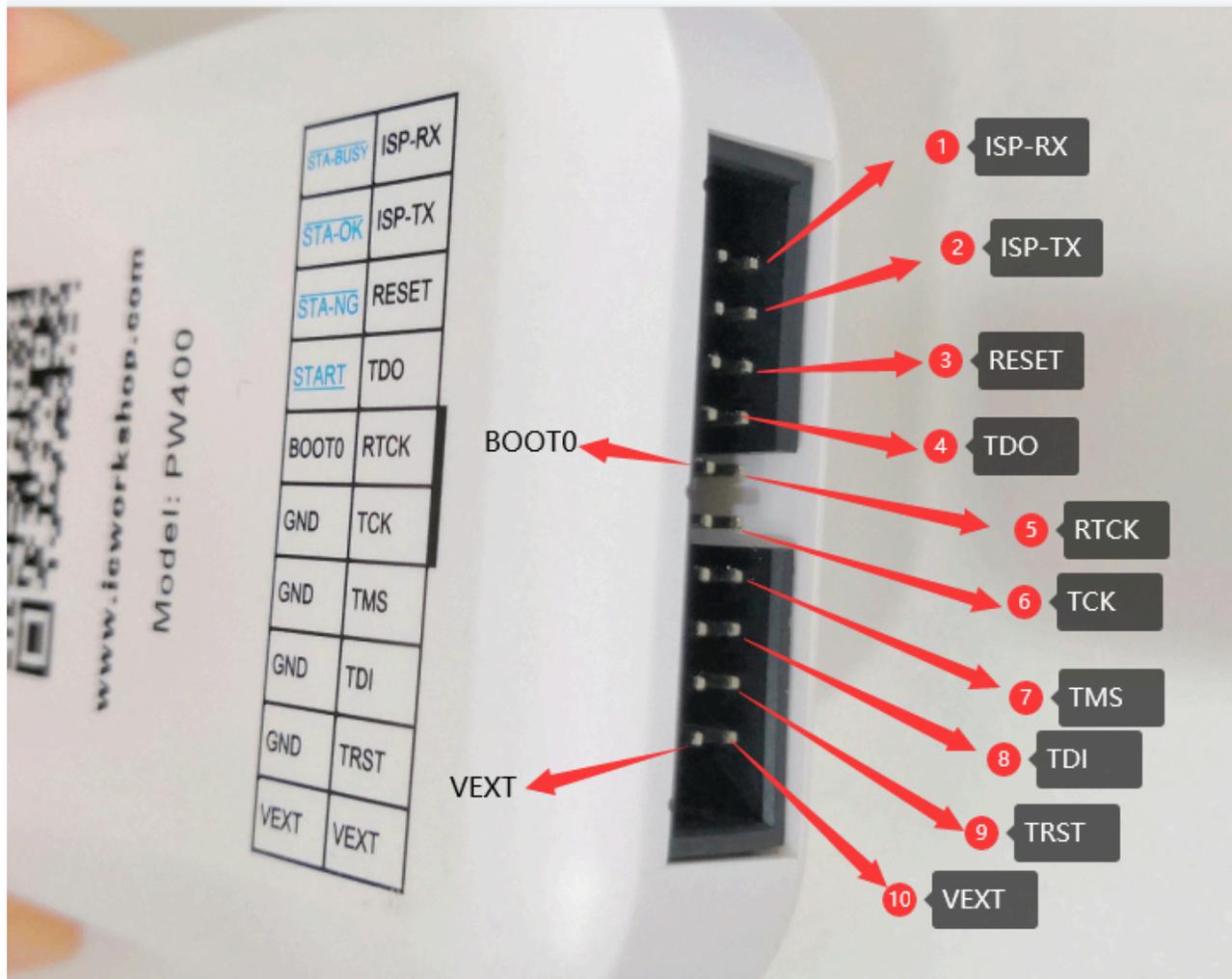
3 PW400

Connect to the client first and query the wiring diagram of the corresponding chip model and pW400.

The following illustration is for example GD32VF103x4:



The physical pin distribution of PW400 is shown in the figure below:

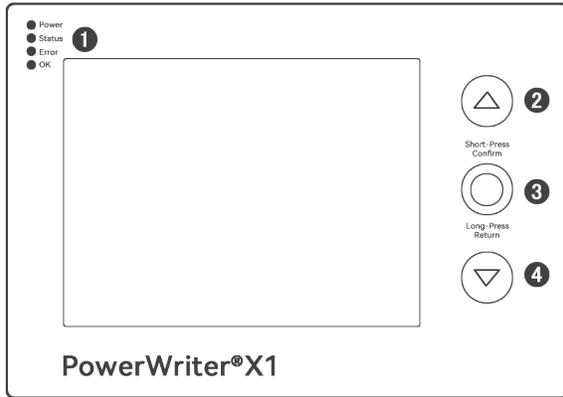


⚠ DESCRIPTION OF VDD, VEXT, VREF,5V ON THE DEVICE

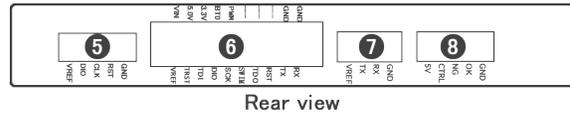
- VDD,VEXT, and VREF are powered on at 3.3V by default. You can use the PowerWriter® client to change the power.
- See **How to Set the interface Level** .
- The 5V pin can only stabilize the output 5V working voltage and is not controlled by software.

4 PWX1

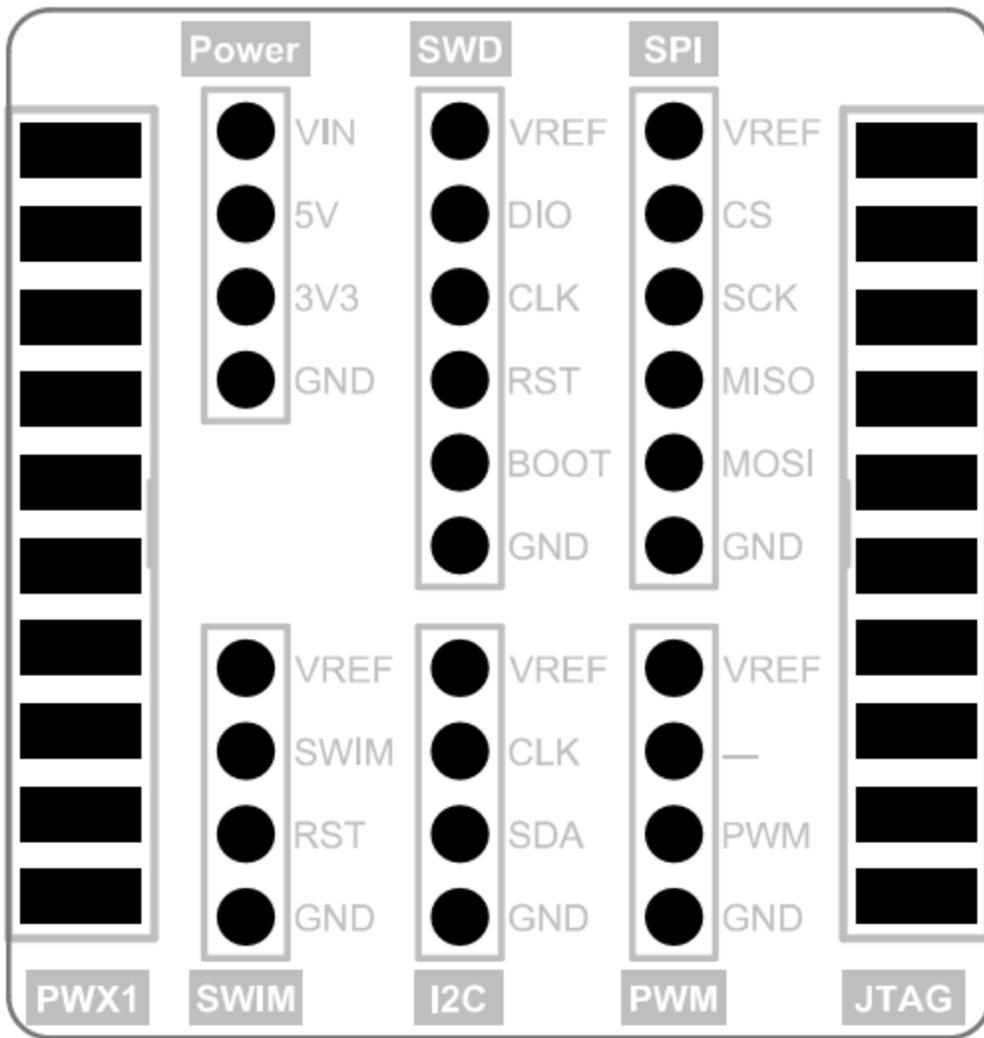
PWX1 Device interfaces are described as follows



Front view



Ports on the conversion board are as follows:



4.1 SWD connection type(ARM)

Connect the device to port 5, **or connect the adapter board to port SWD** .

4.2 SWIM connection type(STM8)

Connect the SWIM port of the switch board.

4.3 I2C connection type(EEPROM)

Connect the I2C port on the conversion board.

4.4 PWM connection type(wave out)

Connect the PWM interface of the conversion board.

4.5 JTAG connection type(Debugger)

Connect the JTAG port on the switch board.

4.6 SPI connection type(Nor flash)

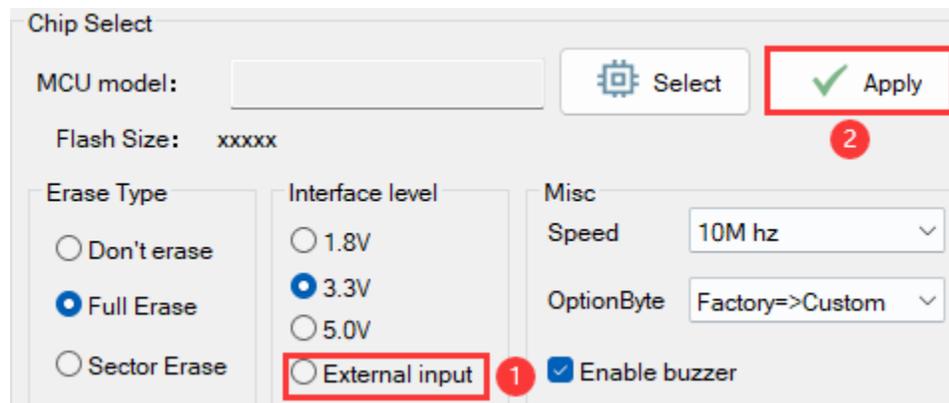
Connect the SPI interface of the switch board.

4.7 Machine connection mode

See **Interface 8**.

5 External power supply wiring method

The above programmer itself does not have a large load capacity, when the board needs to be powered separately during programming, the wiring generally remains unchanged, if the 5V pin of the connected programmer needs to be changed to VREF or VDD or VEXT(based on the screen printing on the actual equipment), if it is not connected to the 5V pin, the wiring remains unchanged. In this case, you need to change the interface level of the PowerWriter® client to an external input, and click Apply Settings to synchronize to the programmer. As shown in the picture below:



6 Use serial port

Please connect the pin RX, TX of the chip in your hand with the RX, TX pins of the programmer, cross docking, power cord and ground wire one by one. The pin distribution diagram of each programmer is shown in the figure above.

Tags:

[FAQ](#)

[Connection](#)



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Last updated on **Apr 15, 2024** by **Alan Chen**

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3.1.4 : Device Status

1.0 Overview

This chapter describes the normal or abnormal operating status of the hardware of the PowerWriter®, the definition of the status of the indicators, and the definition and functions of each power pin. The user can judge the working state of the equipment with the help of this summary. If the equipment is working abnormally, the description of this summary can judge and eliminate the anomaly. If it cannot be successfully eliminated by yourself, please reproduce the abnormal working state of the equipment, take a video and send it to our staff to help analyze and eliminate the anomaly.

1.1 Indicator description

1.1.1 PWLINK2, PWLINK2 Lite

According to the different states between the red and blue lights, the working state of the equipment is displayed:

- **Red on:** normal power on, red and blue alternately, a red light is on, indicating that the device is in standby state, at this time the chip is not recognized, no data interaction
- **Alternating red and blue flashing:** After normal power-on, the working status of the indicator indicates that the device has data interaction with the upper computer or the target chip, and the blinking frequency represents the busy degree of data interaction (if the data interaction reaches a certain degree, the phenomenon of

alternating red and blue flashing will show a state of steady blue and occasional red, which is a normal phenomenon).

- **Blue steady on:** After normal power-on, if the blue light of the device is steady on, and no red/blue switch occurs, this is the abnormal working state of the device. Consider that there is device damage or abnormal working of the main control.
- **No light on:** After powering on, no light on. This phenomenon means that the entire device has no power supply. Please check the power supply status of the device or whether the circuit components are abnormal or damaged.
- **Sudden shutdown:** normal power-on, or normal operation, the indicator light (suddenly) **out** , considering the short circuit or the rear circuit with a large load and other circumstances to trigger the power failure protection of the device, please pay attention to check the short circuit or disconnect the rear circuit connected to the device, and re-power on to see whether the device can start normally.

1.1.2 PW200,PW300,PW400,PWX1

- The above equipment has four indicators for only the working state of the equipment, which are:
- **Blue (excluding PWX1)** : POWER indicator (POWER), normally should be on; If the device is off or blinking, the power supply is abnormal or unstable. Ensure that the power supply of the device is stable to ensure that the device can work properly.
- **Orange (yellow)** : STATUS indicator, used to indicate the status of data interaction between the device and the upper computer or target chip. If no data is exchanged, it is in the off state. When there is data interaction, blinking occurs, and the blinking frequency represents the busy degree of data interaction (when a target chip is successfully recognized by the device or a large amount of data interaction is initiated, the blinking state may be characterized as steady on, which is a normal phenomenon).
- **Red** : Operation error indicator (NG). This indicator will light up when an error occurs

during this operation. It is extinguished (cleared) after the next operation.

- **Green** : Operation success indicator (OK), when successfully completed an operation or programming, the indicator light will light up, indicating that the current operation is successful. The indicator light is extinguished (cleared) when the next operation is initiated, or when an error occurs.
- **Buzzer** : (Except PWLINK system devices, other devices have buzzers.)
 - **One sound** : Only when the device is powered on normally, it is used to mark the normal startup of the device. The sound cannot be shielded.
 - **Two rings** : Used to indicate that the current operation has been successfully executed, usually accompanied by "OK" indicator light, can be set in the client mask.
 - **Three rings** : Used to indicate that the current operation has an error, usually accompanied by the "NG" indicator light, can be set on the client screen.
 - **Long ring** : The reason is that the device may detect a short circuit, pay attention to the upper computer prompt (if connected), and pay attention to the investigation

•  **TIP**

The **PWX1** device has a screen display, and the power supply indicator is changed to orange, and the indicator status of the VREF pin is displayed.

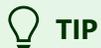
1.2 Normal power-on status of the device

1.2.1 PWLINK2,PWLINK2 Lite

After the device is powered on, the indicator on the fuselage turns blue and then red. The status of the indicator depends on whether the device has data interaction Will show different phenomena.

1.2.2 PW200,PW300,PW400,PWX1

After power-on, four different color indicators light up at the same time, and with the buzzer "drop" after a sound, the blue light is on, the rest of the indicators After it is turned off, the three indicators except the blue light will have different phenomena according to the different working status of the equipment.



After the **PWX1** device is successfully started, the device enters the system desktop.

1.3 Serial port self-test

When you find that the serial port is not working properly, you can short-circuit the **RX, TX** pins of the device, and then use a third-party serial port assistant to send any character, and check whether any character is received after each send, and whether the character received by the character is the same as that sent; If each sending is received and the sending is the same as the receiving, the serial port works properly. Or else The serial port is abnormal.

1.4 Device pin description

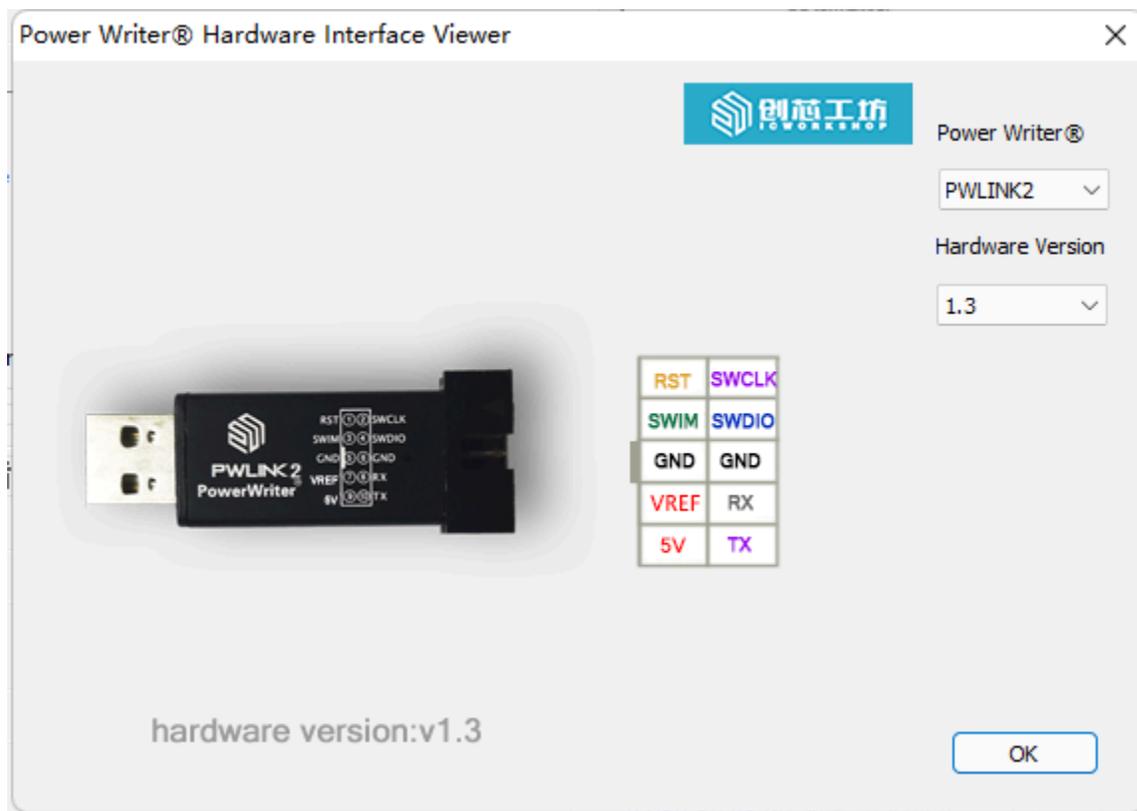
1.4.1 PWLINK2,PWLINK2 Lite

All equipment screen printing, in addition to PWLINK (a generation of products), **VDD**: When pins 7 and 9 of PWLINK2 and PWLINK2 Lite are two VDD's, both VDD's output is 3.3V by default and can be set to 5V output or external input mode on the host computer. Examples of silk screen printing are as follows:



VREF 5V: When pins 7 and 9 of PWLINK2 and PWLINK2 Lite are VREF and 5V, the 5V pin only outputs 5V supply voltage, which is not controlled. The operating mode of the Vref pin can be configured by the upper computer, with 3.3V output by default, 5V output mode by the upper computer, or an "input mode" that provides an internal

communication reference level. The communication level of sw pin is consistent with Vref. Examples of silk screen printing are as follows:



 **TIP**

In the above two cases, how to modify the output voltage on the upper computer, see [Interface level Setting](#)

When the device is working normally, the Power On Reset (POR) policy is not executed, and no data is exchanged.

SWDIO : Normal high level (generally equal to VDD), the level size is affected by the upper computer Settings.

SWCLK : Normal low level (the above two pins may receive some special application scenarios to adjust, at present it is like this)

1.4.2 PW200,PW300,PW400,PWX1

Power pin **VIN**: Power input, input voltage support between 2.8V~6V, internal 5V regulated output as the working power supply of the device. The role of this pin is to power the entire programming device (not applicable to USB to Typd-C power supply). Therefore, if you use this pin to power the device, please ensure that the power of the power supply is sufficient and stable. **VREF**(reference voltage), **VEXT**(extended voltage) : It can have the upper computer configuration working state. When it is output, it can output 1.8V 3.3V 5V voltage according to the Settings of the upper computer. When it is input, it can input 1.8V~5.5V for internal communication level reference.

When the device is in normal working state, no POR(Power On Reset) policy is executed, and no data interaction is performed,

SWDIO : Normal high level (usually equal to VDD), the level size is affected by the host computer Settings.

SWCLK : Normal low (the above two pins may be adjusted for special use cases, so this is what it looks like now)

1.5 Equipment inspection method

1.5.1 PWLINK2,PWLINK2 Lite

When the programmer is powered on, the blue light is always on or the red light is not on, or there is no reaction when it is powered on, it can be judged that there is a certain hardware problem in the programmer. The user needs to recall what operations were carried out before the equipment was abnormal (after feedback, the approximate reasons are as follows: connected to a high-power device, to the high-power device power supply; Voltage reverse; Wrong power line; Improper operation causes the main control to be

programmed by the surge of the USB port or electrostatic breakdown; If a device is plugged in or unplugged during an upgrade, or if the power goes out halfway through)

When the state of the indicator light is not abnormal, the blue and red alternans will be carried out at the moment of power on, and then the red light is always on; When the chip is identified, the blue light is always on; When the chip is not identified, the red light is always on. If compared with other programmer, suspected that there is a hardware problem in the programmer, the multimeter can be used to measure the SWDIO voltage to the ground to rule out, when the host computer does not select any chip, the voltage of SWDIO should be consistent with the interface level set by the host computer, if not, there is a hardware problem, the specific device problem inside the device. Specific analysis is needed to know.

1.5.2 PW200,PW300,PW400

When there is an abnormal lighting condition of the indicator light in the use process, it is necessary to consider the wiring problem, especially the connection method of VDD. The correct wiring details should be connected to the programmer to check through the client. If the hardware is abnormal by measuring the pin, see the above description.

(Note: When the device is powered on normally, keil does not recognize the device, or the PowerWriter® client recognizes the two ports, this is an old firmware driver migration problem, not a hardware exception problem, see [how to handle driver exceptions](#))

All the above problems can be avoided by standard operation. It is recommended that users familiarize themselves with simple hardware circuit knowledge before use.

1.5.3 PWX1

PWX1 equipment has a screen display. If there is a problem, most of the time, you can eliminate it by observing the state of the equipment. If necessary, please contact the after-sales service to return to the factory for inspection and maintenance.

Tags:

FAQ

hardware facility



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3.1.5 : Product Information

PowerWriter® series products: PWLINK2&PWLINK2 Lite, PW200/PW300, PWX1, PW400, ICWKEY

1 : Software

PWLINK2&PWLINK2 Lite, PW200/PW300/PWX1 same client for arm, see download link below:

PowerWriter® For ARM

Client ▼



Power Writer - For ARM

PowerWriter Arm Standard Edition (integrated developer features/offline/offline) standard client

Operating System: Windows 7 SP1 or above

Version: 1.3.8.0

File Size: 61.6 MB

MD5: e46c45880cdb9718252e3209cc36853d

Update Time: 2024-04-10

[DOWNLOAD](#)

[HISTORY VERSION](#)

PW400 is available for RISC-V series, client download can be found below link:

PowerWriter® For RISC-V



Power Writer - For RISC-V

Windows 7 above

Version: V1.1.1.5

File Size: 34.3 MB

MD5: 63d623af86f56563ac7cae2000c2b0ed

Update Time: 2024-03-06

 DOWNLOAD

Security Authorization Shield ICWKEY is an auxiliary tool for PowerWriter® offline authorization, which is responsible for controlling the number of authorization and generating authorization keys. It requires not only PowerWriter® client, but also ICWKEY client, see the link below:

ICWKEY



ICWKEY

Operating System: Windows 7

Version: 1.0.2

File Size: 21.2 MB

MD5: d439368bec9ae07793840496a60281bd

Update Time: 2024-03-06

 DOWNLOAD

2 : Software user's manual

PWLINK2&PWLINK2 Lite, PW200/PW300 PW400

Apply to the same user manual, before using the product, you can have a preliminary understanding of the PowerWriter® client of the product, FAQ is a summary of common problems in the use process.

[PowerWriter® User's Manual](#)

[PowerWriter® FAQ](#)

ICWKEY

The user manual, related materials, SDK, and licensing videos can be found at the following links:

[ICWKEY User Development Manual](#)

Tags:

[FAQ](#)

[Notice](#)



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3.1.6 : Driver Install & Cleanup



TIP

The PowerWriter® driver is included in the PowerWriter® software installation directory. It is recommended to use the PowerWriter® client software for processing.

1 : Download and Install

1.1 : Standard driver (support winusb)

Attachment :

PowerWriter® latest driver download (suitable for PWLINK2(including lite), PWX1, PW200(PW300)) Arm chip version

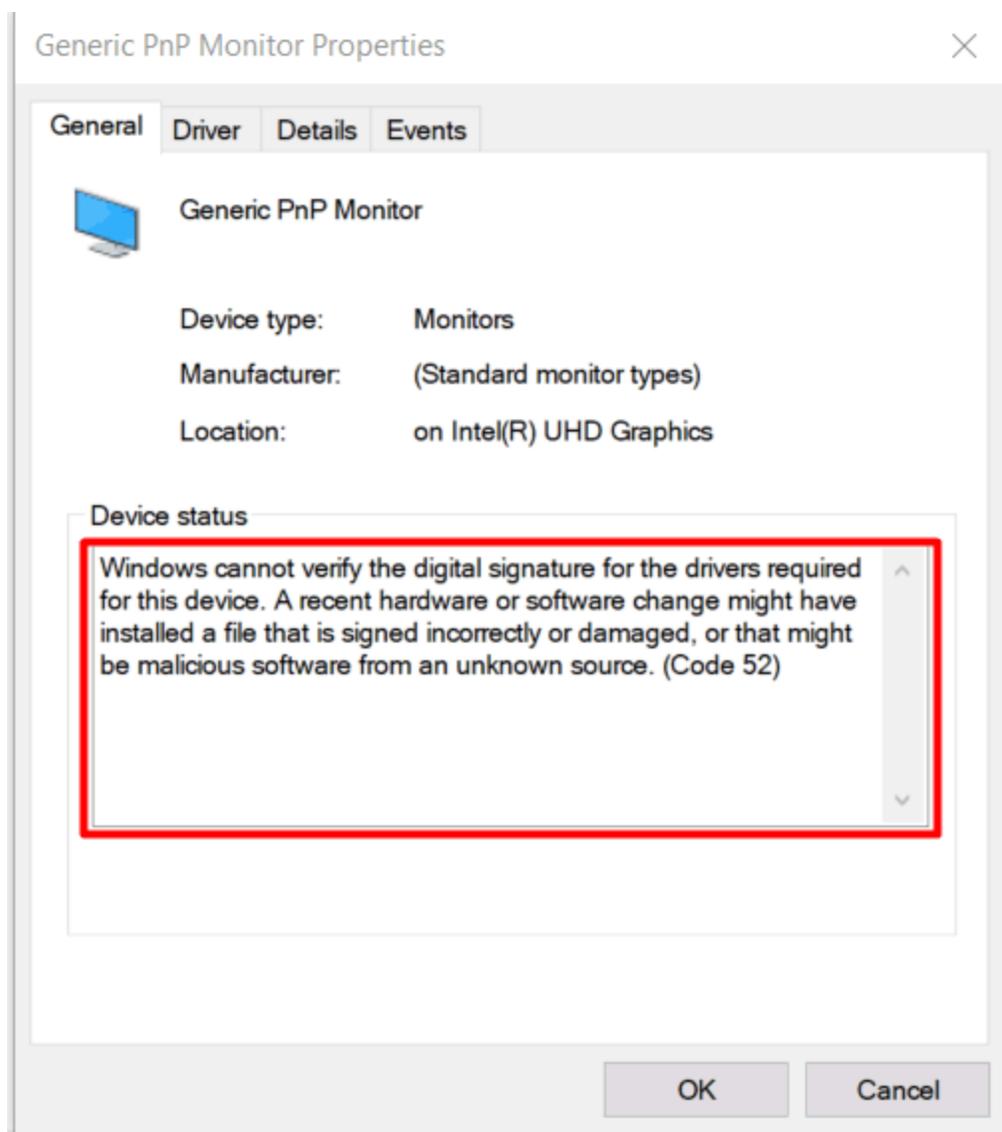
CAUTION

- Connect the device to the USB interface of the Windows host: If the device is not inserted, the driver installation may fail.
- After installation, you may need to restart the system if prompted.
- This driver works with firmware versions greater than 1.00.82(**Without PWX1**).



1.2 : SHA1 Support Driver (windows 7)

If the PowerWriter® device attribute in device management indicates that it is not signed, so it cannot connect, please try to update the system patch, or use the following alternate driver. The error screenshot is shown below



Attachment :

Old Windows 7 Dual Signature driver (used when the Device Manager properties bar indicates no digital signature)

1.3 : Latest RISC-V drivers installed

Attachment :

PowerWriter® For RISC-V Driver Installation (for PW400 RISC-V chip version)

INSTRUCTIONS FOR USING RISC-V DRIVERS

- PW400 driver is dual serial port driver, compared with Arm series driver, no HID, no Winusb
- PW400 USB ID is not the same, can not use PW200, PW300 driver.
- ARM series and RISC-V series have the same way of driver installation and distribution. It is recommended to use PowerWriter® client software for processing (menu bar -> Help -> Driver Installation).

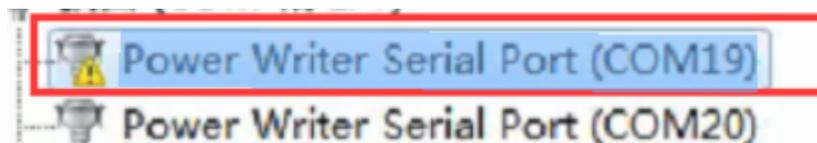
2 : Old firmware driver migration

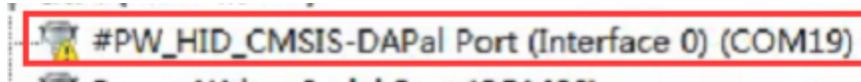
Firmware version **1.00.80 and below USB driver** , if you install with the latest version of the driver, it will not work after installation, please install the old firmware driver first, after connecting the device, upgrade the firmware, switch to the new firmware, download the address, and then reinstall the new driver.

Download the old firmware driver

2.1:Handling for old and new firmware

After upgrading the old firmware to the latest firmware, the device manager may see a device with an exclamation mark **#PW_HID_CMSIS-DAPal Port (Interface 0)** or **PowerWriter® Serial Port (COM19)**, And the debugger channel is not working properly because of the old driver interference, which can be handled as follows

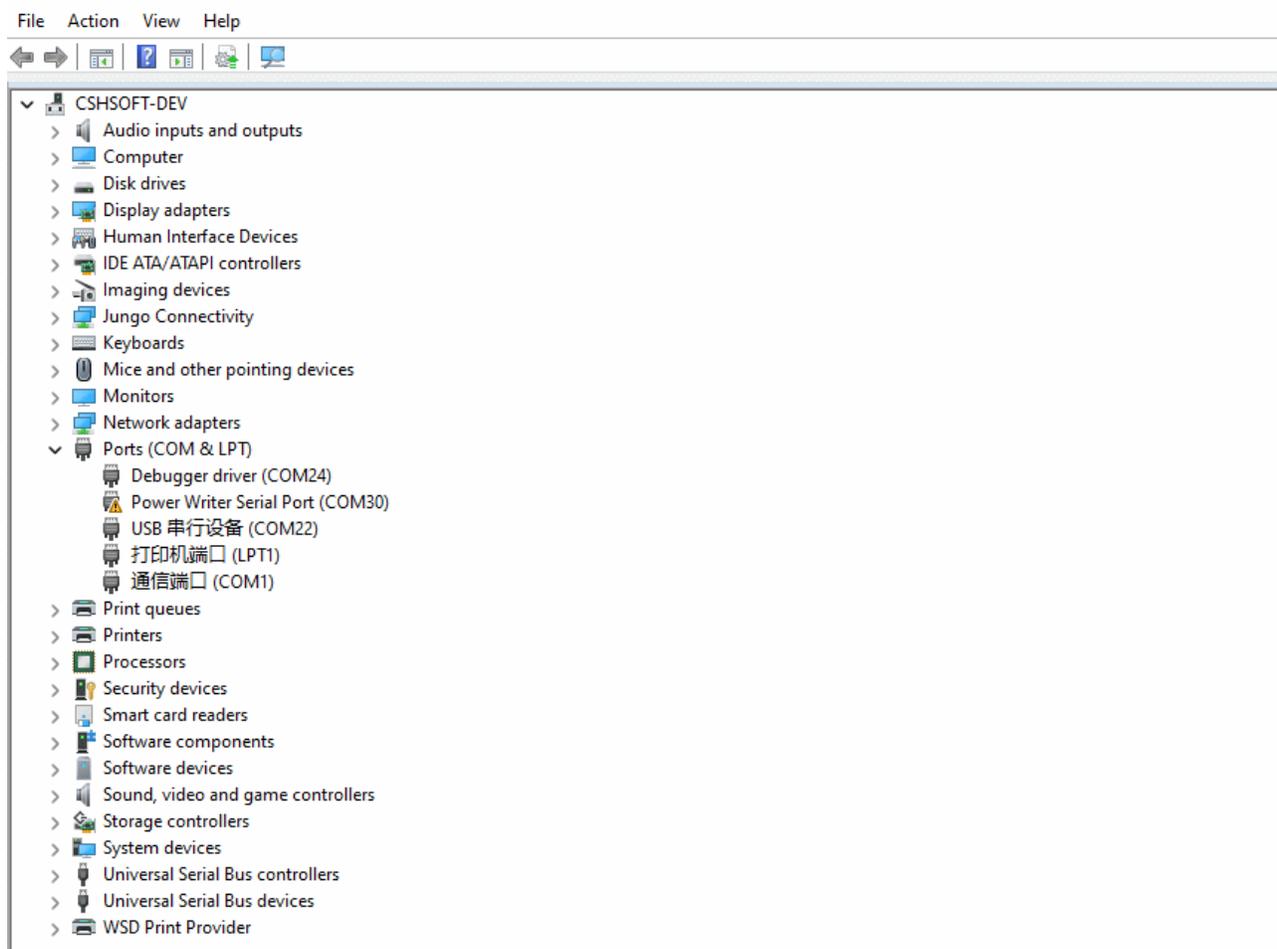




2.1.1 Manual cleanup

- ☑ Step 1: Display the exclamation point on the device, right mouse button, uninstall the driver, and check **Remove Driver**
- ☑ Step 2: After the uninstallation is complete, refresh the device again and wait for the driver to be installed
- ☑ Supplementary: If exclamation marks still appear, REPEAT STEPS 1 and 2 until the old driver is uninstalled.

The operation demonstration is shown in the figure:



2.1.2 Auto clean

PowerWriter® Driver Cleanup Tool (ARM products supported)

```
-----
PowerWriter tool for clearing old firmware drivers
Please ensure that the firmware version is greater than 1.00.82
After clearing the driver, please reinstall the driver!
Notice:
    <1>:After the cleanup is complete, reinstall the latest driver
    <2>:If the fault persists, restart the system
                                     by:powerwriter@icworkshop
-----

find powerwriter device ...
current driver: mbedSerial_x64
device desc : PWX1 Port (Interface 1)
hardware id : USB\VID_0D28&PID_0204&REV_0100&MI_01
device id : USB\VID_0D28&PID_0204&MI_01\7&2868AAFC&3&0001
compatible id: USB\Class_02&SubClass_02&Prot_01
try remove device (need > windows 10 )...
find powerwriter device ...
current driver: mbedComposite
device desc : PWX1
hardware id : USB\VID_0D28&PID_0204&REV_0100
device id : USB\VID_0D28&PID_0204\0123456789ABCDEF
compatible id: USB\DevClass_00&SubClass_00&Prot_00
try remove device (need > windows 10 )...
find powerwriter device ...
current driver: WINUSB
device desc : #PWX1_WINUSB_CMSIS-DAP (Interface 3)
hardware id : USB\VID_0D28&PID_0204&REV_0100&MI_03
device id : USB\VID_0D28&PID_0204&MI_03\7&2868AAFC&3&0003
compatible id: USB\MS_COMP_WINUSB
try remove device (need > windows 10 )...
find powerwriter device ...
current driver: HidUsb
device desc : #PWX1_HID_CMSIS-DAP (Interface 0)
hardware id : USB\VID_0D28&PID_0204&REV_0100&MI_00
device id : USB\VID_0D28&PID_0204&MI_00\7&2868AAFC&3&0000
compatible id: USB\Class_03&SubClass_00&Prot_00
try remove device (need > windows 10 )...
Find all possible drivers, please wait patiently ...
error: can't enum drivers...
try rescan device (need > windows 10 )...
All drivers have been cleaned. After the cleaning is complete, reinstall the drivers...
You may need to restart the system for it to take effect...
(Press any to exit)
_
```

CAUTION

- This tool will clean up all versions of the PowerWriter® driver for the system to solve the problem of exclamation marks after upgrading to a new firmware.
- Windows 10 + system after cleaning, still for free drive, no need to install additional driver!
- For Windows 7 SP1, install the latest driver (including WinUSB driver) from the

client software. Please note that the minimum system requirement is Windows 7 SP1.

If the automatic clean-up fails, refer to [Manual clean-up method](#)

3 : Common exclusion Methods

3.1 Driver is normal, but cannot connect

If the driver is newly installed, you can try to restart the system, after the driver installation may need to restart. Second, the device manager device driver is normal, but still can not connect, you can also try to restart the system.

3.2 Rebooting system fails to connect

If you still cannot connect to the device after rebooting the system, please first try to clean up unused port numbers and drivers, as shown in the following ,After cleaning up the redundant information, it looks like this, Try connecting to the device again.

File Action View Help



- ▼ CSHSOFT-DEV
 - > Audio inputs and outputs
 - > Computer
 - > Disk drives
 - > Display adapters
 - > Human Interface Devices
 - > IDE ATA/ATAPI controllers
 - > Imaging devices
 - > Jungo Connectivity
 - > Keyboards
 - > Mice and other pointing devices
 - > Monitors
 - > Network adapters
 - ▼ Ports (COM & LPT)
 - Debugger driver (COM24)
 - Power Writer Serial Port (COM30)
 - USB 串行设备 (COM22)
 - 打印机端口 (LPT1)
 - 通信端口 (COM1)
 - > Print queues
 - > Printers
 - > Processors
 - > Security devices
 - > Smart card readers
 - > Software components
 - > Software devices
 - > Sound, video and game controllers
 - > Storage controllers
 - > System devices
 - > Universal Serial Bus controllers
 - > Universal Serial Bus devices
 - > WSD Print Provider

3.3 Try changing the port number

- >  Computer
- >  Disk drives
- >  Display adapters
- >  DVD/CD-ROM drives
- >  Human Interface Devices
- >  IDE ATA/ATAPI controllers
- >  Imaging devices
- >  Jungo Connectivity
- >  Keyboards
- >  Mice and other pointing devices
- >  Monitors
- >  Network adapters
- >  Other devices
- >  Portable Devices
- ✓  Ports (COM & LPT)
 -  Debugger driver (COM24)
 -  mbed Serial Port (COM4)
 -  USB 串行设备 (COM22)
 -  打印机端口 (LPT1)
 -  通信端口 (COM1)
- >  Print queues
- >  Printers
- >  Processors
- >  Security devices
- >  Smart card filters
- >  Smart card readers
- >  Software components
- >  Software devices
- >  Sound, video and game controllers
- >  Storage controllers
- >  Storage volume shadow copies
- >  Storage volumes
- >  System devices

TIP

Change the port number, the system will re-initialize the driver, also can solve some driver exception issues.

Tags:

[FAQ](#)

[Connect](#)



[Edit this page](#)

*Last updated on **Apr 15, 2024** by **Alan Chen***

Version: Next

3.1.7 : Debugger Tutorials

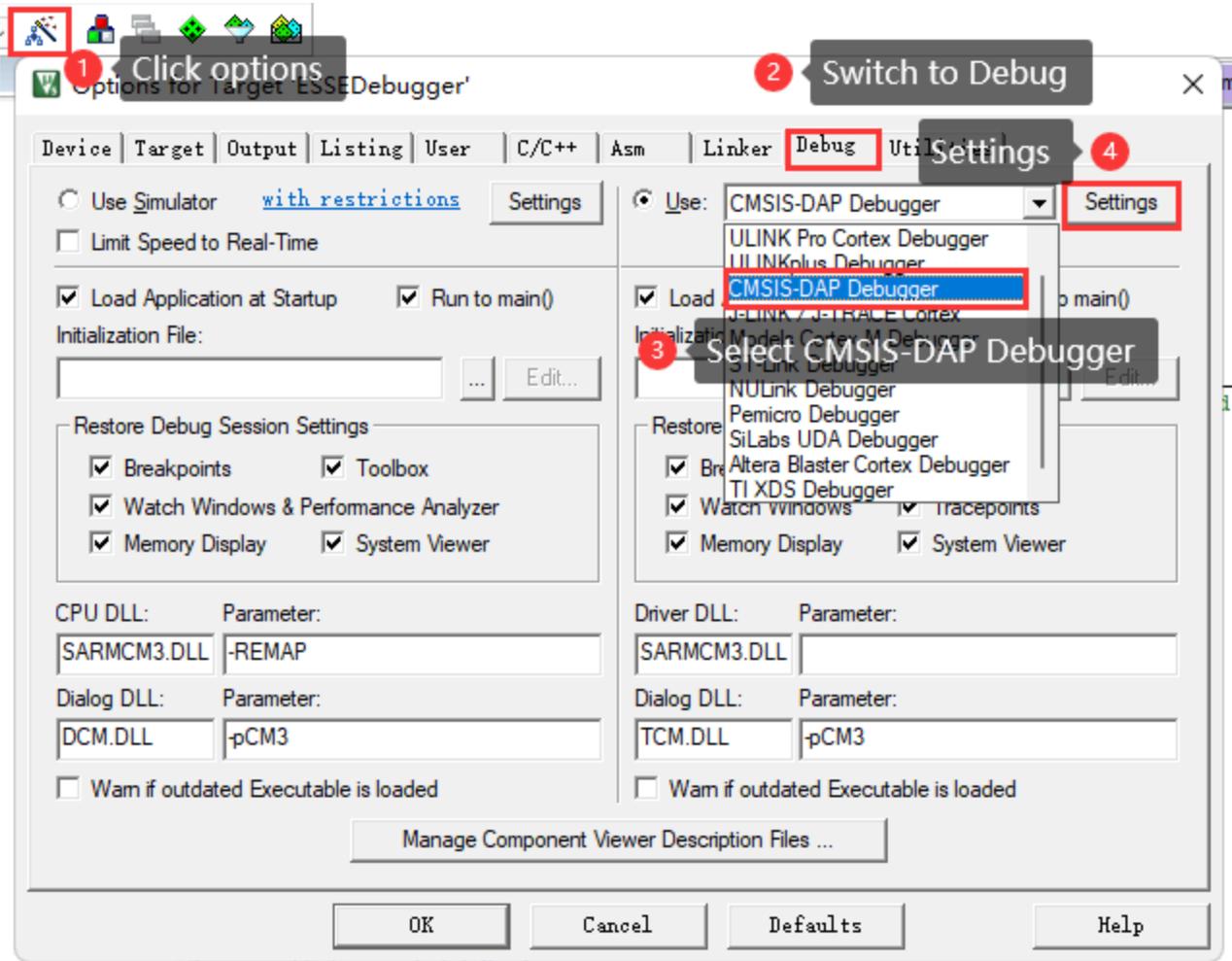
1. IDE Support

- IAR, Any version, CMSIS-DAP V1 interface
- IAR, >=7.40.2, CMSIS-DAP V2 interface
- Keil, Any version, CMSIS-DAP V1 interface
- Keil, >=5.36, CMSIS-DAP V2 interface
- Segger Embedded Studio, CMSIS-DAP V1 interface
- Segger J-Flash, ==V7.22B, CMSIS-DAP V1 interface
- OpenOCD
- PyOCD
- Probe RS
- FreeMASTER, CMSIS-DAP V1 interface
- RT-Thread Studio
- Others to be added

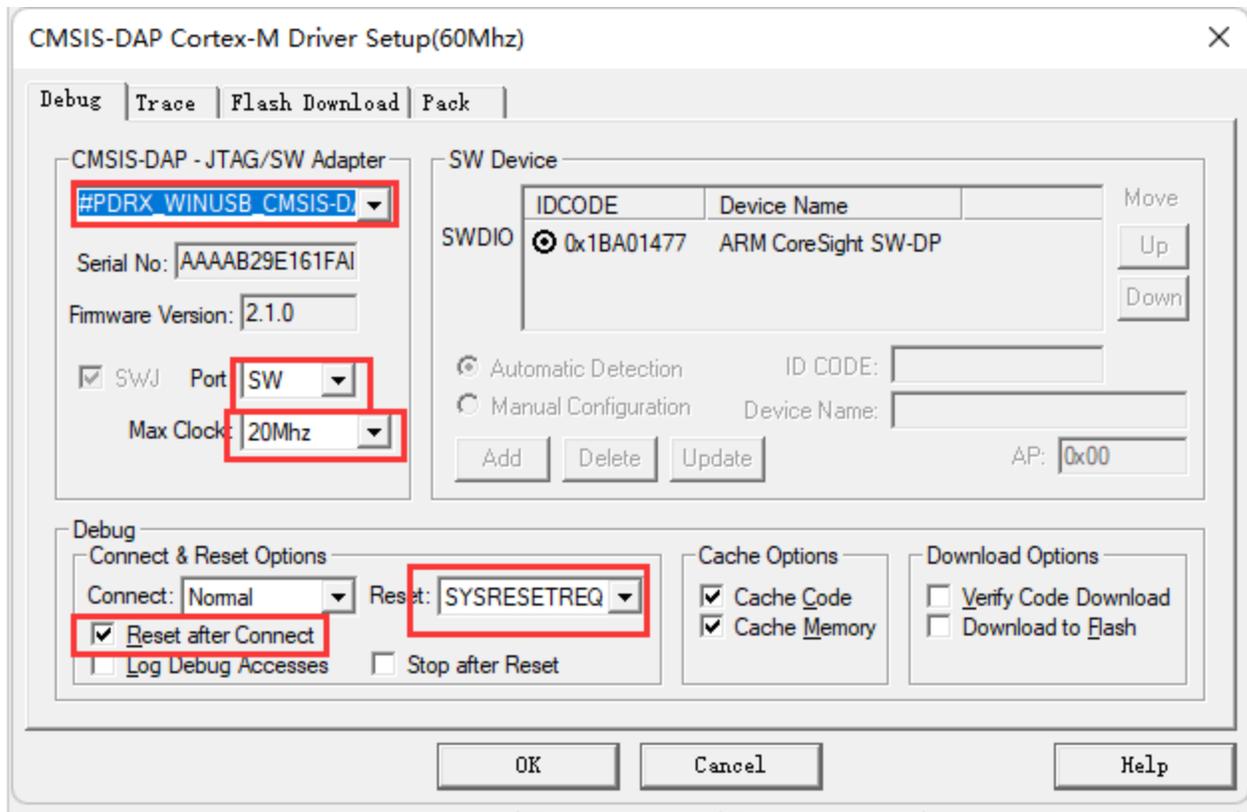
2. Common IDE Setup Methods

2.1 MDK Debug Settings

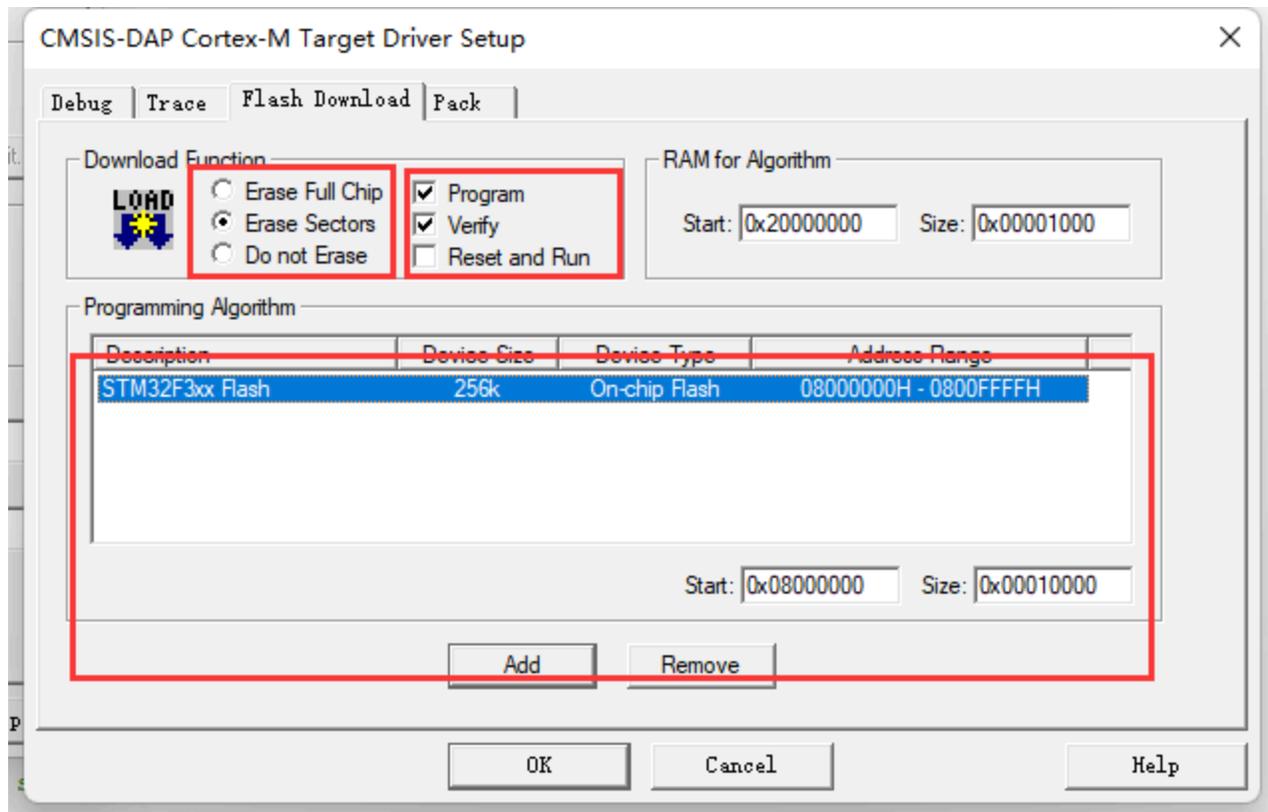
Follow the procedure below to open Project Settings and select CMSIS-DAP Debugger as shown in the following figure:



Adjust the basic settings of the debugger according to the following settings, and check whether the target chip is connected normally, as shown in the following figure, after no problem, go to the next step.



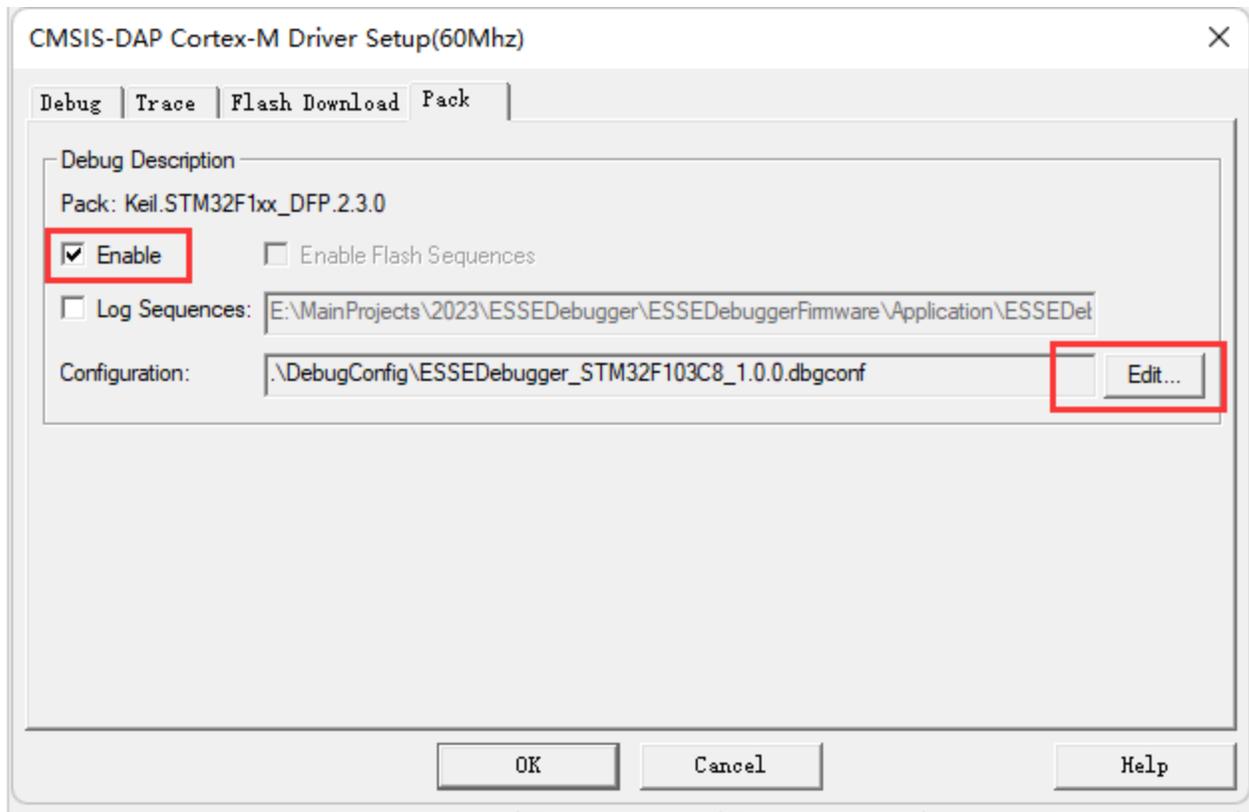
Flash Download settings are as follows, according to the actual project requirements, set the appropriate erase method, as well as Program, Verify, Reset and Run options, and add the current chip's flash algorithm, as follows:



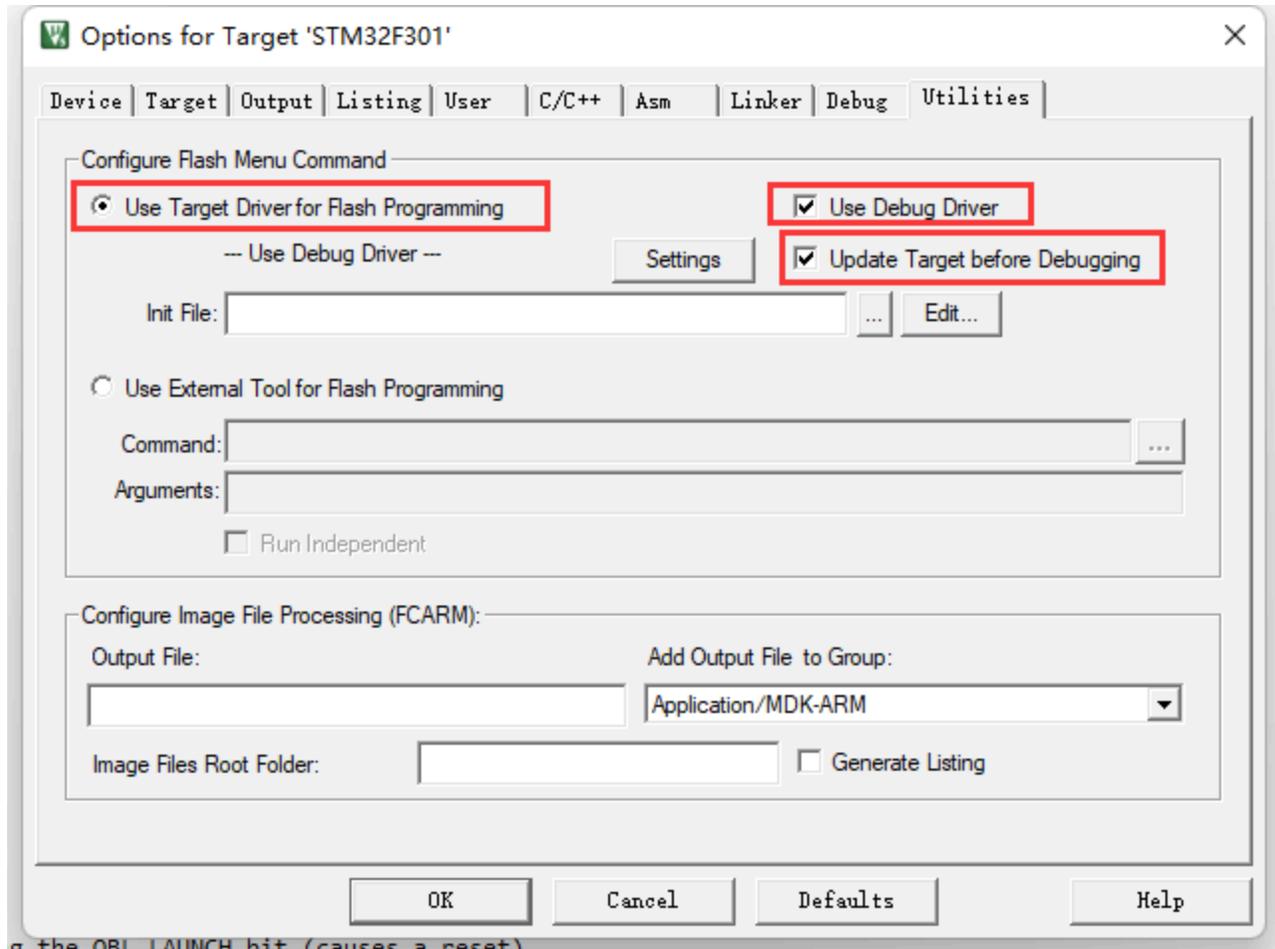
 **TIP**

- **Erase Method Selection:** If you need to keep some data of the chip, such as setting data, signature information, you usually select the erase method as Sector Sections.
- **Reset and Run:** To perform a reset and run after the current firmware, you need to check the Reset and Run option.

For advanced users, custom debugging settings can be adjusted as needed, as shown below:

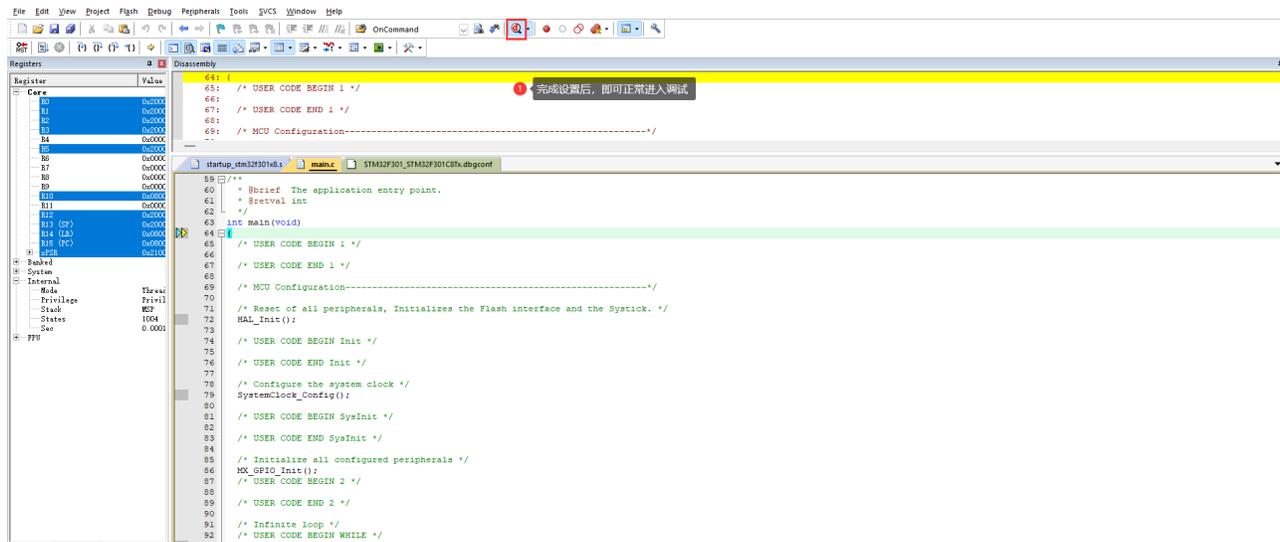


Check the Use Debug Driver option to enable the hardware debugger, this option is turned on by default, if you encounter problems, this option is also a key setting to check, as follows:

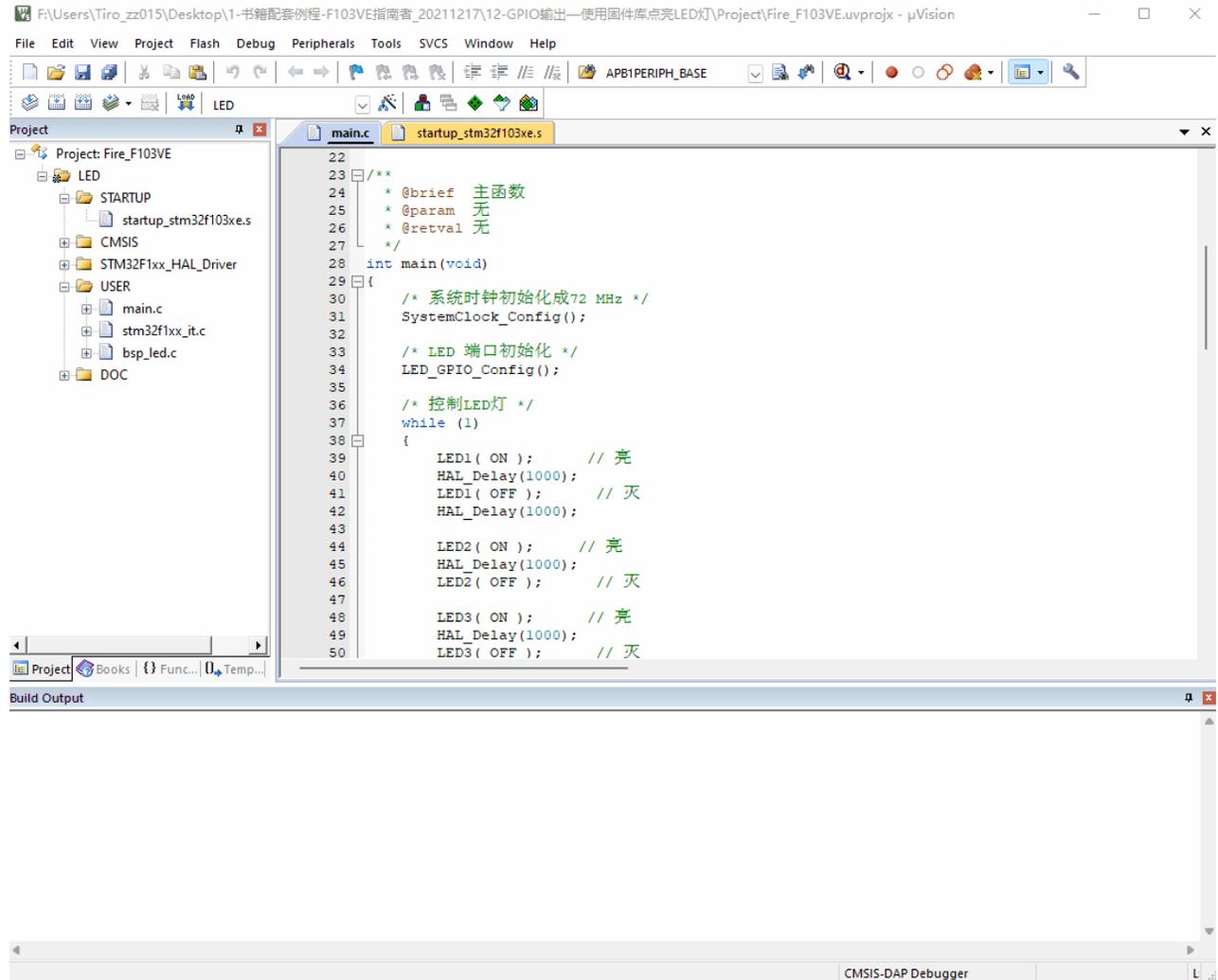


the OR1 LAUNCH bit (causes a reset)

After checking the settings, you can enter the commissioning normally.



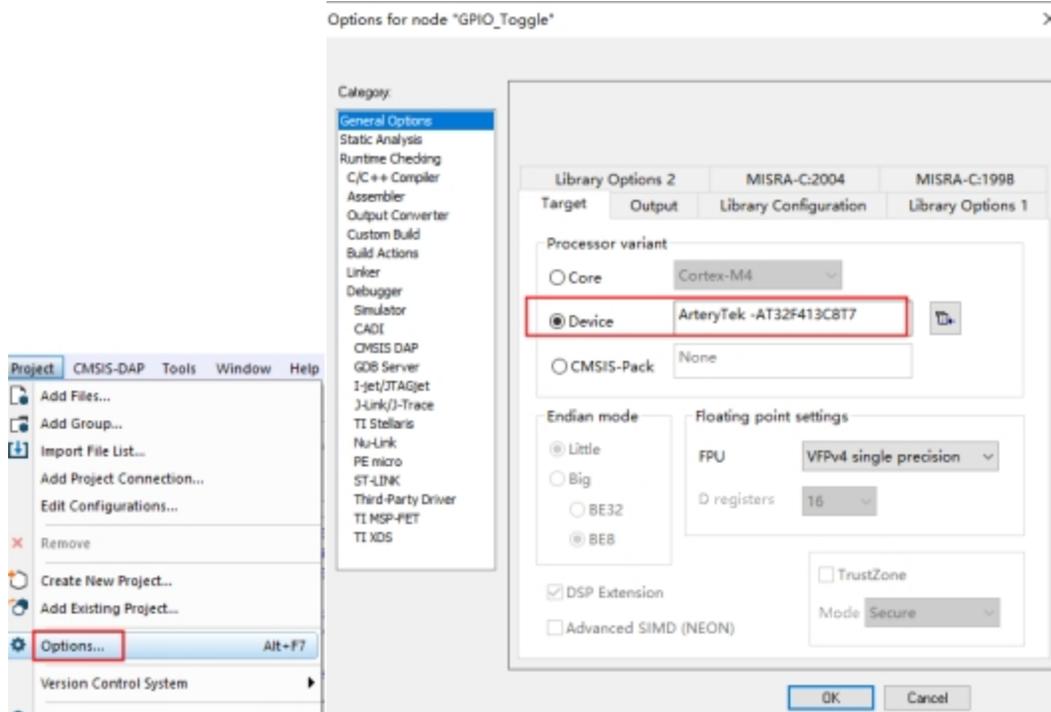
2.1.1 Operational Demonstration



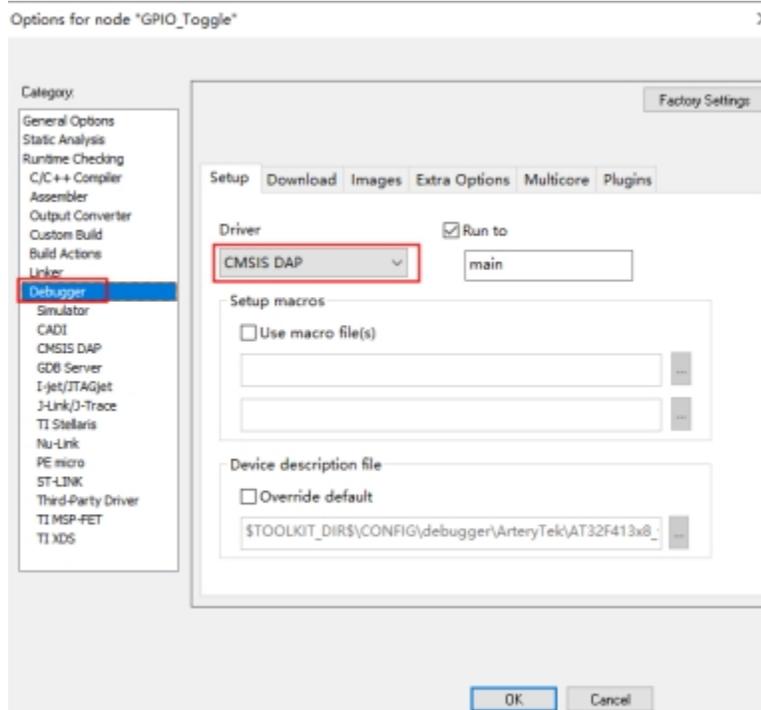
2.1.2 Video Demonstration

2.2 IAR Debugging Settings

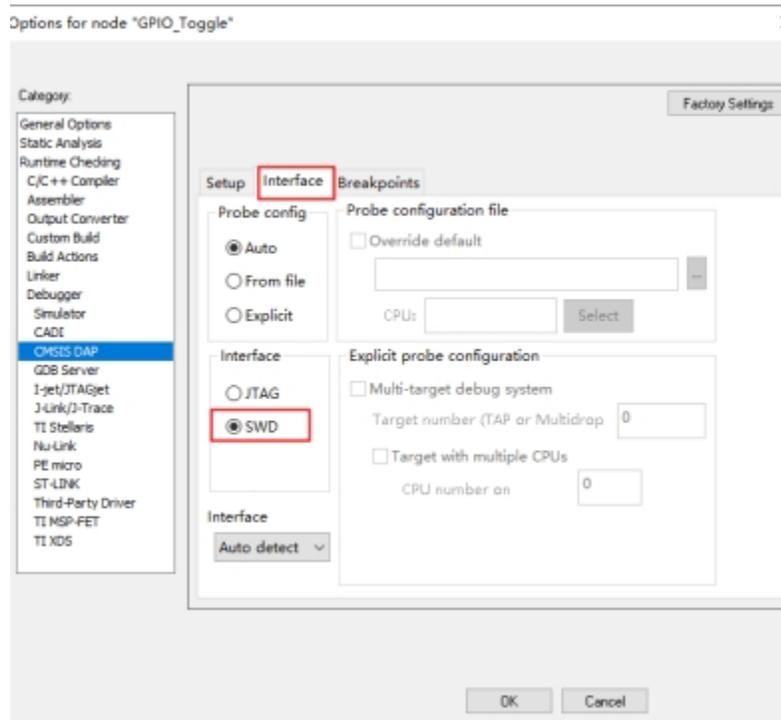
Right click on the item, enter Options setting, switch to General Options standard setting page, and check whether Target -> Device is selected correctly, as shown below.



