
STM32H735G-DK firmware upgrade for AT-based EMW3080 Wi-Fi® module

Introduction

This application note contains the related information to upgrade the EXT-AT3080 modem board firmware connected to the STM32H735G-DK Discovery kit.

The EXT-AT3080 is an AT-based wireless module development board developed by MXCHIP.

Associated binary files are attached in www.st.com web pages of each STM32 Discovery kit supporting the MXCHIP EMW3080 module (binary resource tab), together with this application note.

1 Requirements

This section lists the requirements to enable the upgrade of the EXT-AT3080 firmware with the STM32H735G-DK Discovery kit.

- Computer with running compatibilities:
 - Windows 7[®], Windows 8[®], Windows 10[®] with 64-bit operating systems
- STM32H735G-DK Discovery kit
- Standard cable (Type-A or USB Type-C[®] or to Micro-B)
- This firmware upgrade application requires to install:
 - STM32CubeProgrammer (STM32CubeProg) software
 - Tera Term 4.85

Note: Do not use Tera Term 4.100 or 4.105. The file transfer with YMODEM is not functional.

The STM32H735G-DK runs on a 32-bit microcontroller based on the Arm[®] Cortex[®]-M7 core.

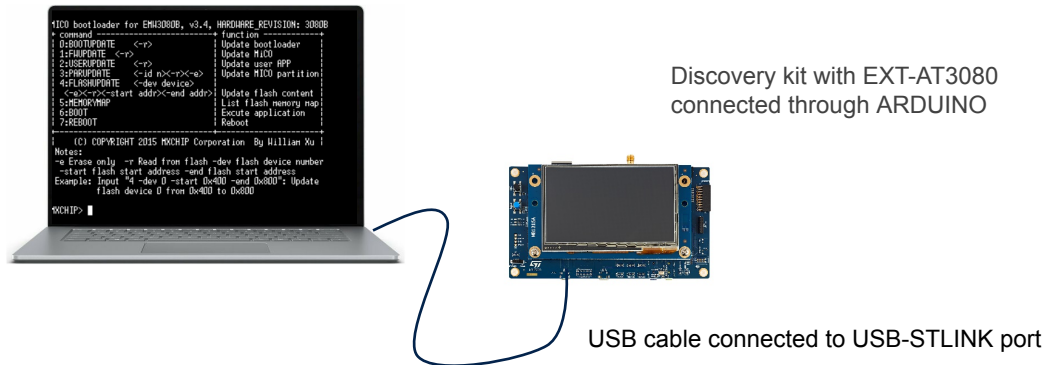
Note: Arm is a registered trademark of Arm Limited (or its subsidiaries) in the US and/or elsewhere.



2 Hardware connections

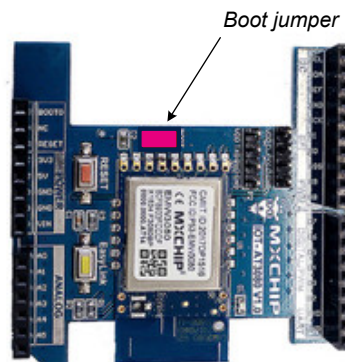
This section illustrates the hardware connections to implement the upgrade of the EXT-AT3080 firmware.

Figure 1. Hardware connections



Note: To upgrade the EXT-AT3080 firmware, it is necessary to enter in bootloader mode. The boot pin of the module must be low level.
For the EXT-AT3080, ensure that the boot jumper is mounted as shown in the figure below.

Figure 2. Boot jumper



3 Flash the passthrough USB ST-LINK to UART into the STM32H735G-DK

To flash the passthrough USB ST-LINK to UART into the STM32H735G-DK follow these steps:

1. Power supply the STM32H735G-DK from the CN15 ST-LINK connector.
2. Launch the `MB1520_BRIDGE_PROG.bat`

4 Upgrade the firmware into the EXT-AT3080 board

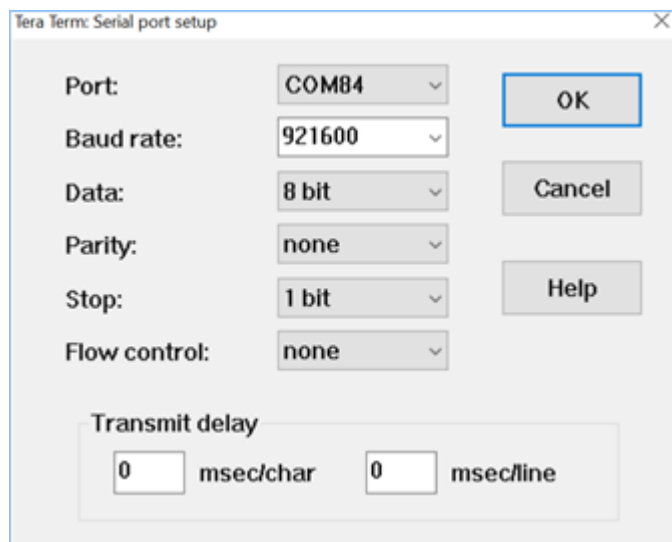
To upgrade the firmware into the EXT-AT3080 board, follow the steps listed below.

1. Connect the EXT-AT3080 to the STM32H735G-DK through the ARDUINO® Uno standard interface connector.
2. Power supply the STM32H735G-DK from the CN15 USB-ST-LINK connector.
3. Open a Tera Term window command.
4. In the *Serial port setup* menu configure the UART COM port settings currently used as shown in Figure 3. *Serial port setup*.

Warning:

Make sure to use Tera Term version 4.85. Any other version may lead to a wrong programming of the module as the file transfer with YMODEM cannot be functional. In such case it is not possible anymore to upgrade the module.

Figure 3. Serial port setup



5. Click on [OK] button.

- Press the **B1** reset button of the STM32H735G-DK.
The module enters in bootloader mode and the bootloader menu is displayed in the Tera Term console, as shown in the figure below.

Figure 4. Bootloader menu

```

MICO bootloader for EMW3080B, v3.4, HARDWARE_REVISION: 3080B
-----
command      function
0:BOOTUPDATE <-r>      Update bootloader
1:FIRMWAREUPDATE <-r> Update MICO
2:USERUPDATE  <-r>      Update user APP
3:PARTUPDATE  <-id n><-r><-e> Update MICO partition
4:FLASHUPDATE <-dev device> Update flash content
               <-e><-r><-start addr><-end addr> List flash memory map
5:MEMORYMAP   <-e><-r><-start addr><-end addr> Execute application
6:BOOT        <-e><-r><-start addr><-end addr> Reboot
7:REBOOT

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Notes:
-e Erase only -r Read from flash -dev flash device number
-start flash start address -end flash start address
Example: Input "4 -dev 0 -start 0x400 -end 0x800": Update
         flash device 0 from 0x400 to 0x800
MXCHIP>
    
```

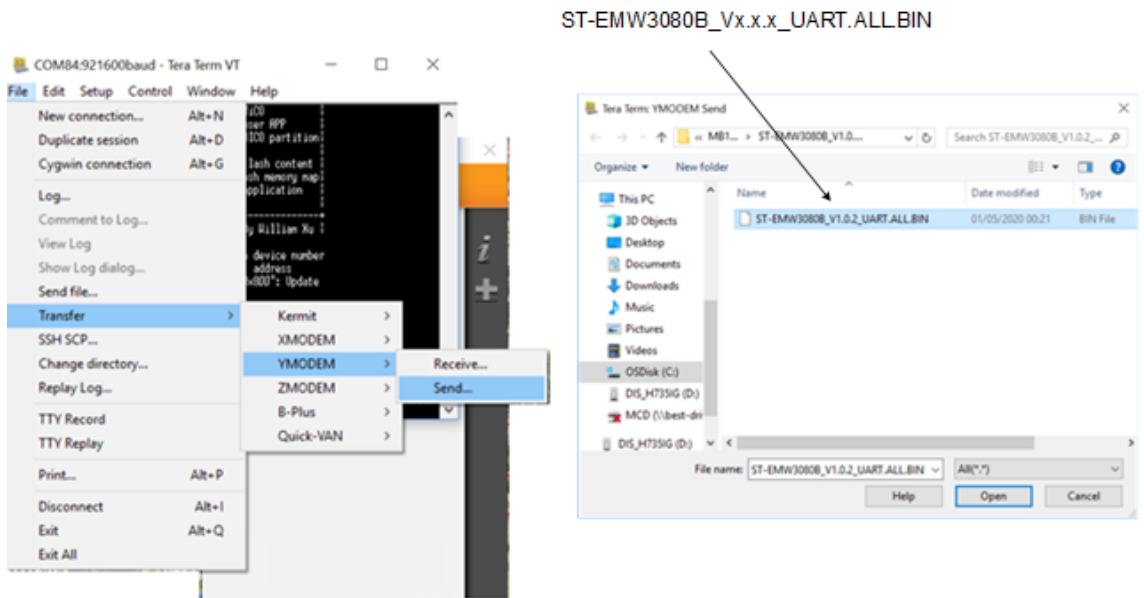
```

MICO bootloader for EMW3080B, v3.4, HARDWARE_REVISION: 3080B
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command      function
0:BOOTUPDATE <-r>      Update bootloader
1:FIRMWAREUPDATE <-r> Update MICO
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3:PARTUPDATE  <-id n><-r><-e> Update MICO partition
4:FLASHUPDATE <-dev device> Update flash content
               <-e><-r><-start addr><-end addr> List flash memory map
5:MEMORYMAP   <-e><-r><-start addr><-end addr> Execute application
6:BOOT        <-e><-r><-start addr><-end addr> Reboot
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Notes:
-e Erase only -r Read from flash -dev flash device number
-start flash start address -end flash start address
Example: Input "4 -dev 0 -start 0x400 -end 0x800": Update
         flash device 0 from 0x400 to 0x800
MXCHIP> 4 -dev 1 -start 0x0 -end 0x160000

Updating dev1 content From 0x0 to 0x160000
Waiting for the file to be sent ... (press 'a' to abort)
cccc
    
```

