

QFlash User Guide

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About the Document

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1 Introduction

1.1. OS and Version

This document mainly introduces methods of upgrading the firmware with “QFlash” upgrade tool provided by Quectel. The tool can run on a PC without installation if the OS is among the ones listed below:

- Windows 7
- Windows 8
- Windows 10

Any newer version of the tool and notification thereof will be provided in advance.

NOTES

1. In Windows 10, please start *QFlash.exe* by right-clicking the icon and selecting “**Run as administrator**”.
2. The storage path of the tool and the firmware should NOT contain any space, and English characters are preferred.

1.2. Applicable Modules

QFlash is applicable to the following Quectel modules.

Table 1: Applicable Modules

LPWA Module Series	BCxx: BC95/ BC95-G/ BC68/ BC66
	BGxx: BG96/ BG95/ BG77
LTE Standard Module Series	ECxx: EC20 R2.0/ EC20 R2.1/ EC25/ EC21
	EG9x: EG91/ EG95

	EM05
LTE-A Module Series	Ex06: EP06/ EG06/ EM06
	EM12
Automotive Module Series	AGxx: AG35/ AG15
Smart Module Series	SCxx: SC20/ SC60
WCDMA Module Series	UCxx: UC15/ UC20
	UGxx: UG95/ UG96
GSM/GPRS/GNSS Module Series	Mxx: M10/ M66/ M72/ M80/ M85/ M95/ M65/ MC60
	GCxx: GC10
5G Module Series	RG500Q

1.3. About QFlash Tool

The QFlash tool developed by Quectel is shown as below.

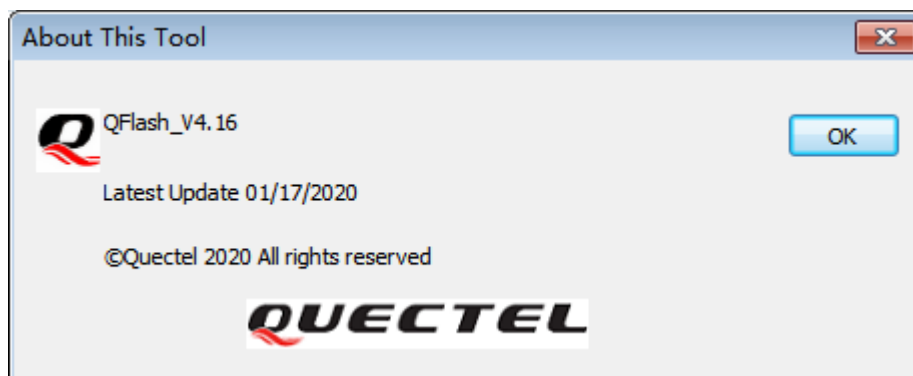


Figure 1: About the Tool

2 Firmware Upgrade Procedures

The firmware is upgraded through the following three steps with QFlash.

Step 1: Set serial port and baud rate.

Step 2: Load firmware files.

Step 3: Upgrade the firmware.

The following chapters describe the details about how to use the tool to upgrade firmware.

2.1. Configure Serial Port and Baud Rate

After the QFlash tool is started, the main interface is shown as below.

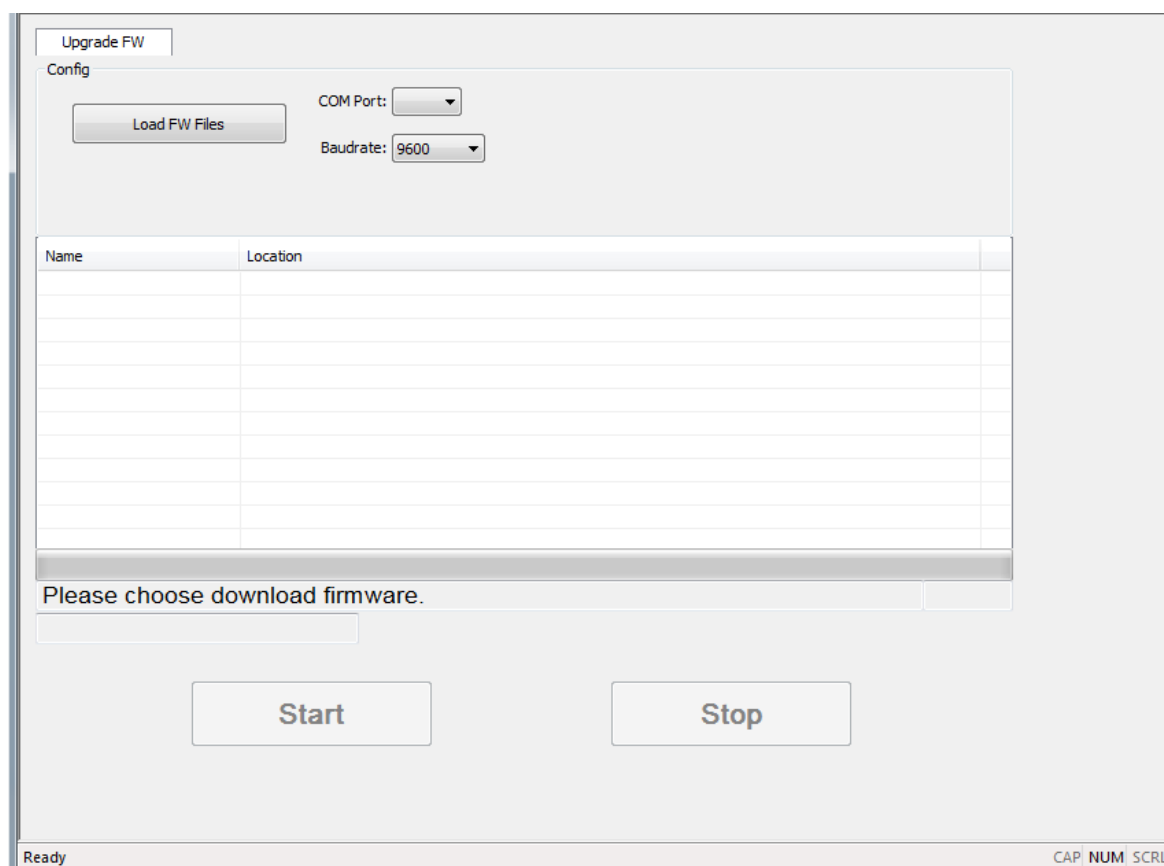


Figure 2: Main Interface of QFlash

2.1.1. Set COM Port

2.1.1.1. COM Port Selection for Mxx/GCxx/BCxx Modules

Click “**COM Port**” drop-down list to select the COM port through which the firmware will be upgraded, as shown in the following figure.

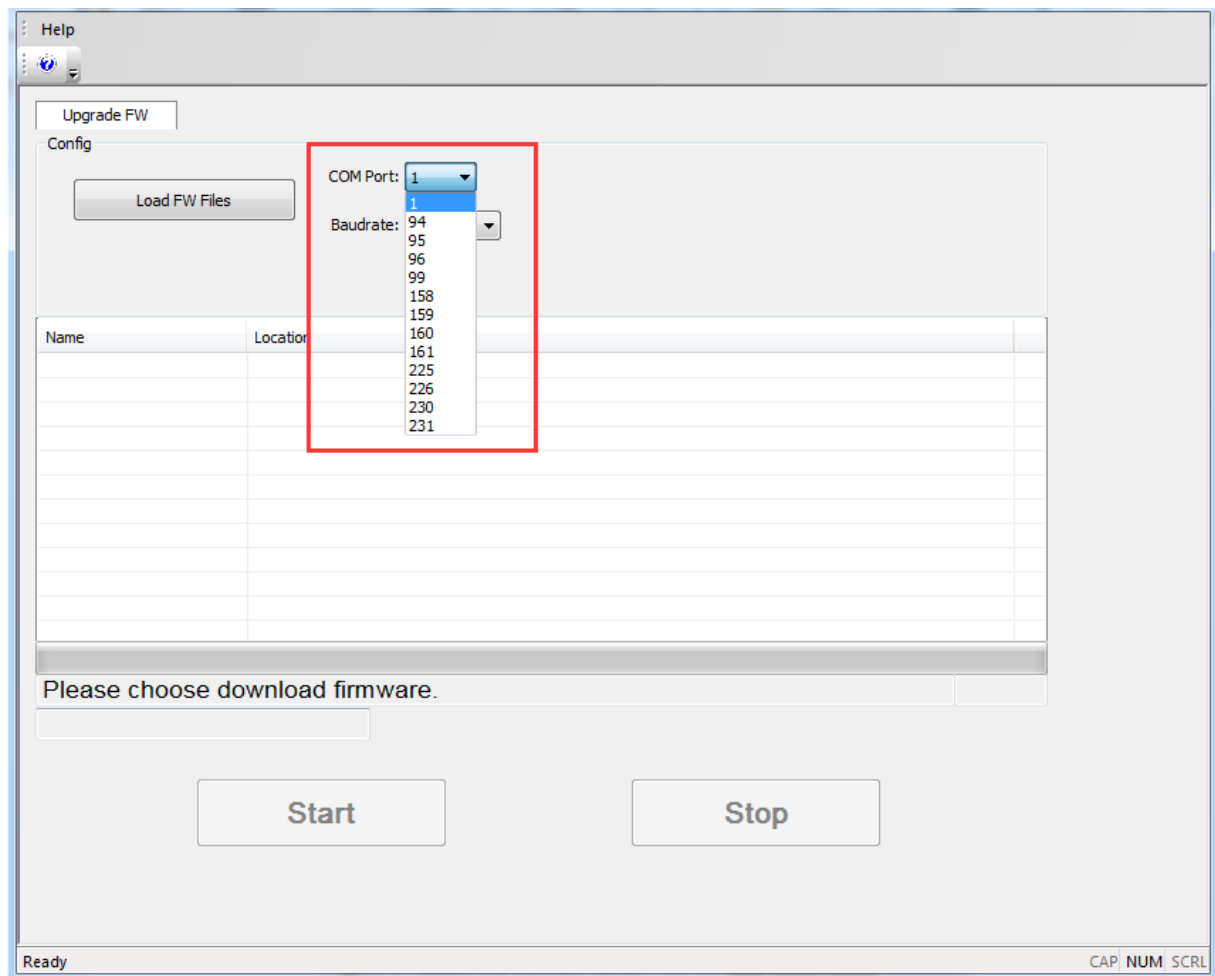


Figure 3: Select the Correct Serial Port for Mxx/GCxx/BCxx Modules

NOTES

1. For M10/M66/M72/M80/M85/M95/MC60 modules, the main UART is used to upgrade firmware. After the port is selected, please manually restart the module.
2. For M65 and GCxx modules, the USB port is used to upgrade firmware, and the module will be automatically restarted after “**Start**” button is clicked.
3. For BC95 module, the main UART is used to upgrade firmware. After the port is selected, please click the “**Start**” button and wait for the prompt “**Module Reset By Hand**”, and then manually restart

the module.

4. For BC66 module, the USB UART Ch A is used to upgrade firmware. After the port is selected, please click the **“Start”** button and wait for the prompt **“[INFO]Start connect with target,Please reset DUT...”**, and then manually restart the module.
5. For BC95-G and BC68 modules, the USB UART Ch A is used to upgrade firmware. After the port is selected, please click the **“Start”** button and wait for the prompt **“reset”**, and then manually restart the module.

2.1.1.2. COM Port Selection for UGxx

For UGxx, the USB port is used to upgrade firmware, and it can be selected automatically. When firmware files are uploaded, “USB” will be displayed in gray in **“COM Port”** drop-down list. The module needs to be turned off before **“Start”** is clicked. After clicking **“Start”**, please turn on the module within 10 seconds. The interface is shown in the following figure.

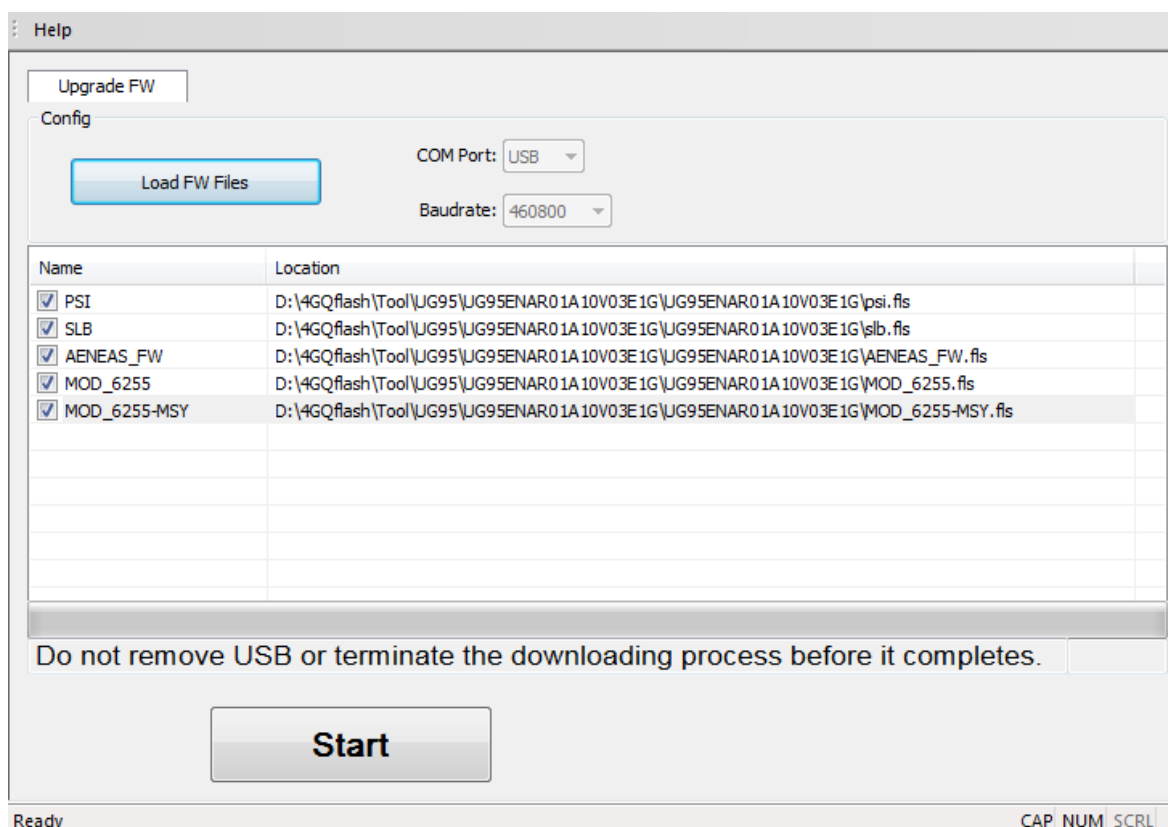


Figure 4: No Need to Select COM Port for UGxx

2.1.1.3. COM Port Selection for UCxx/ECxx/EGxx/Ex06/EM05/AGxx/BGxx/EM12/RG500Q

For UCxx/ECxx/EGxx/Ex06/EM05/AGxx/BGxx/EM12/RG500Q, the USB DM port can be used for firmware upgrade. Click **"COM Port"** drop-down list and select the USB DM port for upgrade, as shown in the following figure.

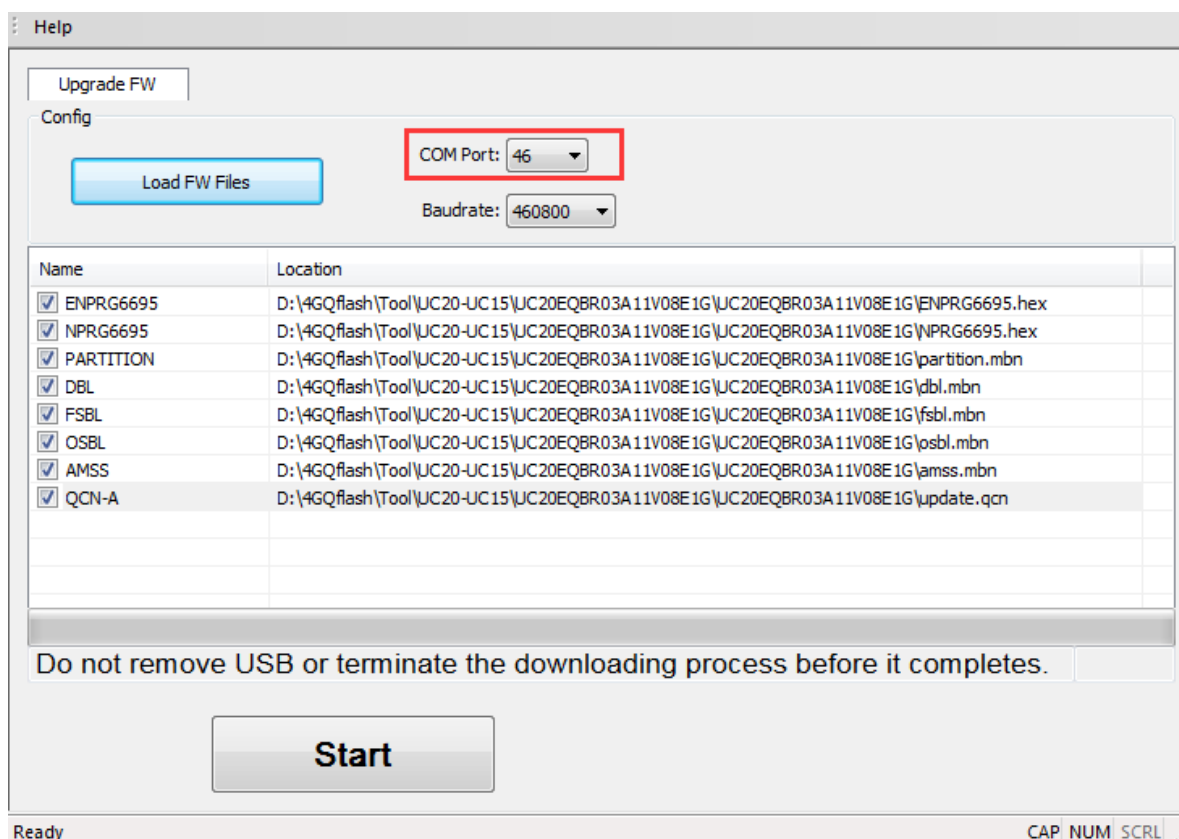


Figure 5: Select the USB DM Port for UCxx/ECxx/EGxx/Ex06/EM05/AGxx/BGxx/EM12/RG500Q

2.1.1.4. COM Port Selection for SCxx

For SCxx, the HS-USB Diagnostics 9091 port can be used for firmware upgrade. Click **"COM Port"** drop-down list and select the HS-USB Diagnostics 9091 port for upgrade, as shown in the following figure.

