GigaDevice MCU Team	Version	14 Pages
	English V 1.0	
	Name： GigaDevice All-In-One Programmer User Manual	

GigaDevice All-In-One Programmer User Manual

Directory

1. Introduction

1.1 Function description

GD32 All-In-One Programmer is a tool for the user to operate the flash or configure Giga Device MCUs through one of the available serial peripherals (USART, USB, I2C, etc.).

With GD32 All-In-One Programmer, user can download the application program to the internal flash memory or secure chip and so on.

The software also supports multi-serial ISP downloads to improve programming efficiency during the mass production stage of the product.

1.2 Purpose

In order to reduce software switching caused by different downloading methods, GD32 All-In-One Programmer was developed.

The software makes the downloading process more friendly and convenient. Users can operate flash and GD32 MCUs by clicking on the UI interface.

The multi-serial ISP download function greatly improves the efficiency of batch downloading programs.

1.3 Operating environment

Operating system: win7/win10 64 bit

Processor: i3-9100 3.6GHz

Screen resolution: not less than 962*699

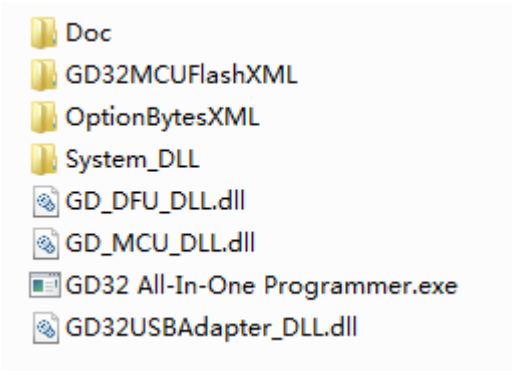
1.4 Jargon and Contraction

- **USART：** Universal Synchronous Asynchronous Receiver Transmitter. It is a full-duplex synchronous/asynchronous serial transceiver module, the interface is a highly flexible serial communication equipment.

- **I2C：**Inter-intergrated circuit. It provides an I2C interface which is an industry standard two-line serial interface for communication. I2C bus uses two serial lines: a serial data line, SDA, and a serial clock line, SCL.
- **USB：**Universal Serial Bus (USB) connects more than computers and peripherals. It has the power to connect you with a whole new world of PC experiences.
- **DFU：**Device firmware upgrade, which means users can download codes without removes MCU from the PCB.

1.5 Package composition

The Package contains the following files and folders:



The Doc folder: Include the software user manual.

The GD32MCUFlashXML folder: Include the XML files of each series MCU.

The OptionBytesXML older: Include the XML files of each series MCU.

Exe file: Software running file.

2. Running

This software is running on PC and compatible computers, and on platforms of WINDOWS. There's no need to setup the software, the only thing you need to do is to click the icon to operate the software.

3. Using Details

The main window has three tabs, which can be switched through the tab item in the upper left corner. The single serial port tab can realize multiple connection, flash operation, option byte

configuration, etc. The multi-serial tab can download programs to multiple devices at the same time to improve programming efficiency. The CMDTest tab can detect download process commands.

