Common Development Tools

1、Integrated development environment（IDE）

IDE is the abbreviation of Integrated Development Environment, which is used to integrate various development tools and functions to provide a unified development environment.

Tutorials are developed using STM32CubeIDE software

1.1、STM32CubeMX

STM32CubeMX is a powerful visualization tool for **generating initialization code** and **configuring STM32 microcontrollers** .

Main Features

- Visualization configuration: pin configuration, clock configuration, peripheral configuration, etc

An intuitive graphical interface is provided, so that developers can easily configure the STM32 microcontroller.

- Support HAL library, LL library;
- Supports multiple development tools;

Automatically generate engineering framework, support export EWARM, MDK-ARM, STM32CubeIDE, Makefile engineering files.

1.2、MDK-ARM

MDK-ARM is an integrated development environment (IDE) developed by Keil for software development of embedded systems, supporting MCU from multiple chip vendors (including STMicroelectronics STM32 series), providing a complete development environment.

Main Features

- Stable and mature development environment;
- Support development tasks such as code editing, compilation, debugging, and simulation.;
- Provides a powerful ARM compiler and optimization options to generate efficient object code.。

1.3、STM32CubeIDE

STM32CubeIDE is an Eclipse-based integrated development environment specifically designed to develop STM32 applications.

Main Features

- Integrate CubeMX configuration tool;
- Rich plugin and toolchain support is provided;
- Developers can write, debug, and test code directly.

1.4、Summary

IDE	Characteristics
STM32CubeMX	Quickly configure and initialize code generation
MDK-ARM	Stable development tools
STM32CubeIDE	Comprehensive development environment

2、Emulator

For tutorials involving simulation: Use the ST-Link emulator

2.1、ST-Link

- ST-Link is an emulator provided by STMicroelectronics;
- Support for SWD and JTAG debug interfaces;
- Support STM32CubeIDE, Keil MDK development environment.

2.2、J-Link

- J-Link is an emulator provided by SEGGER;
- Support SWD, JTAG debug interface;
- Support Keil MDK, IAR and other development environments.

2.3、DAP

- DAP is an open source simulator provided by ARM company;
- It has the function of virtual serial port, which is convenient for data receiving, sending and debugging;
- Support STM32CubeIDE, Keil MDK and other development environments.