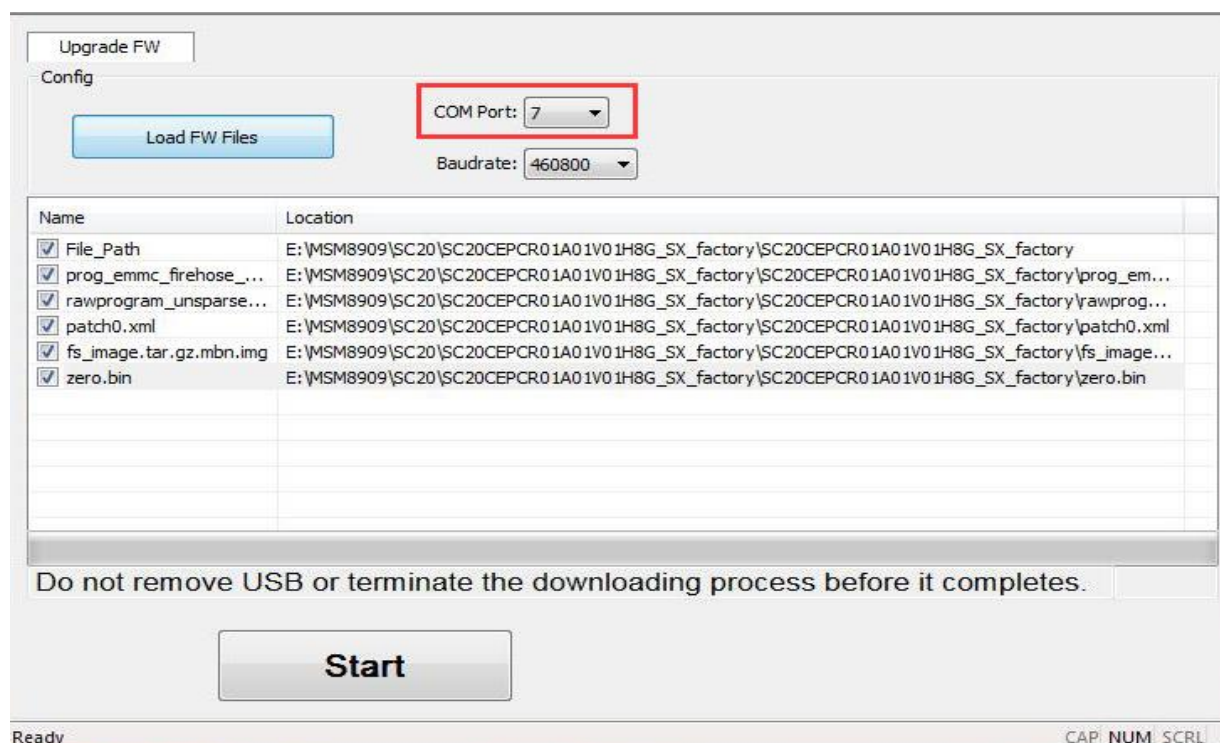


Figure 6: Select the HS-USB Diagnostics 9091 Port for SCxx

2.1.2. Set Baud Rate

Click the “**Baudrate**” drop-down list and select an appropriate baud rate. It is recommended to select 921600 for GCxx modules, 9600 for BCxx modules and 460800 for other Quectel modules, as shown in the following figure.

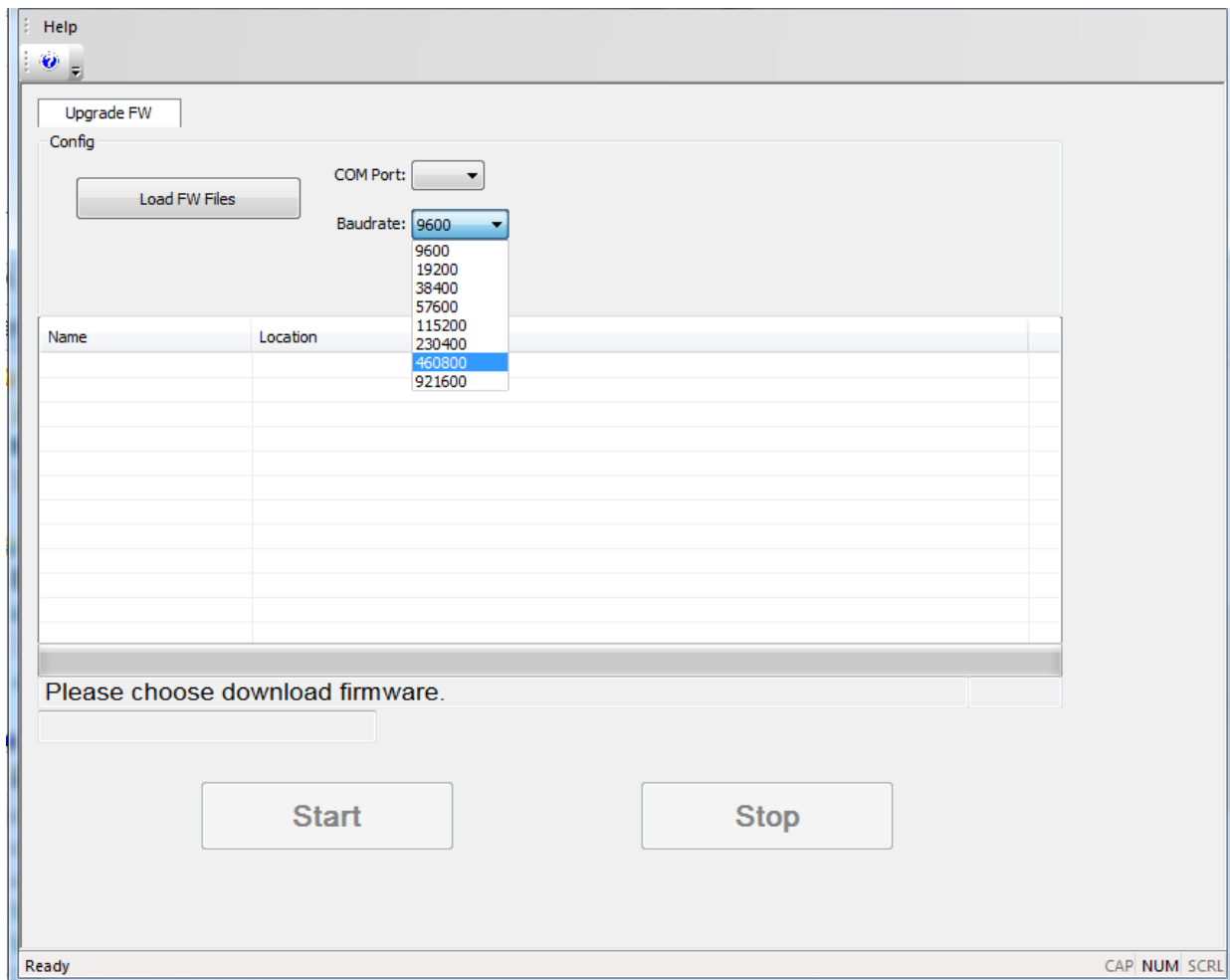


Figure 7: Select the Baud Rate

NOTES

1. There are different baud rate values to be selected and the hardware environment determines whether a specified baud rate can be supported. If not supported, an error message will be returned.
2. Please set baud rate into 921600 when upgrading firmware for GCxx or M65 modules. Other baud rates may lead to an upgrading failure.
3. When upgrading firmware for BCxx modules, the baud rate is 9600 by default.
4. Baud rate setting is unnecessary for USB virtual ports.

2.2. Load Firmware Files and APP Firmware

2.2.1. Load Firmware Files

The steps in this chapter are performed to load firmware files for standard and QuecOpen modules.

NOTE

The storage path of the firmware files should NOT contain any spaces, and English characters are preferred.

2.2.1.1. Load Firmware File for Standard and QuecOpen Modules

Step 1: Click the button “Load FW Files”.

Step 2: Select the *.txt*, *.cfg*, *.mbn*, *.lod*, *.fls*, *.fwpkg*, or *.zip* file which needs to be downloaded to the module.

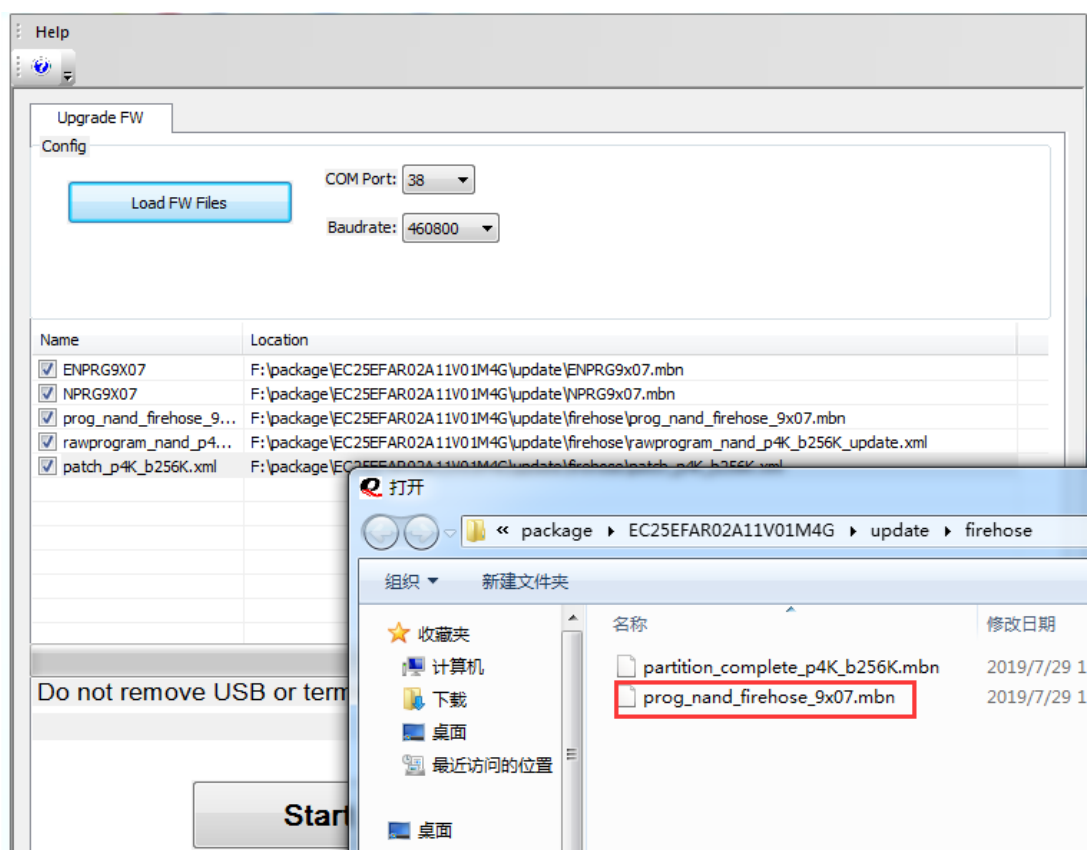


Figure 8: Select the File to Be Downloaded (Standard or QuecOpen Modules)

NOTE

When *firehose* folder exists in the firmware package, it is recommended to upgrade the firmware in Firehose mode, otherwise please upgrade in Sahara mode.

2.2.1.2. Load Firmware File for QuecOpen Modules

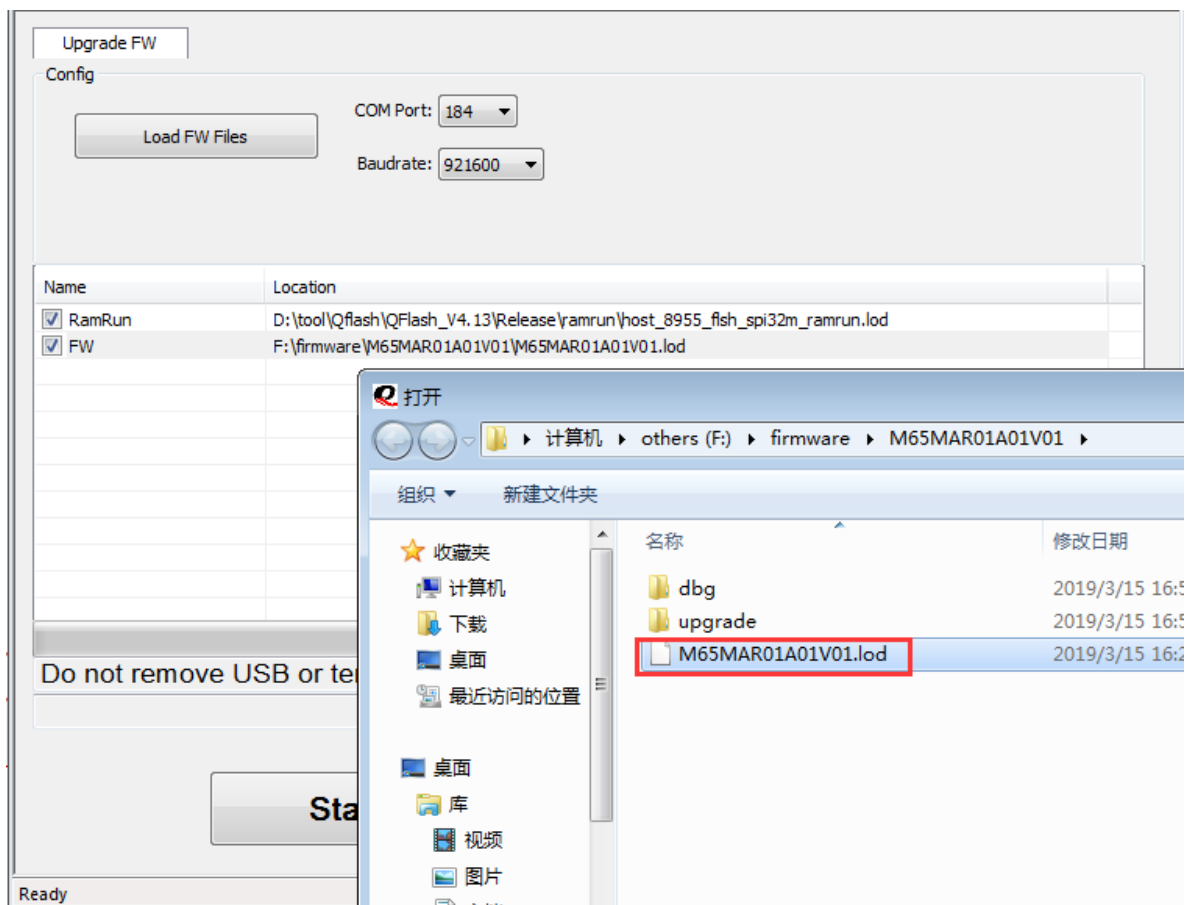


Figure 9: Select the File to Be Downloaded (QuecOpen Modules)

2.2.2. Load APP Firmware for QuecOpen Modules

The steps in this chapter are performed to load APP firmware for QuecOpen modules.

NOTE

The storage path of the APP firmware should NOT contain any spaces, and English characters are preferred.

2.2.2.1. Load APP Firmware for MC60/M66

Step 1: Click the button “Load FW Files”, and select the .cfg file which needs to be downloaded to the module.

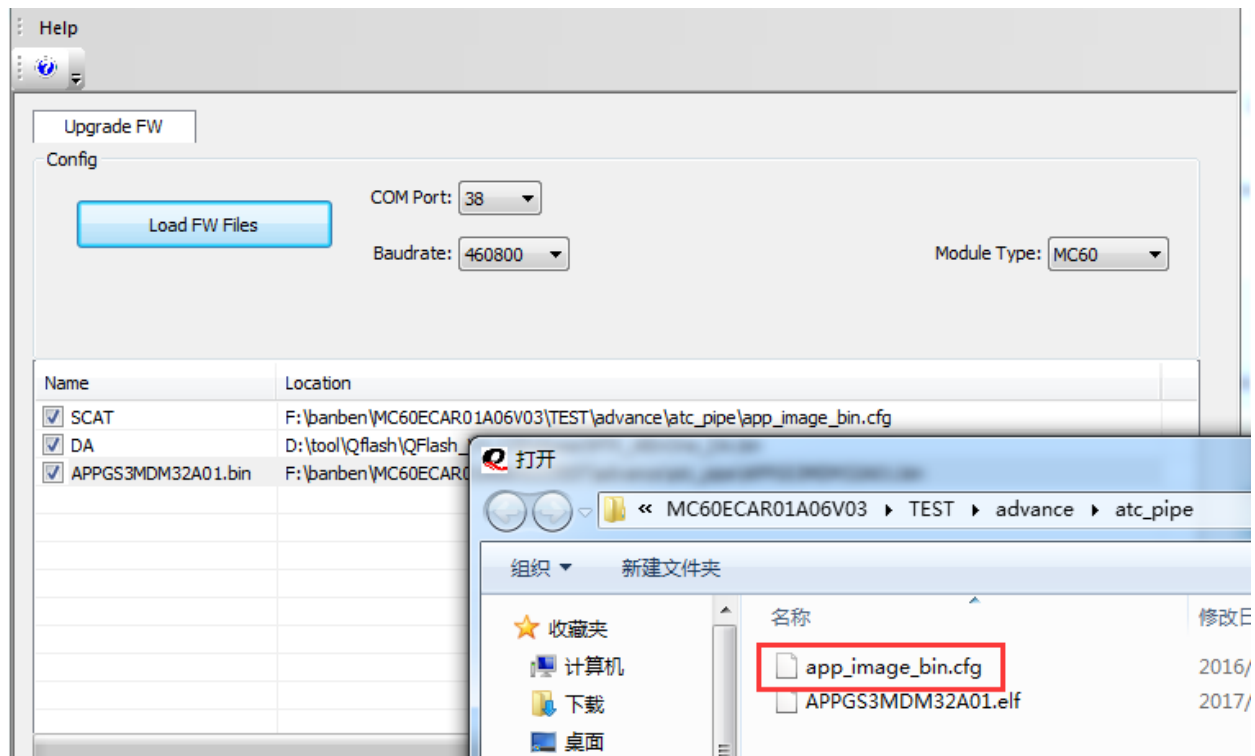


Figure 10: Select the .cfg File

Step 2: Click the “**Module Type**” drop-down list and select the module type.