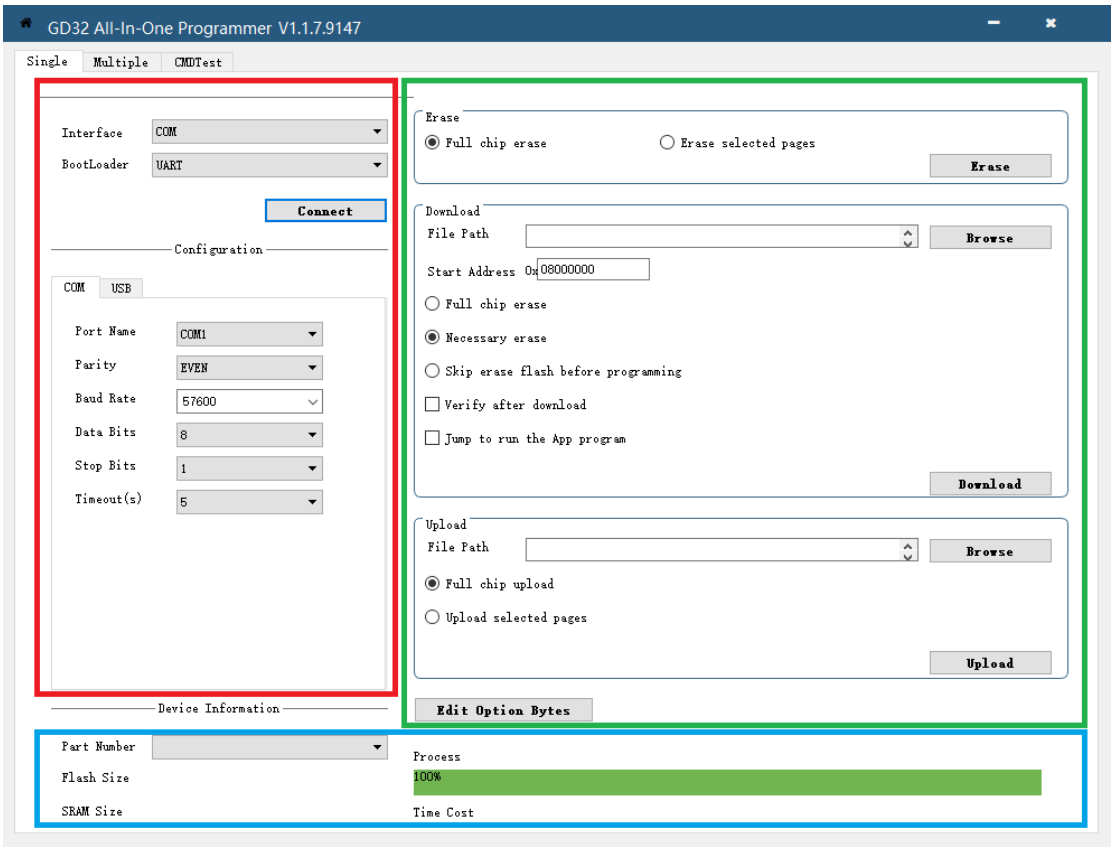
3.1 Single serial port tab

The single serial port tab layout consists of three parts: connection setting, operation setting and information display.

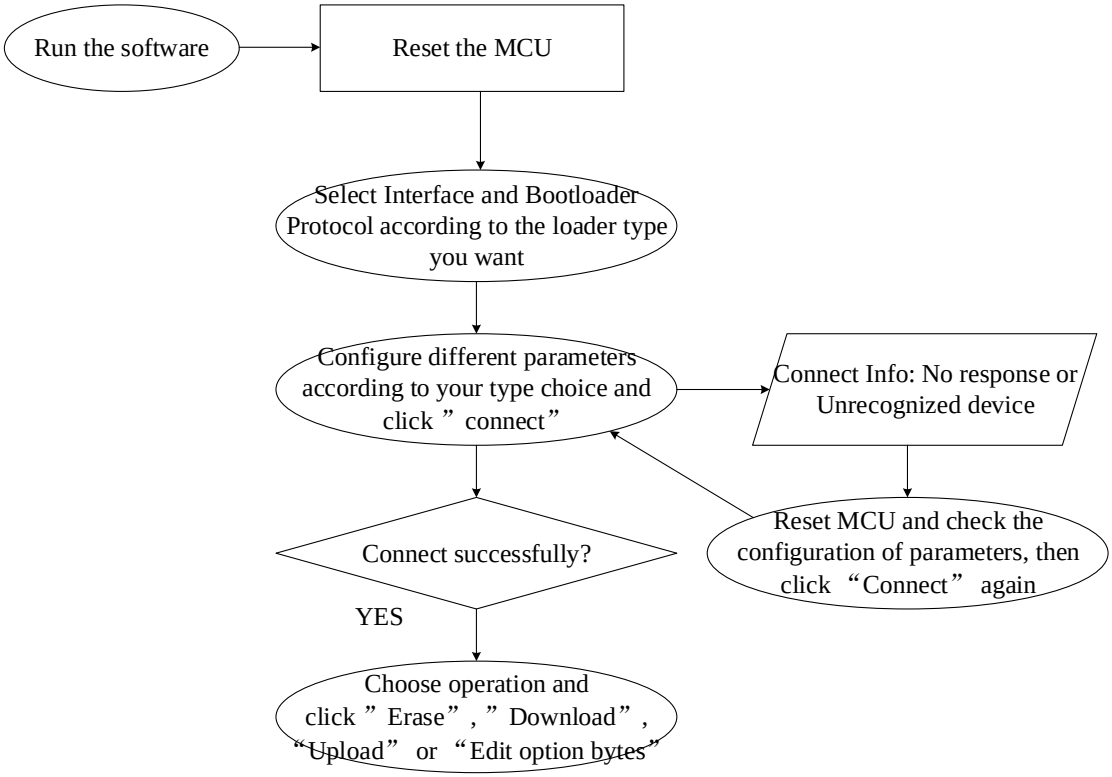
Connection setting(red): Download method type selection and download setting configuration.

