QFlash User Guide

Rev. QFlash_User_Guide_V2.9

Date: 2019-09-26

Status: Released

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Quectel Wireless Solutions Co., Ltd.
Building 5, Shanghai Business Park Phase III (Area B), No.1016 Tianlin Road, Minhang District, Shanghai, China 200233
Tel: +86 21 5108 6236
Email: info@quectel.com

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About the Document

History

Revision	Date	Author	Description
1.0	2012-10-30	Yolanda YAO	Initial
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
1.3	2013-05-20	Apple SONG/ Karen REN	Added USB port to upgrade firmware for U10 and UC20 module
1.4	2013-10-10	James CAI	1. Added the way to upgrade GCxx module 2. Updated QFlash version to 2.1
1.5	2013-11-05	Lucky DOU	Updated QFlash version to 2.2
1.6	2013-12-07	James CAI	Updated QFlash version to 2.3
1.7	2013-12-12	Lucky DOU	Updated QFlash version for UC15
1.8	2014-02-11	James CAI	Updated QFlash version to 2.4
1.9	2014-02-26	Steed NING	Updated QFlash version to 2.5
1.10	2014-03-18	James CAI	Updated QFlash version to 2.6
1.11	2014-04-24	Anny ZHANG	Updated QFlash version to 2.7
1.12	2014-06-25	James CAI	Updated QFlash version to 2.8
1.13	2014-08-13	Martin LI/ Roddick SUN	Updated QFlash version to 2.9
1.14	2014-10-08	Martin LI	Updated QFlash version to 3.0
1.15	2014-11-11	Mario XU	Updated QFlash version to 3.1
1.16	2015-03-05	Jesse ZHANG	Updated QFlash version to 3.3

1.17	2015-06-03	James CAI	Updated QFlash version to 3.4
1.18	2016-03-24	James CAI	Updated QFlash version to 3.5
1.19	2016-06-16	Sophie ZHU	1. Added the way to upgrade Ecxx module 2. Updated QFlash version to 3.6
1.20	2016-09-26	Dylan LIU	1. Added the way to load APP firmware 2. Updated QFlash version to 3.7
1.21	2017-07-24	Abby WU/ Upton XU	1. Added the way to upgrade SCxx and AG35 modules 2. Updated QFlash version to 4.3
2.0	2017-09-28	Joy WANG	1. Updated QFlash version to 4.4 2. Added information about applicable modules
2.1	2017-11-29	Joy WANG	1. Updated QFlash version to 4.5 2. Added the way to upgrade BC95 module
2.2	2018-01-03	Joy WANG	1. Updated QFlash version to 4.6 2. Added a note about firmware downloading in Firehose mode for Ecxx modules
2.3	2018-04-25	Kitty WANG	Updated QFlash version to 4.7
2.4	2018-05-21	Kitty WANG	1. Updated QFlash version to 4.8 2. Added notes about tool and firmware paths
2.5	2018-09-14	Kitty WANG	1. Updated QFlash version to 4.9 2. Added the way to upgrade EM12, BC95-G, BC68 and BC66 modules
2.6	2018-12-25	Kitty WANG	1. Updated QFlash version to 4.10 2. Added applicable module MC25, M25 and M26 3. For M26 and MC60 modules (MTK platform), added command line download method to upgrade firmware, in addition to the standard method. (Chapter 2.3.2)
2.7	2019-04-08	Anne QIU	1. Updated QFlash version to 4.11 2. Updated the list of applicable modules (Chapter 1.2) 3. Added the log printing description of BC95-G (Chapter 2.3.1)
2.8	2019-07-03	Kawhi HE	1. Updated QFlash version to 4.12 2. Added the way to upgrade EC200T module
2.9	2019-09-26	Anne QIU	1. Updated QFlash version to 4.13 2. Added the applicable module AG15 3. Added the method of loading firmware file for OpenCPU modules (Chapter 2.2.1.2) 4. Added applicable module M66-OpenCPU of loading APP firmware (Chapter 2.2.2.1) 5. Added the method of loading APP firmware for M65-OpenCPU module (Chapter 2.2.2.2)

