

# QFlash User Guide

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# About the Document

## Revision History

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1.1	2012-12-02	Yolanda YAO	Updated QFlash version to 1.1
1.2	2013-02-25	Karen REN	Updated QFlash version to 1.4
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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/ RM500Q-GL/ RG800H

**NOTE**

Quectel modules listed above may include multiple models. Please refer to the corresponding module specifications for more specific information.

### 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.

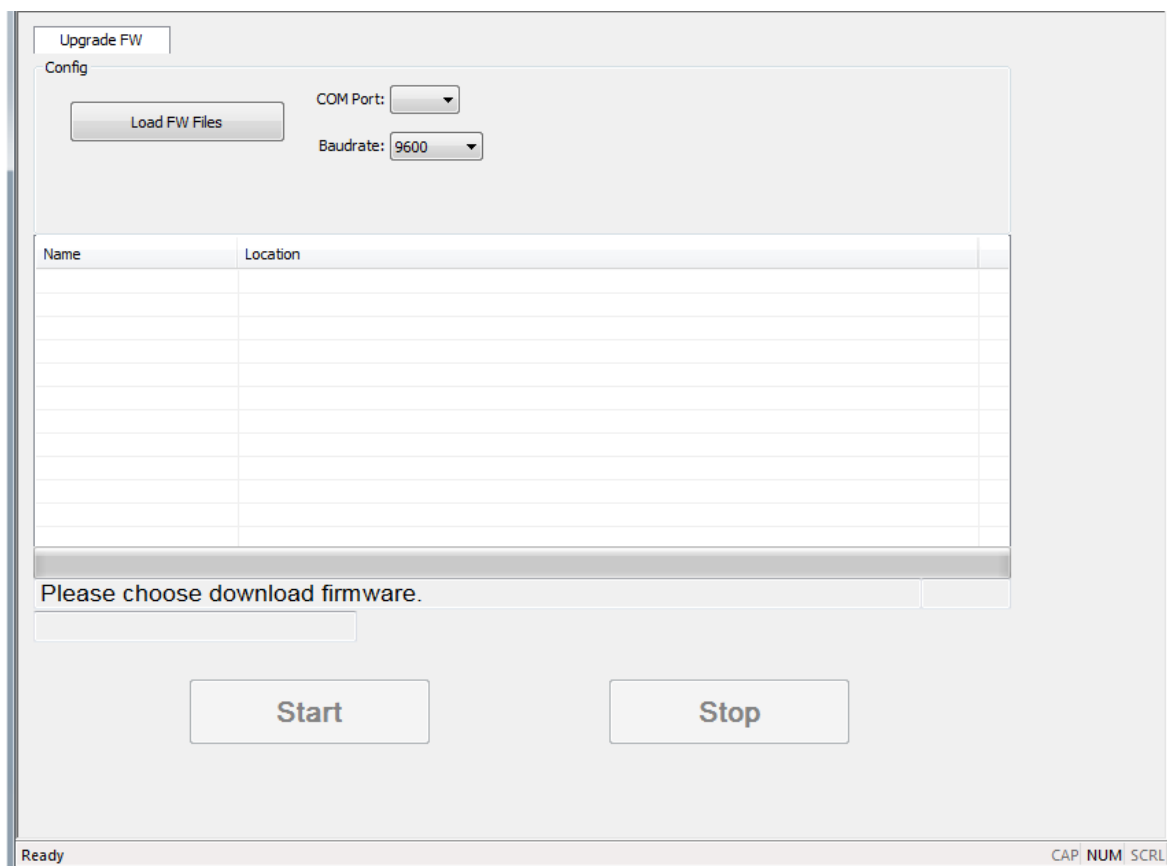


Figure 2: Main Interface of QFlash

## 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.

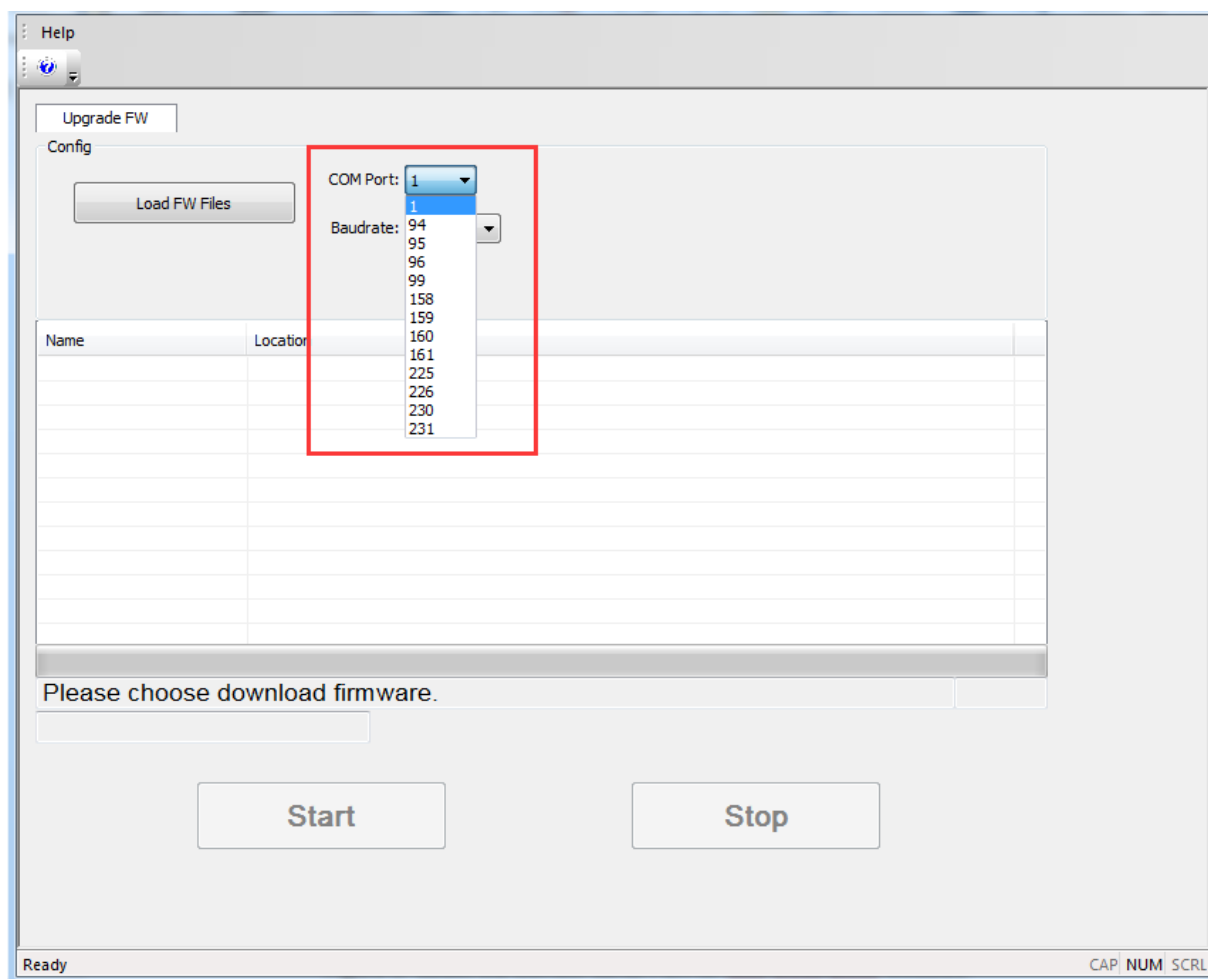


Figure 3: Select the Correct Serial Port for Mxx/GCxx/BCxx Modules

#### 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.

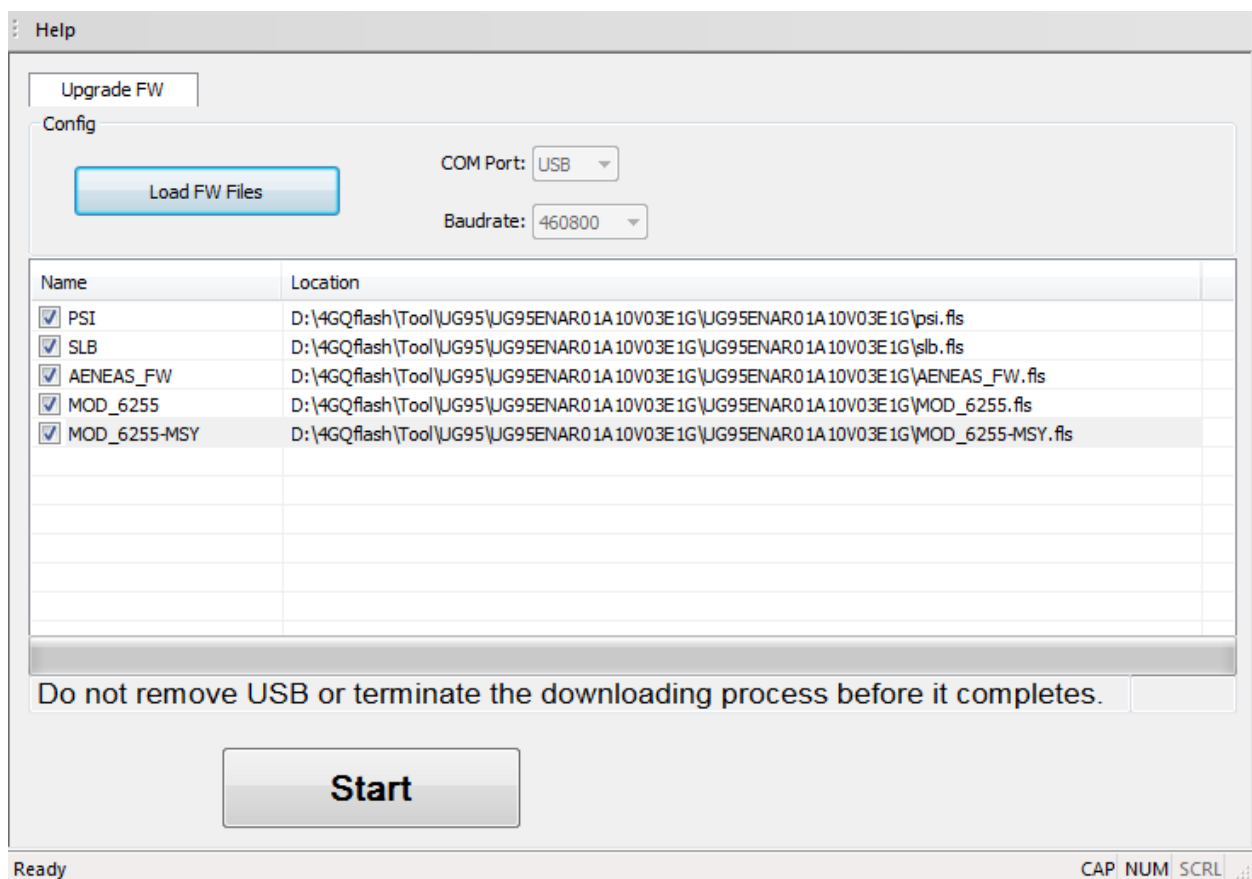


Figure 4: No Need to Select COM Port for UGxx

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

#### RM500Q-GL

For UCxx/ECxx/EGxx/Ex06/EM05/AGxx/BGxx/EM12/RG500Q/RM500Q-GL, 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.

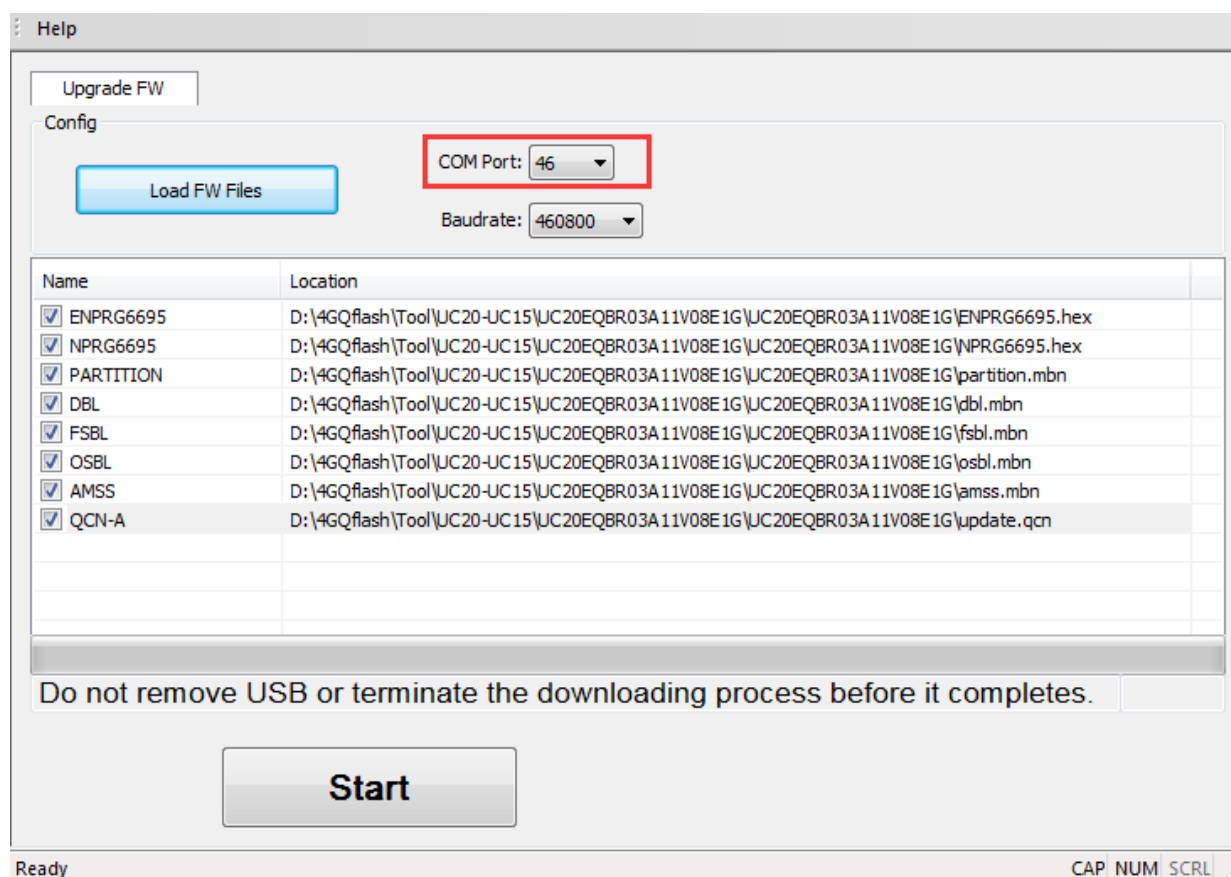


Figure 5: Select the USB DM Port for  
UCxx/ECxx/EGxx/Ex06/EM05/AGxx/BGxx/EM12/RG500Q/RM500Q-GL

#### 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.

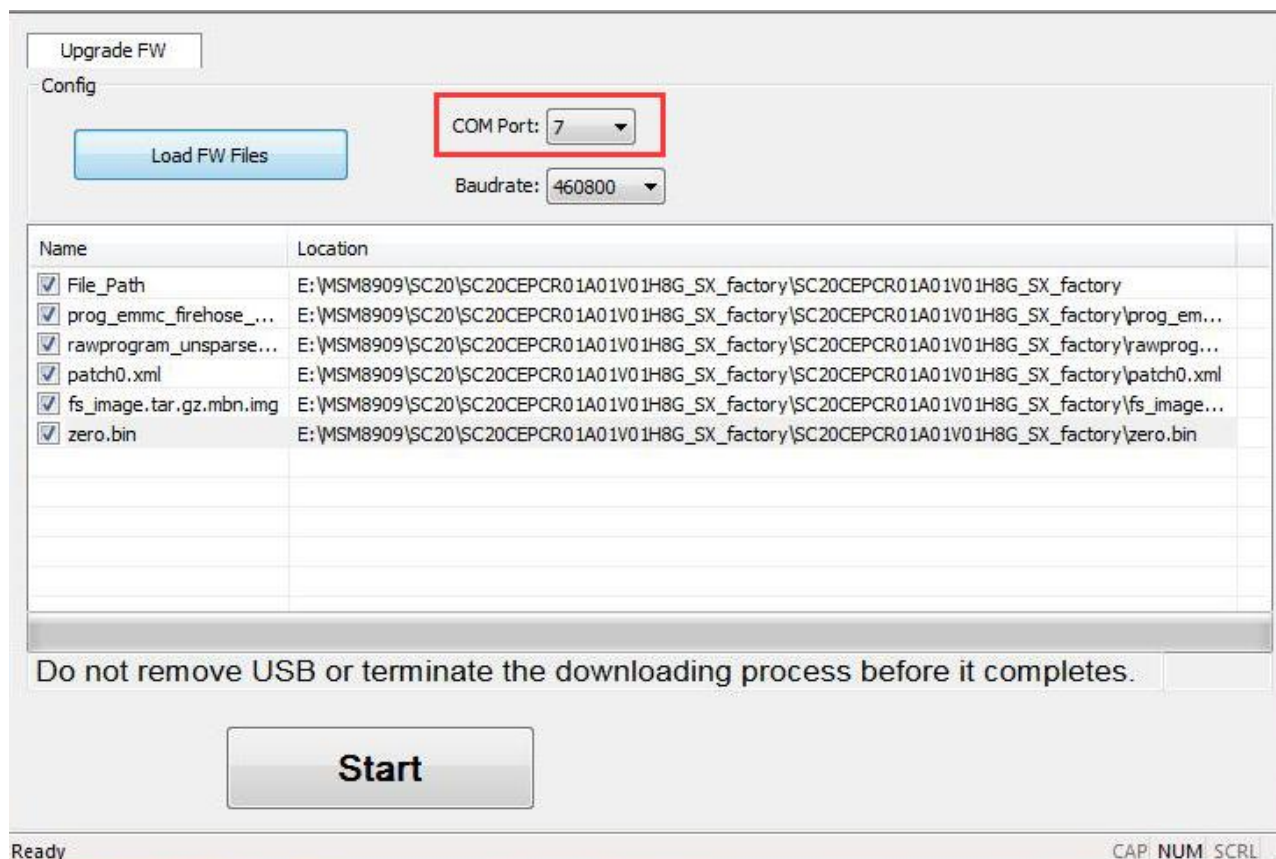


Figure 6: Select the HS-USB Diagnostics 9091 Port for SCxx

### 2.1.1.5. COM Port Selection for RG800H

For RG800H, HUAWEI Mobile Connect -Download Port can be used for firmware upgrade. Click “**COM Port**” drop-down list and select the port of HUAWEI Mobile Connect -Download Port for the upgrade, as shown in the following figure.