Operation setting(green): It provides erasing, downloading, uploading and option byte editing functions.

Information display(blue): Display chip information and operation process and progress.

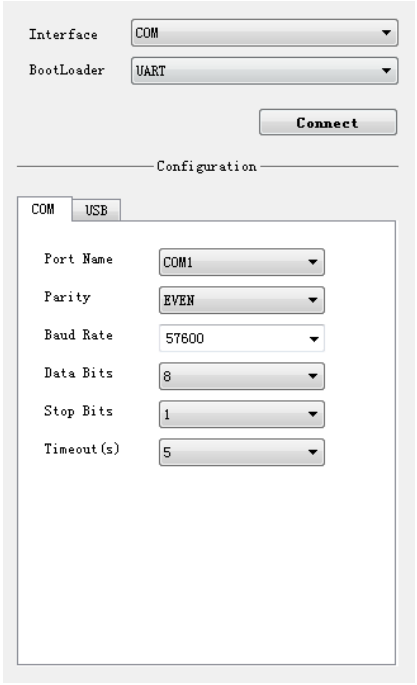


3.1.1 Flowchart of Operation



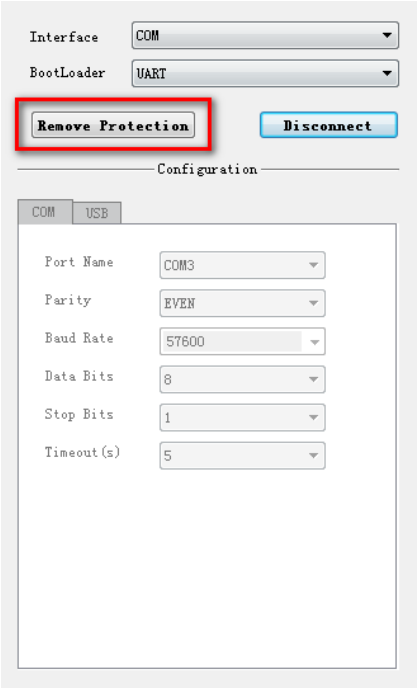
3.1.2 Download Type Selection

It provides different interface options, such as “COM”, “USB”. It also provides different bootloader protocol options accordingly, such as “USART”, “I2C” and “DFU”. User should to select the connection type according to need first. Then configure different parameters in different tab according to the interface choice.



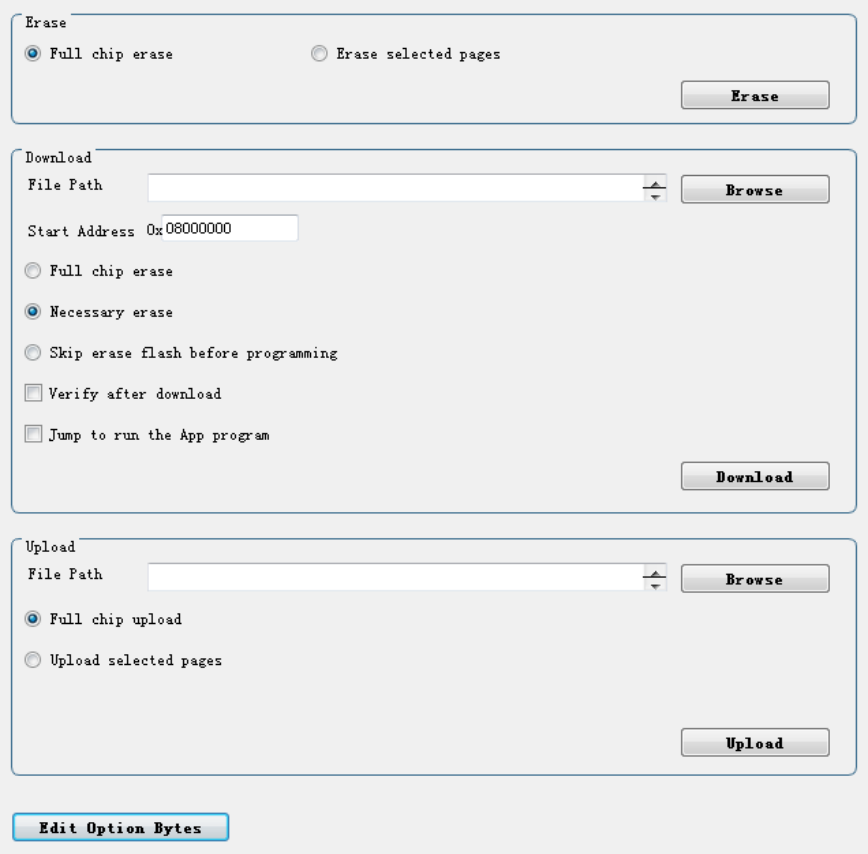
3.1.3 Readout Protection status

The figure below shows the readout protection status after connect, user needs to click “Remove Protection” first if the MCU is set readout protection, then wait for MCU removing protection to do the next.



