EFR32 BOARD SET UP

User Guide

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Gateway Image Flash

Below are the steps to flash new firmware on DragonBoard™ 410c board using the fastboot method

Step 1: Set up fastboot on host computer

Windows

Install Fastboot in your windows host machine from **here**

- Scroll to "Download ADB and Fastboot tool:"

Install Git Bash in your windows host machine

Add environment variable for adb

1. Type "path" in windows search bar.
2. Select "Edit the System Environment Variables".
3. Click box near bottom for "Environment Variables"
4. Select "Path" in upper window then Edit.
5. Add an entry C:\adb (assuming this is the location adb was installed).
6. OK and close out of dialog boxes.

See Image 1 below

Install ADB USB Driver from here: https://adb.clockworkmod.com/

Note: Do NOT have board connected. A PC reboot likely required after install.

Linux

You can install fastboot from source or using your distro package manager.

From source:

- Android SDK "Tools only" for Linux can be downloaded here
- The Linux "Tools Only" SDK download does not come with fastboot, you will need to use the Android SDK Manager to install platform-tools.
- To do this follow the "SDK Readme.txt" instructions included in your SDK "Tools Only" download.
- If you are still having trouble setting up fastboot, click here for a short tutorial video

Using a distro package manager:

```
# Red Hat flavour (Fedora, CentOS)
$ sudo yum install android-tools

# Debian (Ubuntu)
$ sudo apt-get install android-tools

# Ubuntu 16.04 (Xenial) and beyond
$ sudo apt-get install android-tools
-fastboot
```

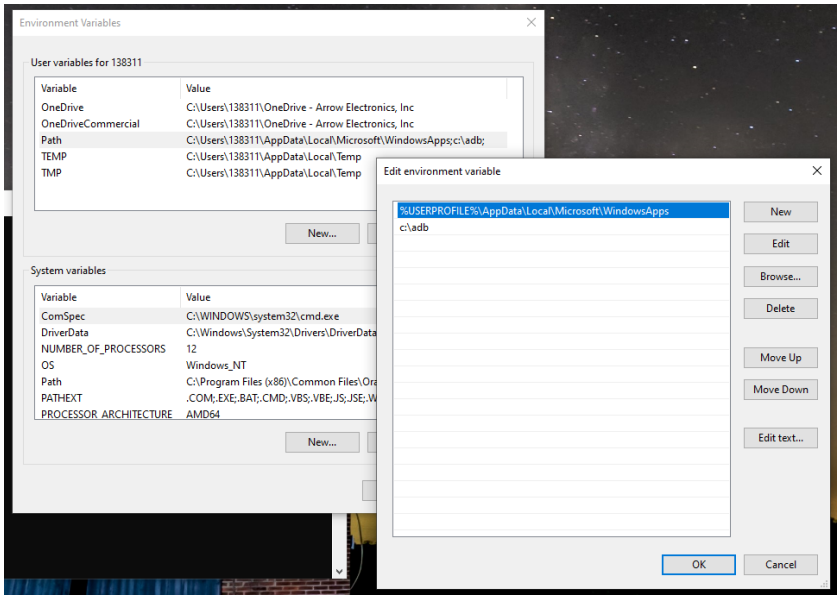


Image 1: Add Environment variable for ADB

Step 2: Connect host computer to DragonBoard™ 410c

- DragonBoard™ 410c must be powered off (unplugged from power)
- Make sure microSD card slot on DragonBoard™ 410c is empty
- S6 switch on DragonBoard™ 410c must be set to '0-0-0-0'. All switches should be in "off" position
- Connect USB to microUSB cable from host computer to DragonBoard™ 410c

Step 3: Boot DragonBoard 410c into fastboot mode

Please read all bullet points before attempting

1. With DragonBoard™ 410c POWERED OFF; Press and hold the Vol (-) button on the DragonBoard™ 410c, this is the S4 button.
2. While holding the Vol (-) button, power on the DragonBoard™ 410c by plugging it in
3. Once DragonBoard™ 410c is plugged into power, release your hold on the Vol (-) button.
4. Wait for about 20 seconds.
5. Board should boot into fastboot mode.
6. From the connected host machine terminal window, run the following commands:

```
#Check to make sure device is connected and in fastboot mode
```

Windows	**Linux**
`$ fastboot devices`	`$ sudo fastboot devices`

7. Below will show on success:

```
$ de82318    fastboot
```

Step 4: Flash Bootloader

- Use host computer

Windows	**Linux**
Open Git Bash	Open "Terminal" application

- Recall location of Bootloader download.
- Name Bootloader file as:
  `dragonboard-410c-bootloader-emmc-Y-XX`
  - Y represents Android or Linux
  - XX represents the release number of the Bootloader
- `cd` to the directory with your unzipped **Bootloader Folder**

```
$ cd <extraction directory>
#Example:
cd /Users/YourUserName/Downloads
#<extraction directory> = /Users/YourUserName/Downloads
#For this example we assume the "Bootloader" is in the Downloads folder.

$ cd <unzipped Bootloader folder>
#Example:
cd dragonboard-410c-bootloader-emmc-linux-137
#<unzipped Bootloader folder> =
dragonboard-410c-bootloader-emmc-linux-137
#This example took place during release 137

# This command will execute the flashall script within the bootloader
folder
```

Windows	**Linux**
`$ ./flashall`	`$ sudo ./flashall`

The bootloader has now been flashed to the eMMC.