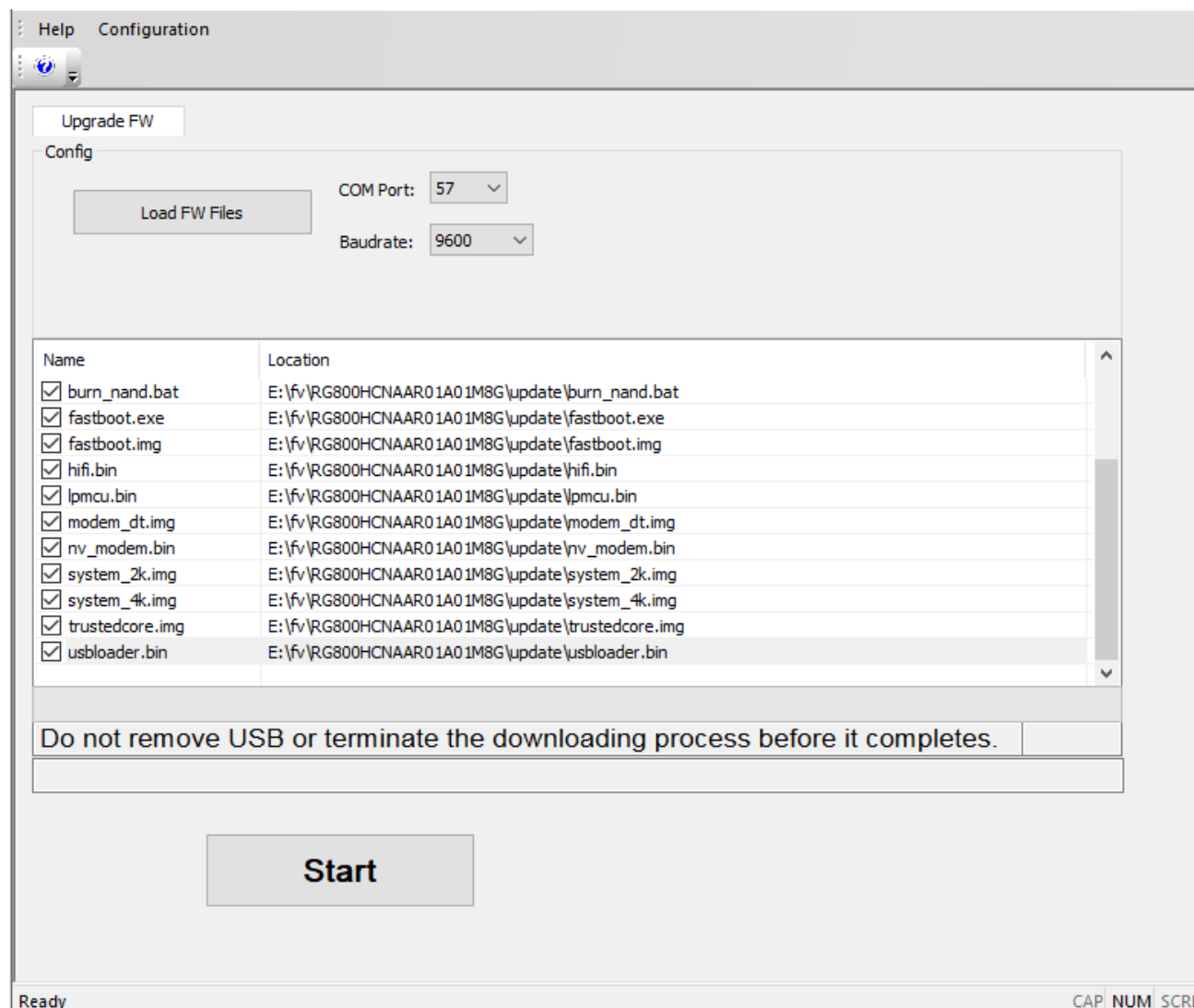


Figure 7: Select the HUAWEI Mobile Connect -Download Port for RG800H

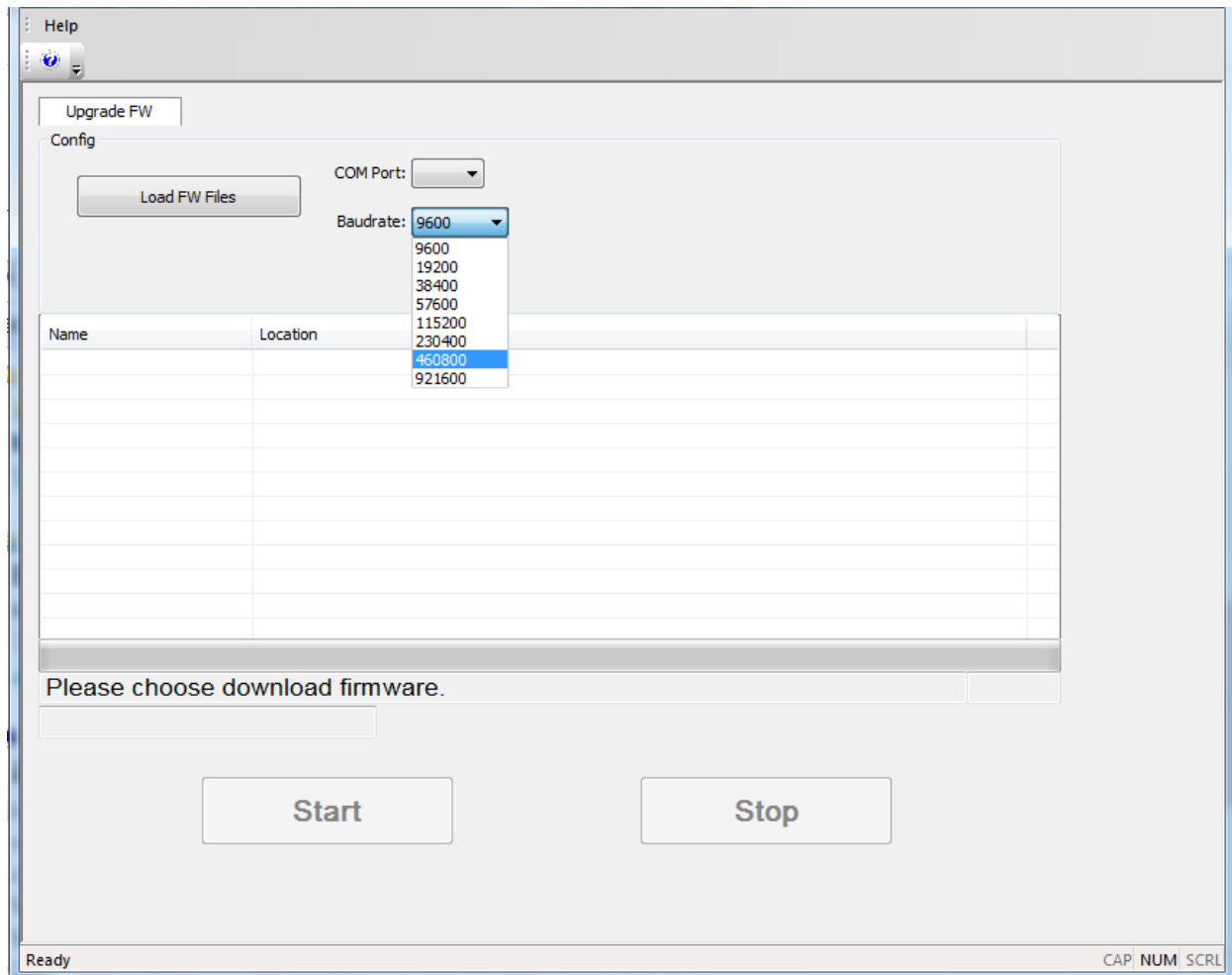
#### NOTE

Before upgrading the firmware package through HUAWEI Mobile Connect -Download Port, short-circuit BOOT and GND of RG800H.



### 2.1.2. Set Baud Rate

Click the “**Baudrate**” drop-down list and select an appropriate baud rate, as shown in the following figure.



**Figure 8: 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 the baud rate is not supported, an error message will be returned.
2. Please set baud rate to 921600 when upgrading firmware for GCxx or M65 modules, 9600 for BCxx modules, and 460800 for other Quectel 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 virtual USB 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.

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

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

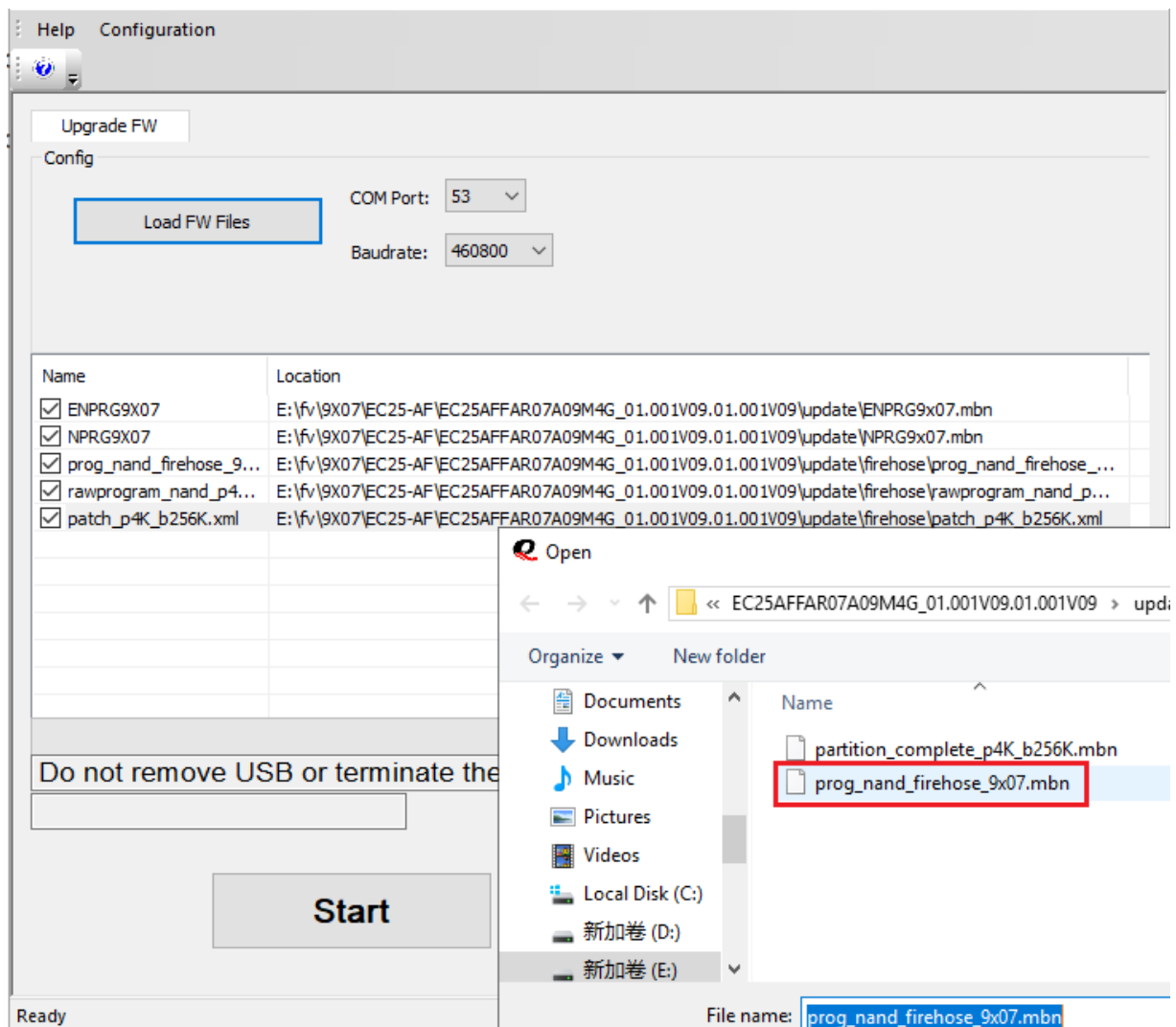


Figure 9: Select the File to Be Downloaded (Standard or QuecOpen Modules)

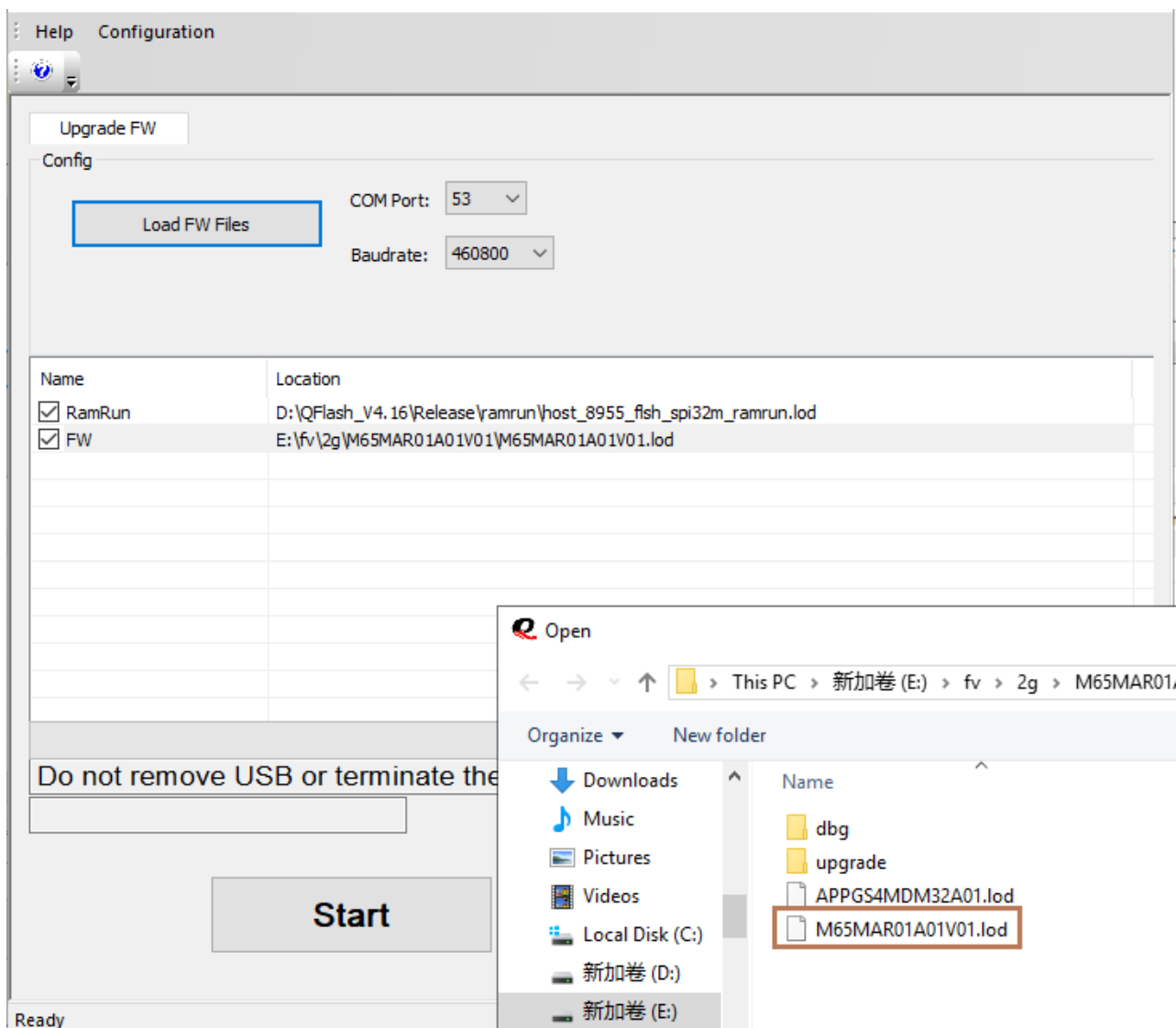


Figure 10: Select the File to Be Downloaded (QuecOpen Modules)

## NOTES

1. When *Firehose* folder exists in the firmware package, the firmware will be upgraded in Firehose mode by default, and, to upgrade in Sahara mode, please check “**Sahara only**” under “**Configuration**” in the menu bar; the upgrade will be processed in Sahara mode by default if there is no *Firehose* folder in the firmware package.
2. For RG800H module, please select a firmware file with *.bat* extension.

