

|                                     |  |                 |
|-------------------------------------|--|-----------------|
| <b>GigaDevice MCU<br/><br/>Team</b> | <b>Version</b>   | <b>10 Pages</b> |
|                                     | <b>English V 1.2</b>                                       |                 |
|                                     | <b>Name: GigaDevice GD-Link Programmer User<br/>Manual</b> |                 |

# **GigaDevice GD-Link Programmer User Manual**

## Directory

|  |    |
|--|----|
| GigaDevice GD-Link Programmer User Manual..... | 1  |
| <b>1. Introduction</b> .....                   | 3  |
| 1.1 Function description .....                 | 3  |
| 1.2 Purpose .....                              | 3  |
| 1.3 Operating environment .....                | 3  |
| 1.4 Jargon and Contraction .....               | 3  |
| 1.5 Package composition.....                   | 4  |
| <b>2. Running</b> .....                        | 4  |
| <b>3. Using Details</b> .....                  | 4  |
| 3.1 Layout introduction .....                  | 4  |
| 3.2 Flowchart of Operation .....               | 10 |
| <b>4. Attentions</b> .....                     | 10 |
| <b>5. Update</b> .....                         | 10 |

## 1. Introduction

This user manual describes an application used to operate the flash or config GigaDevice MCUs with available USB cable and GD-Link adaptor. GD-Link programmer is a tool for the user to use MCUs with high speed.

### 1.1 Function description

With GD-Link programmer, user can download the application program to the internal flash memory or secure chip and so on, at the same time programmer can config GD-Link offline download function.

### 1.2 Purpose

Besides a perfect stage for users to download application program with high speed, GD-Link programmer also aims to provide wonderful and creative experience. The description is edited for a better service.

### 1.3 Operating environment

Software Requirements: Chinese or English Windows XP、Windows 7 and advanced operation systems.

Hardware Requirements: GD-Link adapter, referring to the **GD-Link Adapter User Manual**.

### 1.4 Jargon and Contraction

- **GD-Link:** GD-Link adapter is a three-in-one multi-function development tool for GD32 series of MCUs. It provides CMSIS-DAP debugger port with JTAG/SWD interface. User can use GD-Link adapter for online programming or debug code in compatible IDE such as Keil or IAR. Another important function is offline programming.

- **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.

## 1.5 Package composition

All files listed in Chart 1 are required.

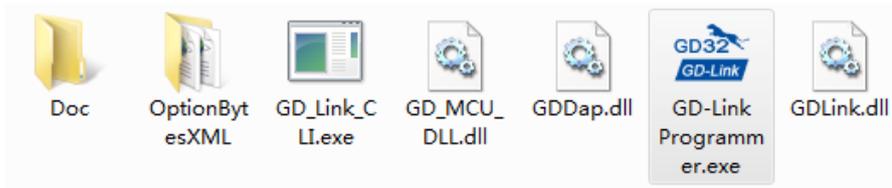


Chart 1

## 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

### 3.1 Layout introduction

Chart 2 shows the UI and including areas of the software:

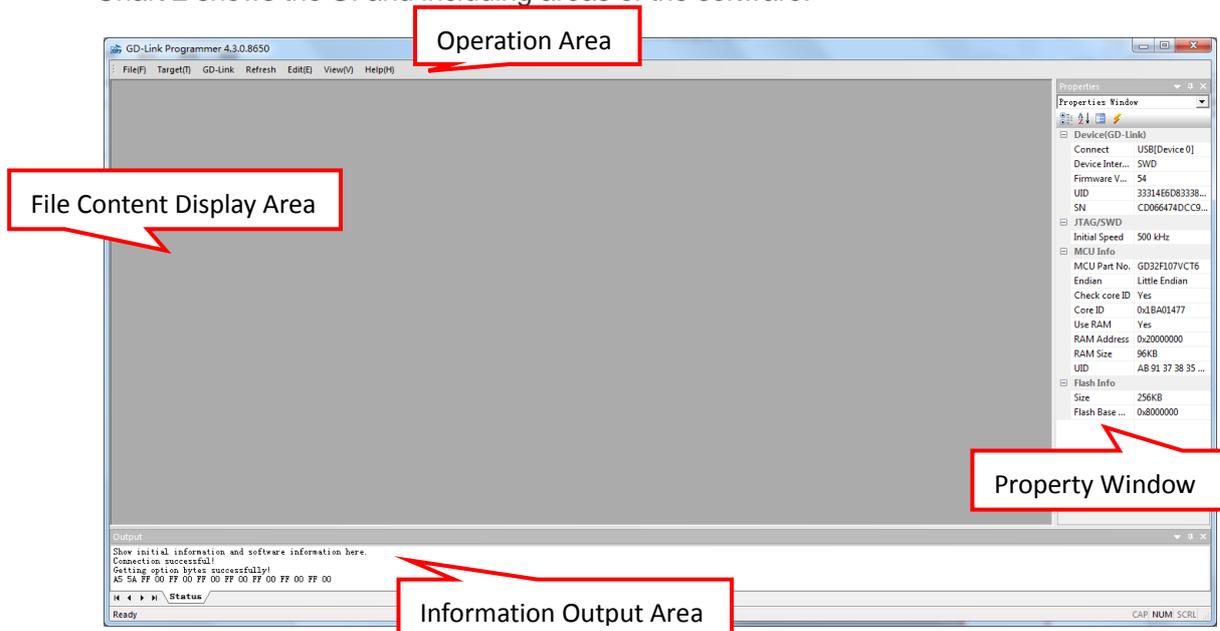


Chart 2

## 3.1.1 Properties Window

Chart 3 shows the properties about GD-Link and target MCU. In order from top to bottom:

### 3.1.1.1 GD-Link Property

- Connect Interface: GD-Link use USB connect to PC
- Device Interface: Users can choose SWD or JTAG to connect to MCU, the default selection is SWD.
- Firmware Version: Current MCU firmware version.
- UID: Shows the UID of the MCU in the GD-Link.
- SN: Shows the serial number of the GD-Link.

### 3.1.1.2 JTAG/SWD Property

- Initial Speed: Users can change the GD-Link transfer speed here, the default speed is 500 kHz.

### 3.1.1.3 Target MCU Property

- MCU Part No.: It shows the connected MCU.
- Endian: GD MCU is little endian.
- Check core ID: The default selection is Yes.
- Core ID: It shows the MCU core ID value.
- Use RAM: The default selection is Yes, RAM is used to program faster.
- RAM Address: It shows the RAM start address value.
- RAM Size: It shows the RAM size of the target MCU.
- UID: Shows the UID of the target MCU.

### 3.1.1.4 Flash Property

- Flash size: It shows the flash size of the target MCU. Different MCU maybe has different Flash size and different erase/program registers, users can refer to User Manual of MCU for the detail.
- Flash Base Address: It shows the Flash base address value.

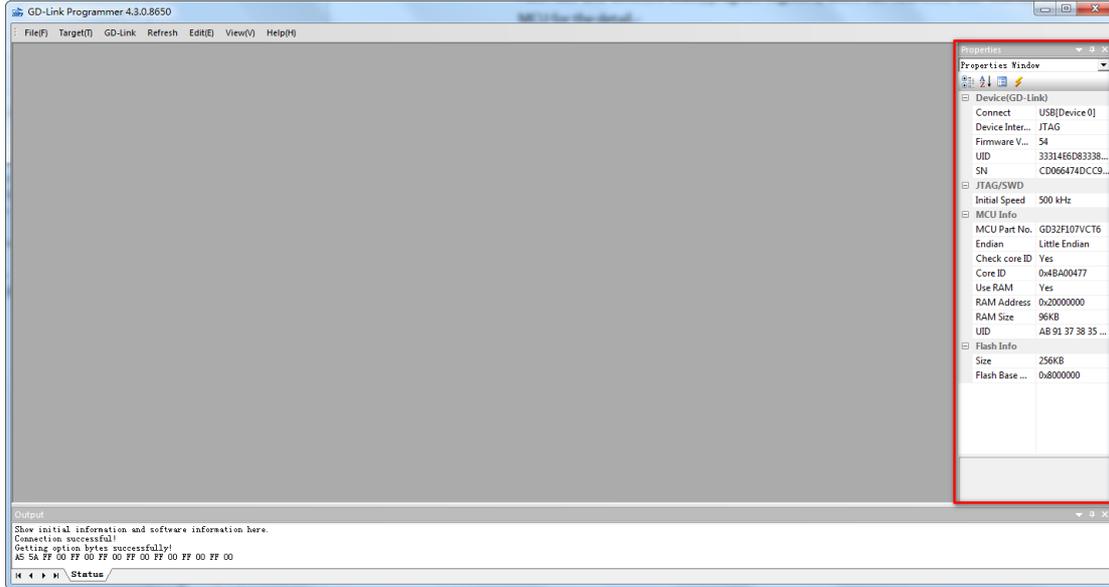


Chart 3

### 3.1.2 Refresh Properties List

This button allows user refresh properties list without close this application(As shown in chart 4).