Enter into the Debugger menu, Setup tab page, select Driver as: CMSIS-DAP device, you can check the Run to main option as needed, as shown below.



In the Interface tab of Debugger -> CMSIS-DAP, select the interface as SWD as follows :



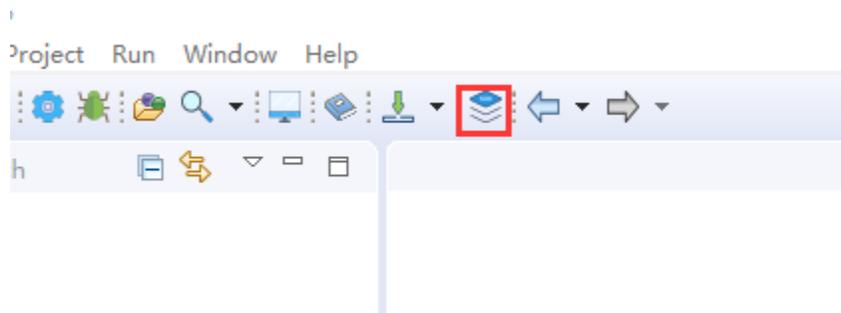
After the above setup you can proceed with the debugging and development of the chip.

2.1.1 Demo Video

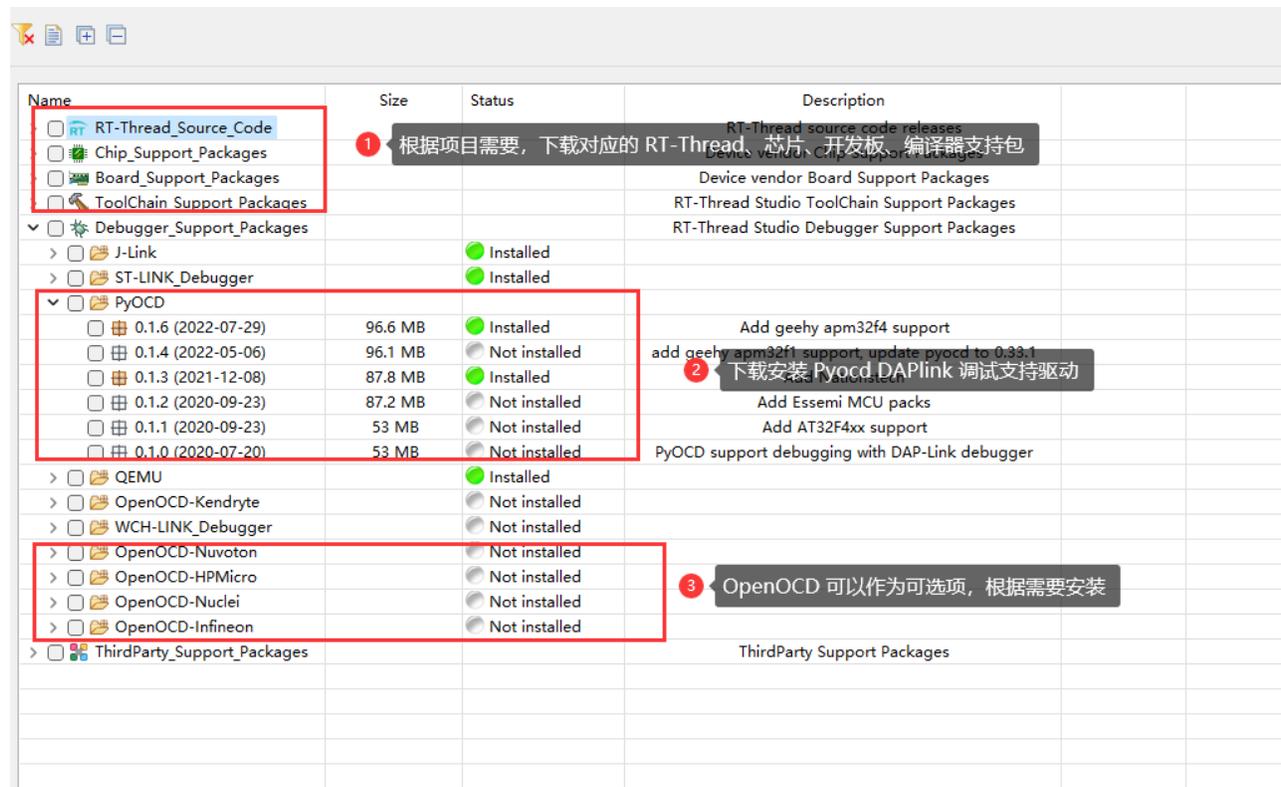
2.3 RT-thread Studio Debugging Settings

RT - thread Studio Download Address:<https://www.rt-thread.org/studio.html>

Go to SDK Manager , as shown below:



Check if the current chip support package, RT-thread source code, and PYOCD are installed.

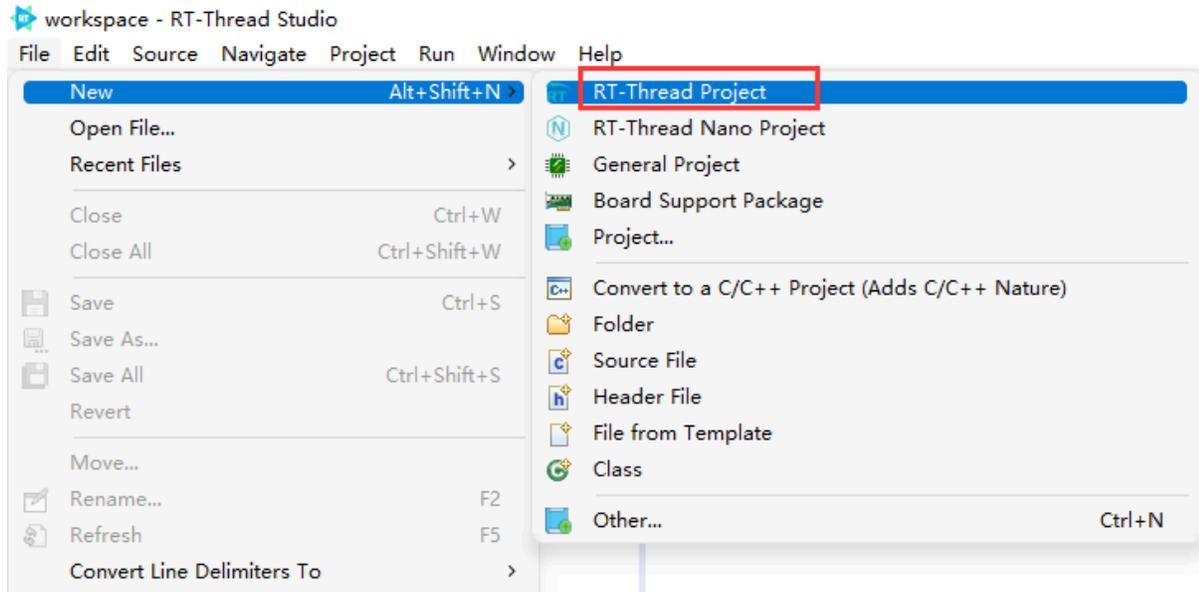


Name	Size	Status	Description
<input type="checkbox"/> RT-Thread_Source_Code			RT-Thread source code releases
<input type="checkbox"/> Chip_Support_Packages			Device vendor Board Support Packages
<input type="checkbox"/> Board_Support_Packages			RT-Thread Studio ToolChain Support Packages
<input type="checkbox"/> ToolChain_Support_Packages			RT-Thread Studio Debugger Support Packages
<input checked="" type="checkbox"/> Debugger_Support_Packages			
<input type="checkbox"/> J-Link		Installed	
<input type="checkbox"/> ST-LINK_Debugger		Installed	
<input checked="" type="checkbox"/> PyOCD			
<input checked="" type="checkbox"/> 0.1.6 (2022-07-29)	96.6 MB	Installed	Add geehy apm32f4 support
<input type="checkbox"/> 0.1.4 (2022-05-06)	96.1 MB	Not installed	add geehy apm32f1 support, update pyocd to 0.33.1
<input checked="" type="checkbox"/> 0.1.3 (2021-12-08)	87.8 MB	Installed	Download and install Pyocd, DAPlink debugging support driver
<input type="checkbox"/> 0.1.2 (2020-09-23)	87.2 MB	Not installed	Add Essemi MCU packs
<input type="checkbox"/> 0.1.1 (2020-09-23)	53 MB	Not installed	Add AT32F4xx support
<input type="checkbox"/> 0.1.0 (2020-07-20)	53 MB	Not installed	PyOCD support debugging with DAP-Link debugger
<input type="checkbox"/> QEMU		Installed	
<input type="checkbox"/> OpenOCD-Kendryte		Not installed	
<input type="checkbox"/> WCH-LINK_Debugger		Not installed	
<input type="checkbox"/> OpenOCD-Nuvoton		Not installed	OpenOCD can be used as an optional item, install as needed
<input type="checkbox"/> OpenOCD-HPMicro		Not installed	
<input type="checkbox"/> OpenOCD-Nuclei		Not installed	
<input type="checkbox"/> OpenOCD-Infinion		Not installed	
<input type="checkbox"/> ThirdParty_Support_Packages			ThirdParty Support Packages

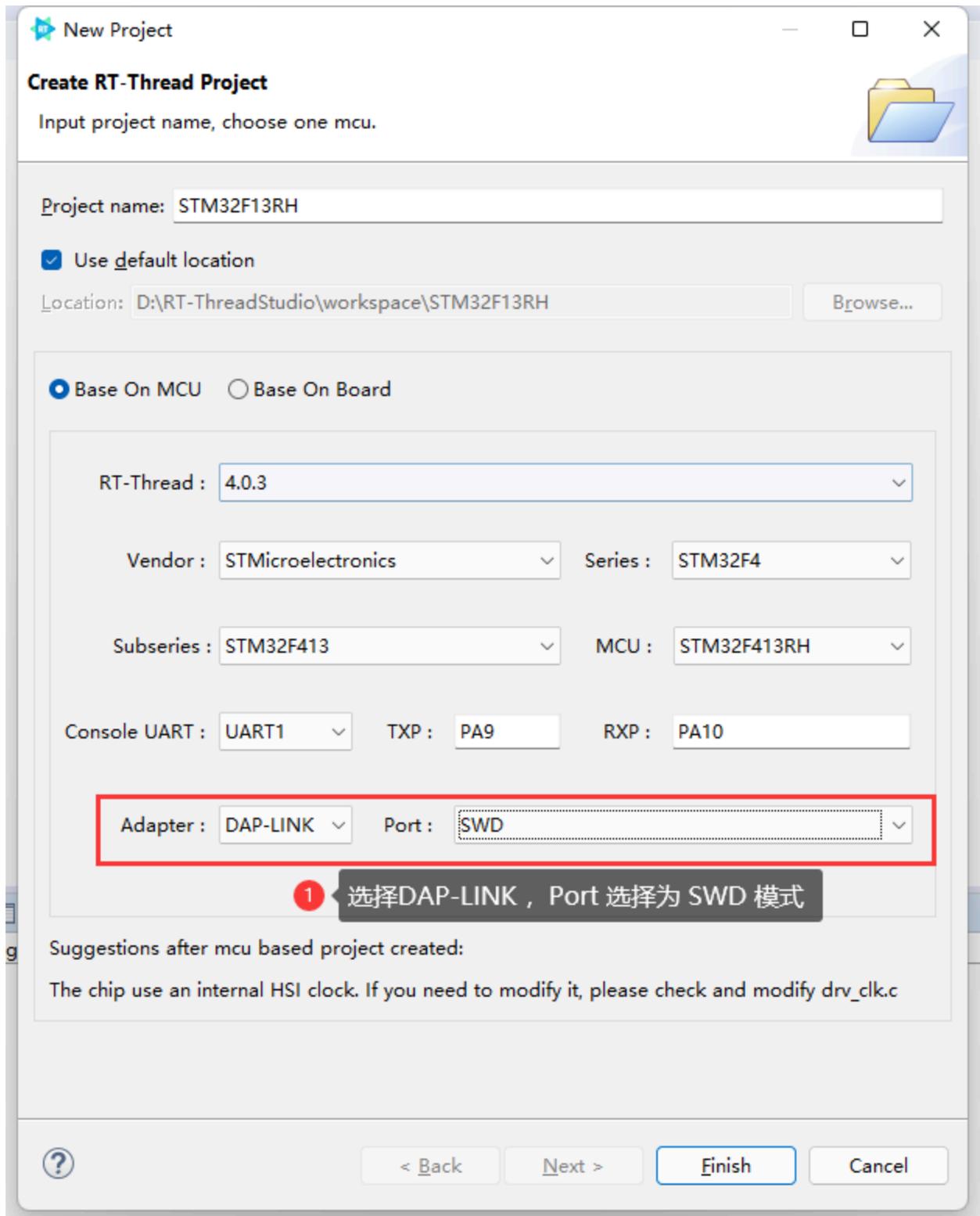
 **TIP**

To debug a project through DAPLink, you must use Pyocd or OpenOCD as the debugger's Adapter, and eventually debug through the gdb connection.

Create a new RT-Thread project as shown below:

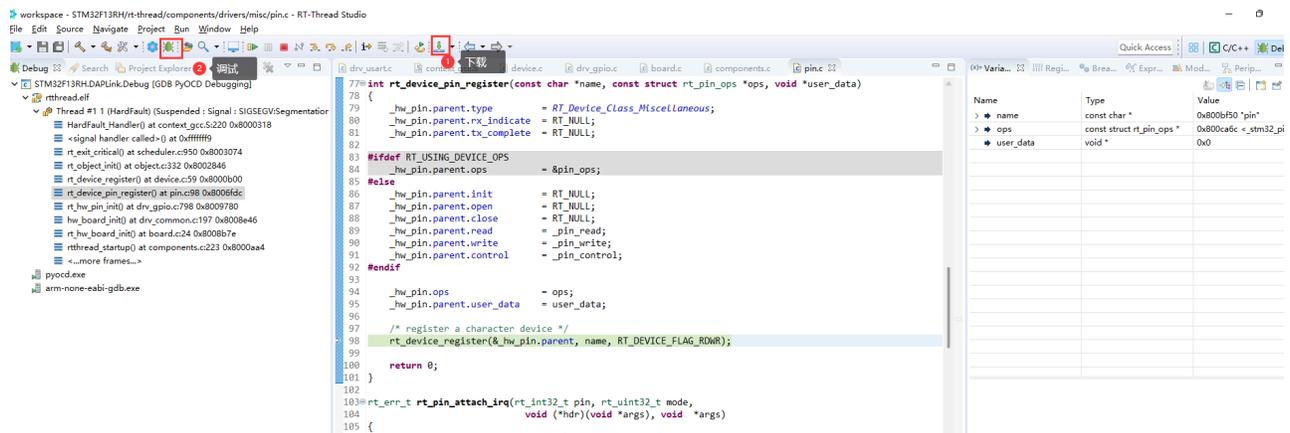


Set up the debugger as follows:



Once the configuration is complete, the project is generated and ready for download and

debugging as follows:



TIP

It is necessary to have Pyocd or Openocd installed in the SDK-manager.

2.4 Other IDE Tutorials

3. Frequently Asked Questions

3.1 Target Chip Mismatch

Common errors are described below:

- Connection refused due to device mismatch!(Not a genuine ST Device! Abort connection).
- PDSC : Sequence Execution failed.

The above problem may be due to purchasing a chip that is not the original chip, see

[Target chip mismatch](#)

3.2 Connected device (chip) failure

- No Debug Unit Device found
- SWD/JTAG Communication Failure
- RDDI-DAP ERROR

Details of the above issues can be found in [Communication Issues](#)

3.3 Programming Failure

- Flash Timeout. Reset the Target and try it again.
- Error : Flash Download failed - "Cortex-M4"
- Could not stop Cortex-M device!Please check the JTAG cable.
- Error : Flash Download failed - Target DLL has been cancelled

Details of the above problem can be found in [Programming Failure](#)

3.4 Verify failure

- Contents mismatch at: 08000064H(Flash=FFH Required=0)

Details of the above issue can be found in [Checksum Failure](#)

3.5 Flash configuration error

- Cannot Load Flash Programming Algorithm!
- Overlapping of Algorithms at Address 08000000H

For details of the above issues, please see [Flash configuration 1](#), [Flash configuration 1](#).

Tags: [FAQ](#) [MDK](#) [debug](#)

 [Edit this page](#)

Last updated on **Apr 12, 2024** by **Alan Chen**

Version: Next

3.1.8 : Debugger FAQ

1 MDK autorun not working

After the program is downloaded and found not running, the following points need to be noted:

- Check that the reset mode in the Debugger settings is correct.
- Reset and run is checked or unchecked.
- Is the Flash Algorithm setting correct.

2 Breakpoints do not take effect

Please check the compilation settings. Such as optimization level, debugger settings, and its own code features such as whether watchdog is enabled.

3 Limit the number of breakpoints

The number of hardware breakpoints is related to the chip itself and depends on the MCU core version unit, the manual will list the number of breakpoints supported by the current chip, please check the manual of the chip you are using for the contents of the debugging chapter.

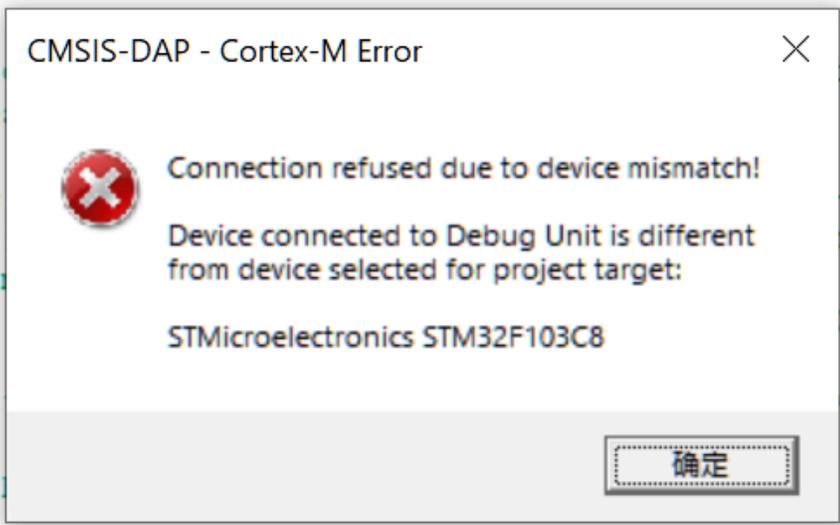
4 Bootloader deleted during download

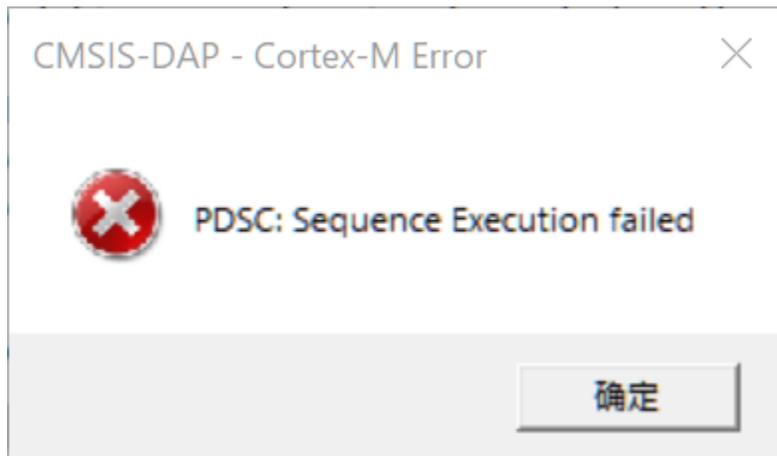
- For IROM setup, it is important to make sure that the generated Image address is correct.
- When writing to Flash, pay attention to the selection, page erase, set in the Debugger page, so that you can avoid the whole chip erase, retaining the other data inside the chip.

5 Prompt for device mismatch

Tip Message: Connection refused due to device mismatch!(Not a genuine ST Device!
Abort connection)

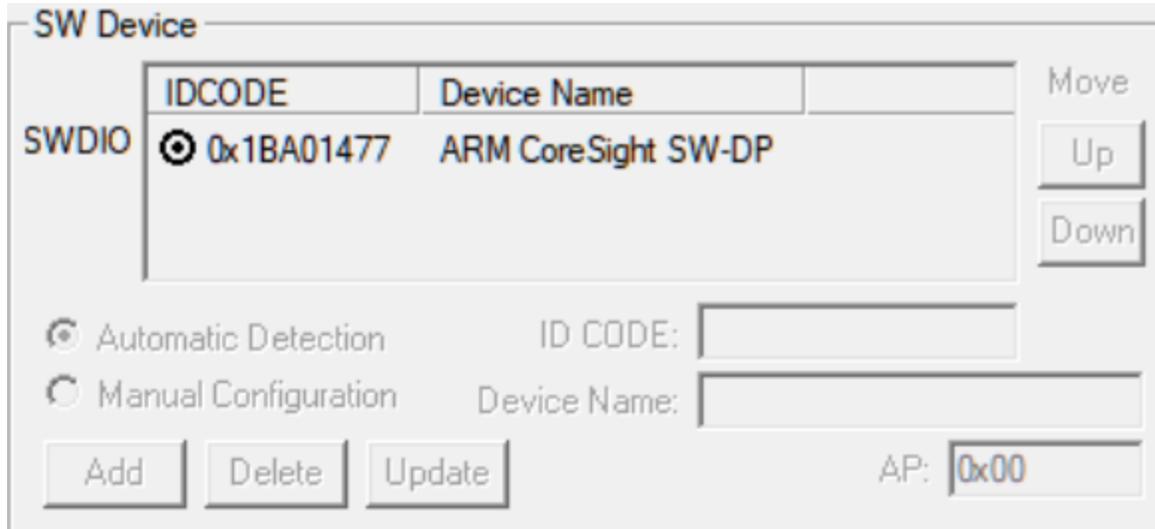
```
          : main program body
*****
tion
enter>&
ghts re
oftware
icense"
e. You
*****
DE END
s -----
main.h"
-----
includes -----
DE BEGIN Includes */
```



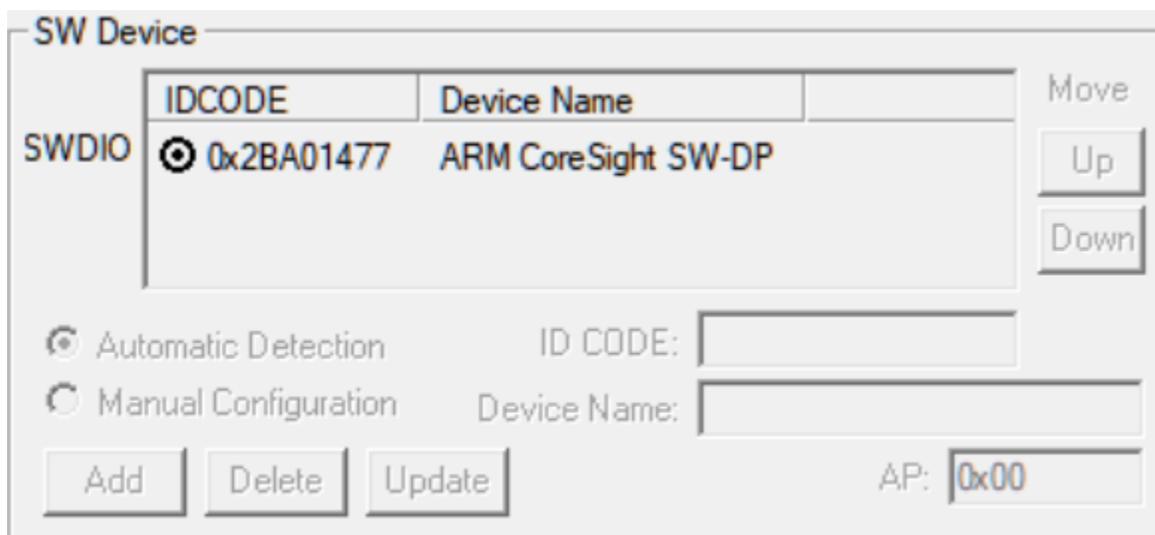


Maybe the purchased chip is not the original chip, such as polished silkscreen, or business false advertising, due to some of the popular chips many manufacturers have similar chips, and even PIN TO PIN compatible, so there are these problems, the low version of the MDK and the chip support packages will not check the chip's IDCODE, so there may not be an error report, replace with a higher version of the MDK and the support packages, there may be an error report! If you change to a higher version of the MDK and support package, you may get an error. You can check the IDCODE of the chip manual to determine the real chip model.

For example, the IDCODE of the STM32F1 chip is: 0x1B10417.



But the sample is: 0x2BA01477 as shown below:



After identifying, this chip may be: CS32F103C8T6 (CKS32F103C8T6).

5.1 Solution 1

According to IDCODE, you can find the real model number of the chip, download the backup package of the corresponding manufacturer's chip, install it, switch it to the actual chip model, and then debug it.

CKS32F103C8 Download (Keil.CS32F1xx_DFP.pack is required, STM32F103 library and CKS32F103 library can be used to run the demo properly.)

5.1 Solution 2

First find the pack of the selected chip, and find the pdsc file of the current chip, such as C:\Keil_v5.25\ARM\PACK\Keil\STM32F1xx_DFP\2.3.0\Keil.STM32F1xx_DFP.pdsc

```
<sequence name="CheckID">
  <block>
    __var pidr1 = 0;
    __var pidr2 = 0;
    __var jep106id = 0;
    __var ROMTableBase = 0;

    __ap = 0;      // AHB-AP

    ROMTableBase = ReadAP(0xF8) & ~0x3;

    pidr1 = Read32(ROMTableBase + 0x0FE4);
    pidr2 = Read32(ROMTableBase + 0x0FE8);
    jep106id = ((pidr2 & 0x7) << 4 ) | ((pidr1 >> 4) & 0xF);
  </block>

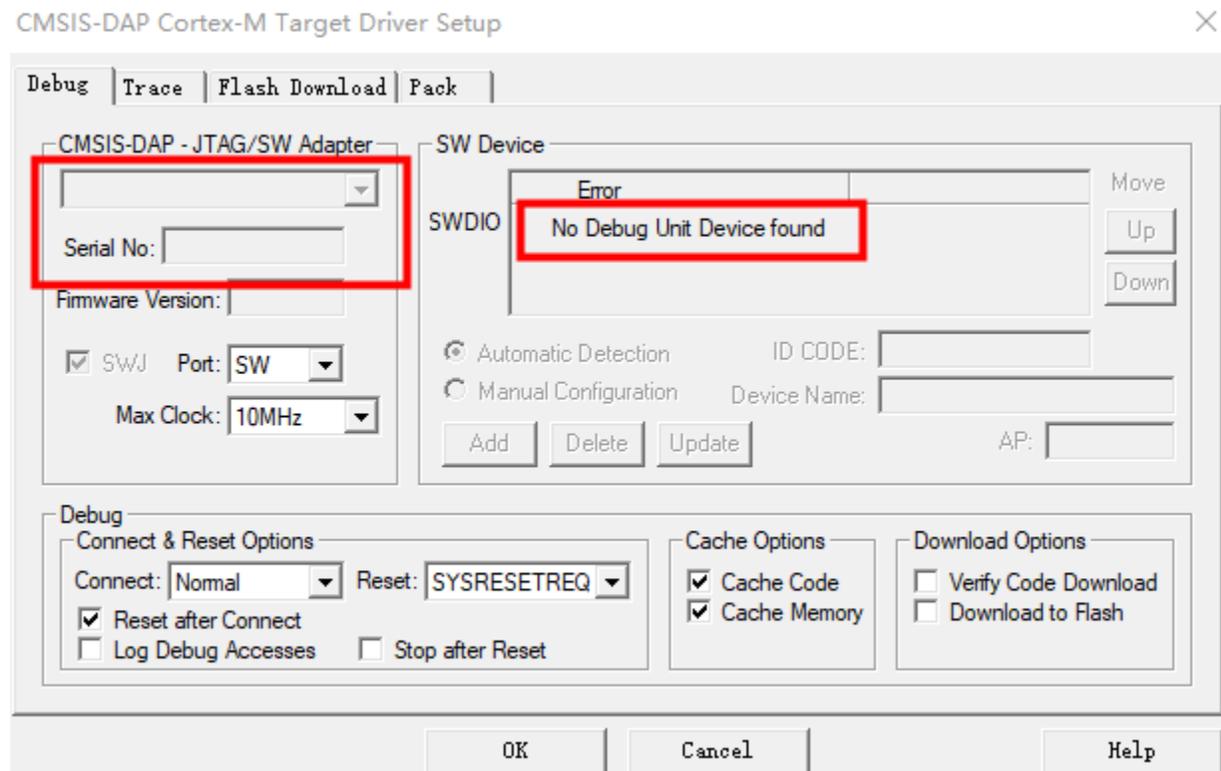
  //Comment out the chip ID to check the configuration
  //<control if="jep106id != 0x20">
  //  <block>
  //      Query(0, "Not a genuine ST Device! Abort
connection", 1);
  //      Message(2, "Not a genuine ST Device! Abort
connection.");
  //  </block>
  //</control>
</sequence>
```

TIP

- The PowerWriter® team does not trace back to the actual chip model, and the above chip IDCODE is only illustrative of actual cases, as noted.
- The pdsc file is just an example, the paths and settings may be different for different versions of packages.

6 Unable to recognize debugger

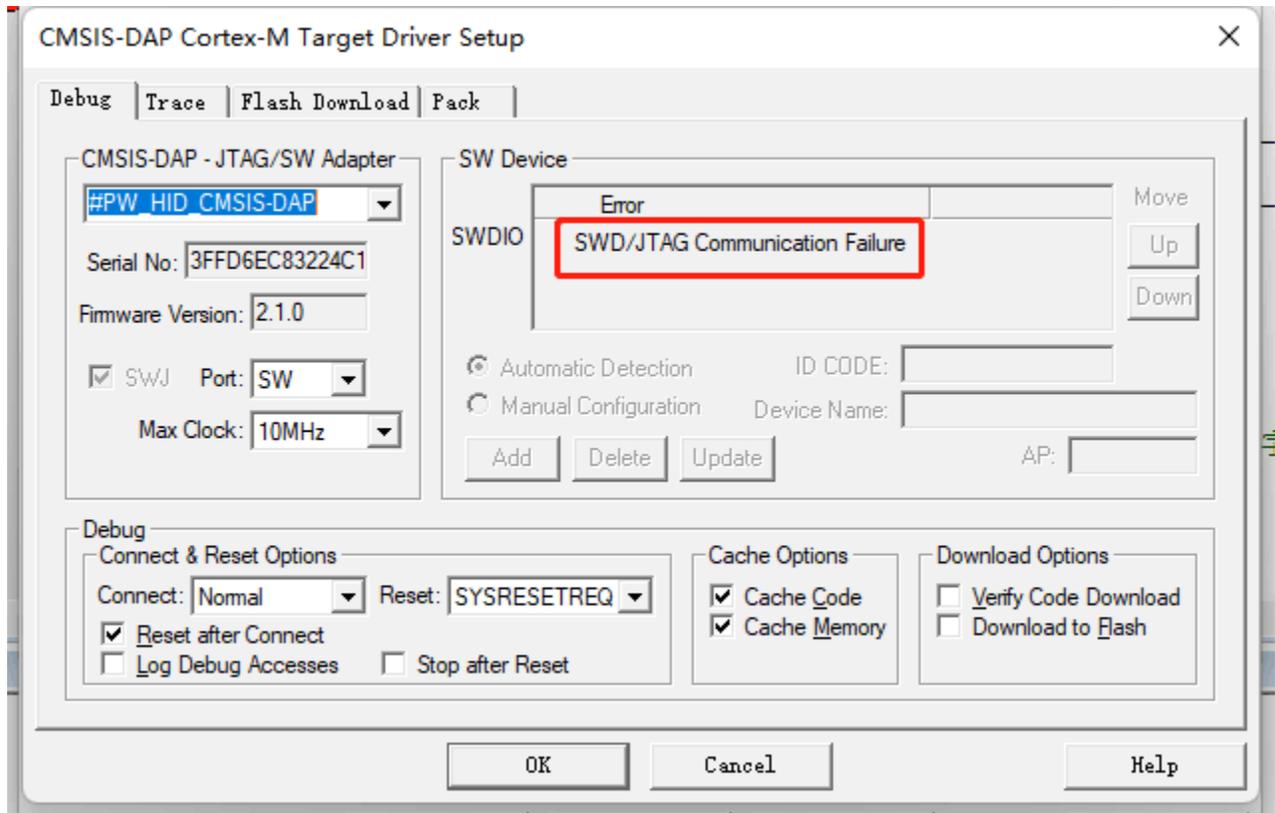
Error Code: No Debug Unit Device found.



Handling method: Reconnect the programmer, make sure the programmer is connected properly and the driver is connected properly, refer to [Driver Installation and Cleanup](#).

7 RDDI-DAP Error

Error message: SWD/JTAG Communication Failure(RDDI-DAP Error)、RDDI-DAP Error。



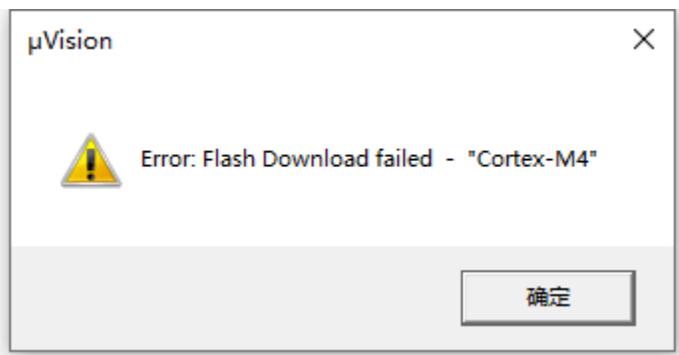
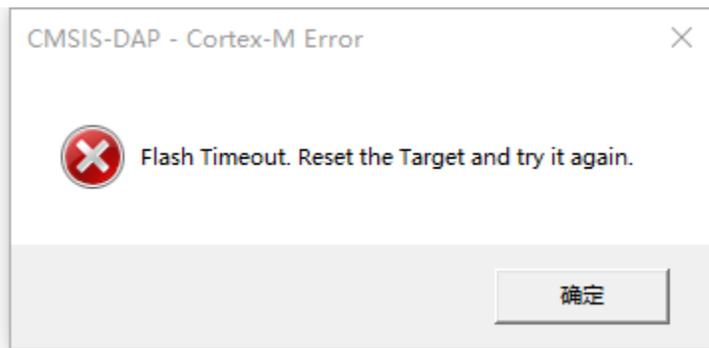
Solution:

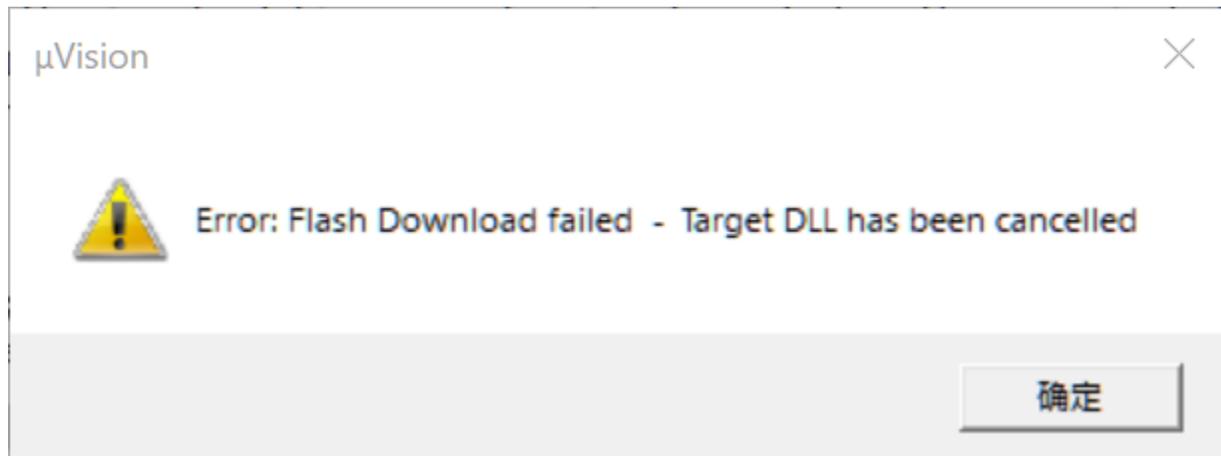
Make sure the programmer and the chip programmer port are connected properly, the chip does not have advanced protection turned on or the programmer port is multiplexed, please check the specific treatment:

[How to deal with a chip that is not connected](#)

8 Programming Failure

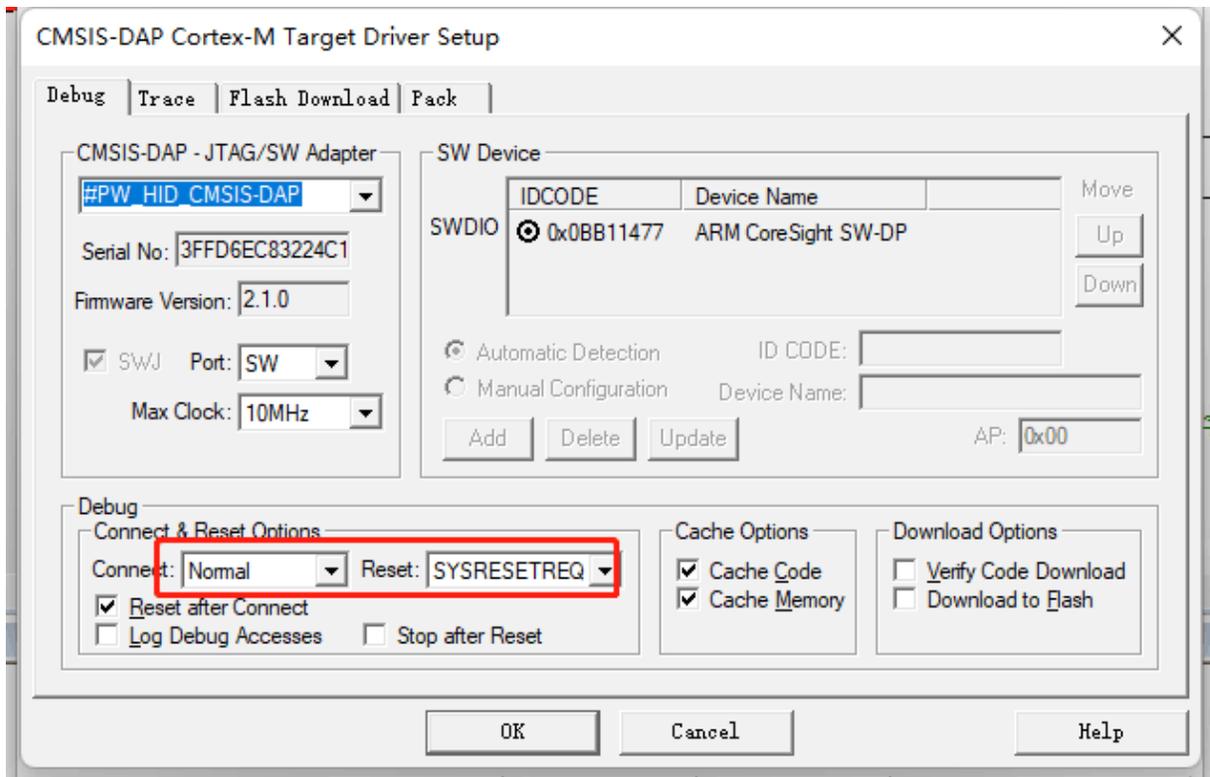
Error message: Flash Timeout. Reset the Target and try it again.





Solution:

- Ensure that the chip does not have read protection and write protection turned on, remove the protection method reference: [De-read protection](#).
- When the program runs on the fly or the chip reset is not successful, it will lead to unsuccessful programming, please reconnect the chip and make sure that the debugger setting options are as shown in the following figure, and you can try to pull the boot0 pin high before debugging.
- Change the debug clock size.
- Use the PowerWriter® client to erase the target chip.



9 Verify failure

Error message: Contents mismatch

```
Contents mismatch at: 08000062H (Flash=FFH Required=0)
Contents mismatch at: 08000063H (Flash=FFH Required=0)
Too many errors to display !
Error: Flash Download failed - "Cortex-M4"
Flash Load finished at 16:21:51
```

Troubleshooting: Make sure the flash algorithm parameters are normal, or you can re-select the chip model to update the flash algorithm settings.

Options for Target 'GD32F303E_EVAL'



Device | Target | Output | Listing | User | C/C++ | Asm | Linker | Debug | Utilities

Software Packs

Vendor: GigaDevice

Device: GD32F303ZE

Toolset: ARM

Software Pack

Pack: GigaDevice.GD32F30x_DFP.2.0.0

URL: <http://gd32mcu.com/data/documents/ps>

Search:

- GD32F303VC
- GD32F303VE
- GD32F303VG
- GD32F303VI
- GD32F303VK
- GD32F303ZC
- GD32F303ZE**
- GD32F303ZG
- GD32F303ZI

GD32 is a new 32-bit high performance, low power consumption universal microcontroller family powered by the ARM Cortex-M4 RISC core, which targeted at various MCU application areas. GD32 family integrates features to simplify system design and provide customers wide range of comprehensive and superior cost effective MCU portfolios with proven technology and great innovation. GD32 family includes entry line, performance line and connectivity line currently.

GD32F303 - ARM Cortex-M4 Core
Frequency up to 120 MHz
Flash access zero wait state
Single-cycle multiplier and hardware divider

Memories

OK

Cancel

Defaults

Help

DEBUG | Trace | Flash Download

Download Function

 Erase Full Chip Program
 Erase Sectors Verify
 Do not Erase Reset and Run

RAM for Algorithm

Start: Size:

Programming Algorithm

Description	Device Size	Device Type	Address Range
GD32F30x High-density FMC	512k	On-chip Flash	08000000H - 080FFFFFFH

Start: Size:

Add Remove

OK Cancel Help

10 Unable to load flash Algorithm

Error Code: Cannot Load Flash Programming Algorithm

AGDI - Cortex-M Error: C:\Keil_v5\ARM\PACK\Keil\STM32F1xx_DFP\... X



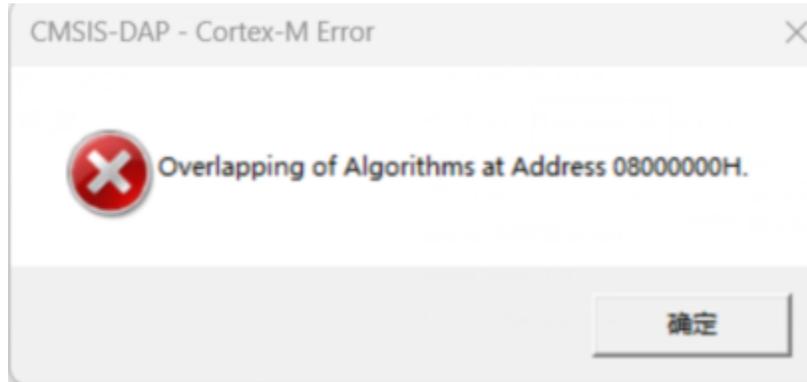
Cannot Load Flash Programming Algorithm !

确定

Reselecting the Flash Algorithm

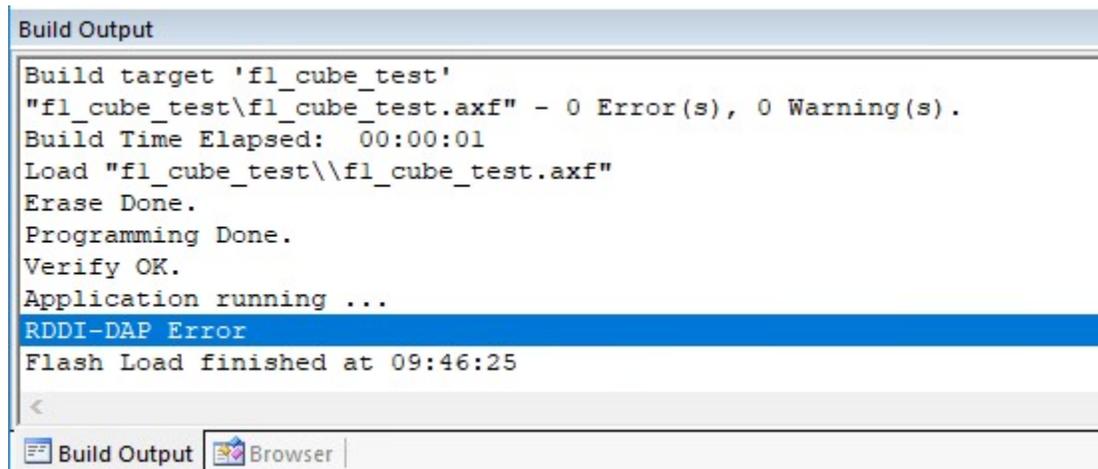
11 Repeat add flash algorithm

Error Code: Overlapping of Algorithms at Address 08000000H



Check Flash Algorithm Settings.

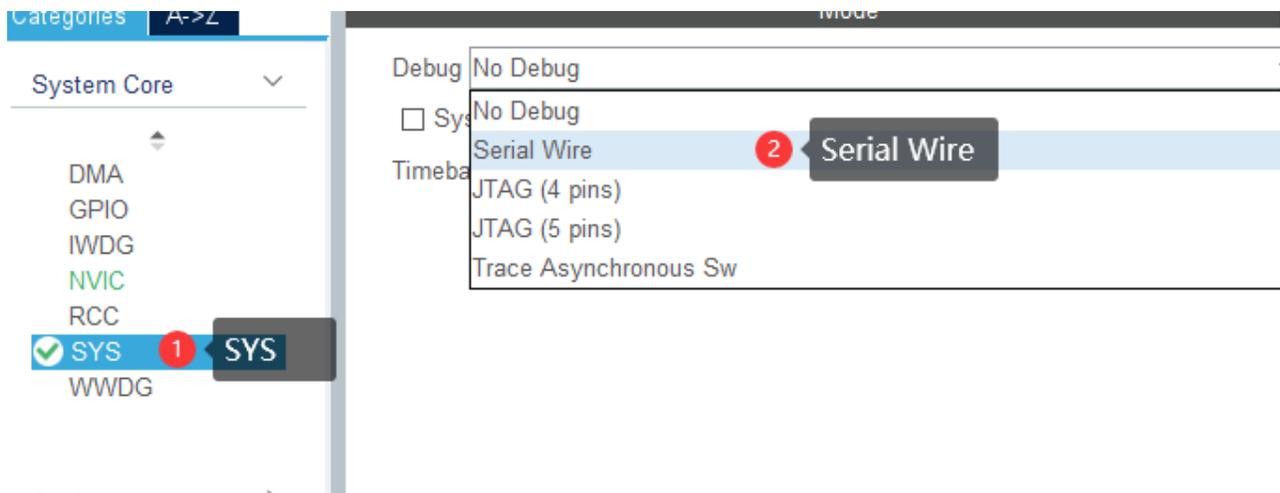
12 Disconnection during debugging



As shown in the above figure, MDK erase, write, and checksum all pass, but after the Application running ... However, after the Application running ..., RDDI-DAP Error occurs!

Reason: The debugging function of IO is not turned on in the program, for example, the debugging function is off by default in Cube MX, if you generate the code directly to debug, this problem will occur.

Solution: In Cube MX, on the left side, open Serial Wire in SYS->Debug as shown below, and then update the code.



If directly in code, adjust the debug mode.

```

61 | * Initializes the Global MSP.
62 | */
63 | void HAL_MspInit(void)
64 | {
65 |     /* USER CODE BEGIN MspInit 0 */
66 |
67 |     /* USER CODE END MspInit 0 */
68 |
69 |     __HAL_RCC_AFIO_CLK_ENABLE();
70 |     __HAL_RCC_PWR_CLK_ENABLE();
71 |
72 |     /* System interrupt init*/
73 |
74 |     /** NOJTAG: JTAG-DP Disabled and SW-DP Enabled
75 |     */
76 |     HAL_AFIO_REMAP_SWJ_NOJTAG();
77 |
78 |     /* USER CODE BEGIN MspInit 1 */
79 |
80 |     /* USER CODE END MspInit 1 */
81 | }
82 |
83 | /* USER CODE BEGIN 1 */
84 |

```

TIP

Other brands and tools are handled similarly, and such problems are caused by the debug pins not being configured in debug mode.

13 MDK cannot recognize the chip

The reason for this phenomenon is the same as the previous one, because there is code running in the chip, the debugging port is disabled, and the efficiency of the PowerWriter® response is faster than the debugger, so there is a situation where the PowerWriter® can recognize it, but the MDK fails.

Treatment:

After connecting to the target chip using the PowerWriter®, perform the following to

erase all data.

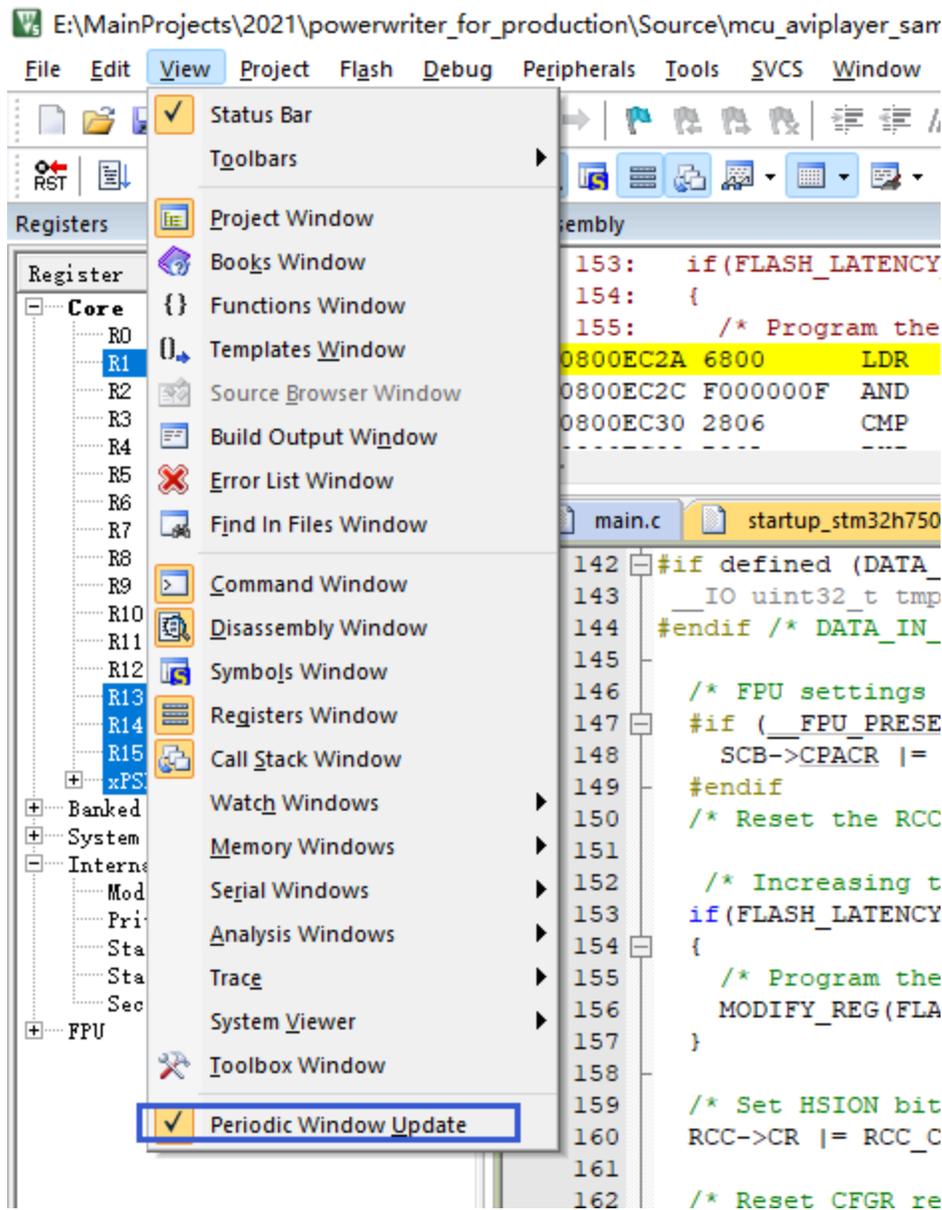
Option byte, restore the defaults, and then write.

Erase Program Memory Program space data.

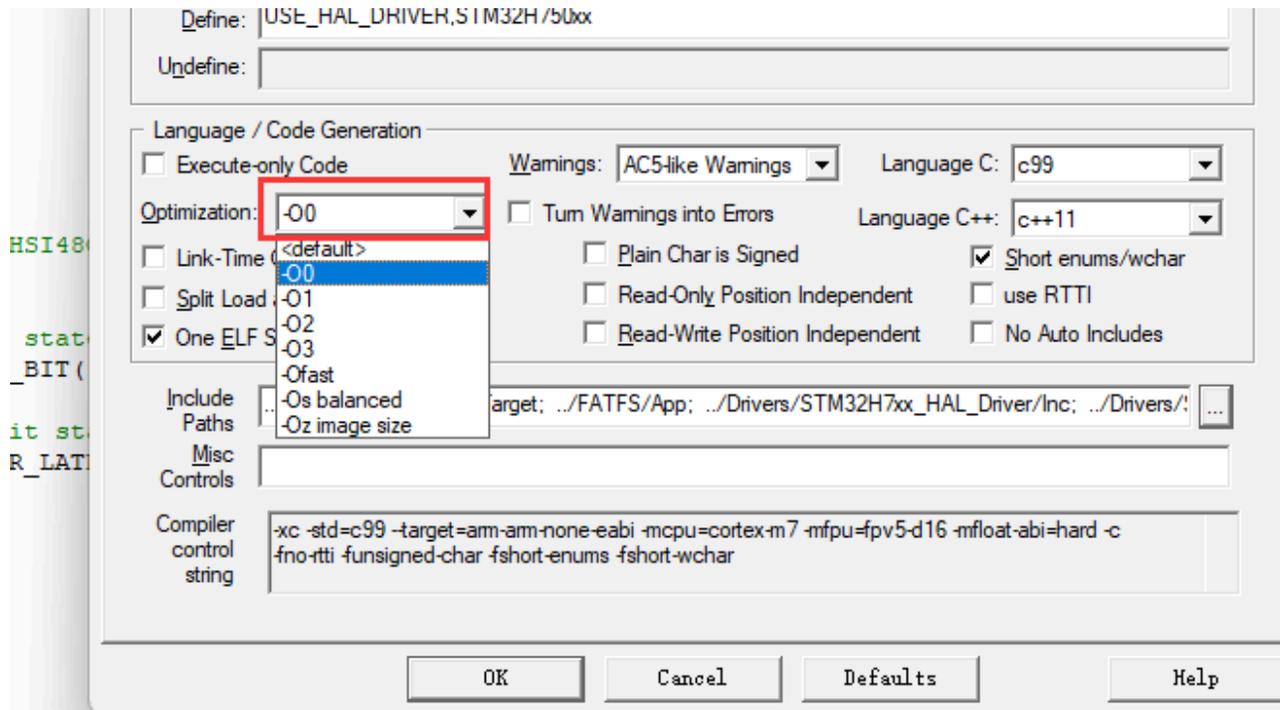
After performing the above operations, go to the MDK to debug.

14 Watch variable not refreshed (grayed out)

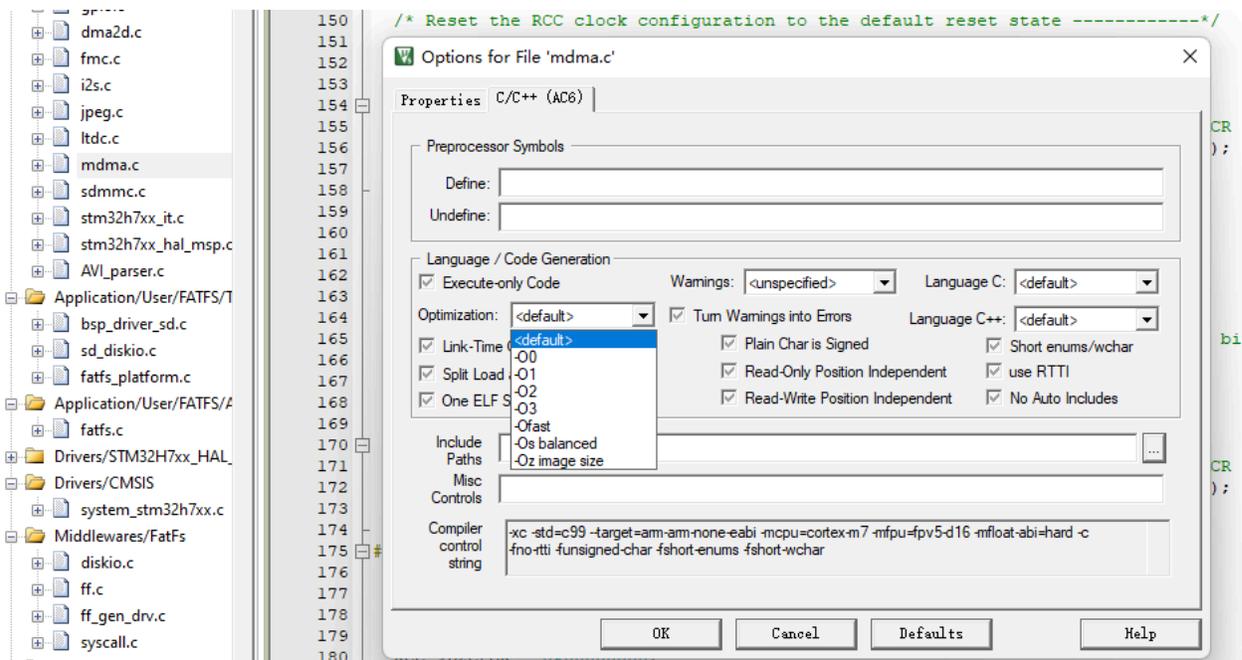
The data is not refreshed because Periodic Window Update is not checked. After entering the debugging state, check this function from View -> Periodic Window Update in the menu, the debugger and the data in the Watch window will be refreshed in real time, as shown in the following figure:



The reason for the grey is that the compiler optimization level is too high, resulting in the actual generation of debugging information and source code breakpoints are not completely consistent with the location of the synchronization problem, at this time you can adjust the optimization level of the entire project, such as to change to the level of 0 no optimization, the location of the source code breakpoints and access to the actual variables are completely consistent with the following chart:



In addition, you can adjust the optimization level of part of the source code individually by right clicking the source code file (.c, .cpp) in MDK to open the file properties and set the optimization level of the file individually, as shown in the following figure:



Tags: [FAQ](#) [MDK](#) [debug](#)

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*Last updated on **Apr 15, 2024** by **Alan Chen***

Version: Next

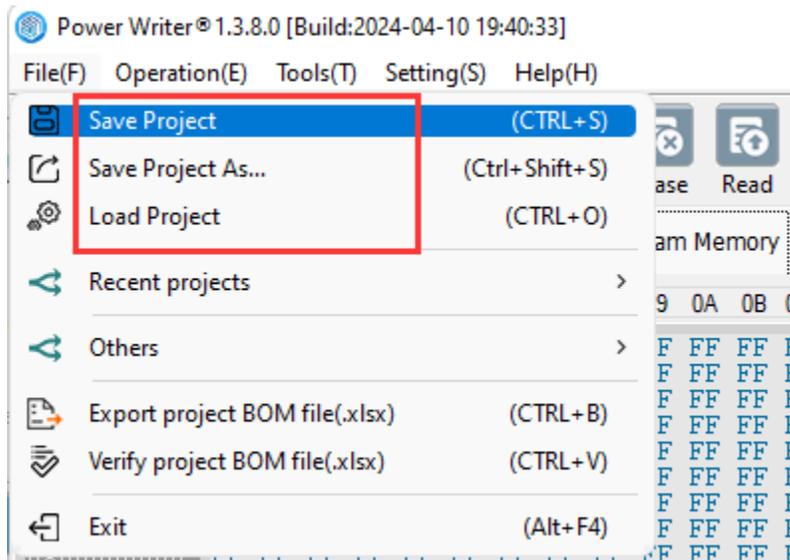
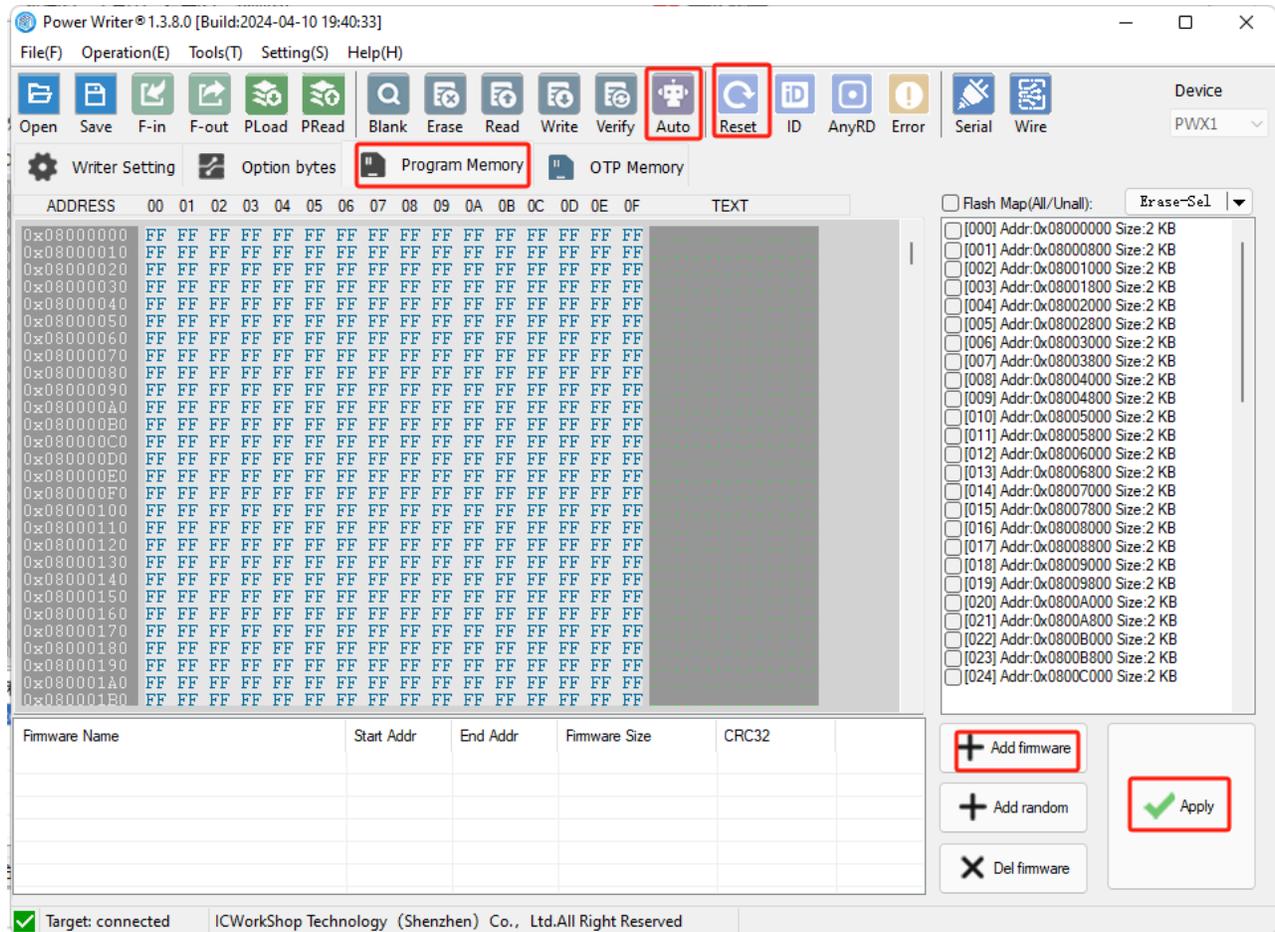
3.1.9 : Add Firmware Method

In the PowerWriter® software:

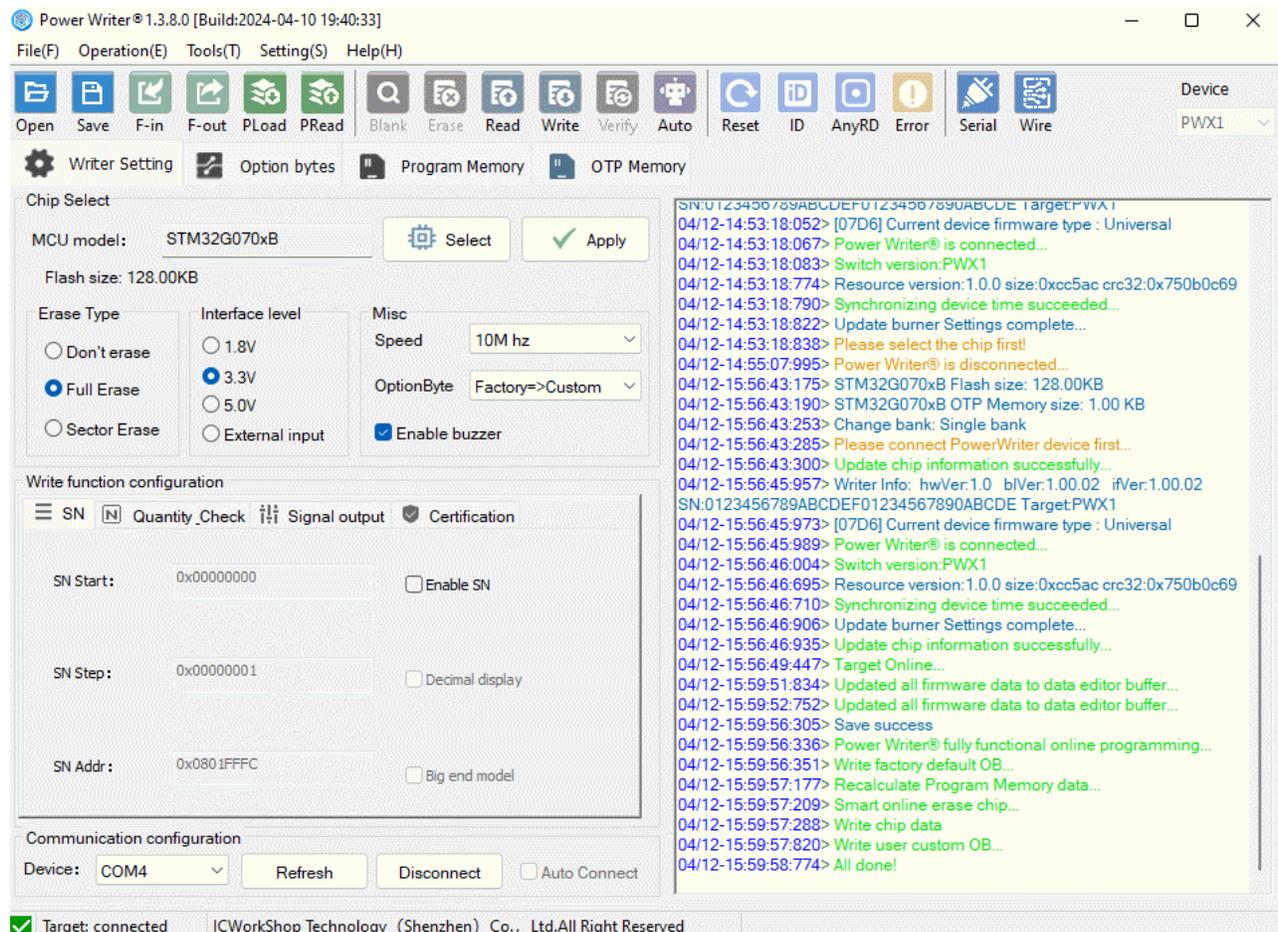
- Select Chip.
- In "Program Memory", "Add Firmware" and "Apply Firmware".
- Click Full Function Auto programming.
- After the programming test is normal, you can save this project, and next time you can re-open it to programming directly.