## 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.

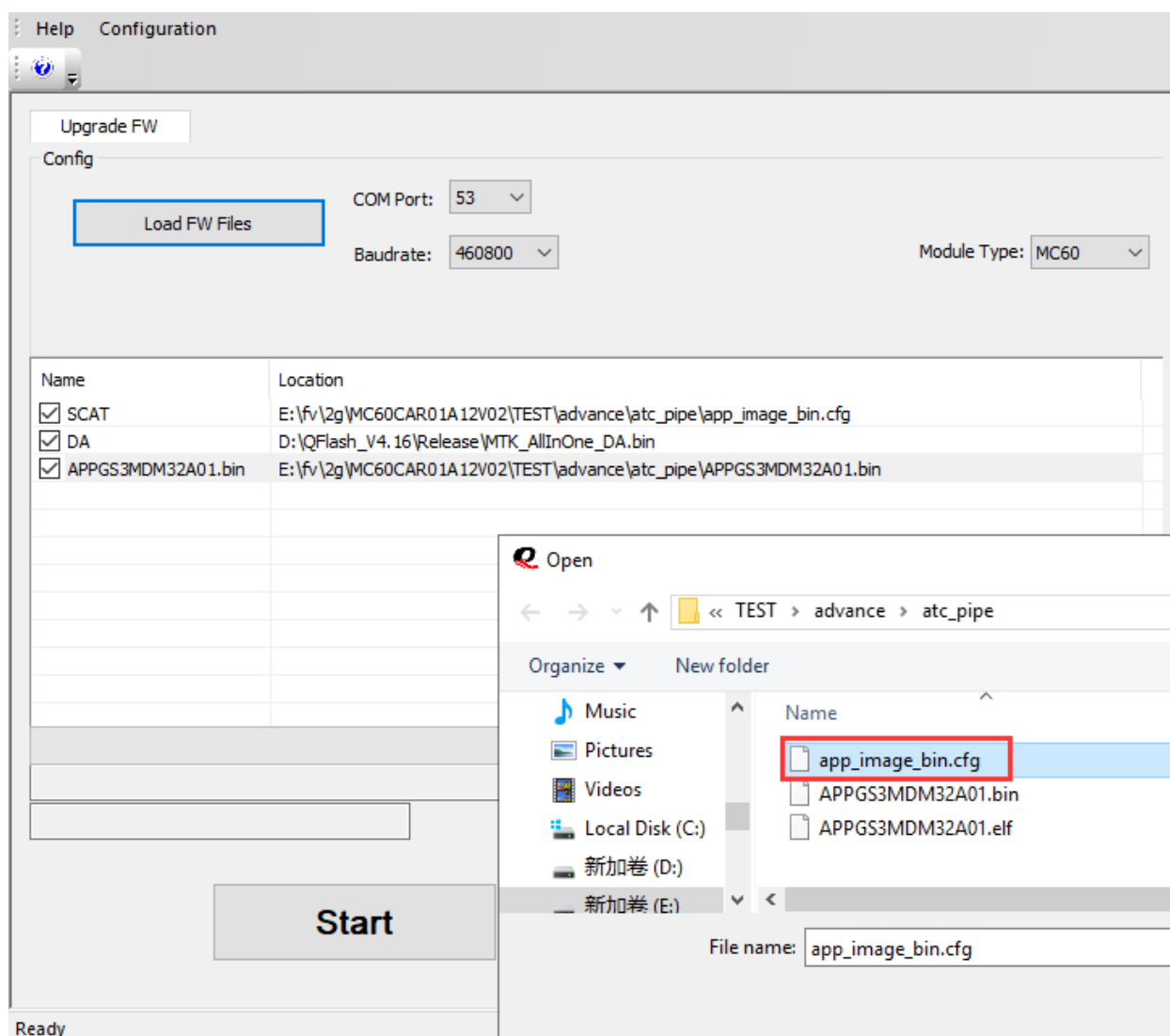
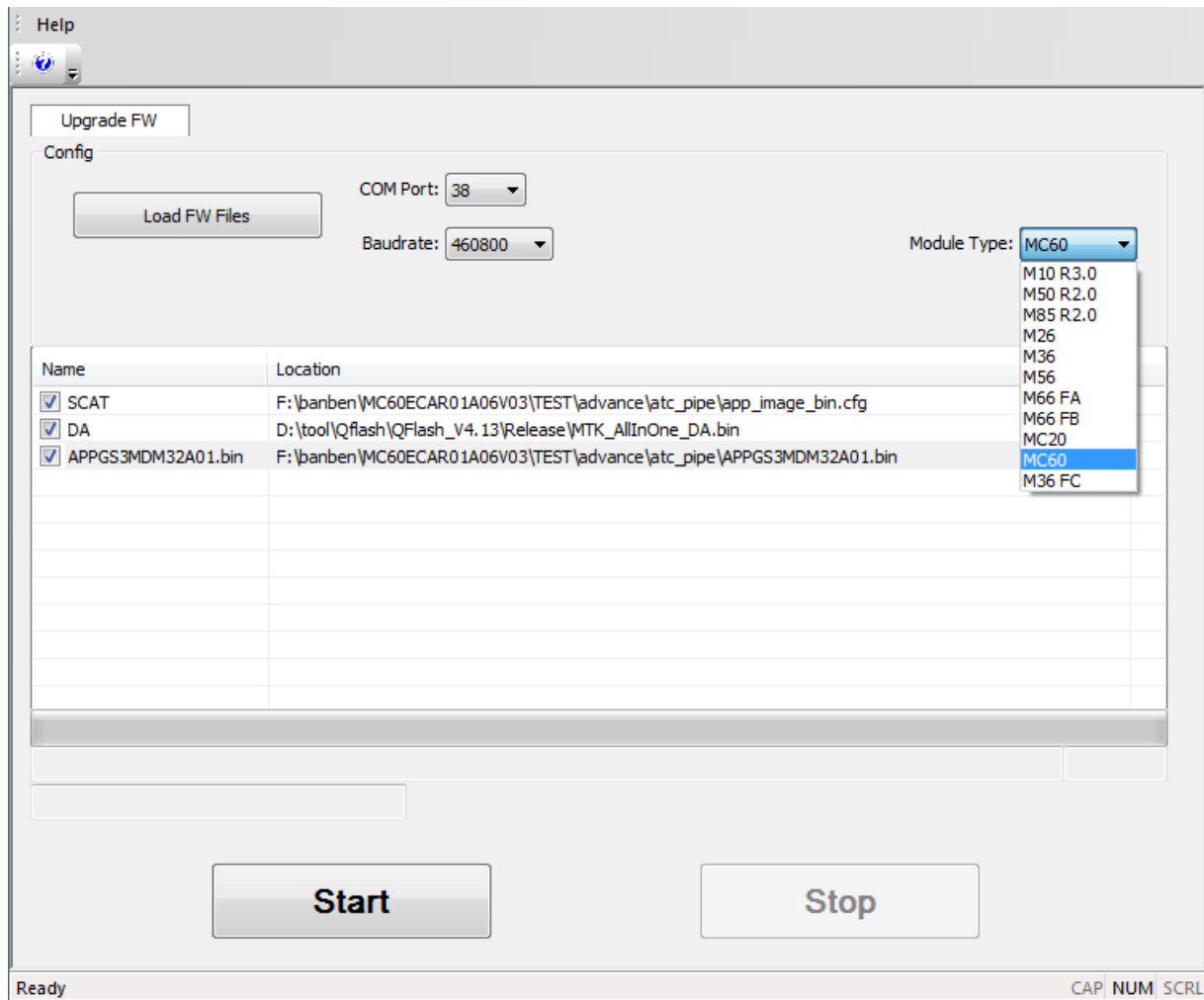


Figure 11: Select the .cfg File

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



**Figure 12: 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.

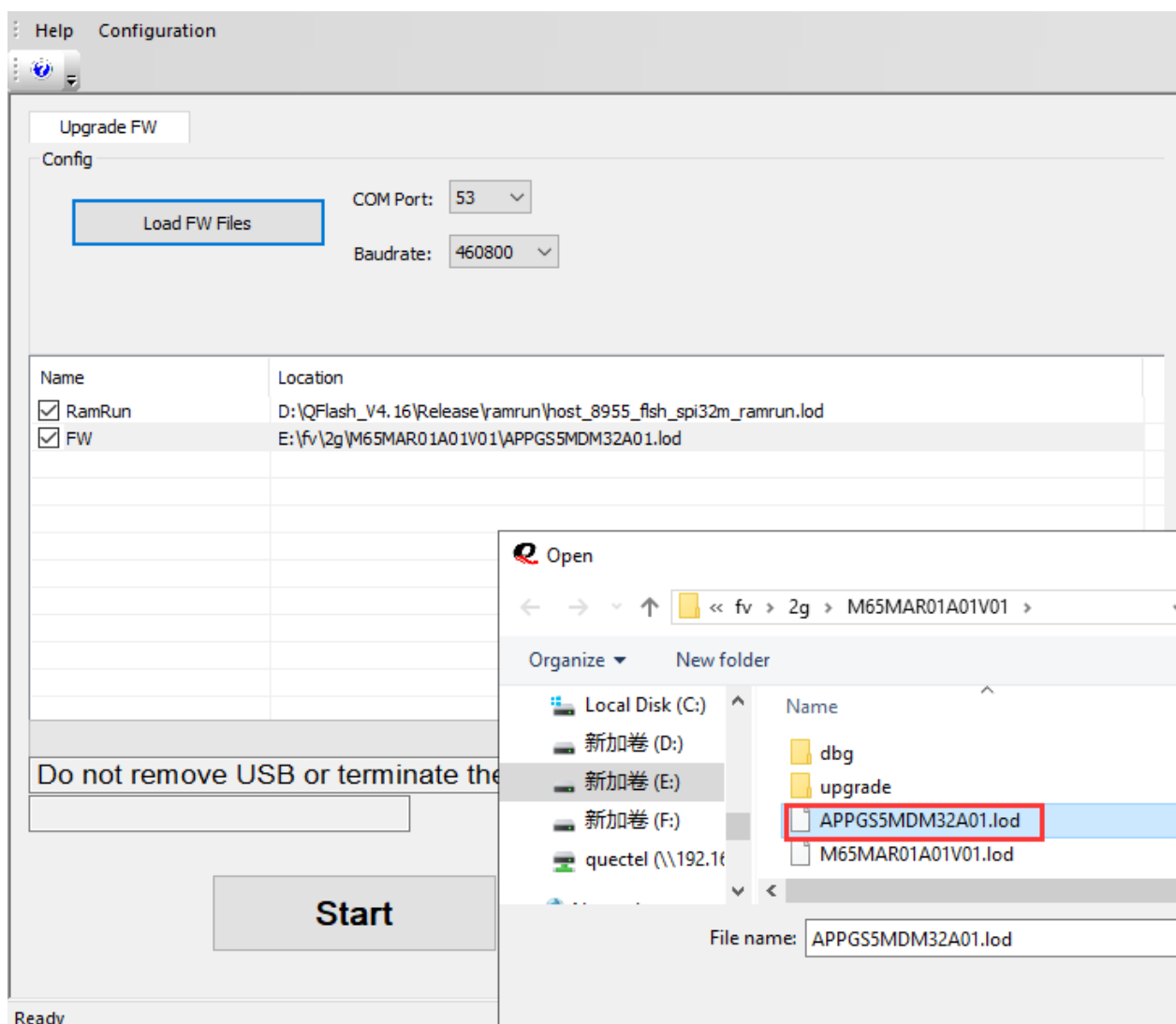


Figure 13: Select the APP Firmware File for M65

## 2.3. Upgrade Firmware

### 2.3.1. Standard Method to Upgrade Firmware

**Step 1:** Click the “Start” button.

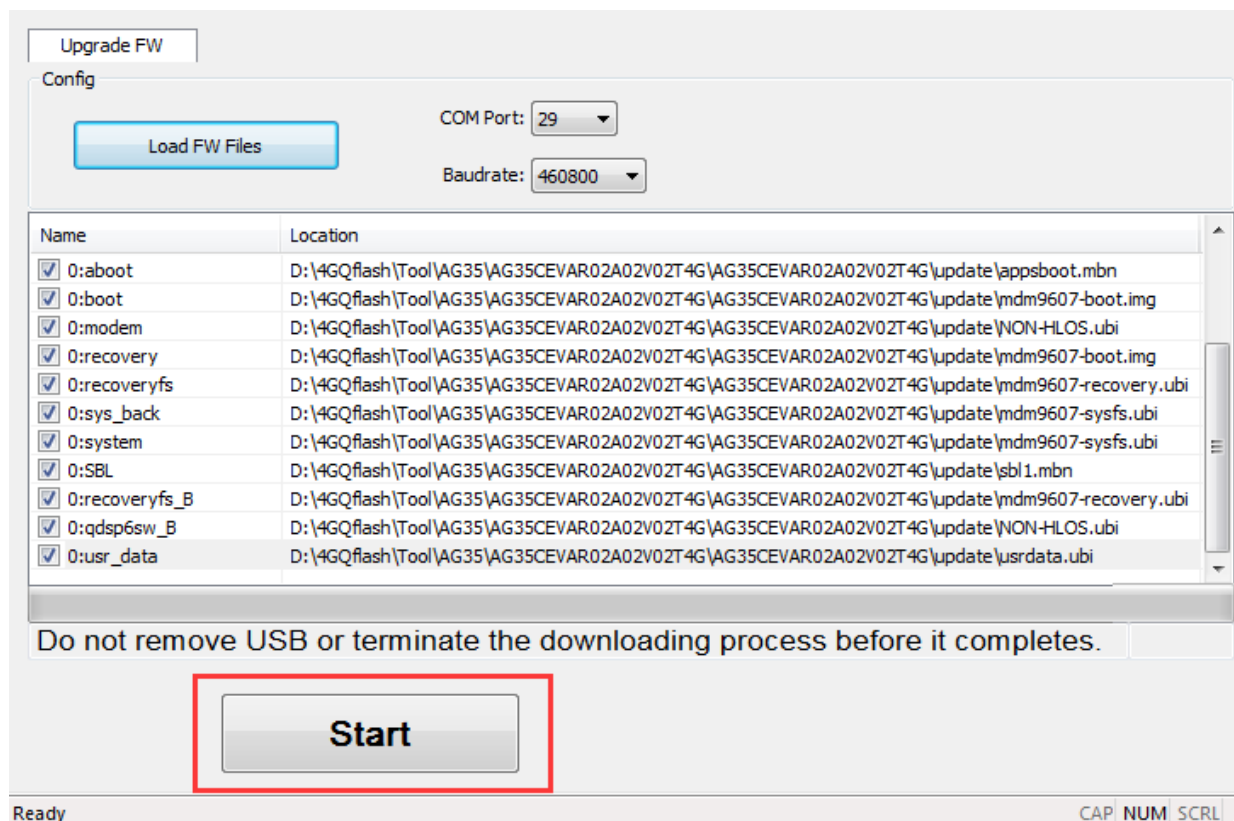


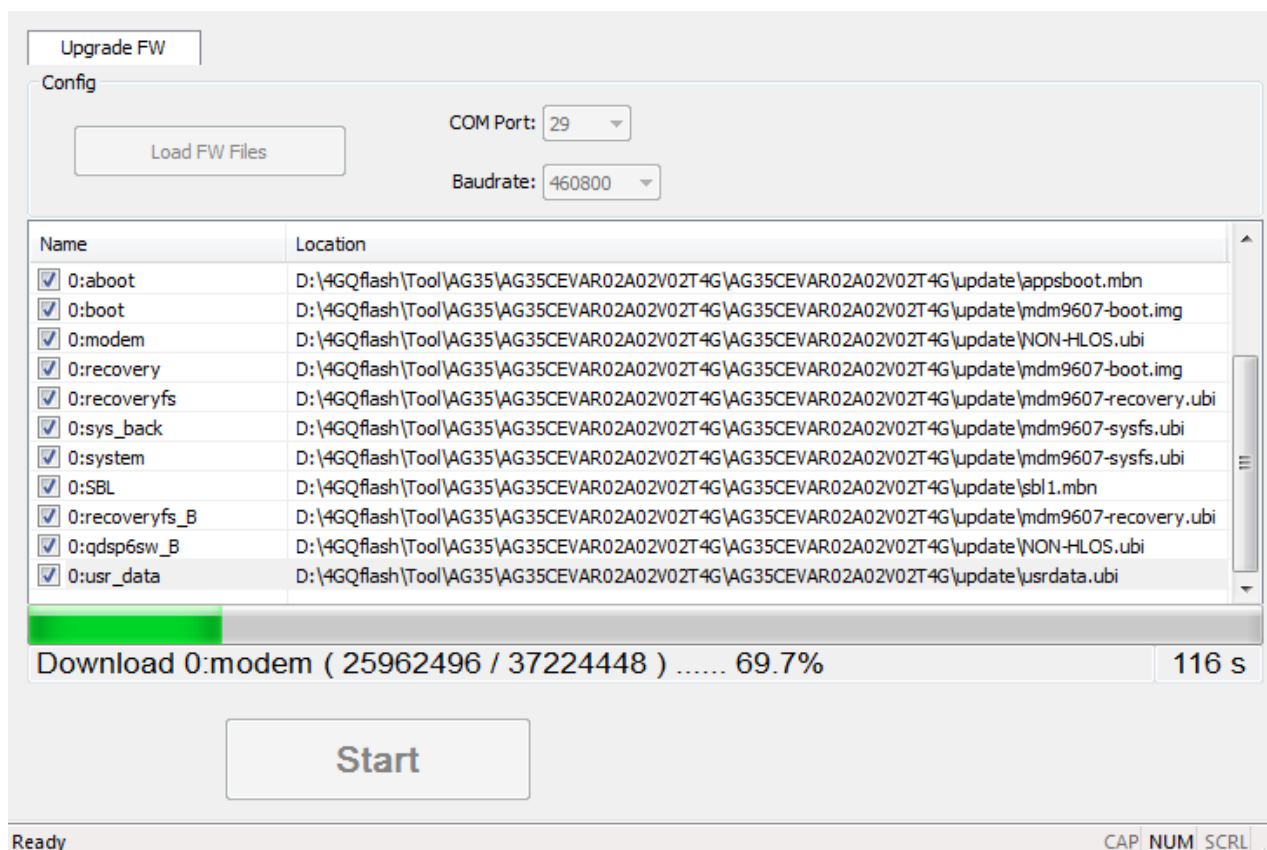
Figure 14: Click the Start Button

#### 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, when *Firehose* folder exists in the firmware package, the firmware will be upgraded in Firehose mode by default, and, to upgrade in Sahara mode, please check “**Sahara only**” under “**Configuration**” in the menu bar; the upgrade will be processed in Sahara mode by default if there is no *Firehose* folder in the firmware package.
3. If the upgrade in Firehose mode fails after many attempts, please try to turn off the anti-virus software and firewall or uninstall them and, then, try again.

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

- (1) GCxx/UCxx/UGxx/ECxx/EG9x/Ex06/SCxx/EM05/AGxx/BGxx/EM12/M65/RG500Q/RM500Q-GL/RG800H 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.