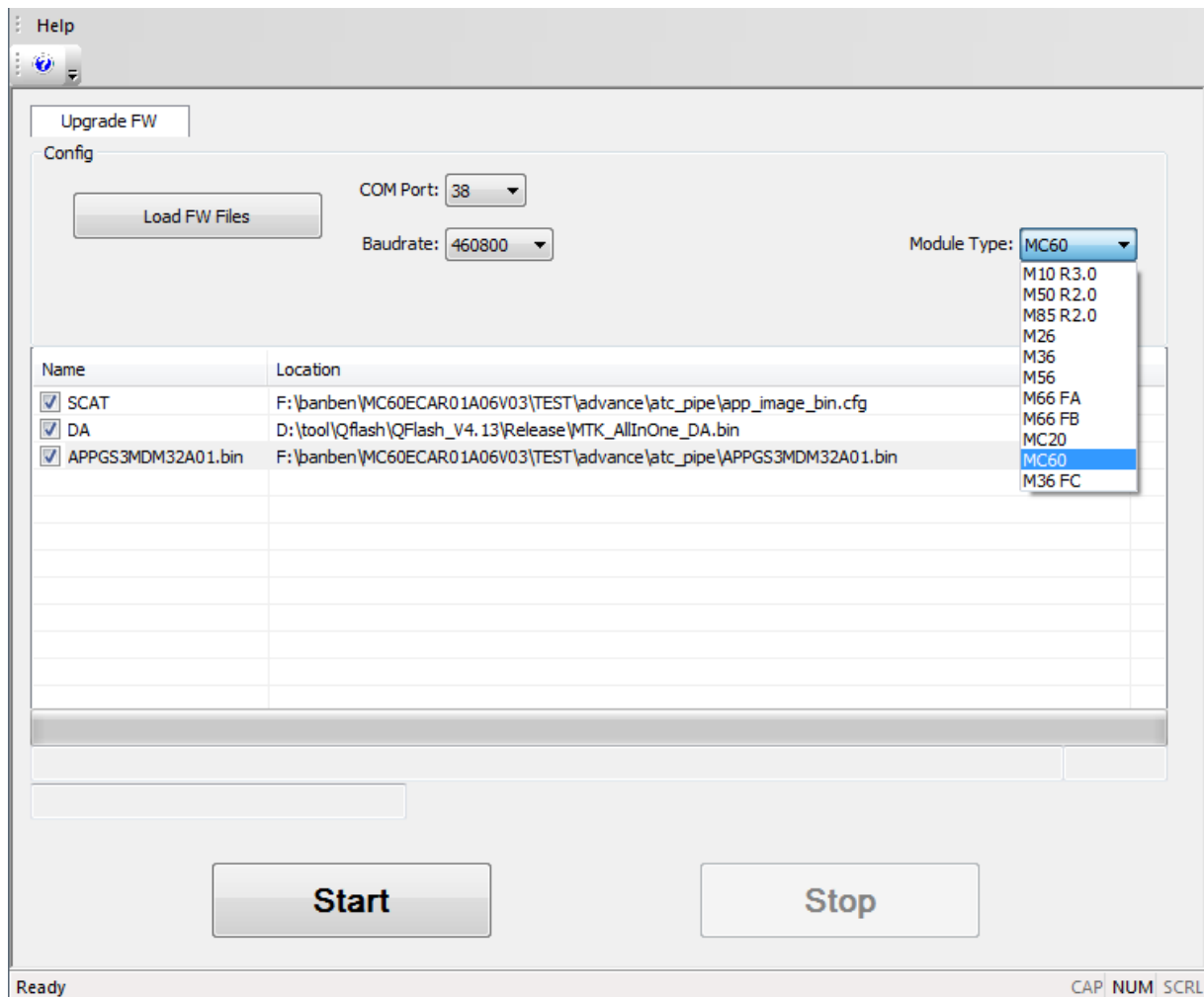


Figure 11: Select the Module Type

2.2.2.2. Load APP Firmware for M65

Click the button “**Load FW Files**”, and select the **.lod** file which needs to be downloaded to the module.

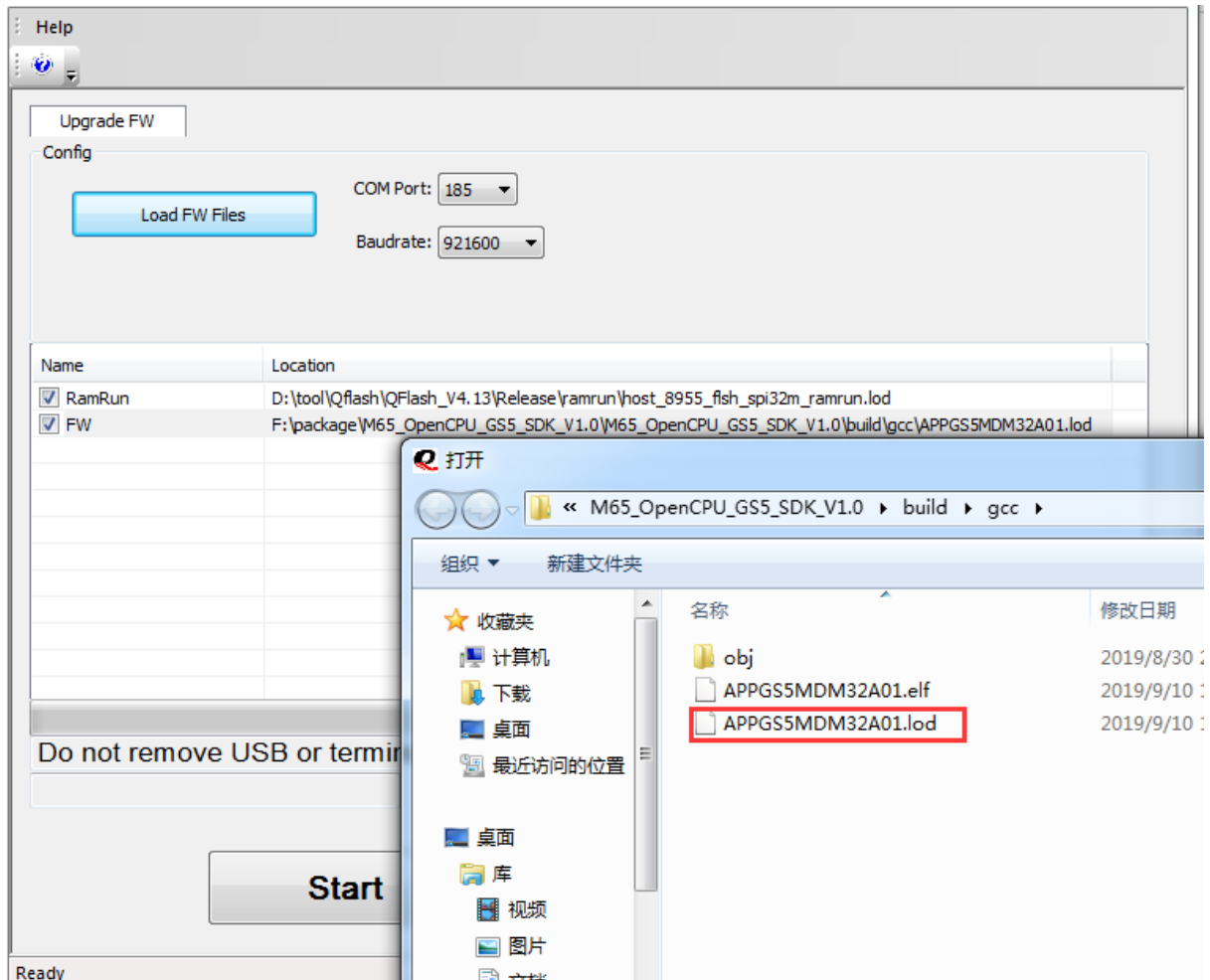


Figure 12: Select the .lod File

2.3. Upgrade Firmware

2.3.1. Standard Method to Upgrade Firmware

Step 1: Click the “Start” button.

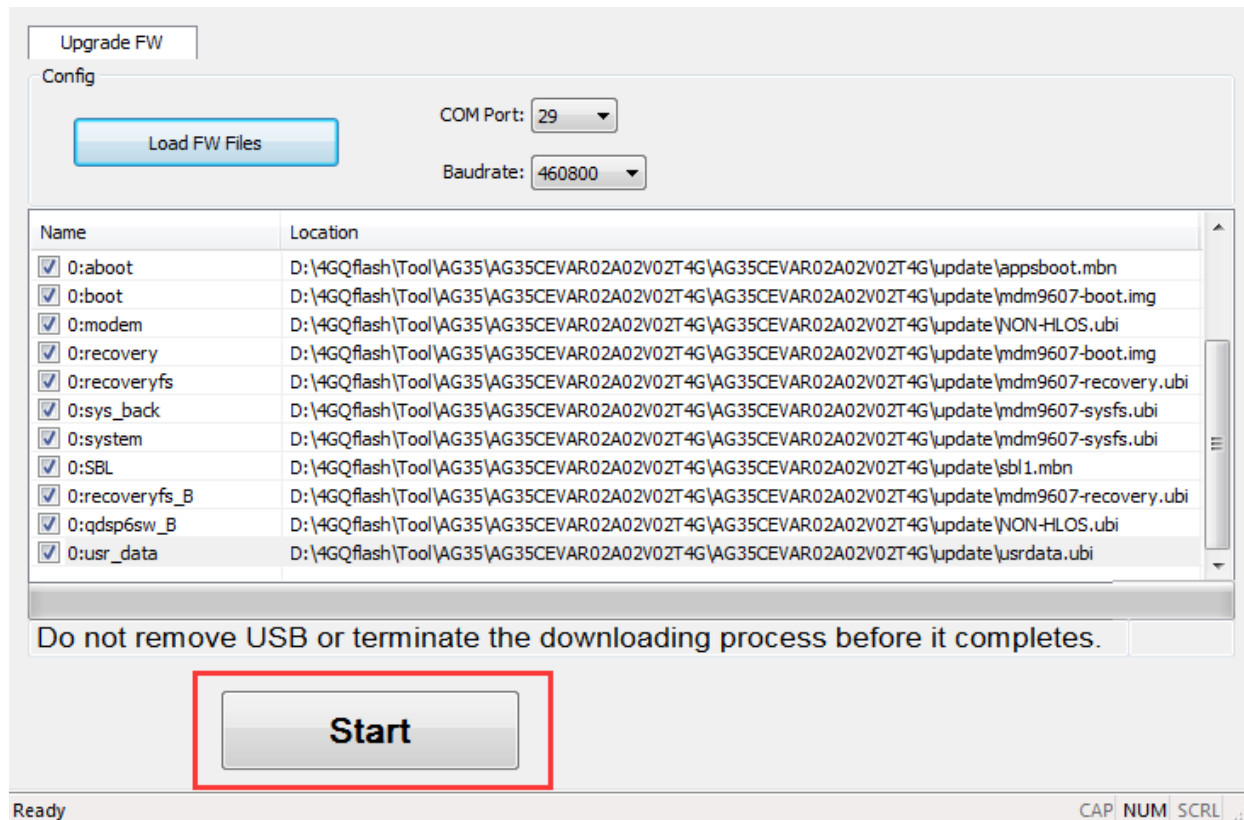


Figure 13: Click the Start Button

NOTES

1. Please note that there is no “Stop” button while upgrading firmware for GCxx/UCxx/UGxx/ECxx/EG9x/Ex06/SCxx/BCxx/EM05/AGxx/BG96/EM12, as shown above. In this case, it is NOT permitted to stop the upgrading process, and please do NOT remove the USB or terminate the downloading process before the upgrading is completed.
2. For ECxx modules, if the firmware contains a *Firehose* folder, then it will be downloaded in Firehose mode by default. BG95/BG77 supports downloads in the Firehose mode only.

Step 2: Restart the module to enable automatic firmware upgrade.

- (1) GCxx/UCxx/UGxx/ECxx/EG9x/Ex06/SCxx/EM05/AGxx/BGxx/EM12/M65/RG500Q modules will be restarted automatically after clicking the **“Start”** button, so there is no need to restart the modules manually. Please refer to the following figure.

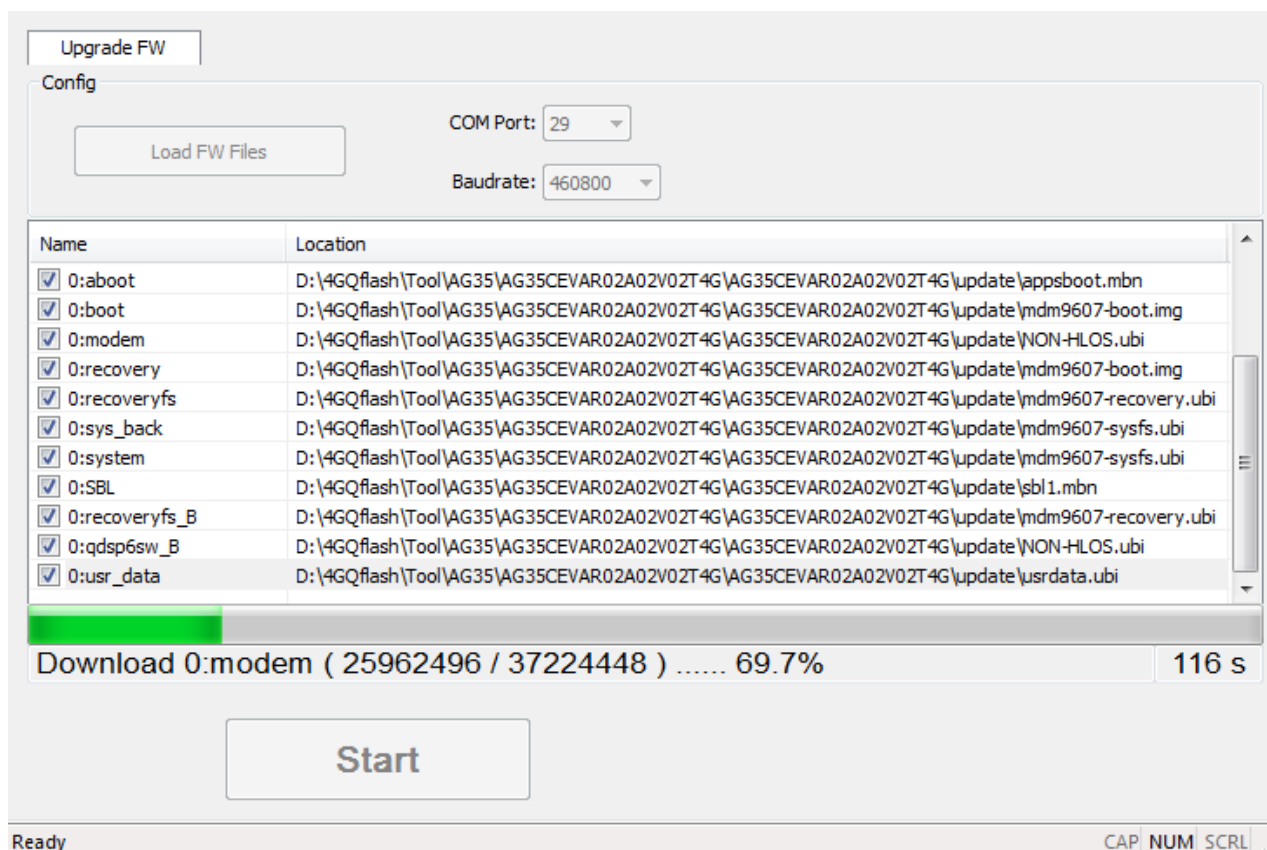


Figure 14: Start Firmware Upgrade Automatically After Clicking “Start” Button

NOTE

For GCxx/UCxx/UGxx/ECxx/EG9x/Ex06/SCxx/EM05/AGxx/BG96/EM12/M65/RG500Q, if there is no EVB for module firmware upgrade, please drive the PWRKEY pin to a low level after clicking the **“Start”** button in 30 seconds.

- (2) For M10/M66/M72/M80/M85/M95/MC60/BC95 modules, switch the D/L to “**ON**” on EVB within 30 seconds after clicking “**Start**” button, and then manually restart the module. In this way, as shown in the following figures, the firmware upgrade will be started.

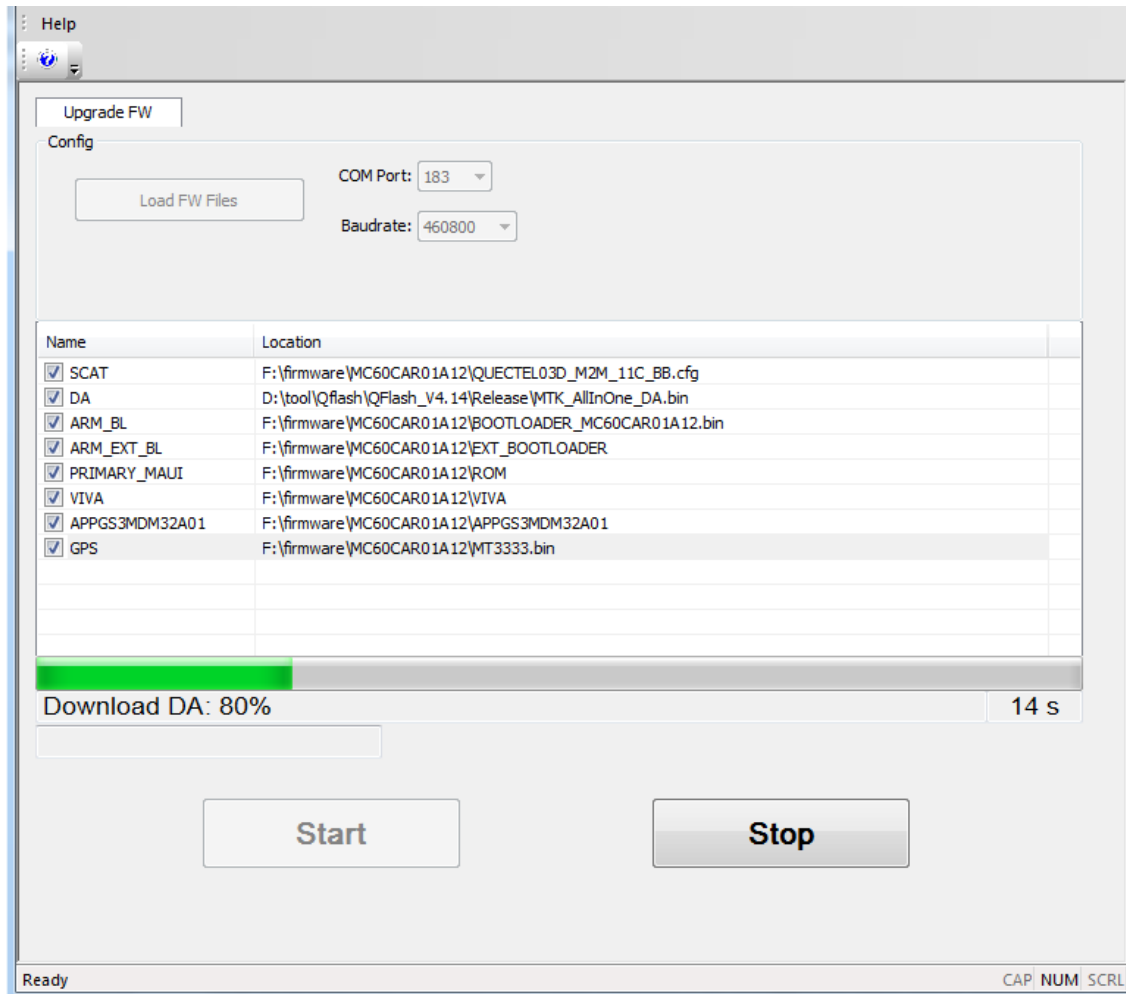


Figure 15: Start Firmware Upgrade after Manually Restarting the Module (M10/M66/M72/M80/M85/M95/MC60)

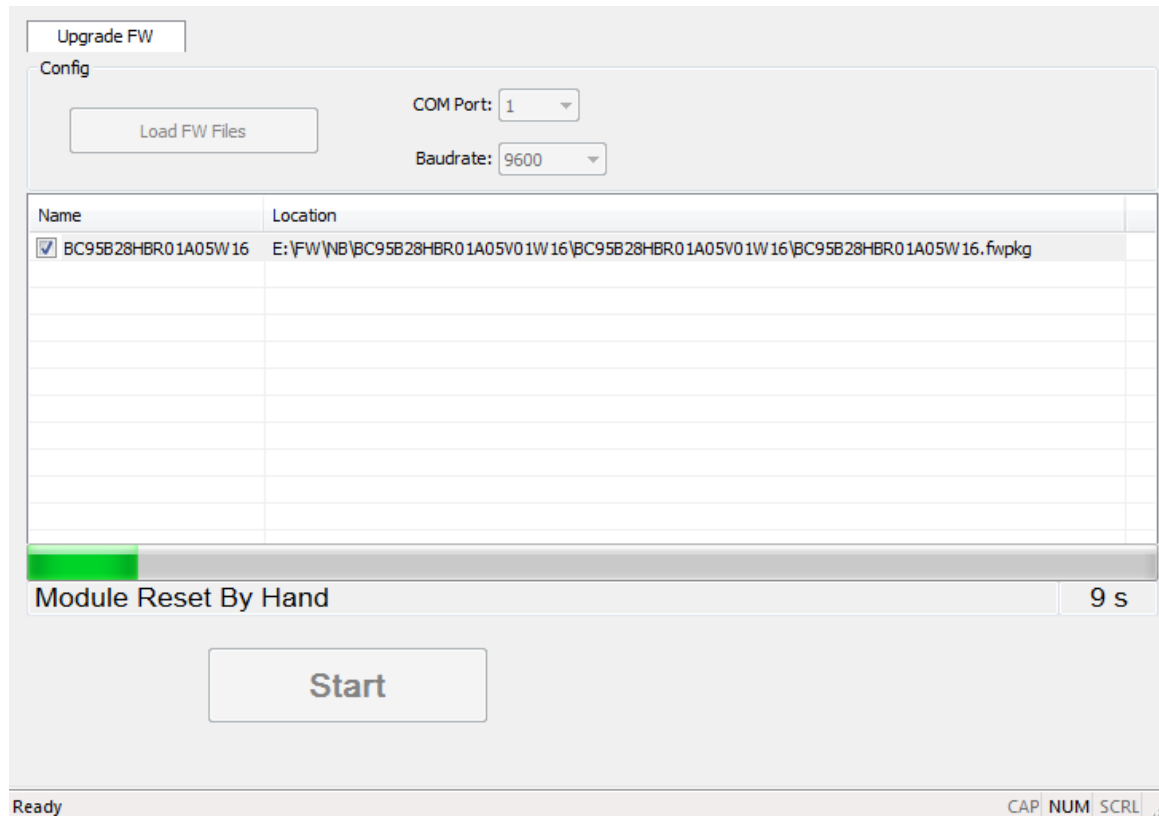


Figure 16: Start to Upgrade after Manually Restarting BC95

NOTES

1. On M10/M66/M72/M80/M85/M95/MC60 modules, please make sure the EVB is powered by 5V power supply when switching the D/L to “ON”, and then manually restart the module.
2. On BC95 module, please make sure the EVB is powered by 5V power supply when switching the D/L to “ON”, and click the “**Start**” button and wait for the prompt “**Module Reset By Hand**”, then manually restart the module.

