



Realtek xmodem UART Update User Manual

This document illustrates how to use UART to update firmware with xmodem protocol

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1 UART update example

Here gives an example how to use UART update function in RTL8711AM/RTL8195AM/RTL8711AF/RTL8710B.

1.1 Make changes to SDK

- Configuration for baud rate:
In file: component\common\example\uart_firmware_update\example_uart_update.c”
Change the baud rate in Ameba SDK to **115200**:

```
7 | #define XMODEM_UART_BAUDRATE 115200
```

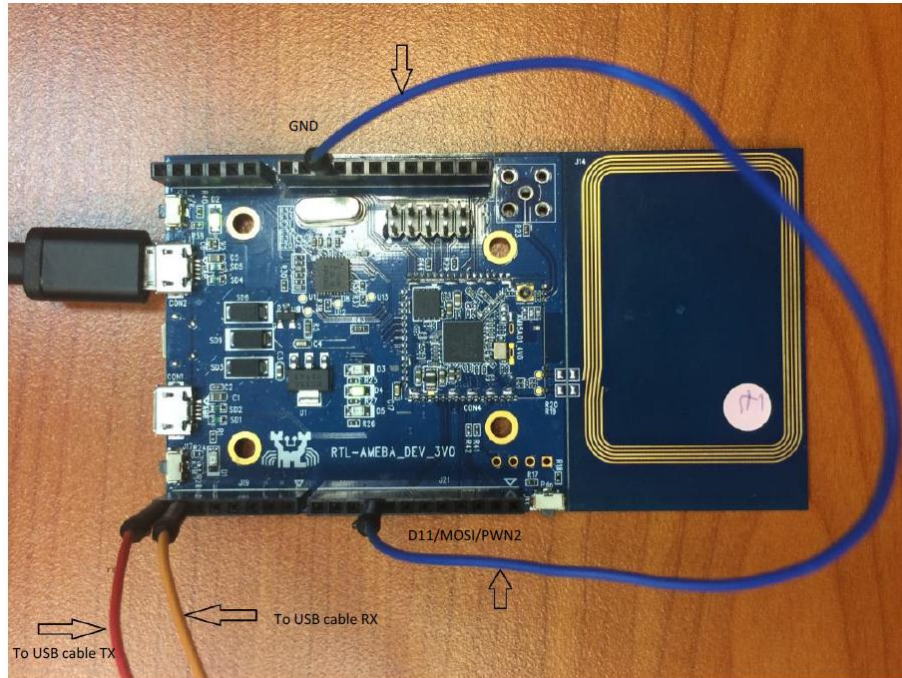
Note: If you are using Ameba EVB board, please set the baud rate not higher than 115200. However, if your board supports a higher baud rate, you could set it to 1000000 even 3000000 to get a higher transfer rate.

- Enable the UART firmware update feature:
In file:” project\realtek_ameba1_va0_example\inc\platform_opts.h”

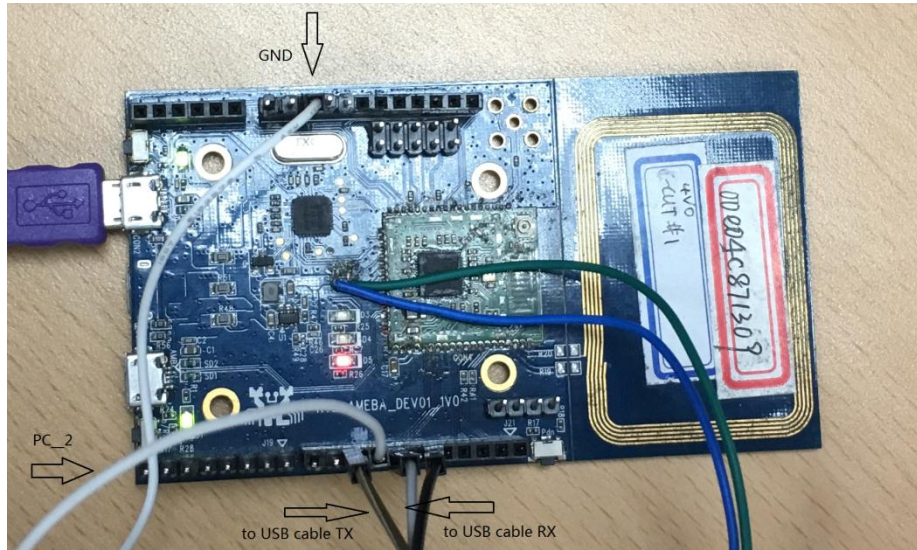
```
324 /*For uart update example*/  
325 #define CONFIG_UART_UPDATE 1  
326
```