3.1.4 Operation Selection

It provides operation options includes download, upload from flash and edit option bytes.

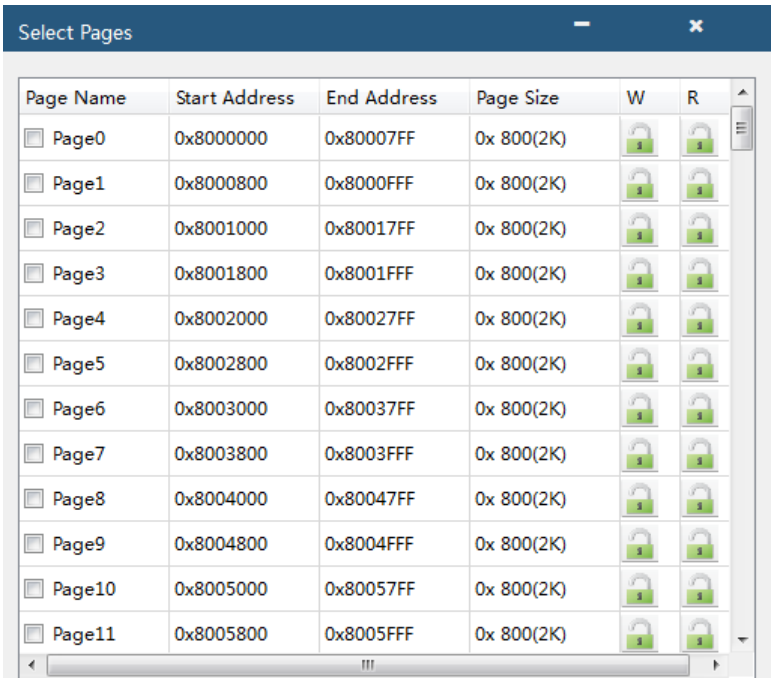


Option “Erase ” allow user to erase full chip or erase selected pages, if “Erase selected pages” was selected ,it will show a “Select pages” dialog as shown in the following figure, then user can choose the pages to erase.

Option “Download ” allow user to download bin or hex file to MCU. User can choose “Erase necessary page” or “Erase all pages”, “Verify after download” whether or not.

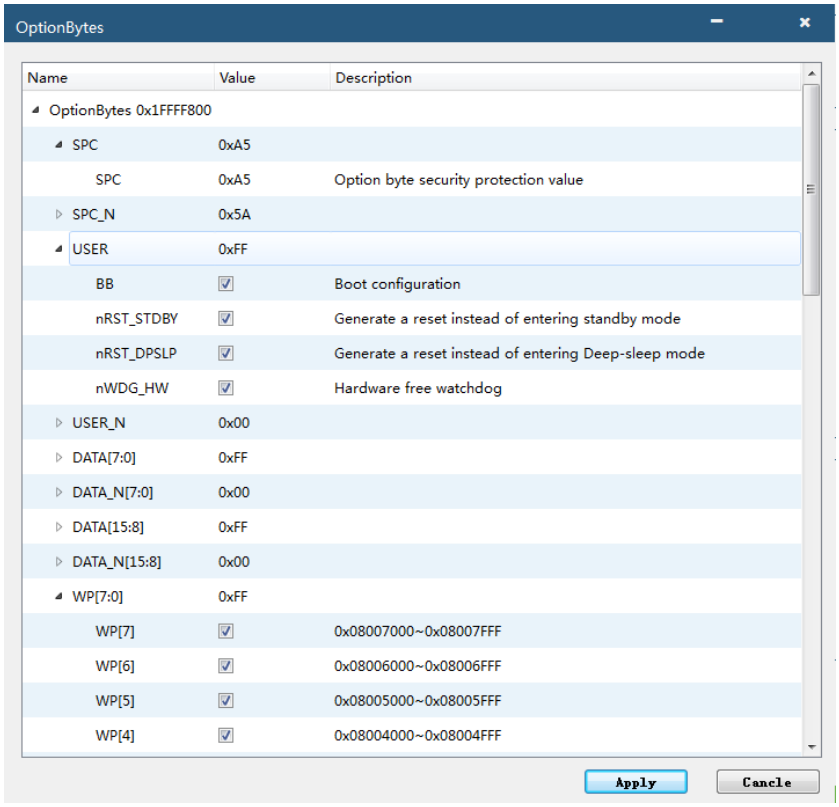
Option “Upload” allow user to read full chip or selected pages data from MCU and save as a bin or hex file. If “Upload selected pages” was selected, it will show a “Select pages” dialog as shown in the following figure, then user can choose the pages to read.