1 : Prepare

```
04/12-15:56:46:906> Update programmer Settings complete...  
04/12-15:56:46:935> Update chip information successfully...  
04/12-15:56:49:447> Target Online...
```



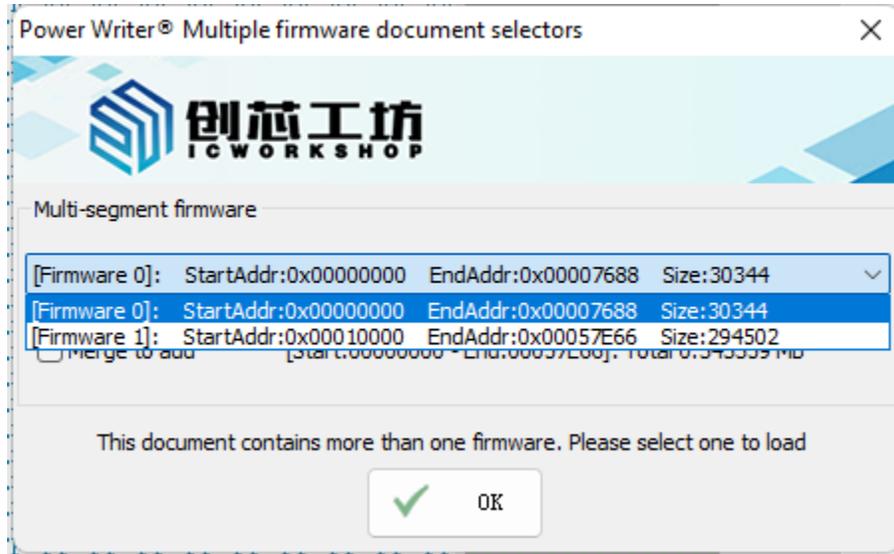
2 : Operational Demonstration



3 : Multi-zone firmware

The file belongs to the multi-segment firmware, this situation is normal, need to be added, multi-segment firmware, the first section on-demand loading, because: developers in the project using the definition of the section, or sct file, the definition of the segment information, the PowerWriter® will automatically recognize the inside of the Segment (section information) Due to this segmentation of the firmware, the inside of the section, there will be Because of this kind of segmented firmware, there will be dummy byte

(padding byte, default is 0xff), PowerWriter® will remove the default padding when loading, and only take out the effective length of the firmware (this can speed up the programming speed, avoid writing dummy byte when programming), and other blocks such as boot code, vector table, bootloader code, application/user data/option byte, etc. to show the user which blocks need to be loaded to programming, the user can choose according to the need, or load multiple times.



💡 TIP

Segmented firmware can be added at once using the merge function. PowerWriter® will merge all segments by default, but please note that if the firmware contains segments that exceed the Flash space, it will indicate that the capacity is exceeded and cannot be added.

Tags: [FAQ](#) [HEX](#) [BIN](#) [S19](#)

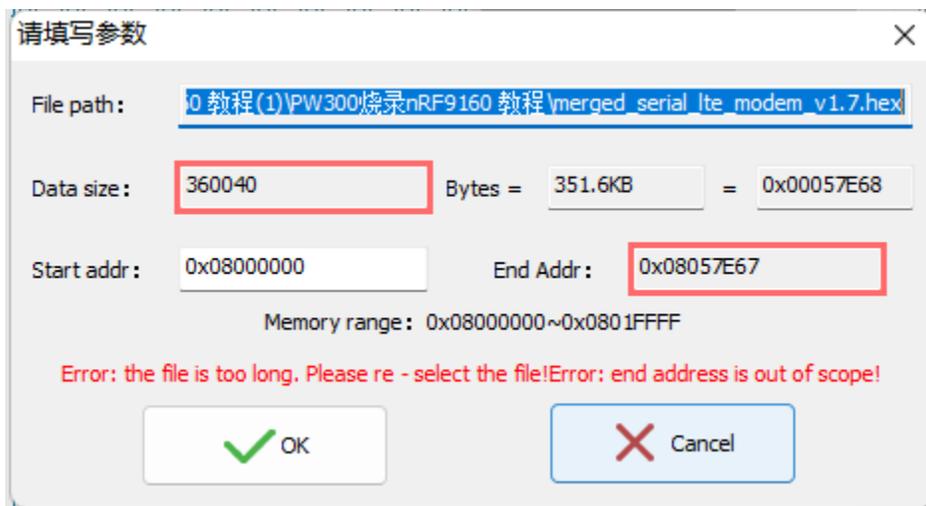
[✎ Edit this page](#)

Last updated on **Apr 15, 2024** by **Alan Chen**

Version: Next

3.1.10 : Error when add firmware

When you are adding firmware, the following error may be reported:



Firmware can not exceed the Program Memory space, including the start address and end address must be within the range of Program Memory. When the above error occurs, check whether the capacity of your own chip is selected correctly, if the chip model is correct, then consider checking the firmware size or compilation settings; if you encounter the case of hex file firmware segmentation, you can try to cancel the merge add function of the firmware, and add the segmentation to write once.

The above prompt appears because the compiled firmware address and the chip's FLASH address does not match, when importing bin format file, this format does not have address information, the default is 0, then the software will prompt the lack of address information or the address is not correct, whether to load to the specified address, If you pass the [Add Firmware](#) methodologies, The program will confirm more information to you,

including the size, checksum value and starting address.

Tags: [FAQ](#) [HEX](#) [BIN](#) [S19](#)

 [Edit this page](#)

*Last updated on **Apr 12, 2024** by **Alan Chen***

Version: Next

3.1.11 : Smart Programming

PowerWriter® provides a wealth of online and offline programming features:

- Supports continuous programming
- Supports chunked programming
- Supports option byte programming
- Other functions, etc.

1 : online mode

Automatic download of all data can be achieved through full-featured auto-programming:

- Menu Position: Execution->Full Function Auto Programming.
- Toolbar buttons



Tags: [FAQ](#) [auto](#) [program](#)

 [Edit this page](#)

Last updated on **Apr 15, 2024** by **Alan Chen**

Version: Next

3.1.12 : Fast Offlining

This document demonstrates the configuration process for rapid offline production after receiving the PowerWriter® from 0. The reference chip is the N32G032P6W7 from Nations, and the process is the same for other chips, so we will describe how the whole process works.

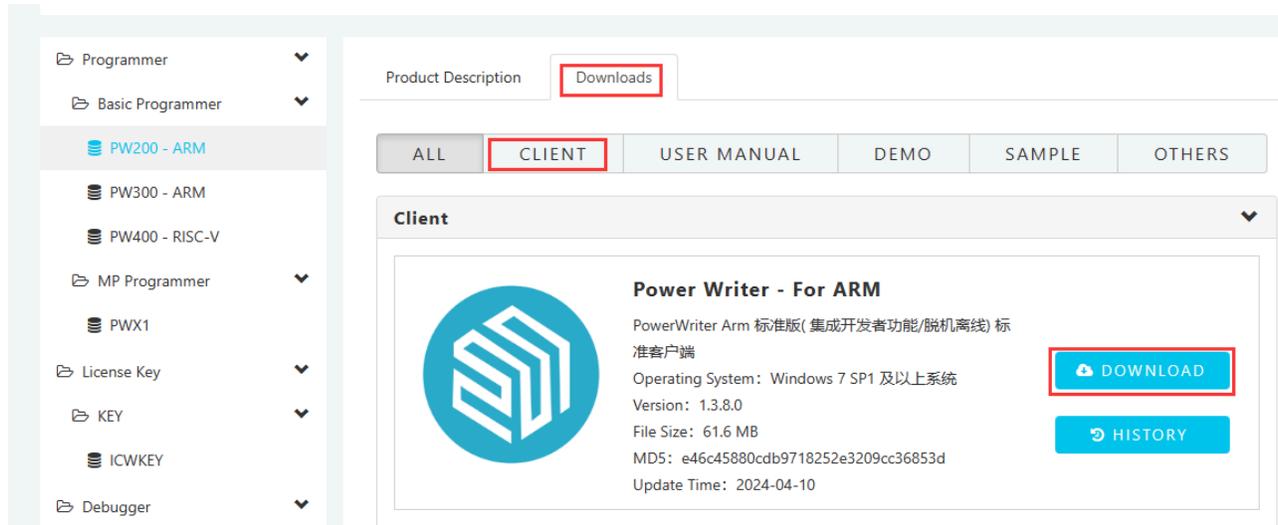
1 : Prepare

Before configuring the PowerWriter® offline production project, you need to prepare the PowerWriter® client software, the firmware data to be programmed, and know the pins and configuration methods of the signal interface of the PowerWriter® programmer, as well as some of the special functions of the process.

1.1 Installing the PowerWriter® Software

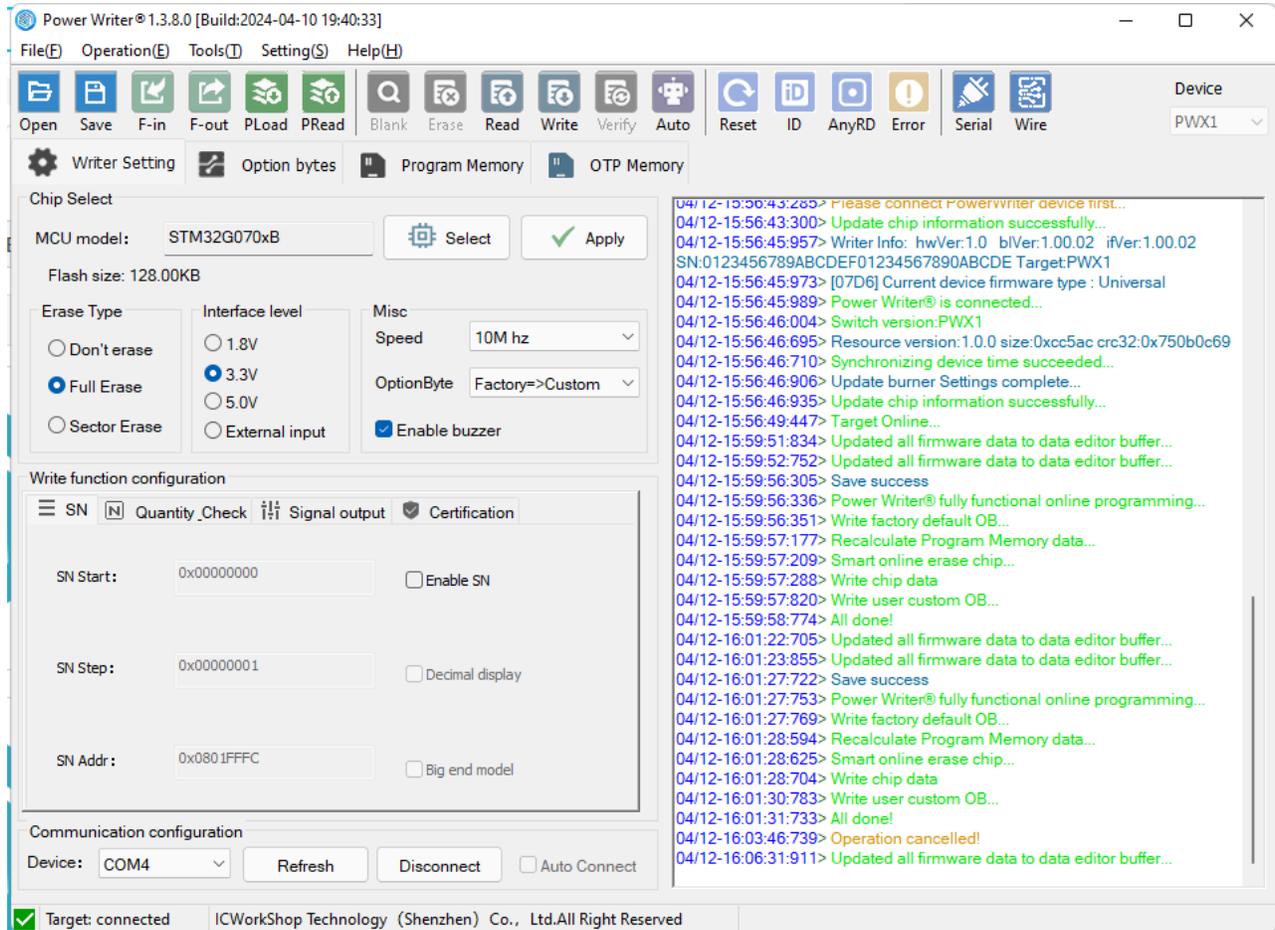
PowerWriter® software can be obtained through the following site, and then install the client software, the software is completed to start the software, PowerWriter® supports Win7 or above system.

[PowerWriter® Download](#)



Note: If there is no network in your environment, you can contact our customer service to get the installation package, the installation package in both places are the same installation package.

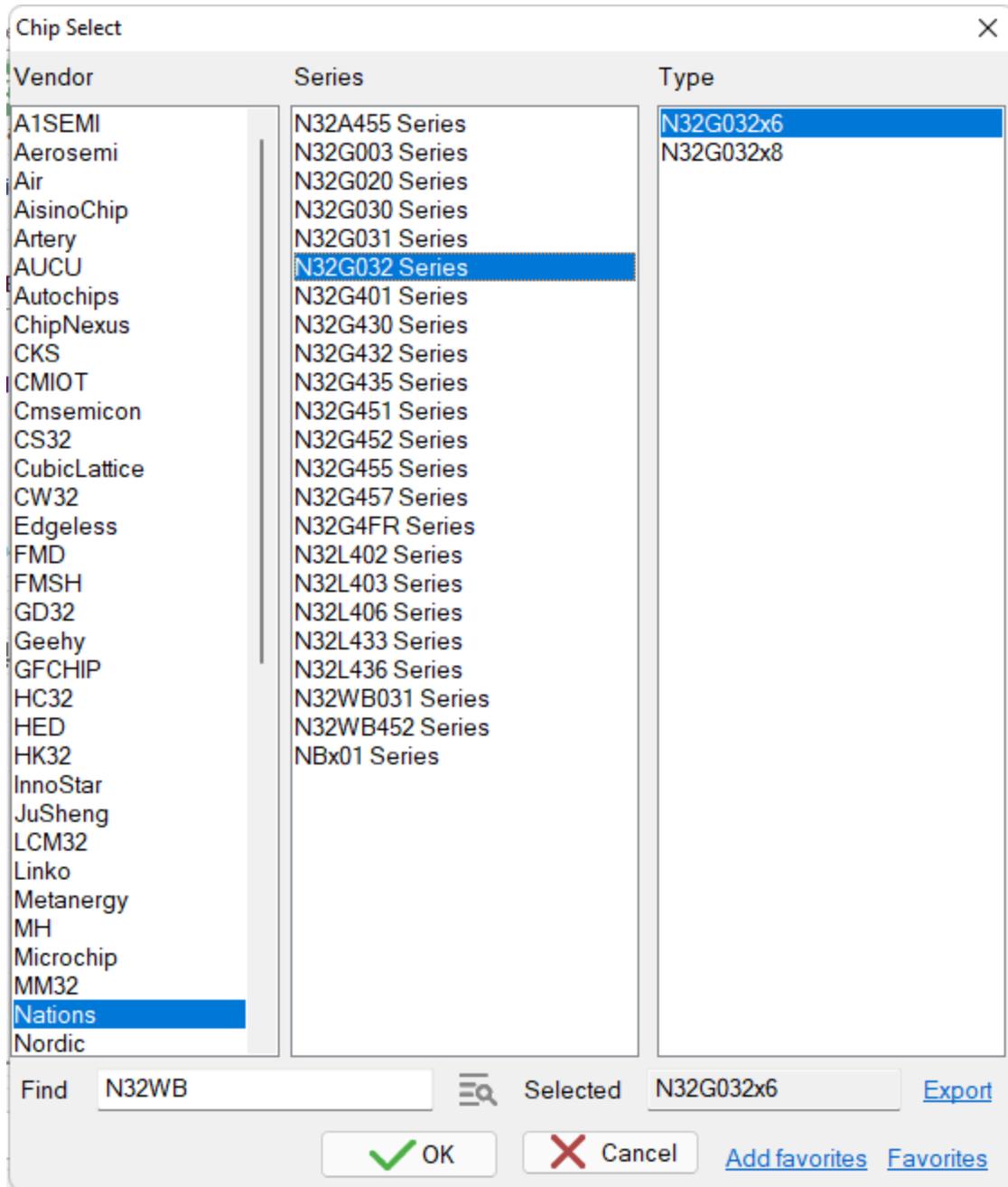
After downloading the installation package, unzip the zip package, run PowerWriter_x.x.x.x_installer.exe to install the PowerWriter® client software, start the software after the installation is complete, and enter the PowerWriter® main interface, as shown in the following figure:



1.2 Select Target Chip

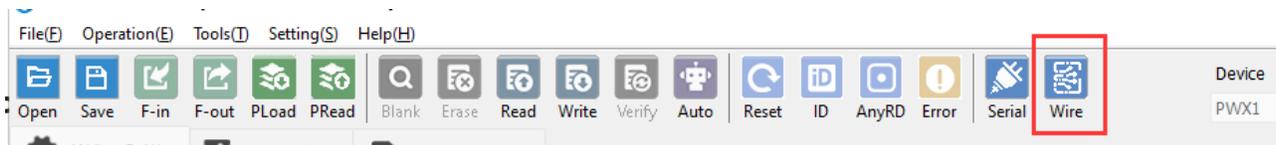
Take N32G032P6W7 as an example, select N32G032 in the Select Chip button.



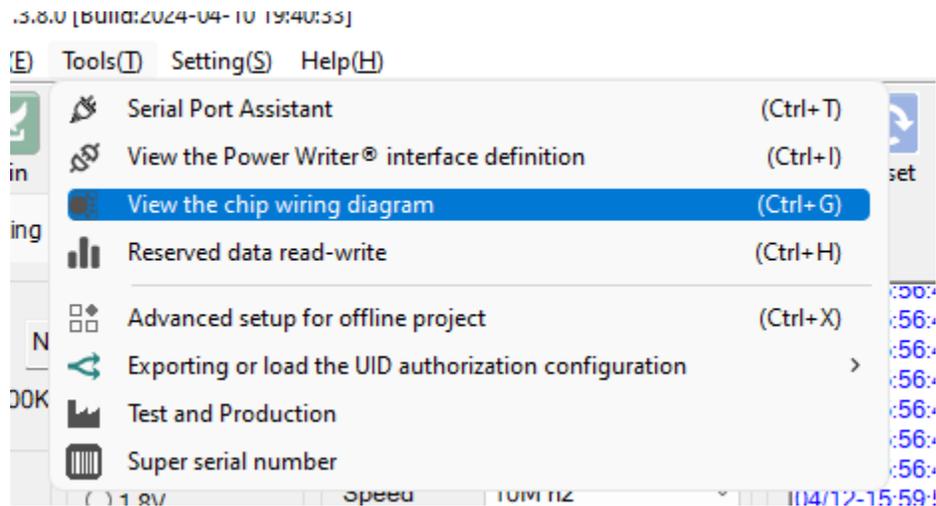


1.3 Confirmation of target chip connection

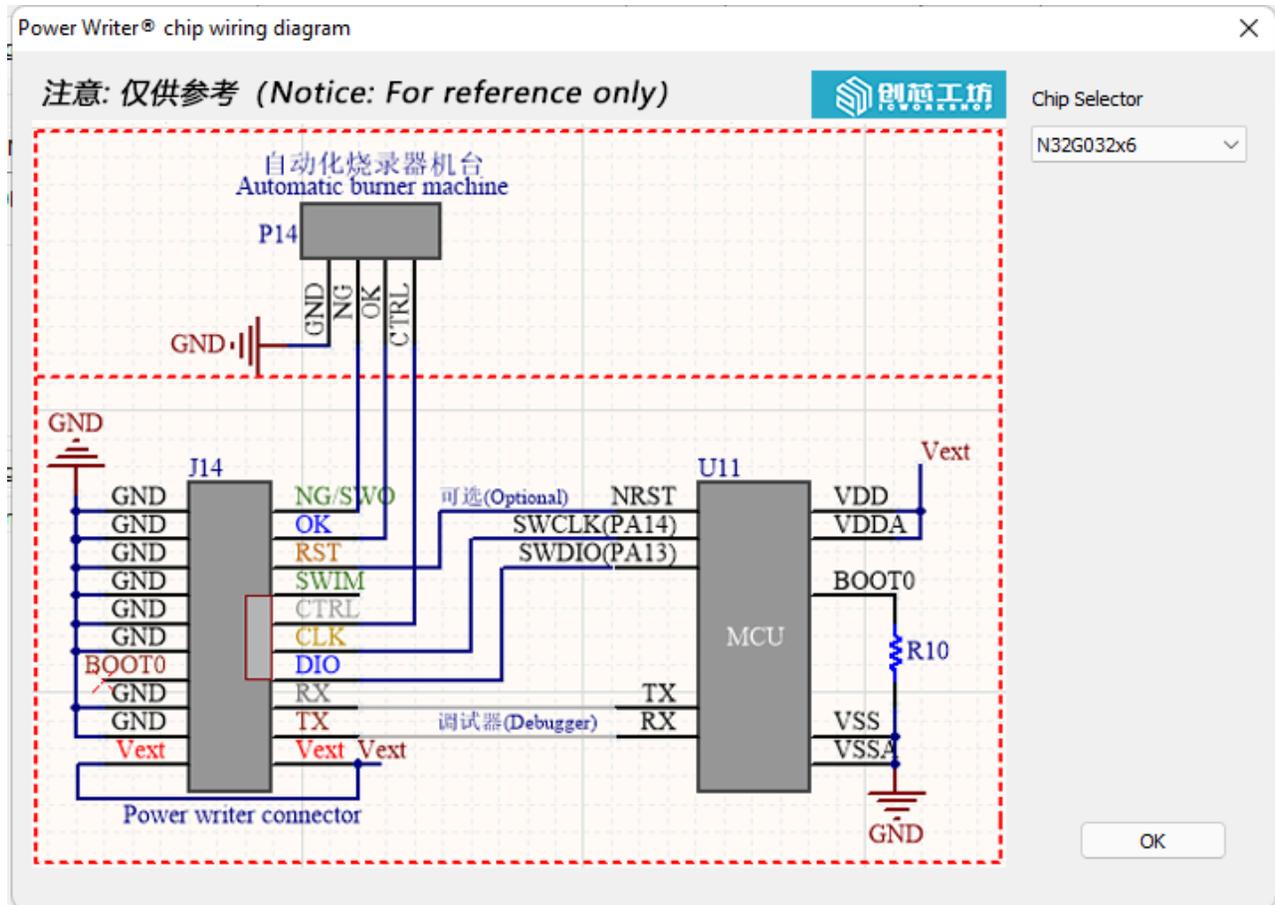
On the far right side of the PowerWriter® software toolbar there is a way to view the Chip Connection Diagram, as shown below:



Or look through the menu:



You can see the signal wiring diagram of PowerWriter® as shown below, you only need to connect VEXT, GND, DIO, CLK, NRST and BOOT0 are auxiliary signals, such as programming normal, can not be connected.



The interface signals of the PowerWriter® are shown as the socket pin in the above figure, and can also be viewed via the Menu -> Tools -> View PowerWriter® Interface Definition button.



Referring to the information as above, connect the target board and chip to confirm the connection method, at the same time the PowerWriter® software indicates that the target chip is connected, as shown below:

```
04/12-17:06:39:645> Update programmer Settings complete...
04/12-17:06:39:676> Update chip information successfully...
04/12-17:06:41:933> Target Online...
```

2 : Basic parameters

2.1 Erase Method

The default is full erase, full erase will erase the entire chip data, and then write, if the

firmware is larger than more than half of the chip capacity, full erase efficiency will be guaranteed, if the firmware is smaller, you can choose the page erase, only erase the need to erase the sector, according to the actual application of the choice of full erase or page erase, such as no special requirements, the default can be.

2.2 interface VREF

The default interface level is 3.3V, which matches the IO voltage of the target chip, just match it according to the IO level of the actual chip.

2.3 Programming speed

Default is 10Mhz, if the working environment has less interference and the external wiring is shorter (less interference), then it can be changed to 20Mhz, if there is a failure during the programming process, then you need to change it back to 10Mhz, or reduce the speed.

Note: Unless the chip itself is defective, a chip that fails to programming in can be re-programmed and will not lead to chip scrapping.

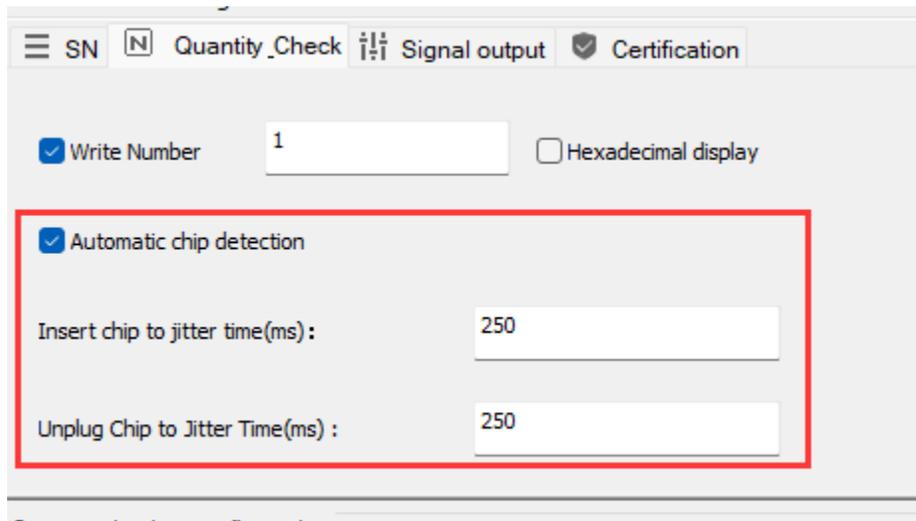
2.4 Option byte update method

The default is Before programming: factory setting (for chips with secondary programming), After programming: write user-defined option words, which can be adjusted according to the actual situation or not.

3 : Offline programming Behavior Settings

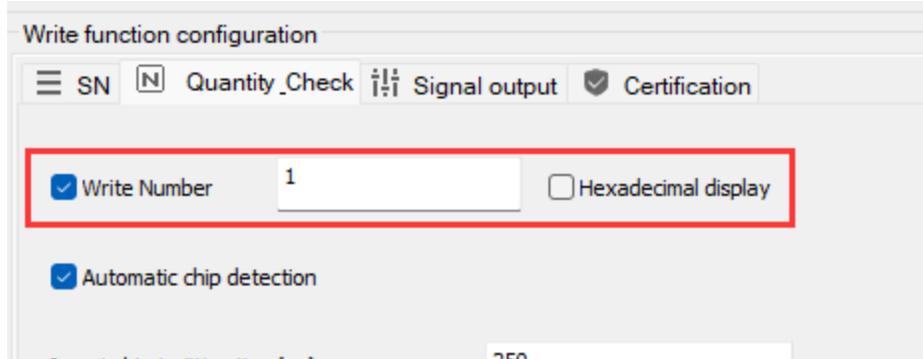
3.1 Auto start/stop programming

Turn on the automatic chip detection function, you can start the programming without pressing the key during the offline programming (you need to start it for the first time), and it will start the offline programming automatically when connecting to the target chip, as shown in the following figure:



3.2 Limit the count of offline programming

If you need to limit the number of offline programming times, please enable the function of limiting the number of programming times and limit the number of times as shown below :



4 : Option Byte Configuration

If you need to programming special option words after programming the firmware, such as read protection to prevent the chip from being read out, set RDP1 and RDP2, and set RDP1 to RDP2, and set RDP2 to RDP2.

Option Name	Option Value(Click the item with the mouse and select the parameters from the drop-c
>>>	[Double-click to modify] Byte 0
RDP	0xAA: Level 0, read protection not active
>>>	0xAA: Level 0, read protection not active
nRST_STDBY	0xBB: Level 1, memories read protection active
nRST_STOP	0xCC: Level 2, chip read protection active(Note: The chip will be permanently locked 0x01: No reset generated when entering the Stop mode
>>>	[Double-click to modify] Byte 2

As above set to level 1 protection, if you need to completely disable debugger access after programming, you can set RDP2 to L2 as shown below:

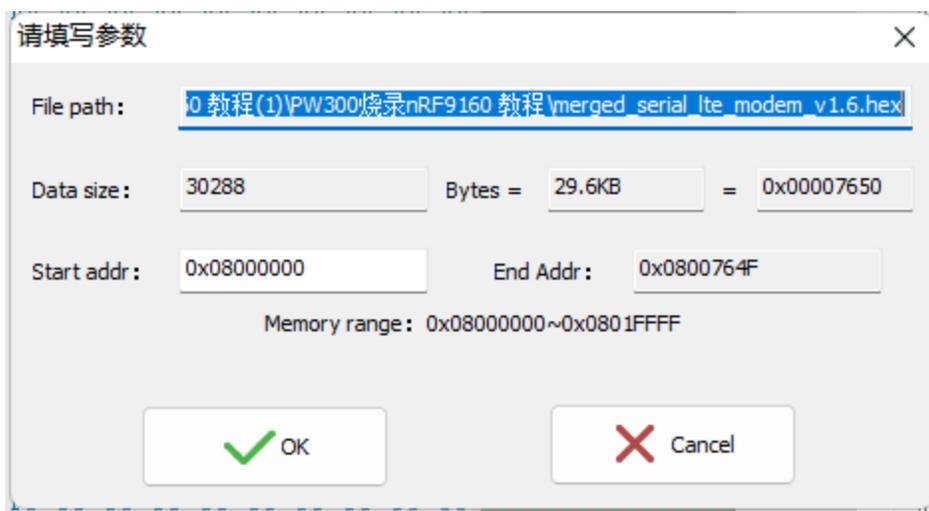
0xAA: Level 0, read protection not active
 0xBB: Level 1, memories read protection active
 0xCC: Level 2, chip read protection active(Note: The chip will be permanently locked

CAUTION

If L2 is set, the target chip cannot be connected to the debugger (programmer) after programming is completed.

5 : Importing firmware data

After the basic setup is completed, you can import the project's firmware data into the PowerWriter®, through the Add Firmware button in the Program Memory page, import the firmware in intel Hex, Raw binary , srec record (s19) format file, after importing, a confirmation box will pop up as shown below, after confirming that there is no error, click on the OK.



The dialog box, titled '请填写参数' (Please fill in parameters), contains the following fields and information:

- File path:** 0 教程 (1) \PW300 烧录 nRF9160 教程 \merged_serial_lte_modem_v1.6.hex
- Data size:** 30288 Bytes = 29.6KB = 0x00007650
- Start addr:** 0x08000000
- End Addr:** 0x0800764F
- Memory range:** 0x08000000~0x0801FFFF

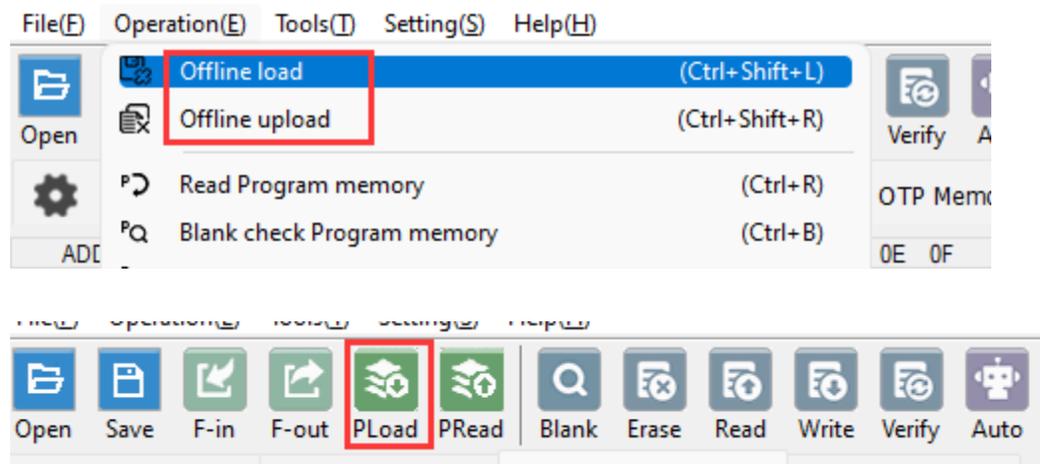
At the bottom, there are two buttons: 'OK' (with a green checkmark) and 'Cancel' (with a red X).

i NOTE

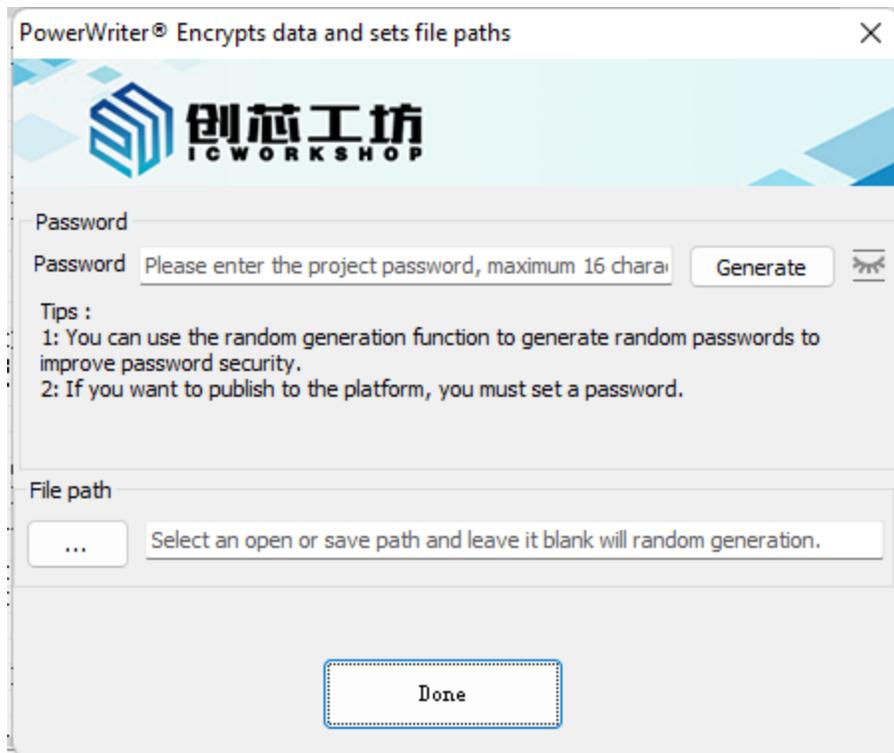
GCC compiler compiled firmware may pop up firmware selection box (prompting the loaded file has more than one firmware), which is related to the compiler's firmware output form, arm compiler output file default padding 0xff, GCC is segmented output valid data segments, if there is more than one segment of the firmware, generally choose to merge the add can be added, if the add fails to prompt beyond the space, generally in the compilation of the project, set the address beyond the Flash space, such as compiling memory code, but did not deal with, or in the project, the option byte is also compiled into, there will be such a prompt, such as not sure how to deal with, please contact us for technical support.

6 : Importing a project to programmer

After everything is ready, you need to import the project into PowerWriter®, you can do it through the menu Execute Offline Load, or the toolbar shortcut buttons, Note: When loading the project offline, if the current data has not been saved as a project file, you will see the message of whether or not you need to save it. [Project offline loading read adjustment](#)



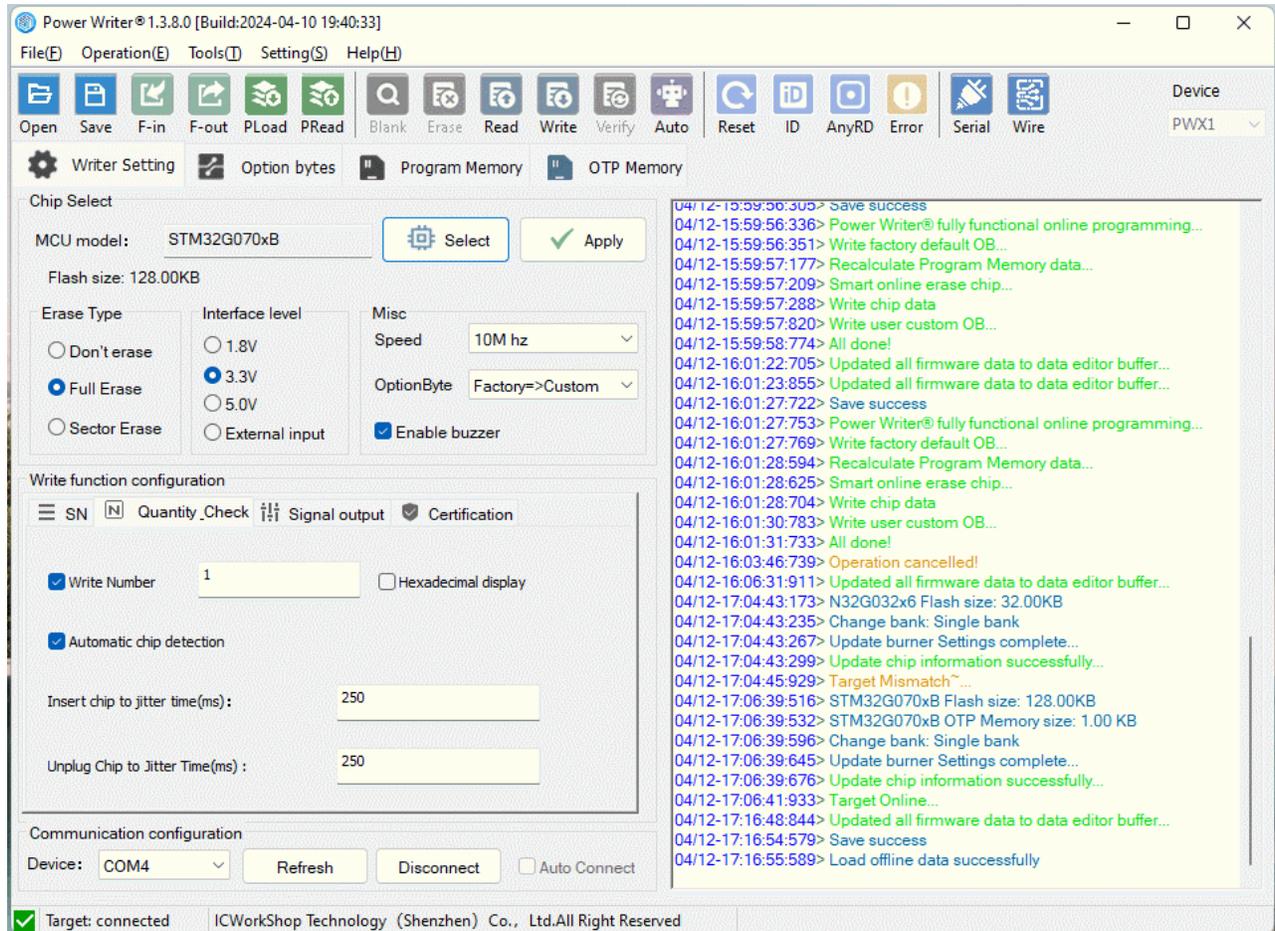
When you save the project, set the save path of the project to avoid the loss of the configured programming data, and you can also set a password for the project for data protection to avoid data theft by others.



TIP

After the project is configured, it can be reused subsequently without having to reconfigure it each time, just load it into the programmer to deliver it to the production line, and if you need to update the data, recycle it back from the production line and reload the new data into the programmer.

6.1 Operational Demonstration



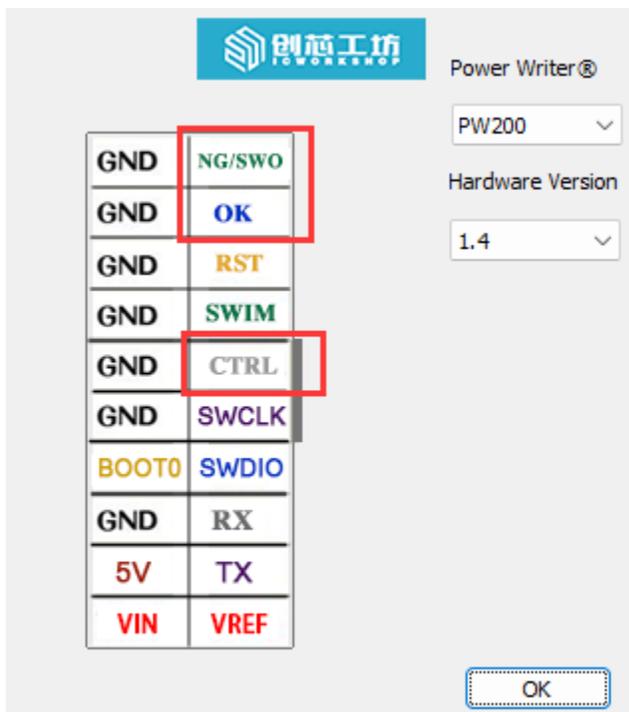
7 : Delivery programmer to the production line

After the programmer is configured with data, the programmer can be delivered to the production line for production.

8 : Confirmation of programming results

programming results, given in three ways:

- **Two beeps from the buzzer means success.** More than two sounds means failure. If the comparison production line requires no ringing (noisy), the buzzer can be turned off when configuring the basic parameters.
- **Green light indicates success, red light indicates failure.**
- **Interface signals:** OK output is high to indicate successful programming, NG output is high to indicate programming failure, you can use the signals from these two pins to access the automation control system.



9 : Common problems

9.1 : Auto-detect is on, but it doesn't respond when you put the chip in.

The PowerWriter® requires a manual button press to start the automated process for the first time to ensure that the production environment is ready and to avoid incorrect programming when the production line is not ready.

9.2 : Auto-programming function is automatically turned off when programming fails

If you use the programming test rack, press the way, the failure of the case is very low, only in the manual use of tweezers to pick up the bare core due to the lack of alignment or poor contact may lead to failure, this case can be adjusted to increase the de-jittering time of the automatic detection.

After the automatic programming function is turned off, it is usually necessary to manually verify the production environment, and after the verification is complete, press the button again to resume the automatic detection of the chip programming process.

9.3 : Failure error when problematic backtracking

PowerWriter® products for sale do not have a screen, but they do record the last error code, which can be read by the PowerWriter® software to obtain the type and description of the error.

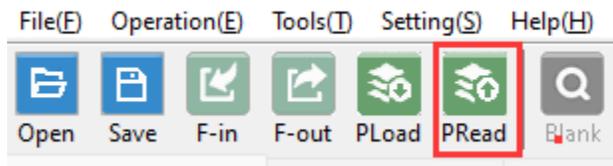


TIP

For occasional programming failures, try to lift the programming test rack and press it again. If the same board (chip) fails more than 2 times, it will be sorted out, if necessary, please contact us.

9.4 : programming state back and data back

Projects that have been loaded into PowerWriter® can be read internally by going to Menu -> Perform Offline Read and Save, (if a password has been previously set, a password is required to view the data).

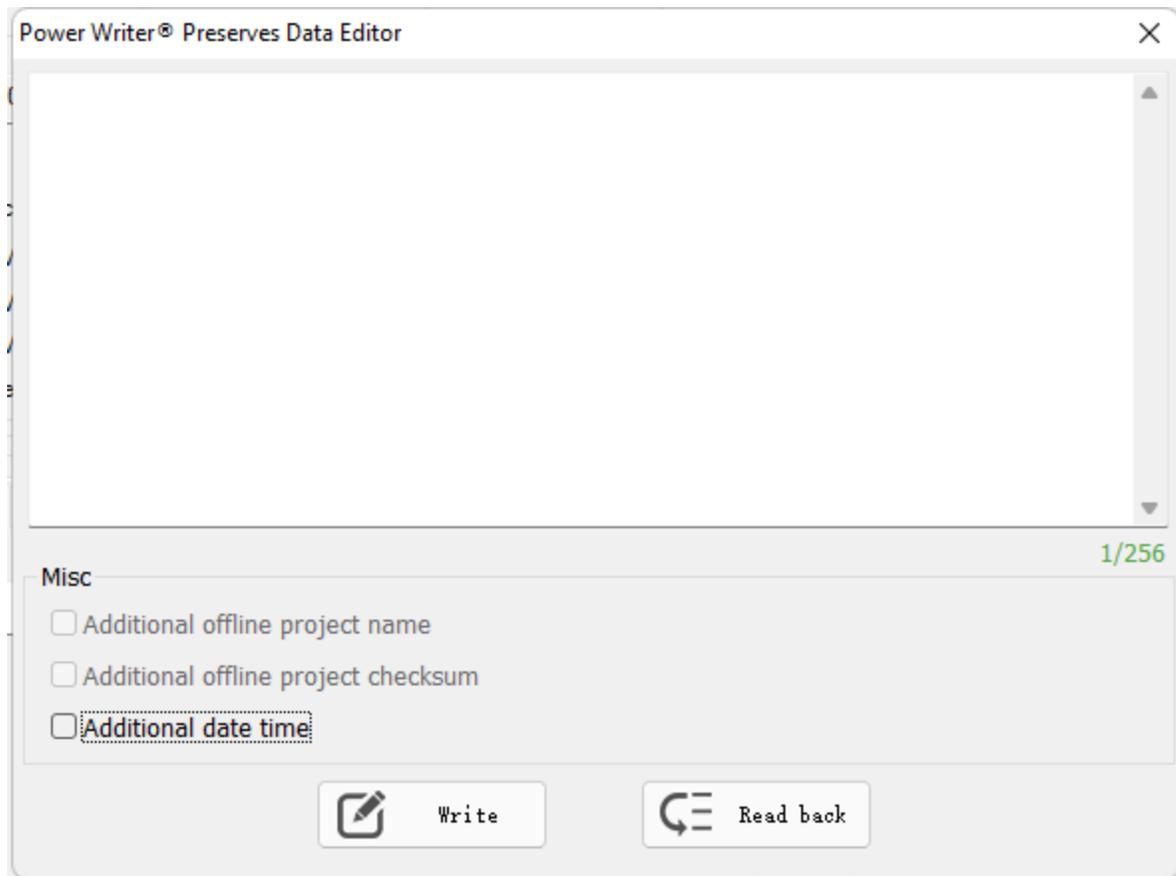


Or backtrack the current programming status, such as the number of programmings remaining, by doing the following



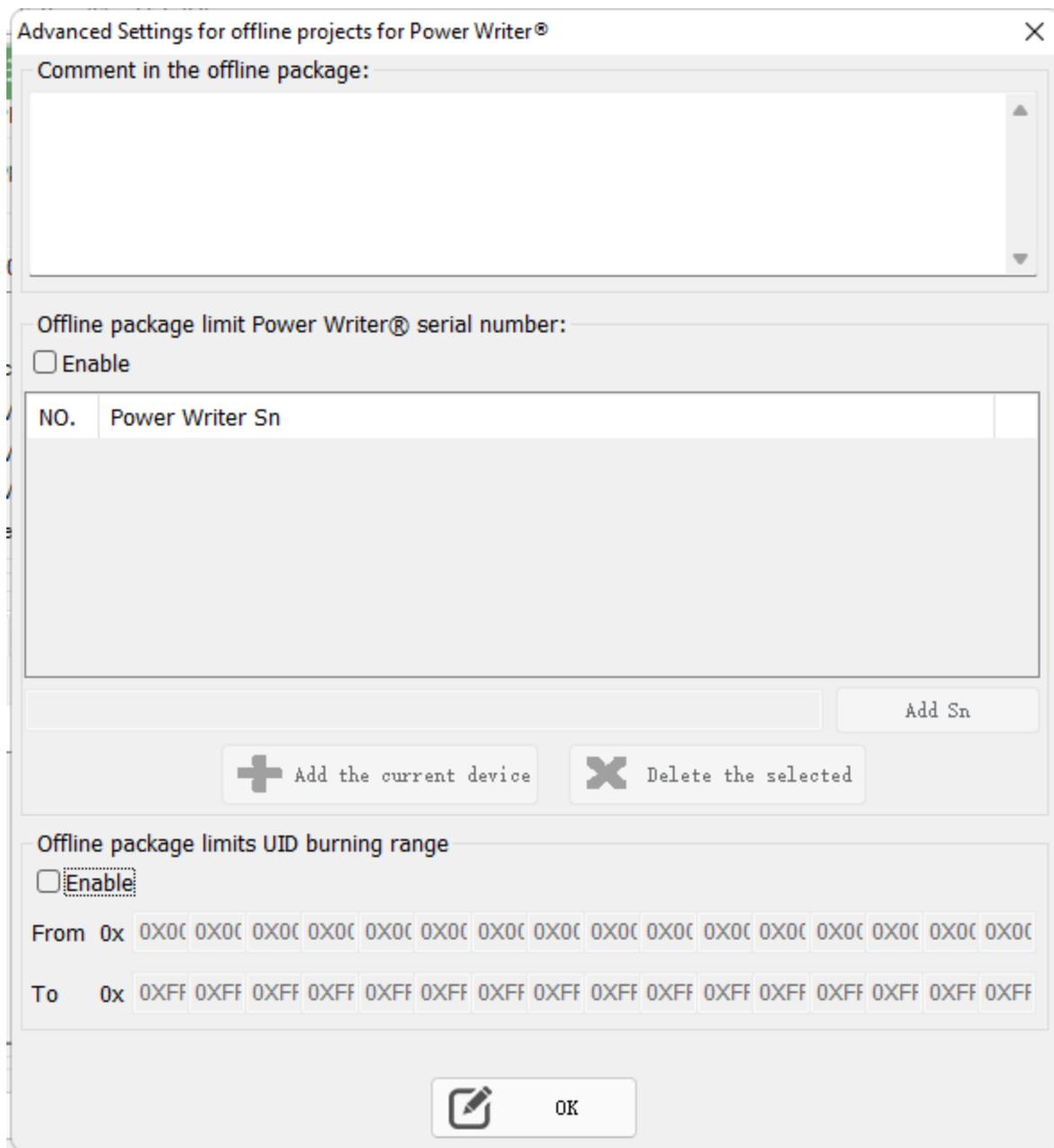
9.5 : programmer Marker

The programmer can be marked by menu Tools -> Reserved Data Read/Write, as shown below:



9.6 : Tagging PowerWriter® Projects

You can make a note of the project in the menu Tools -> Advanced Settings for Offline Production Projects -> Offline Files, as shown below:



10 : Contact & Feedback

If you encounter any problems, suggestions or comments in the process of use, promptly contact us.

Tags: [FAQ](#) [Offline](#)

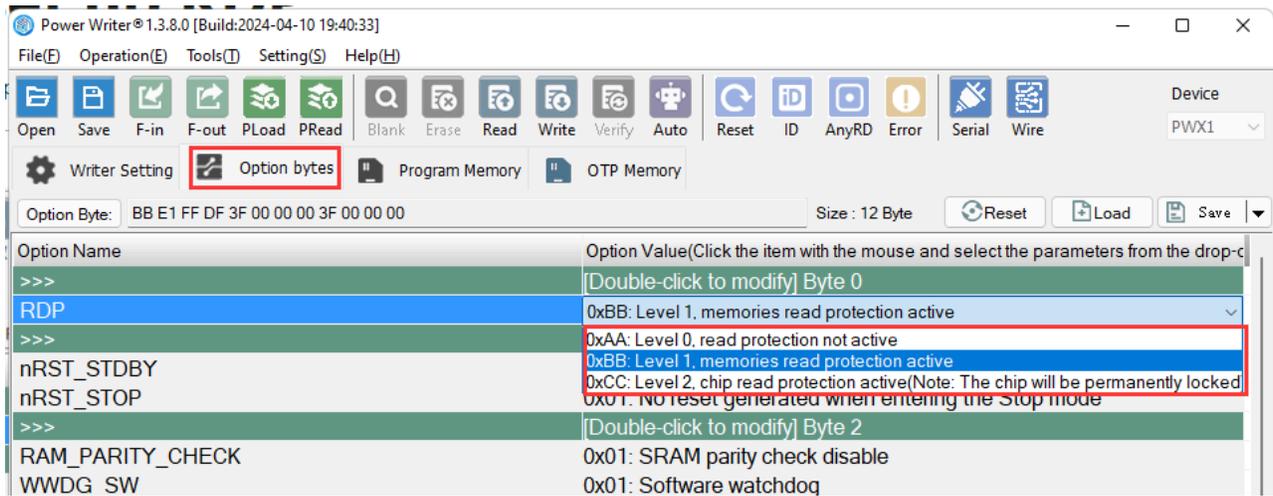
 [Edit this page](#)

*Last updated on **Apr 15, 2024** by **Alan Chen***

Version: Next

3.1.13 : How to setup RDP

PowerWriter® provides a complete option byte description page for each chip, refer to the "Option Bytes" Tab page as shown below:



TIP

The option byte description page is basically the same as the chip datasheet, for some brands we have extended the official option byte to realize specific functions, please refer to the option description.

Tags: [FAQ](#) [RDP](#)

[Edit this page](#)

Last updated on **Apr 12, 2024** by **Alan Chen**

Version: Next

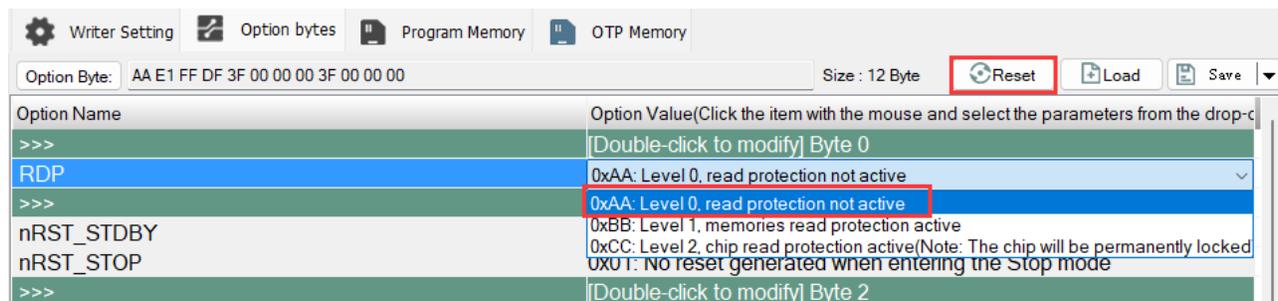
3.1.14 : How to remove RDP

1 : Disconnect while reading data

When PowerWriter® connects to the target chip successfully and can also read OB correctly, but when reading other data, it reports an error, and in serious cases, there is a prompt that the chip is offline, the possible reason is that the target chip has a read-protection, and the method to release the read-protection is as follows.

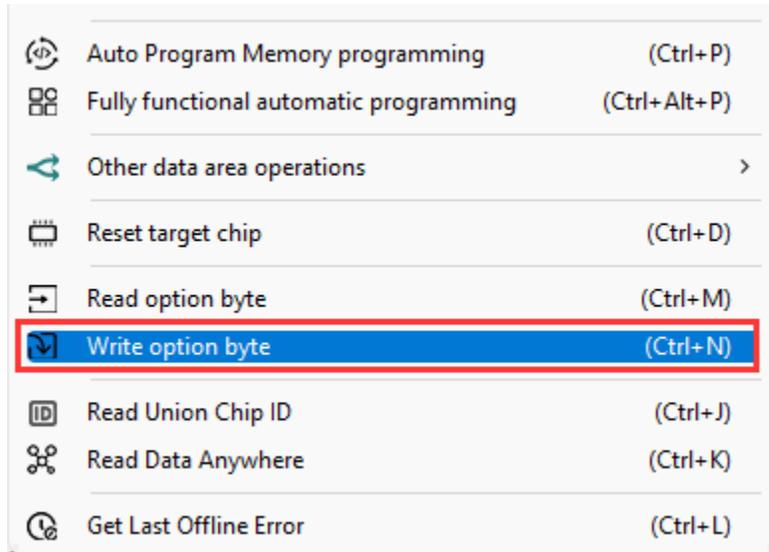
2 : Setting option bytes

After connecting the chip, switch to the Option Byte page, and then restore the option word to default, or modify the read protection method to none, as shown in the figure.



3 : Write option byte

After turning off the read protection in the option byte, you need to write the option byte to the chip to remove the read protection, as follows:



4 : Operational Demonstration

The screenshot shows the Power Writer software interface. The title bar reads "Power Writer® 1.3.8.0 [Build:2024-04-10 19:40:33]". The menu bar includes "File(E)", "Operation(E)", "Tools(T)", "Setting(S)", and "Help(H)". The toolbar contains icons for "Open", "Save", "F-in", "F-out", "PLoad", "PRead", "Blank", "Erase", "Read", "Write", "Verify", "Auto", "Reset", "ID", "AnyRD", "Error", "Serial", and "Wire". The "Device" dropdown is set to "PWX1". Below the toolbar, there are tabs for "Writer Setting", "Option bytes", "Program Memory", and "OTP Memory". The "Option bytes" tab is active, showing a list of options with their values. The "Option Byte:" field contains "AA E1 FF DF 3F 00 00 00 3F 00 00 00" and the "Size" is "12 Byte".

Option Name	Option Value(Click the item with the mouse and select the parameters from the drop-c
>>>	[Double-click to modify] Byte 0
RDP	0xAA: Level 0, read protection not active
>>>	[Double-click to modify] Byte 1
nRST_STDBY	0x01: No reset generated when entering the Standby mode
nRST_STOP	0x01: No reset generated when entering the Stop mode
>>>	[Double-click to modify] Byte 2
RAM_PARITY_CHECK	0x01: SRAM parity check disable
WWDG_SW	0x01: Software watchdog
IWDG_STBY	0x01: Independent watchdog counter is running in Standby mode
IWDG_STOP	0x01: Independent watchdog counter is running in Stop mode
IWDG_SW	0x01: Software independent watchdog
>>>	[Double-click to modify] Byte 3
nBOOT0	0x01: nBOOT0=1
nBOOT1	0x01: nBOOT1=1
nBOOT_SEL	0x01: BOOT0 signal is defined by nBOOT0 option bit
>>>	[Double-click to modify] Byte 4
WRP1A_STRT bit5	0x01: WRP1A_STRT bit5
WRP1A_STRT bit4	0x01: WRP1A_STRT bit4
WRP1A_STRT bit3	0x01: WRP1A_STRT bit3
WRP1A_STRT bit2	0x01: WRP1A_STRT bit2
WRP1A_STRT bit1	0x01: WRP1A_STRT bit1
WRP1A_STRT bit0	0x01: WRP1A_STRT bit0

At the bottom, a status bar shows "Target: connected" and "ICWorkShop Technology (Shenzhen) Co., Ltd.All Right Reserved".

CAUTION

Unprotected, updating the option byte causes the target chip to initiate an internal erase operation, and depending on the security characteristics of the chip, the original data inside will be lost.

5 : Unlock chip when SWD is off

Some chip models in the programming, and the mainstream chip there are some differences, when the chip's option byte is set to the first level of protection or the second level of protection, the chip will automatically turn off the SWD after programming, at this time the specific unlocking mode refer to the CX32 unlocking mode, the chip will automatically turn off the SWD after programming.

See [CX32 unlocking method](#).

Tags: [FAQ](#) [Read](#) [Online](#) [Status](#) [Connect](#)

 [Edit this page](#)

*Last updated on **Apr 15, 2024** by **Alan Chen***

Version: Next

3.1.15 : Chip Connection Failure

1 : Troubleshooting wire problems

Use a multimeter to self-test that the DuPont wire used is conducting.

- Connect the red and black pens correctly.
- Connect the red and black pens to the ends of the wires to be measured.
- If the resistance is close to zero, or relatively small, the wire is connected, and if the resistance is high the wire is disconnected.



TIP

If, after the above operation, you determine that there is a problem with the cable, you will need to replace the cable before proceeding with the operation.

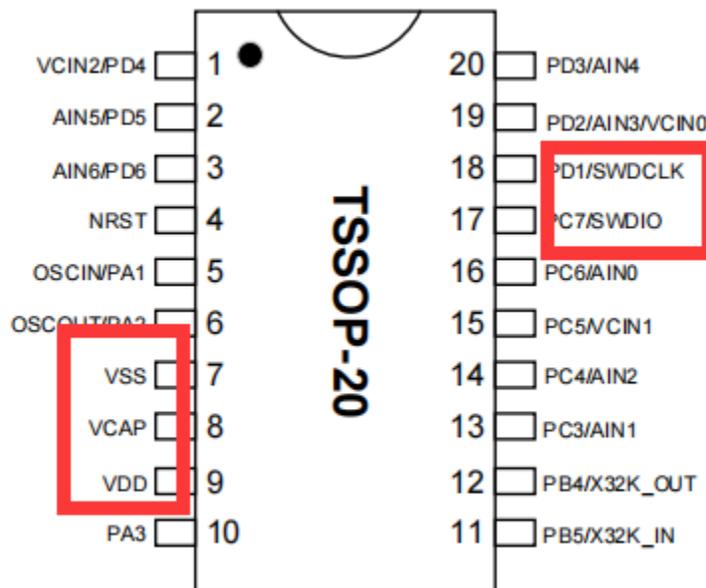
2 : Troubleshooting Hardware Issues

- First, open the corresponding datasheet of the chip to find the corresponding power supply pins and programming ports of the chip, and then make sure that the hardware is soldered properly and then connect the chip to the power supply.
- Without connecting the programming ports, such as SWDIO and SWDCLK, measure the voltage of SWDIO with a multimeter.

- If the chip is empty or there is no multiplexed SWDIO pin, the SWDIO pin has the same voltage as the power supply of the chip, if not, there is a hardware abnormality, please check the hardware.

Example references:

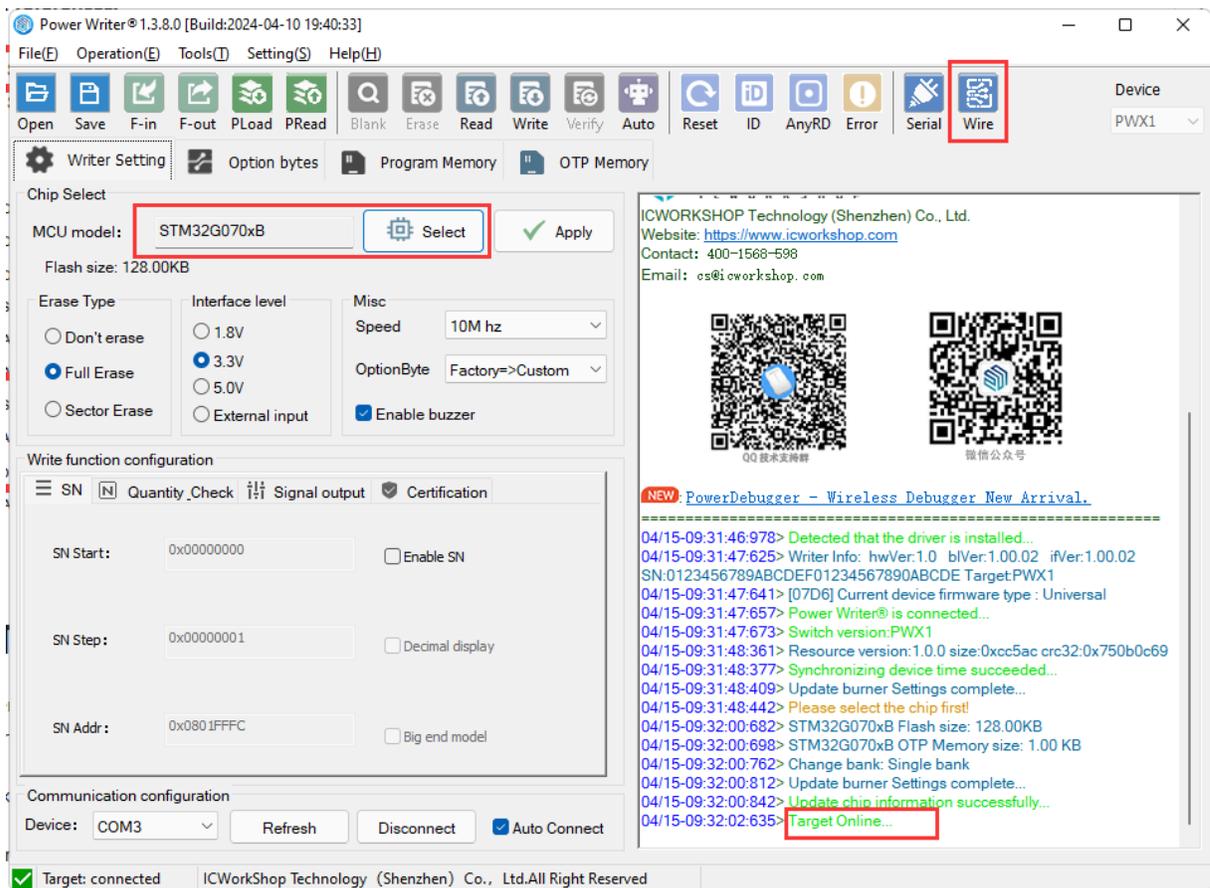
- SWDIO: input pull-up
- SWCLK: input pull-down



3 : Troubleshooting programmer wiring problems

- Open the PowerWriter® software and select the appropriate model number based on the chip model and view the appropriate connection diagram.
- Click on the Tools button in the menu bar to view the interface definition for the corresponding programmer.

- Prioritize the use of the connection cable provided with the programmer and ensure a stable connection.
- Ensure that the corresponding power supply and programming port are connected properly. If they are connected properly, the software log will show that the **target chip is connected**.
- For wiring details and description of the programmer pinout see [About Wiring](#).

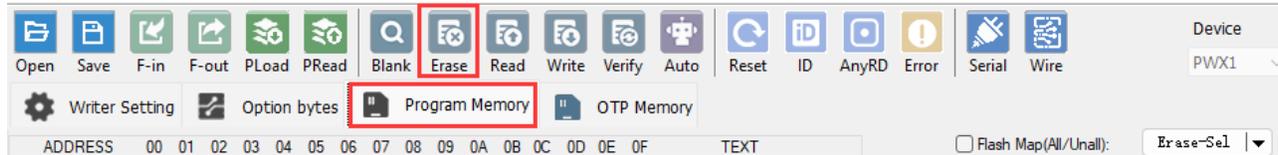


- Target: connected ICWorkShop Technology (Shenzhen) Co., Ltd.All Right Reserved



4 : IO multiplexing pins

- When the program running on the chip has multiplexed pins, it is recommended to use only the programmer's power connector when connecting.
- When using an external power supply, connect the reset pins.
- When the chip is multiplexed, compilers such as KEIL may not be able to connect to the chip, so you need to use PowerWriter® software to erase the chip before debugging.
- When multiplexing the chip's programming pins in a program, it is recommended to add a delay of about 2~20ms before them.

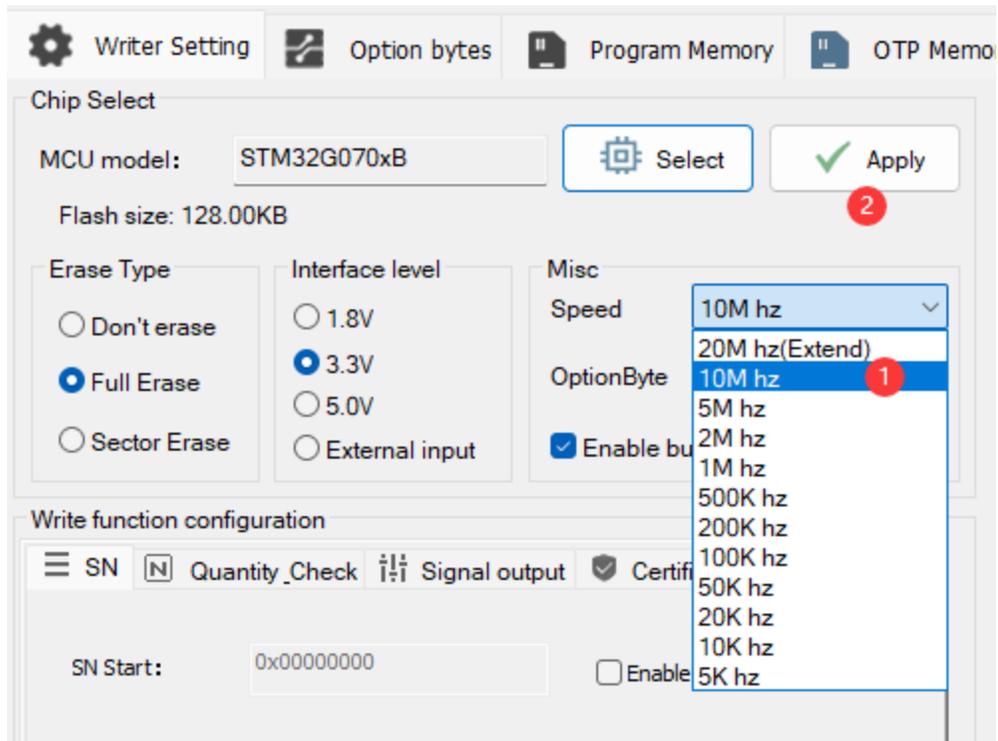


5 : Troubleshooting chip damage

- Replace the chip with a new one.
- Replace the PCB with a new one.
- Replace with another chip model.