- Reboot to launch the newly-flashed boot loader, which will allow us to flash the remaining parts of the operating system.

```
# Reboot the system so we can flash the rest.
```

Windows	**Linux**
`$ fastboot reboot`	`$ sudo fastboot reboot`

Step 5: Copy the files to specific location on your host machine

Files located in **https://github.com/ArrowElectronicsESC/Silabs_AWS_IoT_Gateway**:

- boot-dragonboard-410c.img
- rpb-console-image-dragonboard-410c.ext4.gz (For **Linux** OS)
- rpb-console-image-dragonboard-410c.img.gz (For **Windows** OS)

Step 6: Unzip and flash files to the DragonBoard™ 410c .

Windows	Linux

`Unzip rpb-console-image-dragonboard-410c.img.gz`
 	
`$ fastboot flash boot boot-dragonboard-410c.img`
`$ fastboot flash rootfs rpb-console-image-dragonboard-410c.img`
	`$ gunzip rpb-console-image-dragonboard-410c.ext4.gz`
	`$ sudo fastboot flash boot boot-dragonboard-410c.img`
	`$ sudo fastboot flash rootfs rpb-console-image-dragonboard-410c.ext4`

NOTE: The second file will take about 100 seconds to load.

Step 7: Reboot DragonBoard 410c

Windows	Linux
`$ fastboot reboot`	`$ sudo fastboot reboot`

Sentimate sensor Firmware Flash

Below are the steps to flash new firmware on Sentimate board

Step 1: Connect Sentimate board with WSTK board

- Once you open Sentimate board, you will also see two JTAG serial ports:
  - the one is on power supply side that is for the ZGM130S037HGN1 module
  - the other one is for the MGM13P12F512GA module
- Make sure the red wire is on the right side, in correspondence of a “1” written on the green layer.
- Do NOT power up the SENTIMATE. Connect JTAG to “CORTEX” port on STK board. Board will receive power over JTAG.

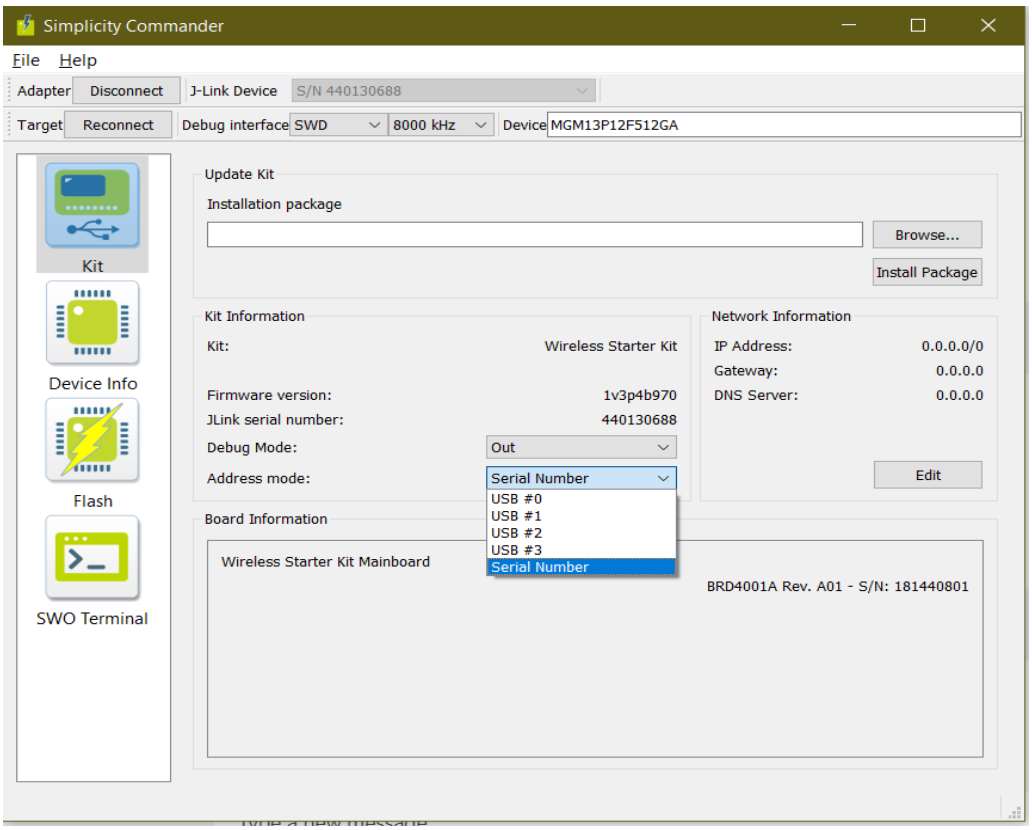
Step 2: Copy the artifacts to specific location on your host machine