- (3) For the firmware upgrade of BC95-G, BC68 and BC66 modules through TE-B, please wait for the prompt “**reset**” (for BC95-G and BC68) or “[**INFO**]**Start connect with target,Please reset DUT...**” (for BC66) after clicking the “**Start**” button, and then manually restart the modules.

The log will be printed in the path *QFlash_V4.16\Release\WB-IoT\1* when the firmware of BC95-G module is upgraded.

Step 3: “PASS” will be shown on the interface after the firmware has been successfully upgraded, as shown in the following figure.

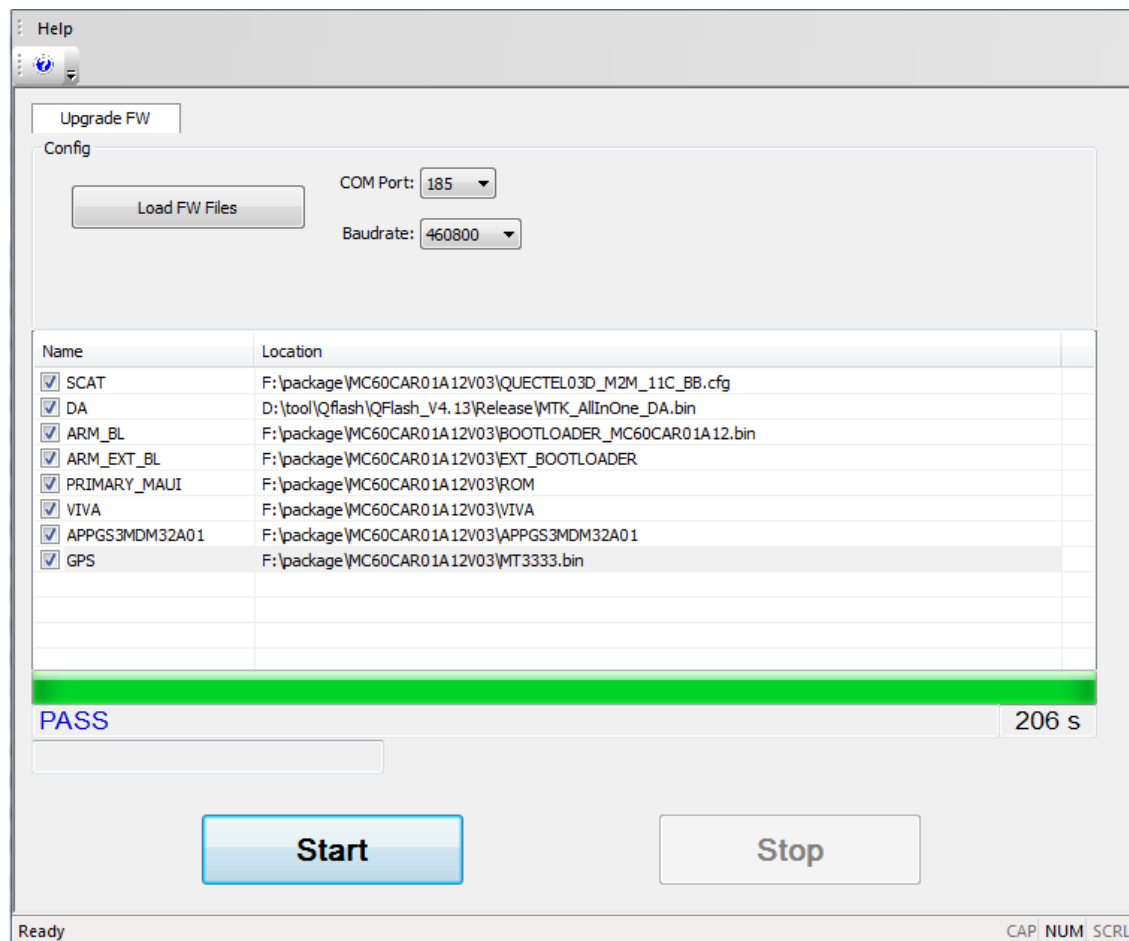


Figure 17: Successful Firmware Upgrade

2.3.2. Command Line Download to Upgrade Firmware (M66&MC60)

For M66 and MC60 modules, in addition to the firmware upgrade method described in **Chapter 2.2.2.1** and **Chapter 2.3.1**, the command line download method is also supported for firmware upgrade. The procedures are as follows:

Step 1: Enter the file *Release* in the tool package, open the file *MainConfig.ini*, change “QFLASH_CMD=0” to “QFLASH_CMD=1” and save the setting.

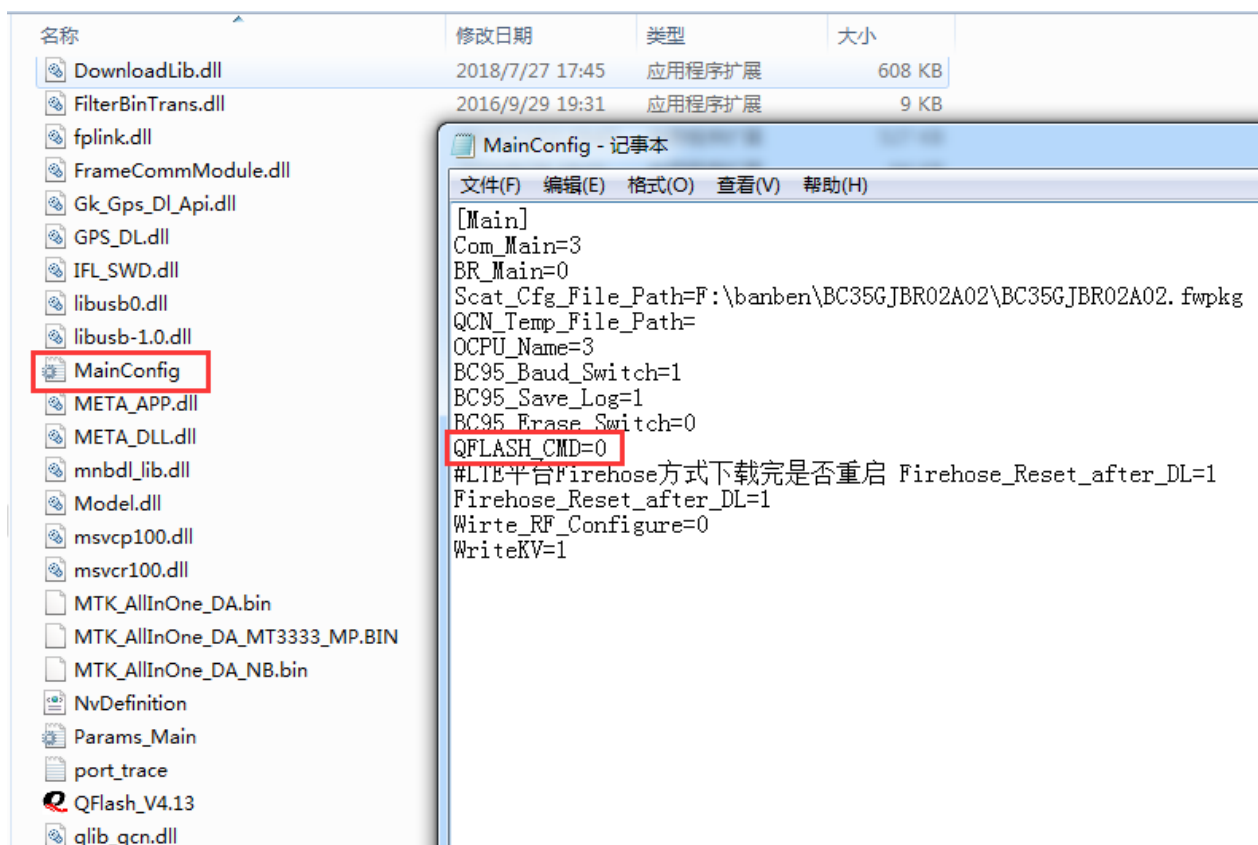


Figure 18: Change the MainConfig.ini Setting

Step 2: Open the file *QFlash_V4.16* in *Release* folder, enter Port “117”, Baudrate “115200”, and the Firmware Path “...”(full path of the firmware), as manifested in the figure below.

```
Input Port_Baudrate_FW_Path:117
Input Baudrate:115200
Input Firmware Path:F:\Firmware\MC60CAR01A11V03\MC60CAR01A11V03\QUECTEL03D_M2M_11C_BB.cfg
```

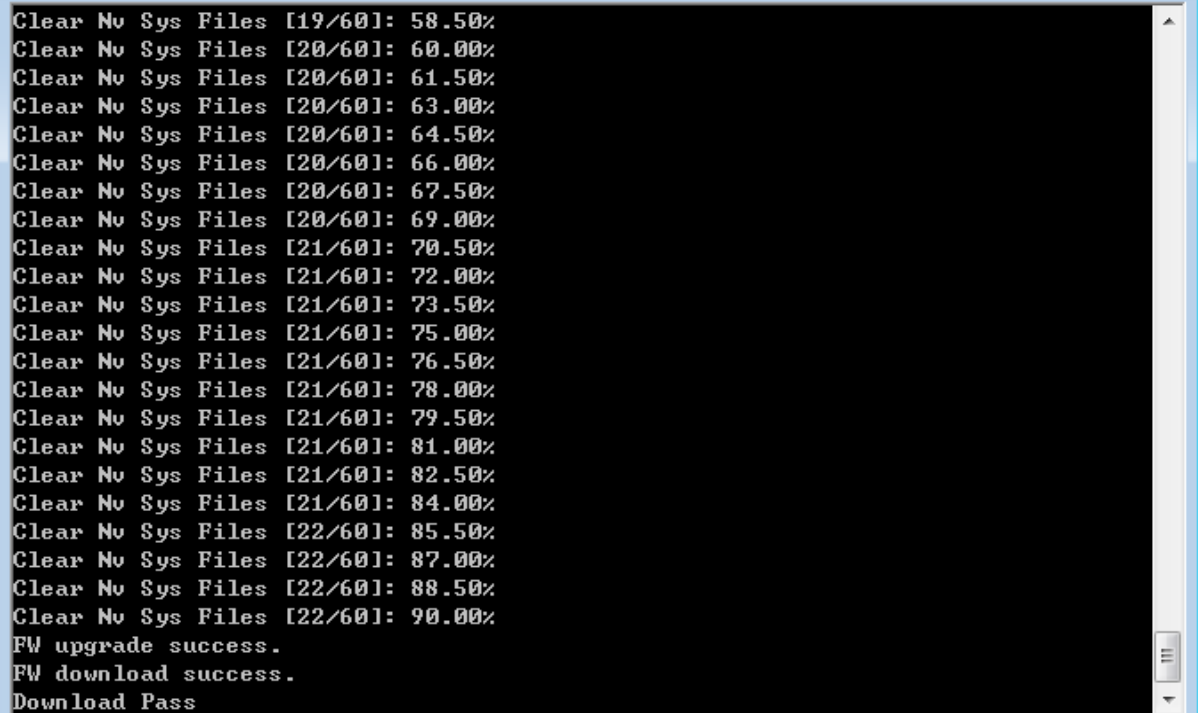
Figure 19: Enter “COM Port”, “Baudrate” and “Firmware Path”

Step 3: Restart the module when prompted as shown in the following figure is printed out.

```
Input Port_Baudrate_FW_Path:117
Input Baudrate:115200
Input Firmware Path:F:\Firmware\MC60CAR01A11V03\MC60CAR01A11V03\QUECTEL03D_M2M_11C_BB.cfg
DL INIT...
Platform->MTK
DL INIT Pass
DL Start....
Waiting (Module Power On or Reset).....
```

Figure 20: Restart the Module

Step 4: Firmware is upgraded successfully.



```
Clear Nv Sys Files [19/60]: 58.50%
Clear Nv Sys Files [20/60]: 60.00%
Clear Nv Sys Files [20/60]: 61.50%
Clear Nv Sys Files [20/60]: 63.00%
Clear Nv Sys Files [20/60]: 64.50%
Clear Nv Sys Files [20/60]: 66.00%
Clear Nv Sys Files [20/60]: 67.50%
Clear Nv Sys Files [20/60]: 69.00%
Clear Nv Sys Files [21/60]: 70.50%
Clear Nv Sys Files [21/60]: 72.00%
Clear Nv Sys Files [21/60]: 73.50%
Clear Nv Sys Files [21/60]: 75.00%
Clear Nv Sys Files [21/60]: 76.50%
Clear Nv Sys Files [21/60]: 78.00%
Clear Nv Sys Files [21/60]: 79.50%
Clear Nv Sys Files [21/60]: 81.00%
Clear Nv Sys Files [21/60]: 82.50%
Clear Nv Sys Files [21/60]: 84.00%
Clear Nv Sys Files [22/60]: 85.50%
Clear Nv Sys Files [22/60]: 87.00%
Clear Nv Sys Files [22/60]: 88.50%
Clear Nv Sys Files [22/60]: 90.00%
FW upgrade success.
FW download success.
Download Pass
```

Figure 21: Successful Firmware Upgrade

2.4. Abnormalities

Abnormalities may be caused by the incorrect parameter of baud rate, damaged EVB/TE-B or invalid files, etc. The following illustrates some common abnormalities.

2.4.1. Selected a Wrong Serial Port

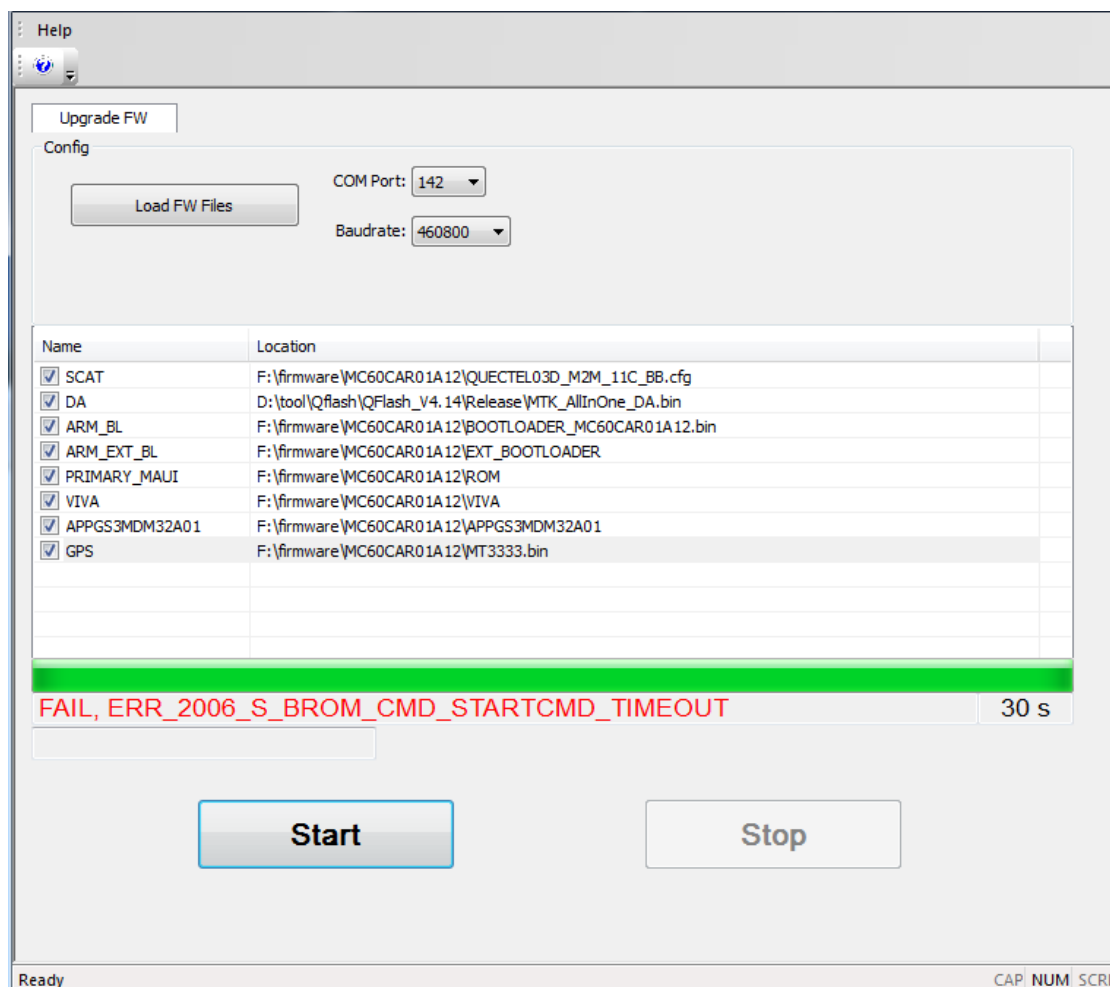


Figure 22: Connected to a Wrong Serial Port (M10/M66/M72/M80/M85/M95/MC60)

NOTE

After selecting a correct serial port, if M10/M66/M72/M80/M85/M95/MC60 modules are not restarted, then the error message will be the same as that of selecting a wrong serial port.