Option “Edit option bytes” allow user to configure option bytes.



3.1.5 Configure Option Bytes

This page allow user to configure option bytes with UI. User can check or edit the Value.

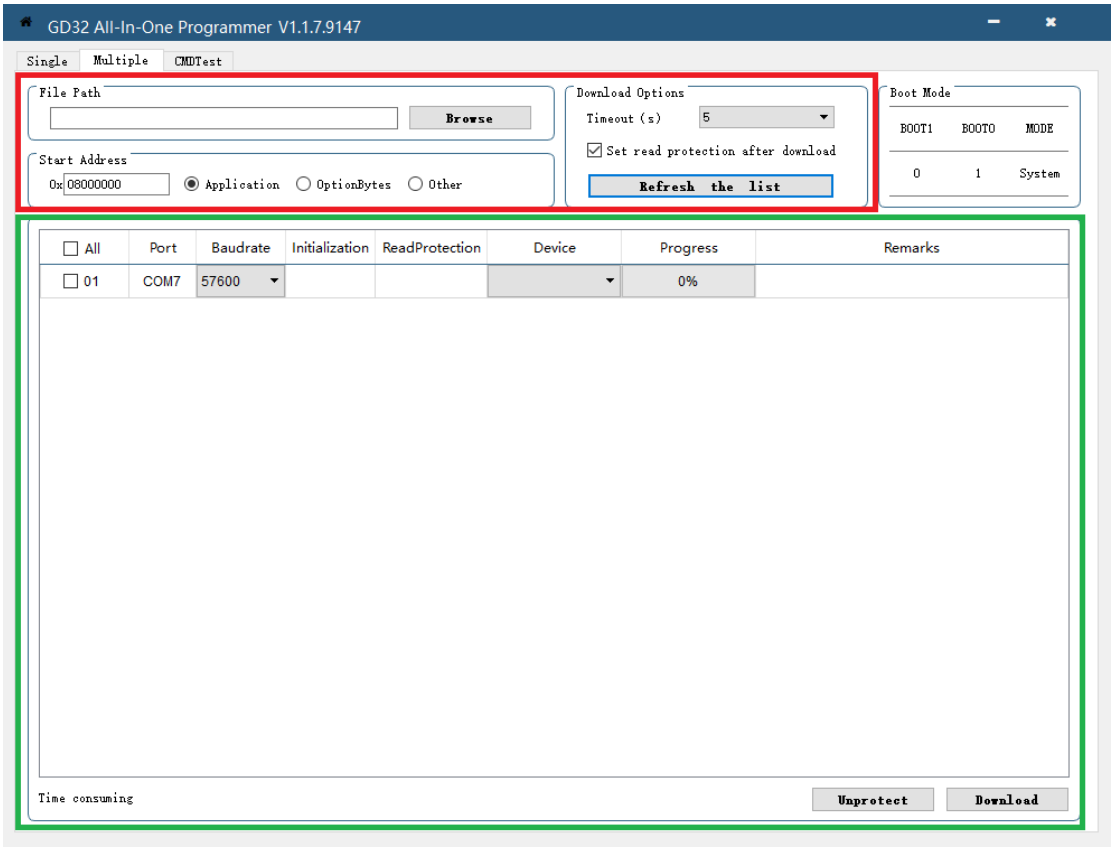


3.2 Multiple serial port tab

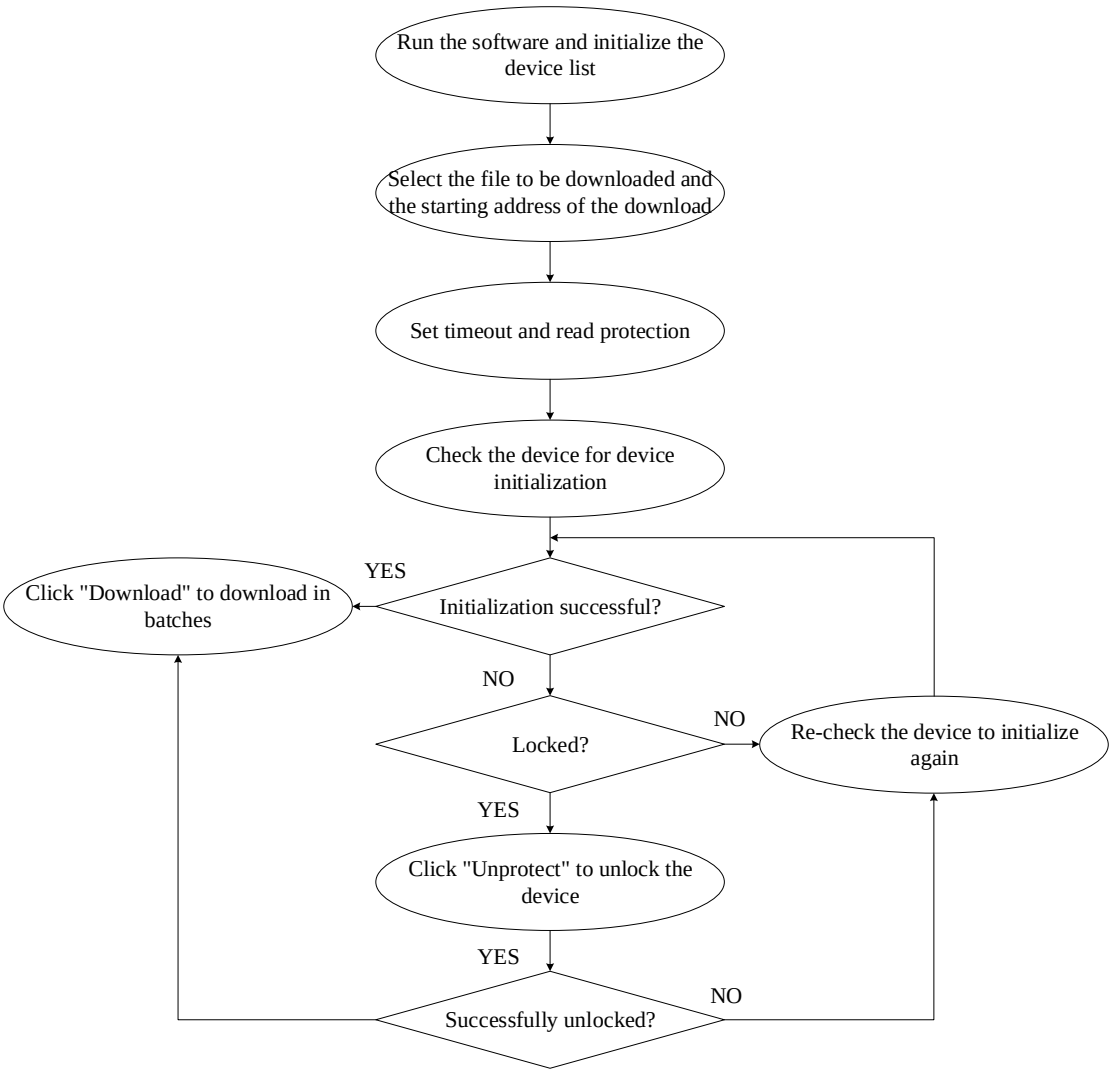
The Multiple serial port tab layout consists of two parts: download options and device list.

Download options(red): path selection for downloading files, start address