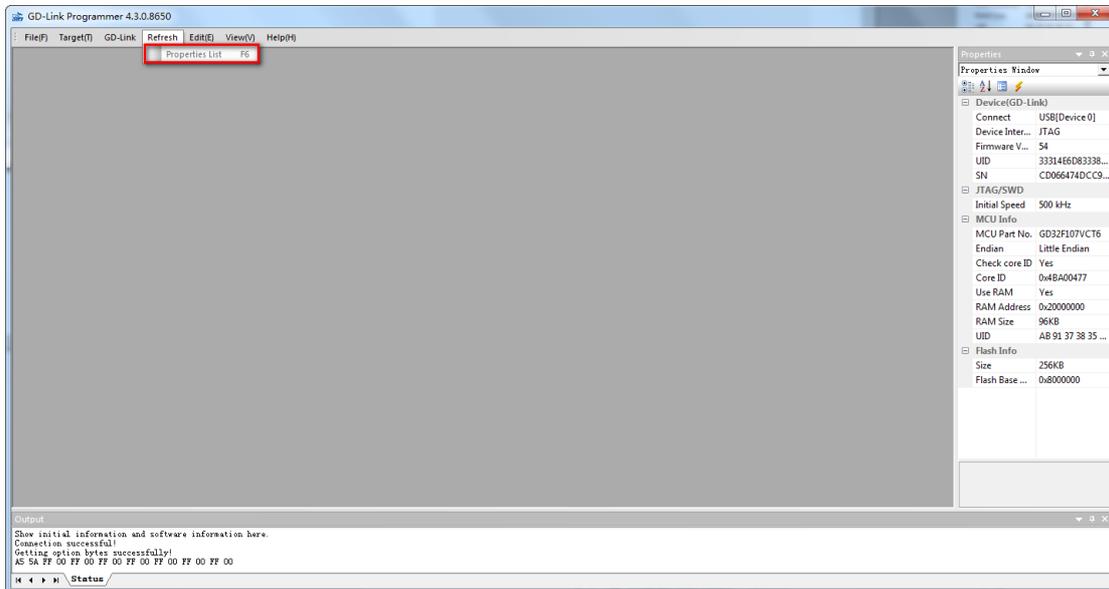


Chart 4

### 3.1.3 GD-Link

This menu includes Update file, Configure GD-Link and Update firmware (As shown in chart 7).

### 3.1.3.1 Update File

This menu can update the file to store in the GD-Link for offline-programming.

Users should select the MCU part No., then click 'Add' to select file in bin format and input downloading address first before updating the file(As shown in chart 5).

At last, users can click 'Update' to store the listed files to GD-Link. If stored successfully, users press the 'K1' key on GD-Link, GD-Link downloads all files to the corresponding address.

Some part No. supports option bytes configuration, GD-Link configures the MCU option bytes according to the information configured by the user(As shown in chart 6).