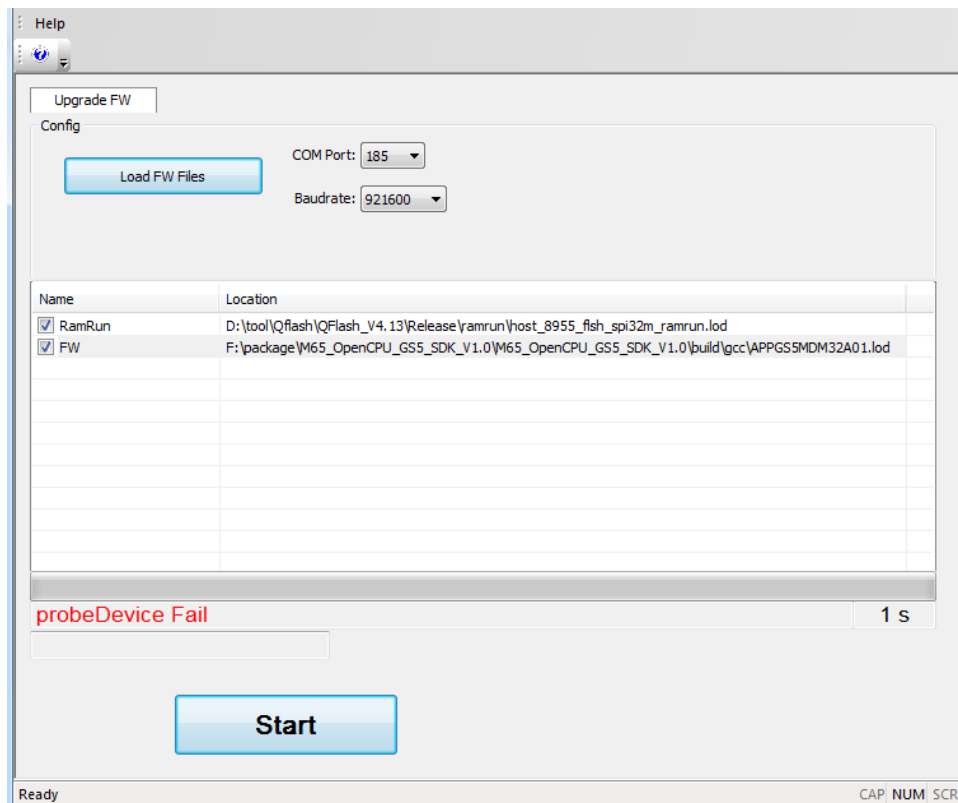


Figure 23: Connected to a Wrong Serial Port (M65)

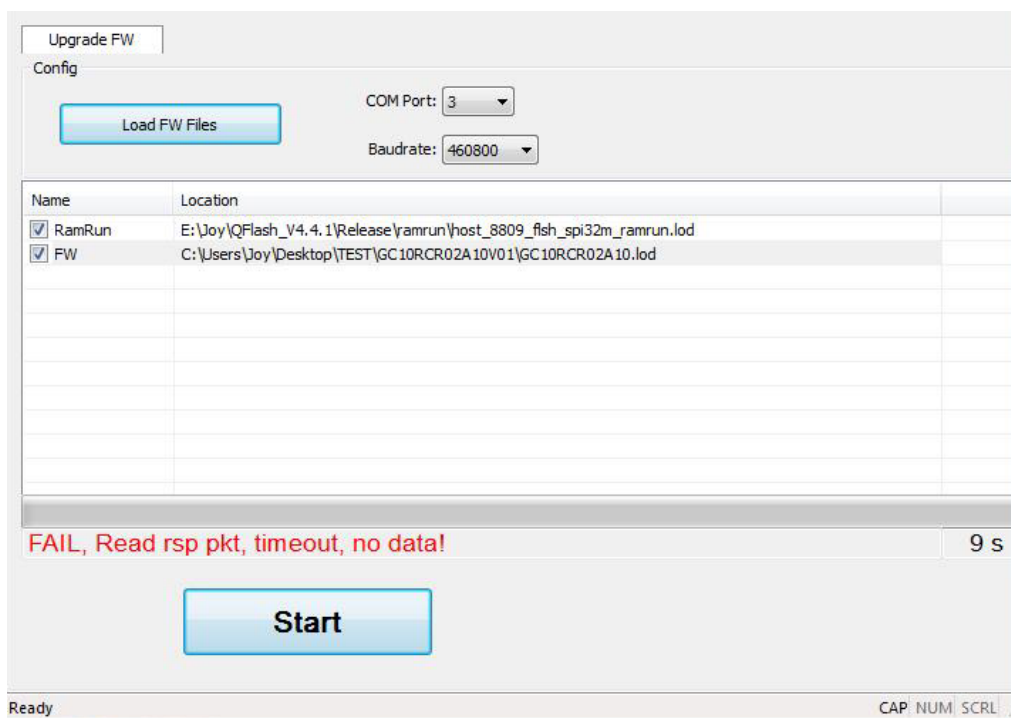


Figure 24: Connected to a Wrong Serial Port (GCxx)

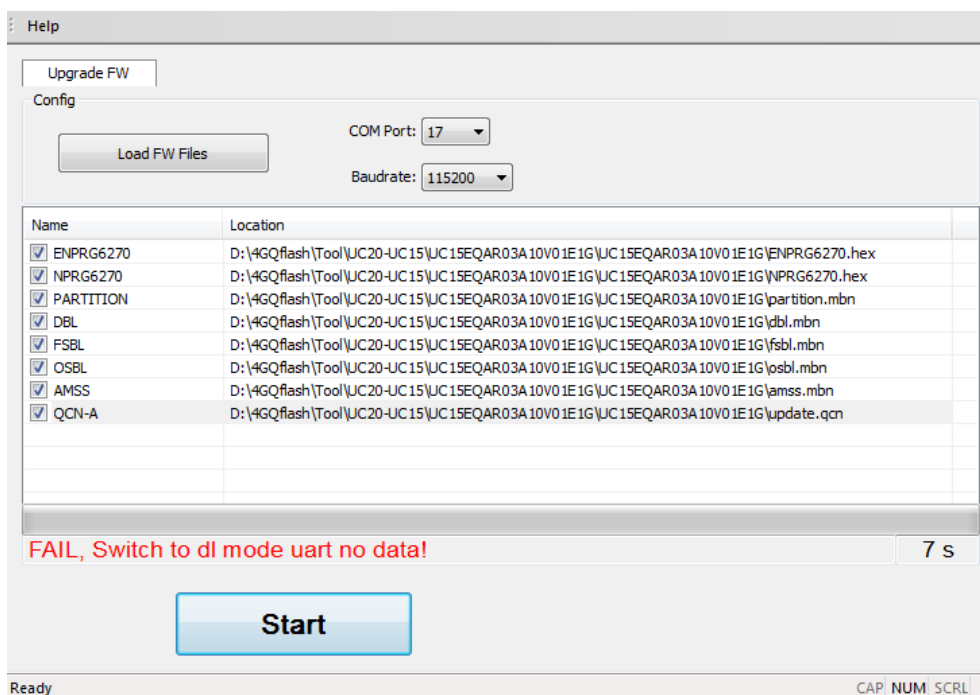


Figure 25: Connected to a Wrong Serial Port (UCxx)

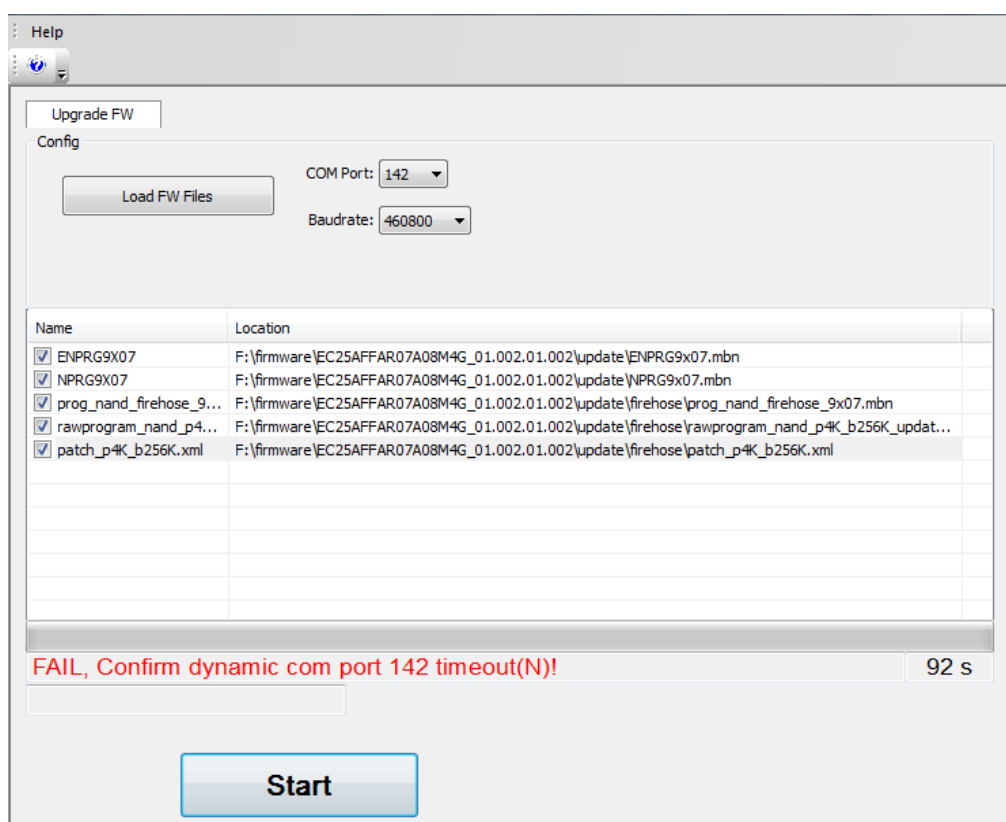


Figure 26: Connected to a Wrong Serial Port (ECxx/EG9x/Ex06/EM05/BGxx/EM12)

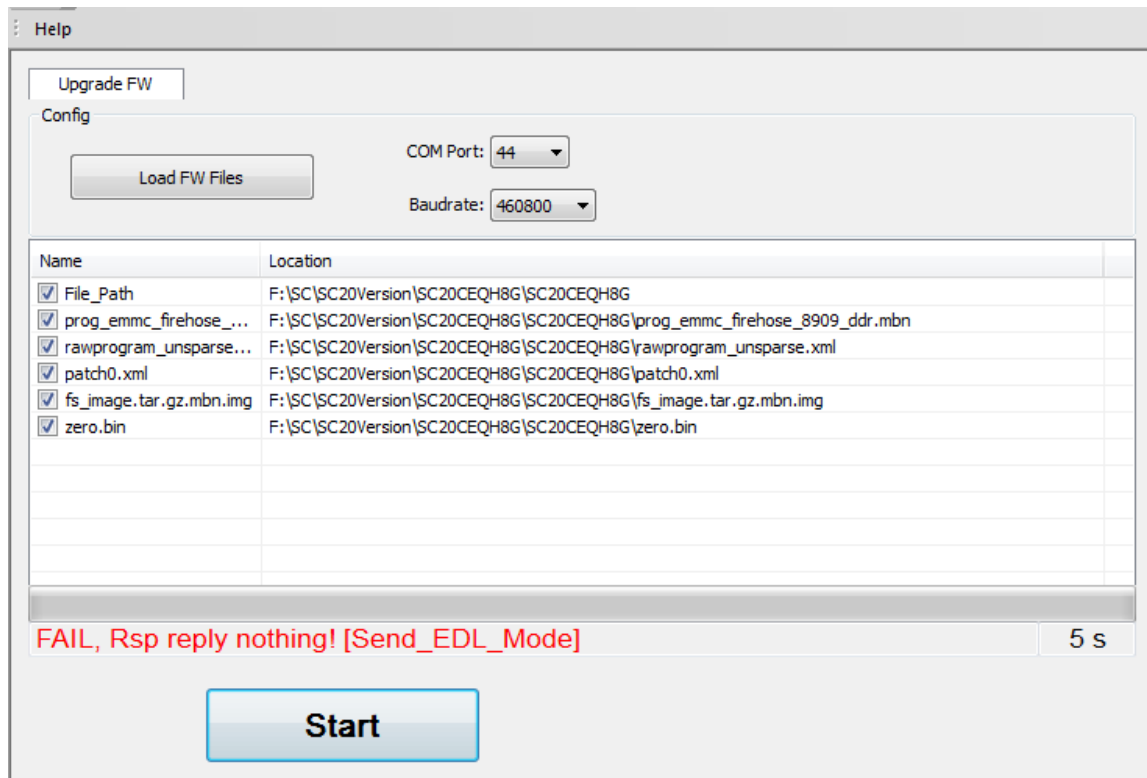


Figure 27: Connected to a Wrong Serial Port (SCxx)

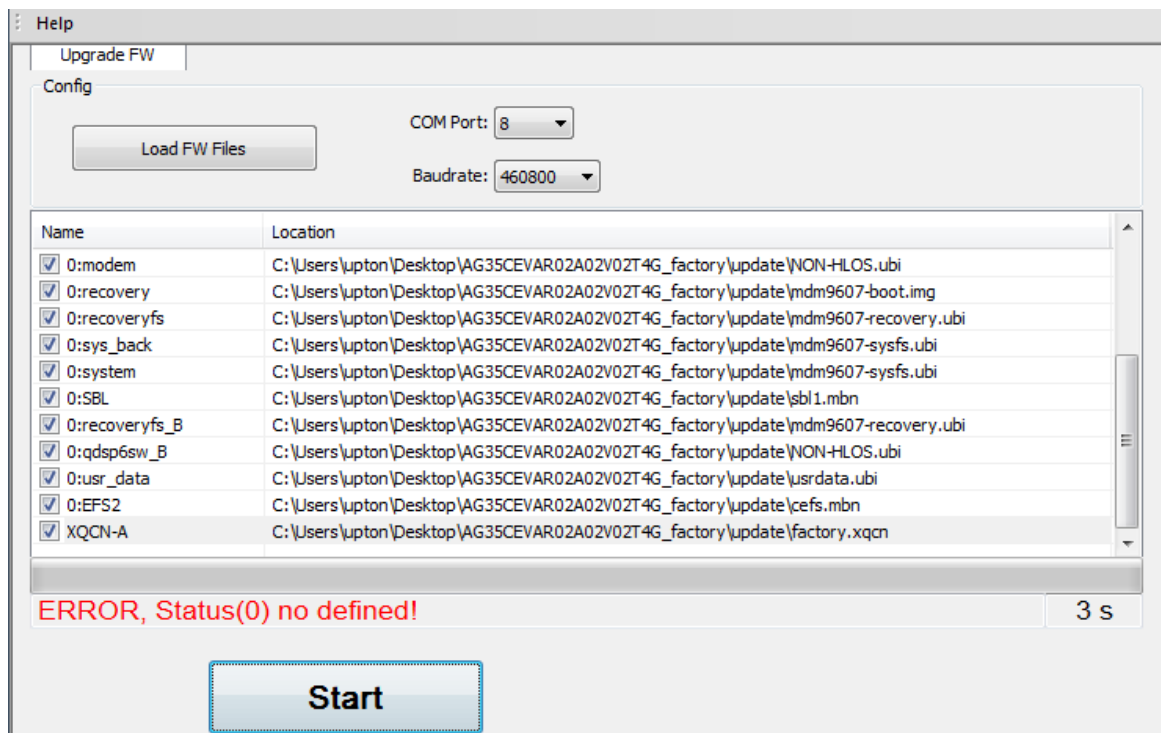


Figure 28: Connected to a Wrong Serial Port (AGxx)

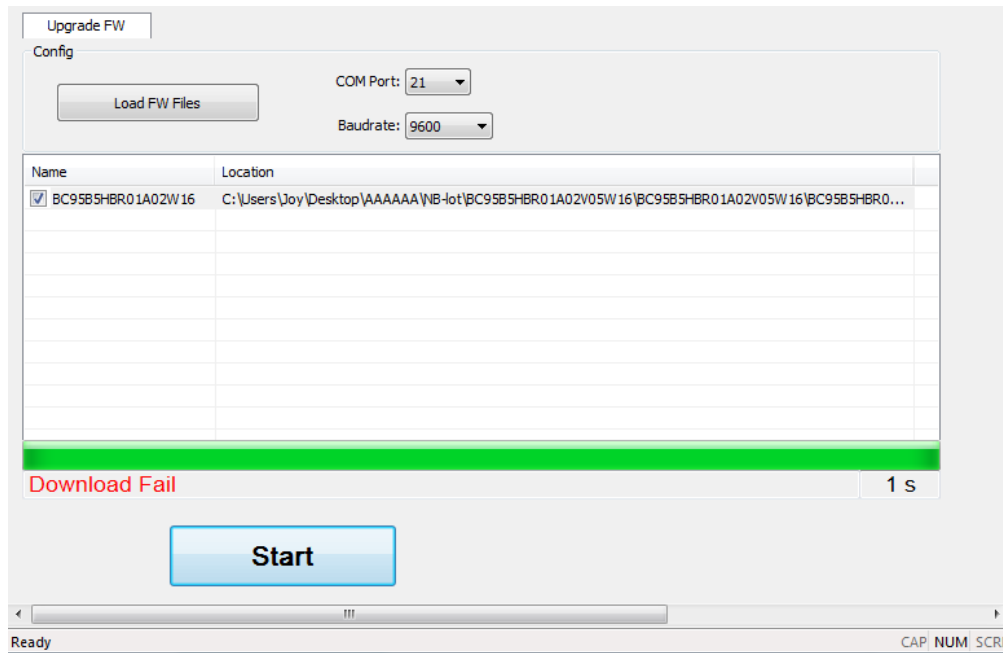


Figure 29: Connected to a Wrong Serial Port (BCxx)

2.4.2. Connected to an Occupied Serial Port

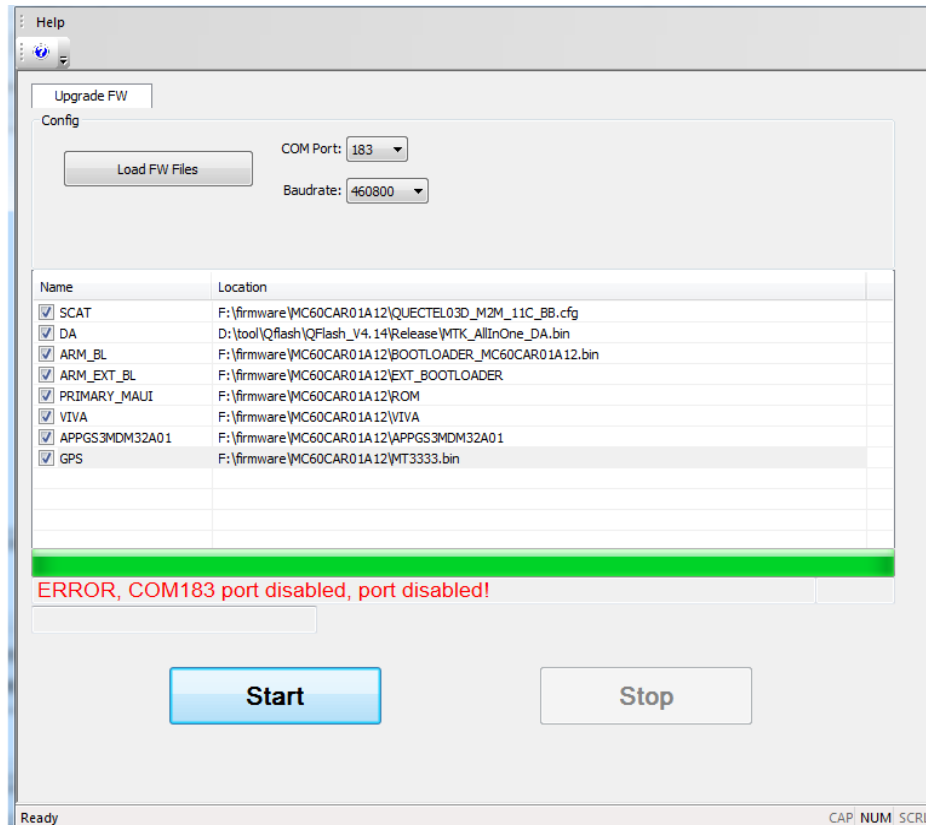


Figure 30: Connected to an Occupied Serial Port (M10/M66/M72/M80/M85/M95/MC60)