6 : Try to adjust the clock speed

In different environments, the clock speed of the PowerWriter® programmer mode is higher than that of the Debugger mode. For example, in the MDK system environment, the default clock speed is 1Mhz, and the default clock speed of the PowerWriter® is 10Mhz, so there may be a situation in which the MDK is able to connect to the target chip but the PowerWriter® fails to do so. There may be cases where the MDK can connect to the target chip, but the PowerWriter® connection fails. You can try to reduce the clock speed to, for example, 5Mhz, etc. In some applications, the MCU firmware has enabled read protection, so you need to connect to the target chip with a faster speed, and you need to adjust the clock speed to a higher speed, or else you may have a handshake failure (the system enters into the protection state, and the debugging port is turned off). settings to the PowerWriter® device, as shown below:



Tags:

[FAQ](#)

[Target Connect](#)

[Connect](#)

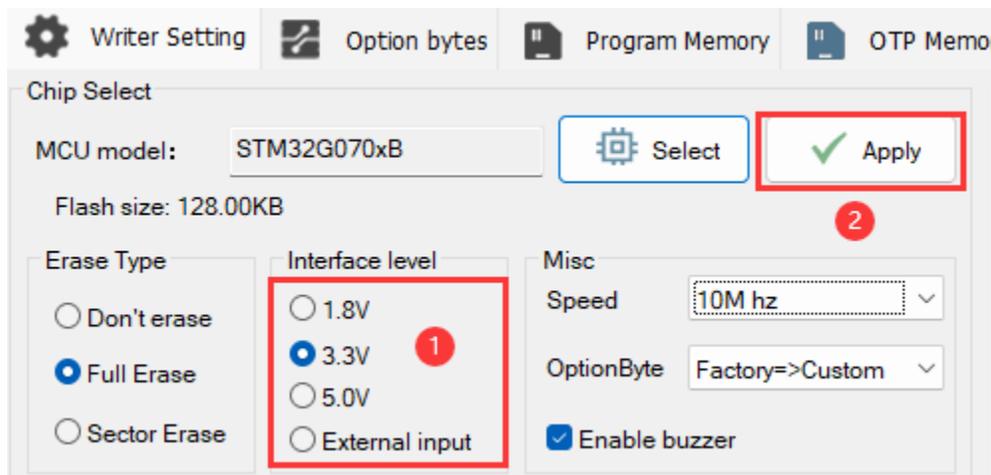
[Edit this page](#)

Last updated on **Apr 15, 2024** by **Alan Chen**

Version: Next

3.1.16 : VREF Config

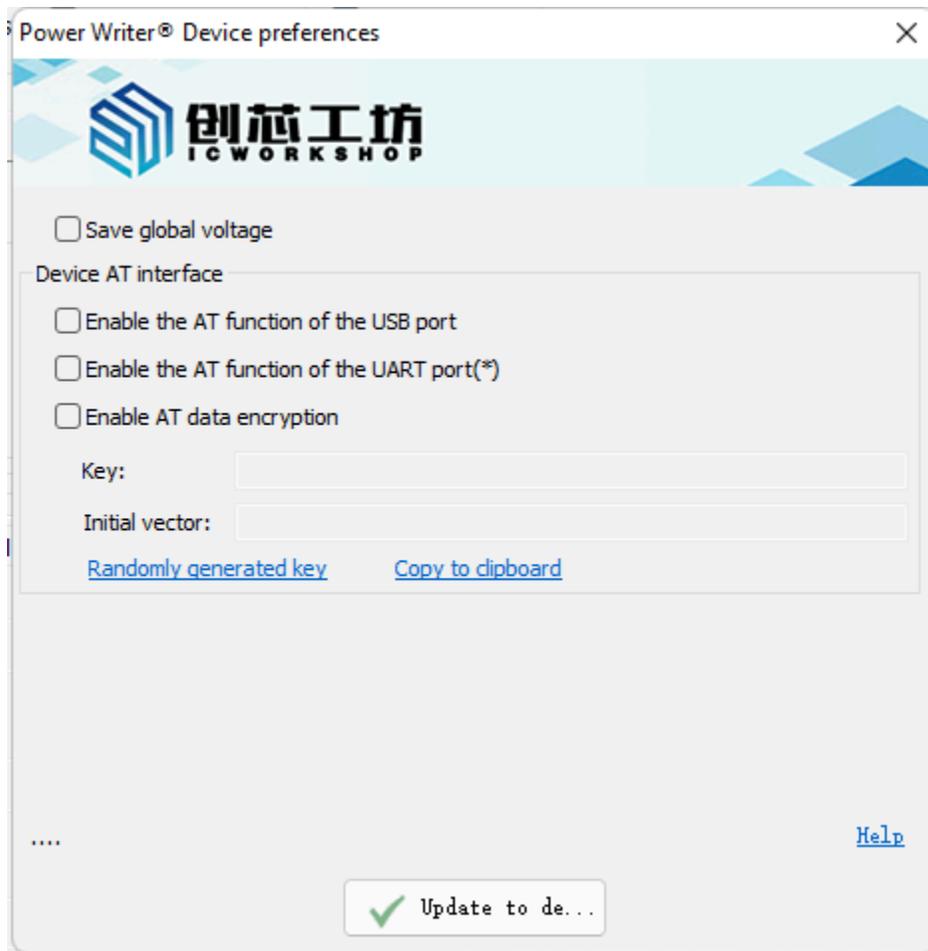
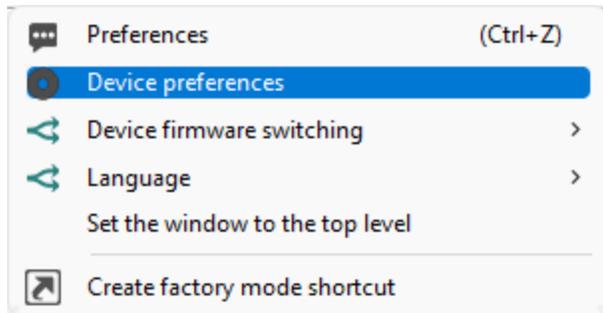
Interface voltage Setting (VREF) is used to set the output voltage of the programmer and the level size of the programmer signal, which generally defaults to 3.3v on power-up, and can be changed by connecting to the PowerWriter® upstream software, refer to the following:



TIP

When an external voltage is selected, the target board should be connected to the programmer's power pins and ground along with the external power supply, as it is necessary to use the external input power to power the programmer interface.

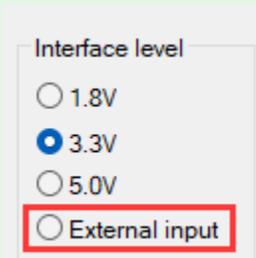
Modify the default output voltage when the programmer is powered on, you need to check Save Global Save Voltage:



 **TIP**

- When the default output voltage is to be re-modified, the settings need to be updated again once more.

- If you need to turn off this action for different application scenarios, please change the setting to external power input and do not use the power supply of the device itself to control it, as shown below:



⚠ ABOUT OUTPUTS VREF(VEXT) OUTPUT JUMPS

VREF (Reference Voltage), VEXT (Extended Voltage) may jump when the chip is not successfully connected, this action is actually trying to execute POR (Power On Reset), which is used to solve the problem of connecting and unlocking when the target chip is in the following two situations:

- **Target chip open protection:** After some chips open protection again, the RESET pin may not be able to perform reset and can only be reset by POR, at this time, it is necessary to perform POR to communicate with the target chip.
- **Target chip internal firmware disables debug port, or multiplexes RESET pin:** Some chips run internal firmware that multiplexes the debug port IO, or multiplexes the RESET pin, which may also result in not being able to reset the target chip, and only attempting a POR reset.

Note: Self-output power supply can do POR, external input voltage can't do POR; however, if self-power supply exists on the board, it also can't do POR, the power supply must be controlled by PWLINK.

Tags: [FAQ](#) [voltage](#)

 [Edit this page](#)

*Last updated on **Apr 15, 2024** by **Alan Chen***

Version: Next

3.1.17 : Chip name turns gray

1 : Vendor Signature Overview

When PWLINK2 Lite products are manufactured, several brands are signed by default, and other unsigned brands are not available by default. If you need to switch brands, series, or models supported by the PWLINK2 Lite version, you need to select the user in the platform and then synchronize the settings in order to use the new brand:

Chip Select

Vendor	Series	Type
A1SEMI	ASM32F300 Series	ASM32F300B4DI
Aerosemi	ASM32F310 Series	ASM32F300B4QI
Air	ASM32F312 Series	ASM32F300D4DI
AisinoChip	ASM32F320 Series	ASM32F300D4FI
Artery	ASM32F321 Series	ASM32F300D6FI
AUCU		ASM32F300D8FI
Autochips		ASM32F300F4BI
ChipNexus		ASM32F300F4DI
CKS		
CMIOT		
Cmsemicon		
CS32		
CubicLattice		
CW32		
Edgeless		
FMD		
FMSH		
GD32		
Geehy		
GFCHIP		
HC32		
HED		
HK32		
InnoStar		
JuSheng		
LCM32		
Linko		
Metanergy		
MH		
Microchip		
MM32		
Nations		
Nordic		

Find Selected [Export](#)

[Vendor sign\(Gray\)](#) [Add favorites](#) [Favorites](#)

! INFO

- PWLINK2 Lite and PWLINK2 hardware are identical.
- PWLINK2 supports all existing brands as well as future adapted brands. Lite can only use a few brands at the same time, if you need to use other brands, you

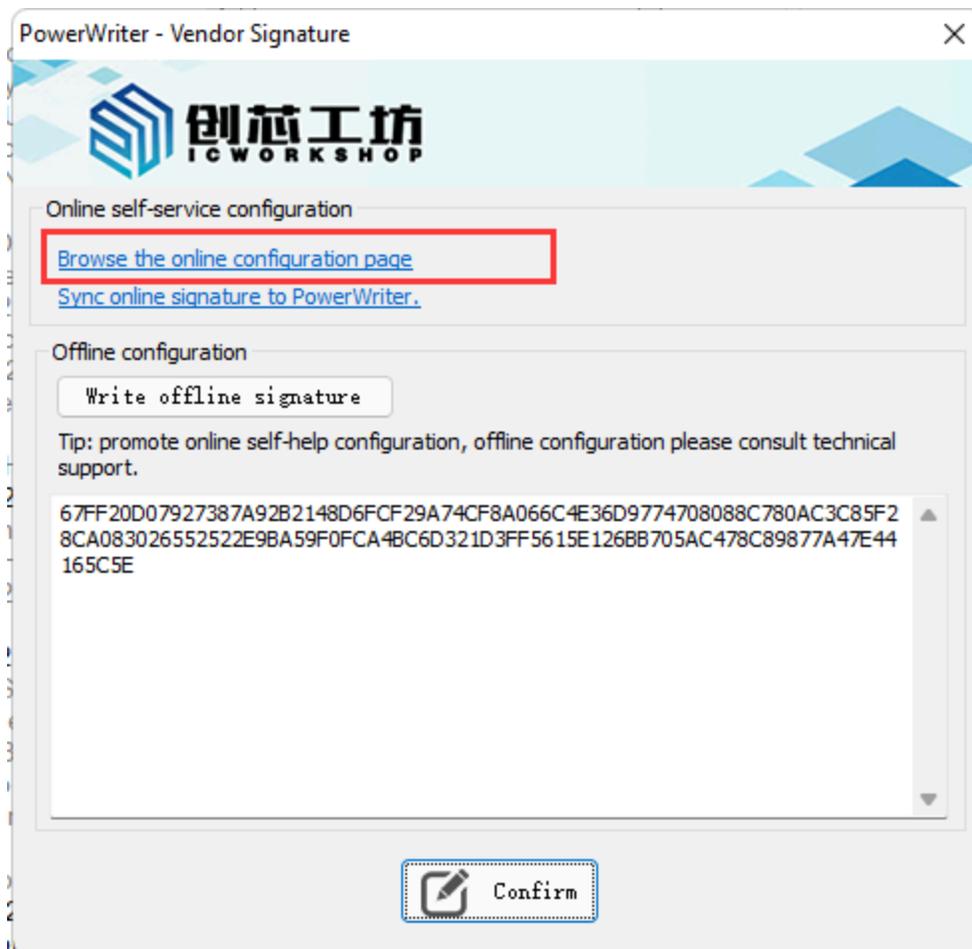
need to switch yourself.

- PWLINK2 Lite can manually change supported brands by itself.

2 : Configure vendor signatures online

2.1 : Online Self-Configuration

Online self-configuration function, by clicking on the chip selection interface in the lower left corner of the "chip manufacturer's signature", hyperlink to enter the boot configuration page, as shown in the following figure:



Click "Open Online Configuration Page" to go to the platform server side as shown below:

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My Space Buyer Developer Tools ↓ Help Center - 99+ cshsoft 中文 / EN

Tools >

Tool Configuration ▾

Chip Configuration

Chip Configuration

Writer SN:

*Opening this page through Power Writer software will automatically bring in the SN, or view and copy the writer SN through the software, and paste it here.

*The SN of the burner is private information, beware of information leakage.

Writer Info:
type:PWLINK2 Lite hardware version:1.3 interface version:1.00.92 bootLoader Version:1.00.04

Authorized Signature:
BBA344C87D47E0C2424AC49DC3C7B93730DC049E0843551F64486DD85BB8259FF73F2E1807A28D187F46AB357387DA5B2A37058BC3367DE99613E02A0A4346CFEA12654AA7

Supported Brands/Series (5/5):

- GD32
- HC32
- HK32
- MM32
- STM32
- A1SEMI
- Aerosemi
- Air
- AisinoChip
- Arterv

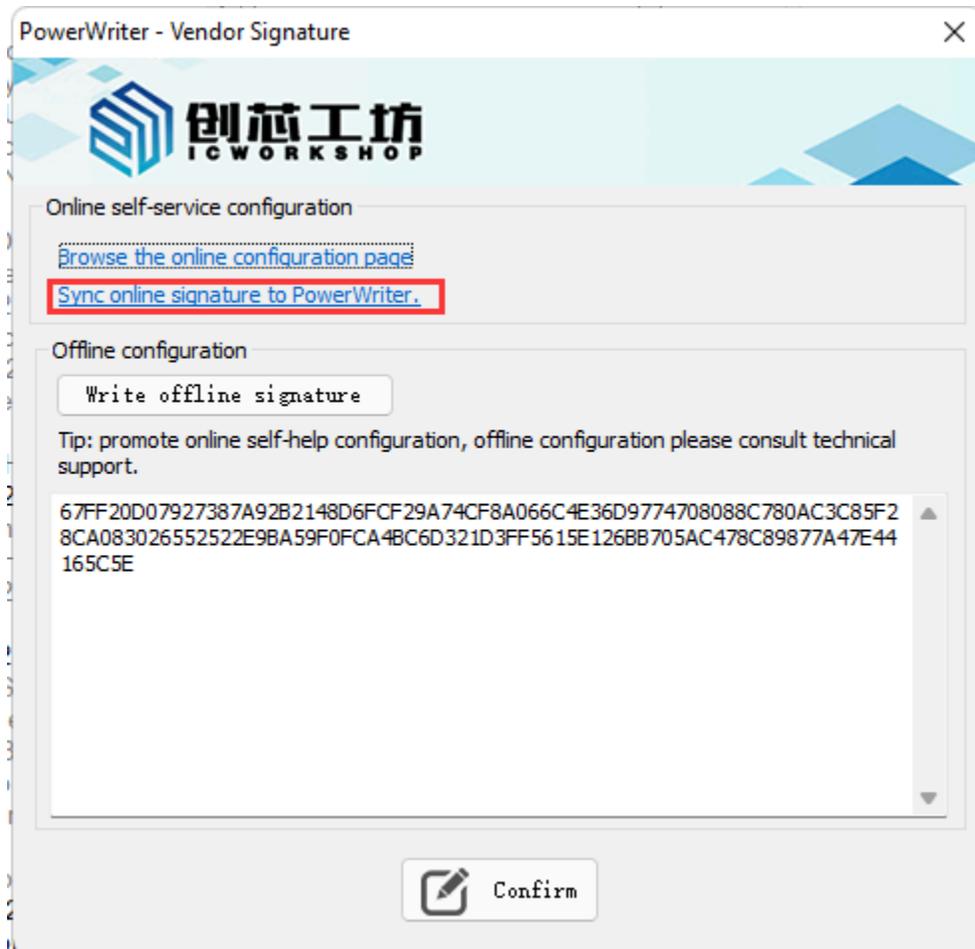
According to the list of brands displayed, select the brand you need to use by yourself as needed, and confirm when the selection is complete.

CAUTION

- If you don't have an account with Creative Core Workshop, please register for an account and log in to the vendor signature configuration page.
- If you are not connected to the device, the client will not show the synchronization entry and you need to use offline configuration.

2.2 : Online Self-Service Synchronization

After completing the manufacturer's configuration on the platform side, you need to synchronize the information to the PWLINK2 Lite device and synchronize the manufacturer's signature information in the PowerWriter® client, as shown below:



Wait for the operation to complete and then OK to synchronize the vendor signature to the chip.

3 : Offline configuration of vendor signatures

If the PWLINK2 Lite hardware device is no longer around, or if there is no network in the current environment, this means that the online synchronization function cannot be used, in which case the offline vendor signature can be used.

3.1 : Copy the device's SN

To generate signature information offline, you need to bind it to the SN of the current device, please connect the device first, read the SN information of the device, and copy the SN information to the clipboard.

3.2 : Online signature generation

Configure the page online using a web-enabled device such as a cell phone. [Tool Configuration \(icworkshop.com\) \(https://www.icworkshop.com/user/supportChipConfiguration\)](https://www.icworkshop.com/user/supportChipConfiguration)

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My Space Buyer Developer **Tools** Help Center - 99+ cshsoft 中文 / EN

Tools >

Tool Configuration

Chip Configuration

Chip Configuration

Writer SN: Please enter the serial number of the write Go

*Opening this page through Power Writer software will automatically bring in the SN, or view and copy the writer SN through the software, and paste it here.

*The SN of the burner is private information, beware of information leakage.

Supported Brands/Series (5/5):

- A1SEMI
- Aerosemi
- Air
- AisinoChip
- Artery
- AUCU
- Autochips

Fill in the SN of the device, and then query the device to get the device information as shown below:

Chip Configuration

Writer SN: 1 2

*Opening this page through Power Writer software will automatically bring in the SN, or view and copy the writer SN through the software, and paste it here.

*The SN of the burner is private information, beware of information leakage.

Writer Info:

type:PWLINK2 Lite hardware version:1.3 interface version:1.00.92 bootLoader Version:1.00.04

Authorized Signature:

BBA344C87D47E0C2424AC49DC3C7B93730DC049E0843551F64486DD85BB8259FF73F2E1807A28D187F46AB3573
87DA5B2A37058BC3367DE99613E02A0A4346CFEA12654AA7

Supported Brands/Series (5/5):

<input checked="" type="checkbox"/> GD32
<input checked="" type="checkbox"/> HC32
<input checked="" type="checkbox"/> HK32
<input checked="" type="checkbox"/> MM32
<input checked="" type="checkbox"/> STM32 3
<input type="checkbox"/> A1SEMI
<input type="checkbox"/> Aerosemi
<input type="checkbox"/> Air
<input type="checkbox"/> AisinoChip
<input type="checkbox"/> Artery
<input type="checkbox"/> AUCU

When ready, execute the modification:

<input type="checkbox"/> TAE
<input type="checkbox"/> TI
<input type="checkbox"/> UNICMICRO
<input type="checkbox"/> WCH
<input type="checkbox"/> XK32
<input type="checkbox"/> Zbit

[Modify](#) 1

After the operation is successful, copy the signature information:

*The SN of the burner is private information, beware of information leakage.

Writer Info:

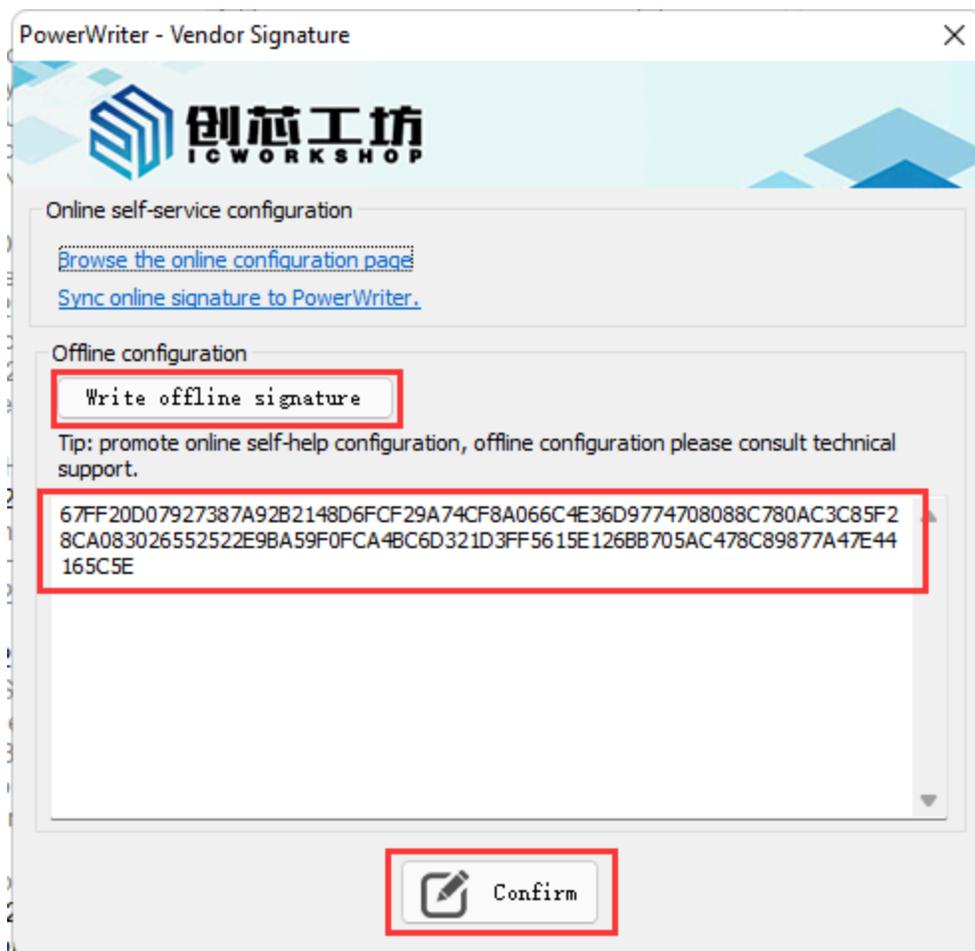
type:PWLINK2 Lite hardware version:1.3 interface version:1.00.92 bootLoader Version:1.00.04

Authorized Signature:

BBA344C87D47E0C2424AC49DC3C7B93730DC049E0843551F64486DD85BB8259FF73F2E1807A28D187F46AB3573
87DA5B2A37058BC3367DE99613E02A0A4346CFEA12654AA7

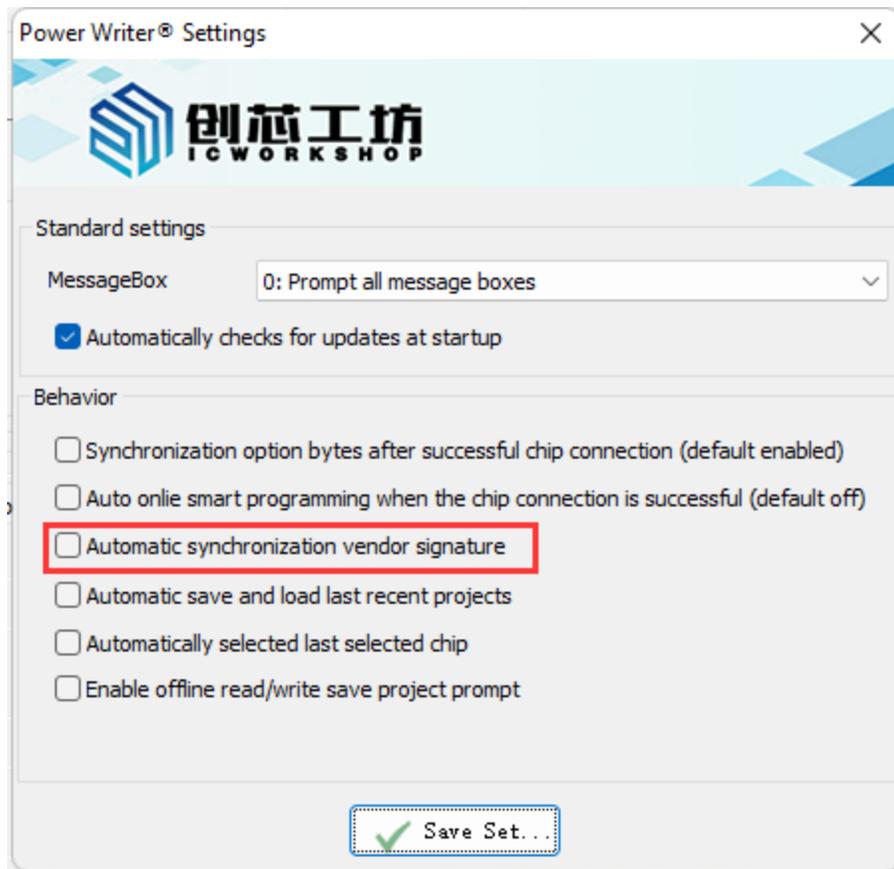
Supported Brands/Series (5/5):

At PowerWriter® Vendor Signature, paste the signature code, then write to the device and OK as shown below:



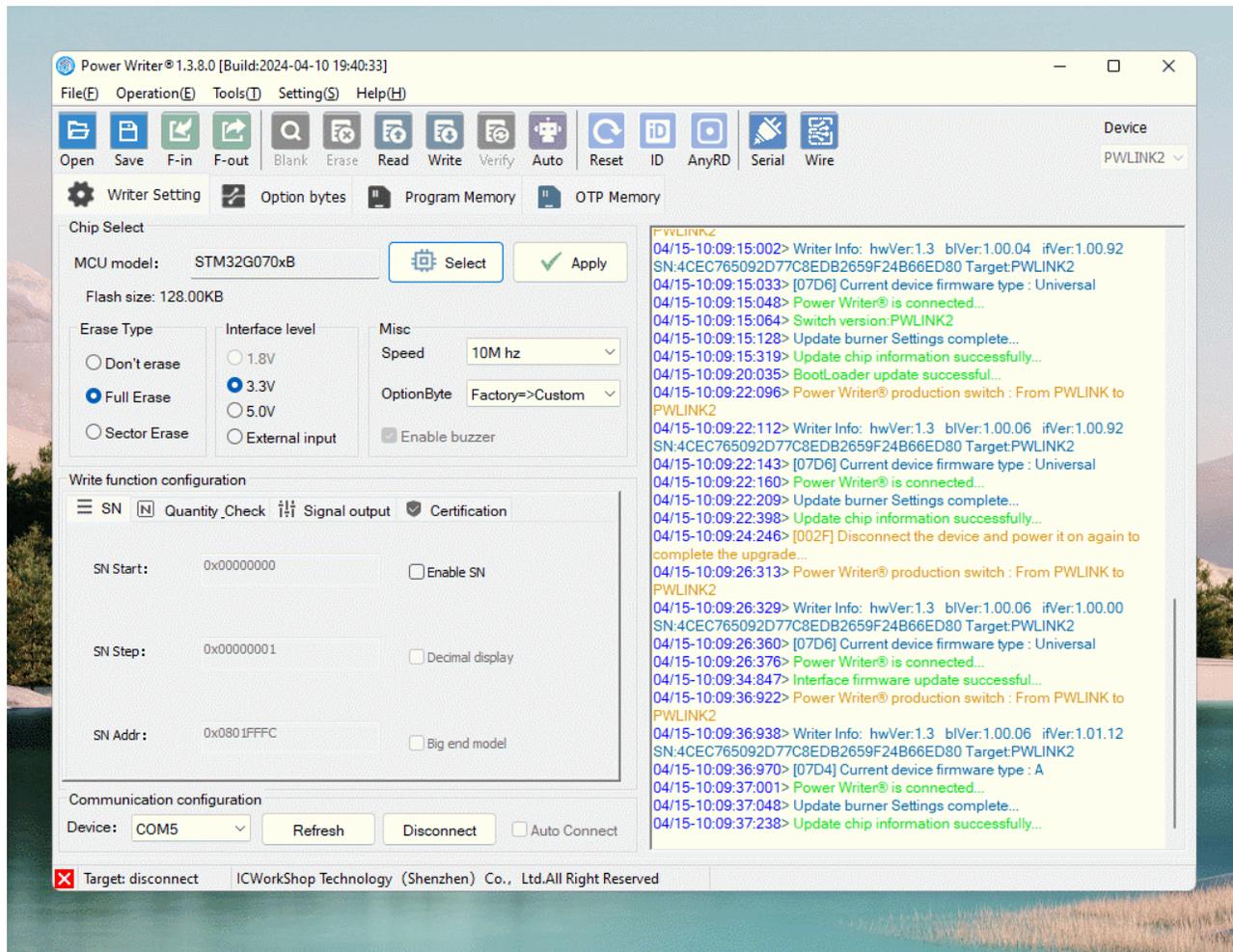
4 : Automatic synchronization of settings

Vendor signature will not be automatically synchronized by default, if you need to synchronize the vendor signature automatically, please check this function in Settings->Preferences->Automatic Synchronization of Vendor Signature, every time you select the chip, the vendor signature information will be automatically synchronized from the platform side, as shown in the following figure:



5 : Operational Demonstration

This demonstration is to add the Air branded series:



⚠ CAUTION

Automatic synchronization of signatures may cause lag in system environments with poor network environments, so it is recommended to keep the default off and manually configure or synchronize when needed.

Tags:

[FAQ](#)

[PWLINK Lite](#)

[STACK](#)

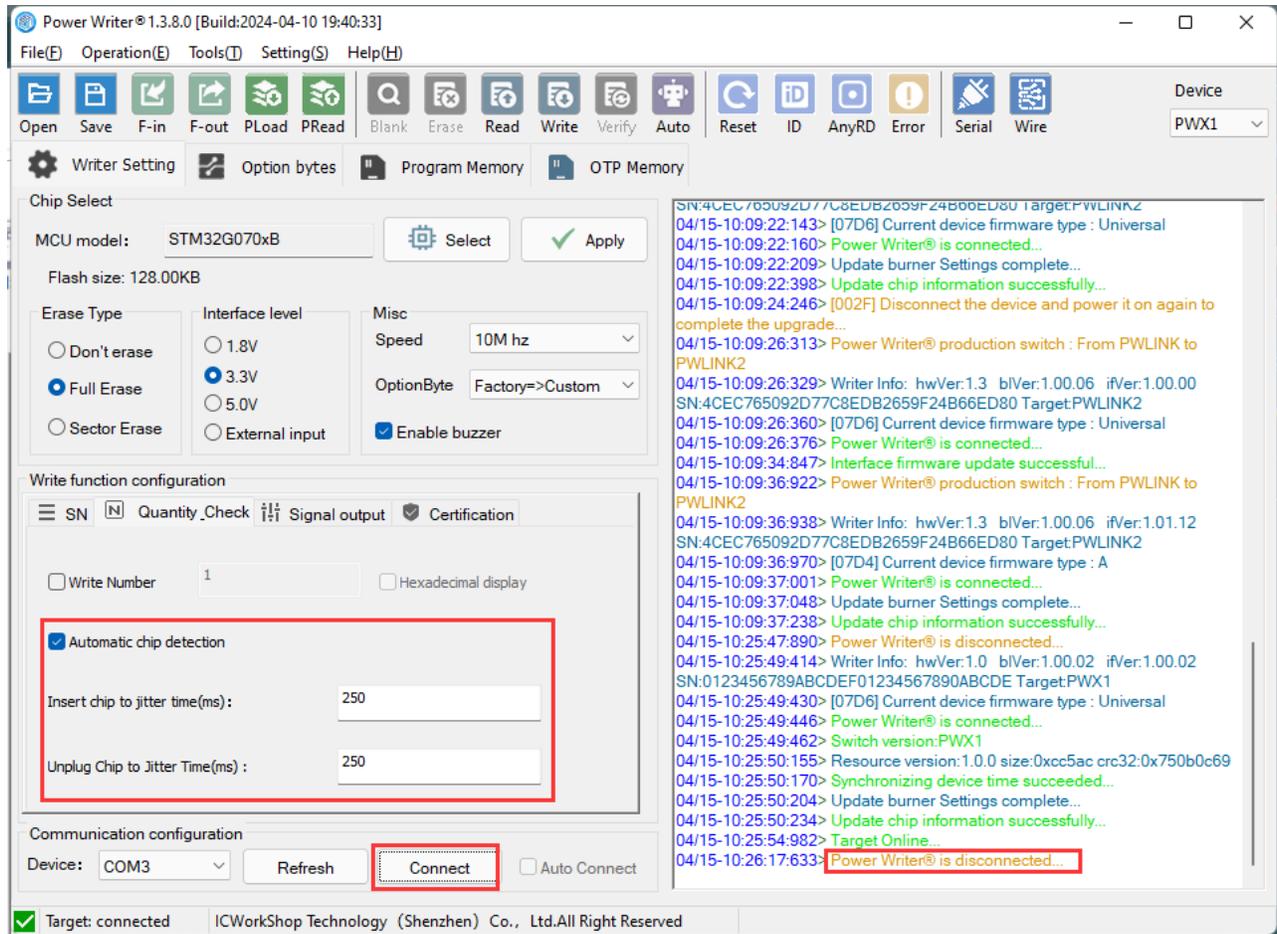
 [Edit this page](#)

Last updated on **Apr 15, 2024** by **Alan Chen**

Version: Next

3.1.18 : Offline auto start/stop

When you make the pkg file for offline programming, check Auto Chip Detection in Quantity and Self-Detection page, after loading the offline data (click the shortcut key above to load, or load offline in the menu bar Execute), you need to keep the offline state and manually press the key to programming and start the function of auto chip detection. Note: Even if automatic chip detection is enabled, you still need to manually press the key to start the programming process for the first time during the programming process.



Tags: [FAQ](#) [Offline](#)

 [Edit this page](#)

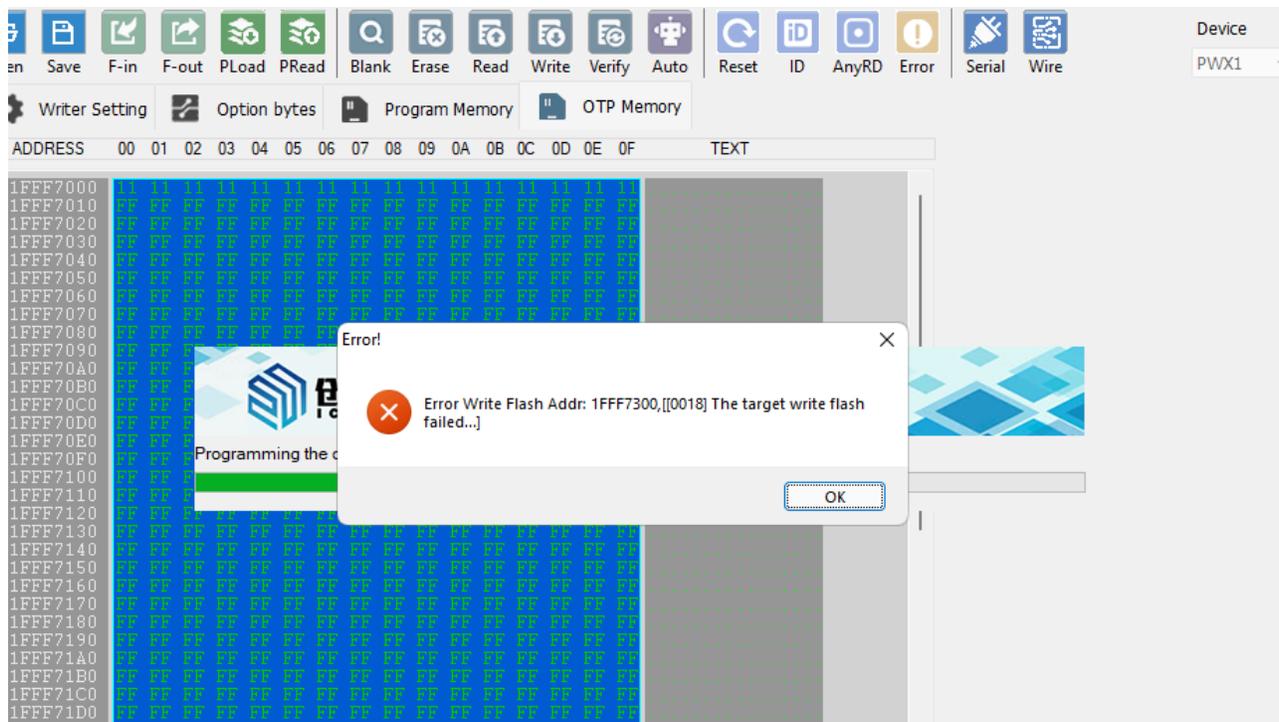
Last updated on **Apr 15, 2024** by **Alan Chen**

Version: Next

3.1.19 : Online Failure

1 : Impunity

Descriptive: Error Write Flash Address The target write flash failed.



2 : Handling

- **Not erased before programming (programming):** Please erase the chip first and retry.
- **The chip is (write) protected:** Please set the option byte to default, and then perform a reset after writing the default option word.

- **Other reasons:** Occasional reasons such as unstable communication, you can try to replace the cable and retry, if you can not identify the cause by yourself, please contact technical support and submit detailed information for processing.

Tags: [FAQ](#) [Online](#) [RDP](#)

 [Edit this page](#)

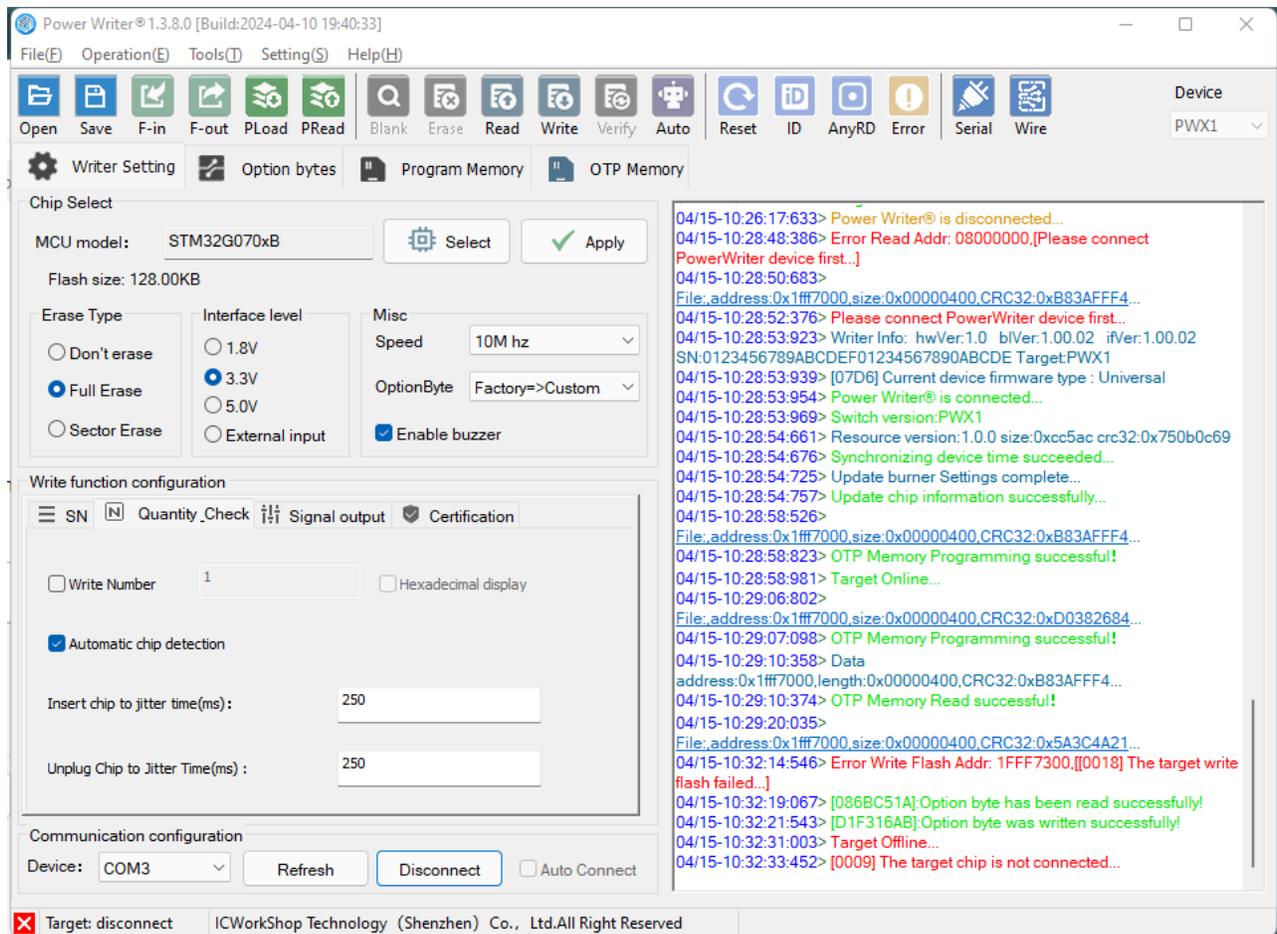
*Last updated on **Apr 15, 2024** by **Alan Chen***

Version: Next

3.1.20 : Failed W/R Option Byte

1 : Error message

During the process of reading and writing the Option Byte (OB) to the target chip, the following read/write errors may occur, as shown in the figure below:



2 : Possible causes

- **Discrepancy between the actual chip and the target chip:** Each model may have a different memory layout structure (memory map), which may result in undefined behavior if reading or writing in the wrong way. If you read or write in the wrong way, it may lead to undefined behavior and cause errors, please make sure the chip is the currently selected chip. -Please make sure the chip is the currently selected chip.
- **Wiring is unstable:** Replace wire, 'Re-plug and retry.
- **Other reasons:** Please provide feedback to our technical support.

Tags:

[FAQ](#)

[Option Byte](#)



[Edit this page](#)

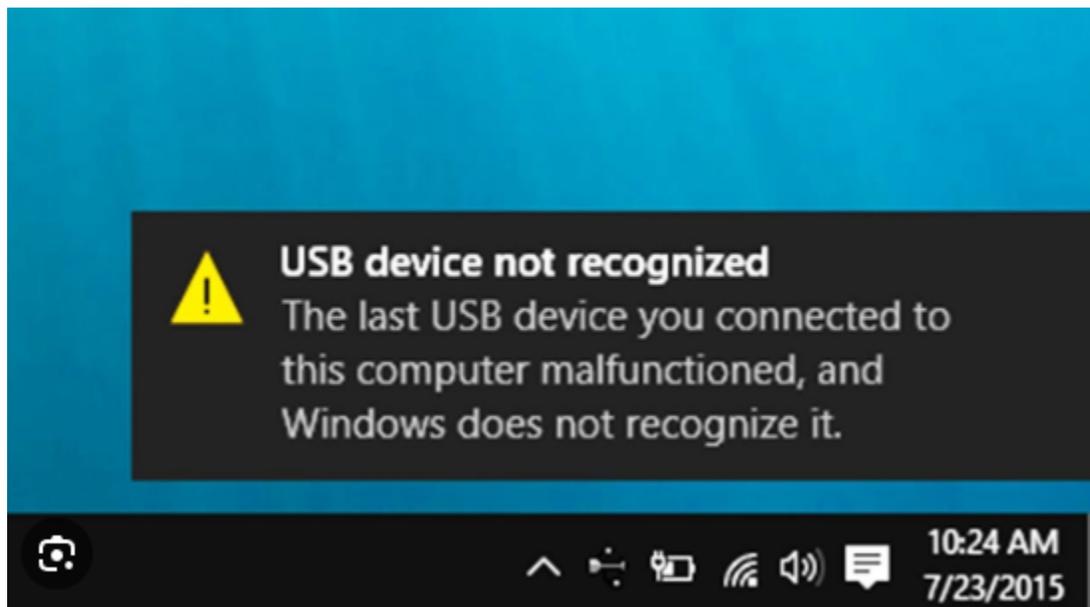
Last updated on **Apr 15, 2024** by **Alan Chen**

Version: Next

3.1.21 : USB not recognized

1 : Error message

When the device is connected to USB, it prompts for unrecognized USB devices. As shown in the figure below:



2 : Causes and solutions

- If you are using a cable that has only a power supply function but no communication function, you can replace the USB cable or use the USB cable that comes with the device.
- Using the host front USB interface, the front USB interface is wired from the motherboard to the chassis, the quality of the chassis on the market varies greatly, the

USB interface aging and other circumstances that lead to USB communication instability, this time you can connect the device to the host rear USB interface to try.

- If you are using a poor quality HUB extension cable or if you are using an extension cable that is too long and the communication is unstable, you can replace it with a high quality HUB or use the rear USB port.
- Damage to the device itself can be determined by observing the state of the device and, if necessary, contacting after-sales support and technical support.

Tags: [FAQ](#) [USB](#)

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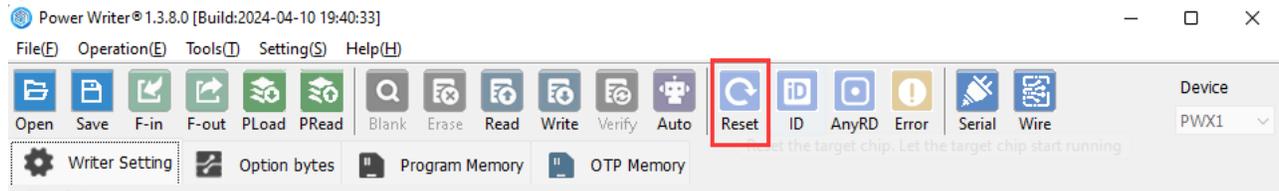
Version: Next

3.1.22 : Target not running

After programming the firmware (program), whether the chip operates or not depends on the settings and whether the programmed data is complete or not, please follow the flow as below.

1 : Manual reset in online mode

1.1 : Toolbar click on the reset button

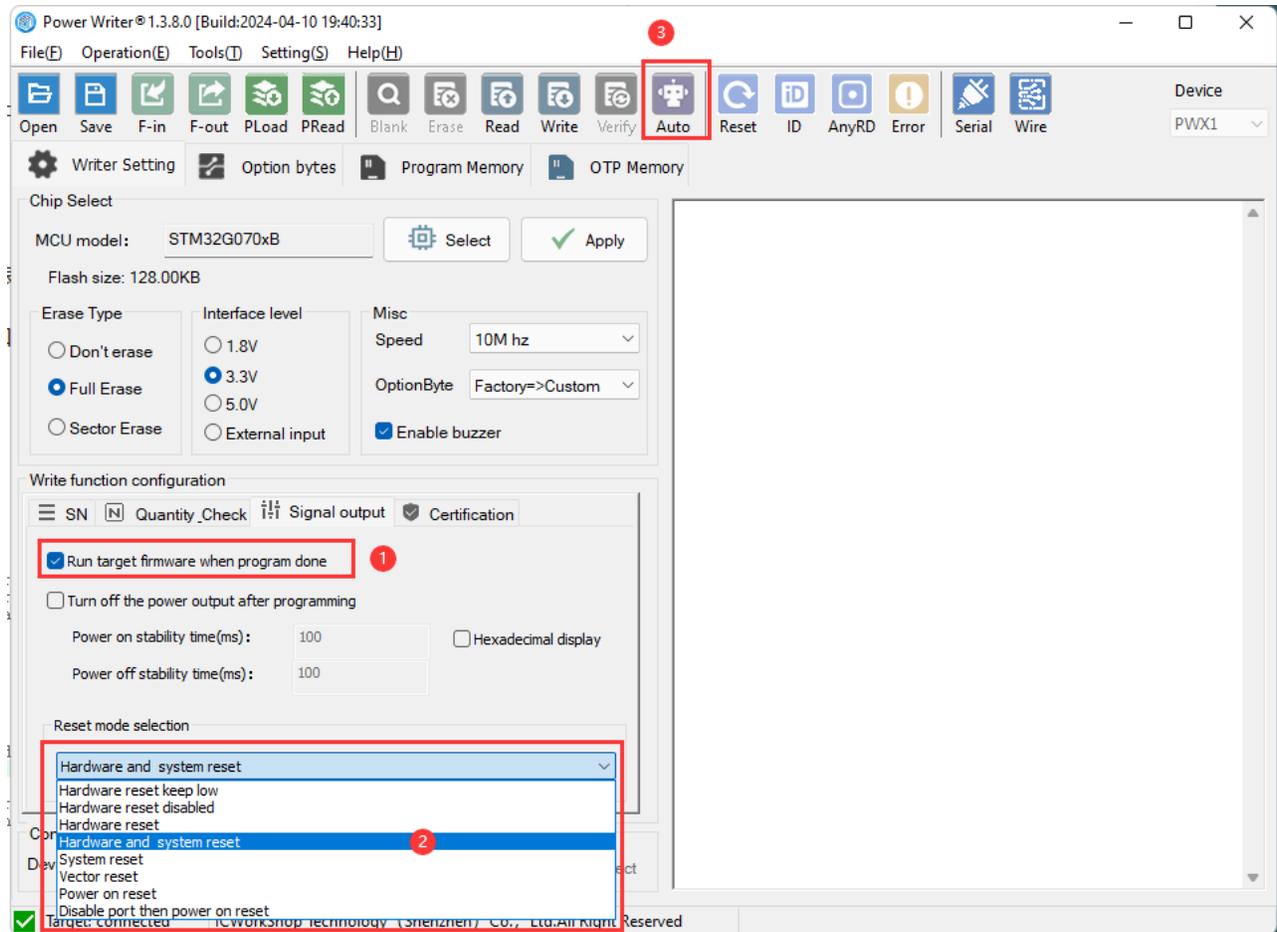


1.2 : Reset button (shortcut) in the menu

	Offline load	(Ctrl+Shift+L)
	Offline upload	(Ctrl+Shift+R)
<hr/>		
	Read Program memory	(Ctrl+R)
	Blank check Program memory	(Ctrl+B)
	Erase Program memory	(Ctrl+E)
	Program Program memory	(Ctrl+W)
	Verify Program memory	(Ctrl+V)
<hr/>		
	Auto Program Memory programming	(Ctrl+P)
	Fully functional automatic programming	(Ctrl+Alt+P)
<hr/>		
	Other data area operations	>
<hr/>		
	Reset target chip	(Ctrl+D)
<hr/>		
	Read option byte	(Ctrl+M)
	Write option byte	(Ctrl+N)
<hr/>		
	Read Union Chip ID	(Ctrl+J)
	Read Data Anywhere	(Ctrl+K)
<hr/>		
	Get Last Offline Error	(Ctrl+L)

2 : Automatic reset in online mode

If you use online full-function auto-programming, before performing full-function auto-programming operation, please check the box: Start the target chip after programming is completed in Signal Output Control, and then perform full-function auto-programming as follows:



3 : Automatic reset in offline mode

The setting of auto reset in offline mode is the same as that of auto reset in online mode: please check the box: Start the target chip after programming is completed in Signal Output Control.

4 : Still not working after reset

If the program still fails to run after a reset, the problem lies in the programmed file itself, which is roughly categorized as follows based on feedback:

- Very few manufacturers SDK compiled firmware, need to perform additional patches, such as interrupt entry error or missing, for example, SWM181x9 series chips, different version of the SDK compiled firmware, interrupt vector table entry is not correct, but instead in the programming process to patch.

```

57
58 ; Vector Table Mapped to Address 0 at Reset
59
60         AREA    RESET, DATA, READONLY
61         EXPORT  __Vectors
62         EXPORT  __Vectors_End
63         EXPORT  __Vectors_Size
64
65 __Vectors    DCD  Stack_Mem + Stack_Size ; Top of Stack
66             DCD  Reset_Handler          ; Reset Handler
67             DCD  NMI_Handler            ; NMI Handler
68             DCD  HardFault_Handler     ; Hard Fault Handler
69             DCD  0
70             DCD  0
71             DCD  0
72             DCD  0
73             DCD  0x0B11FFAC
74             DCD  0x6000
75             DCD  SRAM_SWITCH
76             DCD  SVC_Handler           ; SVCcall Handler
77             DCD  0
78             DCD  0
79             DCD  PendSV_Handler        ; PendSV Handler
80             DCD  SysTick_Handler       ; SysTick Handler
81
82         ; External Interrupts
83         DCD  IRQ0_Handler
84         DCD  IRQ1_Handler
85         DCD  IRQ2_Handler
86         DCD  IRQ3_Handler
87         DCD  IRQ4_Handler
88         DCD  IRQ5_Handler
89         DCD  IRQ6_Handler
90         DCD  IRQ7_Handler
91         DCD  IRQ8_Handler
92         DCD  IRQ9_Handler
93         DCD  IRQ10_Handler
94         DCD  IRQ11_Handler
95         DCD  IRQ12_Handler
96         DCD  IRQ13_Handler
97         DCD  IRQ14_Handler
98         DCD  IRQ15_Handler
99         DCD  IRQ16_Handler
100        DCD  IRQ17_Handler
101        DCD  IRQ18_Handler

```

The marked position is the option word, which is only valid if it is 0xabcd1234; other values may cause problems that prevent operation.

- The compiled firmware contains SRAM firmware, but when programmed, only the flash firmware is programmed, resulting in incomplete firmware. To deal with this kind

of problem, please adjust the compilation settings (sct hash file), or consult with the manufacturer to compile a complete flash firmware and programming it.

- Firmware contains multiple segments, when programming, only add one of the segments, forget to add the other segments, you can merge to add the firmware, refer to the [Multi-Zone Firmware Adding Method](#)

Tags:

[FAQ](#)

[Nordic NRF modem](#)

[STACK](#)

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*Last updated on **Apr 15, 2024** by **Alan Chen***

Version: Next

3.1.23 : Unicode support

PowerWriter® supports Unicode accounts, Unicode installation paths.

1 : Unicode account

supported

2 : Unicode path

supported

3 : Promoting practices



TIP

PowerWriter® supports full Unicode encoding, but it is recommended to keep the default installation path or customize the installation to the ASCII path to maintain good habits.

Tags:

FAQ

Unicode

Unicode Path

Unicode Account



Edit this page

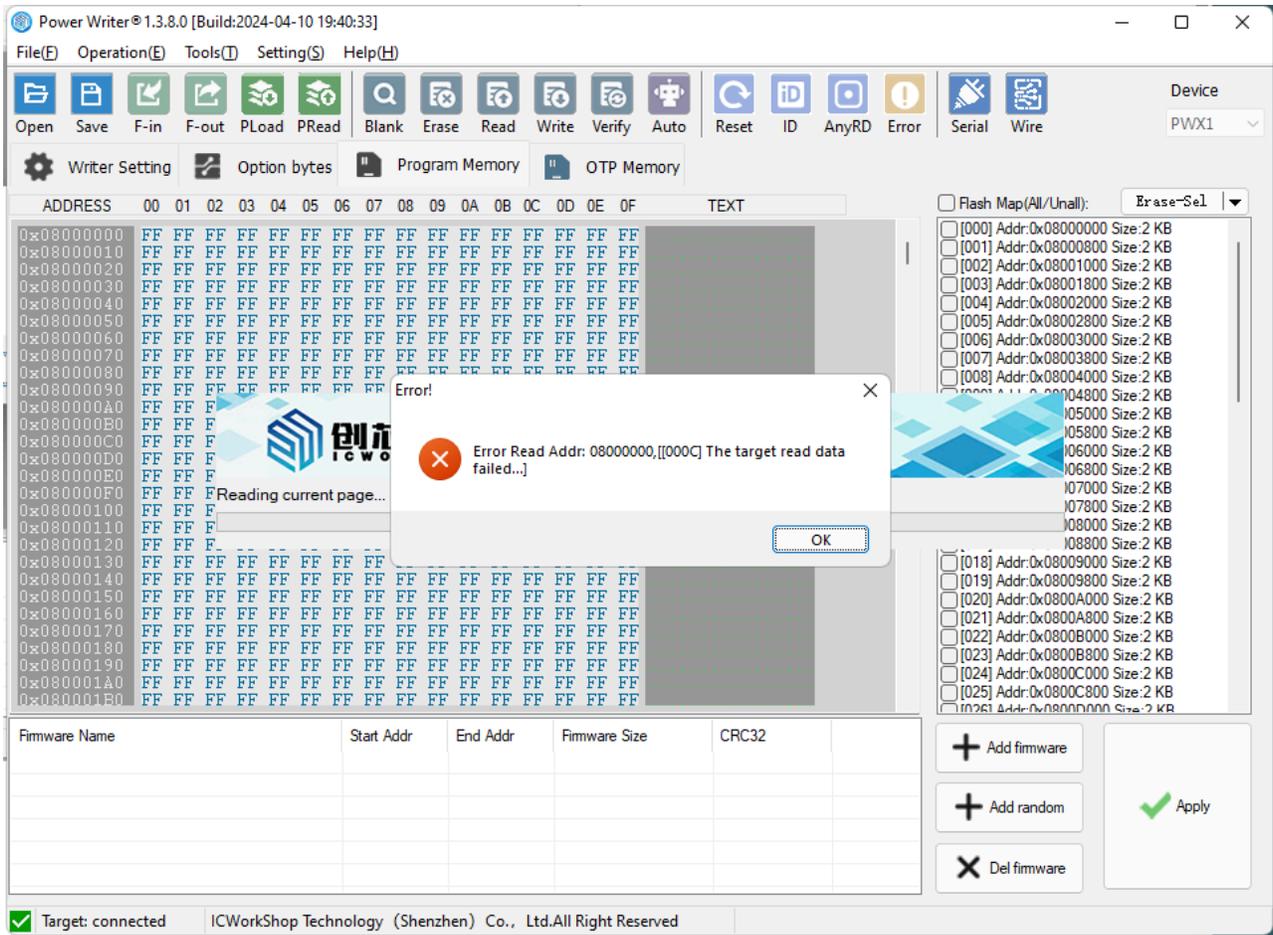
Last updated on **Apr 15, 2024** by **Alan Chen**

Version: Next

3.1.24 : Canceled on operation?

1 : Error message

The following error message may appear when reading and saving data from the target chip:

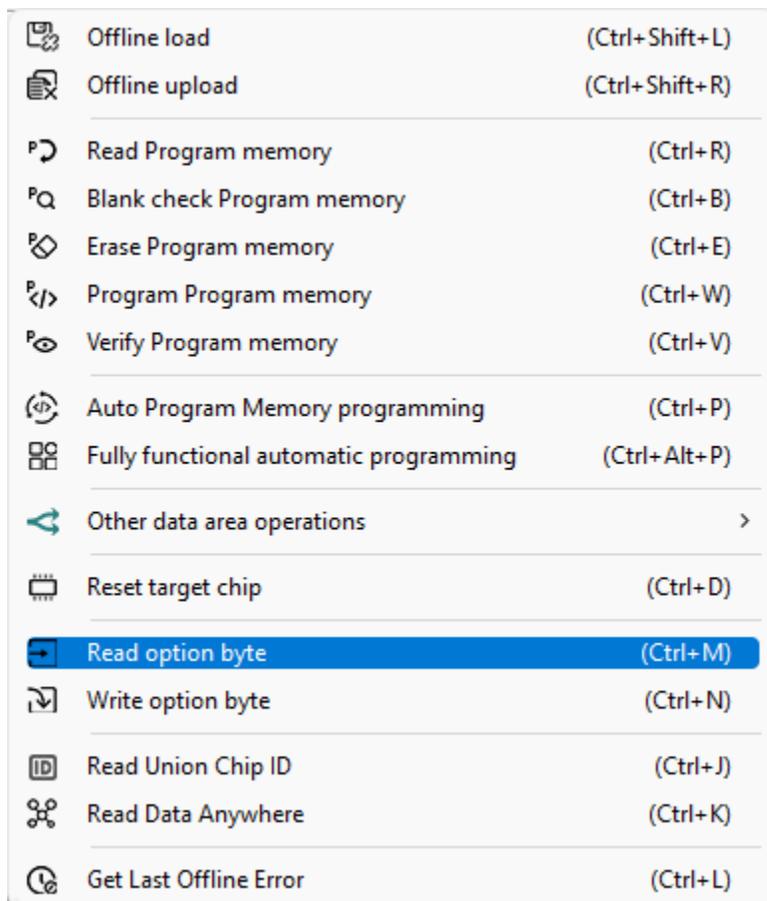


How to read and save data on the target chip

2 : Handling

- **Wrong selection of target chip type:** Check whether the target chip is connected successfully, and when making sure that the chip is connected, pay attention to checking whether the type of your own chip is the same as the selected chip type.
- **Chip open read protection:** Chip open read protection can not be read on the chip after the operation, you can try to lift the read protection operation

The status of the read protection can be viewed before this by performing a read option byte first operation in the menu bar:



How to remove read protection



When reading data after unprotecting the read protection, the internal memory data will be erased automatically, so please be careful with it.

Tags:

FAQ

OPERATE-MISS



[Edit this page](#)

Last updated on **Apr 15, 2024** by **Alan Chen**

Version: Next

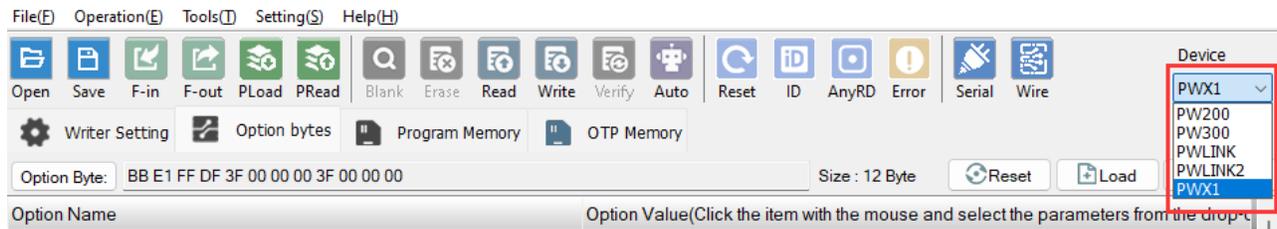
3.1.25 : OEM mismatch

1 : OEM mismatch

When reading, writing, loading, loading orders from applets, loading orders from Core Workshop, etc., OEM errors, packet non-conformity, etc., may occur, all of which are caused by inconsistencies in the settings of the original project package, the target device, and the project file type.

2 : Handling

After opening the project, in the upper right corner of the client software, modify the product type to the corresponding product type to save and republish, as shown in the following figure:



Tags: [FAQ](#) [OEM](#)

[Edit this page](#)

Last updated on **Apr 15, 2024** by **Alan Chen**

Version: Next

3.1.26 : Programming Speed

Clock speed is about **6.67Mhz (PW200/PW300/PWLINK2)**, **18.75Mhz (PWX1)** of the actual speed, converted to the integrated programming speed of about **400Kbps~500Kbps, 1Mbps**.

TIP

- PowerWriter® is optimized at a high level of programming speed, and PowerWriter® encrypts the data while achieving this speed.
- The programming speed will vary from chip to chip.
- In online mode, the speed is slightly lower compared to offline due to the presence of data interaction.

Tags: [FAQ](#) [Speed](#)

 [Edit this page](#)

Last updated on **Apr 15, 2024** by **Alan Chen**

Version: Next

3.1.27 : Motor drive

The PowerWriter® (**PW200/PW300/PWLINK2**) has only a self-recovery fuse to prevent the device from being overloaded and programmed; generally, the peak current of a motor at startup may reach 3 to 5 times the rated operating condition of the motor, and this current has far exceeded the trigger threshold of the device's internal self-recovery fuse, and using the PowerWriter® to power a large load of devices may risk programming out the device, or even the USB port or computer motherboard. At the same time, using the PowerWriter® to supply power to large loads of equipment will risk programming the equipment, or even the USB port or the computer motherboard. Therefore, it is recommended to supply power to large loads separately, and isolate them if necessary, in order to ensure the safety of each device in use.

TIP

To drive motor type applications, please use **PWX1** (maximum drive current up to 3A) for driving and connect DC power supply at the same time.

Tags:

FAQ

ELECTRIC

 [Edit this page](#)

Last updated on **Apr 15, 2024** by **Alan Chen**

Version: Next

3.1.28 : Automated machine

The **CTRL, OK, NG, GND, and 5V interface signals** need to be connected for coordinated programming.

- **CTRL**: Controls the start of low-pulse programming, which requires the input of a low-pulse signal of $\geq 40\text{ms}$ to start offline programming once.
- **OK**: outputs high when the programming is successful, outputs 5V, and clears the state to low when there is a new operation.
- **NG**: Outputs high when the programming fails, outputs 5V, and clears the state to low when there is a new operation.
- **5V**: Machine interface power supply pin (**please do not connect VREF**).
- **GND**: Ground.

Both OK and NG output low at 0V for idle and busy states.

CTRL and key logic are the same, when starting the CTRL signal is equivalent to manually pressing a key, the programmer enters the busy state, and the OK and NG lamps will go out.



TIP

- PWLINK related series products do not have automated machine programming capabilities. If you need to use PWLINK for production, you can try to use in-line full-featured automated programming.
- For PWX1 devices, please check the interface signals, see [PWX1 Machine Interface](#). (Same as PW200/PW300).

Tags: [FAQ](#) [Offline](#)

 [Edit this page](#)

Last updated on **Apr 15, 2024** by **Alan Chen**

Version: Next

3.1.29 : Serial port usage

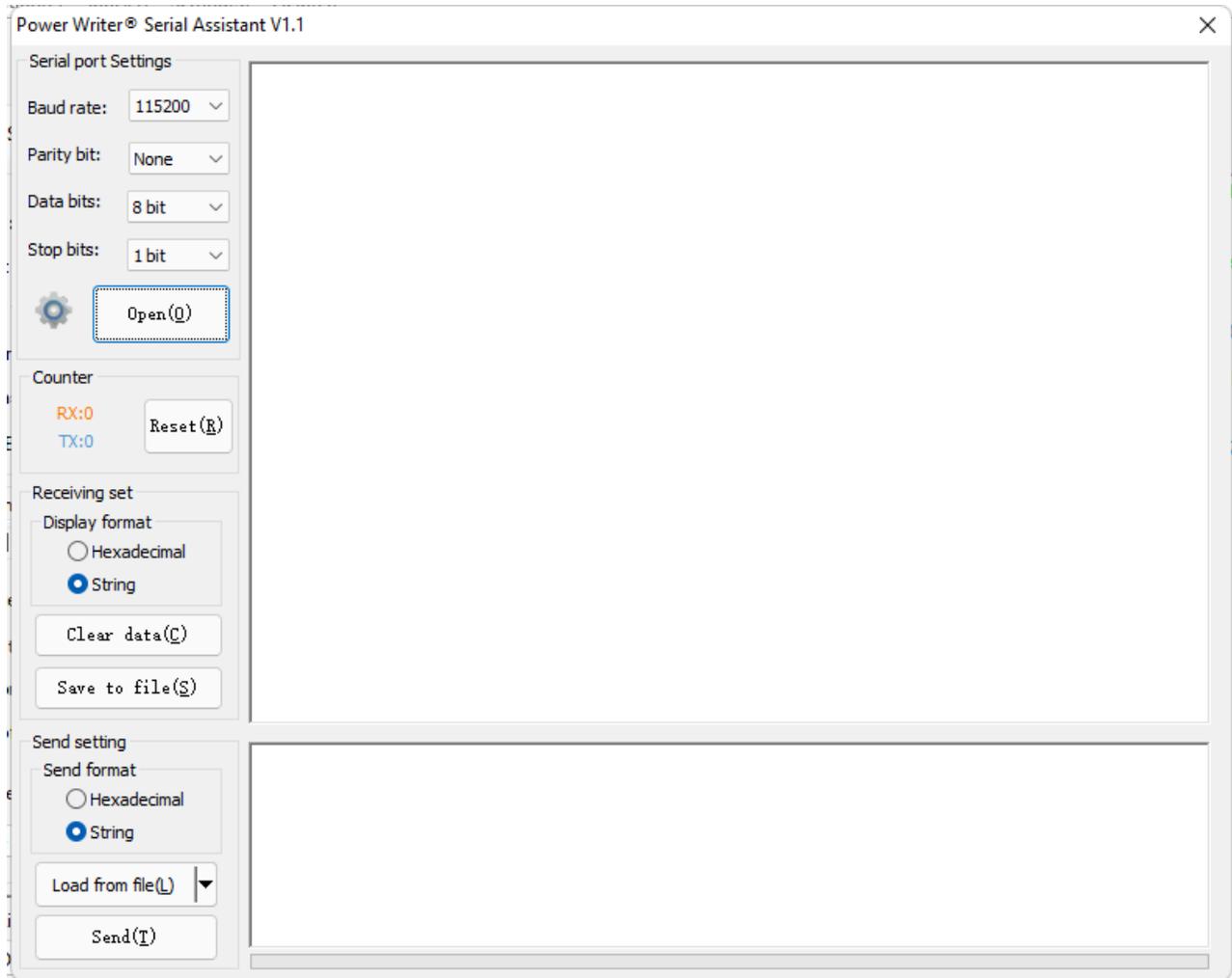
Virtual serial port feature of PowerWriter®:

- Writer Functions for PowerWriter®
- General purpose serial port for debugger mode
- Can also be used directly as a regular serial port

The PowerWriter® client integrates a serial port assistant that can be accessed via the toolbar button



The built-in serial port assistant interface is as follows



Open the serial port assistant to use as a normal serial port tool, wiring diagram reference:



💡 TIP

- Hardware version V1.0 does not support virtual serial ports.
- PWX1 Wiring reference [PWX1 connection scheme](#).
- Other serial port assistant tools can be used.