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All the above simulators support the simulation and debugging of STM32
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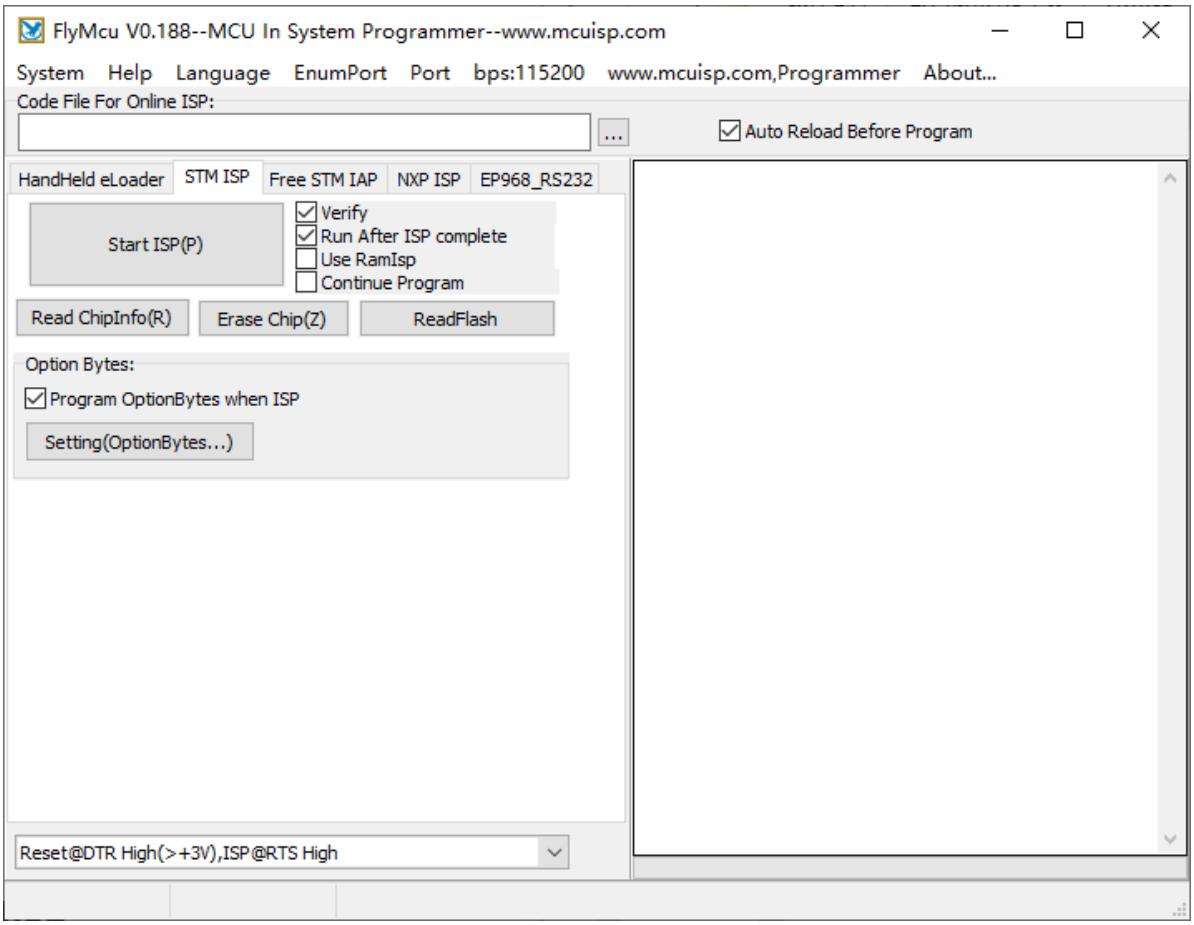
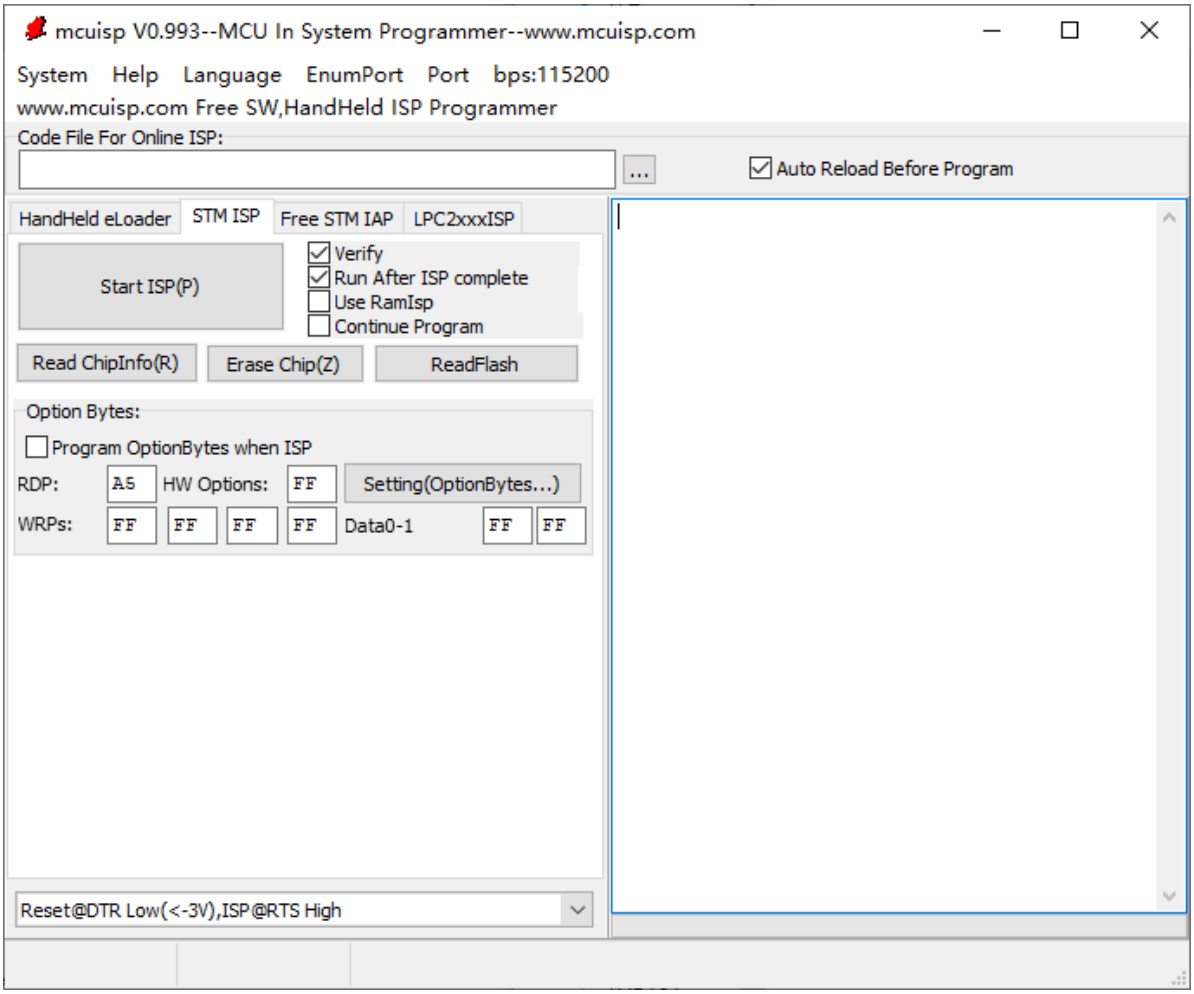
3、Serial port burning software

Two free serial ISP download software, through the serial port for program burning.