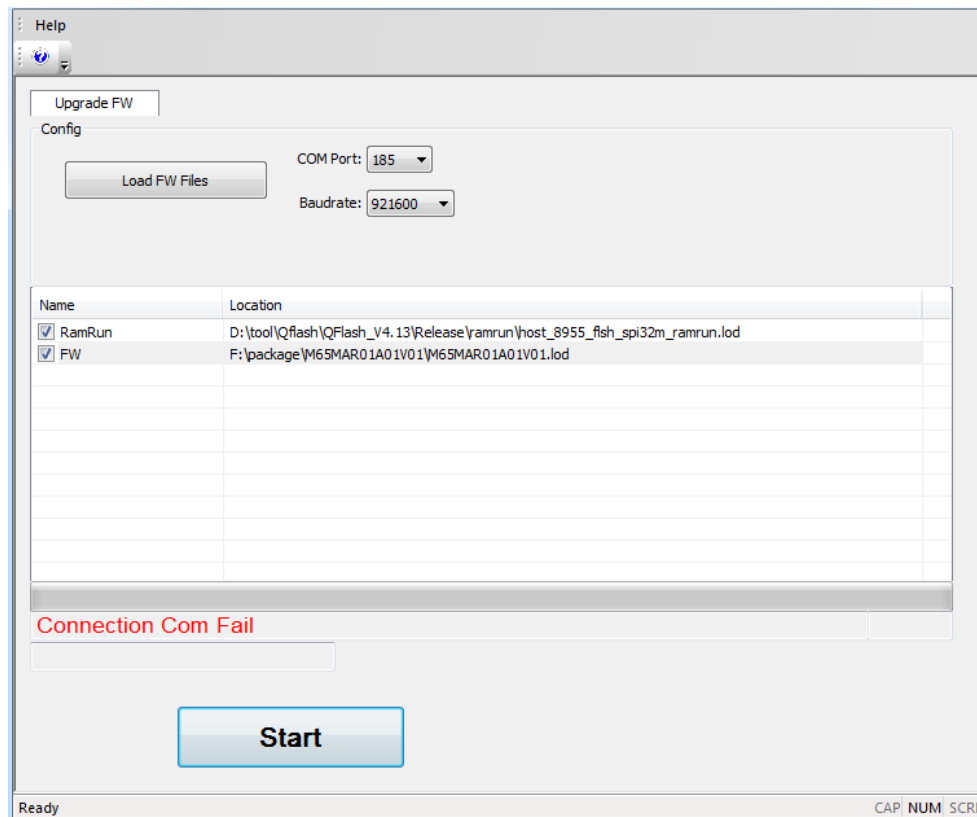


Figure 31: Connected to an Occupied Serial Port (M65)

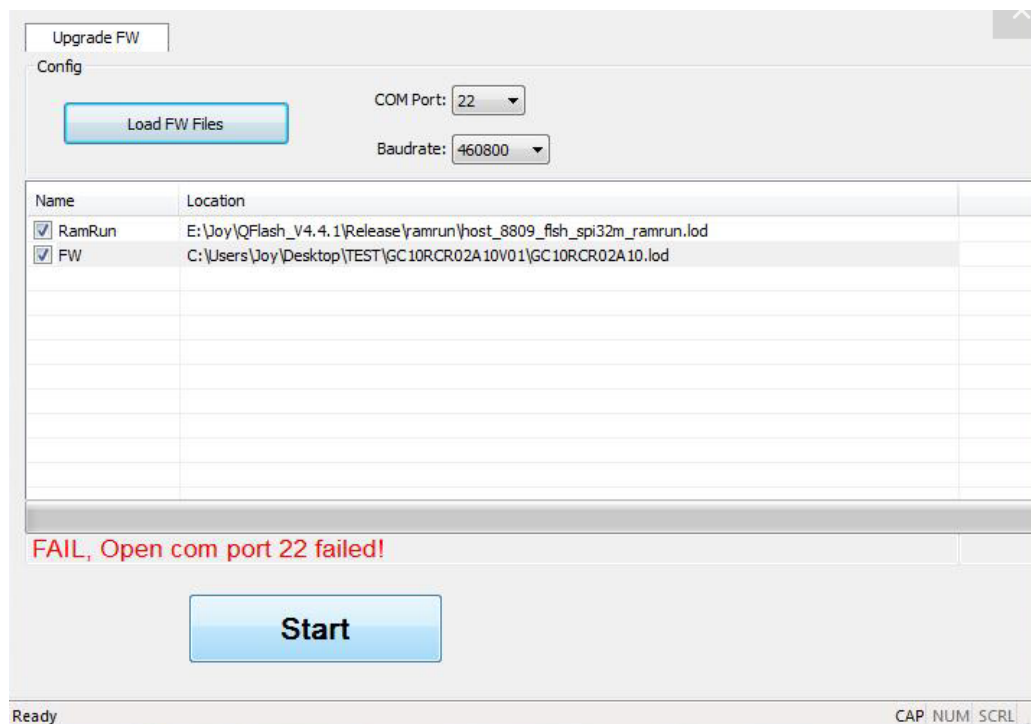


Figure 32: Connected to an Occupied Serial Port (GCxx)

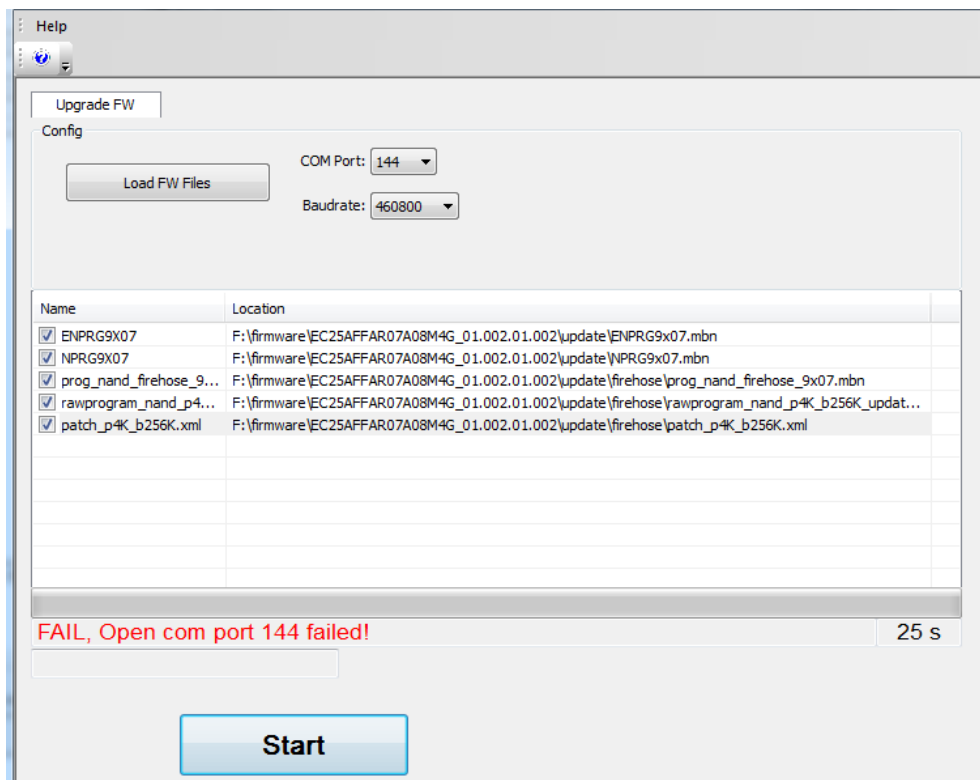


Figure 33: Connected to an Occupied Serial Port (UCxx/ECxx/EG9x/Ex06/SCxx/EM05/AGxx/BGxx/EM12)

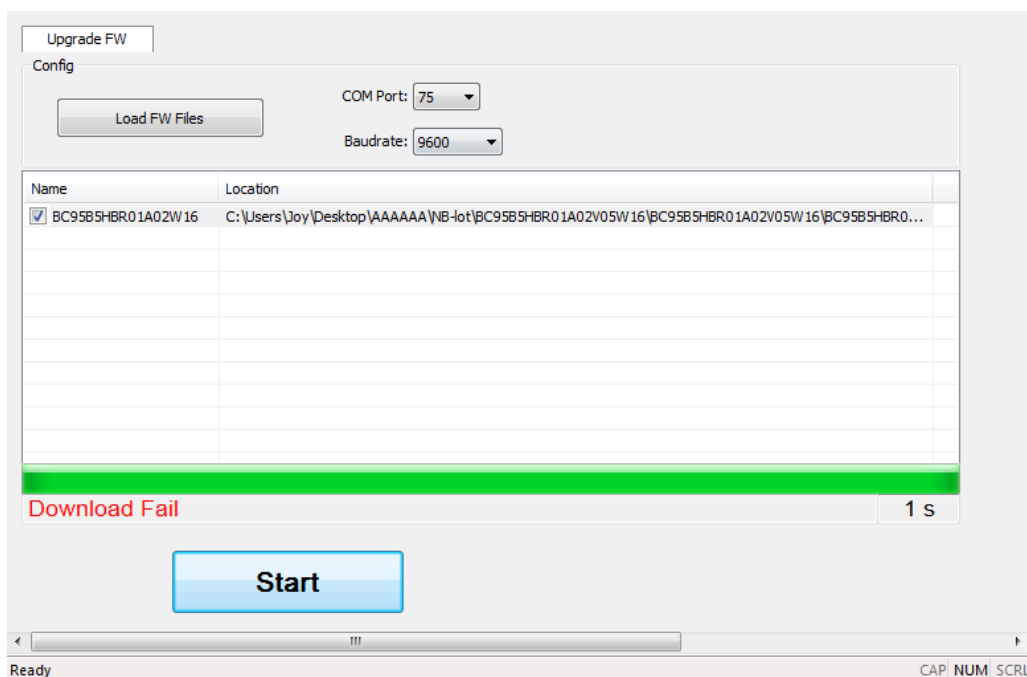


Figure 34: Connected to an Occupied Serial Port (BCxx)

2.4.3. Selected an Unsupported Baud Rate

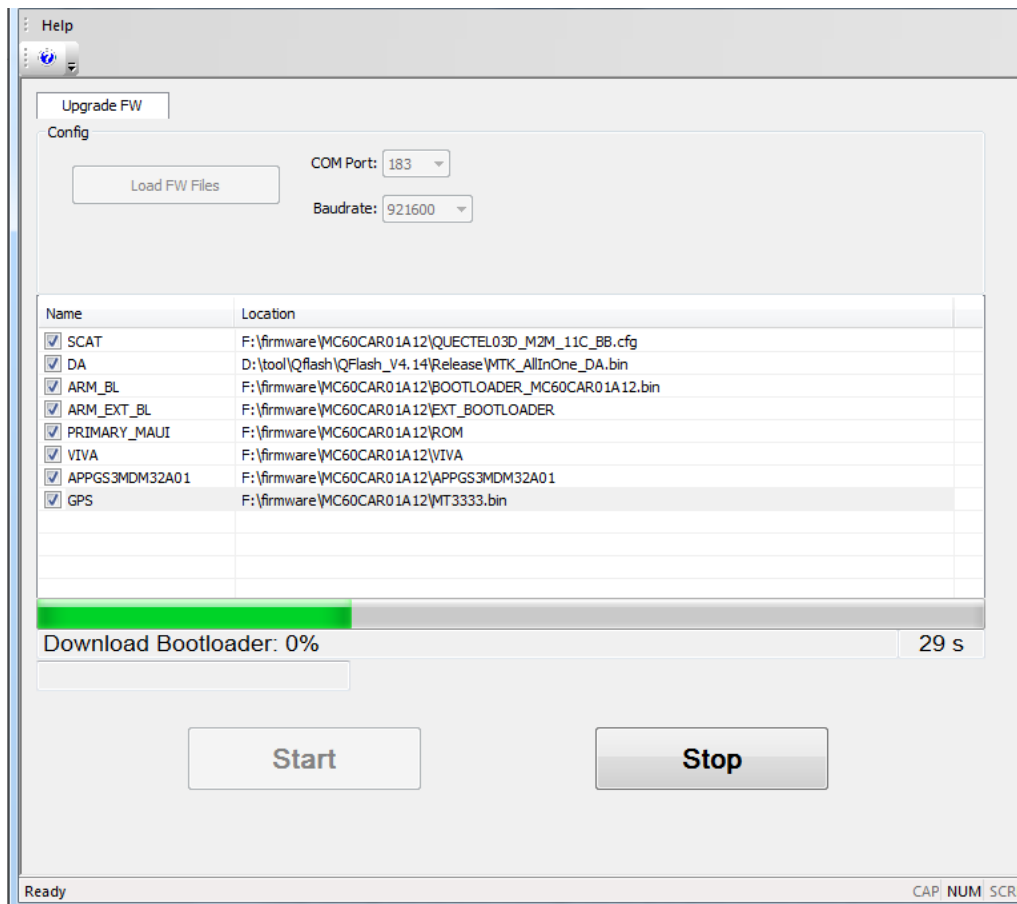


Figure 35: Selected an Unsupported Baud Rate (M10/M66/M72/M80/M85/M95/MC60)

NOTE

For M10/M66/M72/M80/M85/M95/MC60 modules, if an unsupported baud rate is selected, the tool will stop running and no error message will be prompted. In such a case, please click the “**Stop**” button to re-select a supported baud rate to restart with.

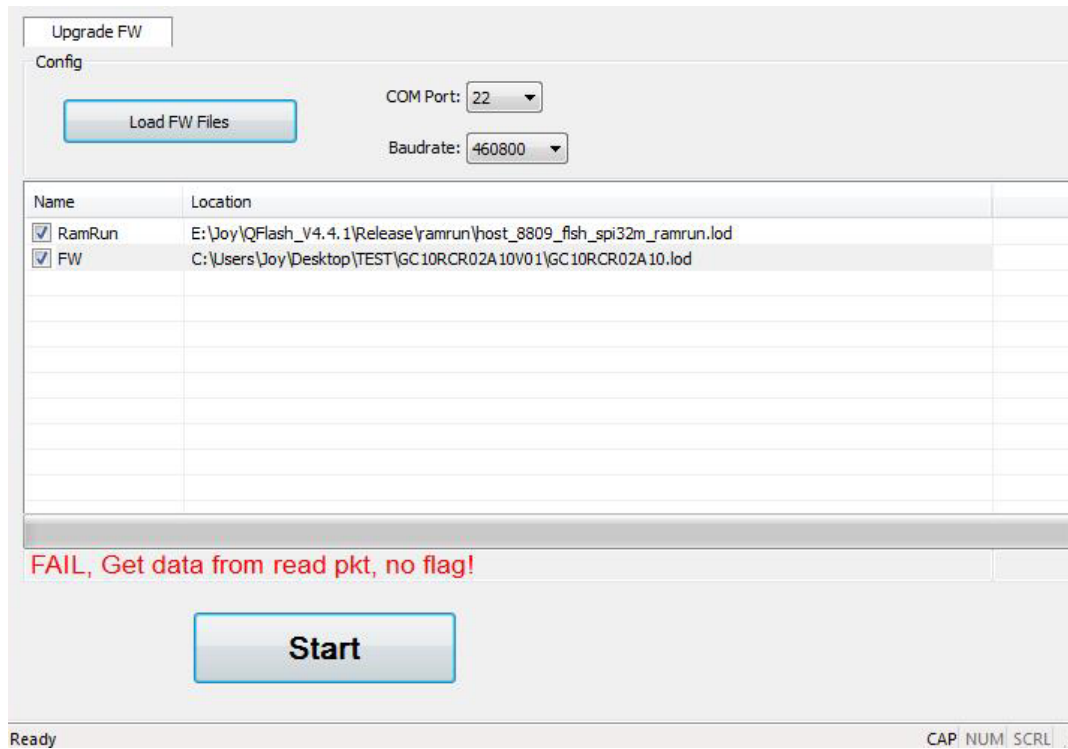


Figure 36: Selected an Unsupported Baud Rate (GCxx)

2.4.4. Selected an Invalid Load File

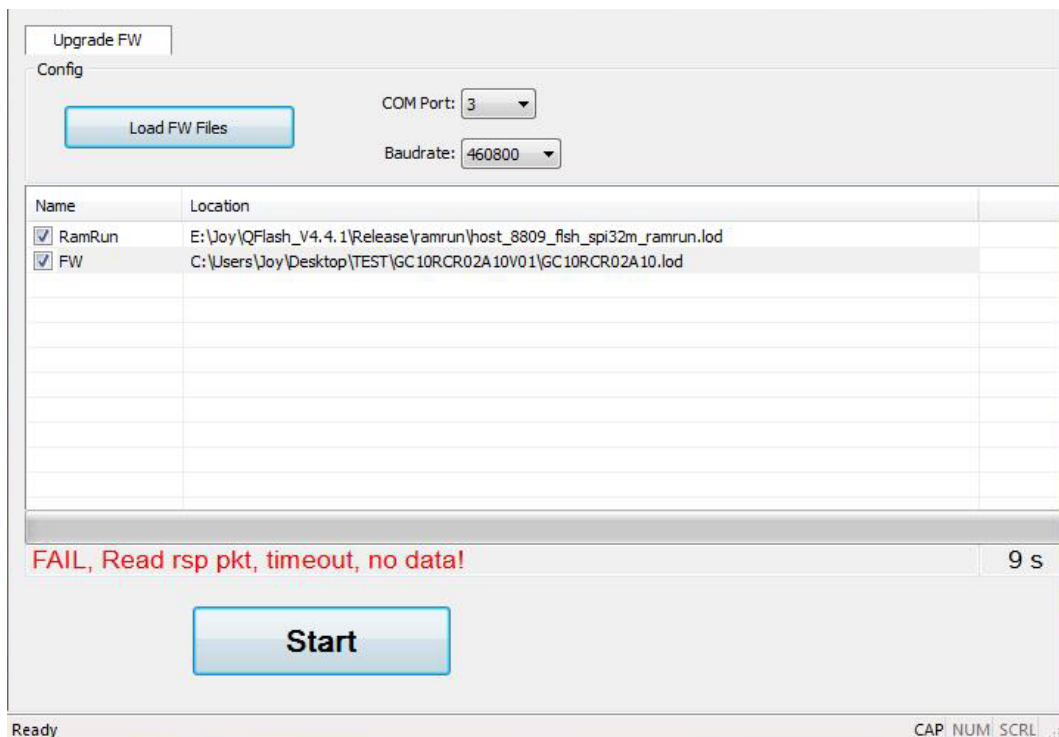


Figure 37: Selected an Invalid Scatter File (M10/M66/M72/M80/M85/M95/MC60)