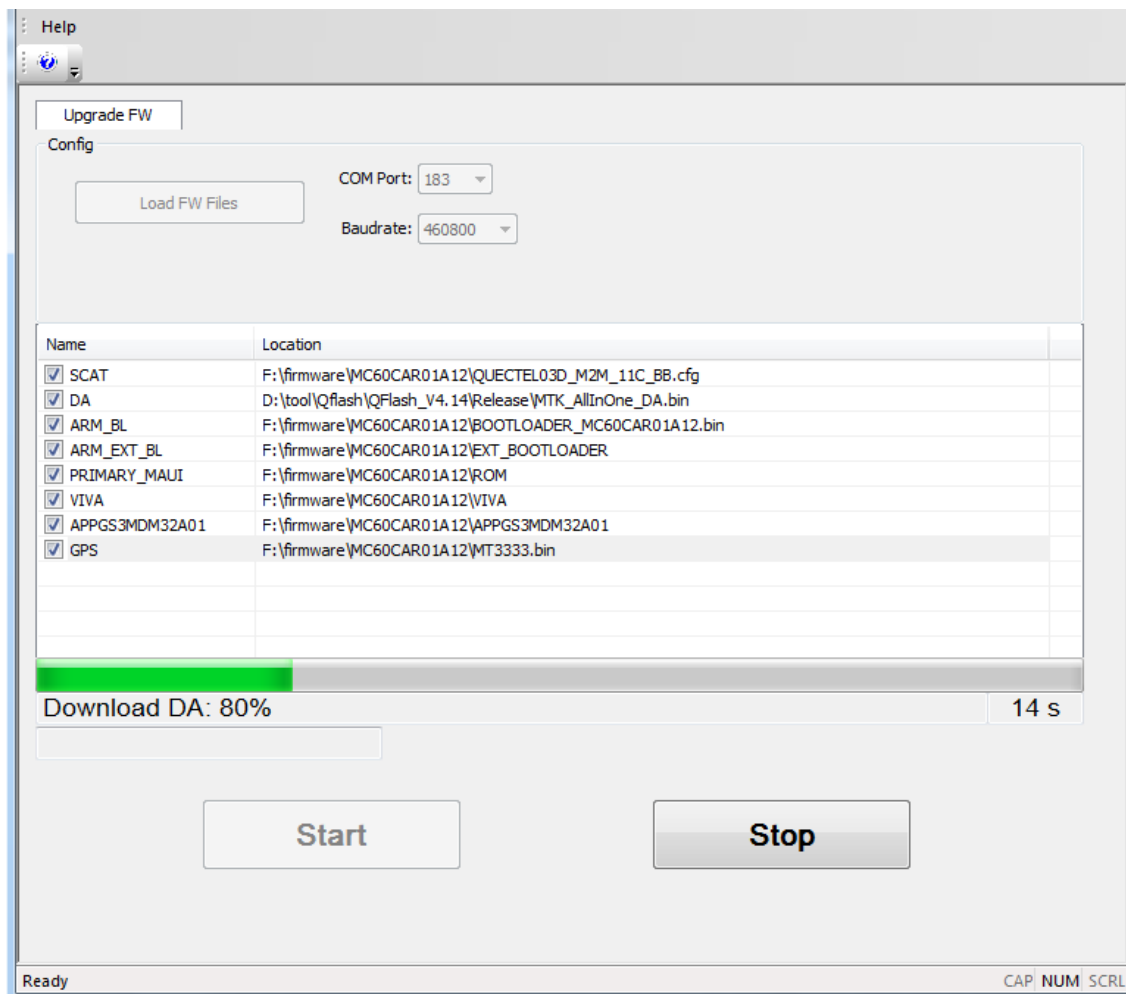
**Figure 15: Start Firmware Upgrade Automatically After Clicking “Start” Button**

#### NOTES

1. For GCxx/UCxx/UGxx/ECxx/EG9x/Ex06/SCxx/EM05/AGxx/BG96/EM12/M65/RG500Q/RM500Q-GL/RG800H, 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. The RG800H module only supports upgrading in 64-bit operating system.
3. For RG800H module upgrade, if the ADB report tool cannot be found during the upgrade, please download the latest ADB tool on <https://developer.android.com/studio/releases/platform-tools>, and replace *adb.exe*, *AdbWinApi.dll*, and *AdbWinUsbApi.dll* in the directory *C:\Windows\SysWOW64*.



- (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 16: Start Firmware Upgrade after Manually Restarting the Module (M10/M66/M72/M80/M85/M95/MC60)**

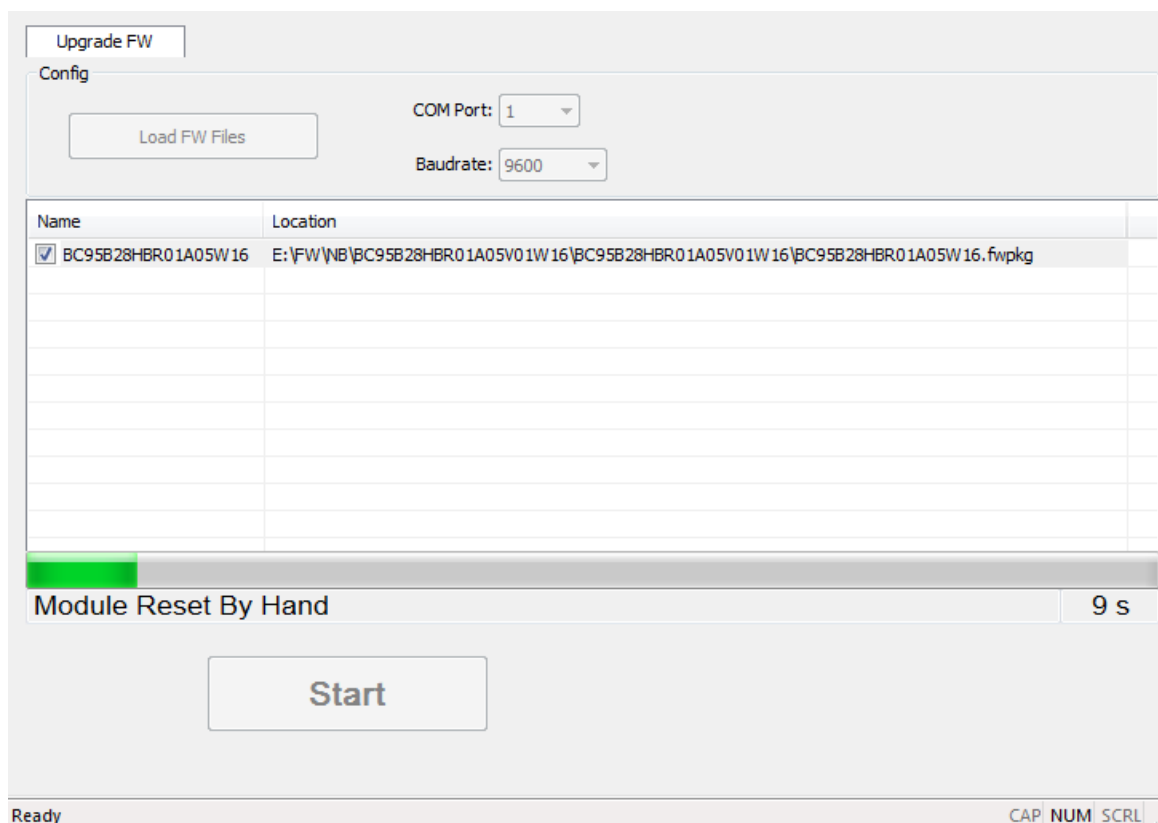


Figure 17: Start to Upgrade after Manually Restarting BC95

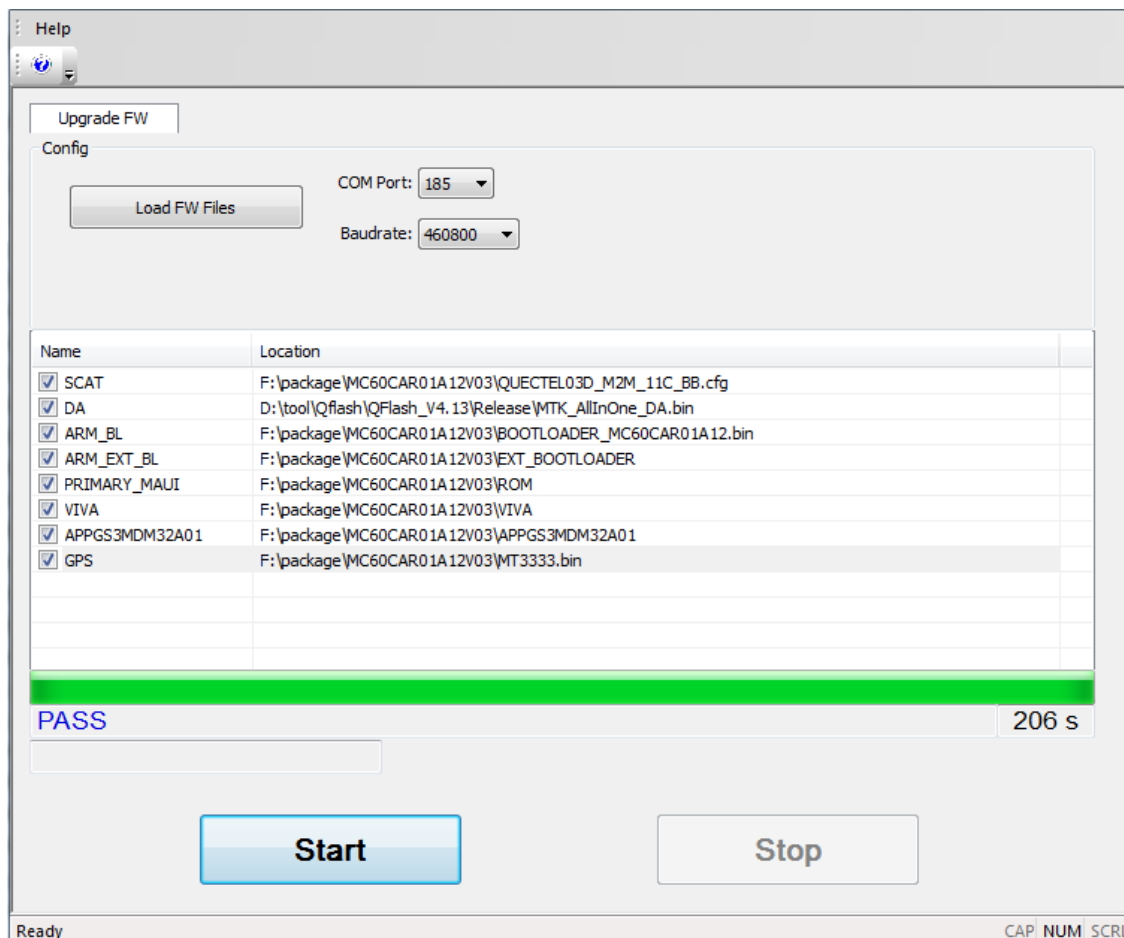
#### NOTES

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 5 V 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\_V4.18\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 18: Firmware Upgraded Successfully**

## 2.4. Abnormalities

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

### 2.4.1. Selected a Wrong Serial Port

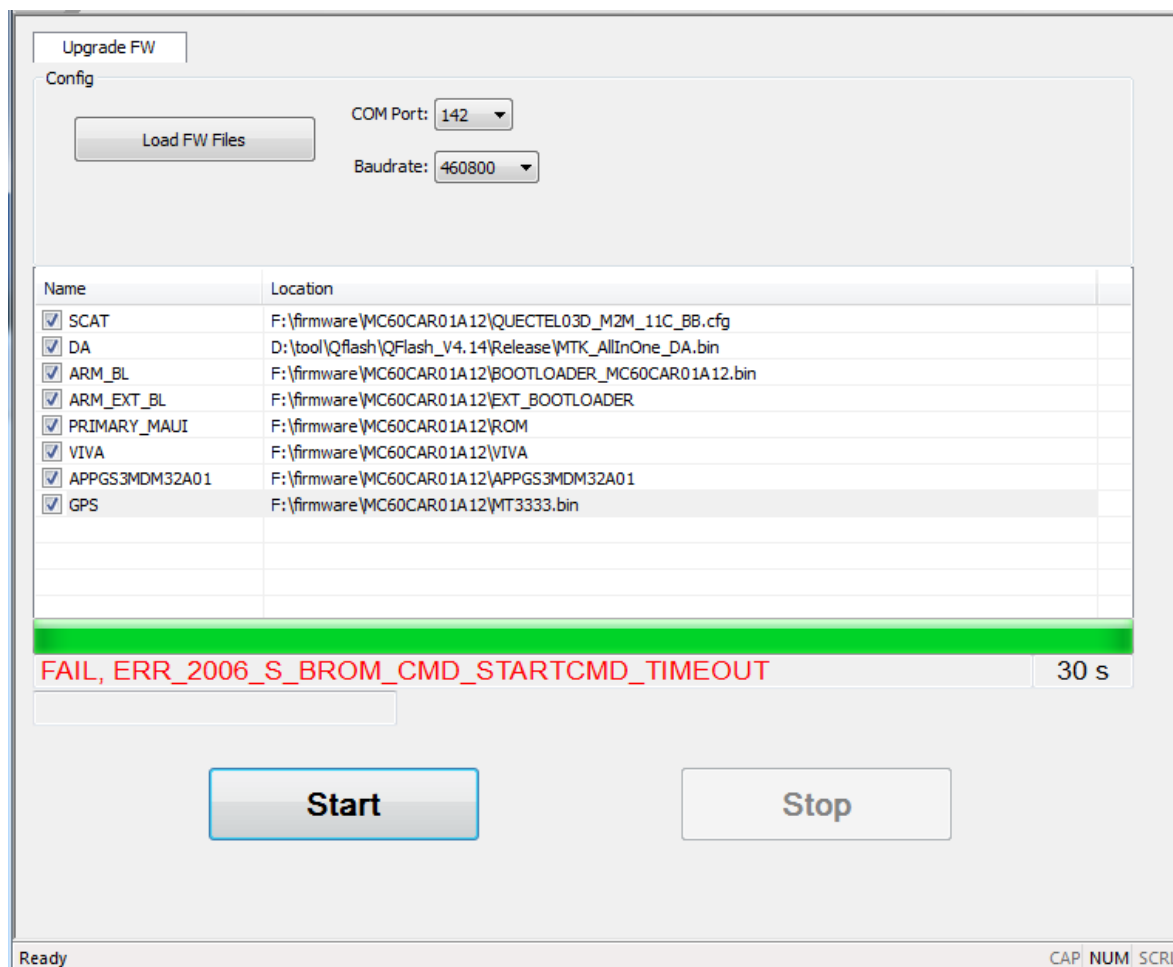


Figure 19: Connected to a Wrong Serial Port (M10/M66/M72/M80/M85/M95/MC60)

#### NOTE

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

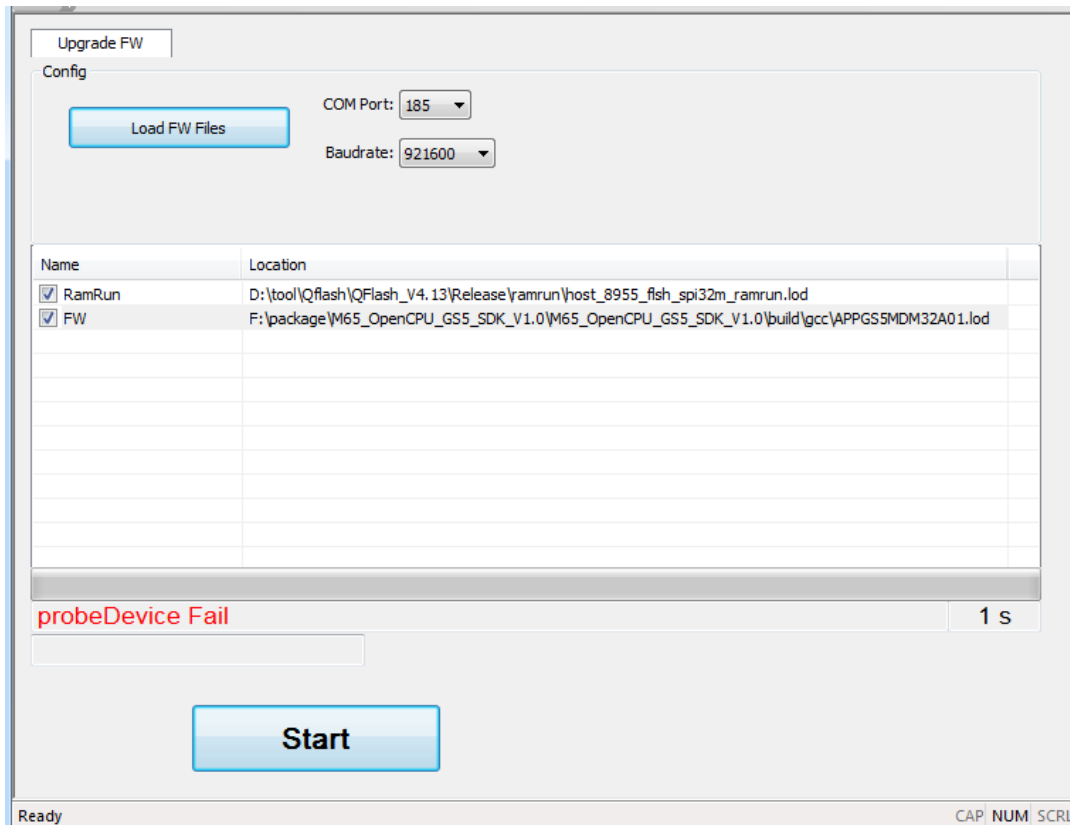


Figure 20: Connected to a Wrong Serial Port (M65)

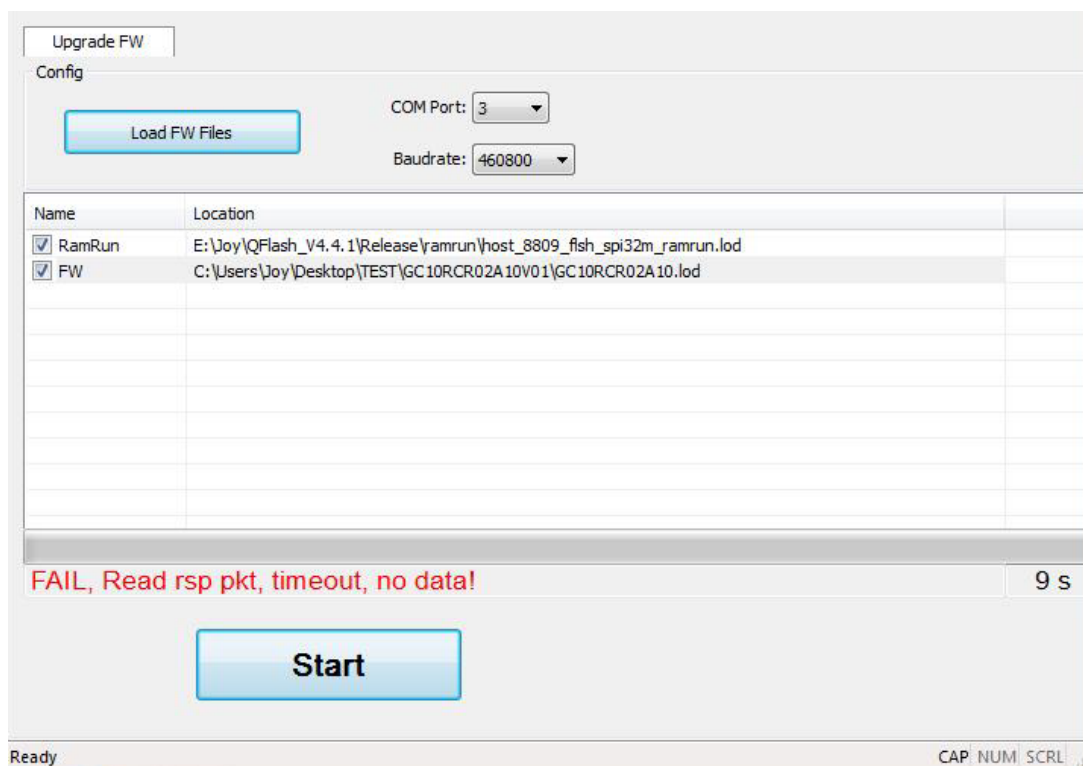


Figure 21: Connected to a Wrong Serial Port (GCxx)