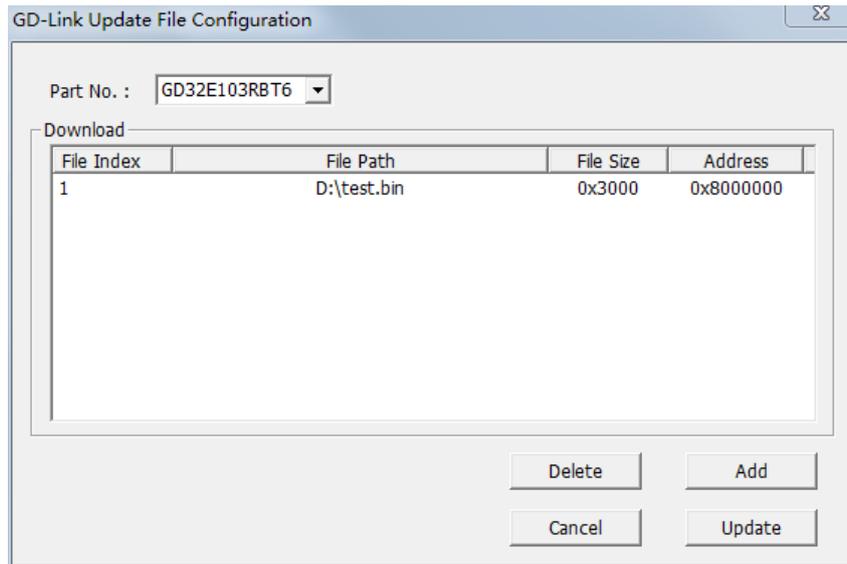


Chart 5

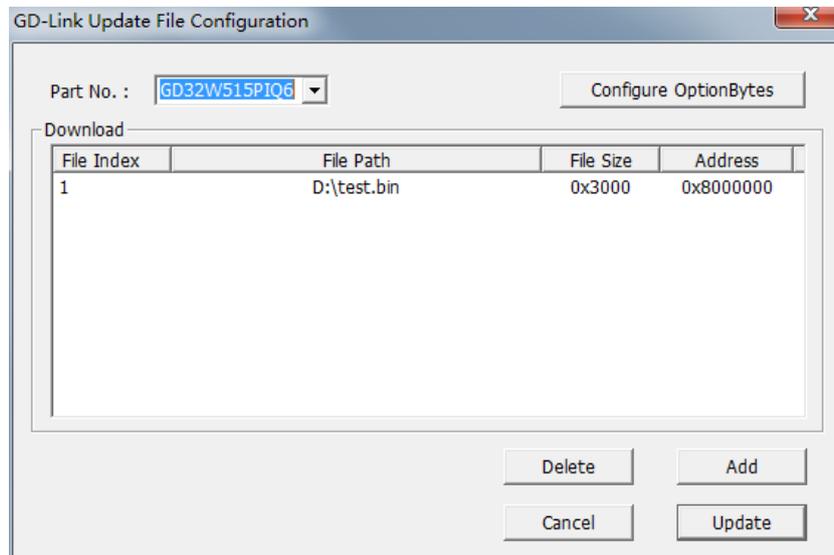


Chart 6

### 3.1.3.2 Configure GD-Link

This menu includes Offline-Programming Configuration, Online-Programming Configuration

and Product SN three parts (As shown in chart 8, this menu will add more function by updating firmware).

- Offline-Programming Configuration: This menu configure whether secure chip after offline -programming. It will take effect after update program files.
- Online-Programming Configuration: This menu configure whether secure chip after online- programming, whether reset before online-programming, and whether run after online-programming. It will take effect while click “OK” button.
- Product SN: This menu configure product SN value after online-programming (As shown in chart 8). Check the checkbox means write product SN to target MCU after online-programming. Users configure the address to write product SN, product SN value and product SN increase value.

