1 Problem description

When using the AT32F403/AT32F413, the user may not be able to download the program again after the following operations:

■ After the JTAG/SWD PIN is disabled in the program, the program cannot be downloaded and the JTAG/SWD device cannot be found.

■ After entering the Standby mode, the program cannot be downloaded and the JTAG/SWD device cannot be found.

2 Solutions

The following procedure can be used in KEIL and IAR environments:

■ Solution 1: Use the ConfigureJLink.exe tool of ARTERY;

■ Solution 2: Pull down (press and hold) the reset pin for 1 sec when downloading by switching the boot mode

■ Solution 3: By switching the boot modes

Switch the boot mode to either Boot[1:0]=01b or Boot[1:0]=11b, and then press the reset button to resume the download. Similarly, it is true for ISP download.

■ Solution 4: Using the ICP and AT-Link tools

AT-Link tool is specially designed for AT32 series devices, so it is possible to resume the download by using ICP plus AT-Link tools.
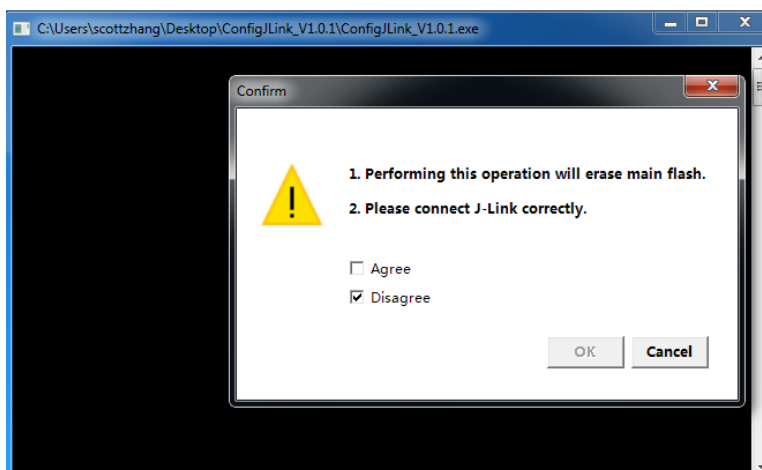
This document focuses on Solution 1 and 2 since the Solution 3 and 4 need related circuit (Boot PIN) or device (AT Link) support.

2.1 How to solve in KEIL environment

2.1.1 Using the *ConfigureJLink.exe* tool of ARTERY (Solution 1)

The steps are as follows:

- Put the ***ConfigJLink_V1.0.0.exe*** tool into the directory where the project file (*.uvprojx) is located;
- Double click on the **ConfigJLink_V1.0.0.exe**, the following dialog box will be displayed.

- Tick the box ***Agree*** and click on ***OK,*** the program can be downloaded normally after the following erase progress bar is completed.
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Note 1: the SEGGER J-Link interface DLL must not be lower than V6.14 when using this tool;

Note 2: If the JTAG/SWD PIN is disabled every time the program is downloaded, you should perform the above mentioned steps every time before downloading;

Note 3: If every downloaded program always enter the Standby mode, the above mentioned steps must be executed every time the chip is powered on;

Note 4: In Keil environment, after entering the Standby mode, this tool is valid for 413 MCUs.

2.2.2 Pull down (press & hold) the reset pin for 1 sec (solution 2)

The steps are as follows:

- Pull down the reset pin
- Compile and download the program
- Observe the Build Output window, and release the reset pin when the following box appears;
- Note：The release time does not have to be very precise, but at least wait until the following information is displayed before releasing, otherwise it may fail.

```
JLink info:
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DLL: V6.14b, compiled Mar  9 2017 08:46:04
Firmware: J-Link V9 compiled Sep 26 2017 17:01:02
Hardware: V9.20
Feature(s) : GDB, RDI, FlashBP, FlashDL, JFlash

* JLink Info: Found SWD-DP with ID 0x2BA01477
* JLink Info: SWD speed too high. Reduced from 12000 kHz to 8100 kHz for stability
* JLink Info: AP-IDR: 0x24770011, Type: AHB-AP
* JLink Info: AHB-AP ROM: 0xE00FF000 (Base addr. of first ROM table)
* JLink Info: Found Cortex-M4 r0p1, Little endian.
* JLink Info: FPUnit: 6 code (BP) slots and 2 literal slots
* JLink Info: CoreSight components:
* JLink Info: ROMTbl 0 @ E00FF000
* JLink Info: ROMTbl 0 [0]: FFF0F000, CID: B105E00D, PID: 000BB00C SCS
* JLink Info: ROMTbl 0 [1]: FFF02000, CID: B105E00D, PID: 003BB002 DWT
* JLink Info: ROMTbl 0 [2]: FFF03000, CID: B105E00D, PID: 002BB003 FPB
* JLink Info: ROMTbl 0 [3]: FFF01000, CID: B105E00D, PID: 003BB001 ITM
* JLink Info: ROMTbl 0 [4]: FFF41000, CID: B105900D, PID: 000BB9A1 TPIU
* JLink Info: ROMTbl 0 [5]: FFF42000, CID: B105900D, PID: 000BB925 ETM
ROMTableAddr = 0xE00FF000
**JLink Warning: S_RESET_ST not cleared
**JLink Warning: CPU did not halt after reset.
**JLink Warning: CPU could not be halted
* JLink Info: Core did not halt after reset, trying to disable WDT.
**JLink Warning: CPU did not halt after reset.
**JLink Warning: CPU could not be halted

Target info:
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Device: AT32F403ZE
VTarget = 3.264V
State of Pins:
TCK: 0, TDI: 1, TDO: 1, TMS: 1, TRES: 1, TRST: 1
Hardware-Breakpoints: 6
Software-Breakpoints: 8192
Watchpoints:         4
JTAG speed: 6000 kHz

Erase Done.
Programming Done.
Verify OK.
Application running ...
Flash Load finished at 15:00:24
```
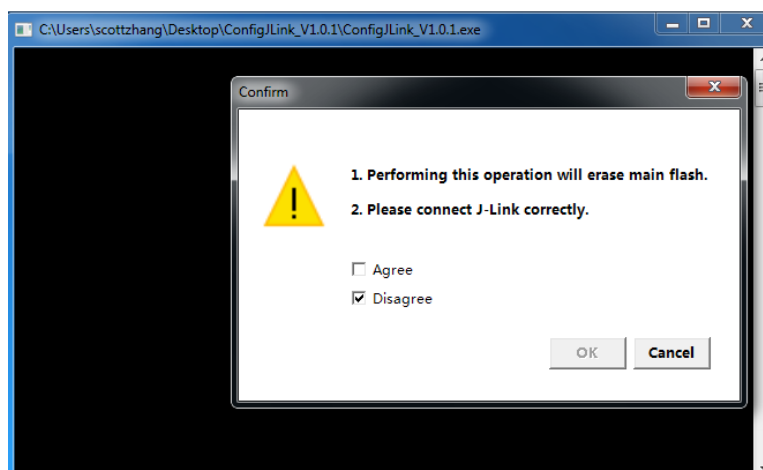
Build Output | Find In Files | Browser

2.2 How to solve in IAR environment

2.2.1 Using the ConfigureJLink.exe tool of ARTEY (solution 1)

The below steps can be followed:

- Put the ***ConfigJLink_V1.0.0.ex*** tool into the settings folder under the project directory, and then double click on the ***ConfigJLink_V1.0.0.exe***, the following dialog box will be displayed.

- Tick the box ***Agree*** and click on ***OK,*** the program can be downloaded normally after the following erase progress bar is completed.
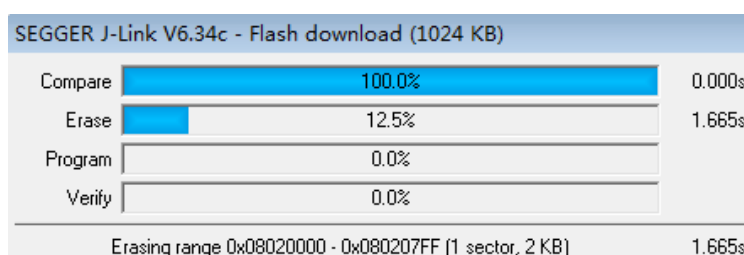
*Note 1:* the SEGGER J-Link interface DLL must not be lower than V6.14 when using this tool;

Note 2: If the JTAG/SWD PIN is disabled every time the program is downloaded, you should perform the above mentioned steps every time before downloading;

Note 3: If the downloaded program always enter the Standby mode, the above mentioned steps must be executed every time the chip is powered on;

2.2.2 Pull down (press & hold) the reset pin for 1 sec (solution 2)

The below steps can be followed

- Pull down the reset pin
- Compile and download the program (or click on ![button] button)
- Observe the IAR interface and release the reset pin when one of the following "Busy" prompt boxes appear.
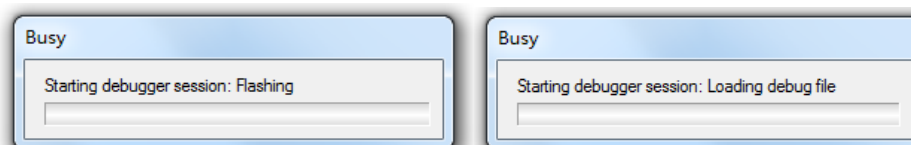
3 Revision history

Date	Revision	Changes
2019.02.26	1.0.1	Initial release