	6. Added abnormalities of M65 (Figure 23, 31, 38 and 45)

Contents

About the Document **2**
Contents **5**
Figure Index **6**

1 Introduction **8**
1.1. OS and Version 8
1.2. Applicable Modules 8
1.3. About QFlash Tool 9

2 Firmware Upgrade Procedures **10**
2.1. Configure Serial Port and Baud Rate 10
2.1.1. Set COM Port 11
2.1.1.1. COM Port Selection for Mxx/GCxx/BCxx Modules 11
2.1.1.2. COM Port Selection for UGxx 12
2.1.1.3. COM Port Selection for UCxx/ECxx/EGxx/Ex06/EM05/AG35/AG15/BG96/EM12.. 12
2.1.1.4. COM Port Selection for SCxx 13
2.1.2. Set Baud Rate 14
2.2. Load Firmware Files and APP Firmware 15
2.2.1. Load Firmware Files 15
2.2.1.1. Load Firmware File for Standard and QuecOpen Modules 15
2.2.1.2. Load Firmware File for OpenCPU Modules 16
2.2.2. Load APP Firmware for OpenCPU Modules 16
2.2.2.1. Load APP Firmware for MC60/M66 17
2.2.2.2. Load APP Firmware for M65 19
2.3. Upgrade Firmware 20
2.3.1. Standard Method to Upgrade Firmware 20
2.3.2. Command Line Download to Upgrade Firmware (M66&MC60) 24
2.4. Abnormalities 27
2.4.1. Selected a Wrong Serial Port 27
2.4.2. Connected to an Occupied Serial Port 31
2.4.3. Selected an Unsupported Baud Rate 34
2.4.4. Selected an Invalid Load File 35
2.4.5. Power Supply is Abnormal 39
2.4.6. USB to RS-232 Converter Cable is Abnormal 42

Figure Index

FIGURE 1: ABOUT THE TOOL 9
FIGURE 2: MAIN INTERFACE OF QFLASH 10
FIGURE 3: SELECT THE CORRECT SERIAL PORT (MXX/GCXX/BCXX) 11
FIGURE 4: NO NEED TO SELECT COM PORT (UGXX) 12
FIGURE 5: SELECT THE USB DM PORT (UCXX/ECXX/EGXX/EX06/EM05/AG35/AG15/BG96/EM12) 13
FIGURE 6: SELECT THE HS-USB DIAGNOSTICS 9091 PORT (SCXX) 13
FIGURE 7: SELECT THE BAUD RATE 14
FIGURE 8: SELECT THE FILE TO BE DOWNLOADED (STANDARD OR QUECOPEN MODULES) 15
FIGURE 9: SELECT THE FILE TO BE DOWNLOADED (OPENCPU MODULES) 16
FIGURE 10: SELECT THE .CFG FILE 17
FIGURE 11: SELECT THE MODULE TYPE 18
FIGURE 12: SELECT THE .LOD FILE 19
FIGURE 13: CLICK THE START BUTTON 20
FIGURE 14: START FIRMWARE UPGRADE AUTOMATICALLY AFTER CLICKING “START” BUTTON 21
FIGURE 15: START FIRMWARE UPGRADE AFTER MANUALLY RESTARTING THE MODULE (M10/M66/M72/M80/M85/M95/MC60) 22
FIGURE 16: START TO UPGRADE AFTER MANUALLY RESTARTING THE MODULE (BC95) 23
FIGURE 17: SUCCESSFUL FIRMWARE UPGRADE 24
FIGURE 18: CHANGE THE MAINCONFING.INI SETTING 25
FIGURE 19: ENTER “COM PORT”, “BAUDRATE” AND “FIRMWARE PATH” 25
FIGURE 20: RESTART THE MODULE 26
FIGURE 21: SUCCESSFUL FIRMWARE UPGRADE 26
FIGURE 22: CONNECTED TO A WRONG SERIAL PORT (M10/M66/M72/M80/M85/M95/MC60) 27
FIGURE 23: CONNECTED TO A WRONG SERIAL PORT (M65) 28
FIGURE 24: CONNECTED TO A WRONG SERIAL PORT (GCXX) 28
FIGURE 25: CONNECTED TO A WRONG SERIAL PORT (UCXX) 29
FIGURE 26: CONNECTED TO A WRONG SERIAL PORT (ECXX/EG9X/EX06/EM05/BG96/EM12) 29
FIGURE 27: CONNECTED TO A WRONG SERIAL PORT (SCXX) 30
FIGURE 28: CONNECTED TO A WRONG SERIAL PORT (AG35/AG15) 30
FIGURE 29: CONNECTED TO A WRONG SERIAL PORT (BCXX) 31
FIGURE 30: CONNECTED TO AN OCCUPIED SERIAL PORT (M10/M66/M72/M80/M85/M95/MC60) 31
FIGURE 31: CONNECTED TO AN OCCUPIED SERIAL PORT (M65) 32
FIGURE 32: CONNECTED TO AN OCCUPIED SERIAL PORT (GCXX) 32
FIGURE 33: CONNECTED TO AN OCCUPIED SERIAL PORT (UCXX/ECXX/EG9X/EX06/SCXX/EM05/AG35/AG15/ BG96/EM12) 33
FIGURE 34: CONNECTED TO AN OCCUPIED SERIAL PORT (BCXX) 33
FIGURE 35: SELECTED AN UNSUPPORTED BAUD RATE (M10/M66/M72/M80/M85/M95/MC60) 34
FIGURE 36: SELECTED AN UNSUPPORTED BAUD RATE (GCXX) 35
FIGURE 37: SELECTED AN INVALID SCATTER FILE (M10/M66/M72/M80/M85/M95/MC60) 35
FIGURE 38: SELECTED AN INVALID SCATTER FILE (M65) 36
FIGURE 39: SELECTED AN INVALID LOAD FILE (GCXX) 36
FIGURE 40: SELECTED AN INVALID LOAD FILE (UCXX) 37