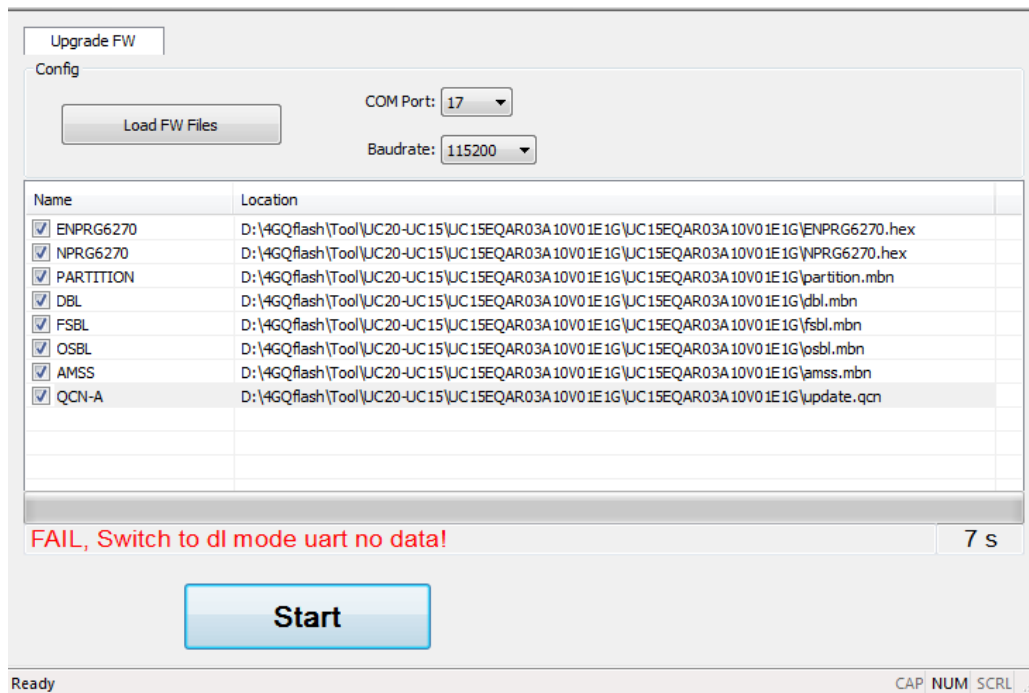


Figure 22: Connected to a Wrong Serial Port (UCxx)

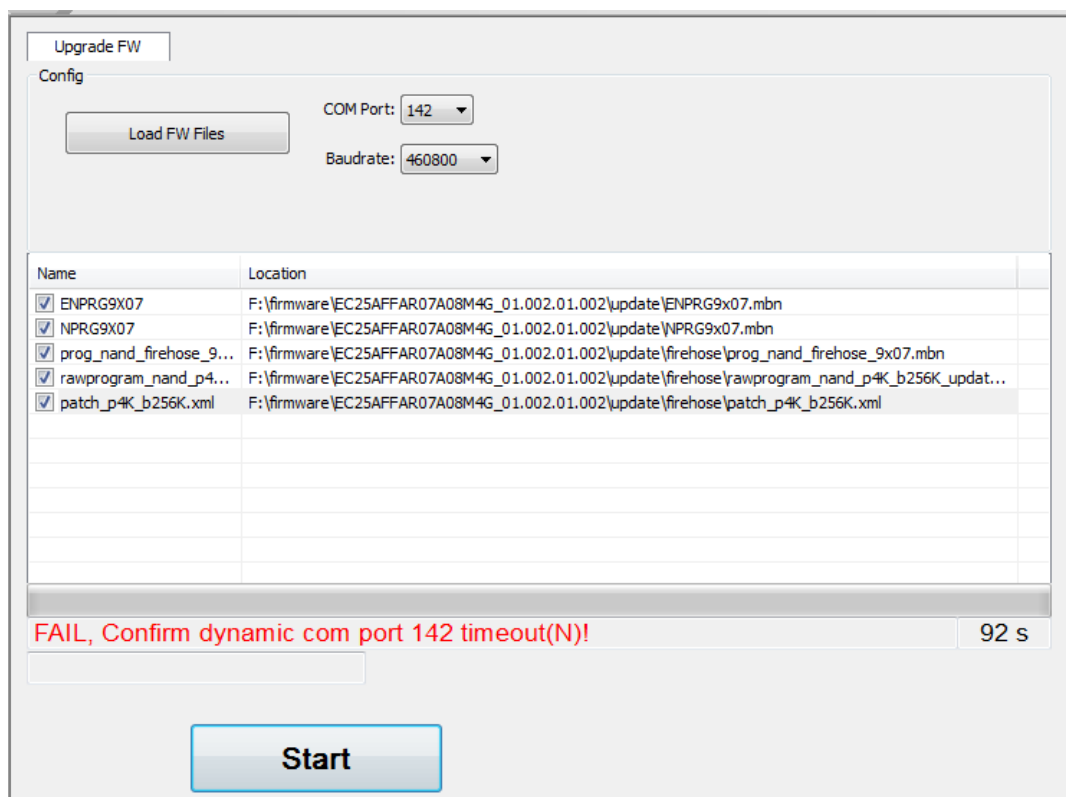


Figure 23: Connected to a Wrong Serial Port  
(ECxx/AGxx/EG9x/Ex06/EM05/BGxx/EM12/RG500Q/RM500Q-GL)

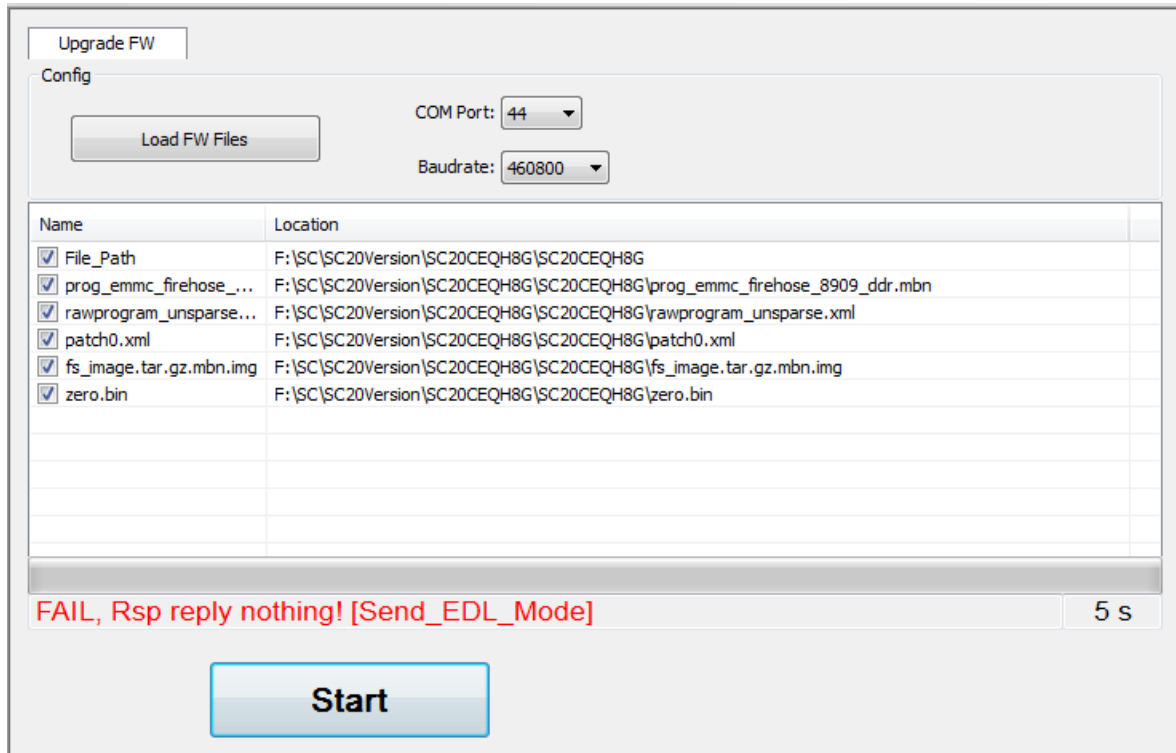


Figure 24: Connected to a Wrong Serial Port (SCxx)

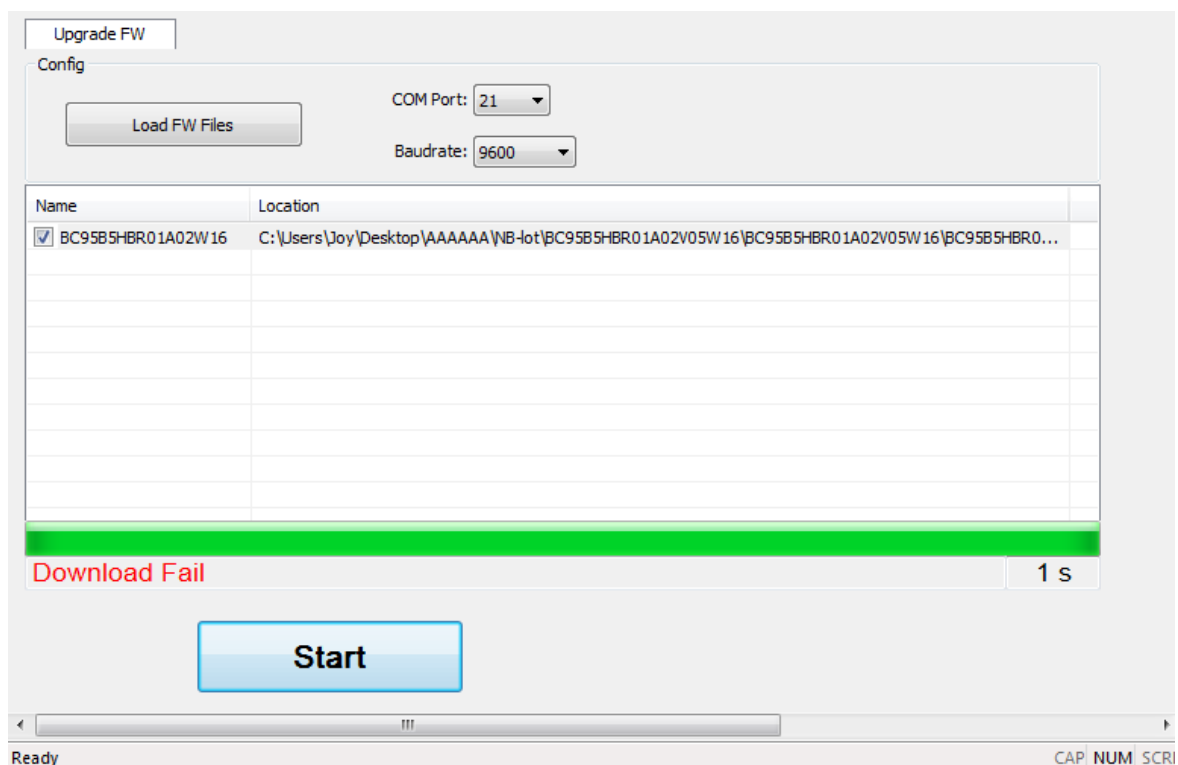


Figure 25: Connected to a Wrong Serial Port (BCxx)

## 2.4.2. Connected to an Occupied Serial Port

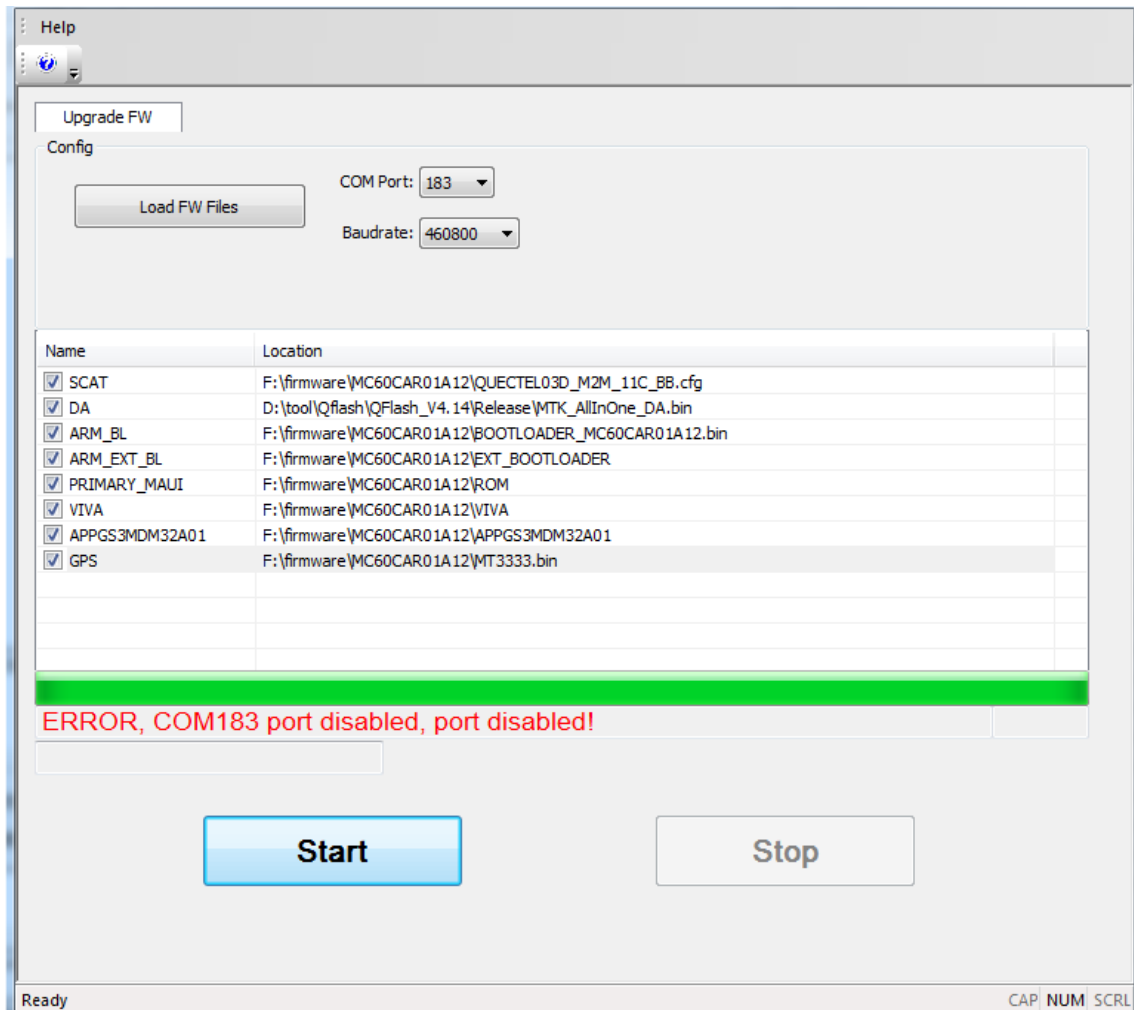


Figure 26: Connected to an Occupied Serial Port (M10/M66/M72/M80/M85/M95/MC60)



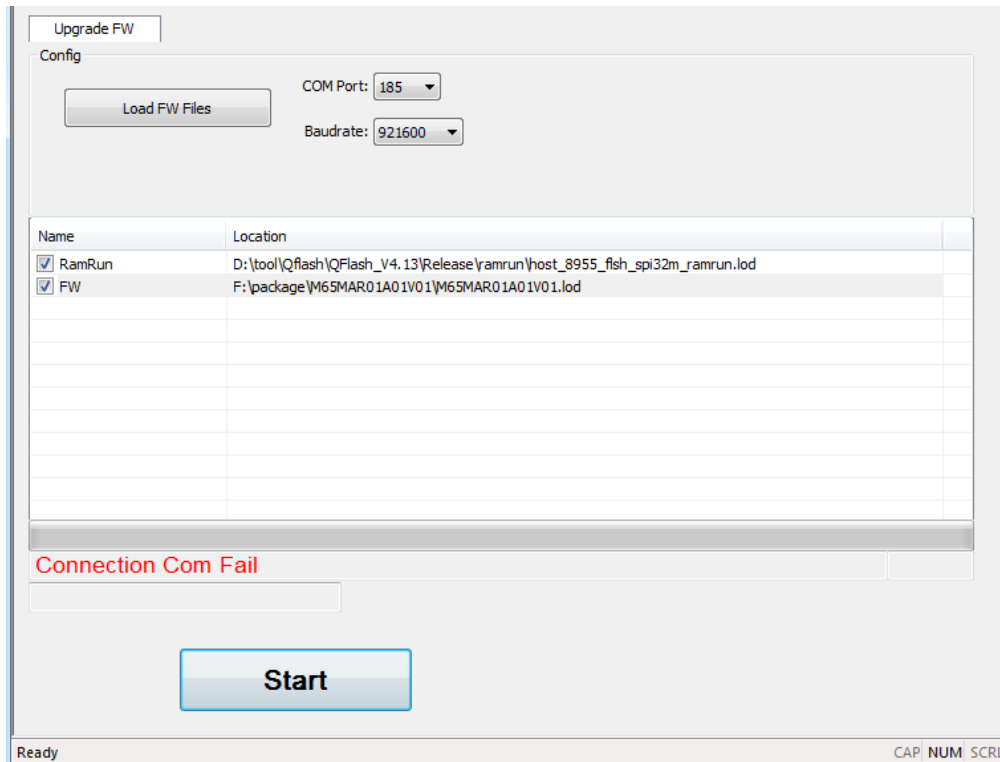


Figure 27: Connected to an Occupied Serial Port (M65)