- Type the following command in the console: `4 -dev 1 -start 0x0 -end 0x160000`
- Select File/Transfer/YMODEM/Send as shown in Figure 5. Tera Term: YMODEM file transfer, then select the ST-EMW3080B_Vx.x.x_UART.ALL.BIN file to upload.

Figure 5. Tera Term: YMODEM file transfer


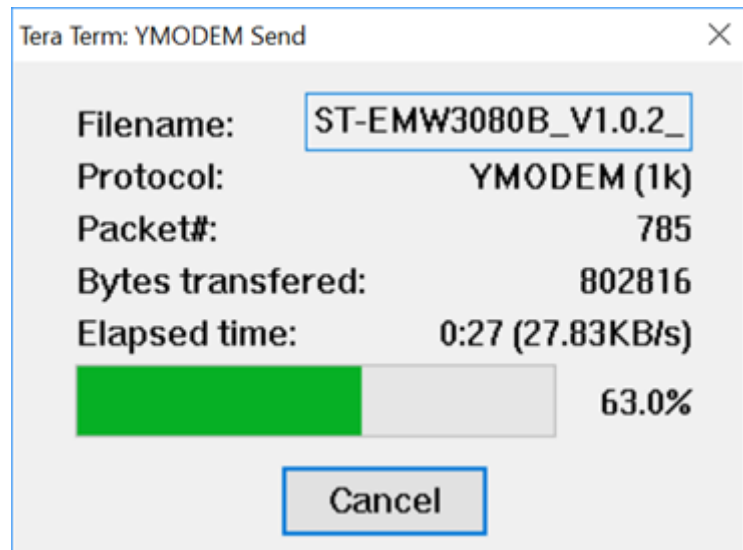
- Click on **[Open]** button.

10. The firmware upgrade starts after few seconds as shown in [Figure 6](#). Tera Term: YMODEM Send

Warning:

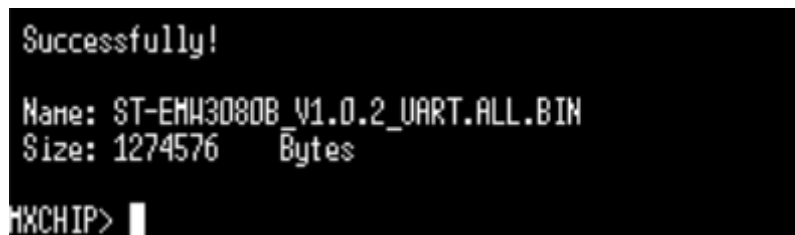
Do not press any key after seeing the pop-up window shown in [Figure 6](#). It is possible to wait up to 30 seconds before the upgrade starts. By pressing a key before the upgrade starts, the module is programmed wrongly, and it is not possible anymore to upgrade it this way.

Figure 6. Tera Term: YMODEM Send



11. When the firmware upgrade is finished the following message is displayed in the console as shown in the figure below.

Figure 7. Console message



Revision history

Table 1. Revision history

Date	Version	Changes
27-jul-2020	1	Initial version

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