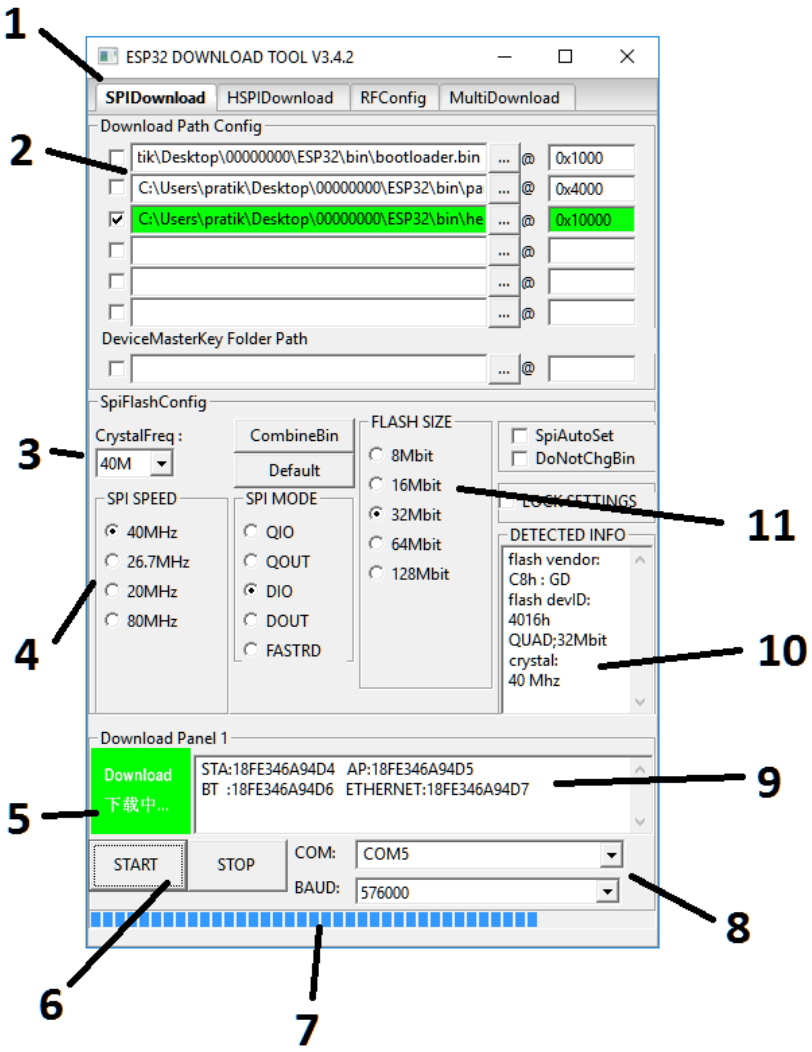
ESP32 Flash Download Tool Interface



1. Select a particular tab to find related options. Select HSPI tab for HSPI flash download. In general, you should use SPI download mode.
2. BIN files to be downloaded. The checkbox must be checked and the file and address must be valid for a file to be successfully opened by program for download.
3. Crystal Frequency should be the frequency of the crystal connected to your ESP32 module.
4. SPI Flash speed. You may switch to 80MHz with fast flash chips. However, the ESP-IDF v.1.0 seems to be having issues with this higher than 40MHz.
5. Tells about the current operation status. Whether the download tool is idle or running, etc.
6. Start/Stop button to start or stop programming.
7. Progressbar to indicate firmware download program.
8. COM port settings such as baud rate and port number.
9. PHY MAC IDs for Wifi, BLE, ethernet, etc.
10. Information on the flash chip. This is acquired by low level API and this information is necessary for evaluating flash map, etc at runtime.
11. Flash memory size. Most modules will contain the ESP32 hooked to a Winbond 32MBit flash memory. You may change accordingly if your hardware differs.

Binary Download Locations

As in ESP32 ESP-IDF v.1.0 with no modified ld script files, the locations should be as follows for normal applications:

0x1000: bootloader.bin
0x4000: partitions_singleapp.bin
0x10000: .bin

The flash map is very simple as the ESP-IDF does not support OTA in this version yet. Therefore, the system only consists of a bootloader, a data partition table and the main user application BIN (generated by you by compiling your code).

Downloading the Program

Pull GPIO0 **LOW** by pressing the "program" button on your development board. Reset the ESP32 by pressing the EN button momentarily while holding down the IO0 button.

Now the ESP32 will successfully enter the flash programming mode. You can now set the files and check the required BIN file slots in the software such that they are all set to be downloaded into the flash.

Next press the Start button to continue and flash the BIN files into your ESP32 module!

Make sure that the COM port has been correctly selected. The download tool would typically automatically detect an USB-UART converter.

Repeated Downloading (prototyping)

If you are repeatedly flashing revised versions of your application during the development process, note that you need not flash bootloader and singleapp partition BINs repeatedly.

You simply need to flash the .bin every time you update your program and generate an updated BIN file. Uncheck the bootloader and partition BINs to prevent unnecessary writes to the flash.