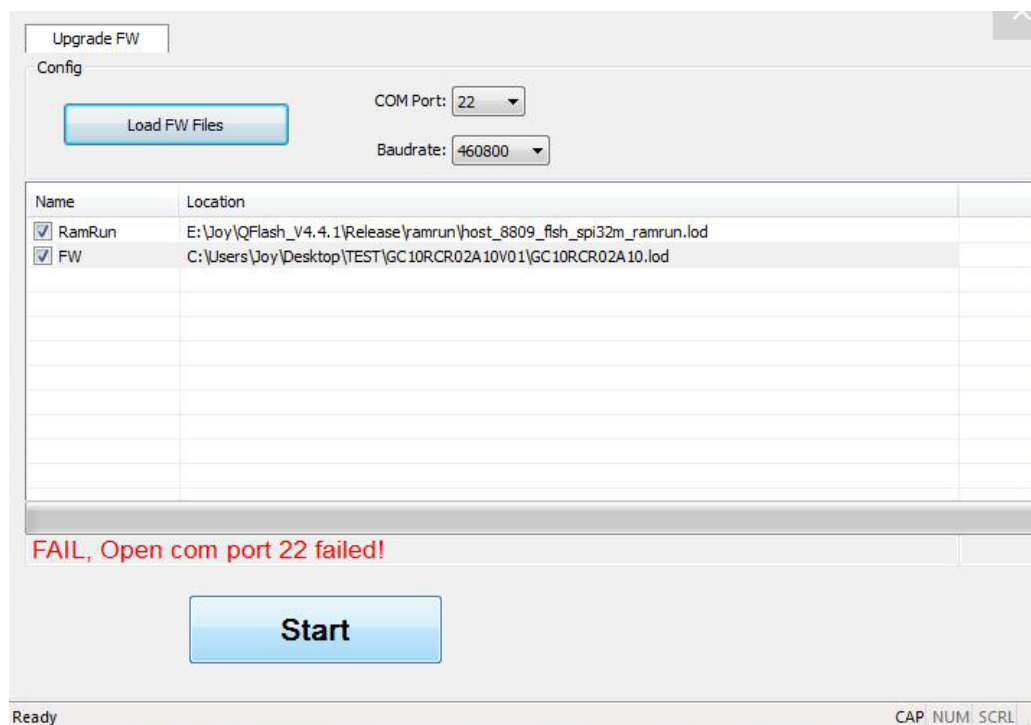


Figure 28: Connected to an Occupied Serial Port (GCxx)

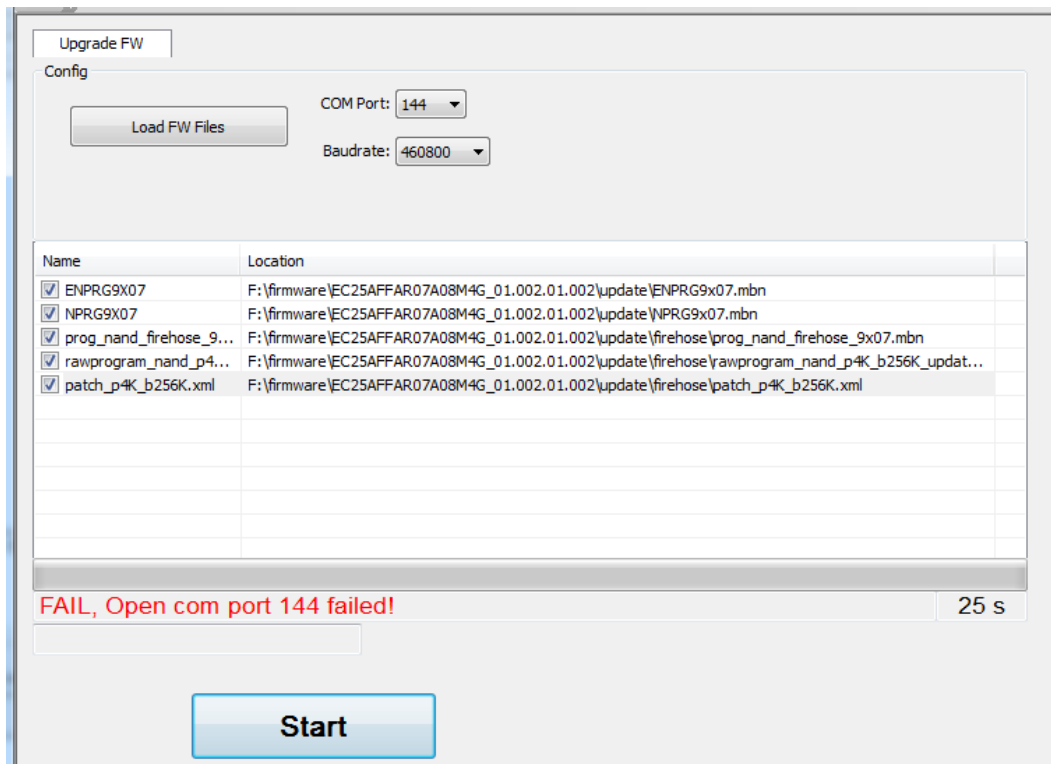


Figure 29: Connected to an Occupied Serial Port (UCxx/ECxx/EG9x/Ex06/SCxx/EM05/AGxx/BGxx/EM12/RG500Q/RM500Q-GL)

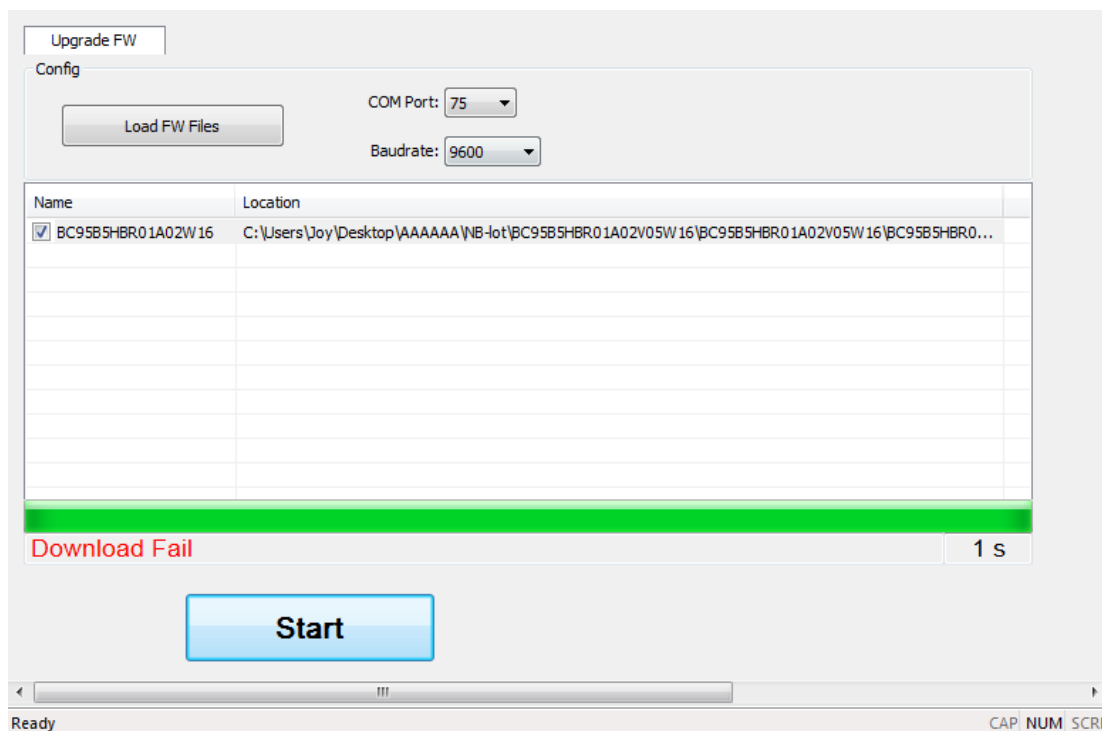


Figure 30: Connected to an Occupied Serial Port (BCxx)

### 2.4.3. Selected an Unsupported Baud Rate

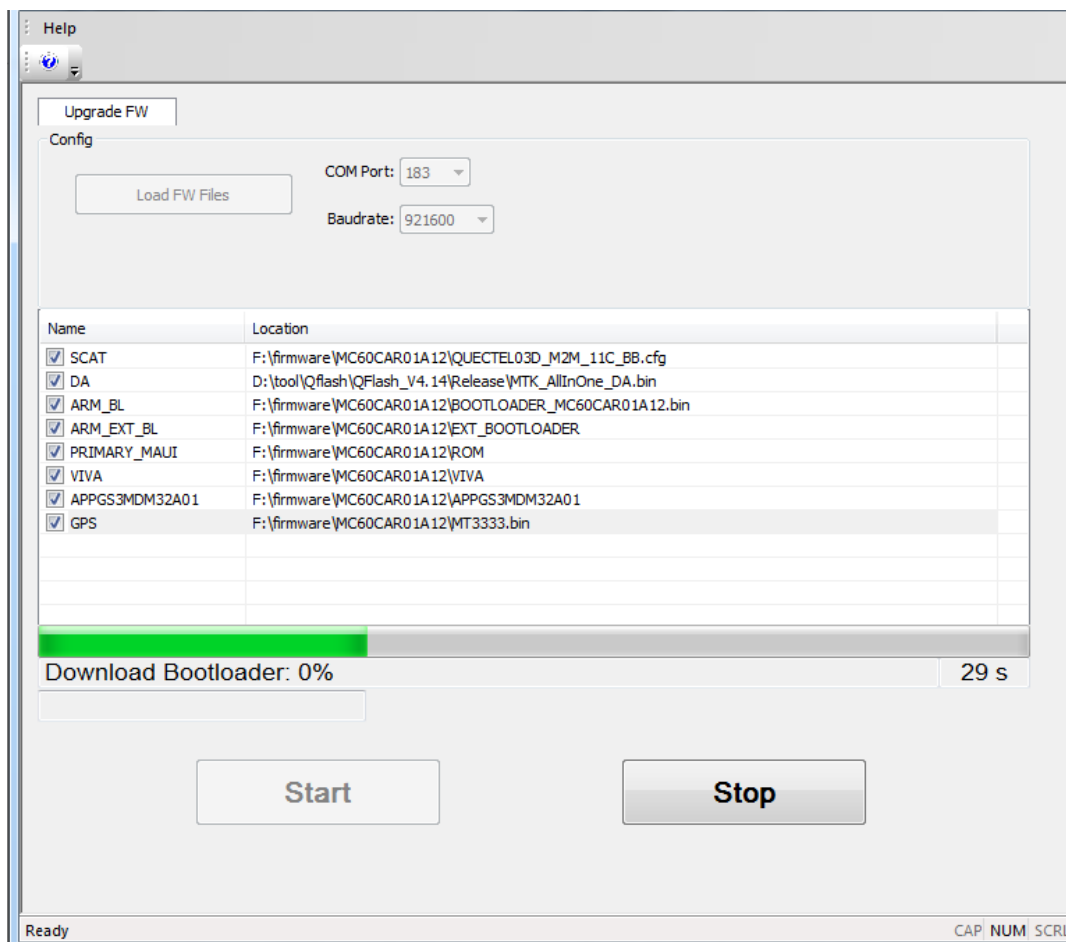


Figure 31: Selected an Unsupported Baud Rate (M10/M66/M72/M80/M85/M95/MC60)

#### 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.

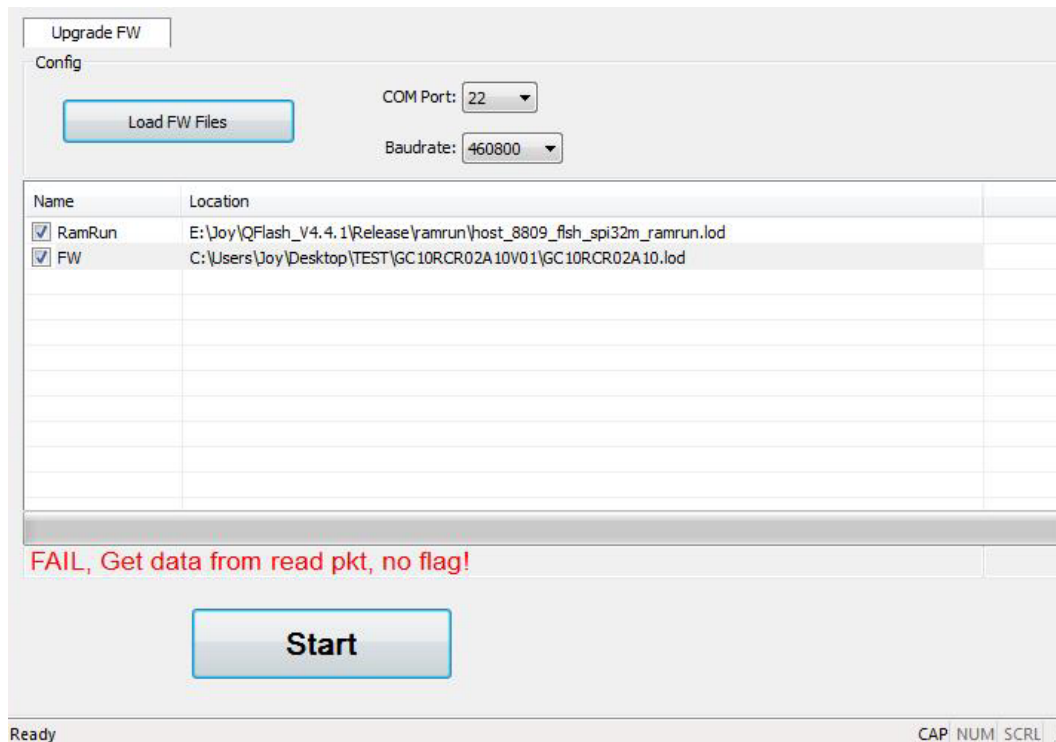


Figure 32: Selected an Unsupported Baud Rate (GCxx)

#### 2.4.4. Selected an Invalid FW File

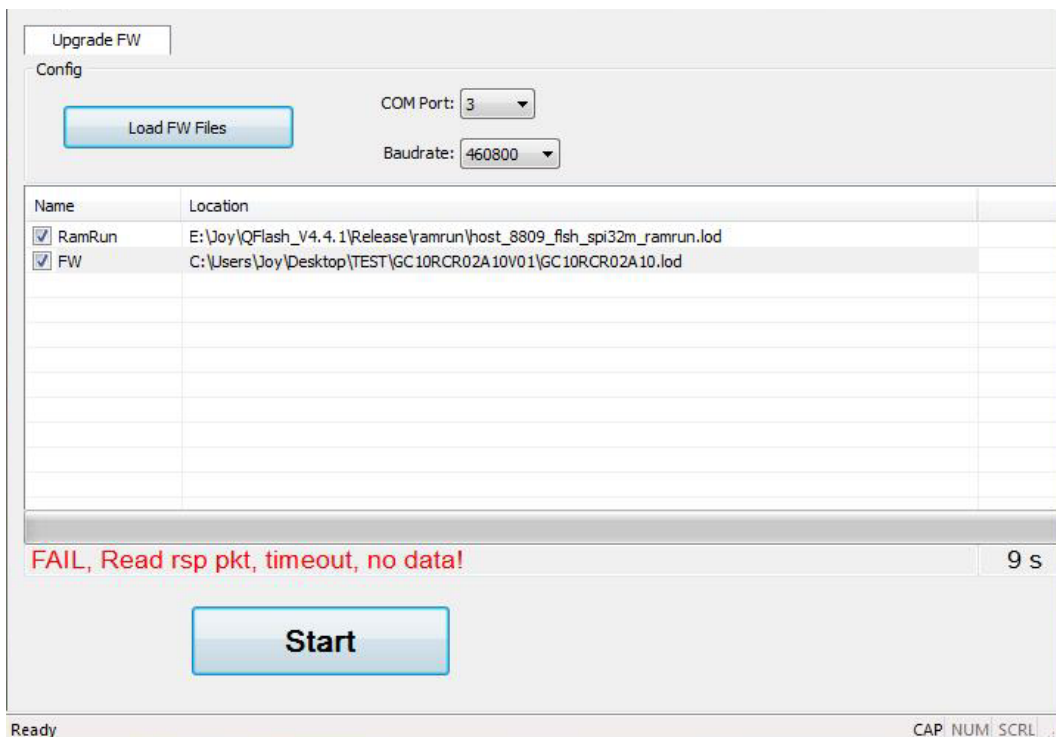


Figure 33: Selected an Invalid FW File (M10/M66/M72/M80/M85/M95/MC60)

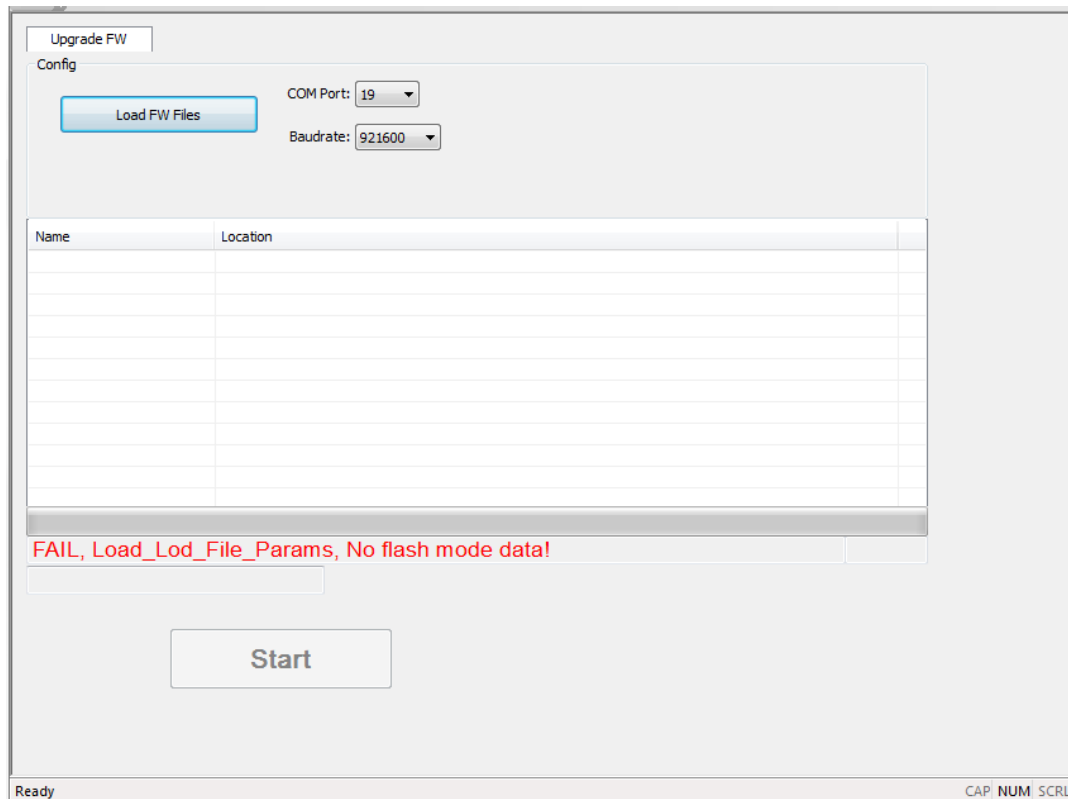


Figure 34: Selected an Invalid FW File (M65)