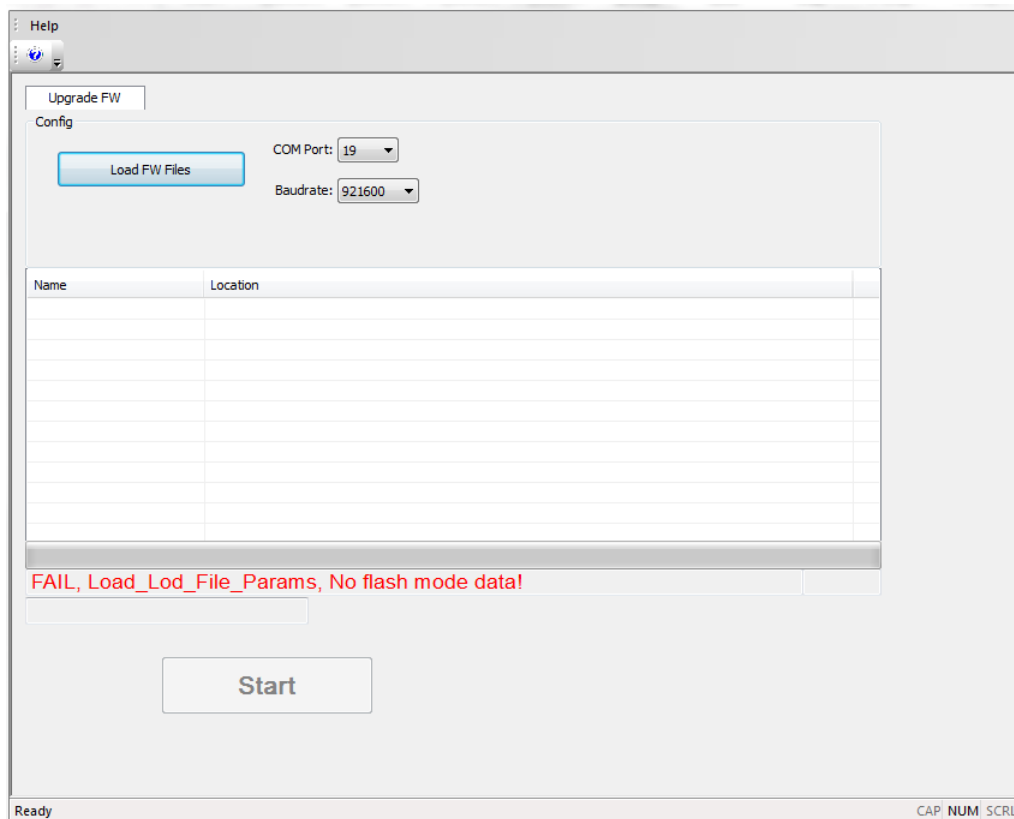


Figure 38: Selected an Invalid Scatter File (M65)

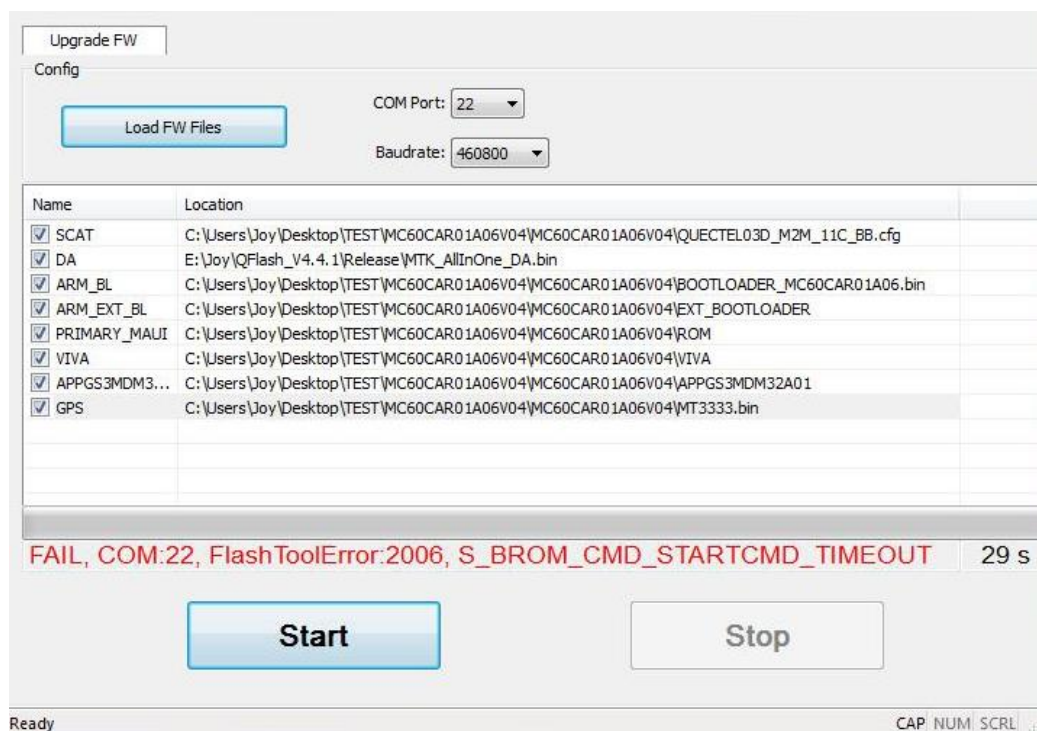


Figure 39: Selected an Invalid Load File (GCxx)

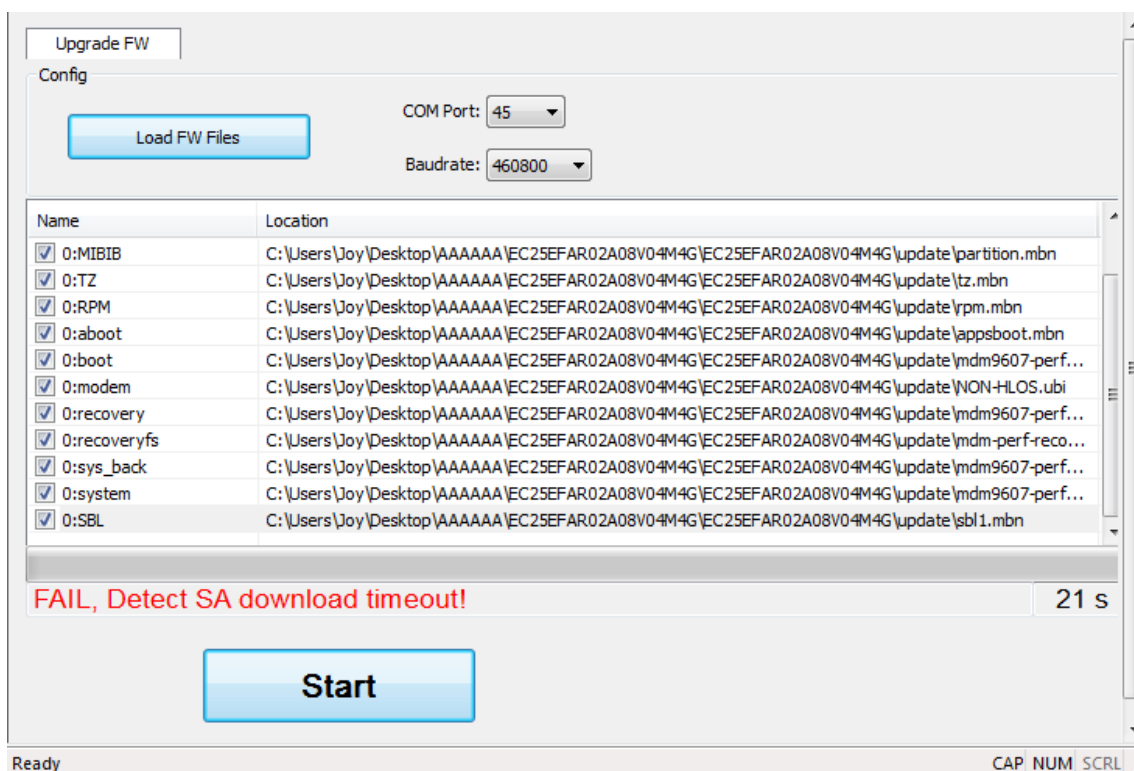


Figure 40: Selected an Invalid Load File (UCxx)

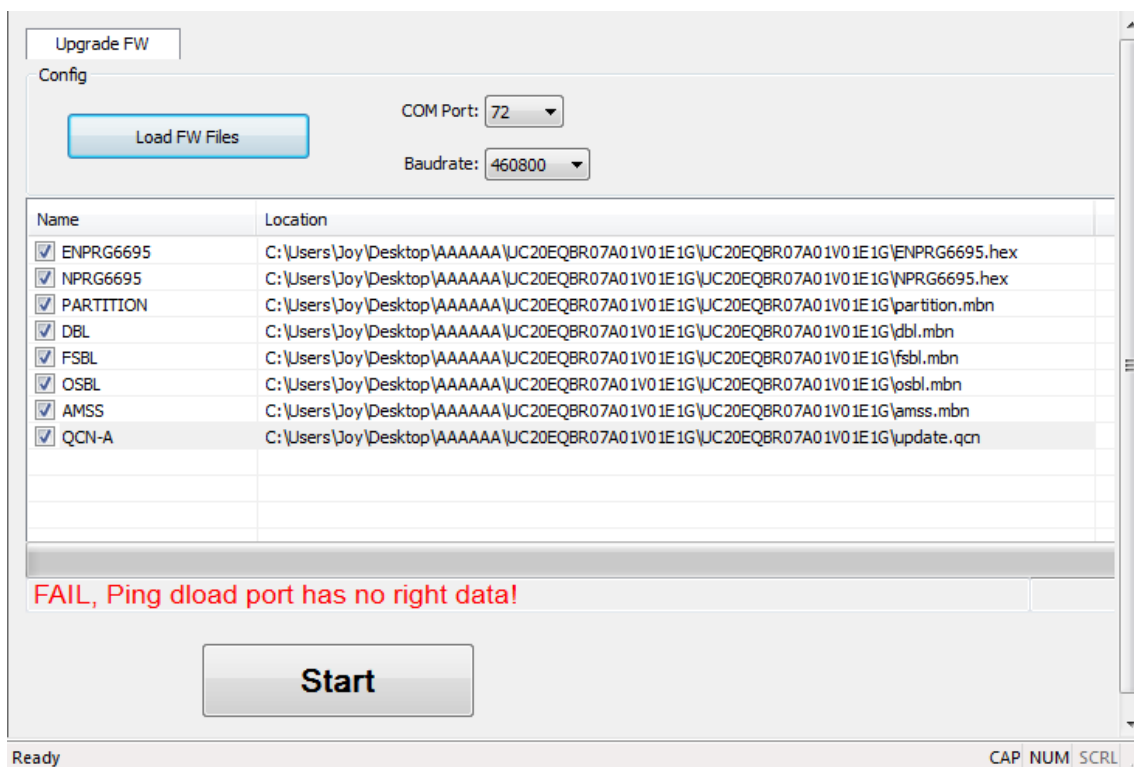


Figure 41: Selected an Invalid Load File (ECxx/EG9x)

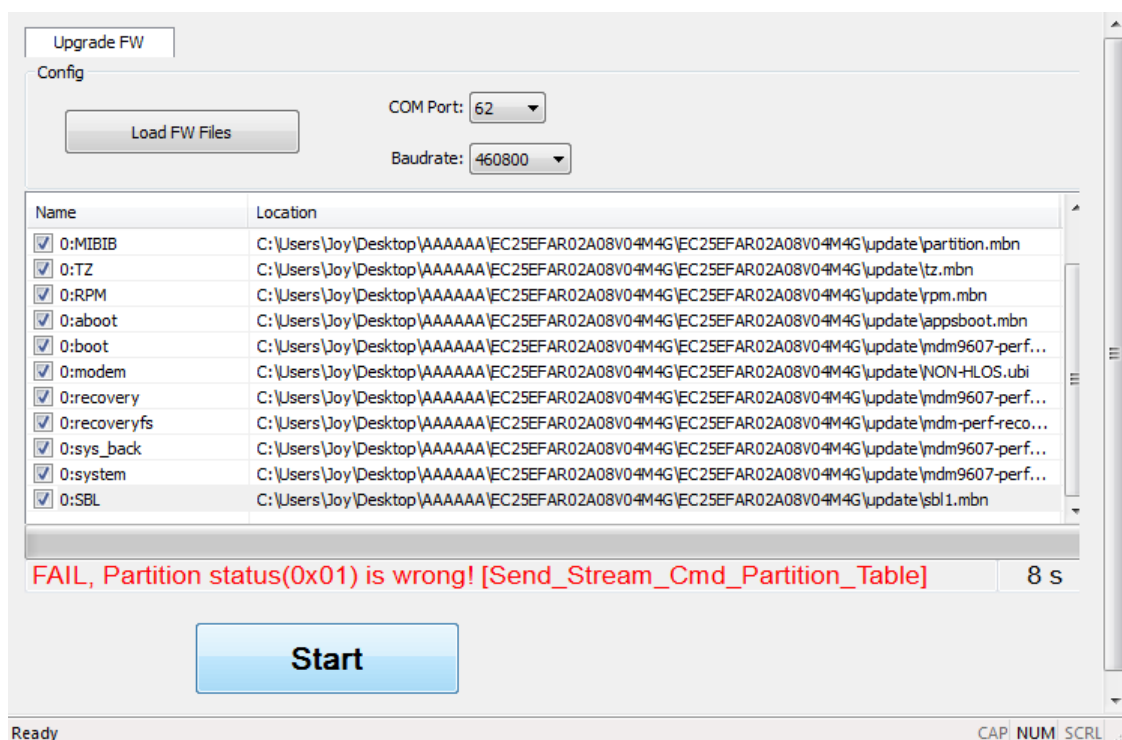


Figure 42: Selected an Invalid Load File (Ex06/AGxx/BG96/EM12)

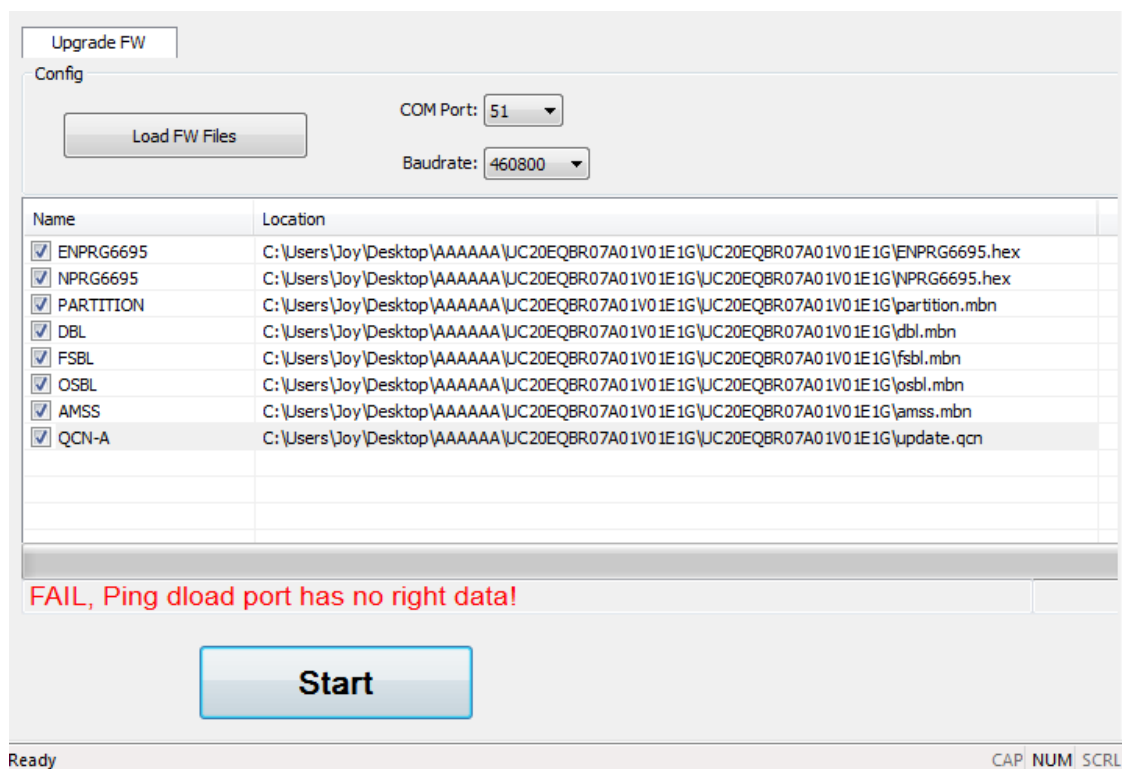


Figure 43: Selected an Invalid Load File (EM05)

2.4.5. Power Supply is Abnormal

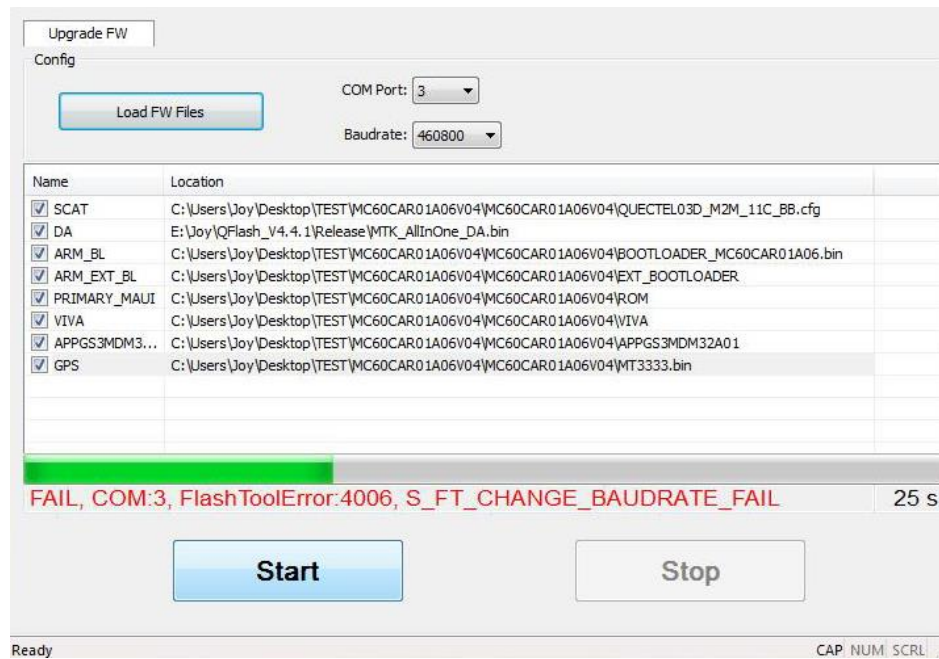


Figure 44: Abnormal Power Supply (M10/M66/M72/M80/M85/M95/MC60)