Tags: [FAQ](#) [Serial](#)

[✎ Edit this page](#)

Last updated on **Apr 15, 2024** by **Alan Chen**

Version: Next

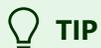
3.1.30 : PWLINK device reboot

1 : Power reset for peripherals

Due to the hardware limitations of PWLINK itself, the output voltage is not isolated, which may cause PWLINK to reset when powering large load peripherals directly.

2 : Handling

Plug the PWLINK into a USB port with sufficient drive capability and use the external device's own power supply.



TIP

PWLINK2 version: The upgraded version of PWLINK2 is isolated on the power supply and supports 3.3V/ 5V outputs, and can also use an external reference voltage, so there is no reset phenomenon when PWLINK is connected to a large load.

Tags: [FAQ](#) [PWLINK](#) [PWLINK2](#)

 [Edit this page](#)

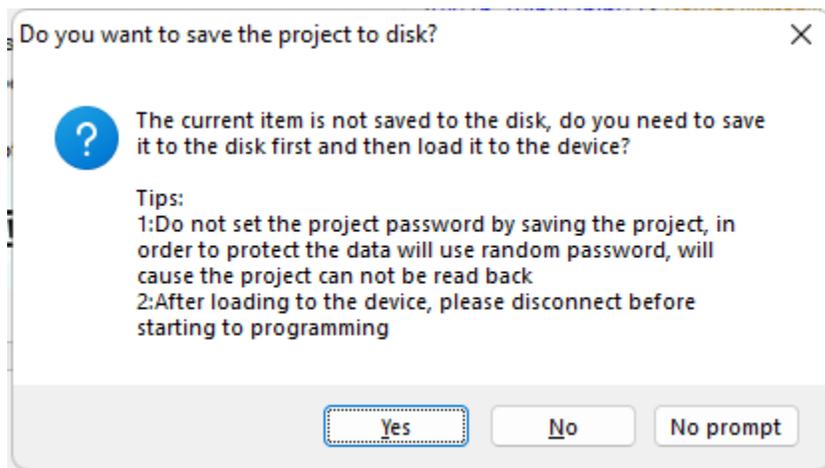
Last updated on **Apr 15, 2024** by **Alan Chen**

Version: Next

3.1.31 : Offline package R/W

1 : Offline loading when project is not saved

When loading a project offline, if the current data is not saved as a project file, you will see the following message.



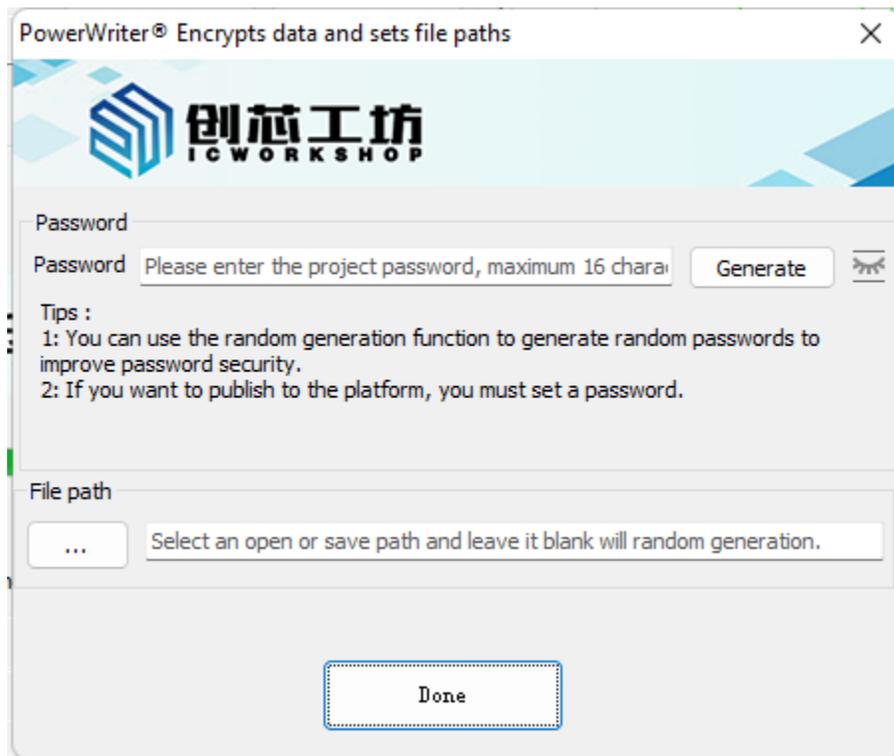
Consist of :

- [Yes]: Save the project file to prevent data loss, select this option when you need to save it.
- [No]: do not save the project file, this option will generate the cache without the need for the user to choose the save location, in order to prevent the data from being read, the

password will use a random password.

[No longer prompt]: Do not save the project file and do not prompt this option, other functions and [No] consistent.

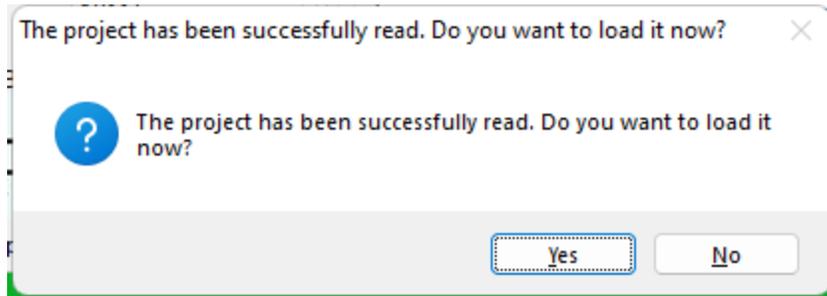
2 : Adjustments to the Save and load project



Project Password: Project Password, will prompt for a maximum of 16 characters, can be left blank.

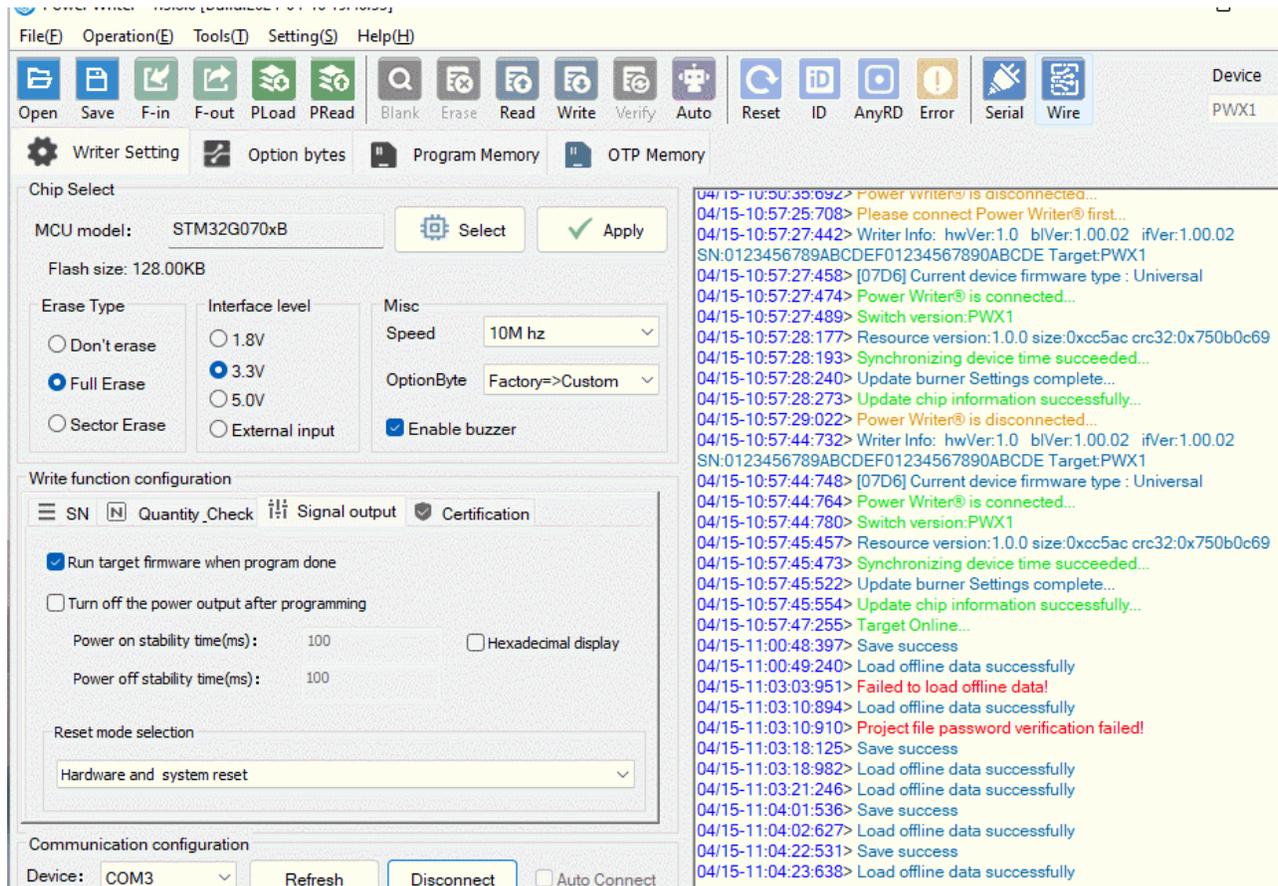
Project Path: When you open a project file, you must select the project path, and when you save the project, if you don't select the project path, the cache path will be randomly generated.

3 : Adjustments for reading offline project files



If the offline project file is successfully read, you will be prompted whether to load the project immediately to avoid overwriting the current project file and losing data.

4 : How to turn prompting back on after choosing not to prompt again



Tags: [FAQ](#) [PKG](#)

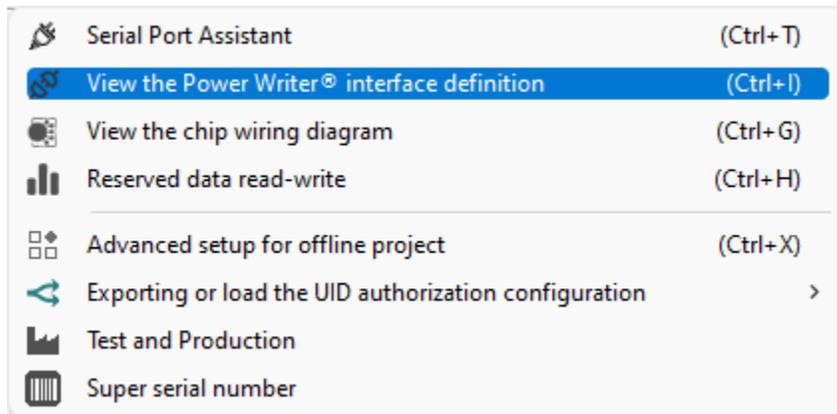
[Edit this page](#)

Last updated on **Apr 15, 2024** by **Alan Chen**

Version: Next

3.1.32 : About Silk

When you receive the device, due to a variety of production batches, there are equipment screen printing error printing probability, so about the pin distribution, we recommend that you client software query to the screen print shall prevail, the inconvenience caused to you, please forgive me! The query method is shown in the figure below:





Tags:

[FAQ](#)

[Silk-screen](#)

[Edit this page](#)

Last updated on **Apr 15, 2024** by **Alan Chen**

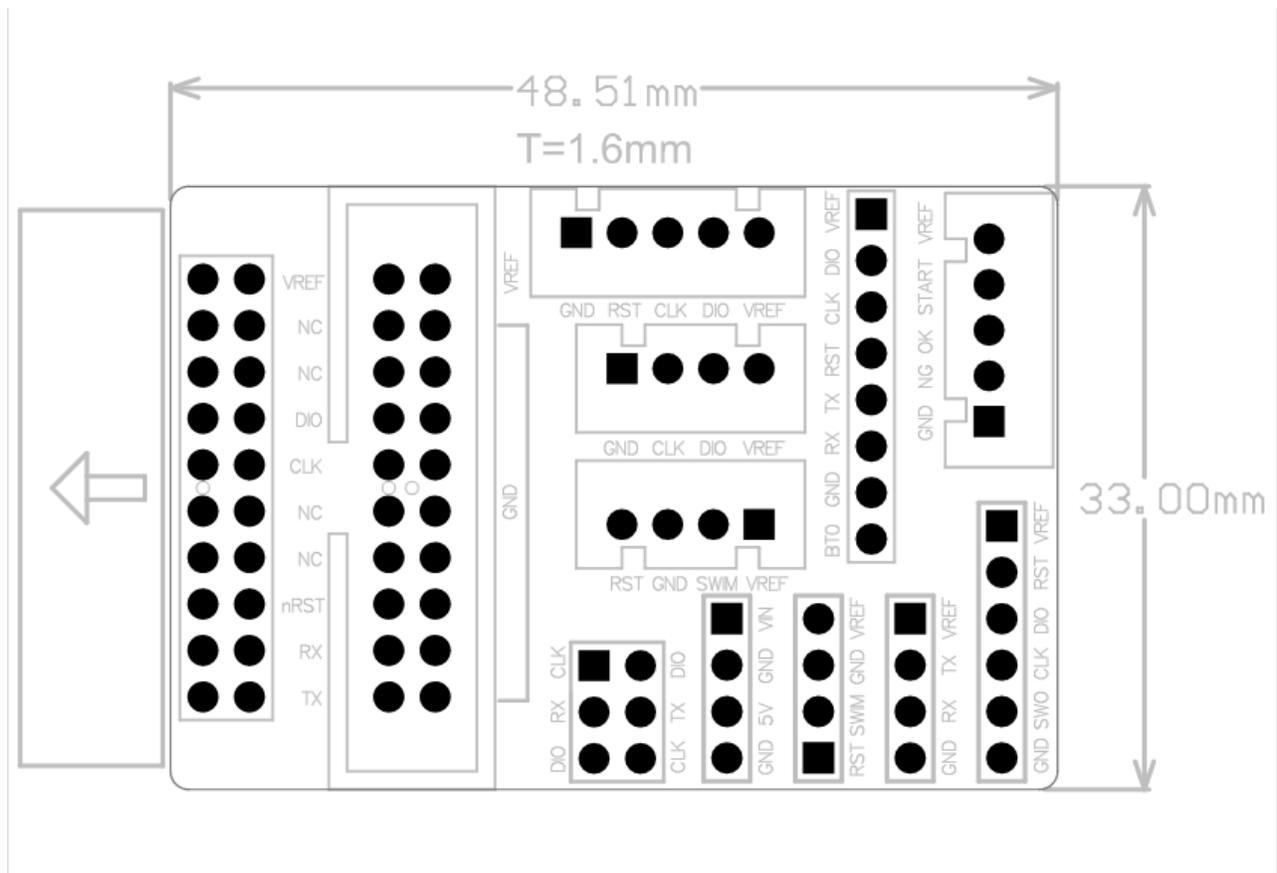
Version: Next

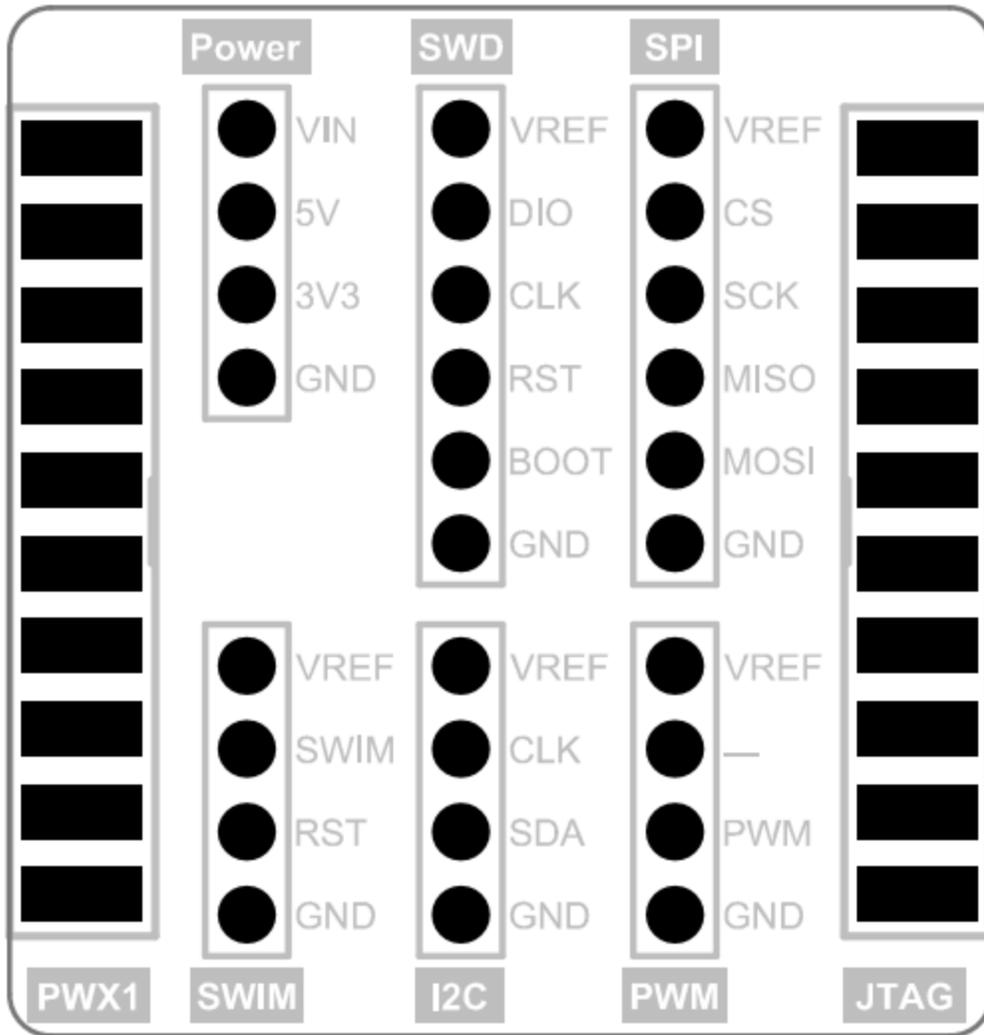
3.1.33 : Adapter knowledge

PowerWriter provides PW200, PW300, **PWX1** adapter boards.

1 : Silkscreen and usage

The interface of the adapter board is shown below:





PW200/PW300 The adapter board is used as shown below:

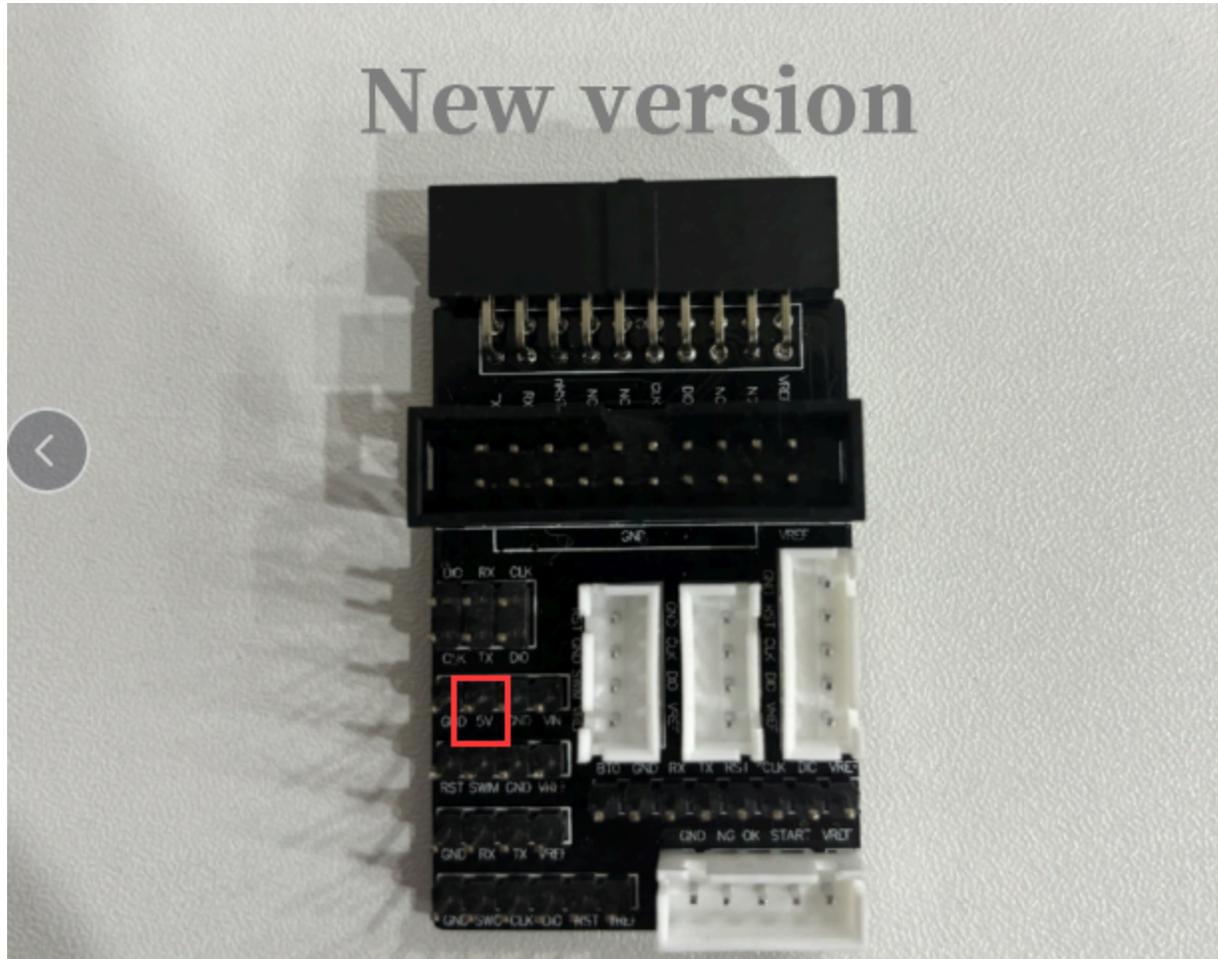


2 : Versions Differences

Currently there are two versions of the adapter board, the main difference is that the new version has more 5V pins than the old version, as shown in the following figure. It should be noted that the new version of the adapter board is suitable for 1.3 and 1.4 hardware version of the programmer, that is, PW200 or PW300; the old version of the adapter board is suitable for 1.2 hardware version of the programmer below. If you use the old adapter boards for 1.3 or 1.4 hardware versions, there is a risk of shorting 5V and GND, so be careful.

In addition, the PowerWriter® interface definition can be viewed through the PowerWriter® software menu bar, Tools, to confirm the specific hardware version information of the programmer.

New version



Version: Next

3.1.34 : Stuck during installing

1 : Intend

Download: [PowerWriter® For ARM](#)

Because some anti-virus software will be misreported driver, it is recommended that you close 360 and other anti-virus software before installation.

2 : Stuck during installation

When installing the PowerWriter® client, there is a low probability that it will get stuck and not move, in fact, this time it is detected that it needs to be rebooted, and can be solved by rebooting the system and reinstalling it.

3 : Is it mandatory

- You may not install the software if you are only using it as a Debugger.
- For online operation of the chip, or for offline production configuration, the PowerWriter® software is required. This tool is similar to the ST-unity tool, but with more features, and will be expanded with more features in the future.

Tags: [FAQ](#) [client](#)

 [Edit this page](#)

*Last updated on **Apr 15, 2024** by **Alan Chen***

Version: Next

3.1.35 : How to unlock the chip

When using PowerWriter® to programming firmware, an error may be reported: **Error Write Flash Addr:The target write flash failed....**

The reason for this error message may be:

- **Not erased before programming (programming):** Please erase the chip first and retry.
- **The chip is (write) protected:** Please set the option byte to default, and then perform a reset after writing the default option word.
- **Other reasons:** Occasional reasons such as unstable communication, you can try to replace the cable and retry, if you can not identify the cause by yourself, please contact technical support and submit detailed information for processing.

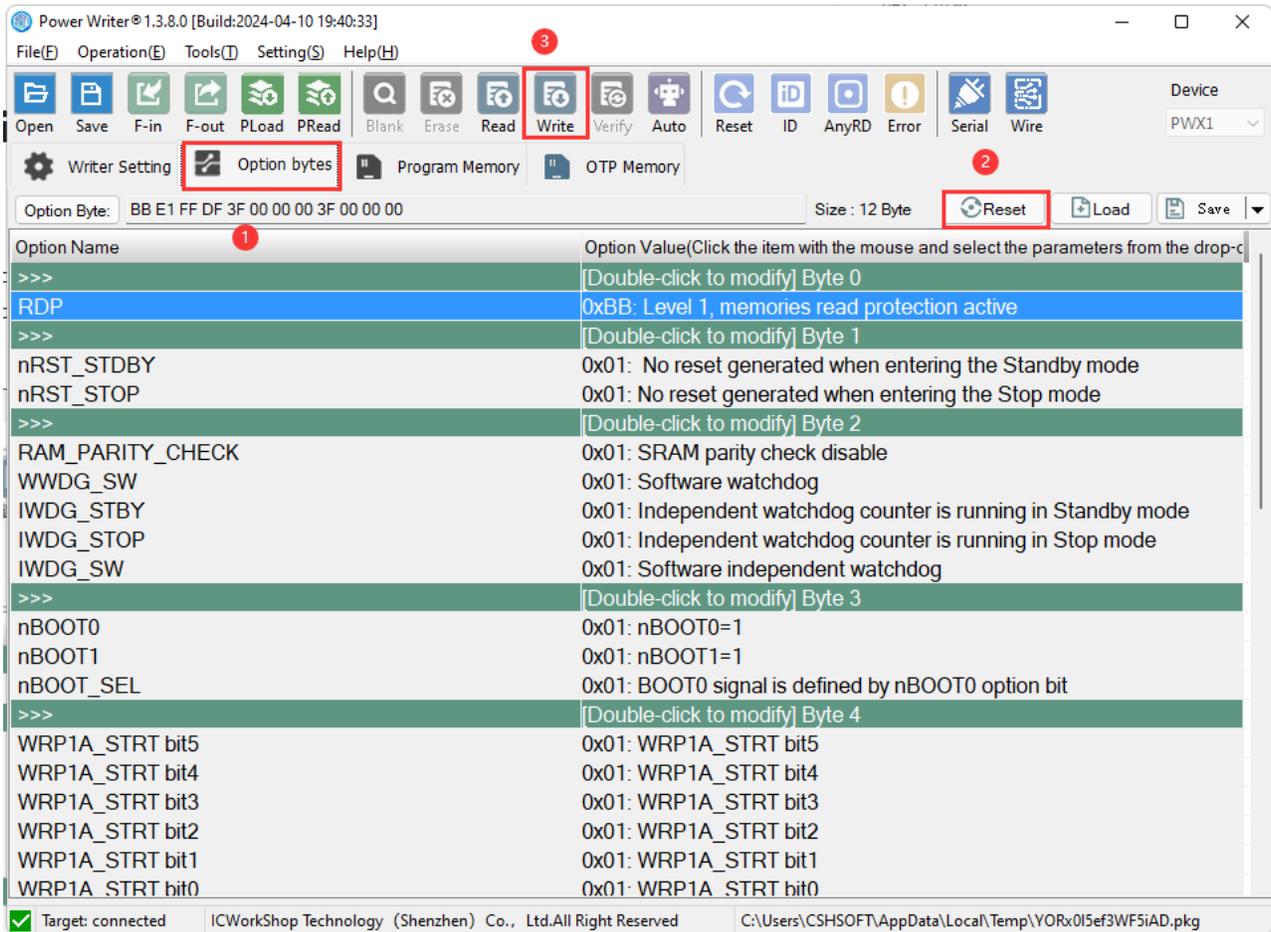
The second reason mentioned above is the need to do an unlock operation on the chip to remove the protection.

1 : Online Unlocking Chip

1.1 : Restore Defaults to Unlock Chip

Switch to the option byte page, click on the right side of the restore default button, and then click on the top of the shortcut key write, you can unlock the chip; or operation of the menu bar in the execution of the write option byte, can be restored to the chip's option

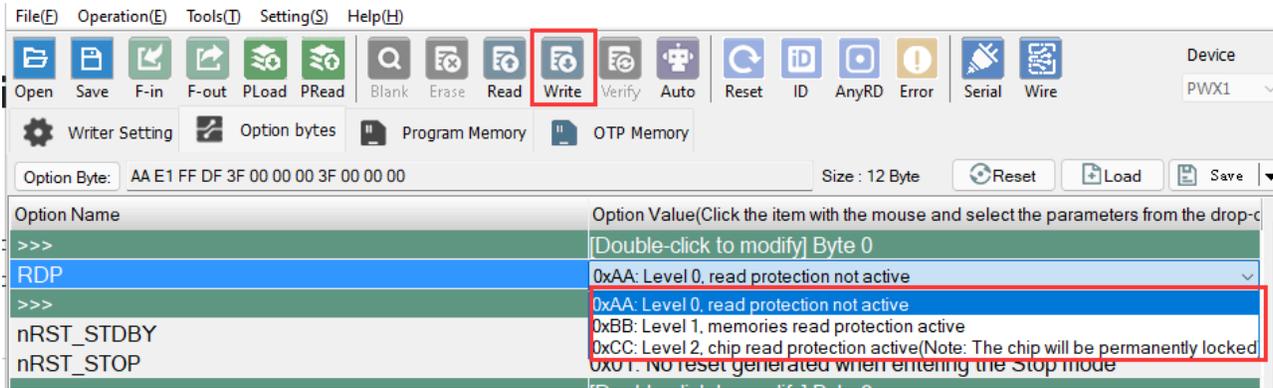
byte status of the factory settings, the specific page is shown below:



	Offline load	(Ctrl+Shift+L)
	Offline upload	(Ctrl+Shift+R)
<hr/>		
	Read Program memory	(Ctrl+R)
	Blank check Program memory	(Ctrl+B)
	Erase Program memory	(Ctrl+E)
	Program Program memory	(Ctrl+W)
	Verify Program memory	(Ctrl+V)
<hr/>		
	Auto Program Memory programming	(Ctrl+P)
	Fully functional automatic programming	(Ctrl+Alt+P)
<hr/>		
	Other data area operations	>
<hr/>		
	Reset target chip	(Ctrl+D)
<hr/>		
	Read option byte	(Ctrl+M)
	Write option byte	(Ctrl+N)
<hr/>		
	Read Union Chip ID	(Ctrl+J)
	Read Data Anywhere	(Ctrl+K)
<hr/>		
	Get Last Offline Error	(Ctrl+L)

1.2 : Unlock Only

If you do not want to operate the other options in addition to read protection byte, you can double-click the option of read protection, and then click on the right side of the small drop-down arrow, you can see all the options about the protection, and then select the read protection off or protection off, and then write to the chip can be set up to write the protection of the operation is the same as the specific page is shown below:



2 : Offline Batch Unlock Chip

2.1 : Restore Defaults to Unlock Chip

Offline programming need to remove the read protection or write protection, first switch to the option byte page, and then click on the right side of the Restore Defaults button, you can see that the protection is turned off, offline programming settings are complete, click on the top of the shortcut key to load, or operation of the menu bar in the implementation of the offline load, load the file into the programmer, and then offline programming, you can unlock the chip in batch, the specific page is as follows As shown in the following page:

Power Writer® 1.3.8.0 [Build:2024-04-10 19:40:33]

File(E) Operation(E) Tools(T) Setting(S) Help(H)

Open Save F-in F-out PLoad PRead Blank Erase Read **Write** Verify Auto Reset ID AnyRD Error Serial Wire

Device: PWX1

Writer Setting **Option bytes** Program Memory OTP Memory

Option Byte: BB E1 FF DF 3F 00 00 00 3F 00 00 00 Size: 12 Byte **Reset** Load Save

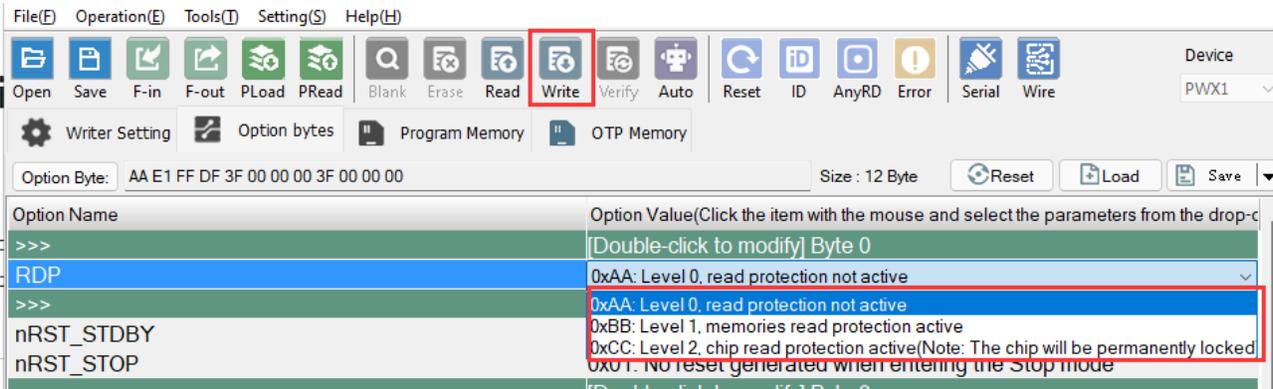
Option Name	Option Value(Click the item with the mouse and select the parameters from the drop-c
>>>	[Double-click to modify] Byte 0
RDP	0xBB: Level 1, memories read protection active
>>>	[Double-click to modify] Byte 1
nRST_STDBY	0x01: No reset generated when entering the Standby mode
nRST_STOP	0x01: No reset generated when entering the Stop mode
>>>	[Double-click to modify] Byte 2
RAM_PARITY_CHECK	0x01: SRAM parity check disable
WWDG_SW	0x01: Software watchdog
IWDG_STBY	0x01: Independent watchdog counter is running in Standby mode
IWDG_STOP	0x01: Independent watchdog counter is running in Stop mode
IWDG_SW	0x01: Software independent watchdog
>>>	[Double-click to modify] Byte 3
nBOOT0	0x01: nBOOT0=1
nBOOT1	0x01: nBOOT1=1
nBOOT_SEL	0x01: BOOT0 signal is defined by nBOOT0 option bit
>>>	[Double-click to modify] Byte 4
WRP1A_STRT bit5	0x01: WRP1A_STRT bit5
WRP1A_STRT bit4	0x01: WRP1A_STRT bit4
WRP1A_STRT bit3	0x01: WRP1A_STRT bit3
WRP1A_STRT bit2	0x01: WRP1A_STRT bit2
WRP1A_STRT bit1	0x01: WRP1A_STRT bit1
WRP1A_STRT bit0	0x01: WRP1A_STRT bit0

Target: connected | ICWorkShop Technology (Shenzhen) Co., Ltd.All Right Reserved | C:\Users\CSSH\Software\AppData\Local\Temp\YORx015ef3WF5iAD.pkg

	Offline load	(Ctrl+Shift+L)
	Offline upload	(Ctrl+Shift+R)
	Read Program memory	(Ctrl+R)
	Blank check Program memory	(Ctrl+B)
	Erase Program memory	(Ctrl+E)
	Program Program memory	(Ctrl+W)
	Verify Program memory	(Ctrl+V)
	Auto Program Memory programming	(Ctrl+P)
	Fully functional automatic programming	(Ctrl+Alt+P)
	Other data area operations	>
	Reset target chip	(Ctrl+D)
	Read option byte	(Ctrl+M)
	Write option byte	(Ctrl+N)
	Read Union Chip ID	(Ctrl+J)
	Read Data Anywhere	(Ctrl+K)
	Get Last Offline Error	(Ctrl+L)

2.2 : Unlock Only

If you don't want to operate other option bytes except read protection, you can double-click the option of read protection, and then click on the right side of the small drop-down arrow, you can see all the options about the protection, and then select the protection off or no protection, and then click on the load, for offline programming, you can batch unlock the chip, and set up the operation of the write protection is the same as the specific page as shown below:



CAUTION

Individual chips that differ from mainstream chips, such as HC32 or CX32, need to be unlocked by pressing the key to turn on the ISP method once when unlocking the chip, see the specific operation flow:

[HC32 unlock](#); [CX32 unlock](#).

Tags: [FAQ](#) [unlock](#)

 [Edit this page](#)

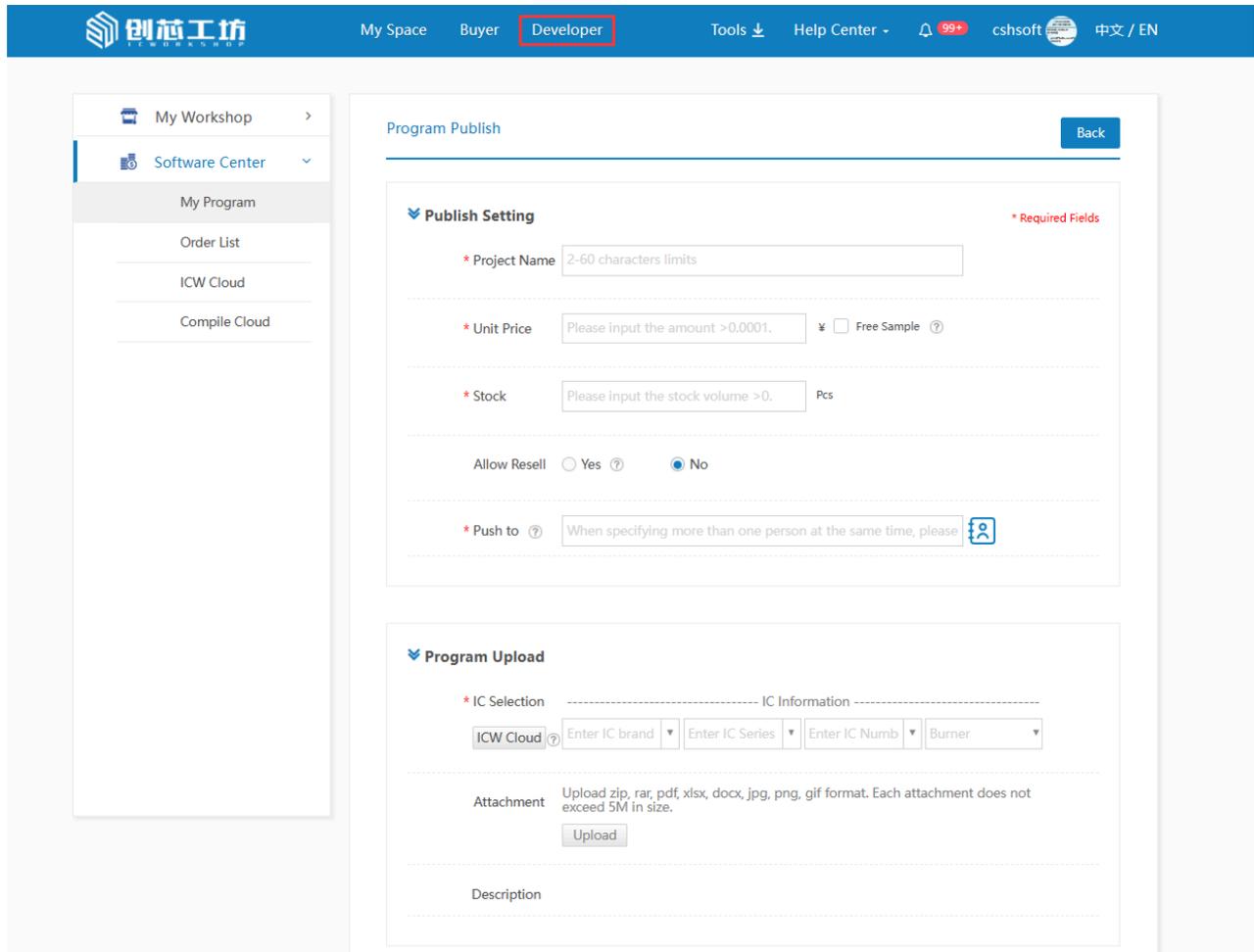
Last updated on **Apr 15, 2024** by **Alan Chen**

Version: Next

3.1.36 : About Project Password

Based on the firmware delivery security considerations, we hope that many developers focus on their own firmware security, which can be referred to from several aspects:

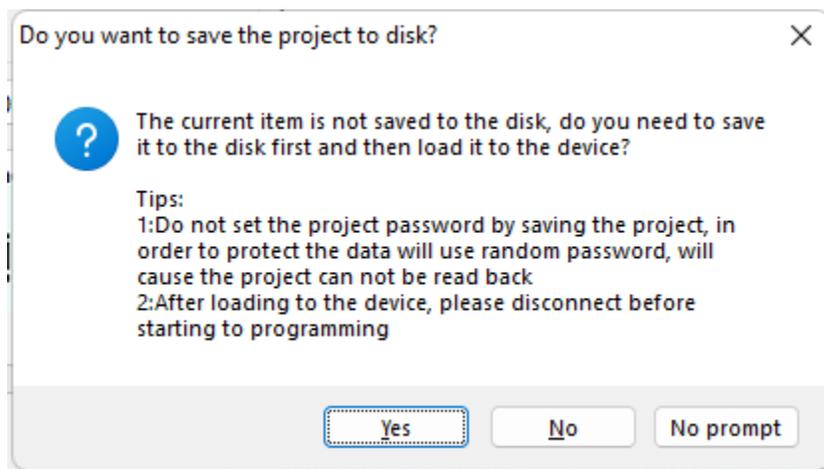
- **Chip:** Try to use better security chip products.
- **Key:** One of the most basic and effective ways to verify code protection, PowerWriter® also has a variety of built-in signature mechanisms to meet the different needs of customers.
- **Platform Delivery:** ICWorkshop Cloud Platform provides firmware developers with a fast, easy-to-use and secure firmware protection and delivery model, so when generating delivery orders, you need to provide a project password to ensure developer rights and interests.

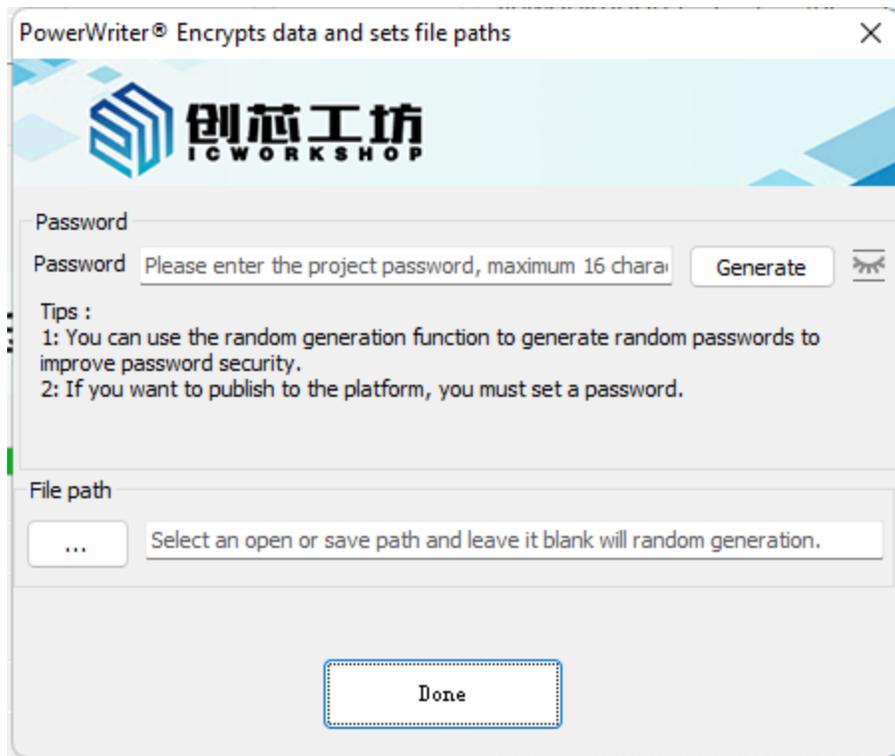


1 : Project Password Setting

When programming and packing PKG files offline, a prompt box will pop up to remind the user to set the project password and save path, about this project password setting, in the menu bar -> Settings -> Preferences check the box to turn on the offline read/write save project prompt, this option will ensure that every time the project is loaded offline, the prompt box to set the password and save path will be popped up; if it is not checked, it will be only the first time to generate the PKG file, the If unchecked, it will only pop up a prompt when the PKG file is generated for the first time. Users need to note that, when remote firmware delivery is required with firmware, a password must be set when the file is created, and users need to save the password reasonably, and when remote firmware

delivery is carried out on the cloud platform, they need to enter the correct password for this project before uploading it successfully, or else it can't be uploaded; for the firmware recipients, when they download the order through the platform, it is a very simple operation without the need of password verification, and they won't see the project information in the programmer. If the customer tries to read out the project information in the programmer through PowerWriter® software, the password serves as the first line of defense to protect the intellectual property rights of the developer, and no information can be read out with a wrong password. A detailed prompt box is shown below:





The firmware password entered when uploading the platform is the same as the project password in the picture above.

▼ Publish Setting

* Required Fields

* Project Name

* Unit Price ¥ Free Sample ?

* Stock Pcs

Allow Resell Yes ? No

* Push to ? 

▼ Program Upload

* IC Selection ----- IC Information -----
 ?

Attachment Upload zip, rar, pdf, xlsx, docx, jpg, png, gif format. Each attachment does not exceed 5M in size.

Description



If users want to know more about encryption mechanisms, PowerWriter® has a variety of built-in encryption mechanisms, among which ICWKEY Security Authorization Shield, as an auxiliary tool for the offline authorization of the PowerWriter® programmer of the PowerWriter®, provides two UIDs (Unique Chip ID) authorization algorithms, namely, Vector Matrix Encryption (Matrix) and Elliptic Curve Digital Signature (ECDSA), and also provides an SDK for users to develop custom authorization algorithms to meet the different needs of developers. Unique Chip ID) authorization algorithms, but also provides SDK for users to develop custom authorization algorithms to meet the different needs of developers, while ensuring that the target chip + PowerWriter® + ICWKEY the entire link layer data security during production. ICWKEY's user manual and authorization videos are available at the link below:

ICWKEY User Development Manual

Another technical details welcome to visit B site "about programmer authorization" instructional video : **PowerWriter® video tutorial**

Tags:

FAQ

project_password



Edit this page

Last updated on **Apr 15, 2024** by **Alan Chen**

Version: Next

3.1.37 : Isolation adapter usage

1 : Basic Information

Insulation voltage : 5000Vrms

Speed : 150Mbps (MAX) / Debugging Clock > 10Mhz

Data latency : 6.54us (typical values)

VREF Voltage Range : 2.5V ~ 5.5V

Supported Devices :

Power Debugger

PW200

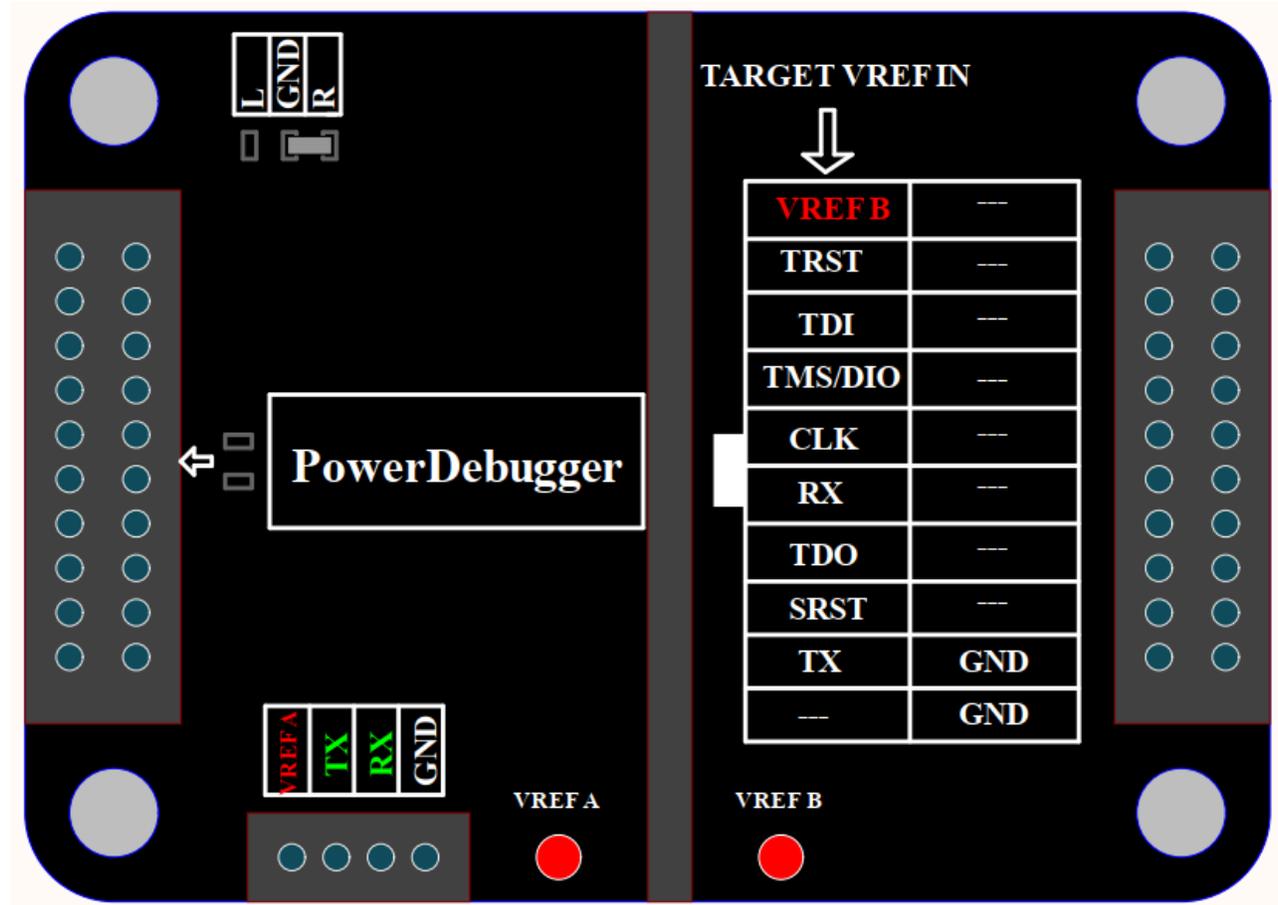
PW300

PW400

PWX1

2 : PowerDebugger

Supported protocols: UART, SWJ, JTAG, wiring diagrams are referenced below:

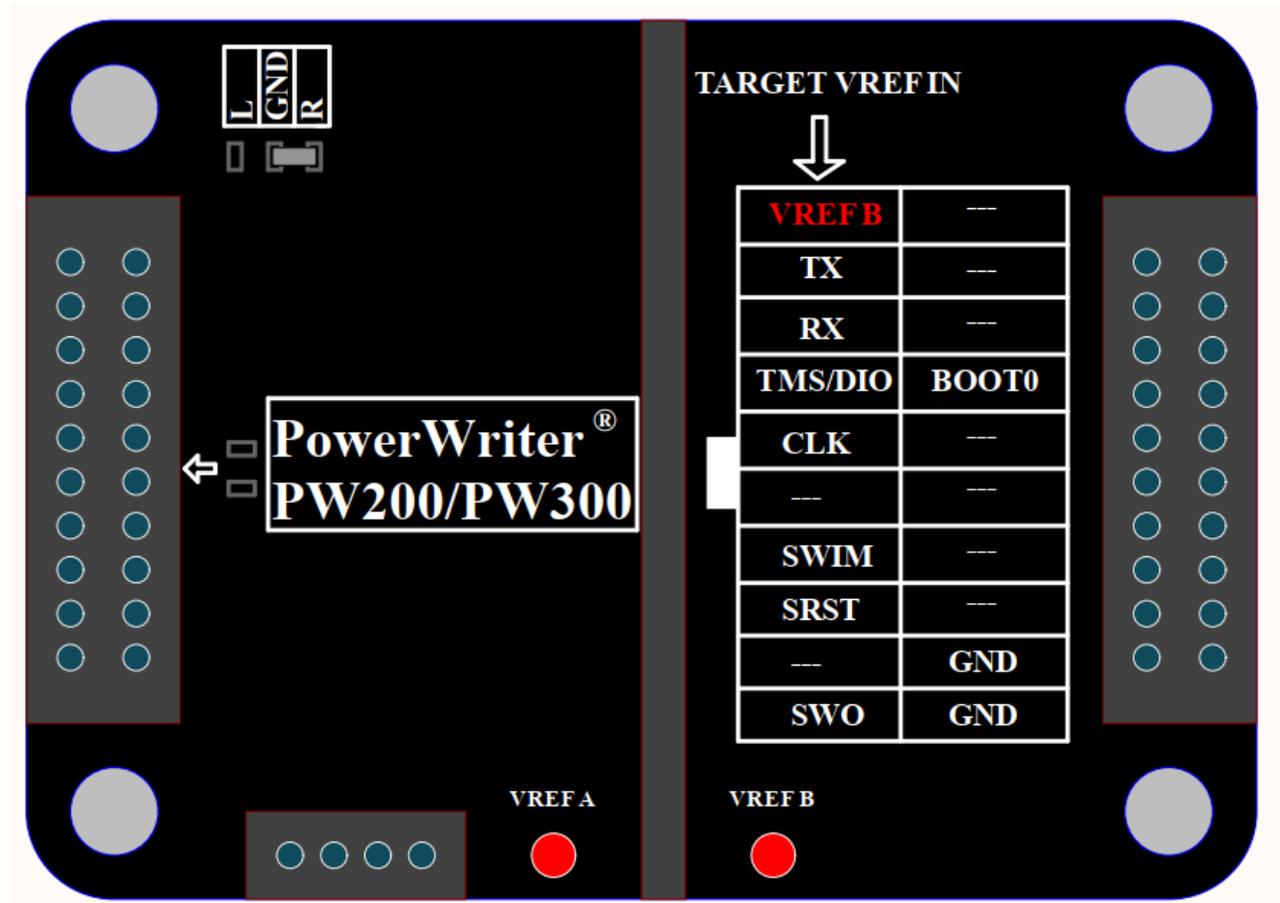


💡 TIP

VREF B Requires power from the target board, voltage range 2.5V to 5.5V, Power Debugger IO voltage set to 3.3V or 5V, Serial port isolated, need to be accessed from the green independent 4PIN.

3 : PW200/PW300

Supported protocols: UART, SWJ, SWIM, ITM(SWO), wiring diagrams are referenced below:

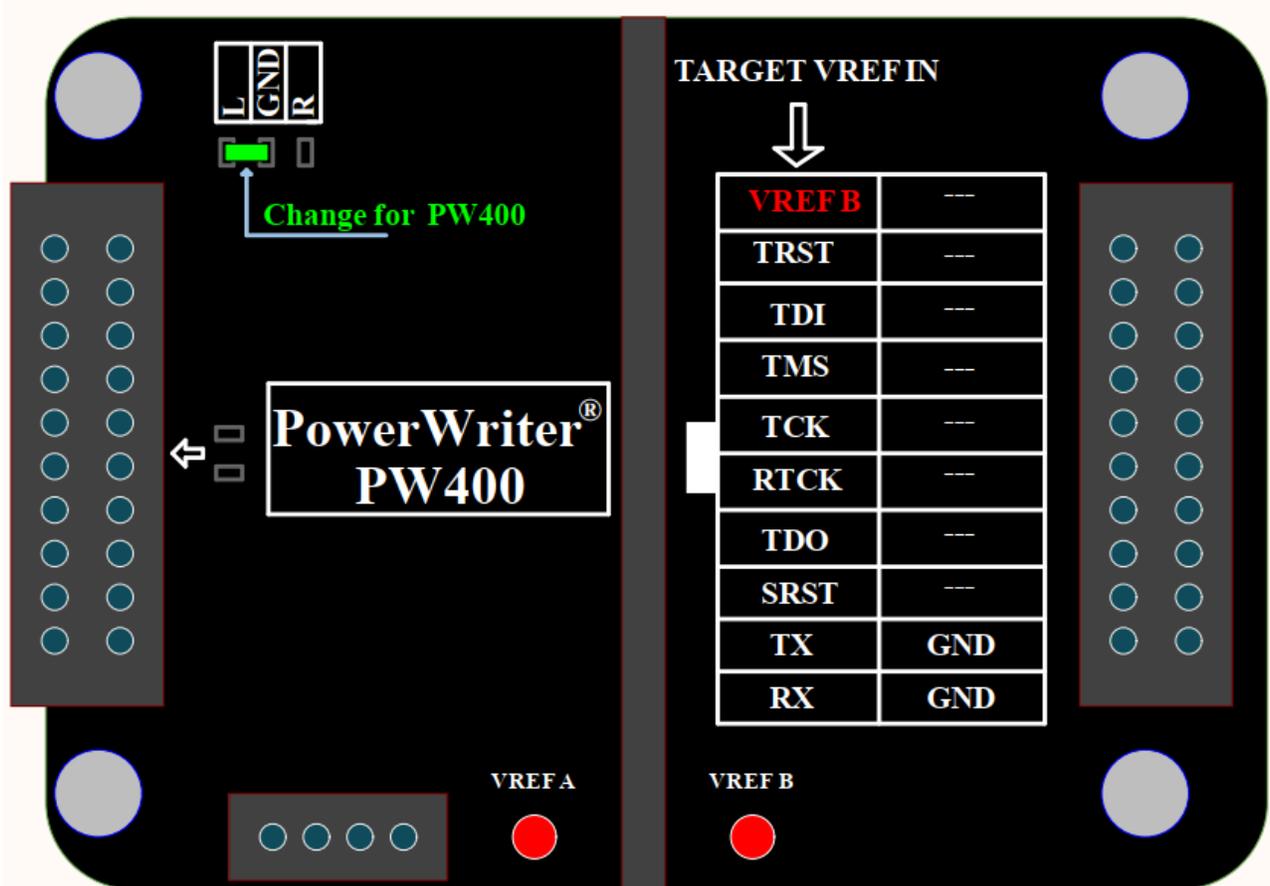


💡 TIP

VREF B Requires power from the target board in the range of 2.5V to 5.5V, with the PowerWriter® IO voltage set to 3.3V or 5V (no external reference can be set).

4 : PW400

Supported protocols: UART, JTAG, wiring diagrams are referenced below:



💡 TIP

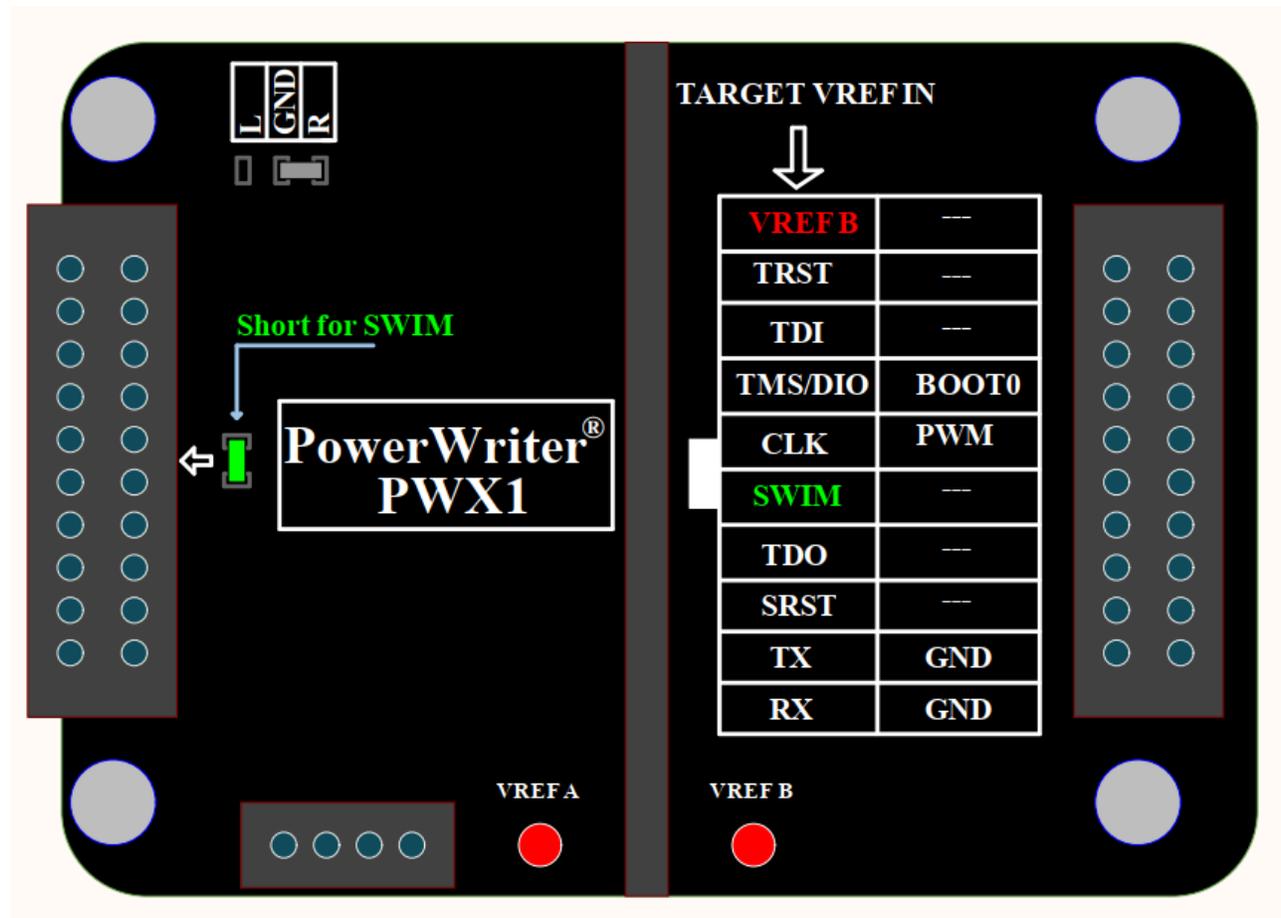
VREF B Requires power from the target board in the range of 2.5V to 5.5V, with the PowerWriter® IO voltage set to 3.3V or 5V (no external reference can be set).

⚠️ CAUTION

GND to L needs to be adjusted (see Change for PW400).

5 : PWX1

Supported protocols: UART, JTAG, SWJ, PWM, SWIM, wiring diagrams are referenced below:



💡 TIP

VREF B needs to be powered from the target board with a voltage range of 2.5V to 5.5V with the PowerWriter® VREF voltage set to 3.3V or 5V (no external reference can be set).



TIP

If you need to write STM8, you should short the green resistor bit as shown (see Short for SWIM).

Tags:

FAQ

Isolation



Edit this page

Last updated on **Apr 15, 2024** by **Alan Chen**

Version: Next

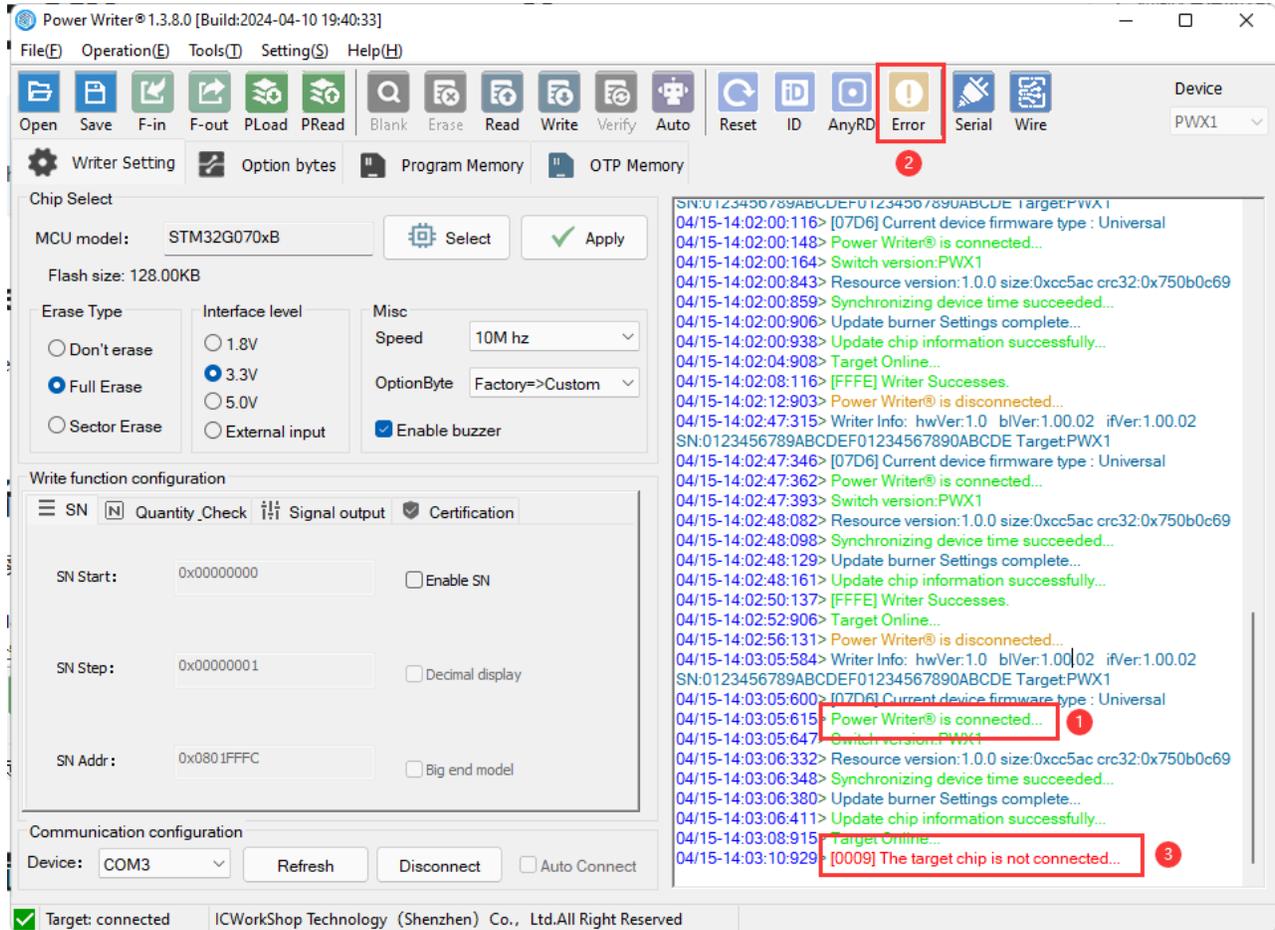
3.2.1 : Offline status reading

! INFO

PWX1 The status of the device operation results are all displayed in the screen interface, without the need for client query.

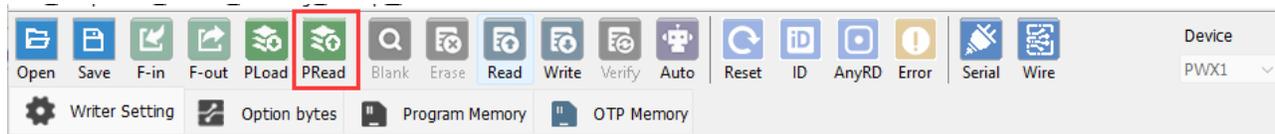
1 : Read the results of an offline operation

You can reconnect to the PC software and click on the Log button to check the reason for failure when you encounter a programming failure during offline programming:



2 : Read device project file

Via Menu->Execute->Read Offline and Save, or the Offline Read button on the toolbar.