selection, timeout setting, read protection settings and list refresh function.

Device list(green): display all enabled serial devices and information.

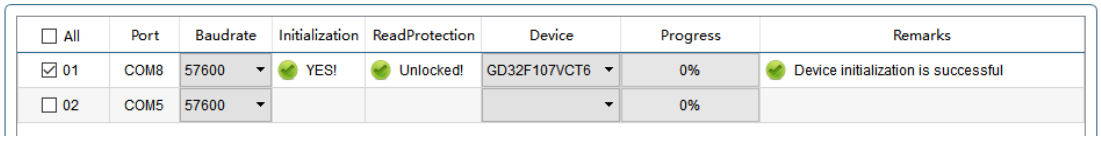


3.2.1 Flowchart of Operation

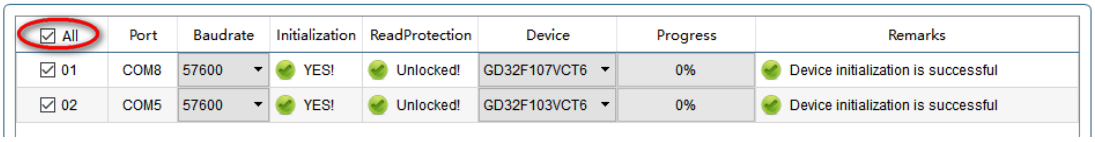


3.2.2 Device initialization

A single device can be initialized by checking the checkbox in front of the device, and all devices can be initialized by checking the "ALL" checkbox in the header.