1.2 Configure the GPIO of Ameba board

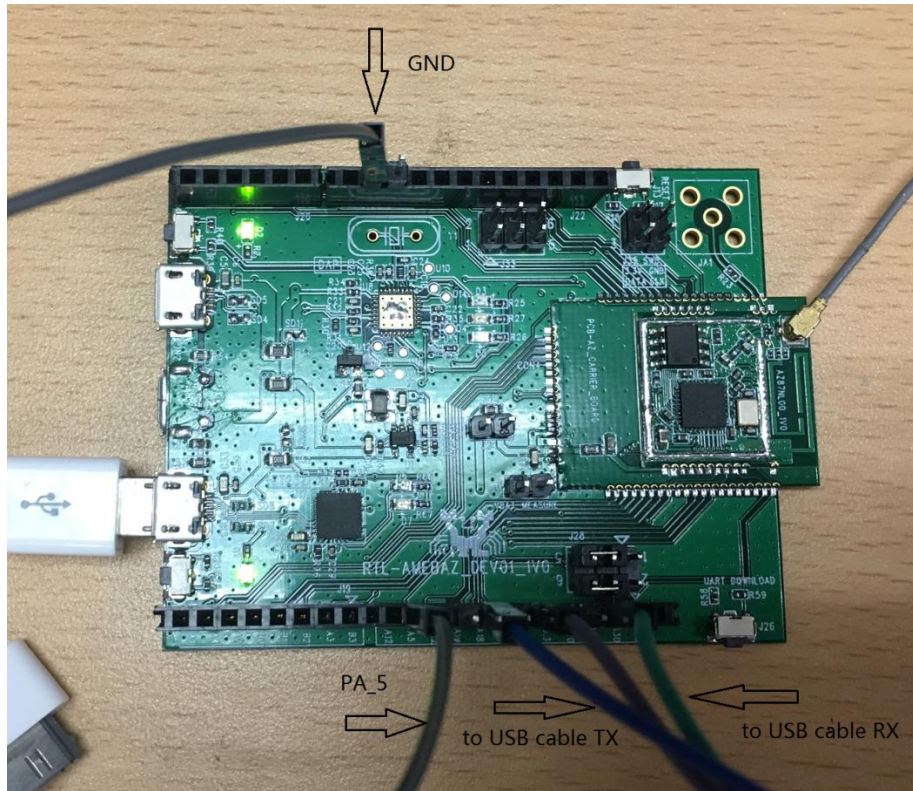
- Use PA_6 and PA_7 as UART RX and TX in RTL8711AM/RTL8195AM. Use PC_0 and PC_3 as UART RX and TX in RTL8711AF, and change default XMODEM_UART_MUX in example_uart_update.c from 2 to 0. Use PA_18 and PA_23 as UART RX and TX in RTL8710B.
- Pull low PC_2 (D11/MOSI/PWN2) in RTL8711AM/RTL8195AM/RTL8711AF. Pull low PA_5 (PWN4) in RTL8710B.



RTL8711AM/RTL8195AM



RTL8711AF



RTL8710B

1.3 Reboot Ameba board

Then you will see the following information, which indicates the xmodem uart update feature is enabled:

```
Initializing WIFI ...
Start LOG SERVICE MODE

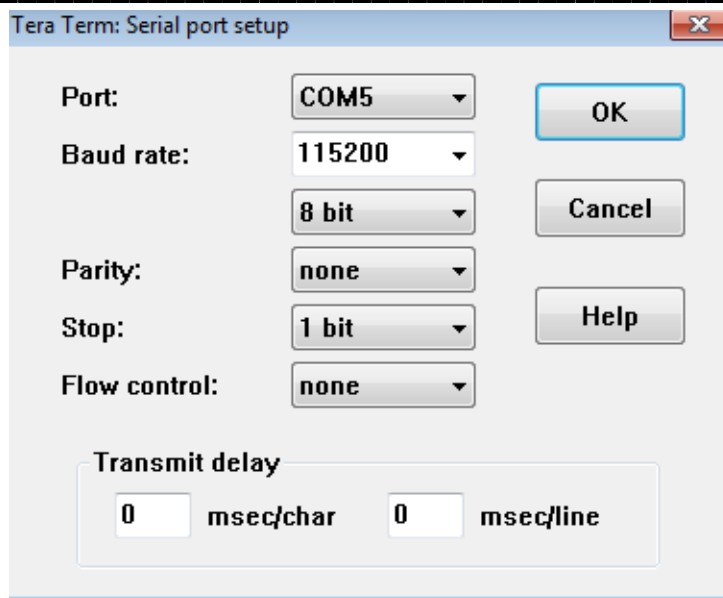
waitting update enable
update image enabled with xmodem protocol!

WIFI initialized

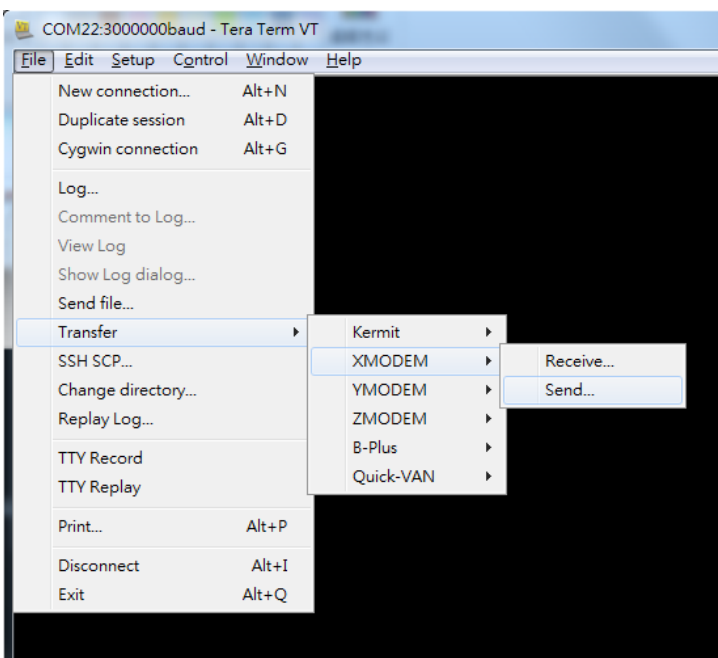
init_thread(53), Available heap 0x569c8
#
```