3 : How to configure the number of writer

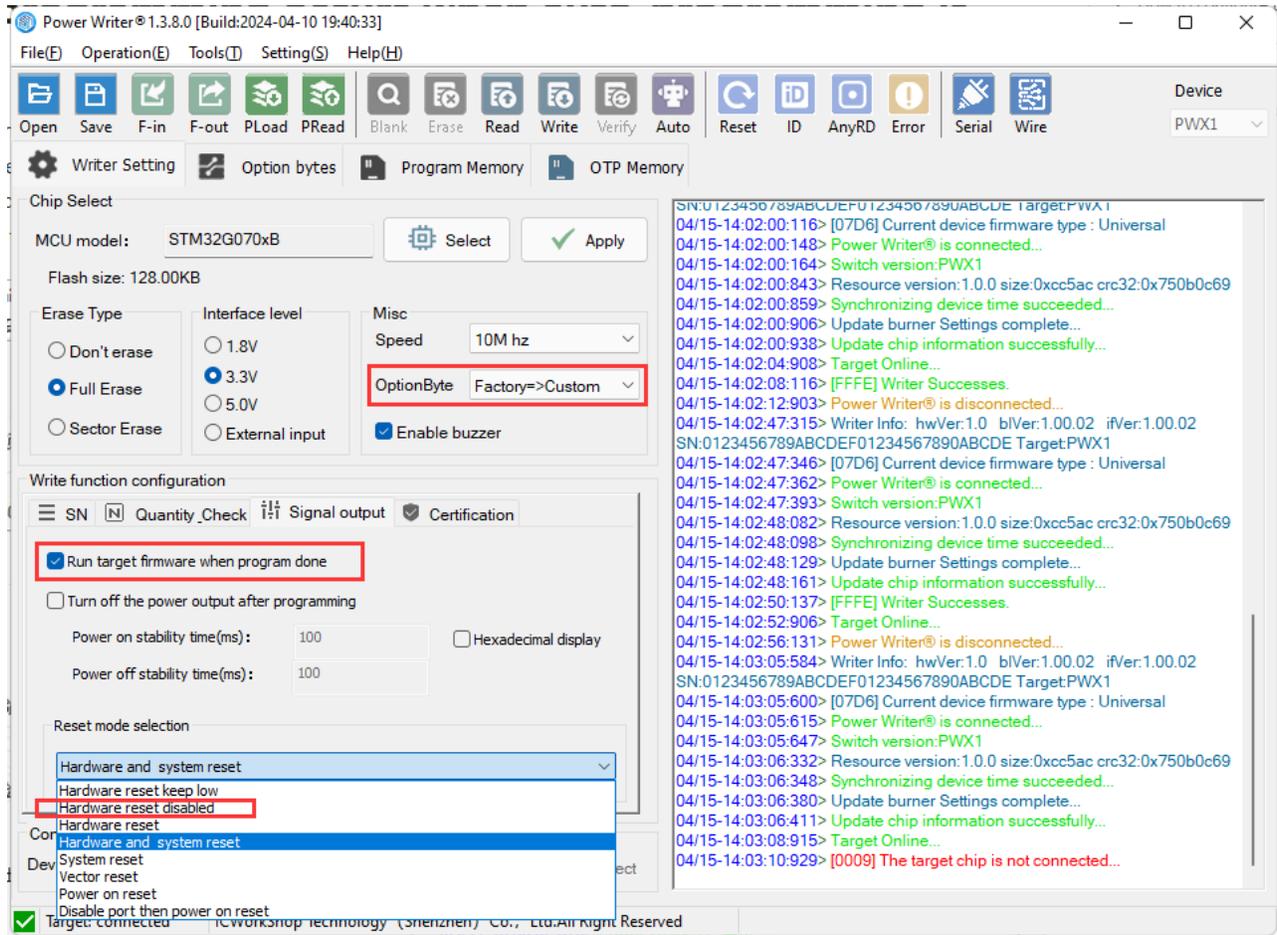
See [Offline config](#)

4 : How to read the remaining count

See [Query method](#)

5 : Repeat programming occurs when auto-programming is turned on

Some chips open SWD multiplexing, offline programming, there is a choice to write the option byte, or turned on the completion of programming to start the chip, or selected the output reset, and turned on the automatic chip detection function (as shown in the figure), may cause the possibility of repeated programming, to detect the chip as far as possible, so that the chip is programmed in the time to be connected to the chip, will not be mistakenly judged as taking open the chip.



Tags:

[FAQ](#)

[Offline](#)

[Offline Time](#)

[Read](#)

 [Edit this page](#)

Last updated on **Apr 15, 2024** by **Alan Chen**

Version: Next

3.2.2 : HC32 connection failure

The HC32 chip requires an additional processing flow when programming due to some of the differences in the chip, as detailed below.

1 : Offline programming

If the option byte of the chip is set to primary or secondary protection, the chip will automatically turn off the SWD after programming, and can only be unlocked by pressing the key to enable the ISP method once before continuing to programming, even if the auto-programming enabled.

2 : Online programming

To unlock the chip, you need to set the option byte to unprotected and click on write.

3 : Setting reference

Power Writer® 1.3.8.0 [Build:2024-04-10 19:40:33]

File(E) Operation(E) Tools(T) Setting(S) Help(H)

Open Save F-in F-out PLoad PRead Blank Erase Read Write Verify Auto Reset ID AnyRD Error Serial Wire

Device: PWX1

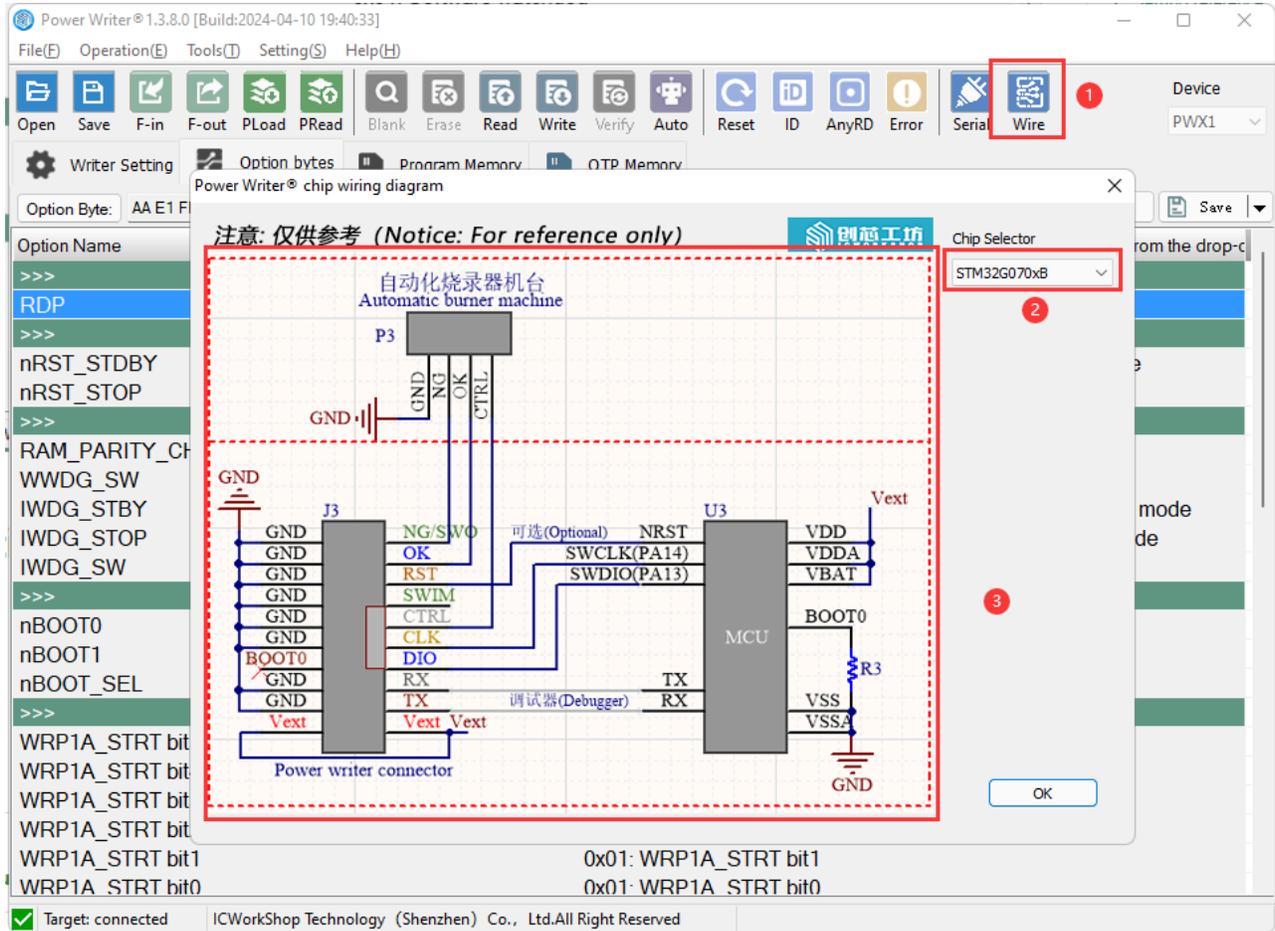
Writer Setting Option bytes Program Memory OTP Memory

Option Byte: AA E1 FF DF 3F 00 00 3F 00 00 00 Size: 12 Byte [Reset] [Load] [Save]

Option Name	Option Value(Click the item with the mouse and select the parameters from the drop-c
>>>	[Double-click to modify] Byte 0
RDP	0xAA: Level 0, read protection not active
>>>	0xAA: Level 0, read protection not active
nRST_STDBY	0xBB: Level 1, memories read protection active
nRST_STOP	0xCC: Level 2, chip read protection active(Note: The chip will be permanently locked UXU1: No reset generated when entering the Stop mode
>>>	[Double-click to modify] Byte 2
RAM_PARITY_CHECK	0x01: SRAM parity check disable
WWDG_SW	0x01: Software watchdog
IWDG_STBY	0x01: Independent watchdog counter is running in Standby mode
IWDG_STOP	0x01: Independent watchdog counter is running in Stop mode
IWDG_SW	0x01: Software independent watchdog
>>>	[Double-click to modify] Byte 3
nBOOT0	0x01: nBOOT0=1
nBOOT1	0x01: nBOOT1=1
nBOOT_SEL	0x01: BOOT0 signal is defined by nBOOT0 option bit
>>>	[Double-click to modify] Byte 4
WRP1A_STRT bit5	0x01: WRP1A_STRT bit5
WRP1A_STRT bit4	0x01: WRP1A_STRT bit4
WRP1A_STRT bit3	0x01: WRP1A_STRT bit3
WRP1A_STRT bit2	0x01: WRP1A_STRT bit2
WRP1A_STRT bit1	0x01: WRP1A_STRT bit1
WRP1A_STRT bit0	0x01: WRP1A_STRT bit0

Target: connected ICWorkShop Technology (Shenzhen) Co., Ltd.All Right Reserved

4 : Connection Diagram Reference



Tags: [FAQ](#) [HC32](#)

[Edit this page](#)

Last updated on **Apr 15, 2024** by **Alan Chen**

Version: Next

3.2.3 : CX32 connection failure

When burning the CX32 chip, due to some differences between the chip and the mainstream chip, additional processing methods are required, as described below.

1 : Offline programming

CX32 option byte is set to one level of protection or two levels of protection, the chip will automatically turn off the SWD after programming, you can only press the button to turn on the ISP mode once to unlock before continuing to programming, even if the automatic programming is turned on.

2 : Online Programming

To unlock the chip, you need to set the option byte to unprotected and click on write.

3 : Setting reference

Power Writer® 1.3.8.0 [Build:2024-04-10 19:40:33]

File(E) Operation(E) Tools(T) Setting(S) Help(H)

Open Save F-in F-out PLoad PRead Blank Erase Read Write Verify Auto Reset ID AnyRD Error Serial Wire

Device: PWX1

Writer Setting Option bytes Program Memory OTP Memory

Option Byte: AA E1 FF DF 3F 00 00 3F 00 00 00 Size: 12 Byte Reset Load Save

Option Name	Option Value(Click the item with the mouse and select the parameters from the drop-c
>>>	[Double-click to modify] Byte 0
RDP	0xAA: Level 0, read protection not active
>>>	0xAA: Level 0, read protection not active
nRST_STDBY	0xBB: Level 1, memories read protection active
nRST_STOP	0xCC: Level 2, chip read protection active(Note: The chip will be permanently locked UXU1: No reset generated when entering the Stop mode
>>>	[Double-click to modify] Byte 2
RAM_PARITY_CHECK	0x01: SRAM parity check disable
WWDG_SW	0x01: Software watchdog
IWDG_STBY	0x01: Independent watchdog counter is running in Standby mode
IWDG_STOP	0x01: Independent watchdog counter is running in Stop mode
IWDG_SW	0x01: Software independent watchdog
>>>	[Double-click to modify] Byte 3
nBOOT0	0x01: nBOOT0=1
nBOOT1	0x01: nBOOT1=1
nBOOT_SEL	0x01: BOOT0 signal is defined by nBOOT0 option bit
>>>	[Double-click to modify] Byte 4
WRP1A_STRT bit5	0x01: WRP1A_STRT bit5
WRP1A_STRT bit4	0x01: WRP1A_STRT bit4
WRP1A_STRT bit3	0x01: WRP1A_STRT bit3
WRP1A_STRT bit2	0x01: WRP1A_STRT bit2
WRP1A_STRT bit1	0x01: WRP1A_STRT bit1
WRP1A_STRT bit0	0x01: WRP1A_STRT bit0

Target: connected ICWorkShop Technology (Shenzhen) Co., Ltd.All Right Reserved

4 : Connection Diagram Reference

The screenshot displays the Power Writer software interface. The top toolbar features a 'Wire' button, highlighted with a red box and a red '1'. The main window shows a 'chip wiring diagram' for an STM32G070xB. A red dashed box encloses the diagram, with a note above it: '注意: 仅供参考 (Notice: For reference only)'. The diagram illustrates the connection between an 'Automatic burner machine' (P3), a 'Power writer connector' (J3), and an 'MCU' (U3). Connections include GND, NG/SWO, OK, RST, SWIM, CTRL, CLK, DIO, RX, TX, NRST, SWCLK(PA14), SWDIO(PA13), VDD, VDDA, VBAT, BOOT0, VSS, and VSSA. A resistor R3 is connected between VSS and GND. A 'Chip Selector' dropdown menu is set to 'STM32G070xB', with a red '2' next to it. A red '3' is also present near the bottom of the diagram area. The bottom status bar shows 'Target: connected' and 'ICWorkShop Technology (Shenzhen) Co., Ltd. All Right Reserved'.

Tags: [FAQ](#) [CX32](#)

[Edit this page](#)

Last updated on **Apr 15, 2024** by **Alan Chen**

Version: Next

3.2.4 : Remote Assistance

Since the ordinary remote function is not stable enough, and secondly, there will be administrator privilege problem in the system above Windows 7, so it is necessary to use the third-party professional remote analysis tool.

- The Fast Remote Desktop Application – AnyDesk
- TeamViewer – The Remote Connectivity Software

1 : Install AnyDesk

Thank you for downloading AnyDesk

https://anydesk.com/en/downloads/thank-you?dv=win_exe

Light Mode

Made in Europe 8489 2928

my.anydesk Downloads

Get our quick start guide and make the most out of AnyDesk.

Enter your e-mail address*

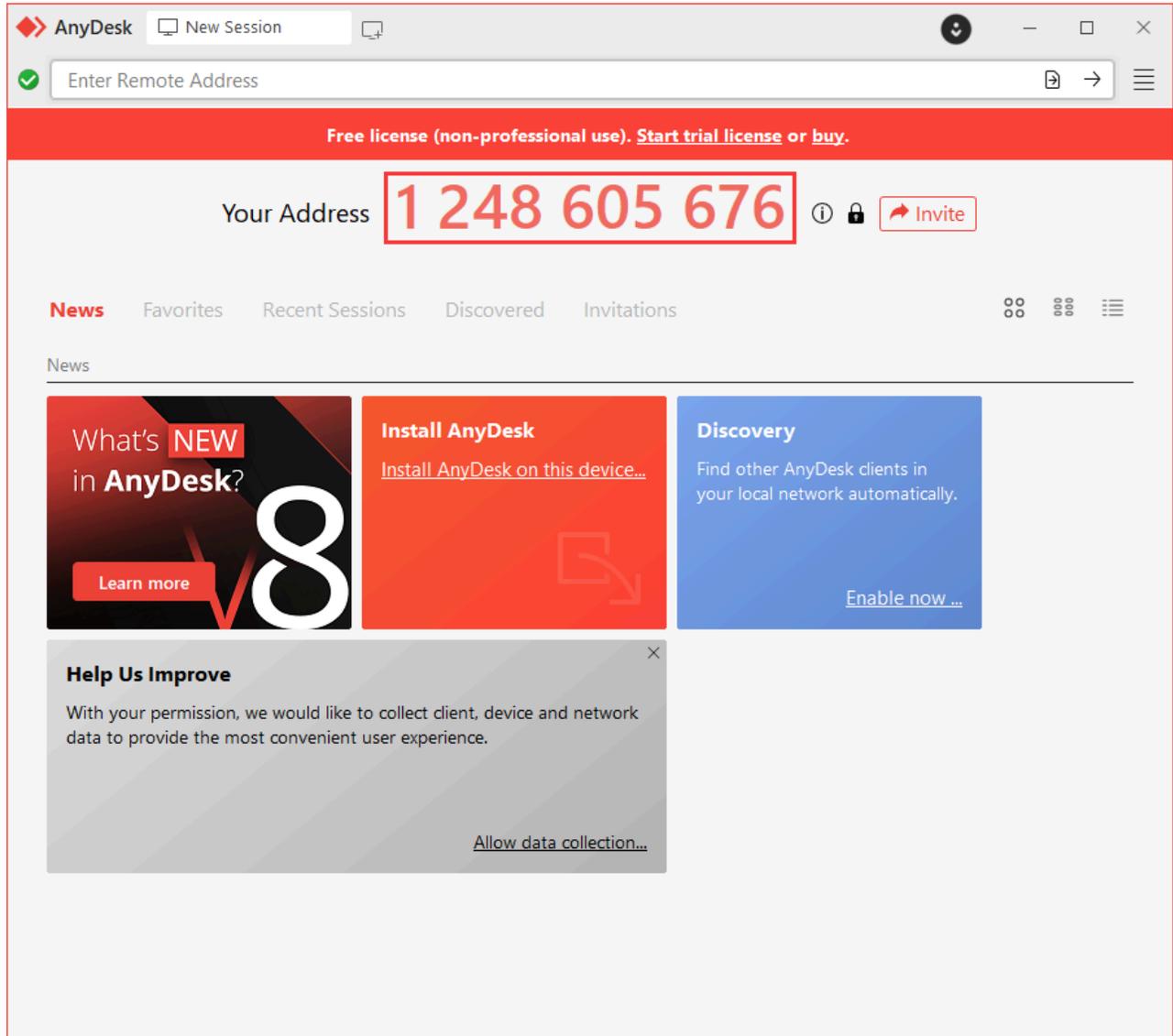
进行人机身份验证

Get the Guide

Operating System	Version	File Size
Windows	v8.0.9	5.3 MB
macOS	v8.0.1	14.5 MB
Android	v7.1.0	21.4 MB
iOS	v7.1.1	35 MB
Apple TV	v7.1.0	21.1 MB
Linux	v6.3.1	5.6 MB - 7.1 MB
FreeBSD	v6.1.1	4.9 MB
Raspberry Pi	v6.3.0	6 MB
Chrome OS	v7.1.0	21.4 MB

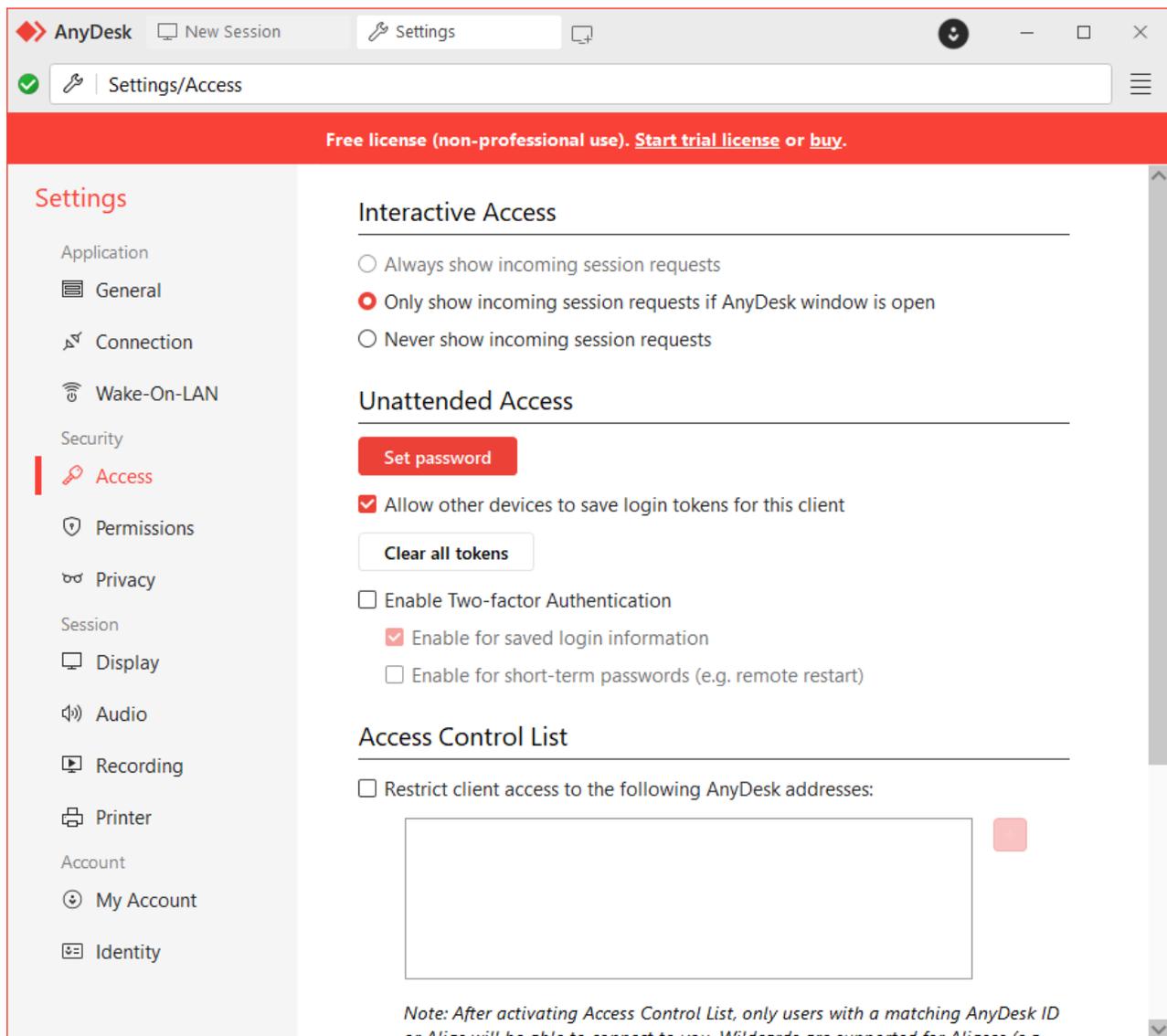
2 : AnyDesk Usage

Copy Your Address and send it to Customer Service.



3 : Secure Exit

After analyzing the problem, the technician will disconnect the user and send the cause of the error and the solution to the user. In order to minimize the disturbance or concern to the user, it is recommended to enable automatic update verification after the remote, as shown below:



Tags:

FAQ

remote



[Edit this page](#)

*Last updated on **Apr 15, 2024** by **Alan Chen***

Version: Next

3.2.5 : Handling disconnections

If you experience, occasional failures during use, you can try the following to troubleshoot

- Attempt to reduce the communication clock speed.
- Trying to **replace the cable with a better one or shorten the length of the cable** can also improve better stability.

TIP

Users in the actual product may be JTAG, SWD and other debugging interfaces multiplexed into the product's ordinary function pins, in this case, may also lead to abnormal protocols, for this case, it is recommended to do isolation design on the IO, can reduce interference.

Tags: [FAQ](#) [Wire](#)

 [Edit this page](#)

Last updated on **Apr 15, 2024** by **Alan Chen**

Version: Next

3.2.6 : VREF setting

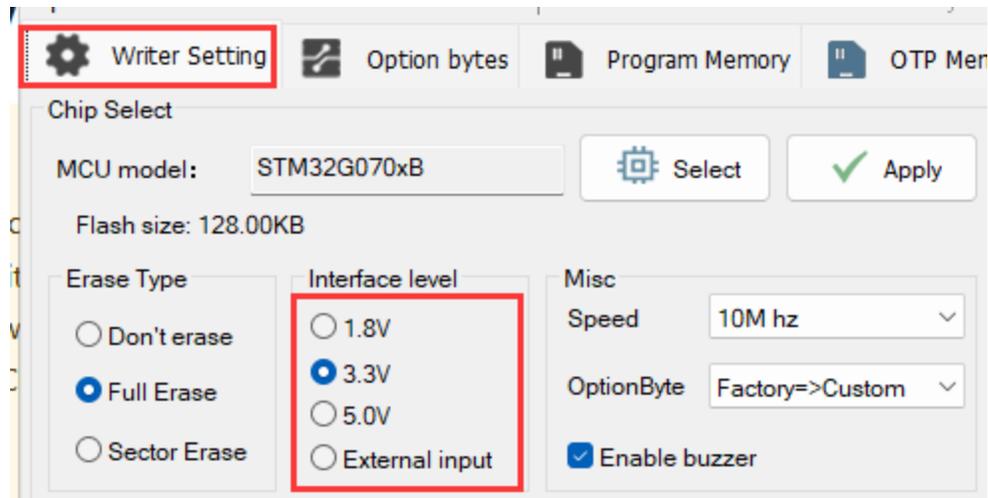
1 : About VREF Output Jump

CAUTION

PowerWriter® products, when starting the process of connecting the target chip, if the connection to the target chip fails, including but not limited to no connection to the target chip, wiring errors, can not be recognized, etc., it will try to perform a POR (Power On Reset) power-on reset of the target chip, so the phenomenon in the output power supply will appear, the output (VEXT, VREF) power supply Charging and discharging behavior, there is a jump, so the purpose of processing can solve the following similar problems:

- If some chips are protected, not executing POR may result in not being able to connect to the target chip.
- If the debug port is disabled on some chips (including the reason of the program of the target chip), the execution of POR can precisely control the time control point of the connection request to ensure that it can be connected to the target chip, so as to carry out the operation of erasing and re-programming.

2 : Setting method



Output power supply is optional:

- **1.8V** : When 1.8V is selected, the IO signal output ports DIO/CLK, etc. are 1.8V.
- **3.3V(Default)** : When 3.3V is selected, the signal output ports DIO/CLK, etc. are 3.3V.
- **5.0V**: When 5.0V (5V) is selected, the signal output ports DIO/CLK, etc. are 5.0V.
- **External input** : When an external reference is selected, the PowerWriter® needs to be externally supplied with a reference voltage in the range of 1.2V to 5.5V, while the PowerWriter® still needs to be powered by USB, and the external input is only supplied with the reference voltage.

3 : Voltage switching

During debugging, the default output voltage is 3.3V. If you need to switch to other voltages, please set the target voltage through the PowerWriter® software, and then start debugging again to enter the set voltage:

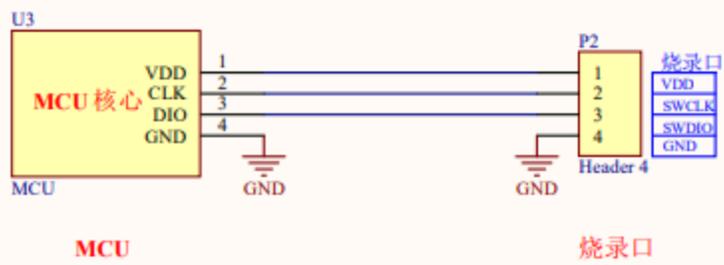
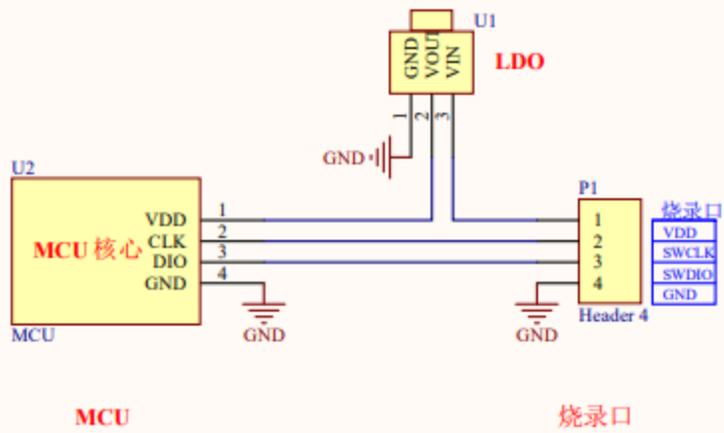


TIP

In debugging mode, the system outputs 3.3V by default, if you need other voltages, please set and apply them manually through the client software.

4 : Selection Recommendations

Refer to the chart below:



Tags: [FAQ](#) [Power](#)

[✎ Edit this page](#)

Last updated on **Apr 15, 2024** by **Alan Chen**

Version: Next

3.2.7 : Bluetooth applet tutorial

PW300 has a built-in Bluetooth module, which allows you to connect the burner via Bluetooth + cell phone WeChat applet to download the firmware order to PW300 from Gencore Workshop cloud for offline burning. ↓ In addition to firmware orders sold or gifted by others, users can also upload firmware to Genesis Cloud Disk by themselves, and then select the files in Genesis Cloud Disk through WeChat applet to select burning. The specific operation process is as follows:

1 : WeChat Scan



2 : Device Power On

Use the USB cable to power the device if using the PW300, or plug the USB wireless adapter into the host USB port of the PWX1 if using the PWX1.

3 : Connected device

When connecting the device, you need to open the Bluetooth of the phone as well as the positioning authority in advance, and allow the applet to use the Bluetooth service, when the Bluetooth is not opened, there will be a prompt as follows:



Select the searched PowerWriter® device, and when the programmer has a new firmware version available for upgrade, a pop-up prompt will appear, which needs to be upgraded via the PowerWriter® PC software. The following figure shows that two PW300 devices are recognized, and the log message output when the PW300 device is connected.



设备连接

PW300-1E82 ---

PW300-FB7A RSSI:-63

请连接 Power Writer (PW300),选择订单下载。



连接设备



下载



选择订单



4 : Programming Order Selection

Order details here can be found via [ICW Cloud-ICWORKSHOP](#) For a more detailed view, the Cloud Disk in the Files are uploaded by individuals to the program.



我的订单

创芯云盘

111

离线授权

订单号: SG202305251605271550647923

程序文件: [project.pkg]

卖家: icw_15506sf8d

购买数量 (可用数量): 100/90

文件大小: 17324 B

创建时间: 2023-05-25 16:05:27

下载

删除

test

离线授权

订单号: SG202305251559141550692033

程序文件: [project1.pkg]

卖家: icw_15506sf8d

购买数量 (可用数量): 100/90

文件大小: 17301 B

创建时间: 2023-05-25 15:59:14

下载

删除

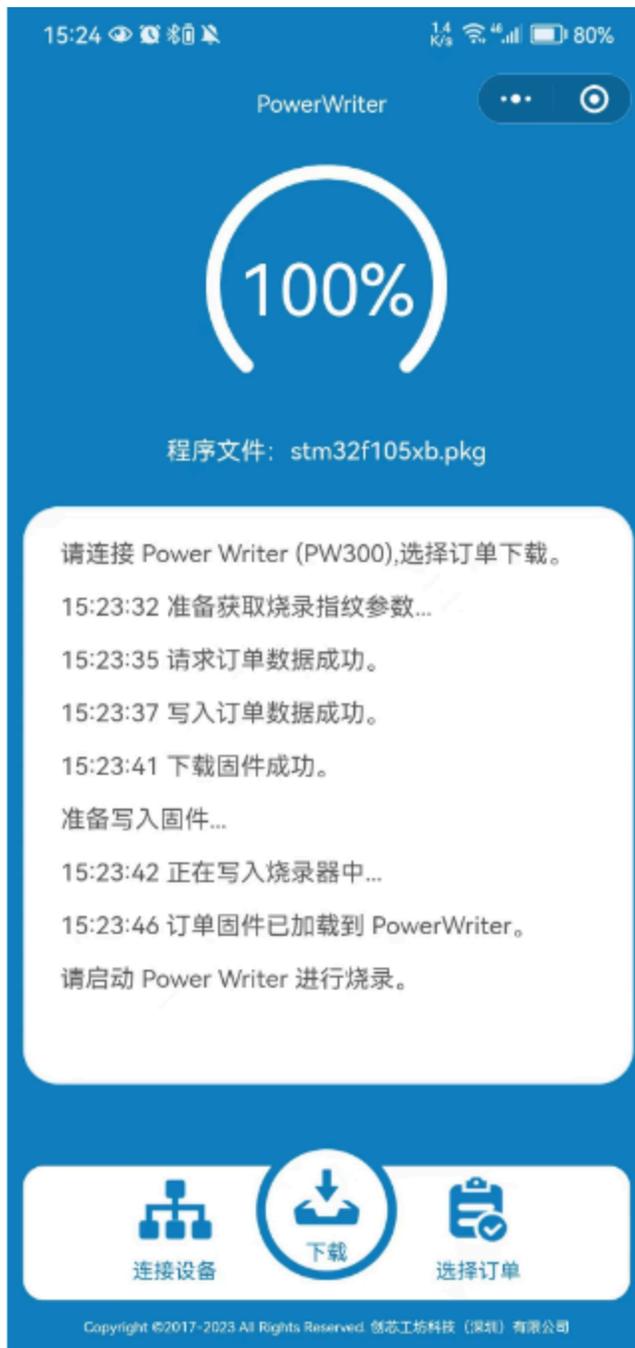


5 : Order Configuration

When you click on the download button, you will be prompted with a pop-up window to configure the number of programmer.



When loading a program into the programmer, a progress bar will be displayed on the top page of the applet, and when 100% is displayed, the program has been loaded into the PowerWriter®.



6 : Video tutorial

Bluetooth Download Video Tutorial

Tags: [FAQ](#) [PowerWriter®](#) [Bluetooth_applet](#)

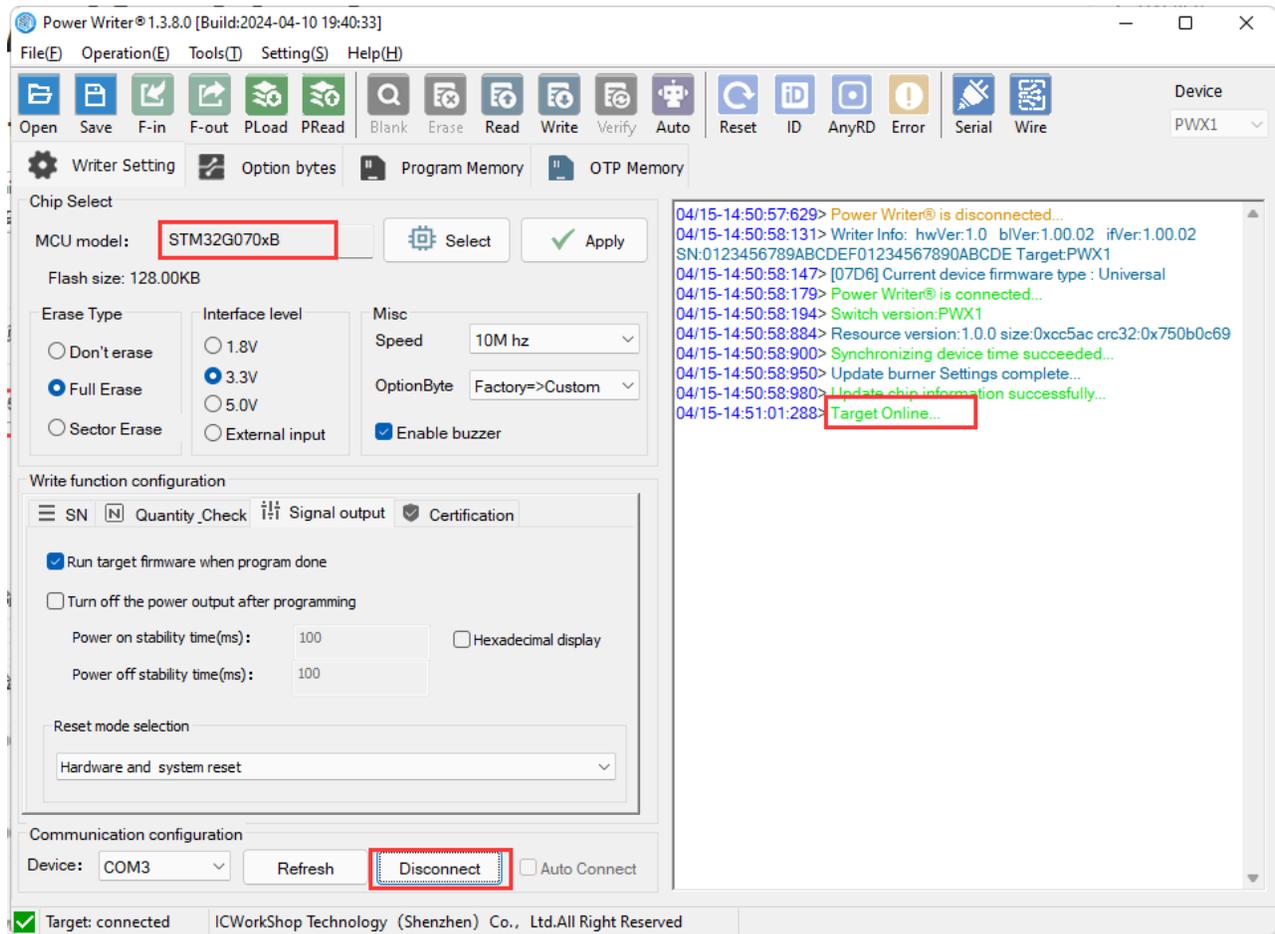
 [Edit this page](#)

*Last updated on **Apr 15, 2024** by **Alan Chen***

Version: Next

3.2.8 : Verify chip data

1 : Connecting the programmer with target chip



2 : Add data to be verified, click Verify

Power Writer® 1.3.8.0 [Build:2024-04-10 19:40:33]

File(F) Operation(E) Tools(T) Setting(S) Help(H)

Open Save F-in F-out PLoad PRead Blank Erase Read Write **Verify** Auto Reset ID AnyRD Error Serial Wire

Device: PWX1

Writer Setting Option bytes **Program Memory** OTP Memory

ADDRESS 00 01 02 03 04 05 06 07 08 09 0A 0B 0C 0D 0E 0F TEXT

Flash Map(All/Unall): Erase-SEL

Firmware Name	Start Addr	End Addr	Firmware Size	CRC32
merged_serial_ite_modem_v1.5.hex	0x08000000	0x080085E7	34280(33.5KB)	0xcbecad1d

+ Add firmware + Add random X Del firmware Apply

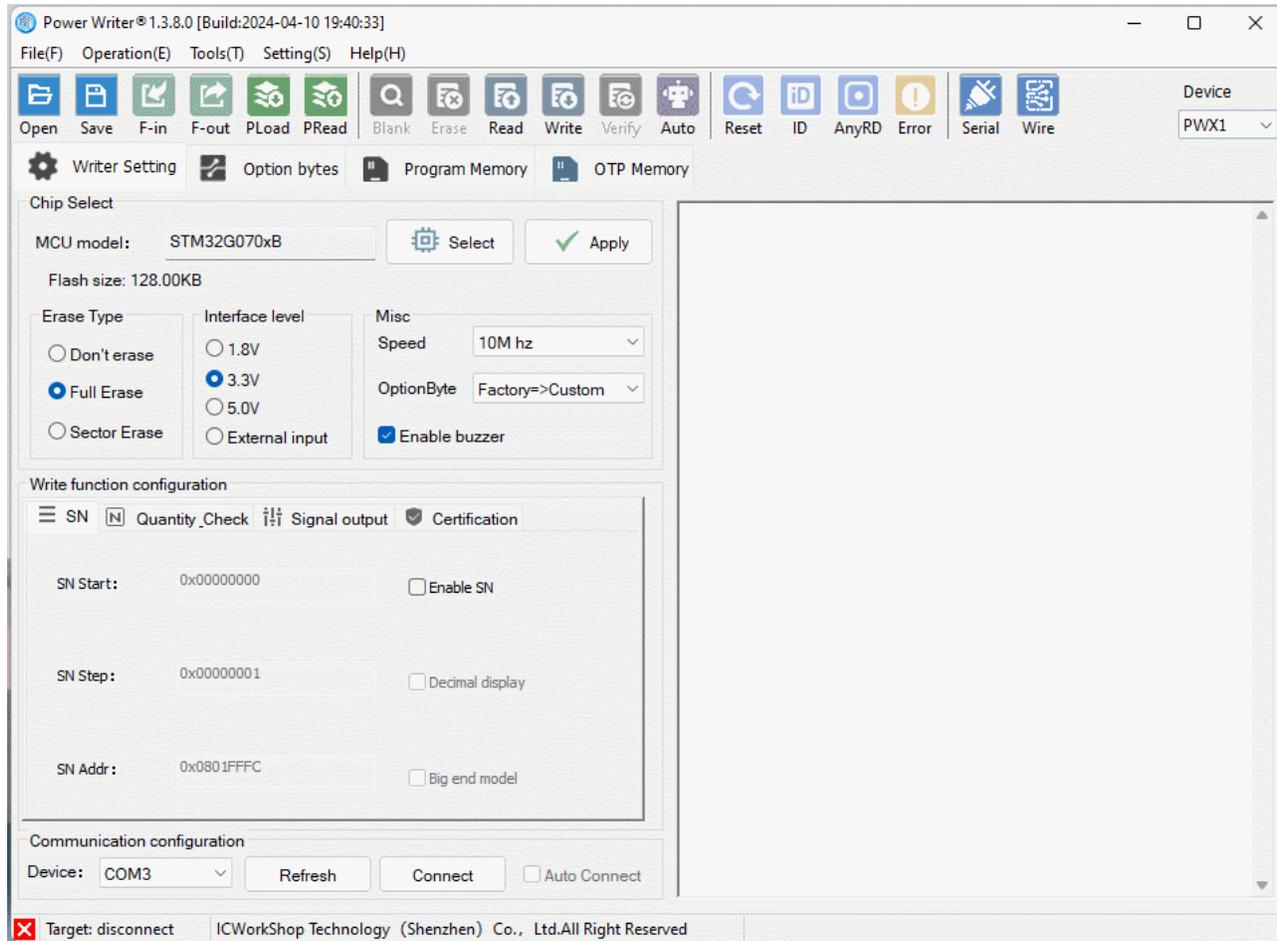
Target: connected ICWorkShop Technology (Shenzhen) Co., Ltd.All Right Reserved

```

04/15-14:50:57:629> Power Writer® is disconnected...
04/15-14:50:58:131> Writer Info: hwVer:1.0 blVer:1.00.02
ifVer:1.00.02
SN:0123456789ABCDEF01234567890ABCDE Target:PWX1
04/15-14:50:58:147> [07D6] Current device firmware type : Universal
04/15-14:50:58:179> Power Writer® is connected...
04/15-14:50:58:194> Switch version:PWX1
04/15-14:50:58:884> Resource version:1.0.0 size:0xcc5ac crc32:0x750b0c69
04/15-14:50:58:900> Synchronizing device time succeeded...
04/15-14:50:58:950> Update burner Settings complete...

```

3 : Operational Demonstration



Tags: [FAQ](#) [verify](#)

 [Edit this page](#)

Last updated on **Apr 15, 2024** by **Alan Chen**

Version: Next

3.2.9 : Nuvoton Chip Extension

Since Nuvoton chips have some special features, such as M481xG with KPROM, XOM, security secret key, etc., the PowerWriter® software puts them under Plug-in Functions, see below:



KPROM Setting XOM Setting Secure Key

Update KPROM

Key 0:	<input type="text" value="0xFFFFFFFF"/>	Key 0:	<input type="text" value="0xFFFFFFFF"/>
Key 1:	<input type="text" value="0xFFFFFFFF"/>	Key 1:	<input type="text" value="0xFFFFFFFF"/>
Key 2:	<input type="text" value="0xFFFFFFFF"/>	Key 2:	<input type="text" value="0xFFFFFFFF"/>

Maximum number of power - on attempts for incorrect passwords(1~7):

Maximum number of incorrect password attempts per power-on (0-31):

Data write protection area: KPROM,LDRROM,APROM CONFIG SPROM

changed. The Se

vice first...

efully...

00.02 ifVer:1.01

t:PWX1

type : Universal

c5ac crc32:0x7

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te...

efully...

er firmware, ple:

ta editor buffer..

sfu!

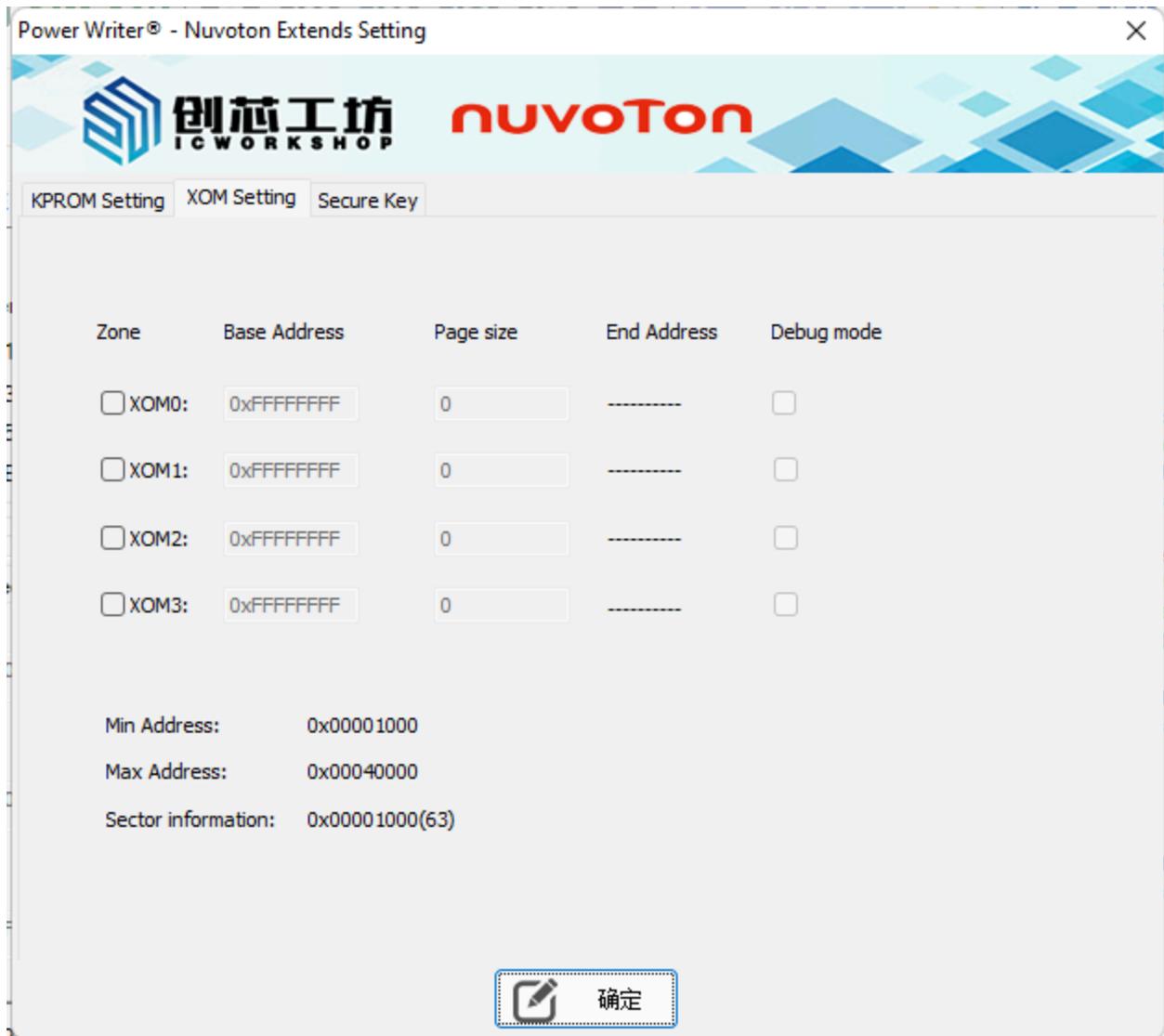
0.00KB

te...

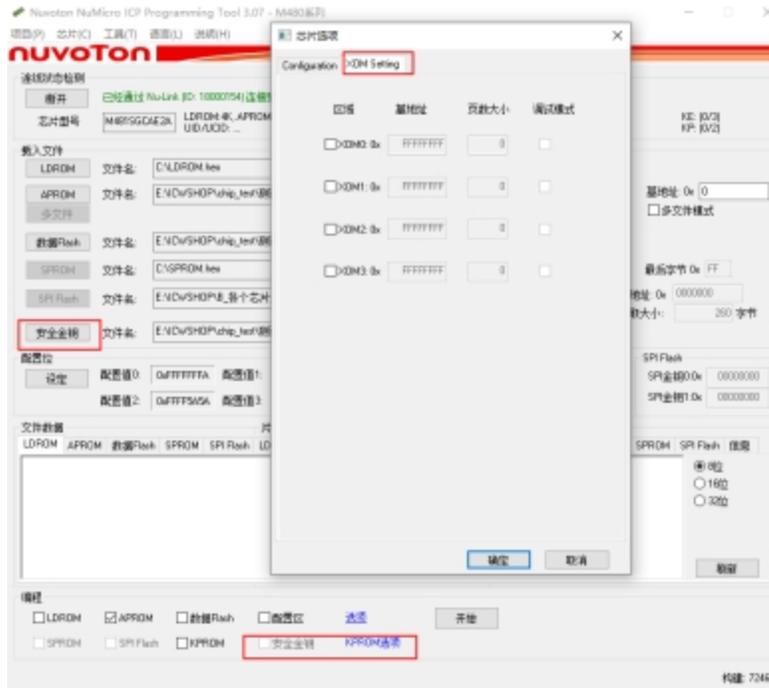
efully...

te...

efully...



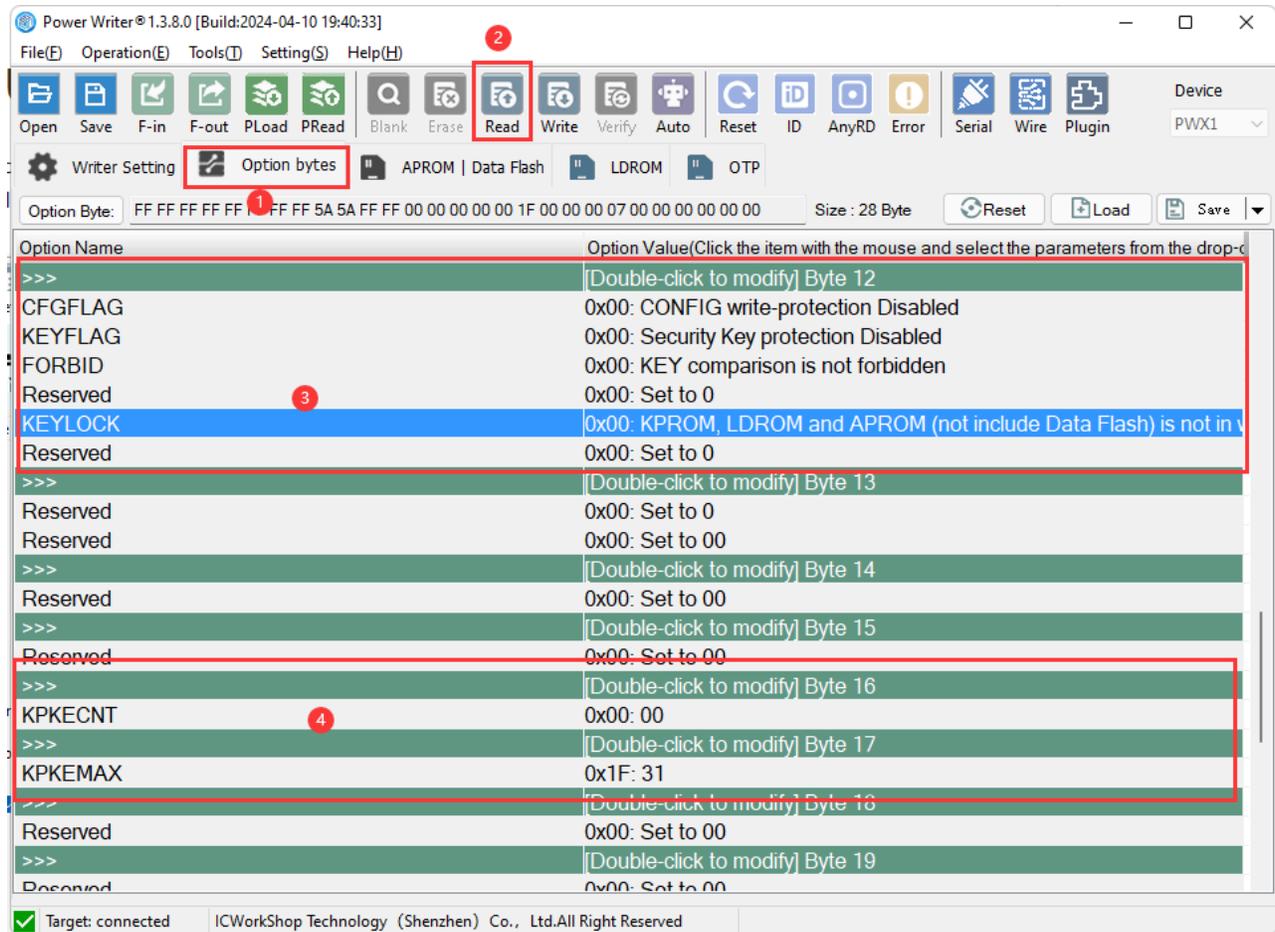
Corresponding to official tools



1 : KPROM Config

1.1 : KPROM status reading

Connecting the chip and reading the option byte allows you to get the status of the KPROM.



1.2 : KPROM Unlock Password Setting

When the security key protection is enabled, the LDROM and APROM are in write-protected state, and if you want to write to them, you must enter the correct KPROM unlock password, or report an error. When the option byte CONFIG write protection is enabled and the option byte is to be written, an incorrect entry of the KPROM unlock password triggers a full chip erase.



```

2/06-16:08:00:246> M481xG Flash 大小: 256.00KB
2/06-16:08:00:247> M481xG Data Flash size: 4.00 KB
2/06-16:08:00:251> M481xG LDR0M size: 4.00 KB
2/06-16:08:00:253> M481xG OTP size: 3.00 KB
2/06-16:08:00:484> Change bank: Single bank
2/06-16:08:00:667> 更新烧录器设置完成...
2/06-16:08:00:907> 更新芯片信息成功...
2/06-16:08:02:086> 目标芯片已连接...
2/06-16:08:02:143> 选项字节已经成功读取!
2/06-16:15:19:923> 更新烧录器设置完成...
2/06-16:15:20:166> 更新芯片信息成功...
2/06-16:15:24:323> [003E] Target KPROM password error...

```

1.3 : Update KPROM password

When you want to update the KPROM, you must check both Update KPROM and Security Key Enable, the KPROM is written with the option byte, and clicking Write Option Byte will operate the KPROM; the



KPROM Setting XOM Setting Secure Key

Update KPROM

Key 0: 0xFFFFFFFF

Key 1: 0xFFFFFFFF

Key 2: 0xFFFFFFFF

KPROM Unlock Key

Key 0: 0xFFFFFFFF

Key 1: 0xFFFFFFFF

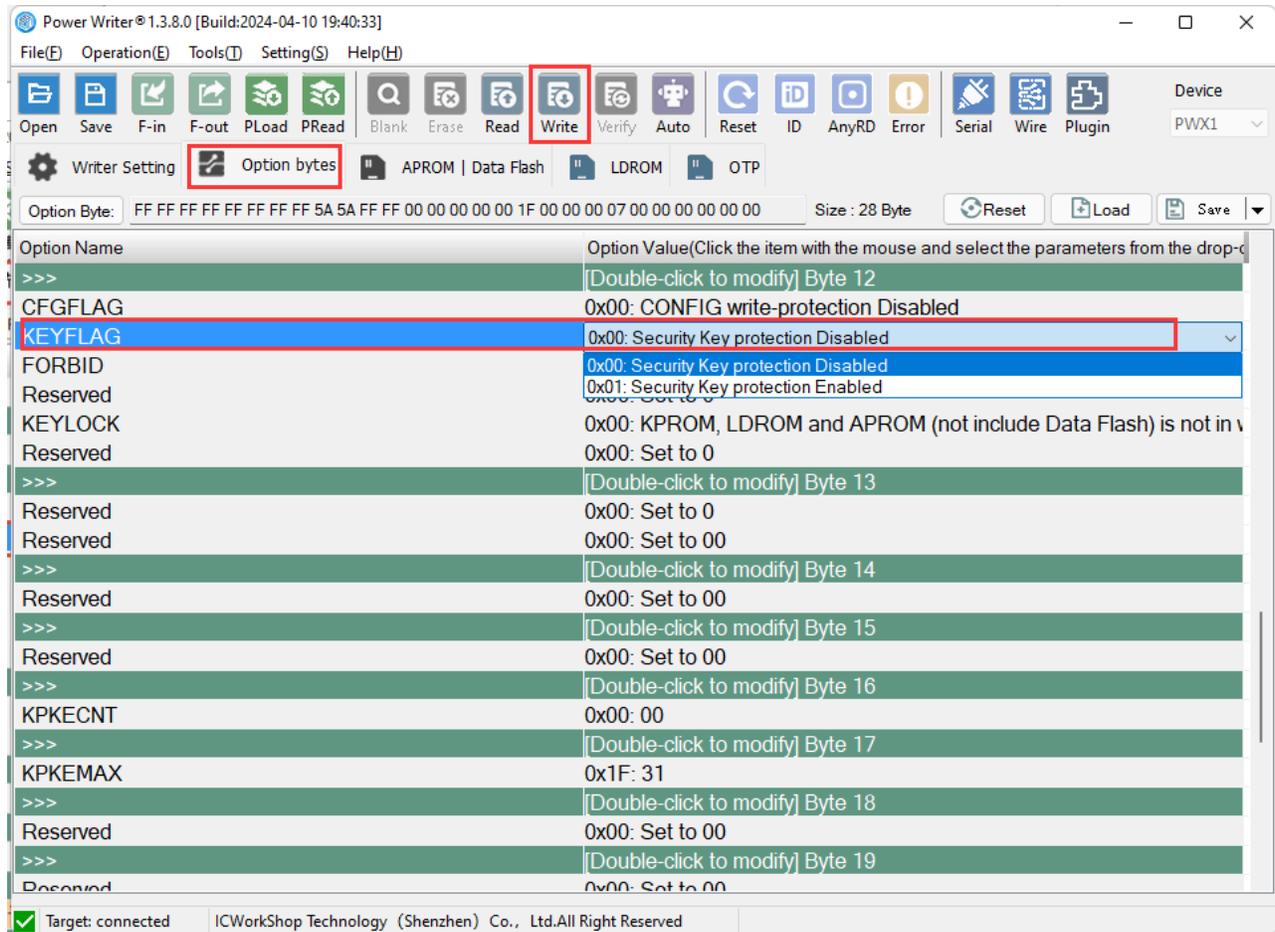
Key 2: 0xFFFFFFFF

Maximum number of power - on attempts for incorrect passwords(1~7):

Maximum number of incorrect password attempts per power-on (0-31):

Data write protection area: KPROM,LDROM,APROM CONFIG SPROM

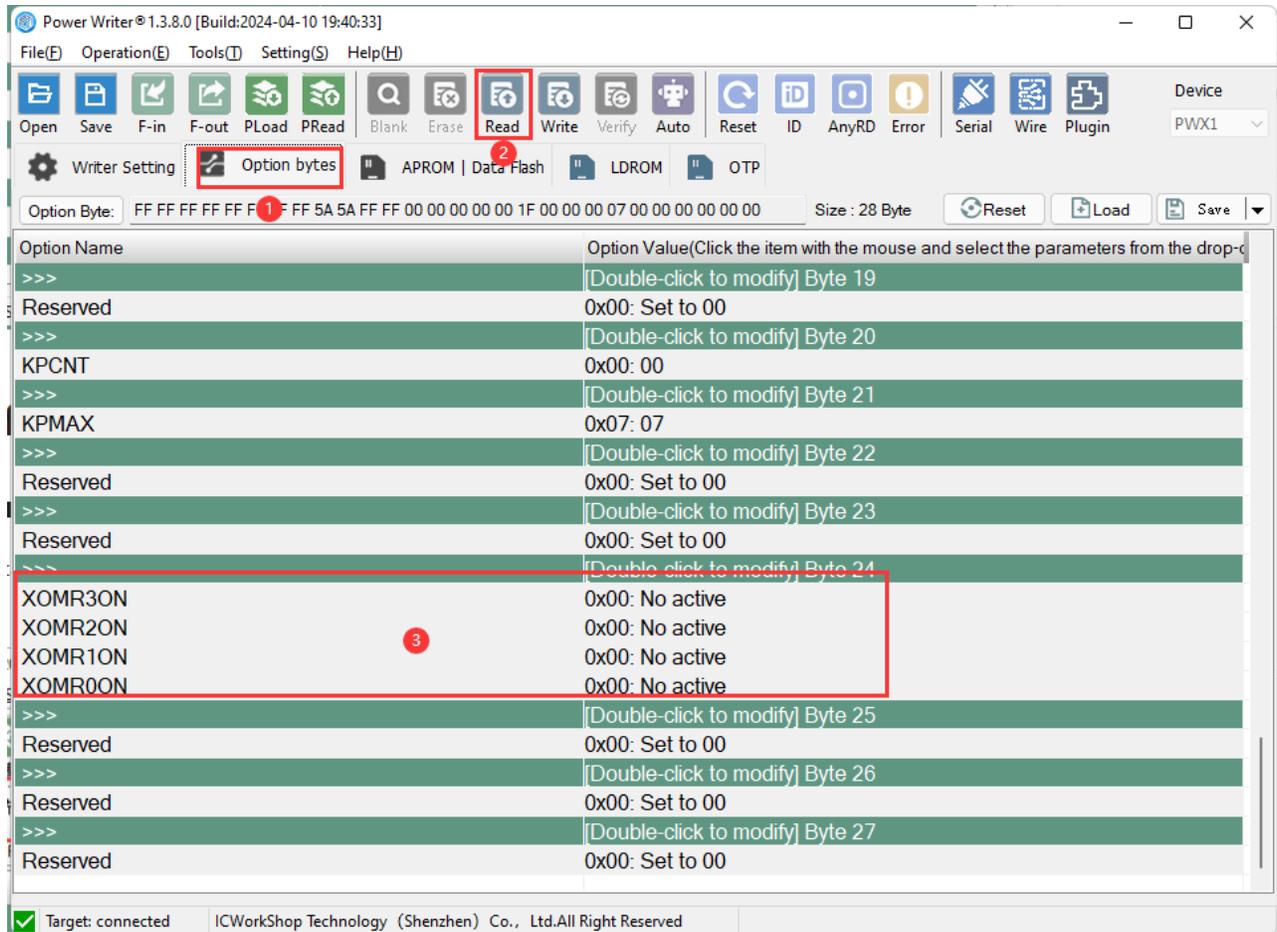
确定



2 : XOM Config

2.1 : XOM status reading

You can get the activation status of the XOM by selecting the corresponding chip model, connecting the chip and reading the option byte:



2.2 : XOM Configuration Write

Fill in the address to be read-protected, you must check both the enable area and the XOM area to enable, and finally click the write option byte.



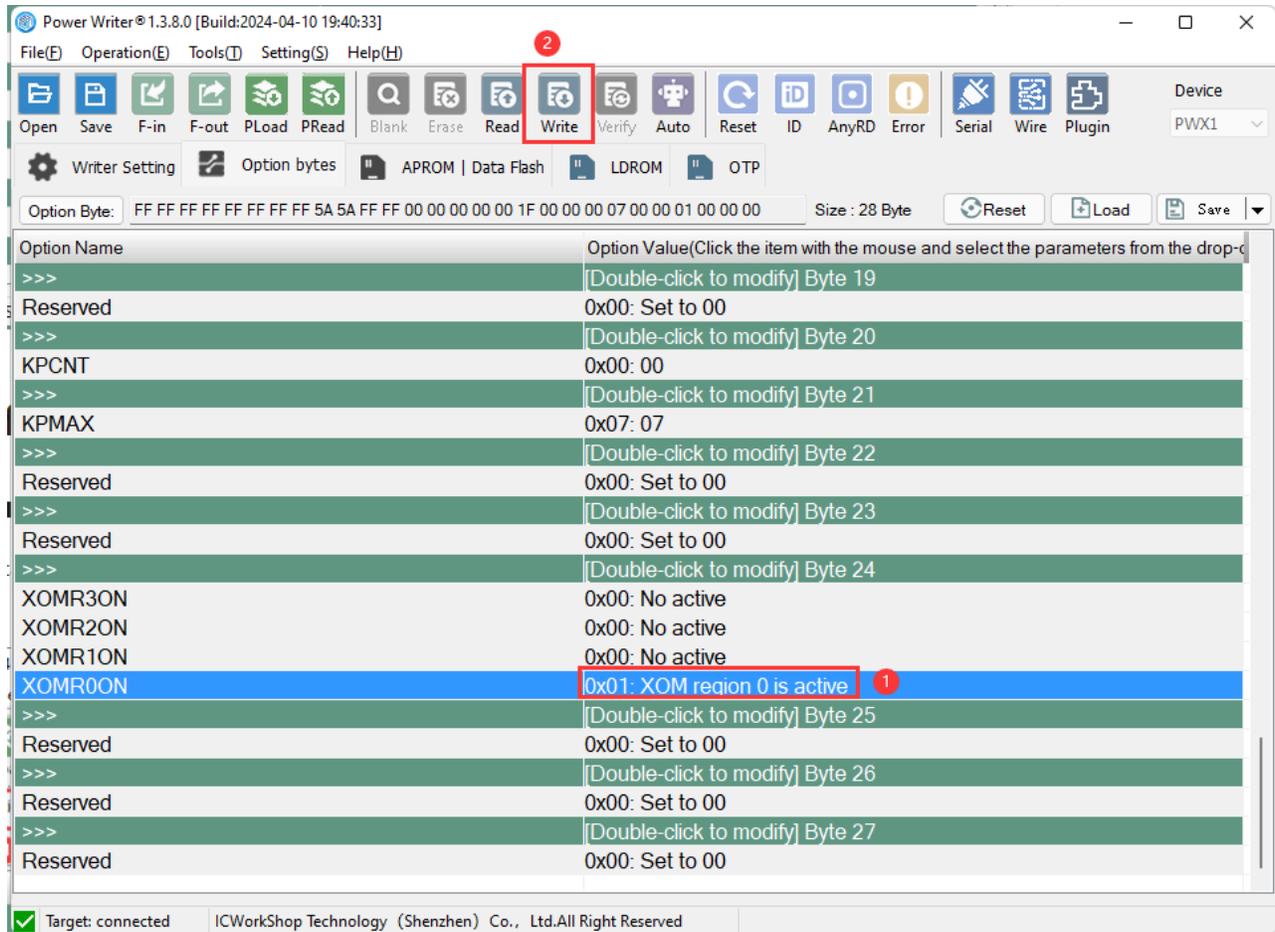
KPROM Setting **XOM Setting** Secure Key

Zone	Base Address	Page size	End Address	Debug mode
<input checked="" type="checkbox"/> XOM0	0xFFFFFFFF	0	-----	<input type="checkbox"/>
<input type="checkbox"/> XOM1	0xFFFFFFFF	0	-----	<input type="checkbox"/>
<input type="checkbox"/> XOM2	0xFFFFFFFF	0	-----	<input type="checkbox"/>
<input type="checkbox"/> XOM3	0xFFFFFFFF	0	-----	<input type="checkbox"/>

Min Address: 0x00001000

Max Address: 0x00040000

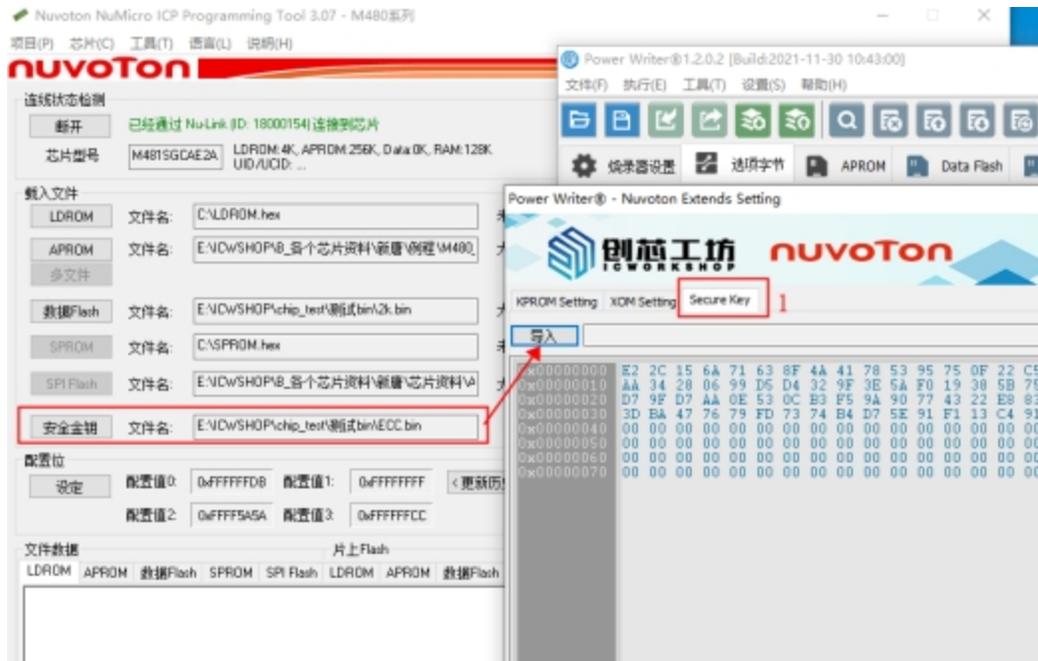
Sector information: 0x00001000(63)



3 : Security key

3.1 : Import of security keys

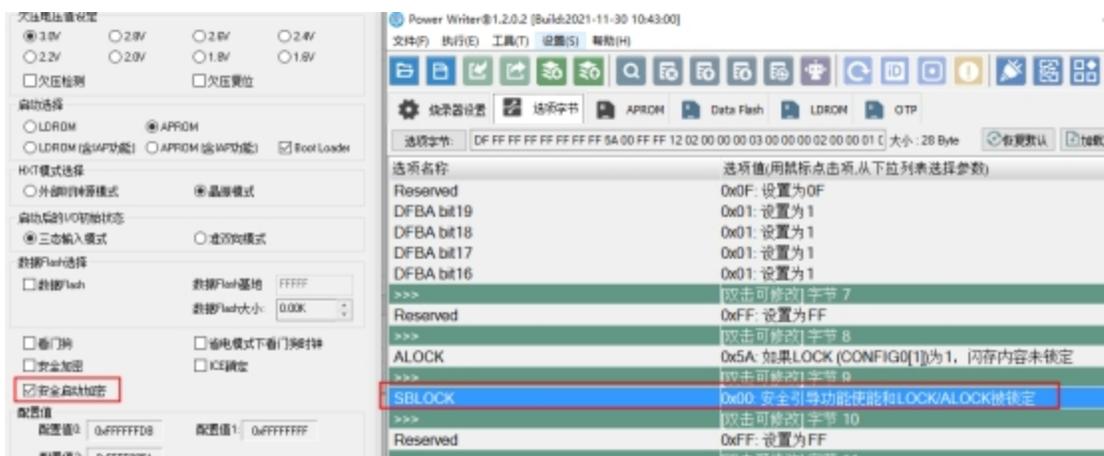
Import the security secret key in Secure Key, the procedure can be found in: Nuvoton NuMicro ICP Programmer User Guide.pdf.