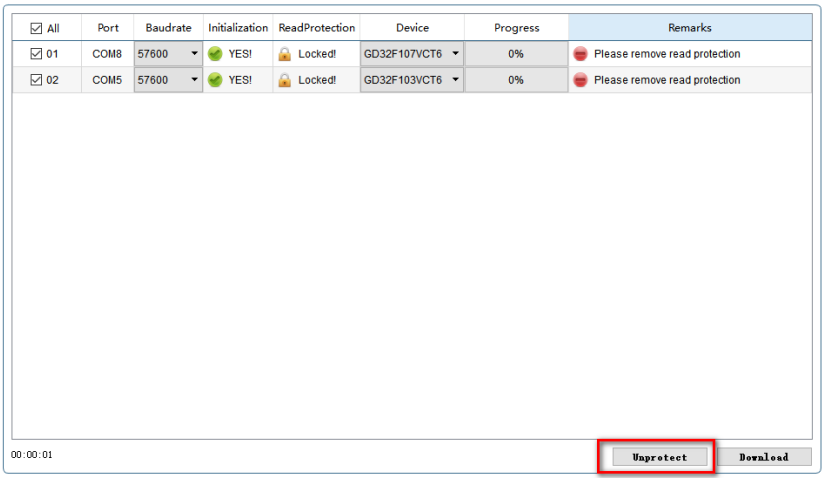
All	Port	Baudrate	Initialization	ReadProtection	Device	Progress	Remarks
01	COM8	57600	YES!	Unlocked!	GD32F107VCT6	0%	Device initialization is successful
02	COM5	57600				0%	



All	Port	Baudrate	Initialization	ReadProtection	Device	Progress	Remarks
01	COM8	57600	YES!	Unlocked!	GD32F107VCT6	0%	Device initialization is successful
02	COM5	57600	YES!	Unlocked!	GD32F103VCT6	0%	Device initialization is successful

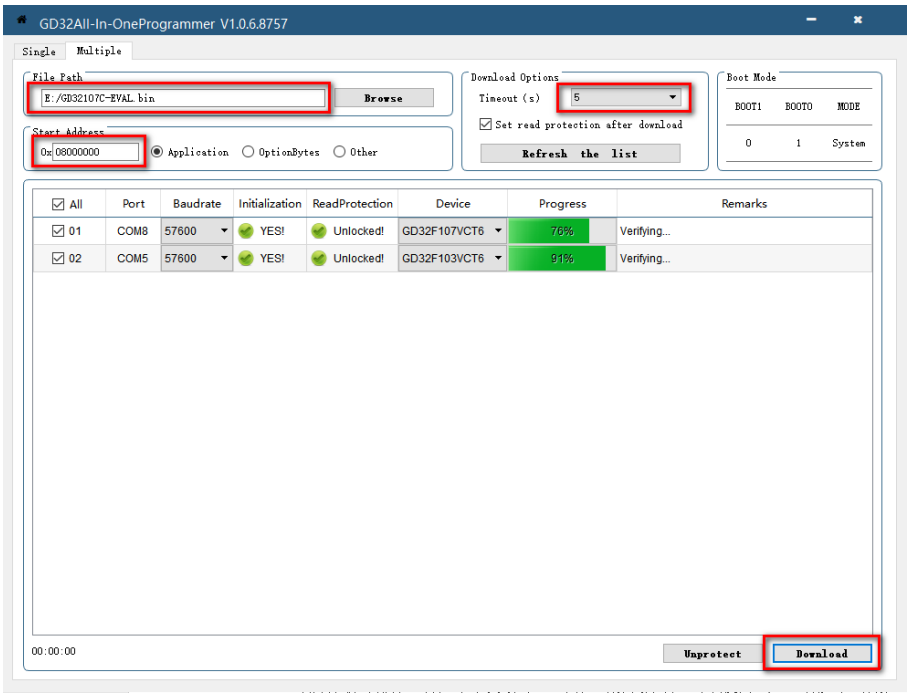
3.2.3 Device unprotected

The user can click "Unprotect" to remove the read protection and write protection of the device. After unlocking, the software will automatically initialize the device.