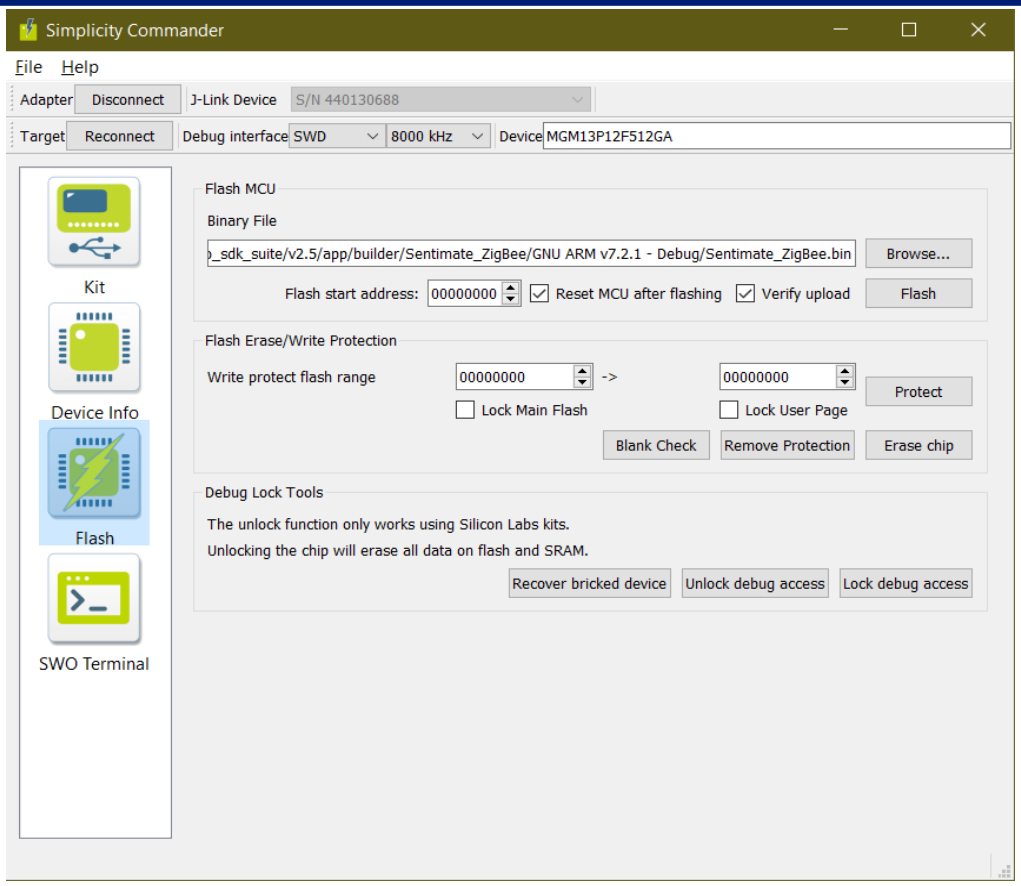
Files located in **https://github.com/ArrowElectronicsESC/Silabs_AWS_IoT_Gateway**:

- Sentimate_ZigBee.bin

Step 3: Open simplicity commander from Simplicity IDE

- Switch to Launcher Tab in IDE.
- By clicking on tools button “Tools Dialog” will be opened.
- Select **simplicity commander** from menu.
- Click “Connect” on the first row and then “Connect” on the second row to detect the board





- Select Browse then select Sentimate_ZigBee.bin
- Next, press “Flash”. Wait until it’s done.
- On success the led starts blinking in red.

Android Mobile Application

- Copy the Application file into your Android Mobile Phone.

File located at **https://github.com/ArrowElectronicsESC/Silabs_AWS_IoT_Gateway**:

- **EFR32_Gateway_1.2.apk**
- **ei_EFR32_Gateway_Mobile_Application_User_Manual**

- Install the application and follow the "ei_EFR32_Gateway_Mobile_Application_User_Manual" for Gateway and Sensor provision.