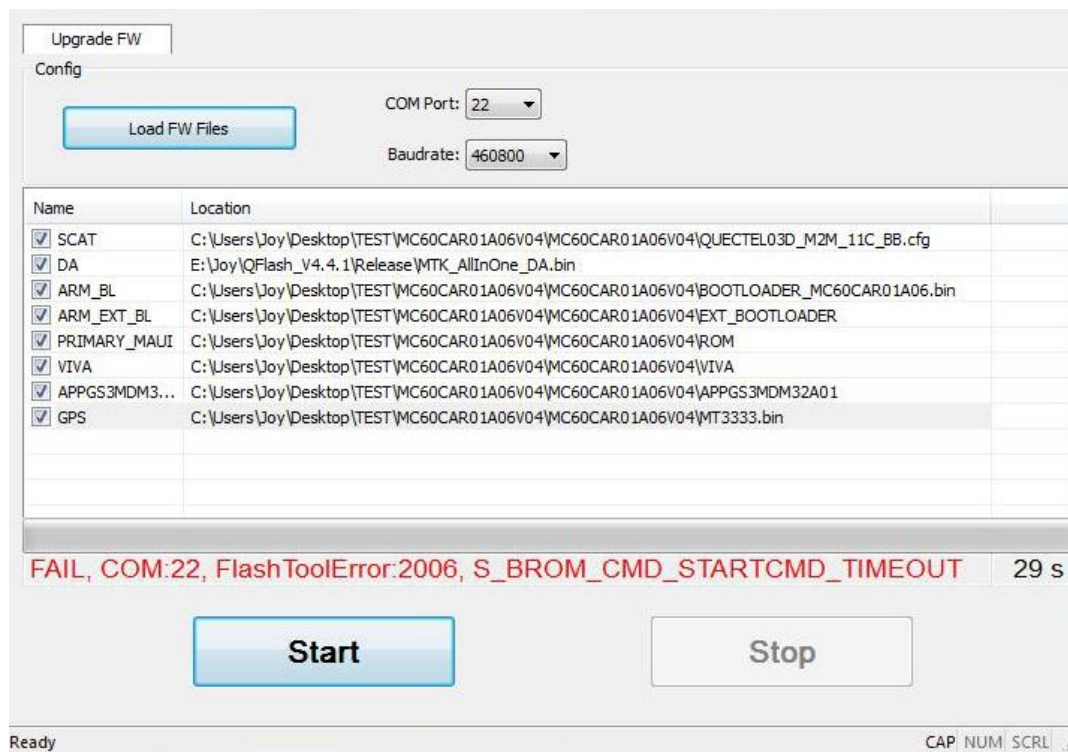


Figure 35: Selected an Invalid FW File (GCxx)

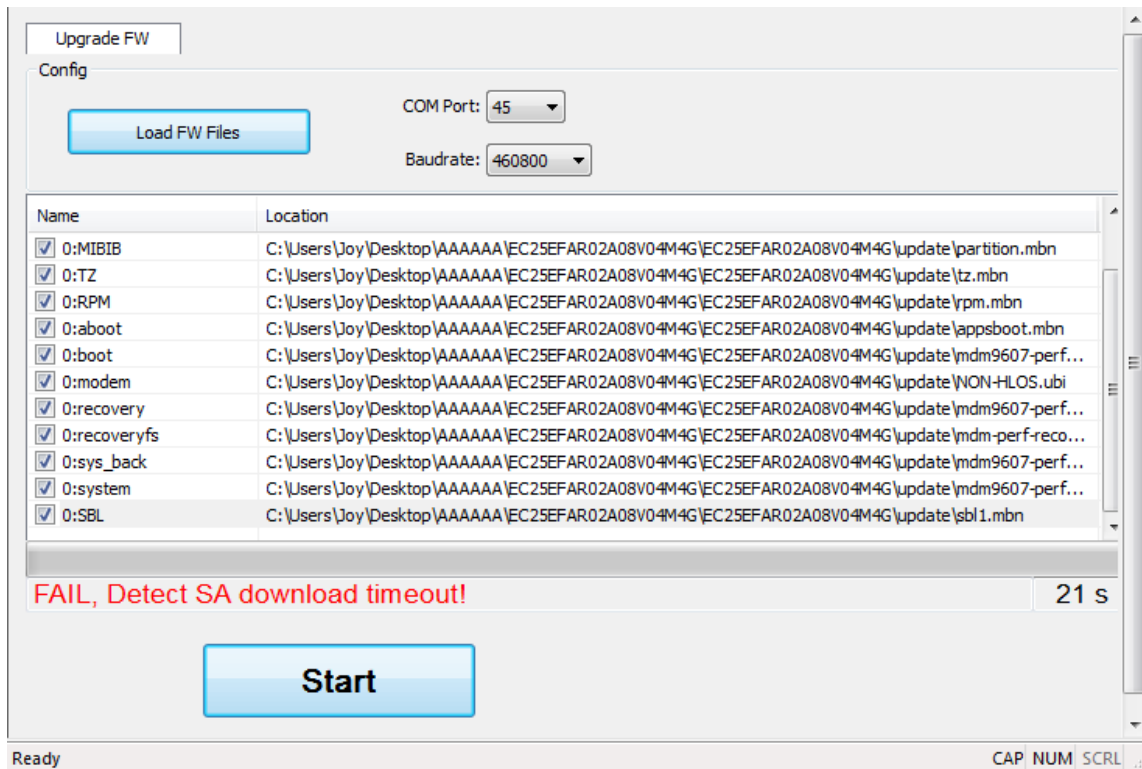


Figure 36: Selected an Invalid FW File (UCxx)

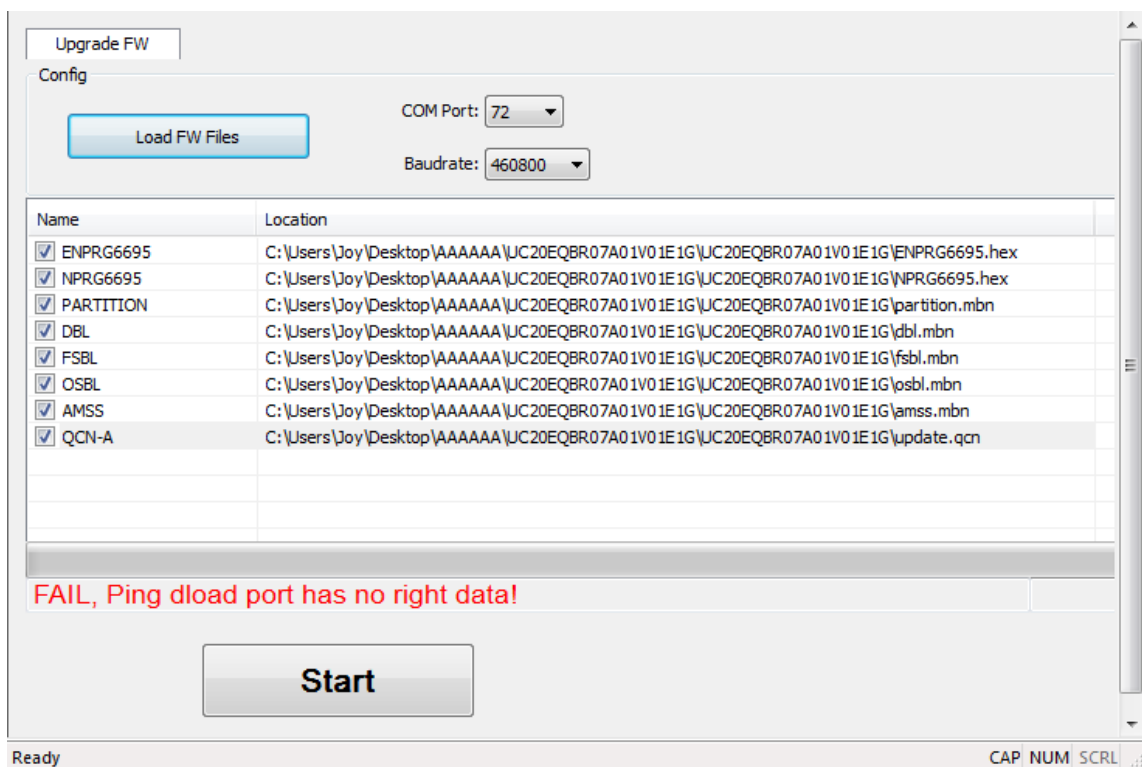


Figure 37: Selected an Invalid FW File (ECxx/EG9x)

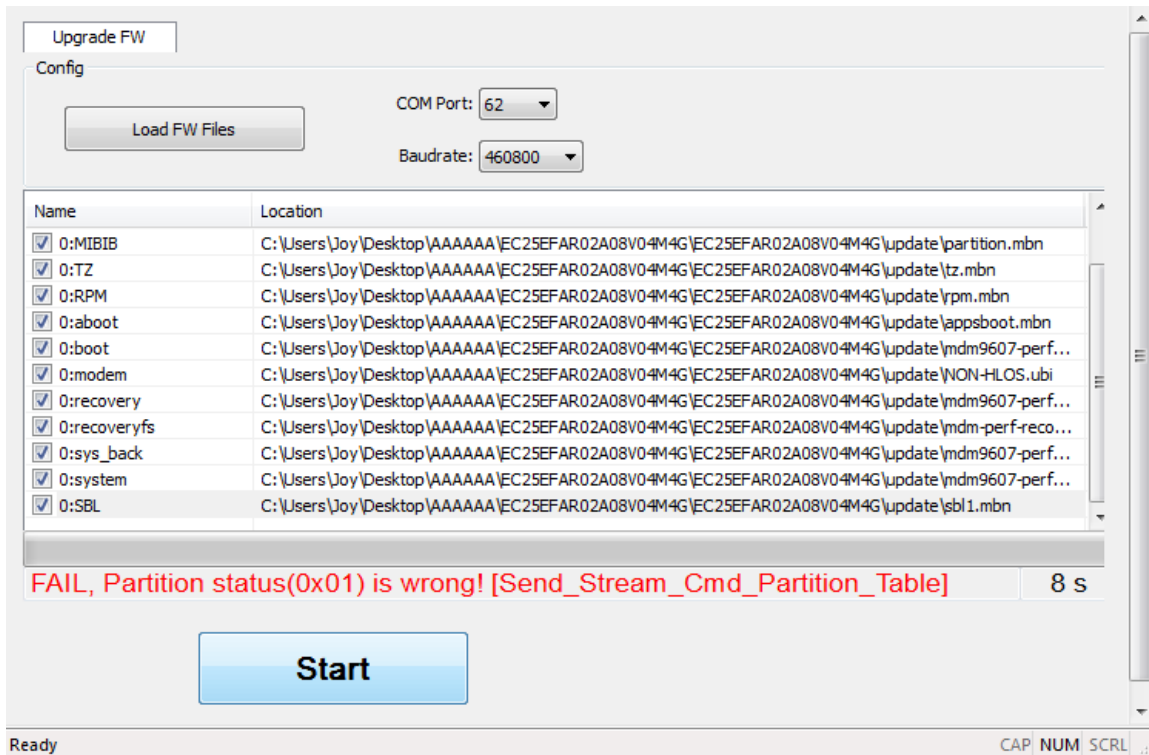


Figure 38: Selected an Invalid FW File (Ex06/AGxx/BG96/EM12)

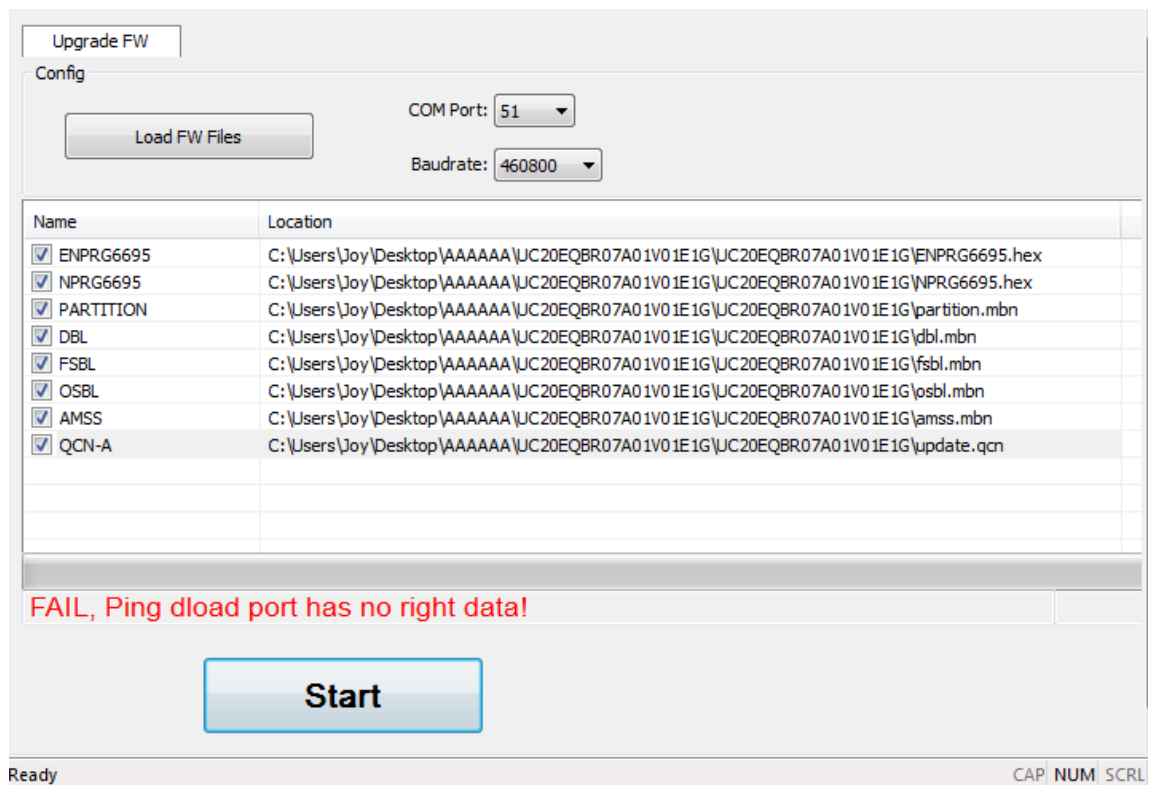


Figure 39: Selected an Invalid FW File (EM05)

## 2.4.5. Power Supply is Abnormal

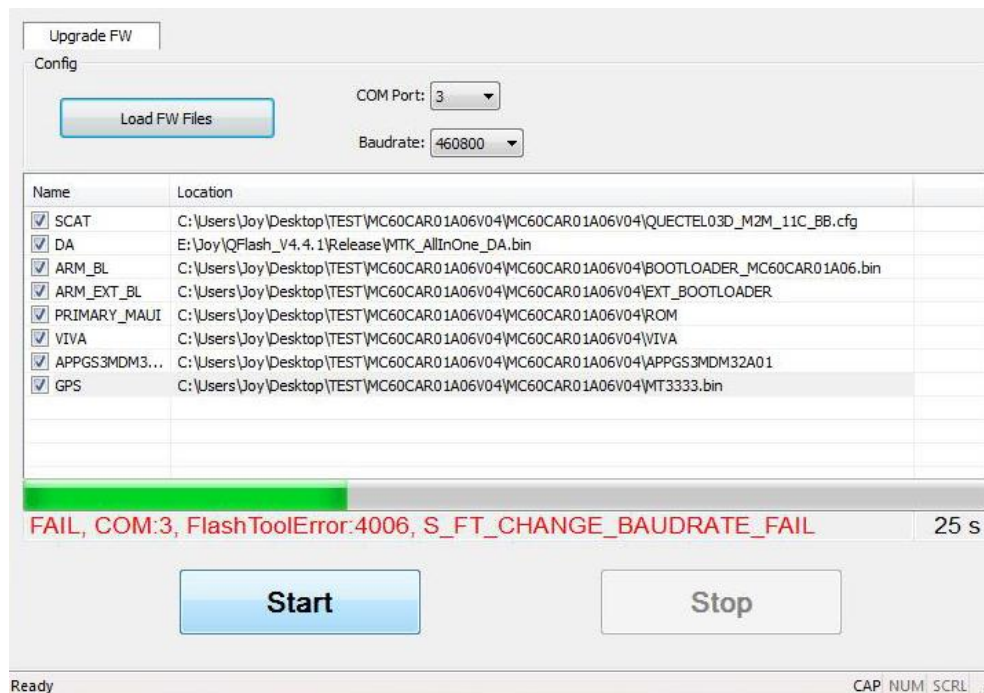


Figure 40: Abnormal Power Supply (M10/M66/M72/M80/M85/M95/MC60)