3.2 : Configuration and write security keys

Check BootLoader Boot and Secure Boot Encryption, then click Write Options Byte, you can add firmware and then click Fully Automatic Programming;





- Offline load (Ctrl+Shift+L)
- Offline upload (Ctrl+Shift+R)

- Read Program memory (Ctrl+R)
- Blank check Program memory (Ctrl+B)
- Erase Program memory (Ctrl+E)
- Program Program memory (Ctrl+W)
- Verify Program memory (Ctrl+V)

- Auto Program Memory programming (Ctrl+P)
- Fully functional automatic programming (Ctrl+Alt+P)

- Other data area operations >

- Reset target chip (Ctrl+D)
- Read option byte (Ctrl+M)
- Write option byte (Ctrl+N)

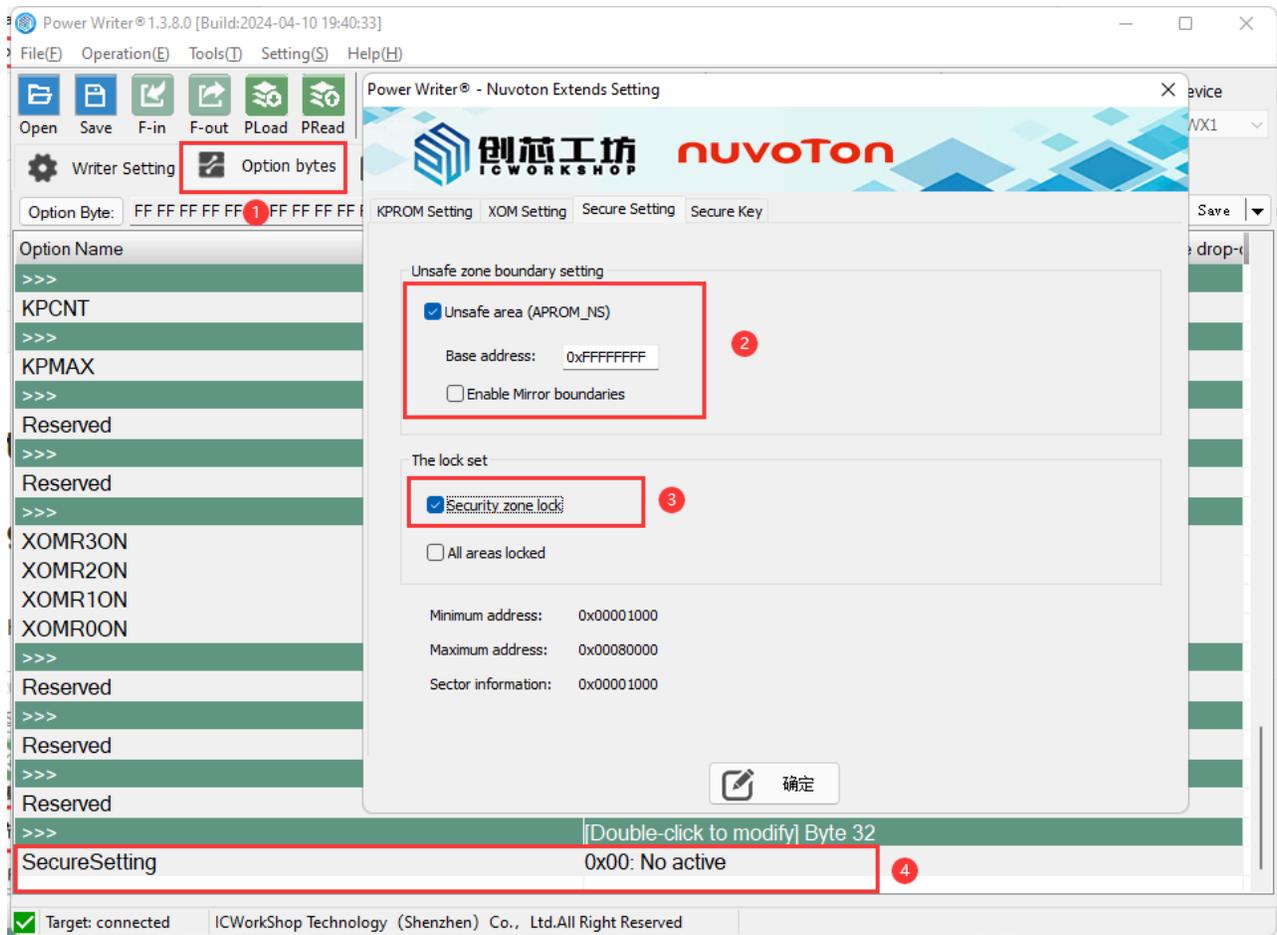
- Read Union Chip ID (Ctrl+J)
- Read Data Anywhere (Ctrl+K)

- Get Last Offline Error (Ctrl+L)

4 : Secure Setting

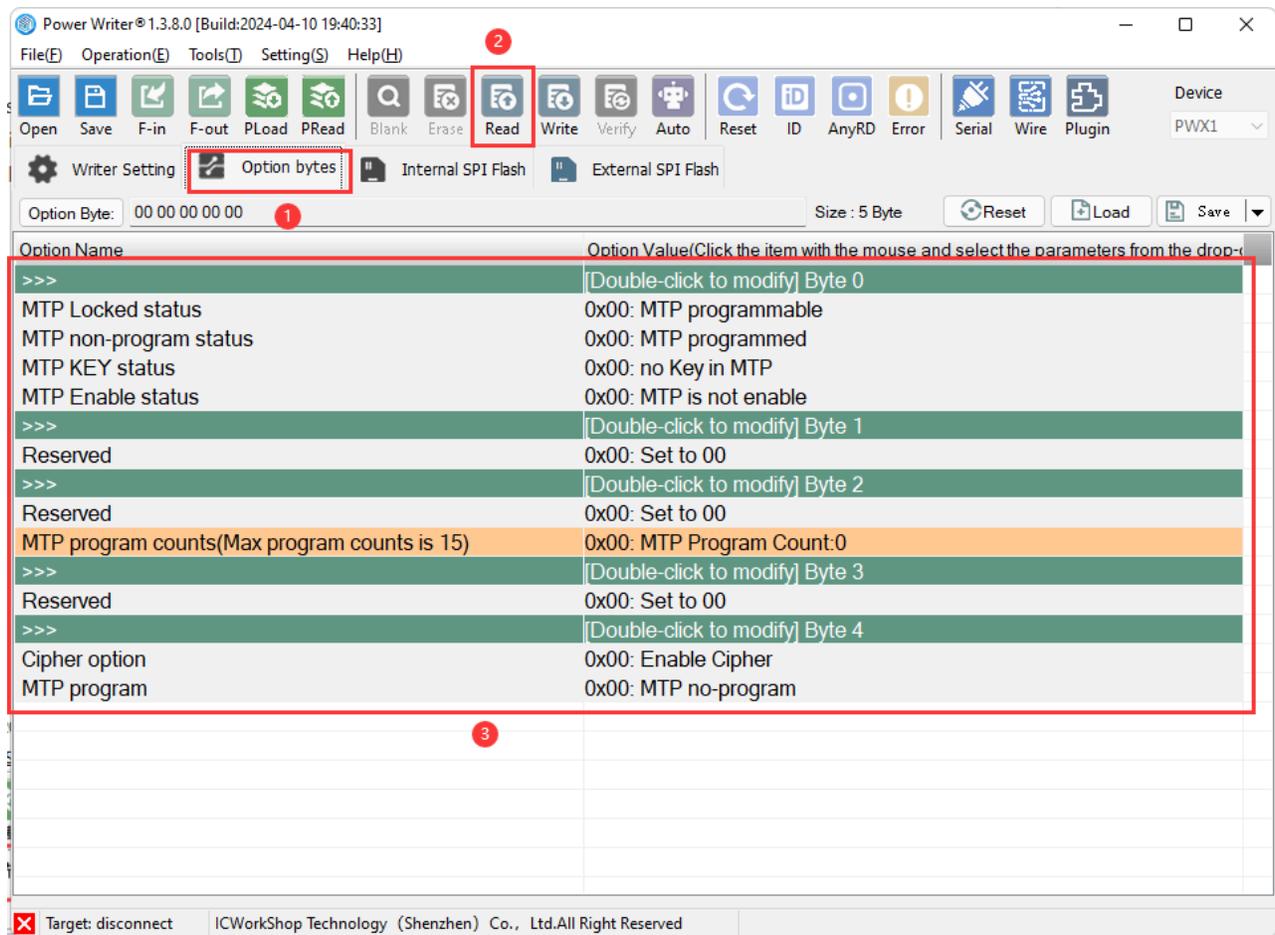
4.1 : Secure config

Here we take the **M2351** as an example, open Extended Settings, select Start Non-Safe Area, write the Non-Safe Area address, and turn on the Safe Area setting in the Options byte:



4.2 : Secure Area Unlocking Method

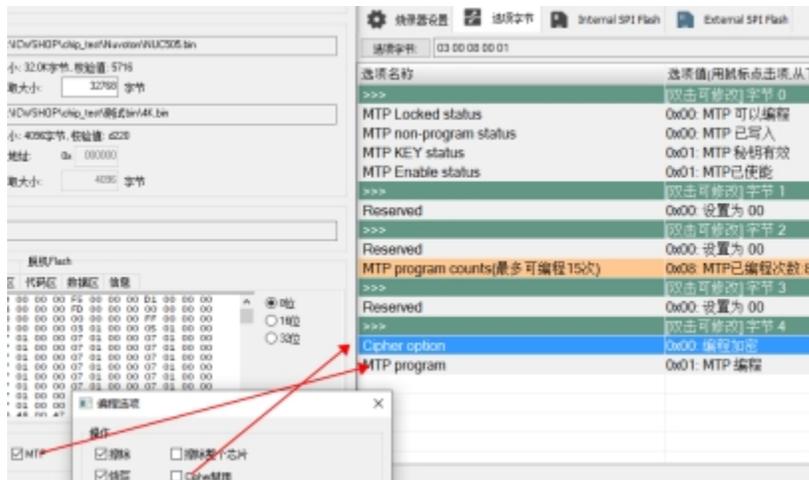
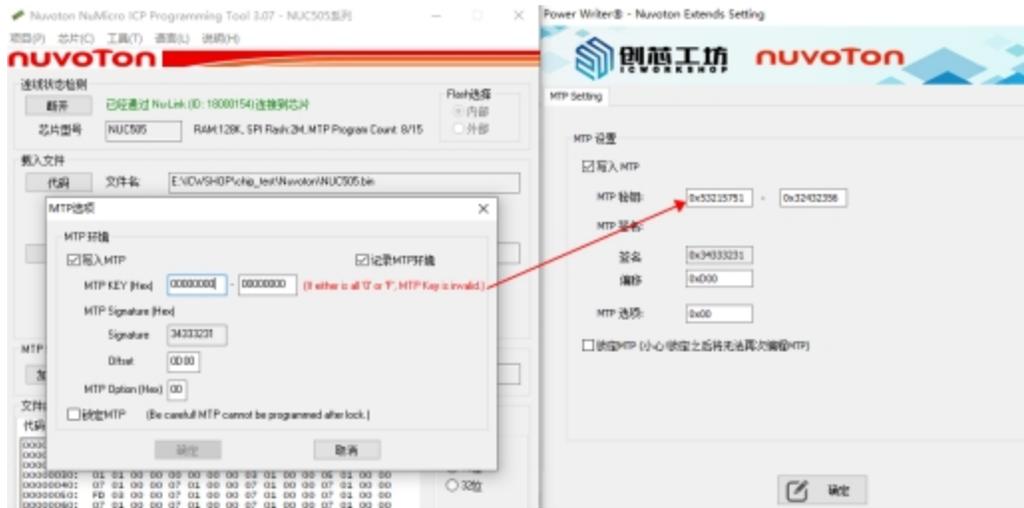
After locking the setting settings, the chip will not be connected, you need to click on



5.3 : MTP Config

Fill in the correct value in MTP Setting in Nuvoton Extended Settings, and when you need to update MTP, you need to check both Write MTP and MTP Programming.

```
MTP 秘钥: 0x53215751 -0x32432356 //This is filled in randomly, with non-
all zeros and non-all ff
const uint32_t signature __attribute__((at(0x00000d00))) =
0x34333231;//The program firmware needs to be customised by setting the
signature at the offset address
```



Code Verification is automatically activated when the MTP is programmed. The code on the Flash (or file to be written to SPIFlash) must pass through the Code Verification stream. The NUC505 searches the 0 to 16 KBSPIFlash of the offset address (or file to be written to SPIFlash) to check that the correct signature is present on the offset address (compare to the data in the NUC505 MTP). data for comparison, see Figure 2-1). If there is no signature, the boot or programming operation will fail. This protection mechanism is called off-chip memory protection, so to program the encryption, it is necessary to add no less than 16K of firmware, but not to program the encryption:

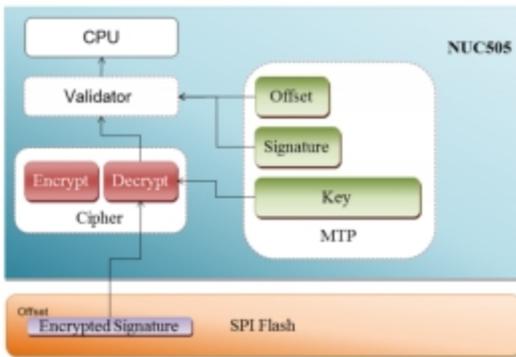


Figure 2-1 Code Validation Flow

Add plaintext firmware when using programmed encryption.

The screenshot shows the Power Writer software interface. The main window displays a memory dump with columns for ADDRESS, hex data, and TEXT. Below the memory dump is a table of firmware entries. The table has columns for Firmware Name, Start Addr, End Addr, Firmware Size, and CRC32. The first entry is 'merged_serial_ite_modem_v1.4.hex' with Start Addr 0x00000000, End Addr 0x0000A343, Firmware Size 41796(40.8KB), and CRC32 0xe67327ec. There are buttons for '+ Add firmware', '+ Add random', and 'X Del firmware'. A green checkmark and 'Apply' button are also visible.

Firmware Name	Start Addr	End Addr	Firmware Size	CRC32
merged_serial_ite_modem_v1.4.hex	0x00000000	0x0000A343	41796(40.8KB)	0xe67327ec

When not encrypted by programming, you can read the encrypted firmware save as first, then add it.

6 : SPI Flash encryption settings

6.1 : SPI Flash Encryption Setting

Select the corresponding chip, for example, **M485xl**, open the extended settings and select SPI Setting, fill in the non-zero values for secret key 0 and secret key 1, and then the chip will be encrypted and burned automatically when you are sure to burn it.



Tags:

FAQ

Nuvoton

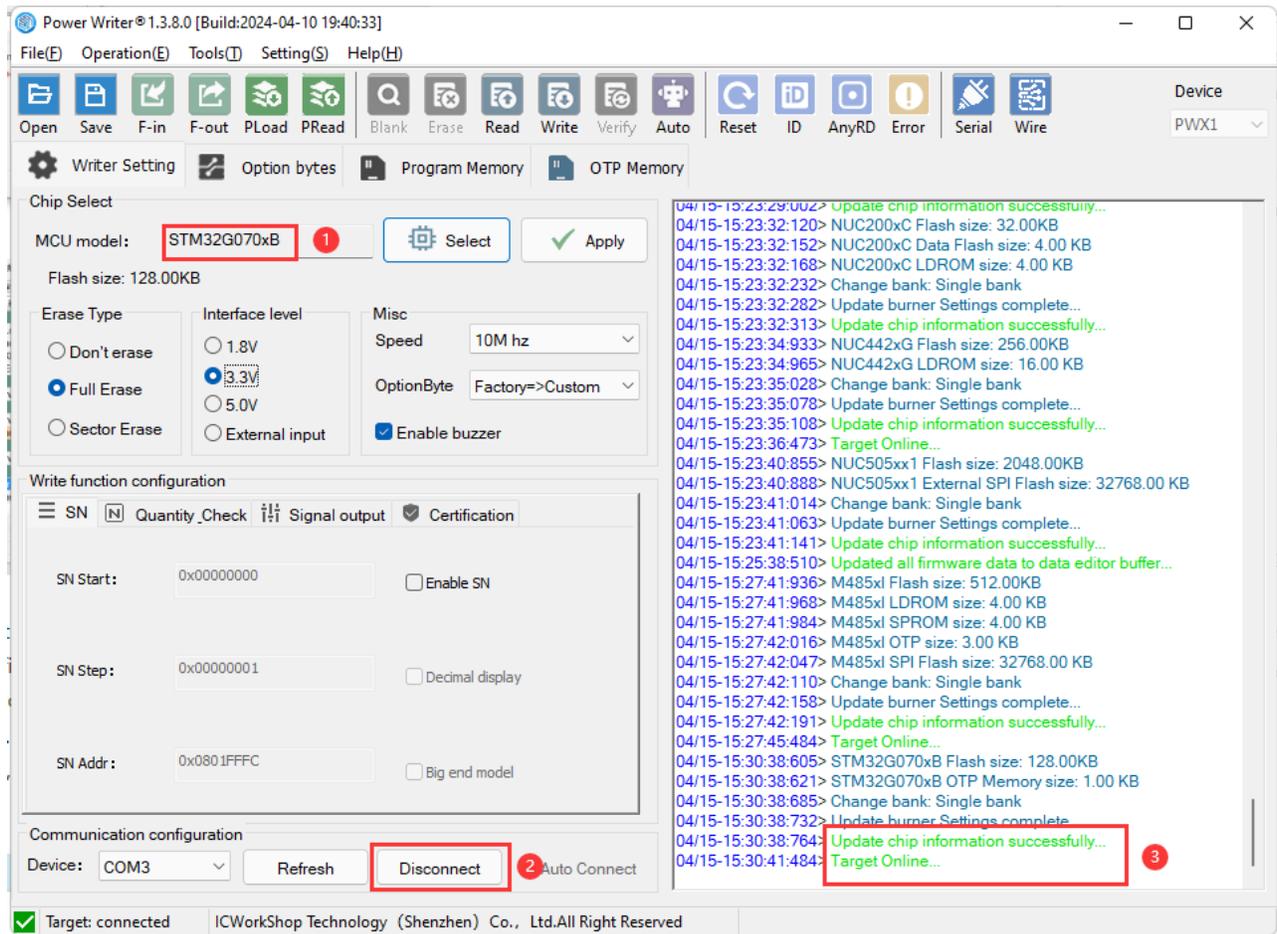
 [Edit this page](#)

*Last updated on **Apr 15, 2024** by **Alan Chen***

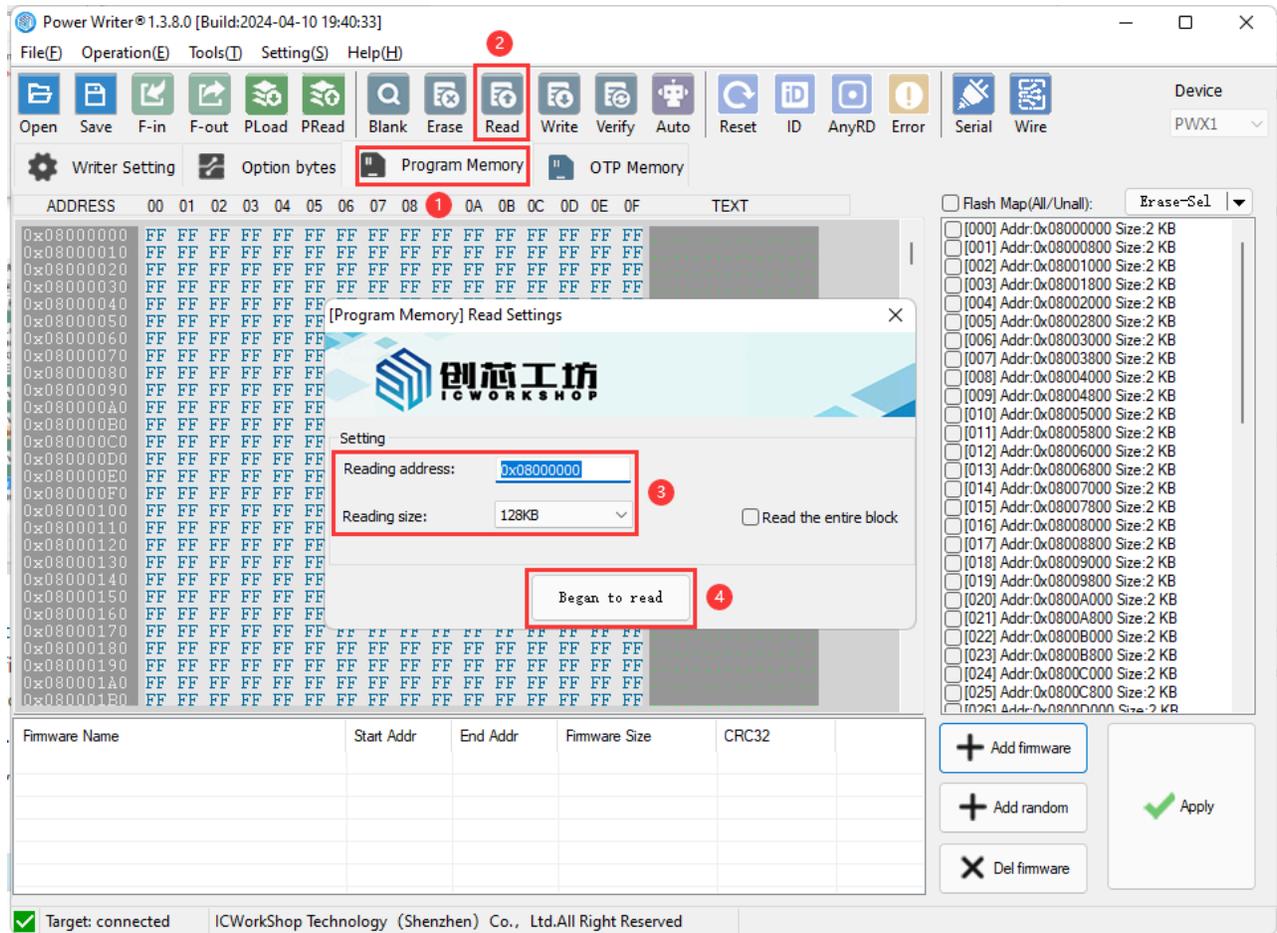
Version: Next

3.2.10 : Chip Data Export

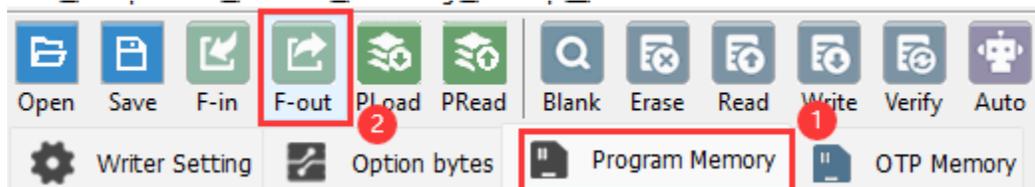
1 : Connecting the programmer with target chip



2 : Read chip data



3 : Store to local disk



Randomly intercept the read back data to save, right click on both ends of the data to be intercepted to set the start address and end address, and then export the data.

4 : Operational Demonstration

4.1 : Read the whole area



4.2 : Reading a specific region



Tags: [FAQ](#) [Export](#)

[Edit this page](#)

Last updated on **Apr 15, 2024** by **Alan Chen**

Version: Next

3.2.11 : STM32WB stack upgrade

1 : Introduces

PowerWriter® support for manufacturer-specific features, are using the plug-in mode, you can support the specific features required by any manufacturer, the method of entry and other brands of the support method is consistent, in the selection of the chip, such as in the toolbar on the right side of the most a plug-in support icon appears, the currently selected chip has a plug-in support function, as shown below:



After selecting the STM32WB family of chips, an Extended Functions button appears on the right side of the toolbar, defined as Vendor Specific Plug-In Functions, which can be clicked to enter the STM32WB Protocol Stack programming configuration page, as shown in the figure:



2 : Firmware Import

2.1 : FUS Operator (Version 3.1 inside)

FUS Operator is configured as version 3.1 on the PowerWriter® side by default. If you need to change it to another version, please import the specified version manually, and

you will see the version number of the FUS Operator on the right side of the screen after the import is completed.

FUS Operator

./resource/plugin/stm32wb/0x495_FUS_Operator.bin

3.1

TIP

- The FUS Operator PowerWriter® comes by default with version V3.1 with STMWB1x, STM32WB3x, STM32WB5x versions and automatically selects the version with the prefix 0x495 or 0x494 depending on the chip used for selection.
- FUS Operator is recommended to use the latest version, the official ST release path is: STM32CubeProgrammer installation path\FlashLoader\ below, such as: C:\Program Files\STMicroelectronics\STM32Cube\STM32CubeProgrammer\bin\FlashLoader path.
- PowerWriter® maintains updates to the built-in FUS Operator.

2.2 : Stack firmware

Stack refers to the protocol stack part of the firmware, the way to get the files of the protocol stack, please refer to the official release channel of ST, it is recommended to use STM32CUBEMX package manager to install the latest SDK, and get the latest Stack files from the SDK installation directory, such as:

```
C:\Users\CSHSOFT\STM32Cube\Repository\STM32Cube_FW_WB_V1.13.1\Projects\STM32WB_Copro_Wireless_Binaries\
```

Path to get

```
stm32wb5x_BLE_Thread_dynamic_fw.bin
```

Select the Stack file corresponding to the target chip to load, and refer to Release_Notes.html , set the correct firmware address as follows;

Known Limitations

Anti-Rollback needs to be activated, please make sure to activate it only after installing the latest US version (>= V1.2.0) and after successfully installing a wireless stack (without deleting it), otherwise, further wireless stack installation will be blocked.

Purpose

this release covers the delivery of STM32WB Coprocessor binaries.

here is the list of references to user documents:

AN5185 : ST FW upgrade services for STM32WB

UM2237 : STM32CubeProgrammer User Manual

here is the list of the supported binaries:

stm32wb5x_BLE_HCI_AdvScan_fw.bin

- HCI Layer only mode 5.2 certified : Link Layer, HCI
- BT SIG Certification listing : Declaration ID D0402213
- To be used for advertising and scanning through HCI interface

stm32wb5x_BLE_LLD_fw.bin

- BLE LLD (Low Level Driver) Radio Transparent firmware
- To be used for direct access on BLE LLD features and API

stm32wb5x_BLE_Stack_full_fw.bin

- Full BLE Stack 5.2 certified : Link Layer, HCI, L2CAP, ATT, SM, GAP and GATT database
- BT SIG Certification listing : Declaration ID D042164

• Following features are kept:

- GAP peripheral, central (LL Master up to 6 links with Slave up to 2 links/ Master up to 7 links with Slave up to 1 links/ Master up to 8 links)
- GATT server, client
- Data length extension
- 2Mbit PHY / PHY update
- Privacy
- White list
- Legacy Pairing, LE secure connections

- Zigbee updates:
 - Zigbee stack patches in order to solve R22 security vulnerability reported by the CSA (Security Incident Number: 2021-ZP-0401)
 - BLE THREAD Dynamic updates:
 - ID 112393: Correct low power consumption issue

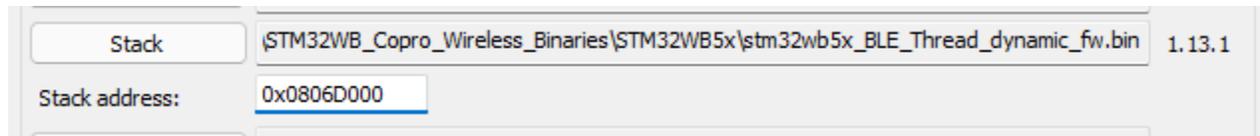
Firmware Upgrade Services Binary Table Provides install address for the targeted binary to be used in flash procedure "STEP 5/6" via USB or via SWD/JTAG.

Wireless Coprocessor Binary	STM32WB5xxG(1M)	STM32WB5xxY(640K)	STM32WB5xxE(512K)	STM32WB5xxC(256K)	Version
stm32wb5x_FUS_fw_for_fus_0_5...	0x080EC000	0x0809A000	0x0807A000	0x0803A000	V1.2.0
stm32wb5x_FUS_fw_bin	0x080EC000	0x0809A000	0x0807A000	0x0803A000	V1.2.0

Wireless Coprocessor Binary Table Provides install address for the targeted binary to be used in flash procedure "STEP 7" via USB or via SWD/JTAG.

Wireless Coprocessor Binary	STM32WB5xxG(1M)	STM32WB5xxY(640K)	STM32WB5xxE(512K)	STM32WB5xxC(256K)	Version
stm32wb5x_BLE_HCI_advscan_fw...	0x080DC000	0x08099000	0x08079000	0x08039000	V1.13.0
stm32wb5x_BLE_HCI_advscan_f...	0x080DE000	0x08099000	0x08079000	0x08039000	V1.13.0
stm32wb5x_BLE_LLD_fw_bin	0x080ED000	0x08099000	0x08079000	0x08039000	V1.12.0
stm32wb5x_BLE_Mac_802_15_4...	0x080E1000	0x08095000	0x0803D000	NA	V1.13.0
stm32wb5x_BLE_Stack_basic_fw...	0x080D1000	0x0807C000	0x0805D000	0x0801D000	V1.13.0
stm32wb5x_BLE_Stack_full_fw...	0x080C7000	0x08073000	0x08053000	0x08013000	V1.13.0
stm32wb5x_BLE_Stack_full_exten...	0x080C7000	0x08073000	0x08053000	0x08013000	V1.13.1
stm32wb5x_BLE_Stack_full_fw...	0x080D7000	0x08083000	0x08063000	0x08023000	V1.13.0
stm32wb5x_BLE_Thread_dynamic...	0x0809D000	NA	NA	NA	V1.13.1
stm32wb5x_BLE_Thread_static_f...	0x0809F000	NA	NA	NA	V1.13.0
stm32wb5x_BLE_Zigbee_FFD_dy...	0x08071000	0x0801D000	NA	NA	V1.13.0
stm32wb5x_BLE_Zigbee_RFD_dy...	0x08080000	0x0802C000	0x0800C000	NA	V1.13.0
stm32wb5x_Mac_802_15_4_fw...	0x0808E3000	0x0808F000	0x0802F000	0x0802F000	V1.13.0
stm32wb5x_Phy_802_15_4_fw...	0x080DE000	0x0808A000	0x0806A000	0x0802A000	V1.13.0
stm32wb5x_Thread_FTD_fw...	0x0809F000	0x08043000	0x08023000	NA	V1.13.0
stm32wb5x_Thread_MTD_fw...	0x080A4000	0x08055000	0x08035000	NA	V1.13.0
stm32wb5x_Thread_RCP_fw...	0x080DA000	0x08085000	0x08065000	0x08025000	V1.13.0
stm32wb5x_Zigbee_FFD_fw...	0x080A4000	0x08050000	0x08030000	NA	V1.13.1
stm32wb5x_Zigbee_RFD_fw...	0x080B3000	0x0805F000	0x0803F000	NA	V1.13.1

When completed, it resembles the following:



TIP

- The stack file has a specific format, and PowerWriter® reads the stack version information correctly and displays it on the right.
- If the selected file is not the stack firmware, it cannot be loaded (and no error message is reported!)

2.3 : FUS firmware (non-essential)

The FUS firmware is an optional upgrade, check whether you need to upgrade the FUS stack according to the official release. The way to get the files for the FUS stack is in the same path as the Stack stack, it is recommended to use the STM32CUBEMX package manager to install the latest SDK, and to get the latest FUS files from the SDK installation directory, for example:

```
C:\Users\CSHSOFT\STM32Cube\Repository\STM32Cube_FW_WB_V1.13.1\Projects\STM32WB_Copro_Wireless_Binaries\
```

Path to get

```
stm32wb5x_FUS_fw.bin
```

Select the FUS file corresponding to the target chip to load, and refer to Release_Notes.html to set the correct firmware address as shown below:

Firmware Upgrade Services Binary Table: Provides Install address for the targeted binary to be used in flash procedure "STEP 5/6" via USB or via SWD/JTAG.

Wireless Coprocessor Binary	STM32WB5xxG(1M)	STM32WB5xxY(640k)	STM32WB5xxE(512K)	STM32WB5xxC(256K)	Version
stm32wb5x_FUS_fw_for_fus_0_5...	0x080EC000	0x0809A000	0x0807A000	0x0803A000	V1.2.0
stm32wb5x_FUS_fw.bin	0x080EC000	0x0809A000	0x0807A000	0x0803A000	V1.2.0

When completed, it resembles the following:

FUS	C:\Users\CSHSOFT\STM32Cube\Repository\STM32Cube_FW_WB_V1.13.1\Projects\STM32WB_Copro_Wireless_Binaries\STM32WB5x\stm32wb5x_FUS_fw.bin	1.2.0
FUS Address:	0x080EC000	

 **TIP**

- FUS files have a specific format, and PowerWriter® reads the FUS version information correctly and displays it on the right.
- If the selected file is not the FUS firmware, it cannot be loaded (and no error message is reported!)

3 : Online Upgrade

3.1 : Upgrade FUS online

After importing the FUS file designation and filling in the address correctly, the FUS stack can be upgraded by clicking the FUS Firmware Upgrade button as shown in the figure below, and if the upgrade is completed you will see the following result:

The screenshot shows a software interface for online upgrades. It is divided into three main sections: 'Online Upgrade', 'Online extend commands', and 'Offline Upgrade'.
1. 'Online Upgrade' section: Contains three checkboxes: 'First install' (unchecked), 'Verify download' (checked), and 'Start FUS(stack) after upgrade' (checked). To the right are two buttons: 'Stack Firmware Upgrade' and 'FUS Firmware Upgrade', with the latter highlighted by a red rectangular border.
2. 'Online extend commands' section: Displays three input fields: 'FUS Status' (containing 'FUS running...'), 'FUS Version' (containing '1.2.0'), and 'Stack Version' (containing '0.0.0'). To the right are four buttons: 'Read infos', 'Start FUS', 'Start Wireless Stack', and 'Delete Firmware'.
3. 'Offline Upgrade' section: Contains two checkboxes: 'Enable Stack Offline Upgrade' (unchecked) and 'Enable FUS Offline Upgrade' (unchecked).
At the bottom of the interface, there is a green progress bar and the text 'Done...'.

CAUTION

- If First install is unchecked, it will automatically delete the stack before updating it.
- Upgrading the FUS stack may break the Stack stack, meaning that, after upgrading the FUS stack, the Stack stack still needs to be installed.

3.2 : Upgrade Stack Online

After importing the Stack file designation and filling in the address correctly, you can upgrade the Stack stack by clicking the Stack Firmware Upgrade button as shown in the following figure, and you will see the following result if the upgrade is completed:

FUS Operator FUS_Stack Firmware

FUS Operator	./resource/plugin/stm32wb/0x495_FUS_Operator.bin	3.1
Stack	STM32WB_Copro_Wireless_Binaries\STM32WB5x\stm32wb5x_BLE_Thread_dynamic_fw.bin	1.13.1
Stack address:	0x0806D000	
FUS	C:\Users\WB\Projects\STM32WB_Copro_Wireless_Binaries\STM32WB5x\stm32wb5x_FUS_fw.bin	1.2.0
FUS Address:	0x080EC000	

Online Upgrade

First install

Verify download

Start FUS(stack) after upgrade

Stack Firmware Upgrade

FUS Firmware Upgrade

Online extend commands

FUS Status:	Stack running...	Read infos
FUS Version:	1.2.0	Start FUS
Stack Version:	1.12.0	Start Wireless Stack
		Delete Firmware

Offline Upgrade

Enable Stack Offline Upgrade

Enable FUS Offline Upgrade

Done...

Confirm

⚠ CAUTION

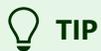
- If First install is unchecked, it will automatically delete the stack before updating it.

- Upgrading the Stack stack does not destroy the FUS stack, so upgrading the Stack stack is placed after upgrading the FUS stack.

3.3 : Other online features

3.3.1 : Read Infos

You can click on this function to see the current version information and whether you are currently running FUS or Stack, as shown below:



TIP

If there is no user firmware, it may show Not running and the version is empty.

3.3.2 : Start FUS

You can switch to FUS stack operation by clicking on this function.

3.3.3 : Start Wireless Stack

You can switch to Wireless Stack operation by clicking this function.

3.3.4 : Delete Firmware

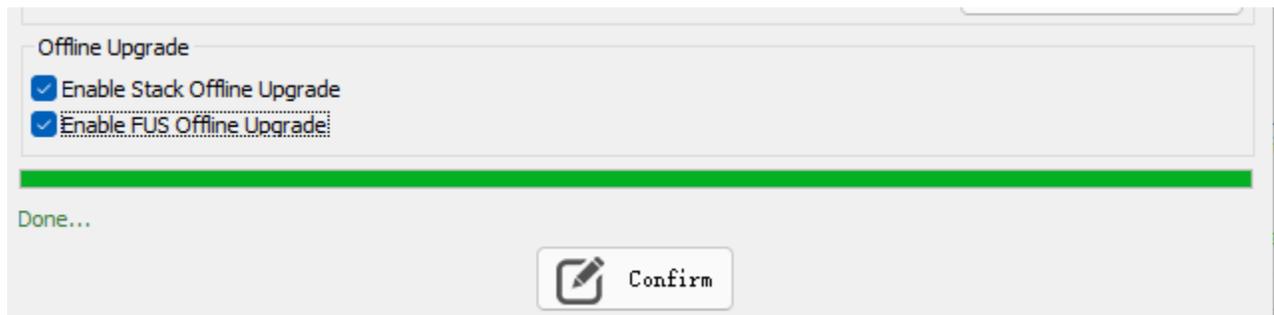
You can click this function to realize the protocol stack deletion operation.

4 : Offline programming configuration

PowerWriter® supports offline installation (upgrade) of FUS and Stack protocol stacks. After correctly importing FUS and Stack protocol stacks and filling in the addresses, you can enable them in the Offline Upgrade configuration.

- Enable Stack Offline Upgrade
- Enable FUS Offline Upgrade

As shown below:



TIP

Please add the user firmware in Program Memory when you are offline.

5 : Notes

- Upgrading the FUS, Stack, switching the operation of the stack, deleting the stack and other operations will destroy the user firmware, so after upgrading the stack online, you need to re-programming the user firmware. To burn the user firmware, please add the user firmware on the Program Memory page of the PowerWriter® main page and programming it.

- The order in which the PowerWriter® upgrades the stack when burning offline is:
 - Upgrade FUS stack (if required)
 - Upgrade the Stack stack , and switch to the Stack stack to run.
 - Programming user firmware, other page data, other configuration information such as OTP, signature information, etc.
 - Programming user option bytes (if enabled)

Tags:

[FAQ](#)

[STM32WB](#)

[STACK](#)

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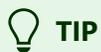
Last updated on **Apr 15, 2024** by **Alan Chen**

Version: Next

3.2.12 : ICWorkshop Error

1 : No device found

"No PowerWriter® device found ..."
Failed to connect to PowerWriter®...



TIP

- When burning PowerWriter® orders with ICWorkshop, the order-specified programmer needs to be connected to the PC, and order data cannot be burned if the programmer is not connected.
- This error occurs even though the PowerWriter® has been connected to the PC, refer to the [Common solutions to driver problems](#)
- Contact Technical Support

2 : Please power it on again and try again...

```
OS Version : >= Windows 8
Write information:
hwVer:1.1
blVer:1.00.02
ifVer:1.00.30
```


 TIP

- The Target not online error indicates that the current order is written in online mode, which requires the PowerWriter® to be connected to the target chip in order to programming firmware data.
- To check if the target chip is properly linked to the PowerWriter® device please refer to [About Wiring](#) .

4 : PowerWriter® project file password error

```
OS Version : >= Windows 8  
"PowerWriter® project file password error"  
Failed to connect to PowerWriter®...
```

 TIP

- When PowerWriter® project is saved as Pkg, you can choose to input user-defined saving password or leave it blank. Pkg needs to fill in the corresponding Pkg password when it is released through SMART Platform, if the password filled in when the pkg project is saved is not the same as that filled in when the SMART order is released, this error will be prompted, please refer to it:

[About Project Password](#)

5 : Can't load PowerWriter® project from

...

OS Version : >= Windows 8

"Can't load PowerWriter® project from [PW200] to [PW300]..."

Failed to connect to PowerWriter®...

TIP

- Please check the OEM type of the host first, you can inquire through the purchasing channel, or you can use the PowerWriter® client software to read the PowerWriter® product type, such as PW200, then you need to set the project to PW200 when packing the PowerWriter® project pkg.
- When packaging PowerWriter® project data, you need to switch the product type to the corresponding type in the PowerWriter® software.

6 : PowerWriter® project file invalid...

OS Version : >= Windows 8

"PowerWriter® project file invalid"

Failed to connect to PowerWriter®...

TIP

- The prompt file invalid indicates that the PowerWriter® pkg project file

published by ICWORKSHOP is illegal, and you need to check whether the published file format is correct and has not been tampered with.

- **If the file is normal but still prompts Error size , please contact our technical support in time...**

7 : Error Write Flash Addr...

```
OS Version : >= Windows 8
Write information:
  hwVer:1.1
  blVer:1.00.02
  ifVer:1.00.36
  SN:475E1B25ED3180BCA4547B58CEC24490
Firmware is newest
Try reconnect target....
Online Programing...
Online Programing checking config...
Online Programing no lisencc warning...
Online Programing proccsing data,this will take a long time,please be
patient ...
Online Programing erase flash data ...
Online Programing processing...
"Error Write Flash Addr: 0801D700,[[0009] The target chip is not
connected...]"
```

TIP

The reason for this problem is that the target chip is offline while the order is programming target chip, and the data can not be programming, please keep the target chip connected when using online programming target chip.

8 : timed out!

OS Version : Windows 7 SP1

Write information:

hwVer:1.2

blVer:1.00.02

ifVer:1.00.36

SN:EF8437289F5B86A6A5A411722888B50C

Firmware is newest

"PowerWriter® timed out and did not respond!"

CAUTION

- You can try to change the USB connection port, switch to another system (e.g., the host computer has multiple systems), and try to change to a direct connection if you are using a USB-HUB.
- The probability of such a problem is high and cannot be solved, please contact our technical support staff in time to give us feedback.

Tags:

[FAQ](#)

[ICWorkshop](#)

[PowerWriter®](#)



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Last updated on **Apr 15, 2024** by **Alan Chen**

Version: Next

3.2.13 : Offline project reading

See [Read device project file method](#).

Tags: [FAQ](#) [Offline](#) [Offline Time](#) [Read](#)

[✎ Edit this page](#)

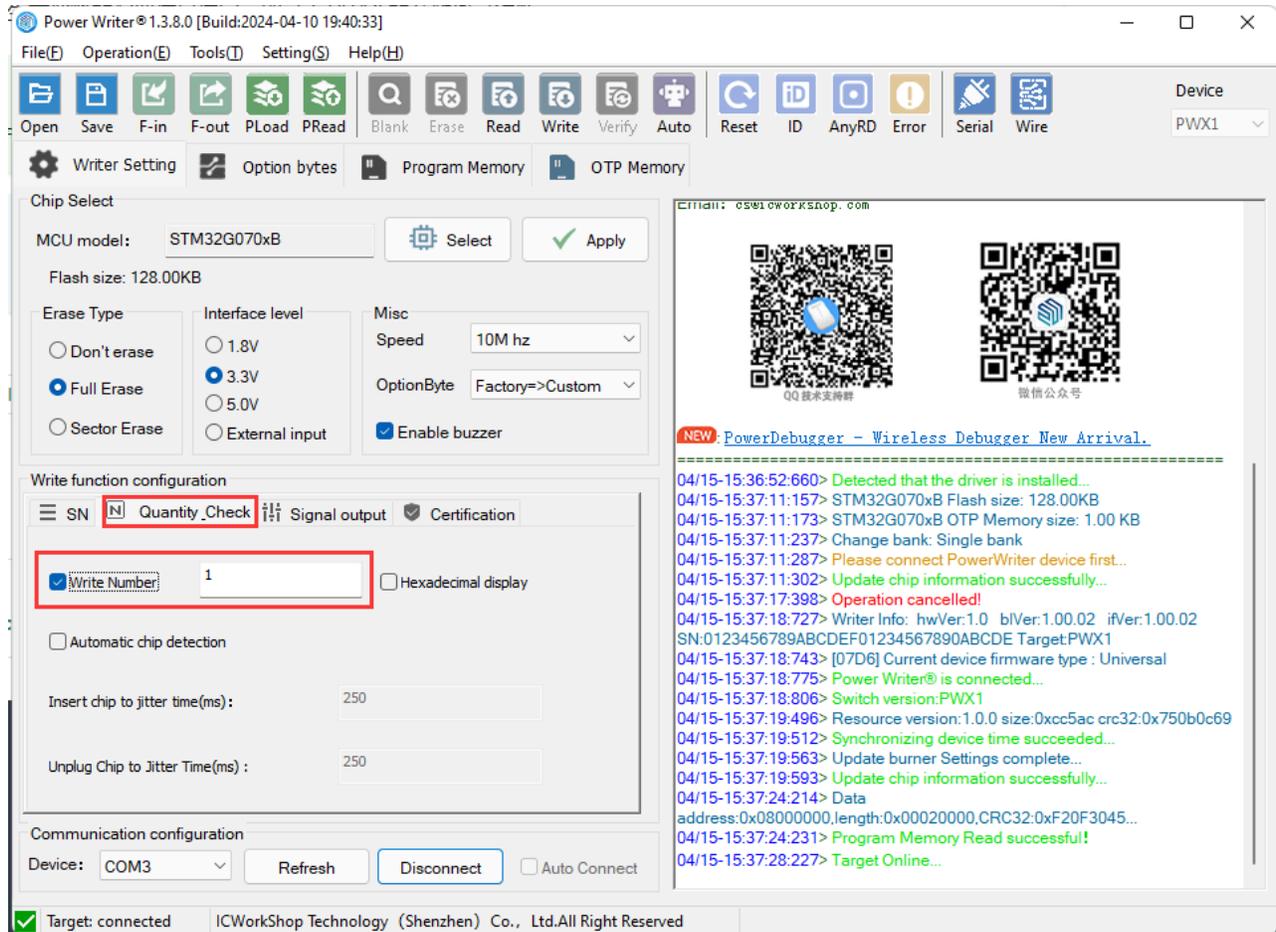
Last updated on **Apr 15, 2024** by **Alan Chen**

Version: Next

3.2.14 : Programming Count Set

1 : Configuration

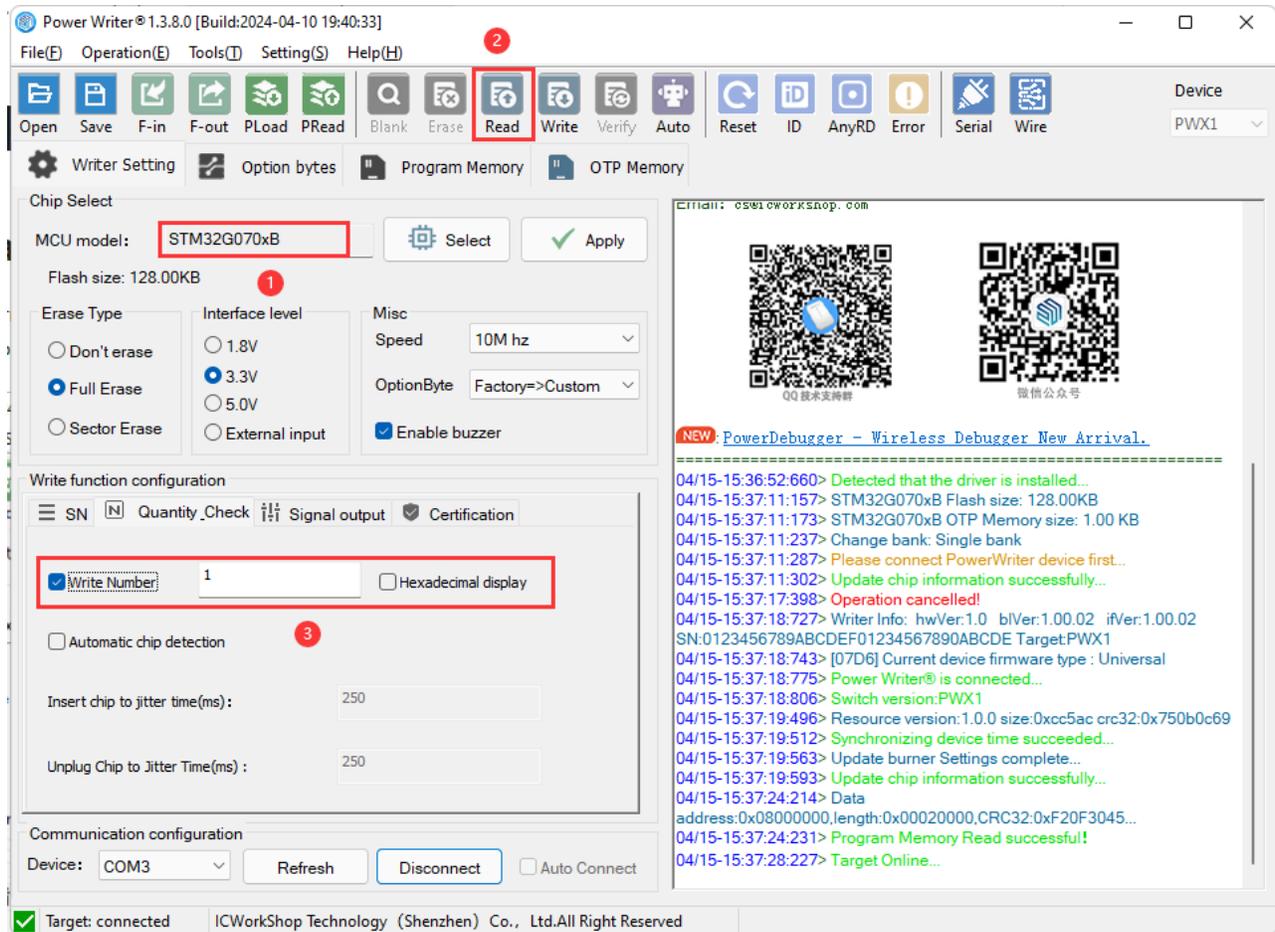
Function Configuration: Burner Setting->Programming Function Configuration->Quantity Setting and Chip Detection->Limit the number of burning times to be turned on, and fill in the set number of times.



2 : Read method

In the process of using the offline programming function, you may need to read or check back the remaining offline programming count. Since some PowerWriter® products do not have a screen, there is no visual display of the information, however, we provide an auxiliary function to read the number of remaining offline programming counts, the steps are as follows:

- Run the PowerWriter® software and connect to the programmer.
- Choose any chip.
- Execute the Read Current Page button in the toolbar on the Programmer Setup page.



Perform the above steps to read back the configuration information of the offline production profile to see the number of offline programmer remaining.

TIP

For security: When reading offline production data configuration information, no sensitive information will be read back, such as SN, UID signature information, firmware data will not be read back.

INFO

PWX1 Device with screen device, the remaining number of times can be seen on the screen.

Tags:

FAQ

Offline

Offline Time

 [Edit this page](#)

*Last updated on **Apr 15, 2024** by **Alan Chen***

Version: Next

3.2.15 : Remaining Count Qurey

See [How to read the remaining count](#).

Tags: [FAQ](#) [Offline](#) [Offline Time](#) [Read](#)

[Edit this page](#)

Last updated on **Apr 15, 2024** by **Alan Chen**

Version: Next

3.2.16 : ICWorkshop unstarted

1 : Reasons for failure to start

The client comes with a driver service, this driver service is WHQL certified, in some cases, there may be a startup failure problem, similar to the error shown below:



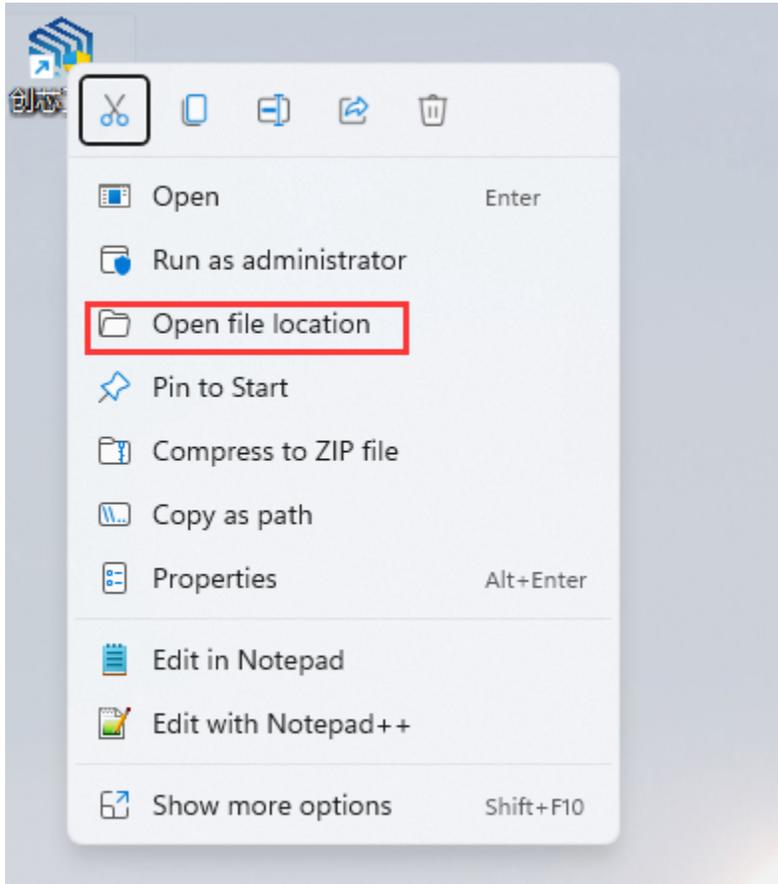
2: Emergency repair methods

2.1 Add installation directory whitelisting

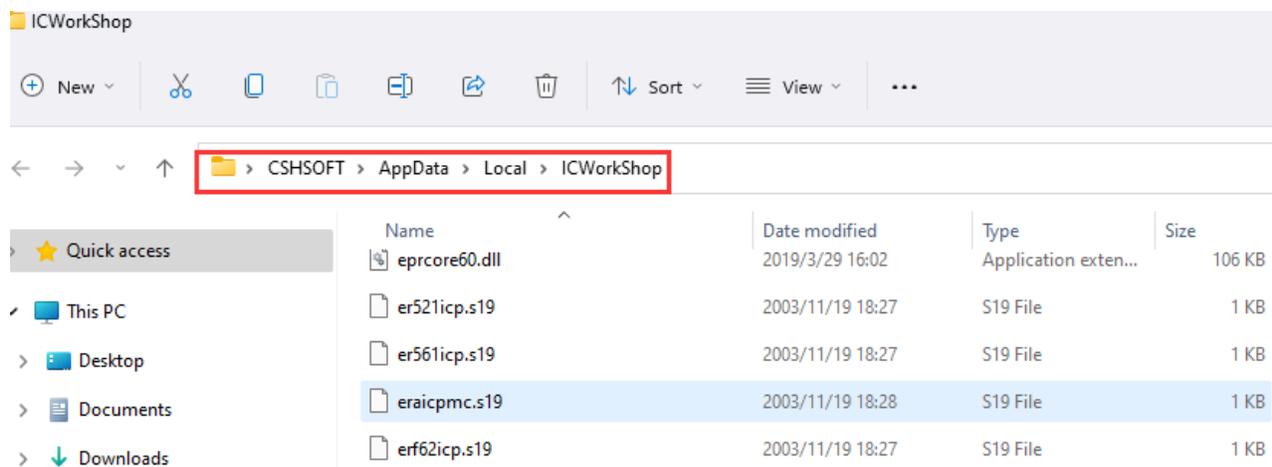
The reason for this situation is that the driver service is usually blocked, please add the

installation directory of ChuangxinWorkshop to the whitelist, the operation procedure is as follows:

Step 1: Locate the ICWorkshop installation directory



Step 2: Memorize the mounting location



Step 3: Add the installation directory to the whitelist of your security software and restore driver self-boot.

2.3 Reboot after operation completed

After completing the whitelist addition and restoring the blocked driver services, reboot the system and log in again.

2: Notes

TIP

If the system can normally use the client software of ICWorkshop, the above operation can be dispensed with. The performance is not exactly the same in different systems, different protection software, different versions and feature libraries of the same software.

Tags: [FAQ](#) [ICWorkshop](#) [STACK](#)

 [Edit this page](#)

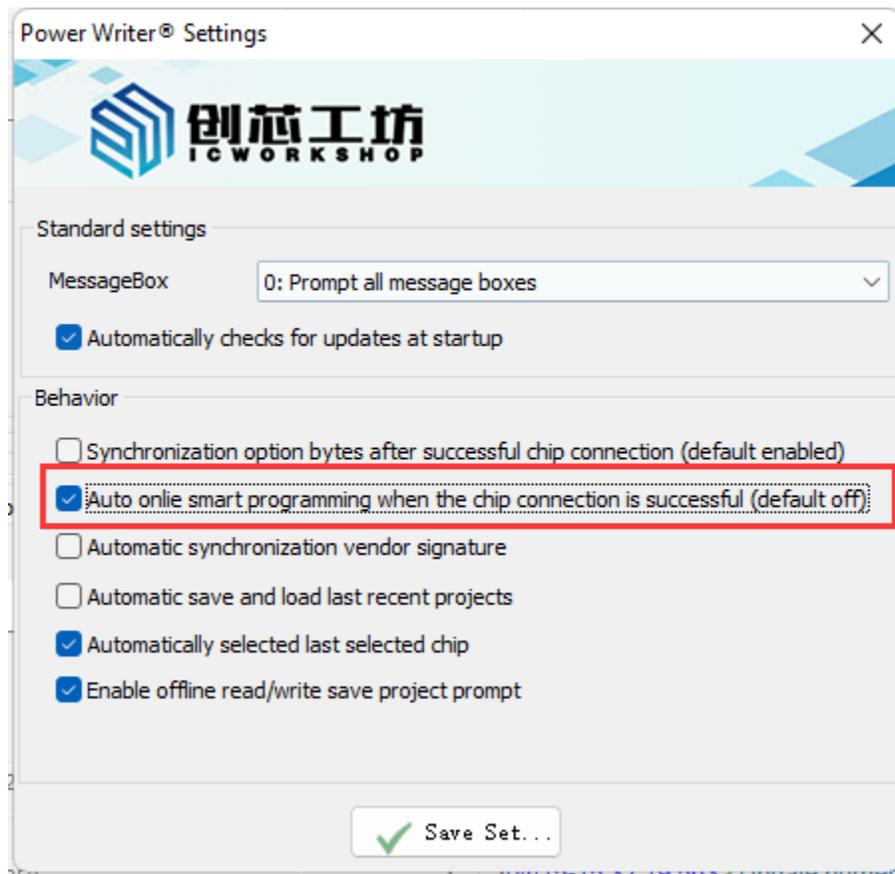
Last updated on **Apr 15, 2024** by **Alan Chen**

Version: Next

3.2.17 : Online Automatic

1 : Software setup

Enter the Preferences setting from the menu in turn, and check the automatic programming function after the chip is connected successfully, as shown below:



CAUTION

After the chip is successfully connected, automatic reading option byte and automatic programming can only be one or the other, the reason is that if the automatic reading option byte is checked, it may lead to the current user's settings, depending on the different chips, which to a certain extent will produce inconsistent results, in order to avoid possible problems, this function is mutually exclusive.

2 : Operational Demonstration

The screenshot displays the Power Writer software interface (version 1.3.8.0) during the operational demonstration of connecting and programming an STM32G070xB chip. The interface is divided into several sections:

- Writer Setting:** Includes options for Option bytes, Program Memory, and OTP Memory.
- Chip Select:** Shows the MCU model as STM32G070xB and Flash size as 128.00KB. The Erase Type is set to Full Erase, and the Interface level is 3.3V. The Misc section shows Speed at 10M hz and OptionByte set to Factory=>Custom. The Enable buzzer checkbox is checked.
- Write function configuration:** Includes options for SN, Quantity Check, Signal output, and Certification. The Write Number is set to 1, and the Hexadecimal display checkbox is unchecked. The Insert chip to jitter time (ms) and Unplug Chip to Jitter Time (ms) are both set to 250.
- Communication configuration:** Shows the Device set to COM3, with Refresh and Disconnect buttons, and the Auto Connect checkbox unchecked.
- Log Window:** Displays a series of status messages, including: "Detected that the driver is installed...", "STM32G070xB Flash size: 128.00KB", "STM32G070xB OTP Memory size: 1.00 KB", "Change bank: Single bank", "Please connect PowerWriter device first...", "Update chip information successfully...", "Operation cancelled!", "Writer Info: hwVer:1.0 blVer:1.00.02 ifVer:1.00.02 SN:0123456789ABCDEF01234567890ABCDE Target:PWX1", "[07D6] Current device firmware type : Universal", "Power Writer® is connected...", "Switch version:PWX1", "Resource version:1.0.0 size:0xcc5ac crc32:0x750b0c69", "Synchronizing device time succeeded...", "Update burner Settings complete...", "Update chip information successfully...", "Data address:0x08000000,length:0x00020000,CRC32:0xF20F3045...", "Program Memory Read successful!", and "Target Online...".

Tags: [FAQ](#) [Nordic NRF modem](#) [STACK](#)

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*Last updated on **Apr 15, 2024** by **Alan Chen***

Version: Next

3.2.18 : ISP Support

The serial port of PowerWriter® can be used for ISP programming, but you need to use specific serial port programming software, such as Flymcu to support STM32, etc. In addition, major MCU manufacturers have provided ISP (IAP) tools, according to their own use of the MCU model, from the official and reliable channels to obtain the serial port (ISP) tools.

The serial port of the PowerWriter® can also be used to burn ESP32 firmware, here are the test screenshots (vscode).

```
209 | feisei
问题 46 输出 调试控制台 终端 MEMORY XRTOS
Compressed 709280 bytes to 441348...
Writing at 0x00030000... (3 %)
Writing at 0x0003be88... (7 %)
Writing at 0x00047154... (11 %)
Writing at 0x00050455... (14 %)
Writing at 0x000564e2... (18 %)
Writing at 0x0005bfc9... (22 %)
Writing at 0x00062497... (25 %)
Writing at 0x00068c01... (29 %)
Writing at 0x0006e6fc... (33 %)
Writing at 0x00074485... (37 %)
Writing at 0x00079ba8... (40 %)
Writing at 0x0007f471... (44 %)
Writing at 0x00084d55... (48 %)
Writing at 0x0008a8b3... (51 %)
Writing at 0x0008fc8d... (55 %)
Writing at 0x00094c41... (59 %)
Writing at 0x00099c87... (62 %)
Writing at 0x0009f124... (66 %)
Writing at 0x000a4432... (70 %)
Writing at 0x000a9d01... (74 %)
Writing at 0x000af587... (77 %)
Writing at 0x000b510f... (81 %)
Writing at 0x000bb4f0... (85 %)
Writing at 0x000c1b6b... (88 %)
Writing at 0x000cbdbf... (92 %)
Writing at 0x000d19f0... (96 %)
Writing at 0x000d75dd... (100 %)
Wrote 709280 bytes (441348 compressed) at 0x00030000 in 10.4 seconds (effective 548.1 kbit/s)...
Hash of data verified.
Compressed 3072 bytes to 192...
Writing at 0x0000f000... (100 %)
Wrote 3072 bytes (192 compressed) at 0x0000f000 in 0.1 seconds (effective 376.8 kbit/s)...
Hash of data verified.
Compressed 8192 bytes to 31...
Writing at 0x00014000... (100 %)
Wrote 8192 bytes (31 compressed) at 0x00014000 in 0.1 seconds (effective 837.0 kbit/s)...
Hash of data verified.

Leaving...
Hard resetting via RTS pin...
Done
```

 TIP

If you encounter a chip or brand that the PowerWriter® cannot burn via ISP, please provide prompt feedback to technical support.

Tags: [FAQ](#) [Nordic NRF modem](#) [STACK](#)

 [Edit this page](#)

Last updated on **Apr 15, 2024** by **Alan Chen**

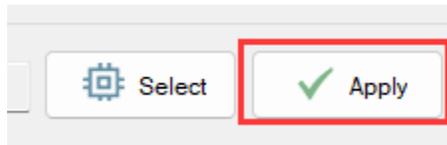
Version: Next

3.2.19 : IO multiplexing

If there is a multiplexing problem in the communication interface, it may not be able to connect to the chip properly, or it may lead to an increased probability of failure, at this time, you can use the RESET pin for assistance.

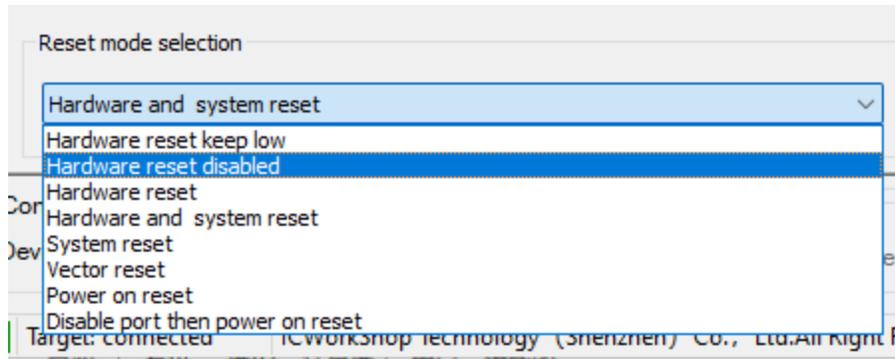
1 : Using the RESET pin

In the chip multiplexed programming interface, generally select the chip type and connect the chip, click on the application settings will be normally connected to the chip, if still not connected to the reset pin, and then re-apply the settings can be normally connected to the target chip, as shown below:



2 : Offline Mode Settings

When burning offline with the reset pin connected, set the reset mode to **Hardware Reset Disable**.



 **TIP**

When burning data in projects that require multiplexed programming or debugging interfaces, you need to be aware of interference with the bus when designing the hardware.

Tags:

[FAQ](#)

[IO Remap](#)

[Resource conflict](#)

[Status](#)

[Connect](#)

 [Edit this page](#)

Last updated on **Apr 15, 2024** by **Alan Chen**

Version: Next

3.2.20 : PowerWriter® FAQ

1 : Communications error

Error message : The communication port send package error

Possible causes and solutions are as follows:

- Communication is not good, we suggest to unplug the burner again, change the USB port and restart the client.
- If the machine has antivirus software, it is recommended to close and exit and retry.
- The FLASH algorithm may be selected incorrectly, reselect the model.
- Replacing the USB port
- Try to avoid the Hub

2 : Shorted power supply

Error message : The voltage error(abnormal power supply)。

```
04/15-16:30:44:508> [0031] The voltage error (abnormal power supply)...  
04/15-16:30:44:524> Target Offline...
```

When this prompt appears, please check the circuit of the development board, there is a short-circuit condition, disconnect the device and reconnect it after adjustment.

3 : Periodic reset

Periodic reset phenomenon, every 4 seconds, at this time should check whether there is a reset source, such as the presence of an external door opener dog, turn it off.