3.2.4 Program download

After the device is initialized successfully, click "Download" to download the program, and the device list will update the download process information in real time. Note that you must select the download file path and download start address before downloading. It is recommended to set the timeout to 5s to ensure the download is successful.

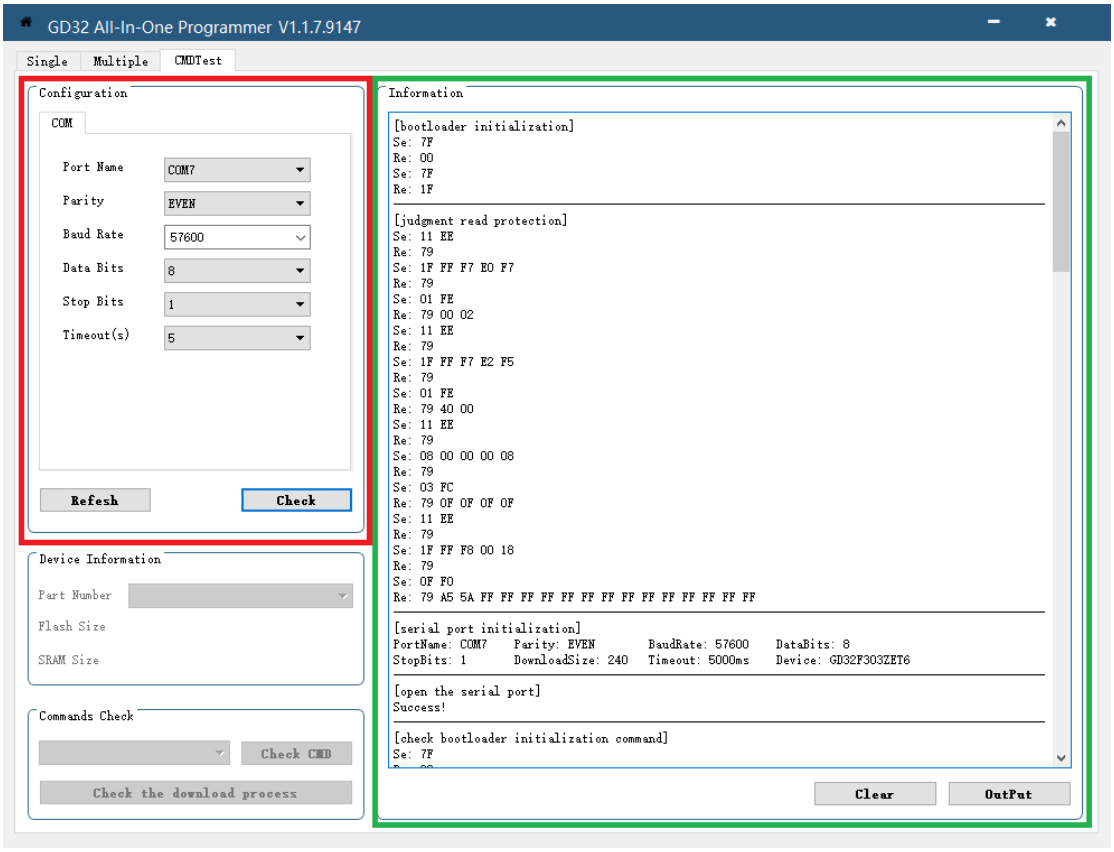


3.3 CMDTest tab

The CMDTest tab layout consists of two parts: device configuration and information display.

Device configuration(red): Realize connection with bootloader by configuring serial port information.

Information display(green): Test all commands during the download process and display the sending and receiving information.



Refresh: Refresh and display all detected serial ports.

Check: One-key query all commands and display process information, including operation process, sending and receiving data, and results.

Clear: Clear all content in the message box.

Output: Export all the content in the message box to a txt file and save it to the specified path.

4. Attentions

- When the software is connected to the device, the device needs to switch the BOOT working mode to System mode, that is, BOOT1=0, BOOT0=1.

- When the software is working, make sure that the serial port of the device is not occupied, or the software cannot initialize the device.
- Adding or removing devices requires refreshing the device list, otherwise the new device cannot be downloaded, or the software is displayed abnormally.

5. Update

Contact the developer.

6. Q&A

Q1：Device initialization failed.

A1：Try to check the checkbox again to reinitialize the device.

Q2：The erasing and programming process failed, and the device displays unknown after re-initialization, or the display is normal but still cannot pass the erasing and programming process.

A2：There is a high probability that the device communication is abnormal. You can try to reset the device and execute again.