3.1、FlyMcu



3.2、mcuisp

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This tutorial is not recommended, choose your own serial debugging assistant
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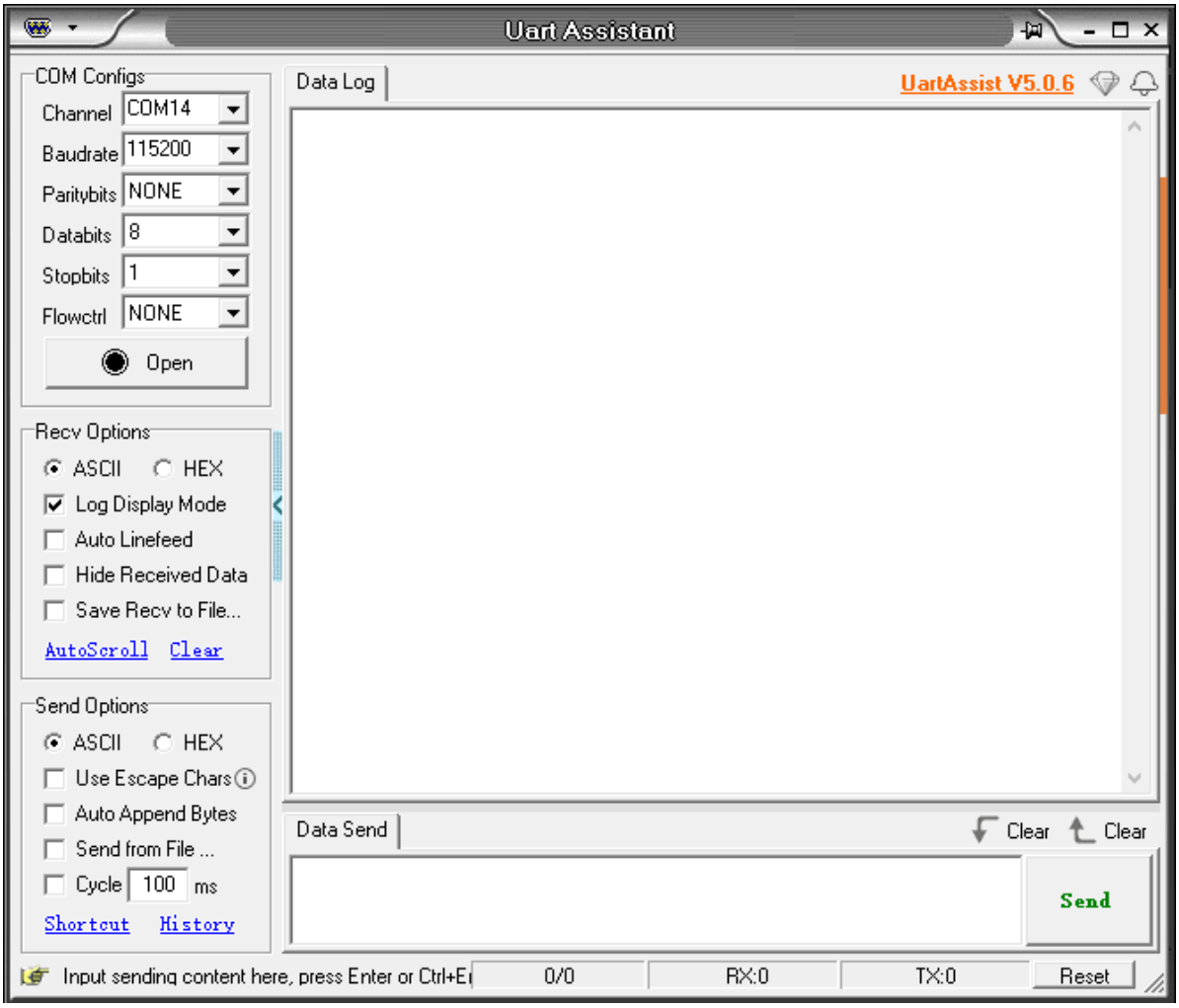
4、Serial port debugging assistant

4.1、UartAssist

Powerful, simple operation, easy to use



4.2、XCOM

stable, multi-function, easy to use

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This tutorial is not recommended, choose your own serial debugging assistant
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