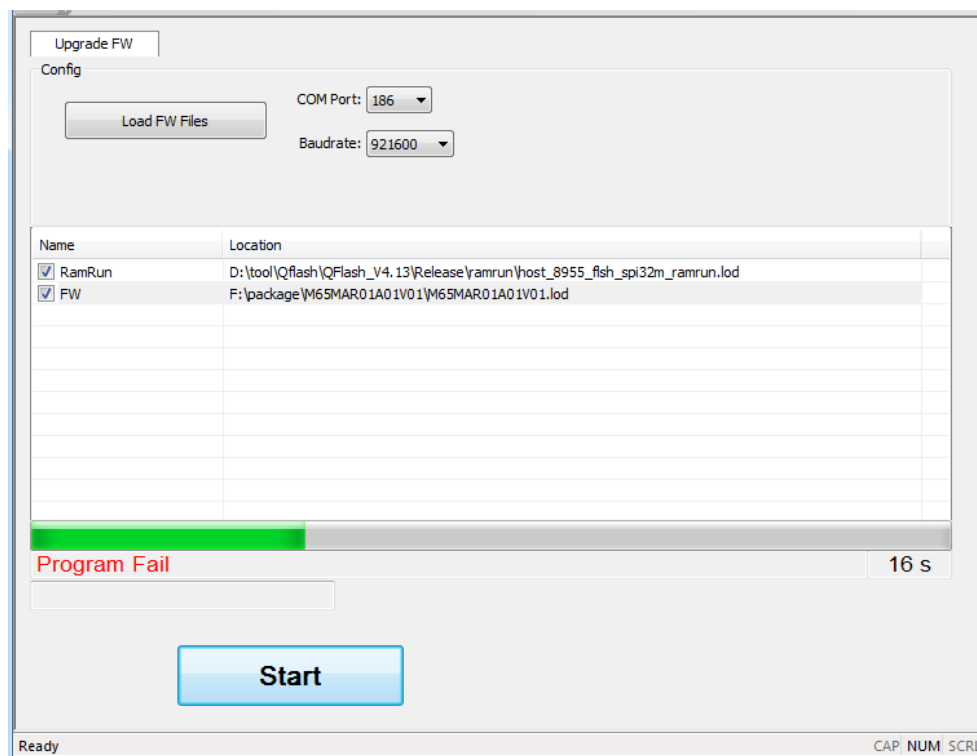


Figure 41: Abnormal Power Supply (M65)



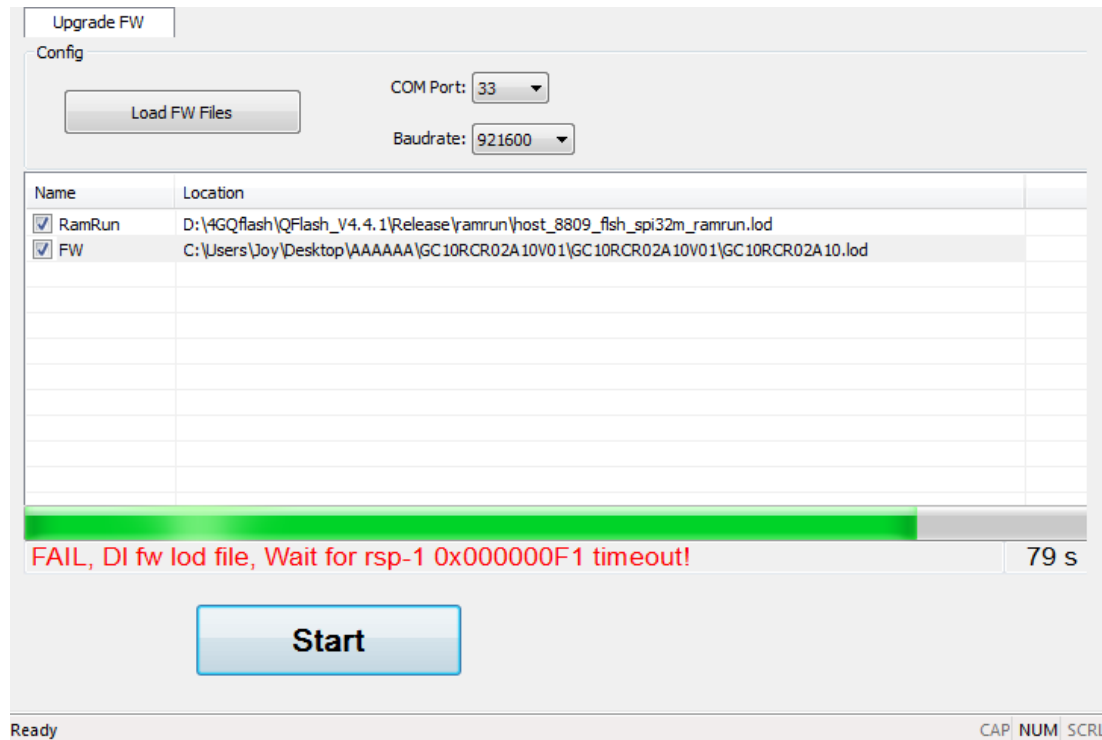


Figure 42: Abnormal Power Supply (GCxx)

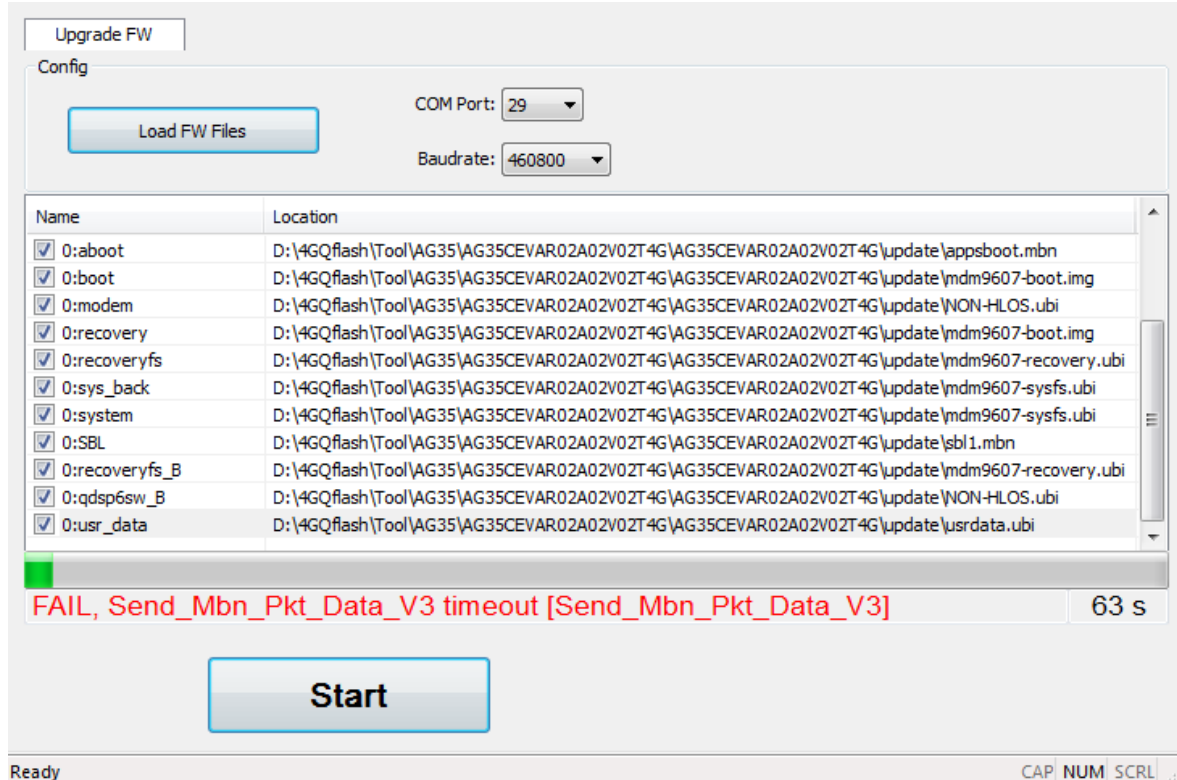


Figure 43: Abnormal Power Supply  
(UCxx/ECxx/EG9x/Ex06/EM05/AGxx/BGxx/EM12/RG500Q/RM500Q-GL)

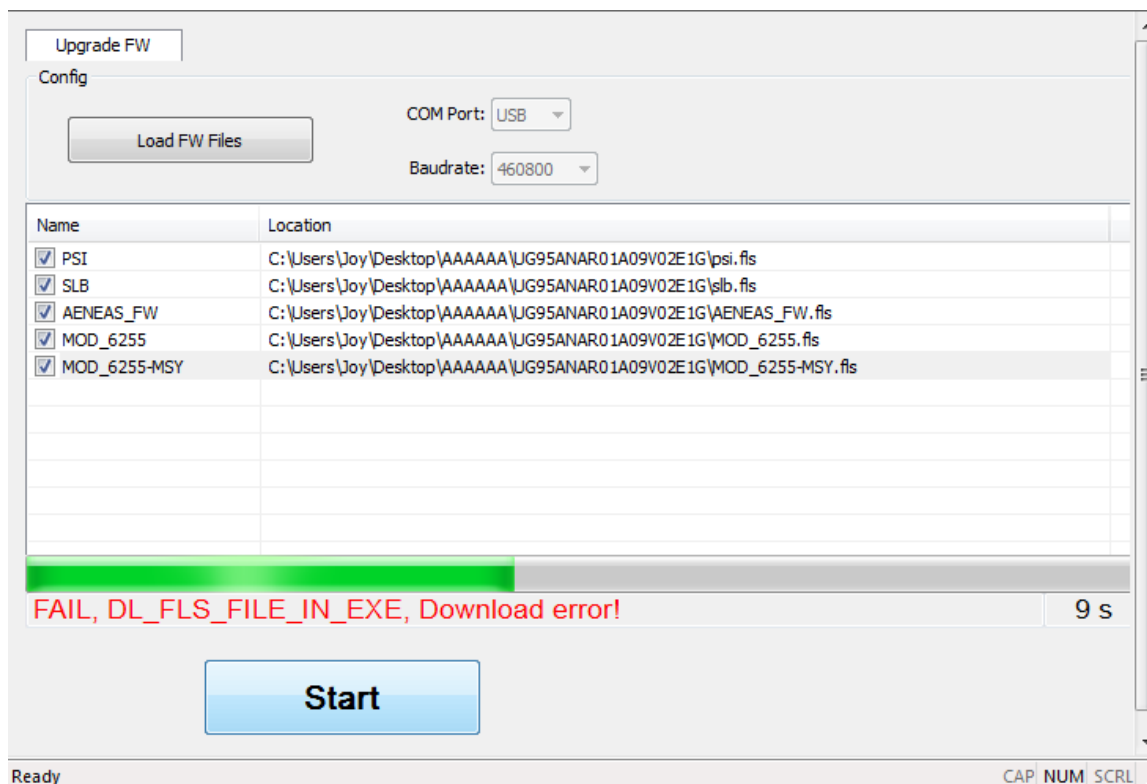


Figure 44: Abnormal Power Supply (UGxx)

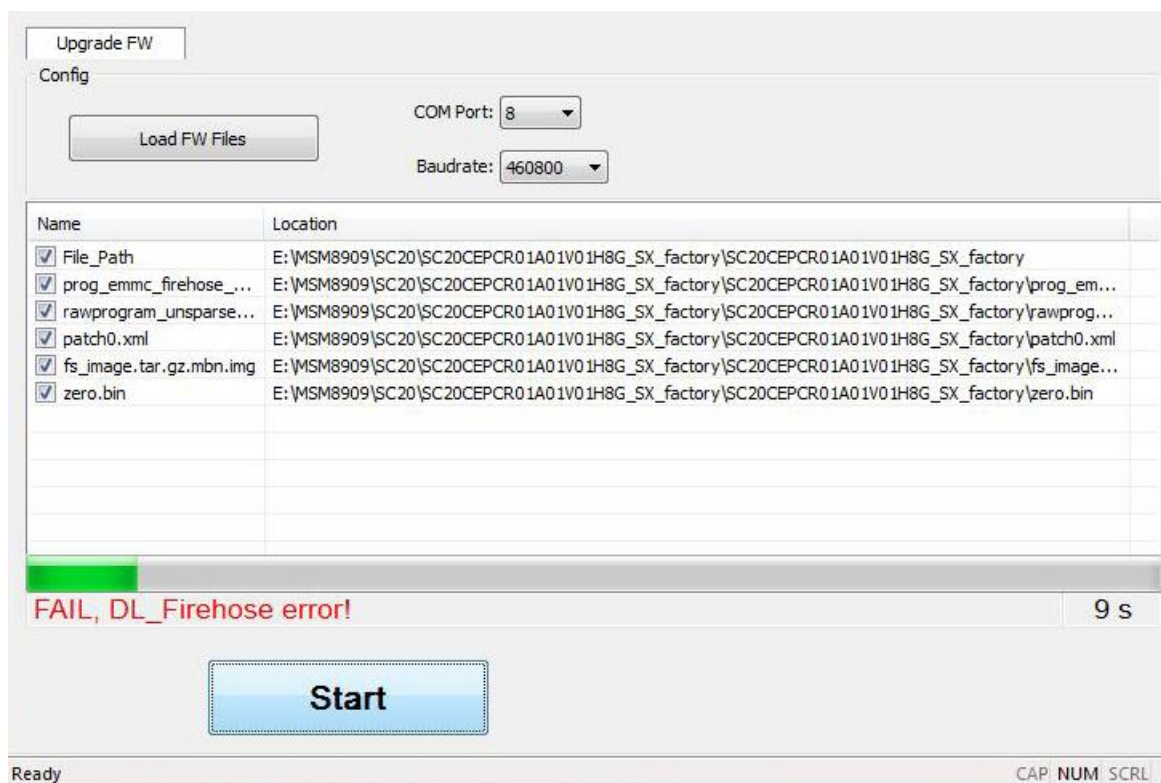


Figure 45: Abnormal Power Supply (SCxx)

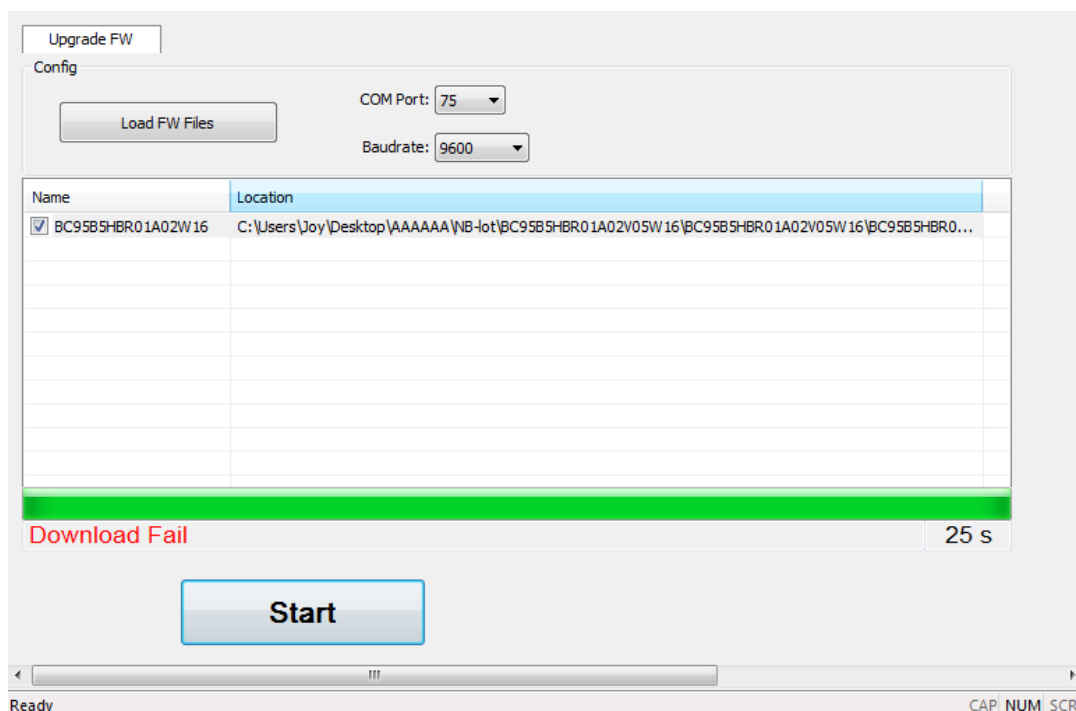


Figure 46: Abnormal Power Supply (BCxx)

## 2.4.6. USB to RS-232 Converter Cable is Abnormal

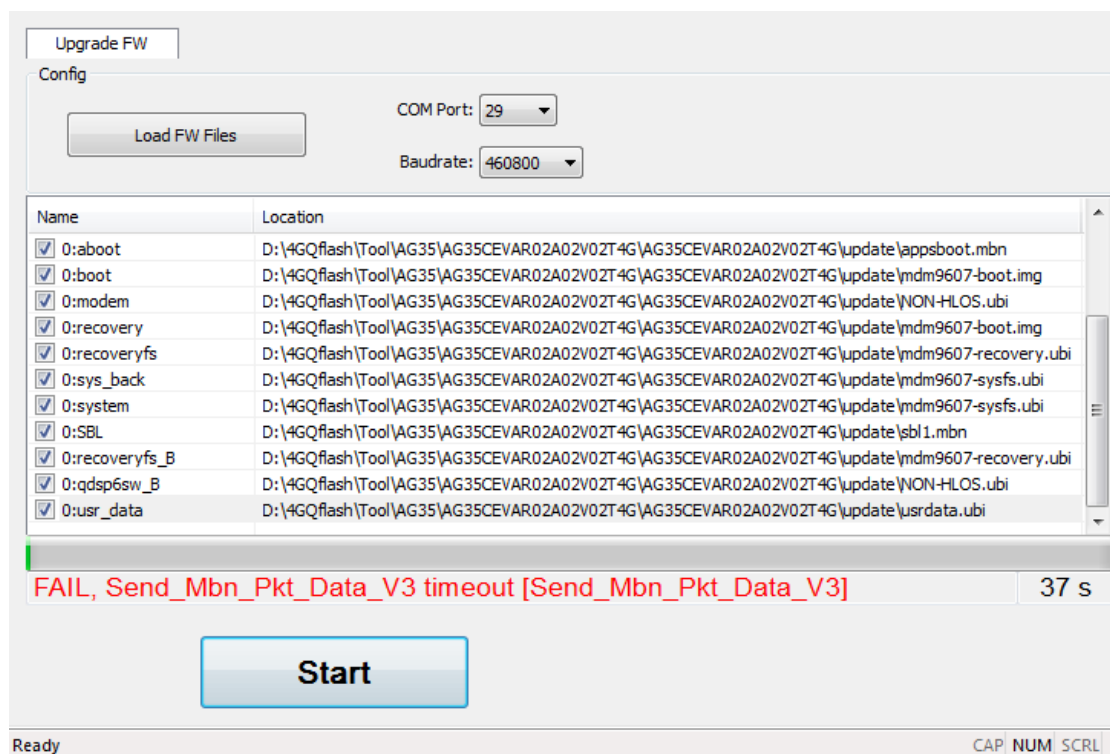


Figure 47: Abnormal USB to RS-232 Converter Cable