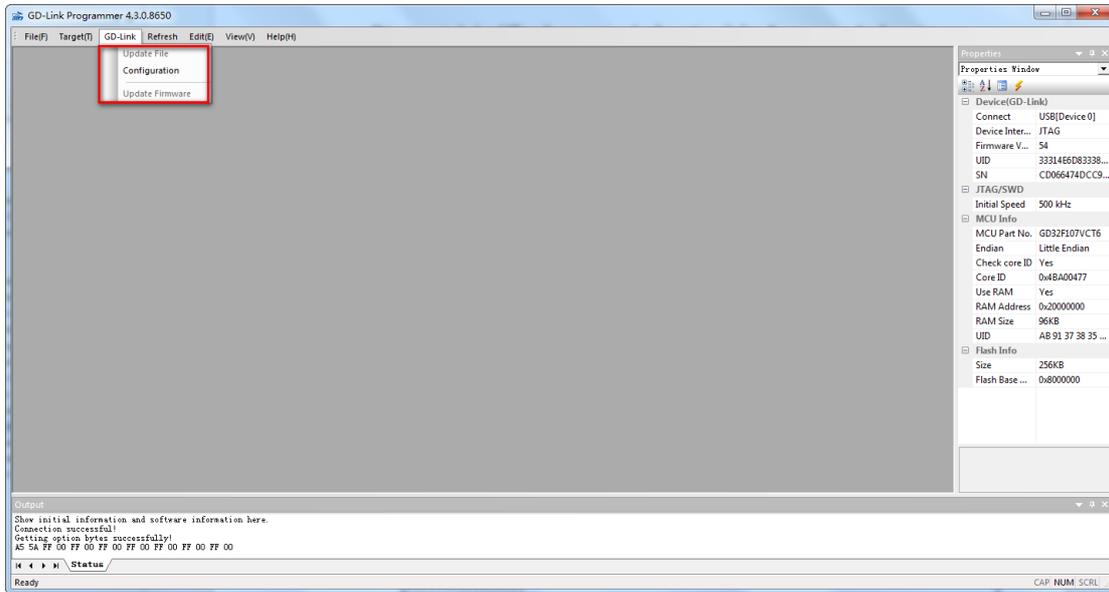


Chart 7

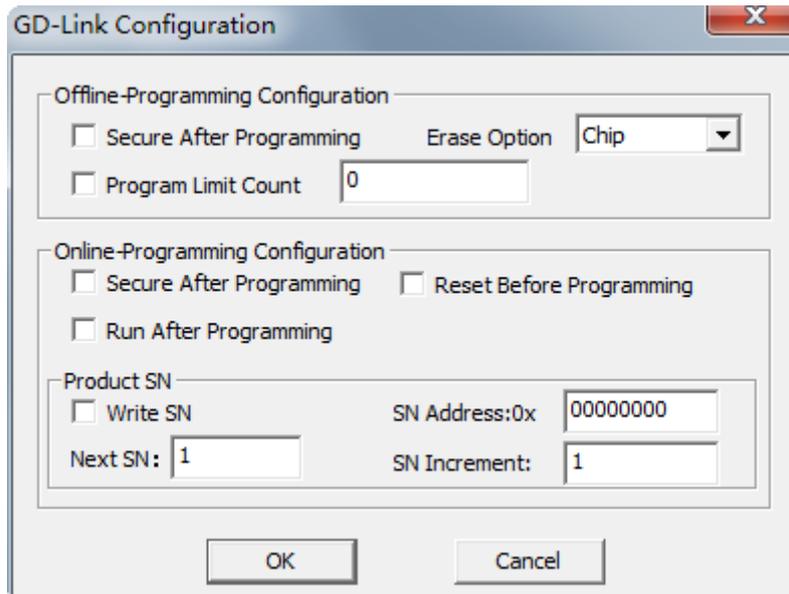


Chart 8

### 3.1.3.3 Update Firmware

This menu update GD-Link firmware if GD-Link is in firmware updating mode. Please make sure your software is the latest version before you update your GD-Link firmware.

### 3.1.4 Target MCU

This page includes Connect, Disconnect and other operation menus (As shown in chart 9).

- Connect: Users must click this menu before operating target MCU with keyboard shortcuts F2.
- Disconnect: This menu is enabled after connected successful, it is used to disconnect from target MCU.
- Security: Security includes two levels, GD10x series only low level can be set while GD1x0 series can use two levels. The GD1x0 series MCU will not be changed to insecurity if set high level.
- Insecurity: Clicking this menu can remove low level security.
- Configure OptionBytes: Users can use this menu to change option bytes.
- Mass Erase: Users can use this menu to erase full chip with keyboard shortcuts F4. Maybe users need to wait for a moment while MCU Flash size more than 512KB.
- Page Erase: This menu allow users to erase MCU by pages with keyboard shortcuts F3.
- Program: Program the selection file to the target MCU. The software will secure the chip and write product SN if users have configured security after online-programming options in "Configuration" menu.
- Continuous Program: This function is enabled while the software disconnects from target MCU. The software will detect whether new MCU is power on automatically and connect to MCU. Then the software will program the new MCU with current selection file and wait for next MCU connect.
- Read Data: With this function user can read target MCU by two ways: Read full chip or Read by range.
- Run App: Run the program file after programming.