FIGURE 41: SELECTED AN INVALID LOAD FILE (ECXX/EG9X) 37
FIGURE 42: SELECTED AN INVALID LOAD FILE (EX06/AG35/AG15/BG96/EM12) 38
FIGURE 43: SELECTED AN INVALID LOAD FILE (EM05) 38
FIGURE 44: ABNORMAL POWER SUPPLY (M10/M66/M72/M80/M85/M95/MC60) 39
FIGURE 45: ABNORMAL POWER SUPPLY (M65) 39
FIGURE 46: ABNORMAL POWER SUPPLY (GCXX) 40
FIGURE 47: ABNORMAL POWER SUPPLY (UCXX/ECXX/EG9X/EX06/EM05/AG35/AG15/BG96/EM12) 40
FIGURE 48: ABNORMAL POWER SUPPLY (UGXX) 41
FIGURE 49: ABNORMAL POWER SUPPLY (SCXX) 41
FIGURE 50: ABNORMAL POWER SUPPLY (BCXX) 42
FIGURE 51: ABNORMAL USB TO RS-232 CONVERTER CABLE 42

1 Introduction

1.1. OS and Version

This document mainly introduces how to upgrade the firmware with “QFlash” upgrade tool offered 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 will be informed and 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 paths 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
	BG96
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	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

1.3. About QFlash Tool

The QFlash tool developed by Quectel is shown as below.