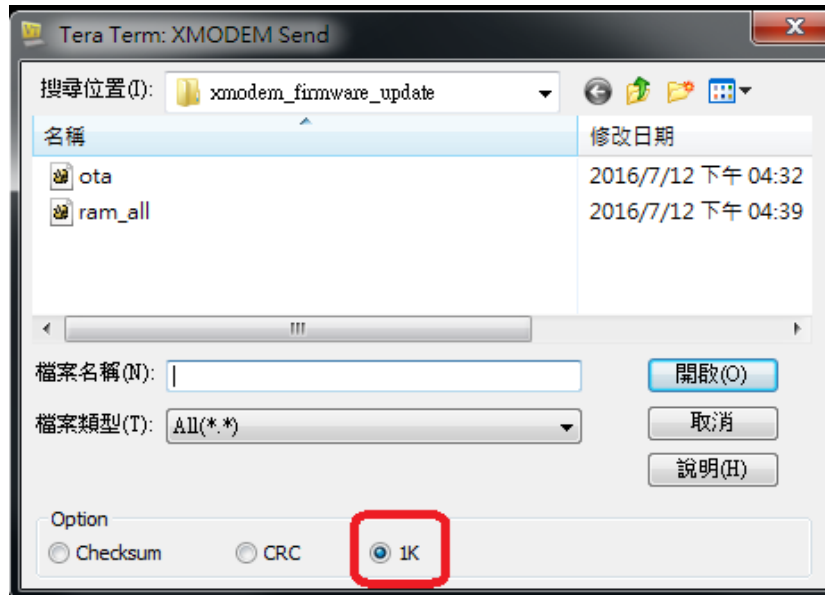
1.4 Configure the terminal

- Set your serial baud rate to **115200** (the same as in SDK):

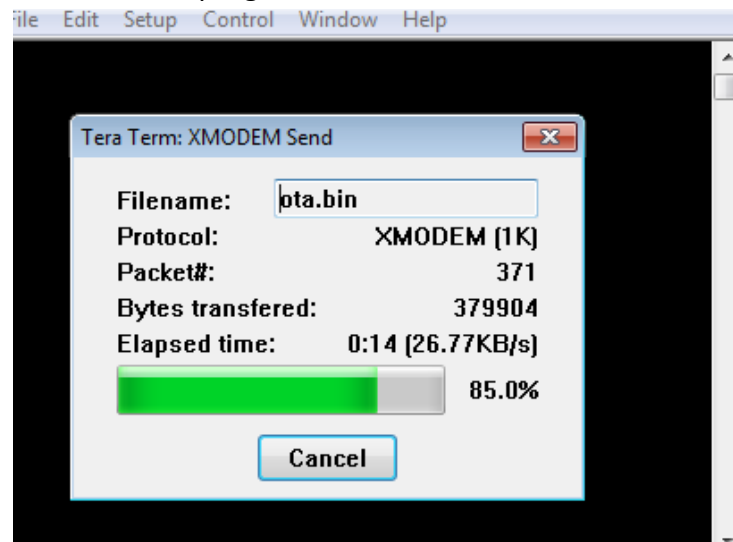


- Choose xmodem to send new firmware(**ota.bin** for Ameba-1 or **ota_all.bin** for Ameba-Z) to Ameba board:





- Then you will see the transfer progress:



- After file transfer is done, reboot the Ameba board, and you will see the new firmware is running:

```

===== Enter Image 2 =====
This is the new firmware to test xmodem update
interface 1 is initialized
interface 0 is initialized

Initializing WIFI ...
Start LOG SERVICE MODE

#
WIFI initialized

init_thread(53), Available heap 0x57220
    
```

2 Trouble shooting

If the UART xmodem update does not work well, please check the following places first.

- Make sure UART T/Rx pin definition is correct.
- Make sure baud rate is the same between send-side and receive-side.
- Make sure Physical connection of UART is correct.
- Make sure CONFIG_UART_UPDATE in platform_opts.h is enabled.
- Make sure external interrupt pin is connected correctly.