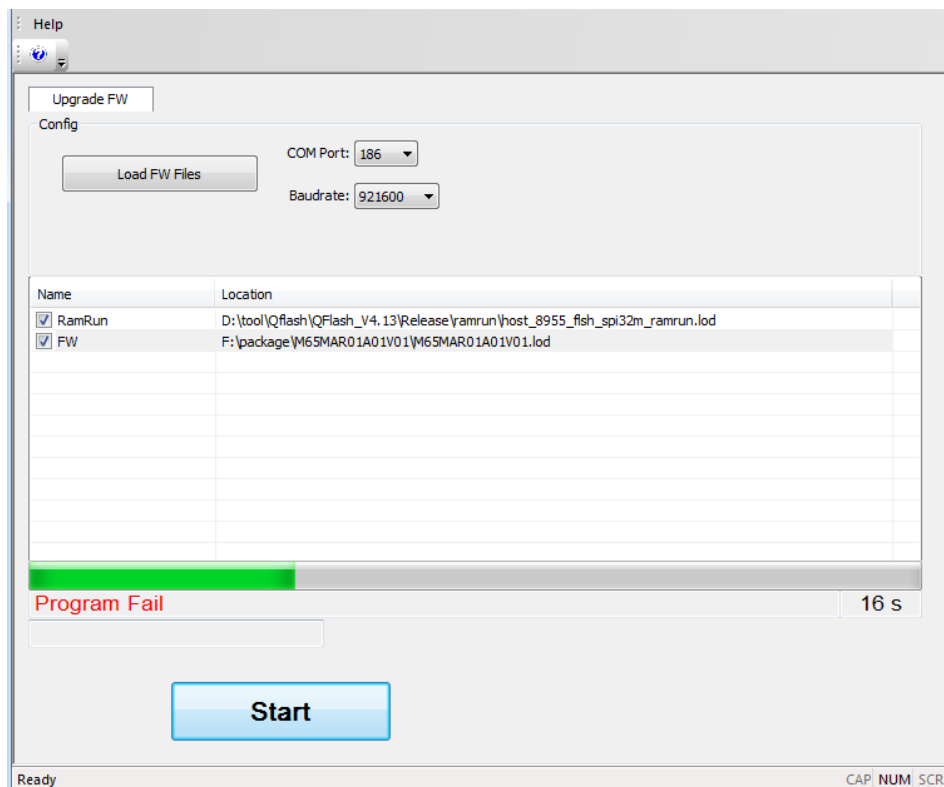


Figure 45: Abnormal Power Supply (M65)

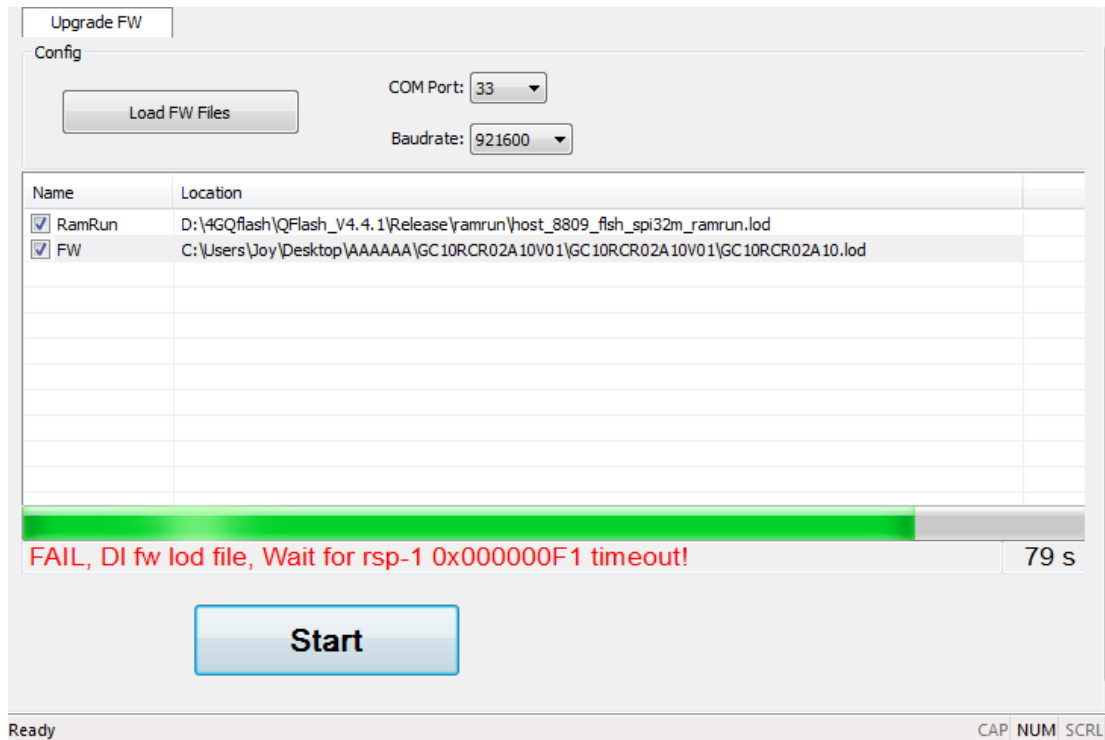


Figure 46: Abnormal Power Supply (GCxx)

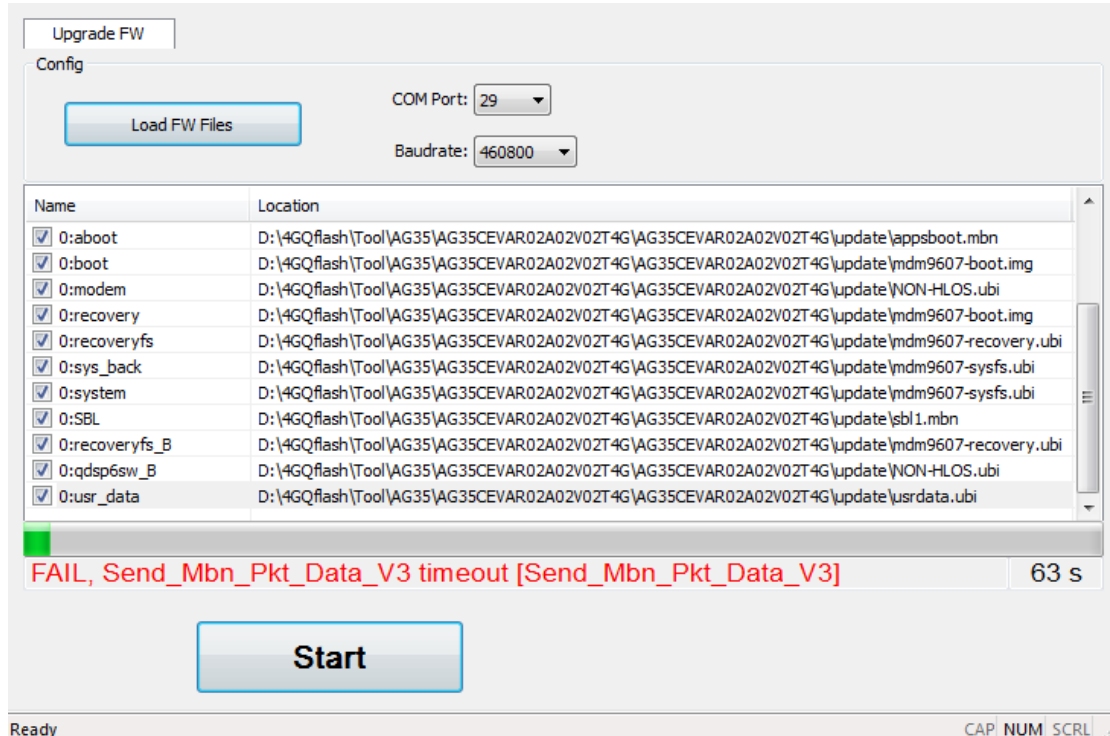


Figure 47: Abnormal Power Supply (UCxx/ECxx/EG9x/Ex06/EM05/AGxx/BGxx/EM12)

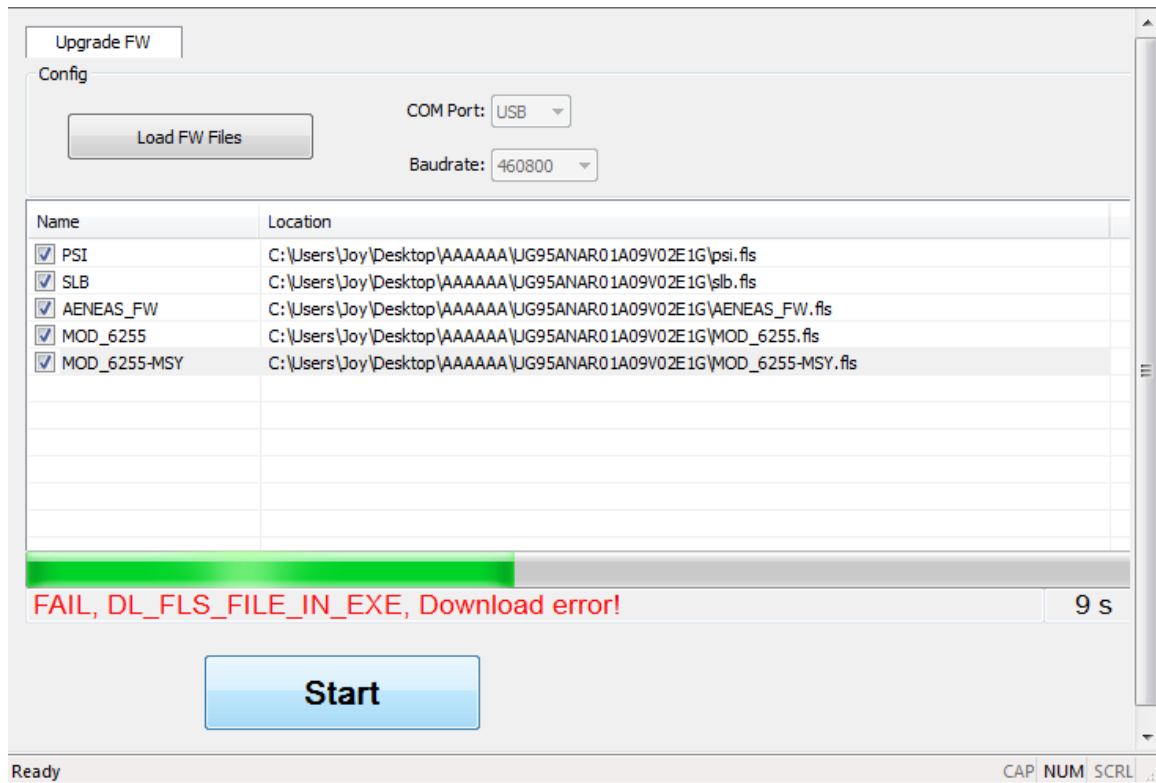


Figure 48: Abnormal Power Supply (UGxx)

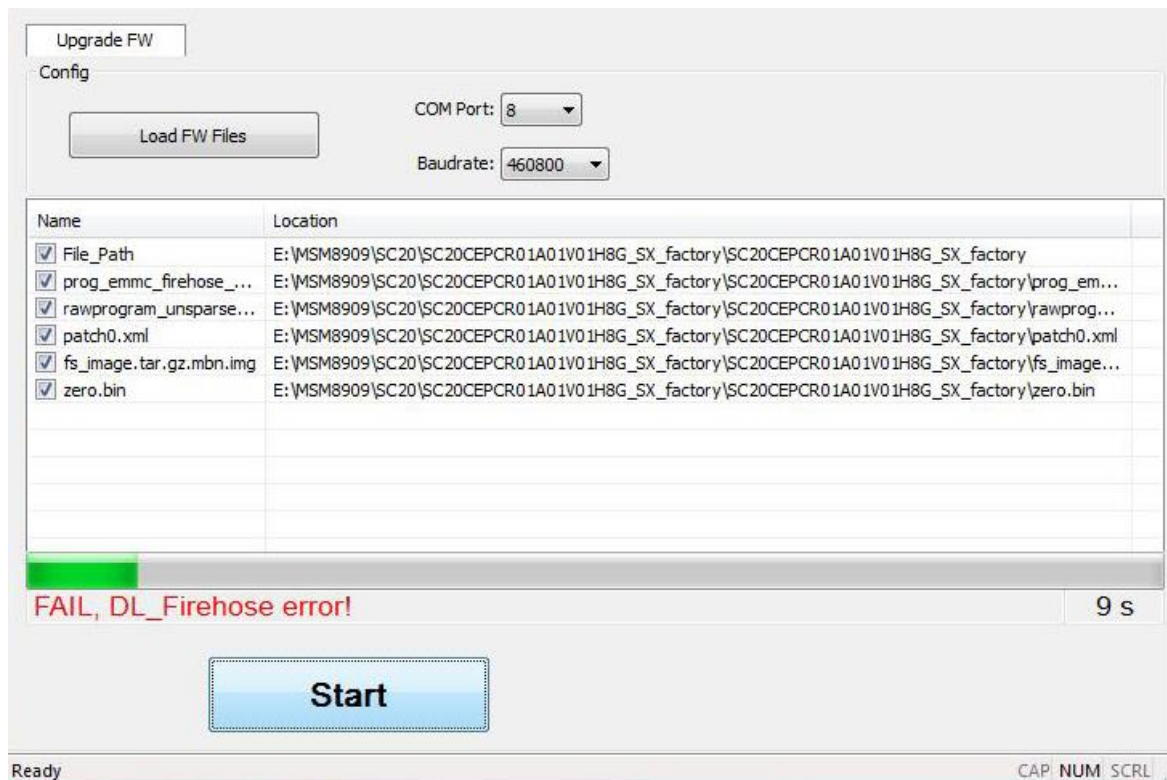


Figure 49: Abnormal Power Supply (SCxx)

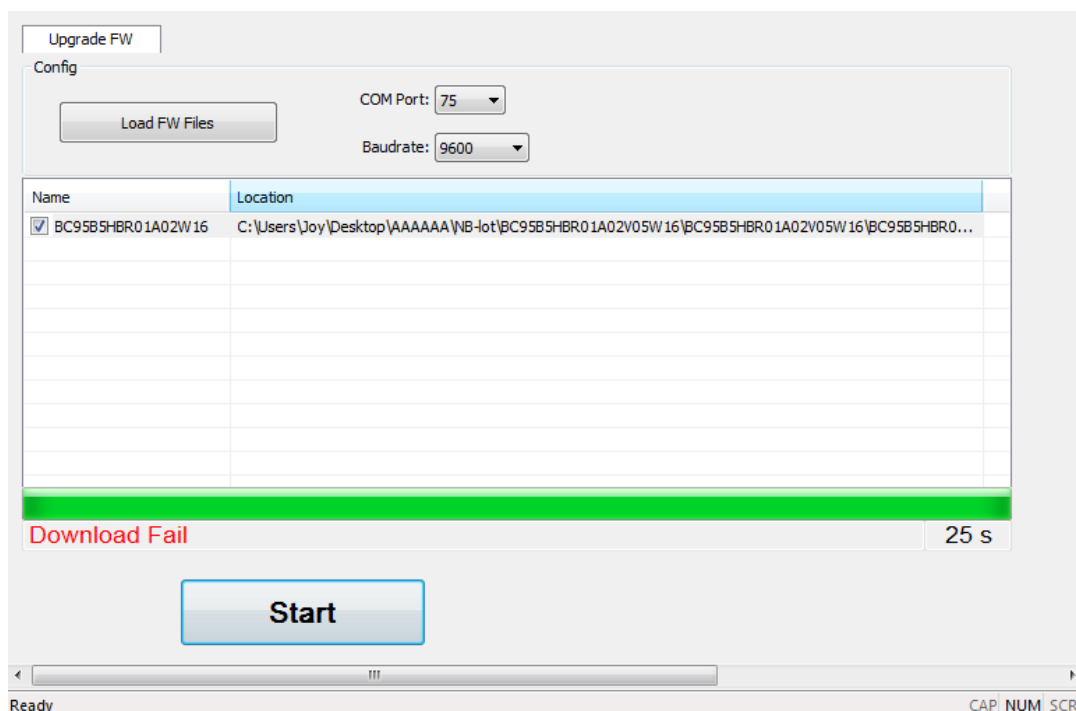


Figure 50: Abnormal Power Supply (BCxx)

2.4.6. USB to RS-232 Converter Cable is Abnormal

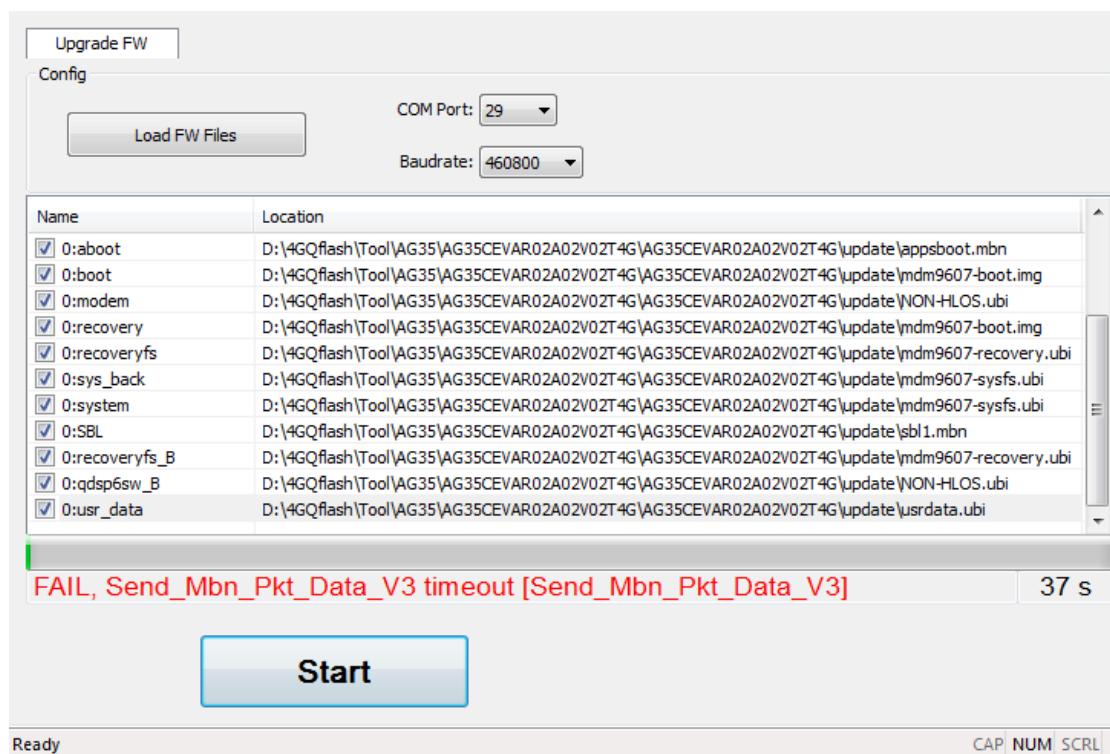


Figure 51: Abnormal USB to RS-232 Converter Cable