Tags:

FAQ

PowerWriter®

 [Edit this page](#)

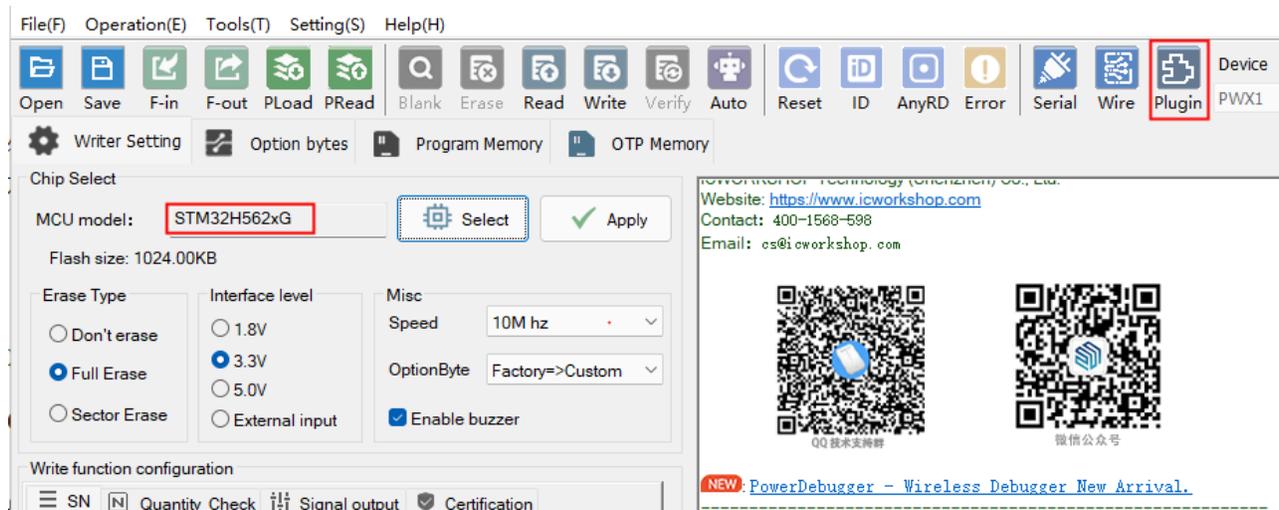
*Last updated on **Apr 15, 2024** by **Alan Chen***

Version: Next

3.2.22 : STM32H5 Extends

1 : Function Entrance

PowerWriter® support for manufacturer-specific features, are using the plug-in mode, you can support the specific features required by any manufacturer, the method of entry and other brands of the support method is consistent, in the selection of the chip, such as in the toolbar on the right side of the most a plug-in support icon appears, the currently selected chip has a plug-in support function, as shown below:



After selecting the STM32H5 family of chips, an Extensions button appears on the right side of the toolbar, defined as Vendor Specific Plug-In Functions, which can be clicked to enter the STM32H5 Security Extensions screen as shown below:



2 : Safety Function Configuration

Click "Enable security configure" button, it will start the security configure function, the security configure supports *.OBK file mode (STM32H56/STM32H57) and password mode (STM32H50), the plug-in automatically selects the appropriate mode according to the current chip, for example, selecting the chip for STM32H50 series. The plug-in automatically selects the appropriate mode according to the current chip, such as selecting the STM32H50 series chip. In addition to setting the password, it can export the

PASSWORD.bin file for unlocking the chip to be used in the regression.

3 : Debug authentication

Click "Enable debug authentication(DA)" button, it will start the function of security function regression (debug authentication of the chip, in order to analyze or unlock the chip), the configuration of security function regression supports *.bin file mode (Trust Zone is not turned on), and the certificate mode (Trust Zone is turned on), the password mode regression, import bin file, certificate mode import b64 file and PEM key file, import b64 file and PEM key file. Import bin file, import b64 file and PEM key file in certificate form.

TIP

- As of now (2024/02/29) the current security features configuration and return to support the form of password, does not support the form of certificates, the future will be updated to support certificates, if there is an update, please pay attention to the detailed changelog, or consult technical support and customer service.
- **STM32H50x series** Only support password form, STM32H56x, STM32H57x support both password and certificate form (currently Trust Zone is not supported to open, please choose password form).

Tags:

[FAQ](#)

[STM32WB](#)

[STACK](#)



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Last updated on **Apr 15, 2024** by **Alan Chen**

Version: Next

3.3.1 : UID Signature

1 : About placeholders

UID_KEYADDR_PLACEHOLEDR_EN When not masked, an overflow error is reported no matter how the address is changed.

Treatment:

- The first method is to mask out the placeholders so that there will be no reserved space in the program space.
- The second method is to move the signature address toward the front address of the flash.

CAUTION

If the first method is used, masking the placeholder space for the signature data means that the compiler's automatic checking will be skipped, and the actual signature address that is written, must not have any data or it will be overwritten by the signature.

2 : Verify signature

This can be done by adding test code to the code, such as IO output signals, or by adding a logging feature to the developer version of the firmware to output the signature results to the log port.

3 : Write Signature

- In online mode: Use full-featured automatic programming.
- In offline mode: Use offline mode normally.



If you use ICWKEY for signing, you can only use offline mode.

Tags:

FAQ

UID



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Last updated on **Apr 15, 2024** by **Alan Chen**

Version: Next

3.3.2 : EEPROM(OTP) tutorials

The functions of the EEPROM and OTP pages are equivalent to a subset of Program Memory, and the usage flow is similar to that of Program Memory.



TIP

The availability of EEPROM/OTP pages depends on the target chip.

Tags:

[FAQ](#)

[EEPROM](#)

[OTP](#)

 [Edit this page](#)

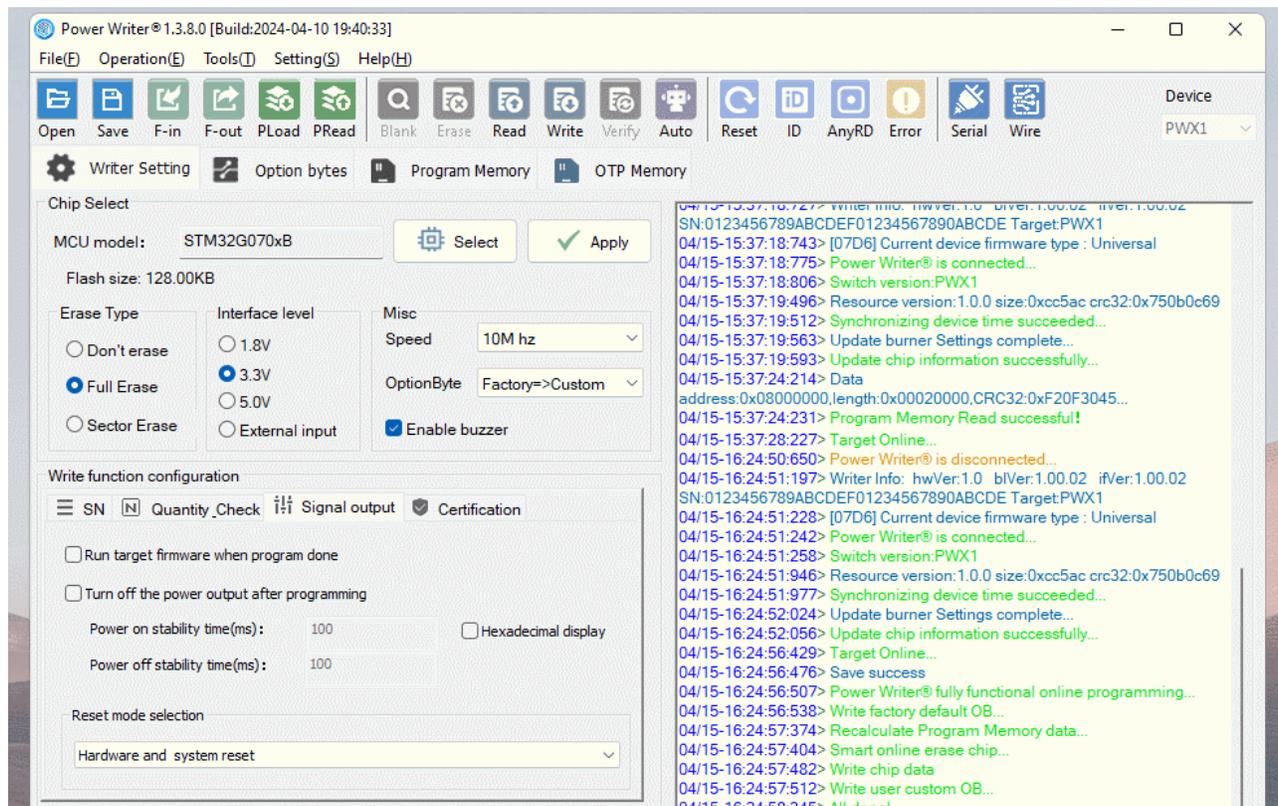
Last updated on **Apr 15, 2024** by **Alan Chen**

Version: Next

3.3.3 : Option Bytes Swing

1 : Option bytes swing when auto programmed

Very few chips have online functions that rely on the real-time status of the target chip, so by default the chip's option bytes will be automatically read into the client when the chip is connected. If you need to update the user-defined option bytes in the batch online auto-programming, you can disable the function of auto-synchronization of the option words in the setup, see below:



Tags: [FAQ](#) [option_byte](#)

 [Edit this page](#)

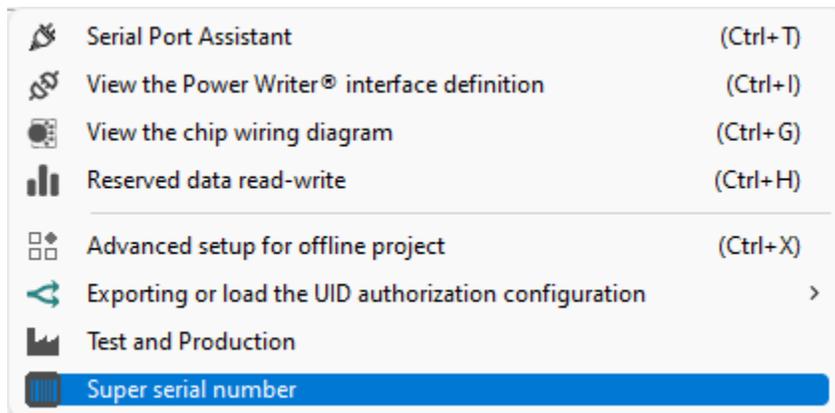
*Last updated on **Apr 15, 2024** by **Alan Chen***

Version: Next

3.3.4 : Super SN Tutorial

1 : Entrance

See the menu Tools->Super Serial Number, as shown below:



2 : Supported Features

- Supports writing serial number to any Flash block, such as Flash Memory, EEPROM, OTP, etc.
- Big number support 1~64 (not enough can continue to increase) bytes of sequence number writing, you can freely configure the length of the write.
- Big number supports end-of-serial number setting to avoid duplicate serial numbers during the production process.
- Support serial number file import (xlsx table parsing, support more than 1 million

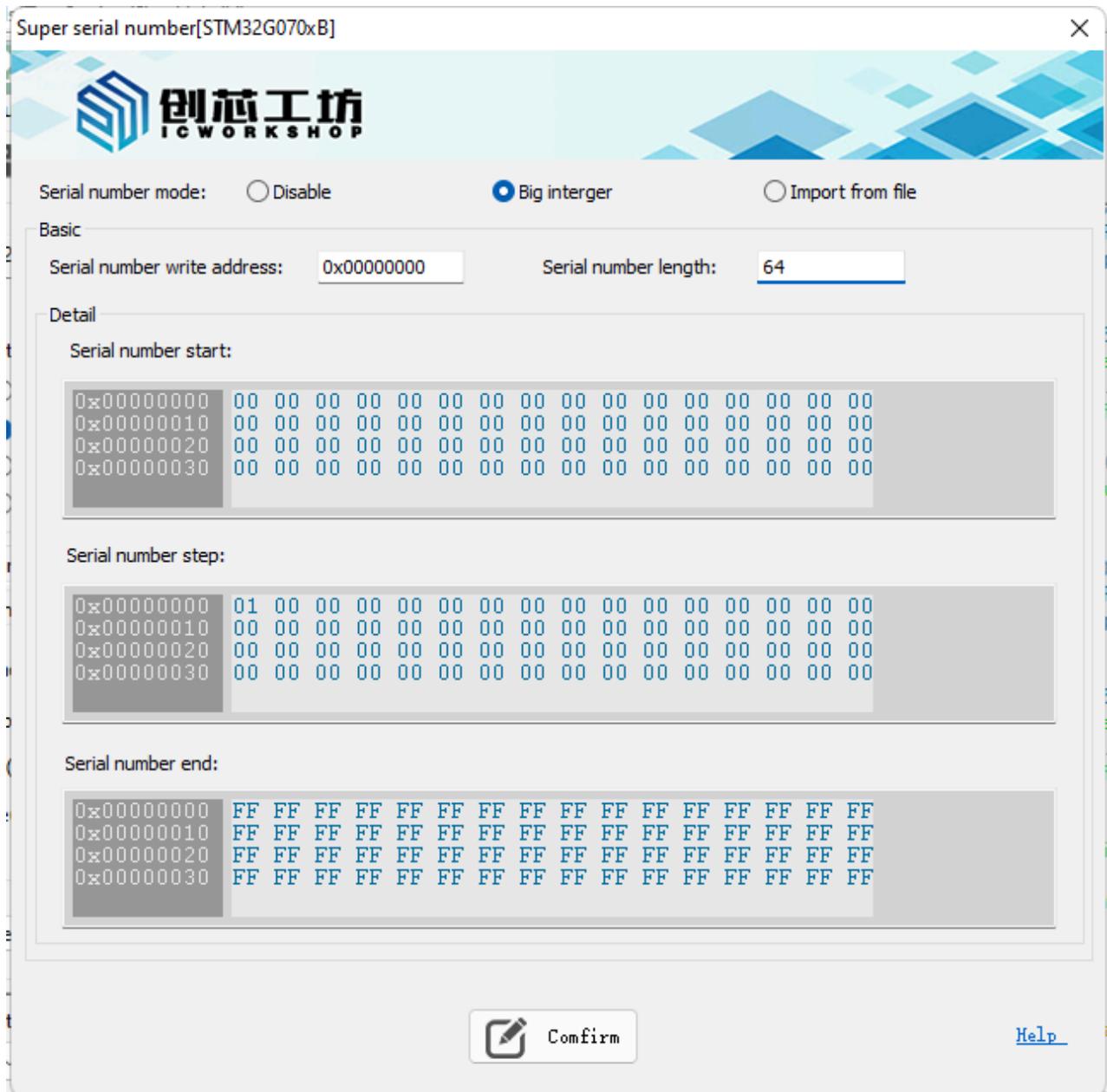
lines).

- Serial number file import does not limit the length of the serial number.
- Serial number file import supports big number writes.
- Serial number file import supports writing of very long strings of serial numbers.
- Serial number file import supports setting the offset address, and the number of single imports.

 **TIP**

When importing from a file, the default is to import using the small end mode, with the low address on the left.

3 : Big number



Serial Number Write Address: Set the write address of the serial number, which can be freely configured.

Serial Number Length: supports 1~64 bytes length, freely configurable.

Serial Number Starting Value (Small End Mode): Sets the starting value of the serial number.

Step of sequence number (small end mode): Sets a single increment of the sequence number.

Sequence Number End Value (Little Endian Mode): Sets the end value of the sequence number.



Big number is an enhancement to Power Writer's default 4-byte serial number to compensate for the following shortcomings of the default serial number:

- Default Serial Number Function: the length is limited to four bytes.
- Default sequence number function: no end value judgment.
- Default Serial Number Function: No arbitrary region can be set.

4 : External File Import

Super serial number[STM32G070xB]

创芯工坊
ICWORKSHOP

Serial number mode: Disable Big interger Import from file

Basic

Serial number write address: Serial number length:

Detail

Serial Number Total

Serial Numer offset

Import total count

Serial number type: Integer type String type

First serial number:

[Help](#)

External file import supports xlsx table, when importing table, you need to set the rows and columns for serial number reading, the default is to start reading from 0 rows and 0 columns.

Test excel: [PowerWriter Test Serial Number Form](#)

5 : Notes

- When importing from an external file, the cells must all be strings, if they are not strings, an error will be reported.
- When importing serial numbers from external files, you need to ensure that the serial number length is uniform.
- External serial number import defaults to the little endian.

Tags:

[FAQ](#)

[Super SN](#)

[STACK](#)



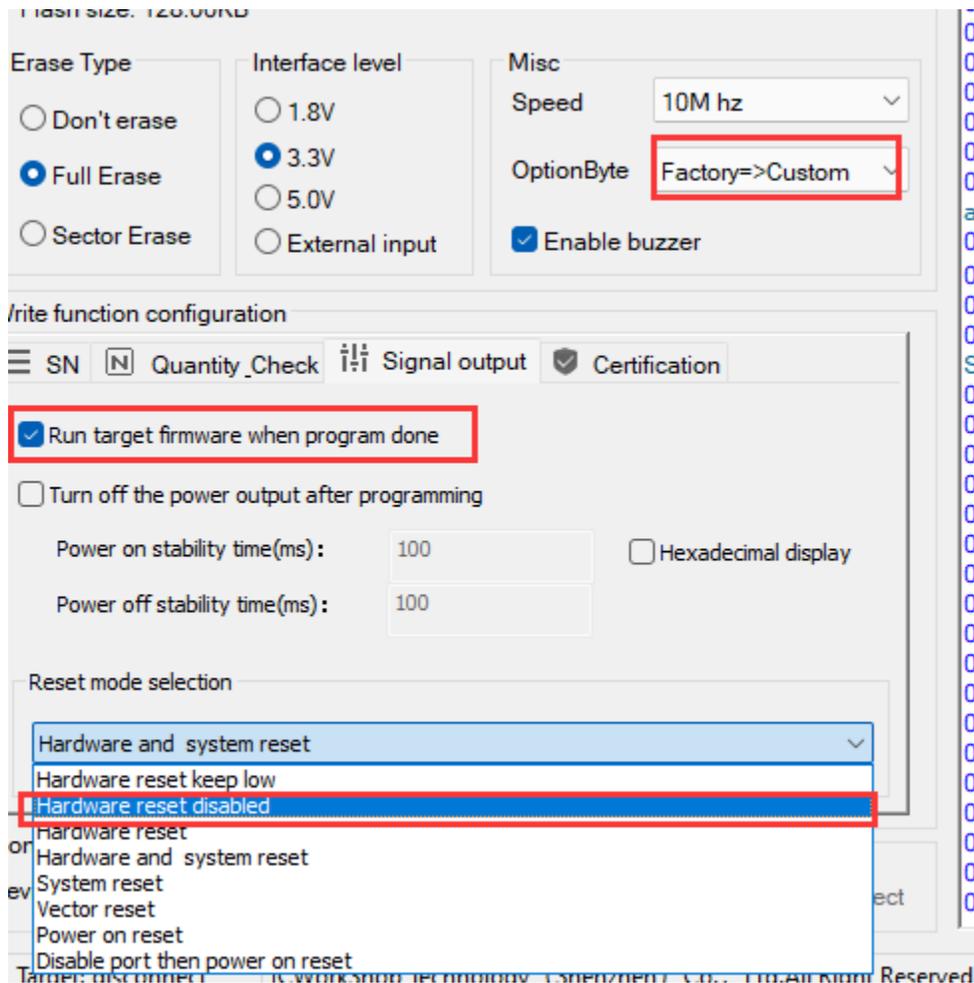
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Version: Next

3.3.5 : Automatic start/stop

Some chips open SWD multiplexing, offline programming, there is a choice to write the option byte, or turned on the completion of programming to start the chip, or selected the output reset, and turned on the automatic chip detection function (as shown in the figure), may cause the possibility of repeated programming, to detect the chip as far as possible, so that the chip is programmed in the time to be connected to the chip, will not be mistakenly judged as taking open the chip.



Tags: [FAQ](#) [Offline](#) [Offline Time](#) [Read](#)

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*Last updated on **Apr 15, 2024** by **Alan Chen***

Version: Next

3.3.6 : Variable Monitor

! INFO

PowerDebugger Provides **RTT Viewer, RTT Scope** functions to read and write runtime data, and recommends its use.

Currently, PowerWriter does not provide any monitoring software like J-Scope, if you need to monitor the real-time variable data of the target chip, you can use a third party or the monitoring tool provided by the chip manufacturer, for example, FreeMASTER provided by NXP is a good choice, the download address of FreeMASTER is as follows:

- [FreeMASTER Run-Time Debugging Tool | NXP Semiconductors](#)

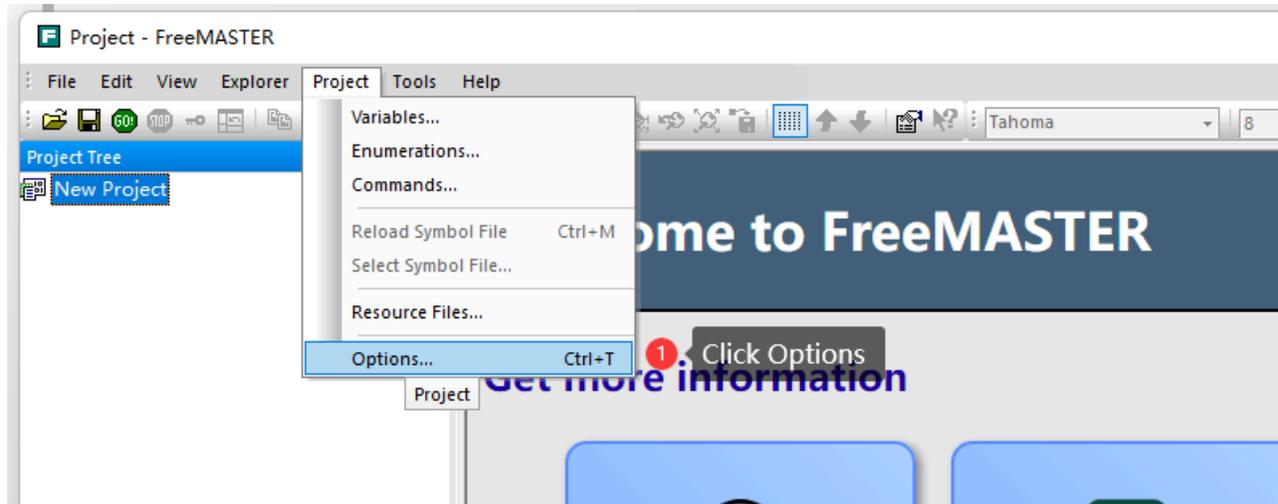
💡 TIP

The rights to this software are owned by NXP.

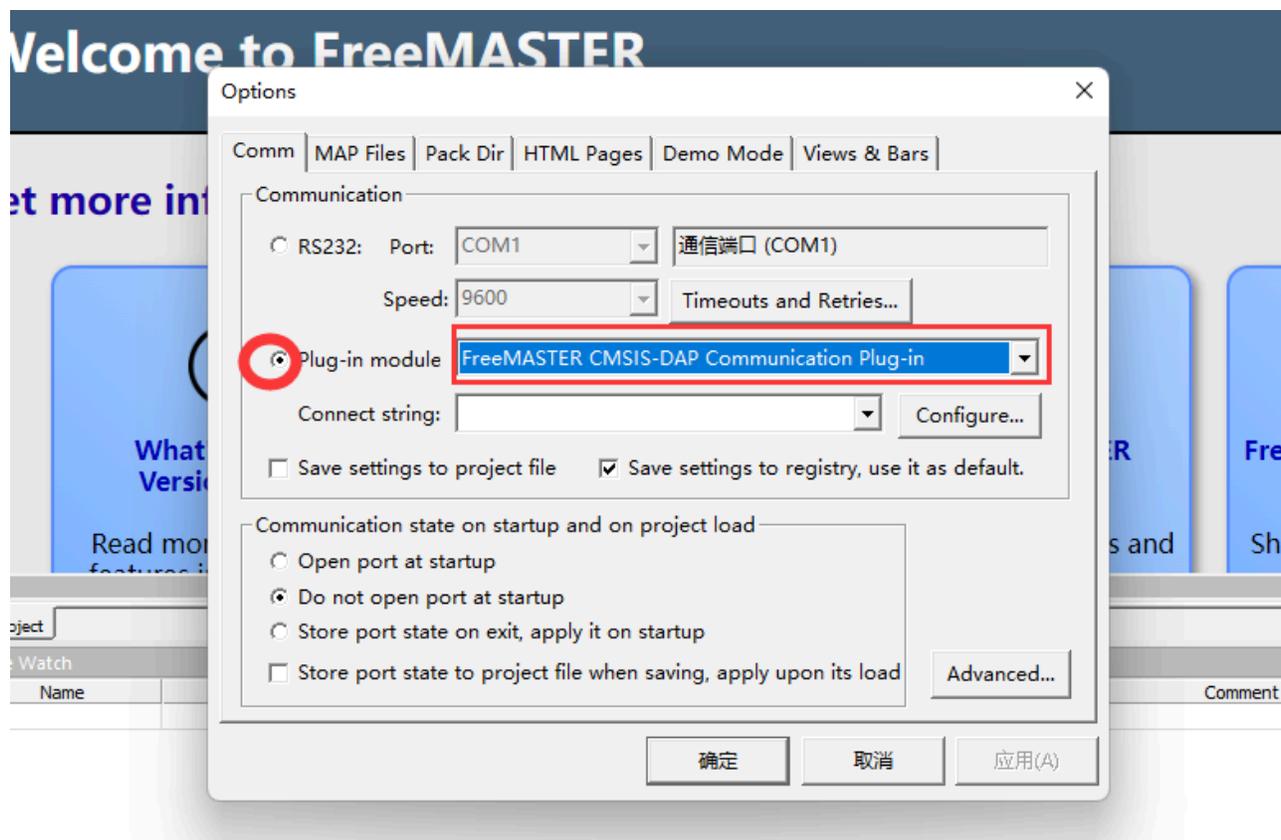
1 : FreeMaster quick start

1.1 : Project Settings

Project -> Options to open project settings

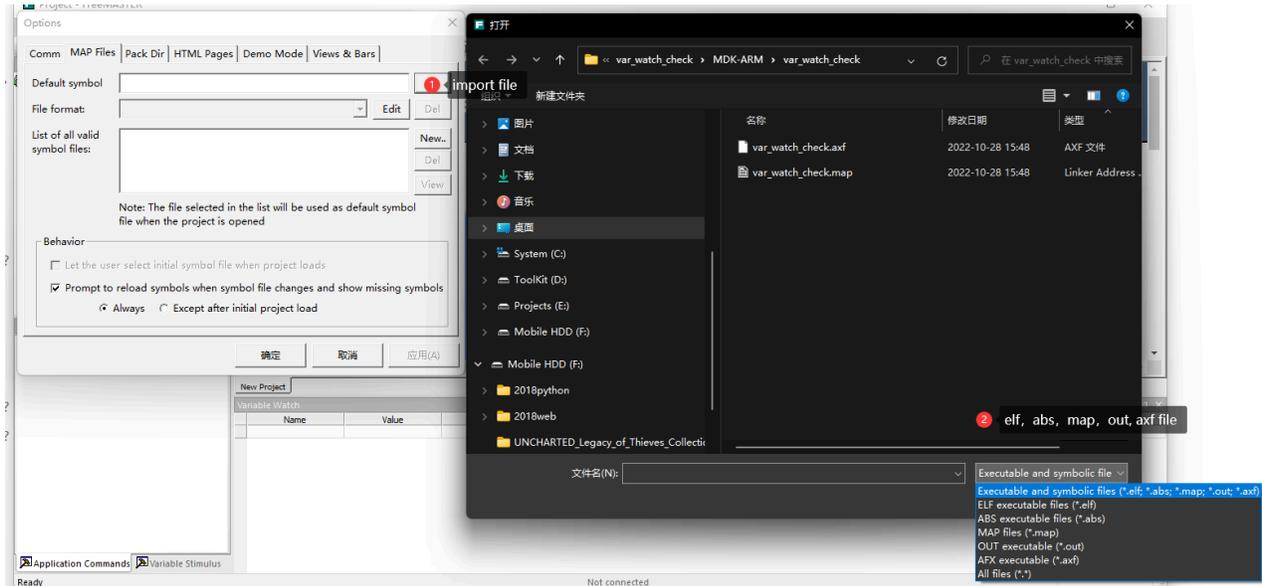


On the Comm Tab page, select the Plug-in module as FreeMASTER CMSIS-DAP Communication Plug-in, as shown below:

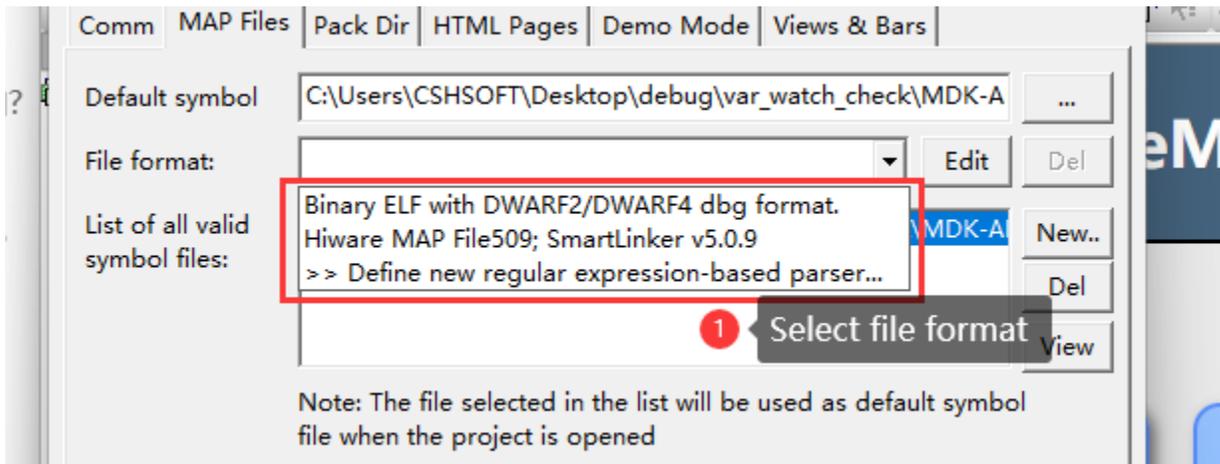


On the Map Files Tab page, follow the flow as shown in the figure, and select the file

compiled by MDK or IAR, GCC: axf , elf, map, and so on.



After importing the file and selecting the correct format for parsing the file



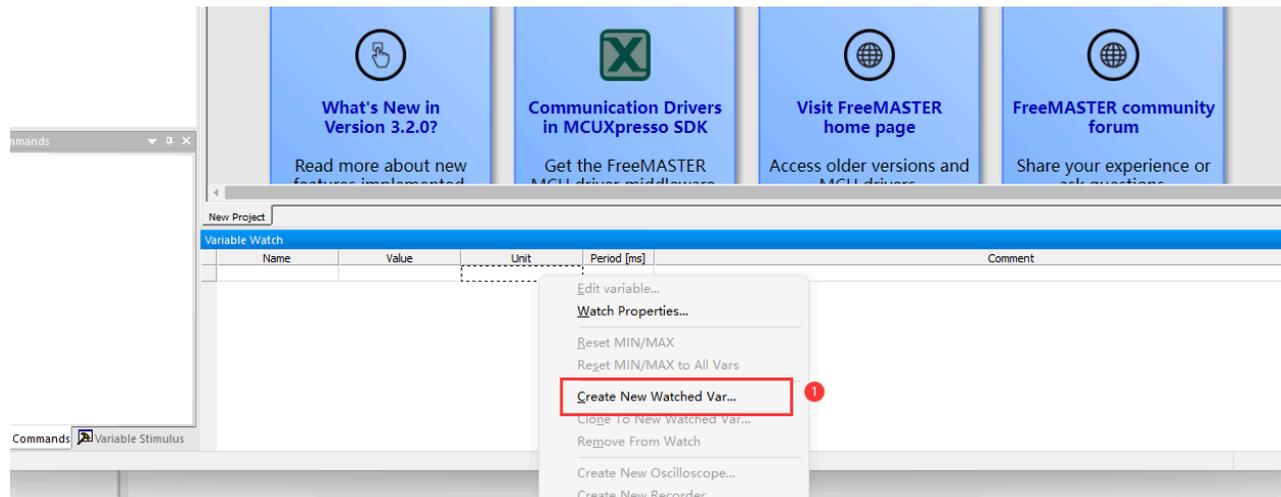
⚠ CAUTION

You need to select the file with symbol signal, such as axf, elf, map, etc. The purpose is to get the information of the symbol name, format, address, etc., which needs to be monitored, and you can't import bin, hex, etc. After the setting is finished, you can click View to check the information of the symbols, and if it is parsed correctly, it

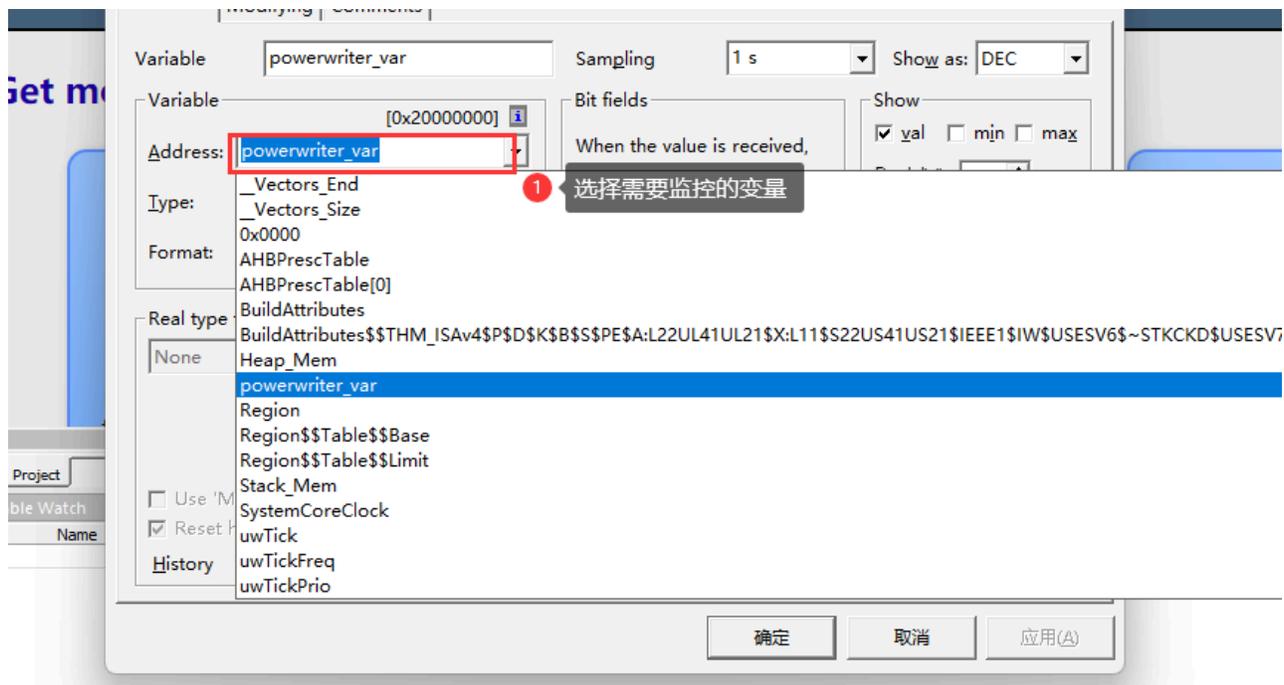
means the setting is correct.

1.2 : Adding Monitoring Variables

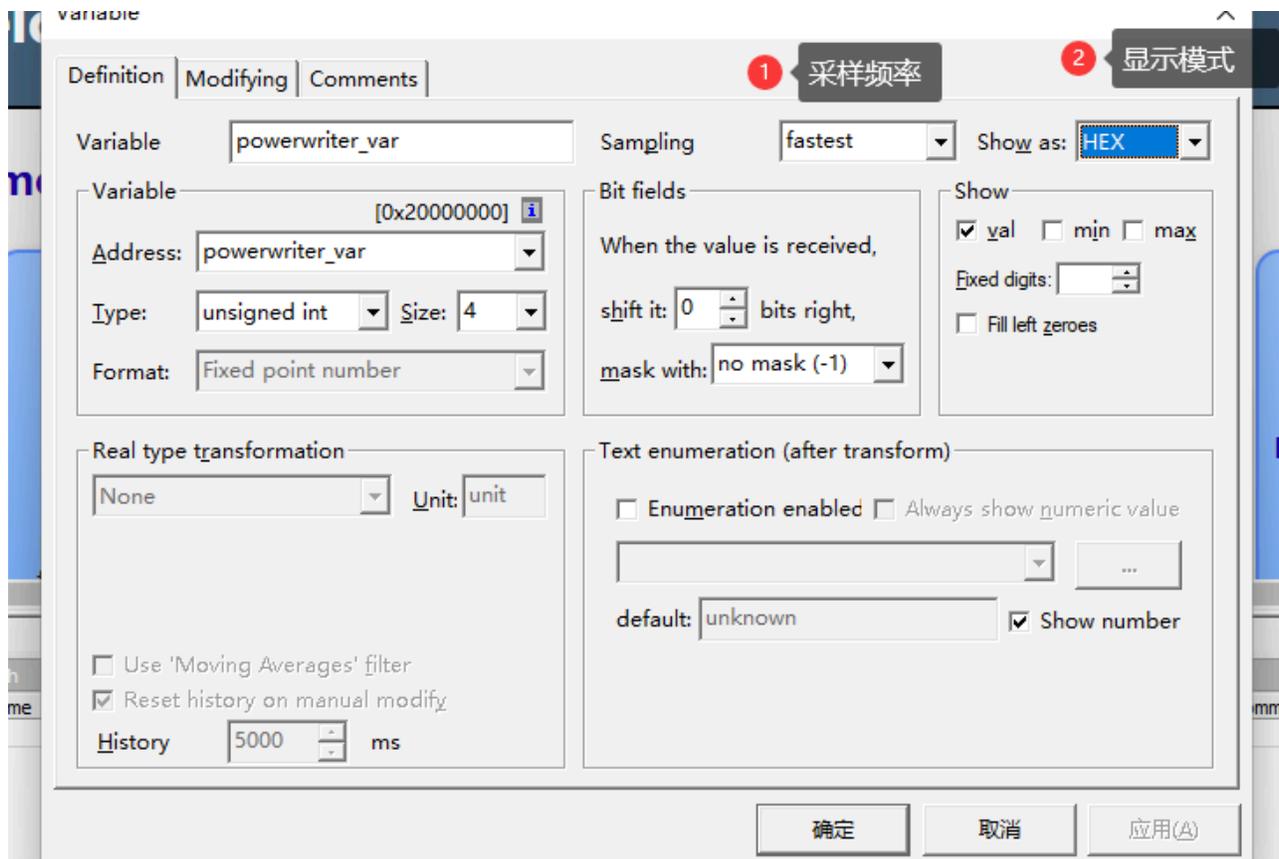
You can quickly create a variable watch by right clicking Create New Watched Var... in the Variable Watch window. in the Variable Watch window, as shown in the following figure:



Setting Monitoring Properties



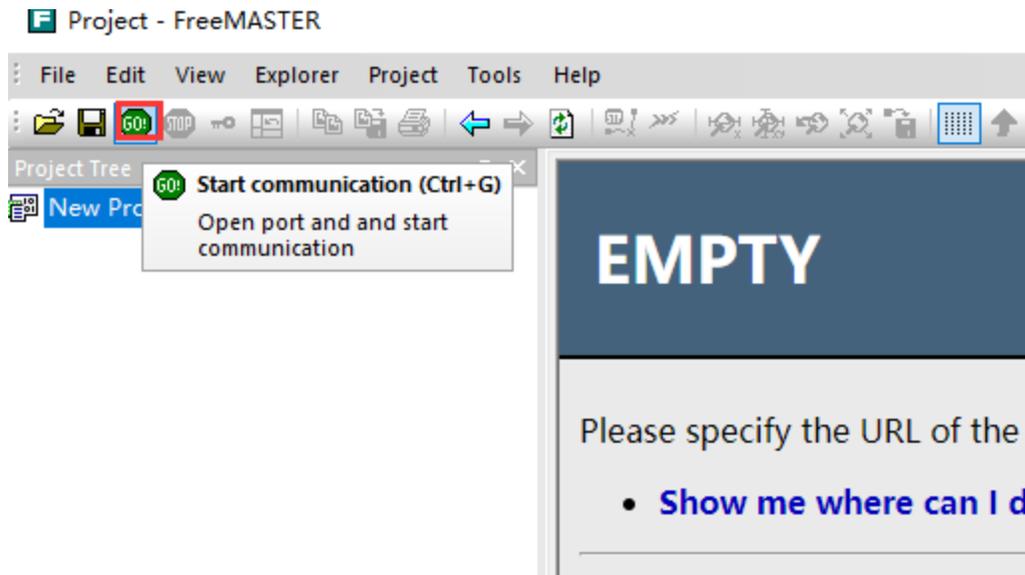
Change other settings as required



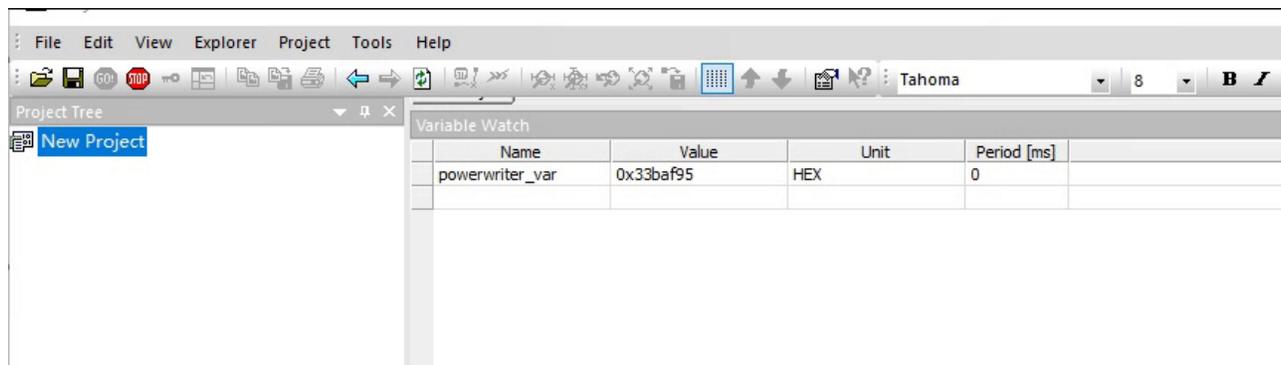
When finished, click OK.

1.2 : Activate

Connect the PowerWriter to the target chip with the target chip correctly, click the Go button on the toolbar to start the monitoring, as shown in the following figure.



You can see the real-time changing values of the variables as shown below:



TIP

FreeMASTER will not perform firmware download action, so you need to make sure that the set symbol file and the actual running firmware are matched, otherwise it will lead to wrong monitoring results.

2 : Notes

For detailed tutorials on how to use FreeMASTER, please refer to the official documentation and other related information.

Tags:

[FAQ](#)

[Offline](#)

[Plug-in](#)

[Watch](#)



[Edit this page](#)

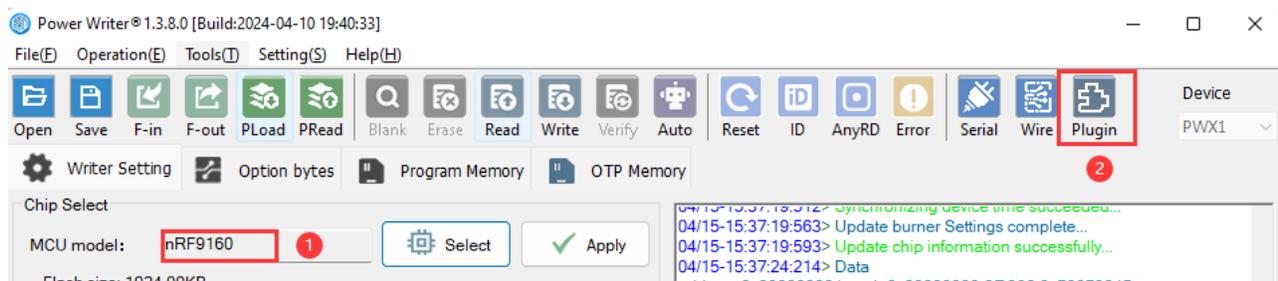
*Last updated on **Apr 15, 2024** by **Alan Chen***

Version: Next

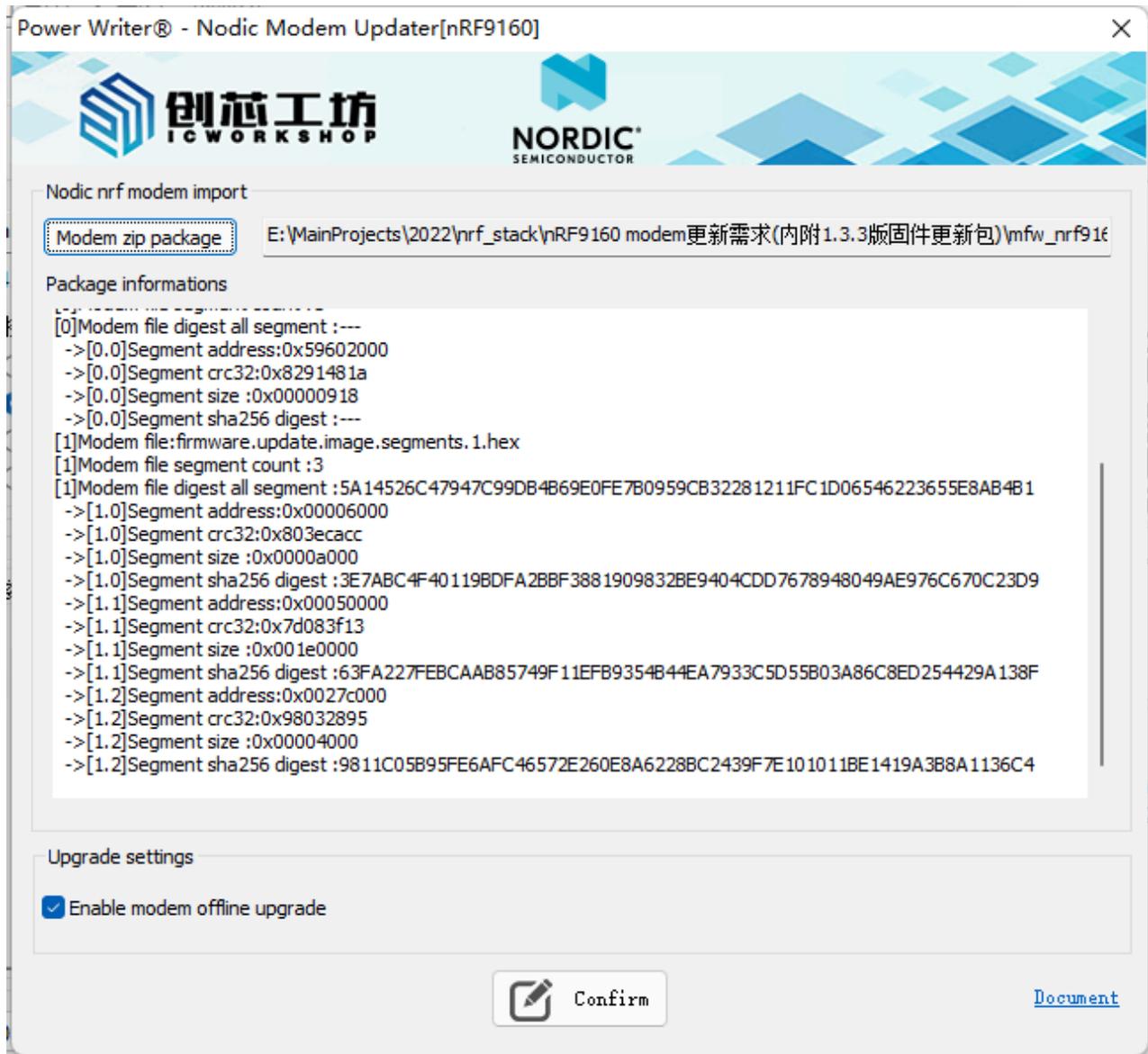
3.3.7 : NRF stack upgrade

1 : Entrance

PowerWriter support for manufacturer-specific features, are using the plug-in mode, you can support any manufacturer requires a specific function, the method of entry and other brands of the support method is consistent with the selection of the chip, such as in the toolbar on the right side of the most a plug-in support icon, the current selection of the chip has a plug-in support function, as shown below:



After selecting the Nordic family of chips, an Extended Functions button appears on the right side of the toolbar, defined as Vendor Specific Plug-In Functions, which can be clicked to enter the configuration page of the NRF Protocol Stack Burn-in, as shown in the figure:



2 : Firmware Import

2.1 : Modem zip package

Download the latest modem upgrade firmware package from the official website, which is in zip format and contains all the files required for upgrading the stack. PowerWriter supports parsing all the information required for upgrading from the zip package without

unzipping it, and after importing it, it will automatically start parsing the zip package, and if the parsing is successful, it will display the corresponding information in the log box, as shown below:

```
-----modem information-----
DFU address:0x2000000c
DFU crc32:0x84fbec7c
DFU sha256 digest:72B3D7C
DFU file name:72B3D7C.ipc_dfu.signed_1.1.0.ihex
DFU file size:0x00001290
DFU version:1.1.0
[0]Modem file:firmware.update.image.segments.0.hex
[0]Modem file segment count :1
[0]Modem file digest all segment :---
->[0.0]Segment address:0x59602000
->[0.0]Segment crc32:0x8291481a
->[0.0]Segment size :0x00000918
->[0.0]Segment sha256 digest :---
[1]Modem file:firmware.update.image.segments.1.hex
[1]Modem file segment count :3
[1]Modem file digest all segment
:5A14526C47947C99DB4B69E0FE7B0959CB32281211FC1D06546223655E8AB4B1
->[1.0]Segment address:0x00006000
->[1.0]Segment crc32:0x803ecacc
->[1.0]Segment size :0x0000a000
->[1.0]Segment sha256 digest
:3E7ABC4F40119BDFA2BBF3881909832BE9404CDD7678948049AE976C670C23D9
->[1.1]Segment address:0x00050000
->[1.1]Segment crc32:0x7d083f13
->[1.1]Segment size :0x001e0000
->[1.1]Segment sha256 digest
:63FA227FEBCAAB85749F11EFB9354B44EA7933C5D55B03A86C8ED254429A138F
->[1.2]Segment address:0x0027c000
->[1.2]Segment crc32:0x98032895
->[1.2]Segment size :0x00004000
->[1.2]Segment sha256 digest
```

 **TIP**

- The latest modem of Nordic NRF series chips can be downloaded from the official website, such as NRF9160 download address is:

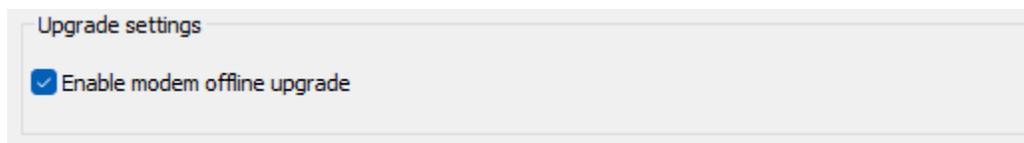
[Compatible Downloads - nordicsemi.com](#)。

- After importing the zip package, if the parsing fails, it will prompt the corresponding tips, do not decompress and modify the official release of the original zip package data, in order to prevent the information can not complete the automatic parsing, such as parsing the time of the error, contact us in time, with the error message tips and upgrade packages zip file.

3 : Offline Upgrade Stack Enable

- Enable modem offline upgrade

As shown below:



 **TIP**

PWLINK2(Lite) and other products do not support stack upgrade, but products with offline support this function.

Tags:

FAQ

Nordic NRF modem

STACK

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*Last updated on **Apr 15, 2024** by **Alan Chen***

Version: Next

3.3.8 : ZPKG usage

1 : What is zpkg?

zpkg is the secondary package of pkg file, on the basis of pkg file, package more information as a separate file, through this file, the developer can directly send zpkg file to the end-user by e-mail or other means, or burn manufacturers, in addition to the developer who packaged this file, other members will not be able to see any data in this file, to a certain extent, you can Meet the special needs.

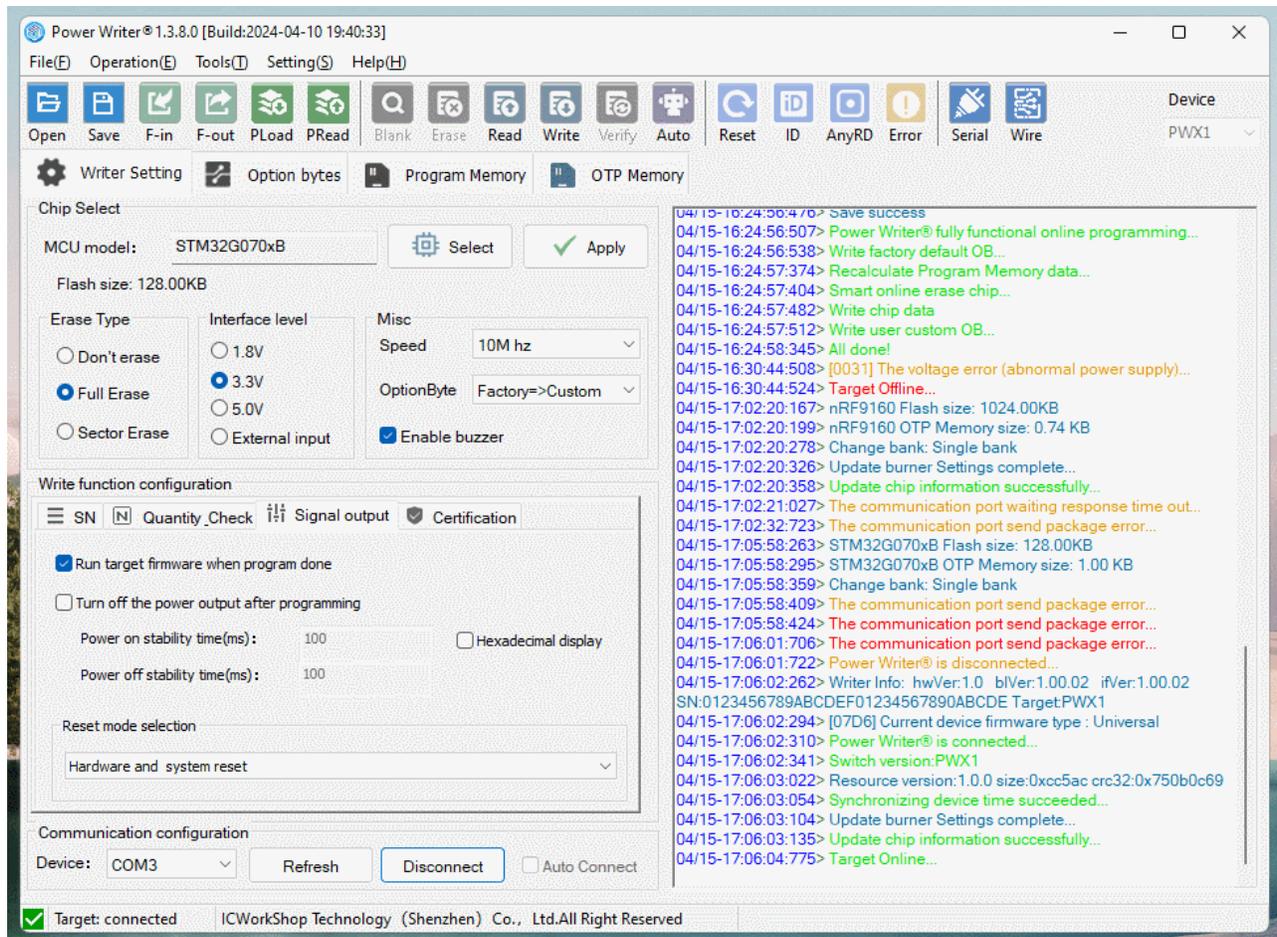
Although zpkg can be useful in some specific scenarios, there are some limitations that require special attention, as summarized below.

CAUTION

- Because the file can be reloaded repeatedly: this means that the limit on the number of times the pkg file itself will be invalidated, and if you need to control the number of burns, you will need to control the permissions with the icwkey device.
- Because passwords and data are packaged as a whole, which means there is a certain risk of being attacked, PowerWriter will try its best to prevent the zpkg file from being attacked, leading to leakage. Except for some special scenarios where the zpkg format must be used, most common scenarios still recommend the use of the zpkg file for security and privilege control.
- **Please be strictly aware of the above defects and do not use this feature if you are not aware of them.**

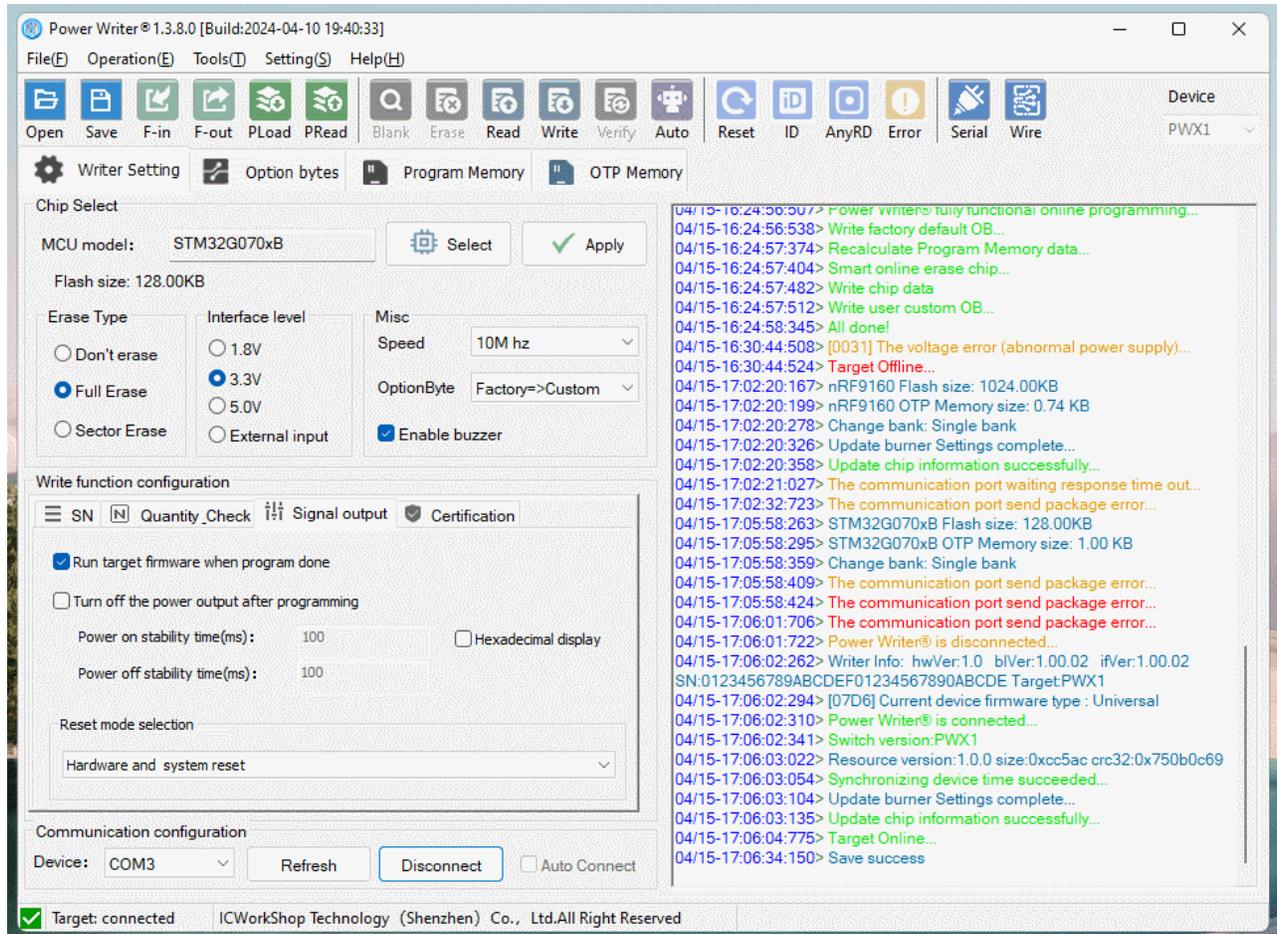
2 : How to save as zpkg?

The method of saving a zpkg file is the same as saving a pkg file, as shown in the following animation:



3 : How to load zpkg to Writer?

The flow of loading zpkg file to burner and loading pkg to writer is demonstrated in the animation below:



Tags: [FAQ](#) [ZPKG](#)

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Last updated on **Apr 15, 2024** by **Alan Chen**

Version: Next

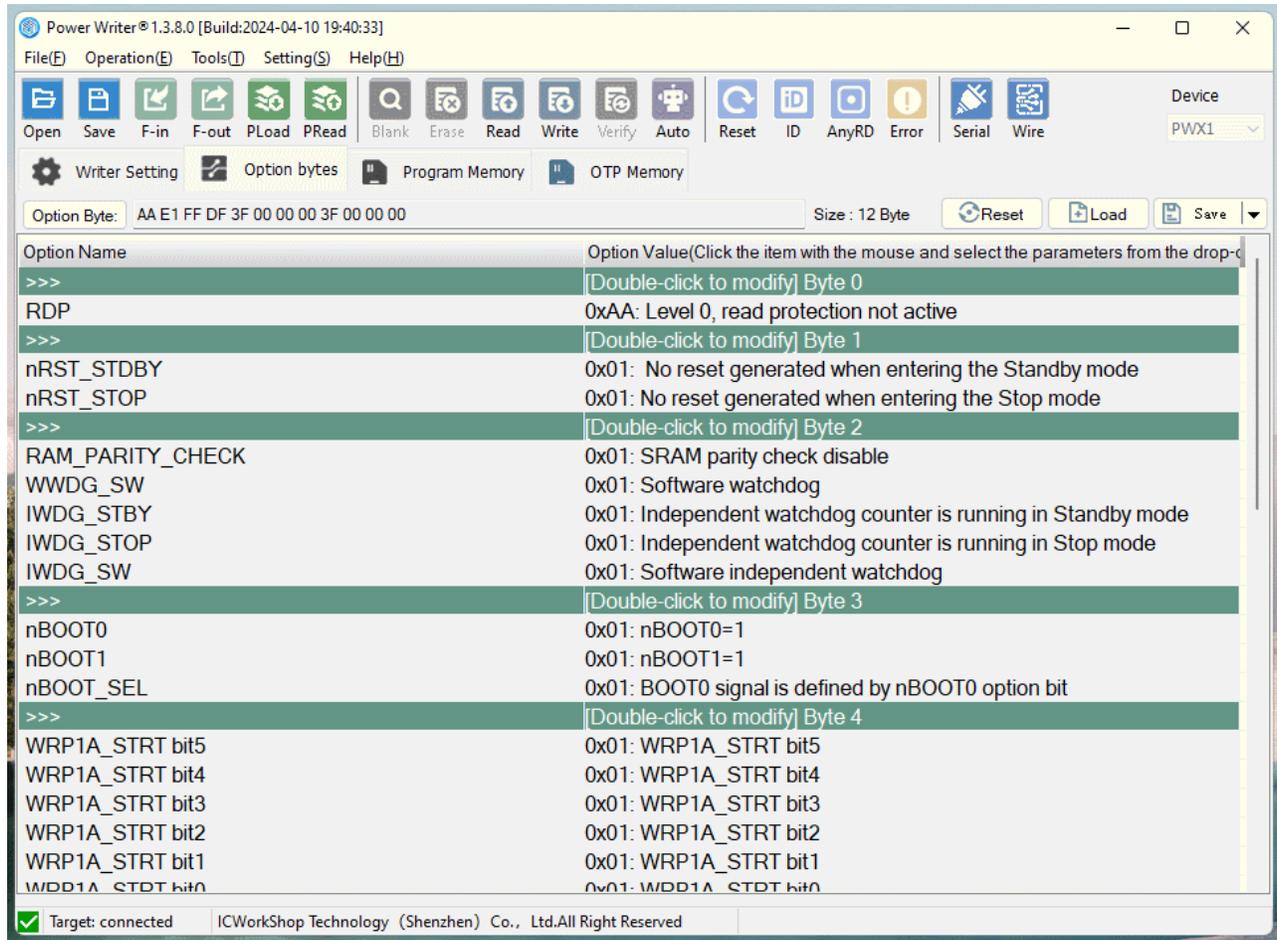
3.3.9 : Adjust Default OB

1 : Usage

PowerWriter chip adaptation process, the chip's default option bytes are adapted and serialized for use in some scenarios, you can restore the chip's factory settings, in most scenarios, the native default option bytes can meet the requirements, while in some special scenarios, the default option bytes need to be adjusted to meet some of the special application scenarios.

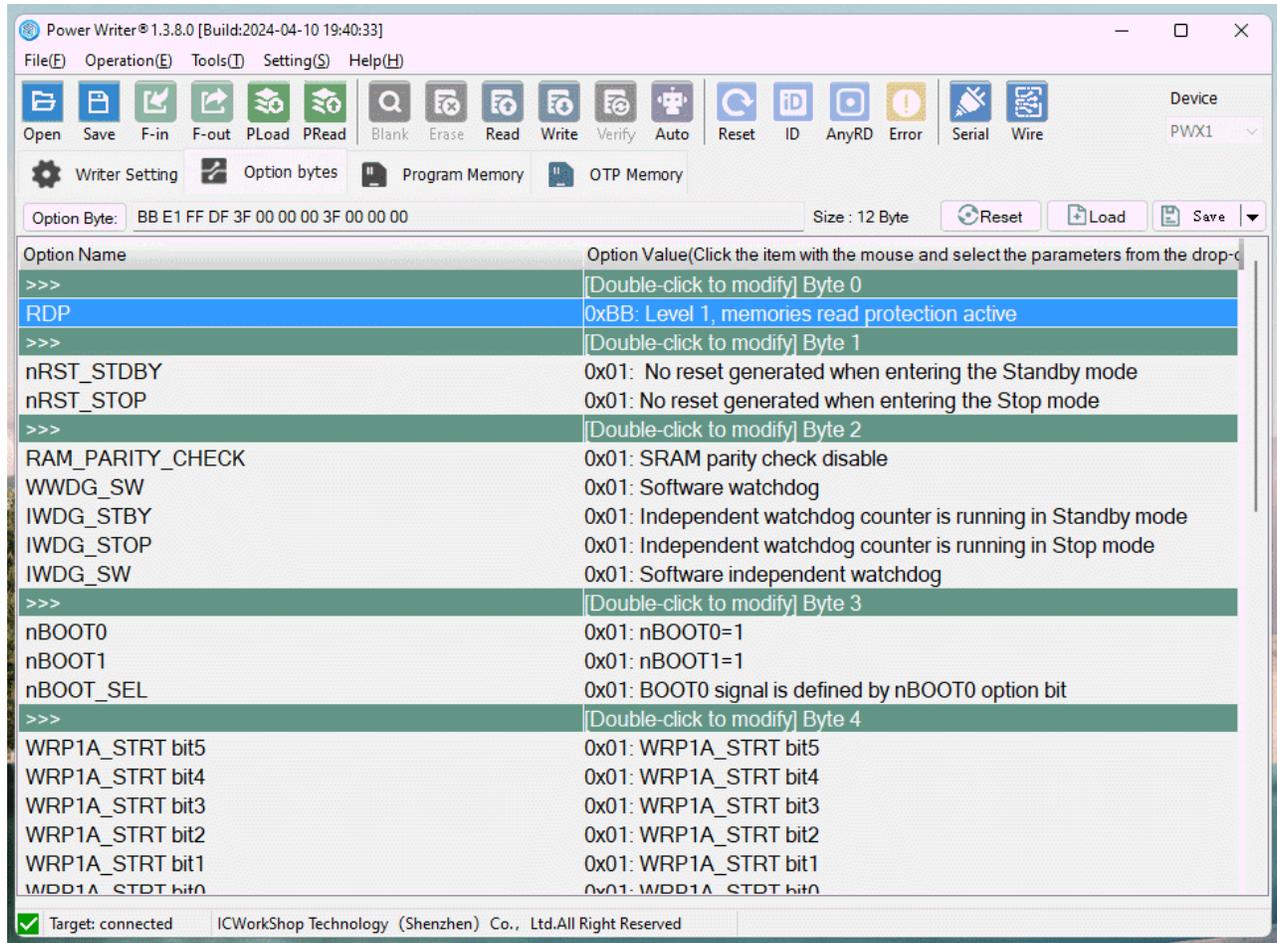
2 : Setting

The method of adjusting the built-in default option byte is as follows, and the animation demonstrates it as follows:



3 : Reset

Customized default option byte clearing can be performed by clicking the Restore Defaults button, as demonstrated in the animation below:



4 : Limitations

- Currently available in full-featured mode in online mode, disabled when software is turned off.
- Currently valid for saving to an offline writer, invalid after reopening the project.

⚠ CAUTION

Valid only for full-featured online programming and saving to writer before the software is closed, and will expire after reopening the project (automatically resynchronizes default option bytes).

Tags:

FAQ

Option byte



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