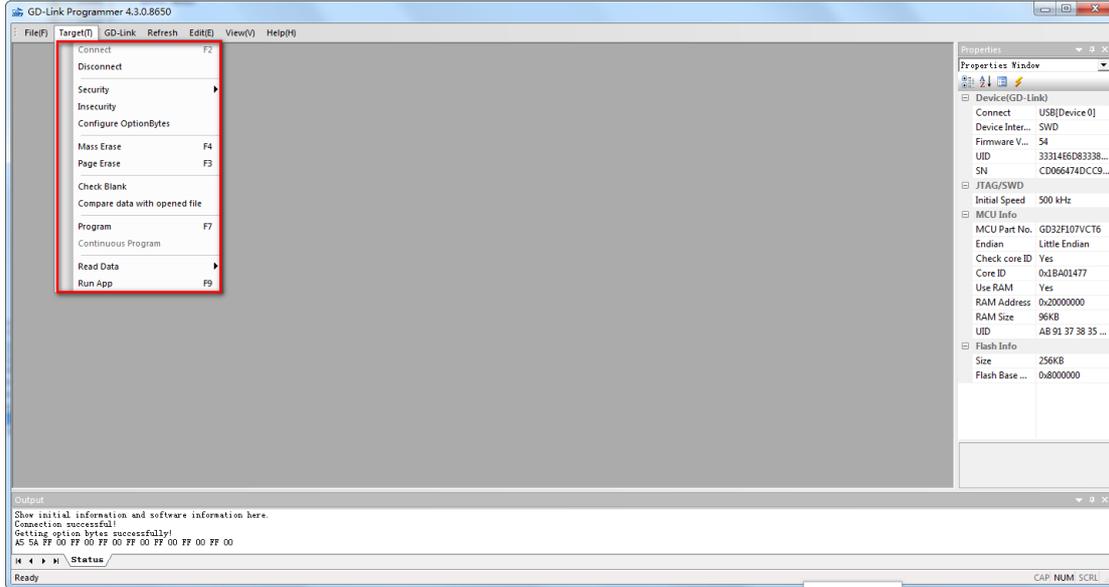
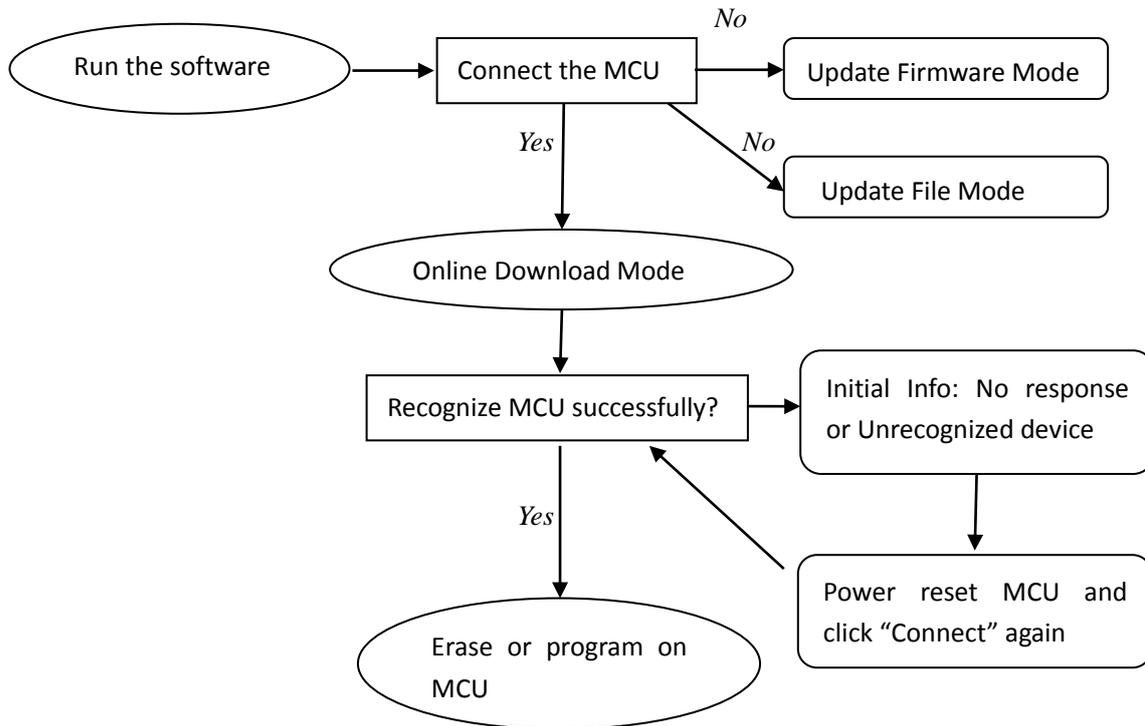


Chart 9

### 3.2 Flowchart of Operation



### 4. Attentions

Please make sure that GD-Link is connected to PC.

### 5. Update

You can go to the official website <http://gd32mcu.com/cn/download> to get the latest version.