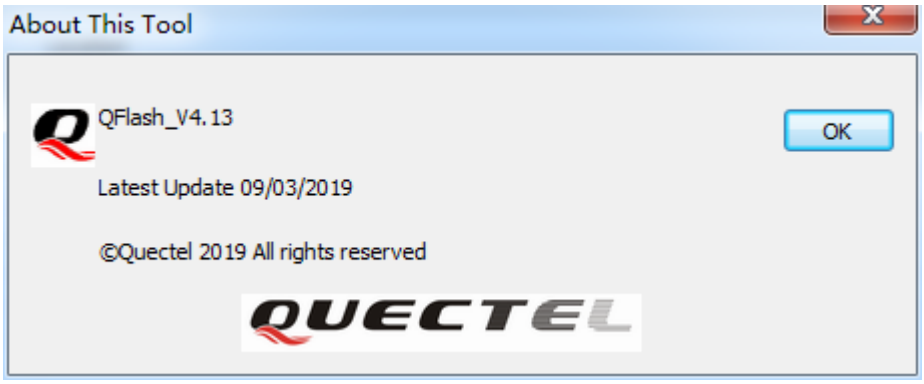

Figure 1: About the Tool

2 Firmware Upgrade Procedures

The firmware can be upgraded through the following three steps by the QFlash tool.

Step 1: Set serial port and baud rate.
Step 2: Load firmware files.
Step 3: Upgrade the firmware.

The following describes the details of 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.

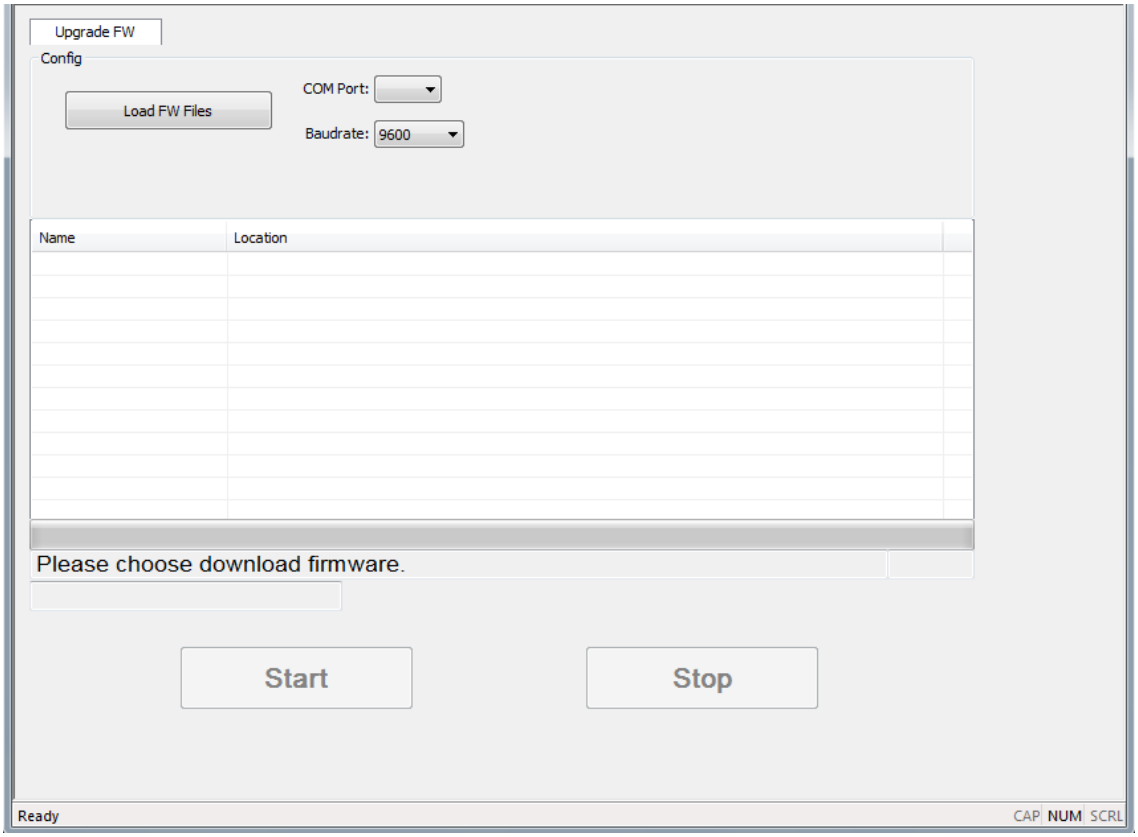

Figure 2: Main Interface of QFlash

2.1.1. Set COM Port

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

Click "**COM Port**" dropdown list to select the COM port through which the firmware will be upgraded. As shown in the following figure.

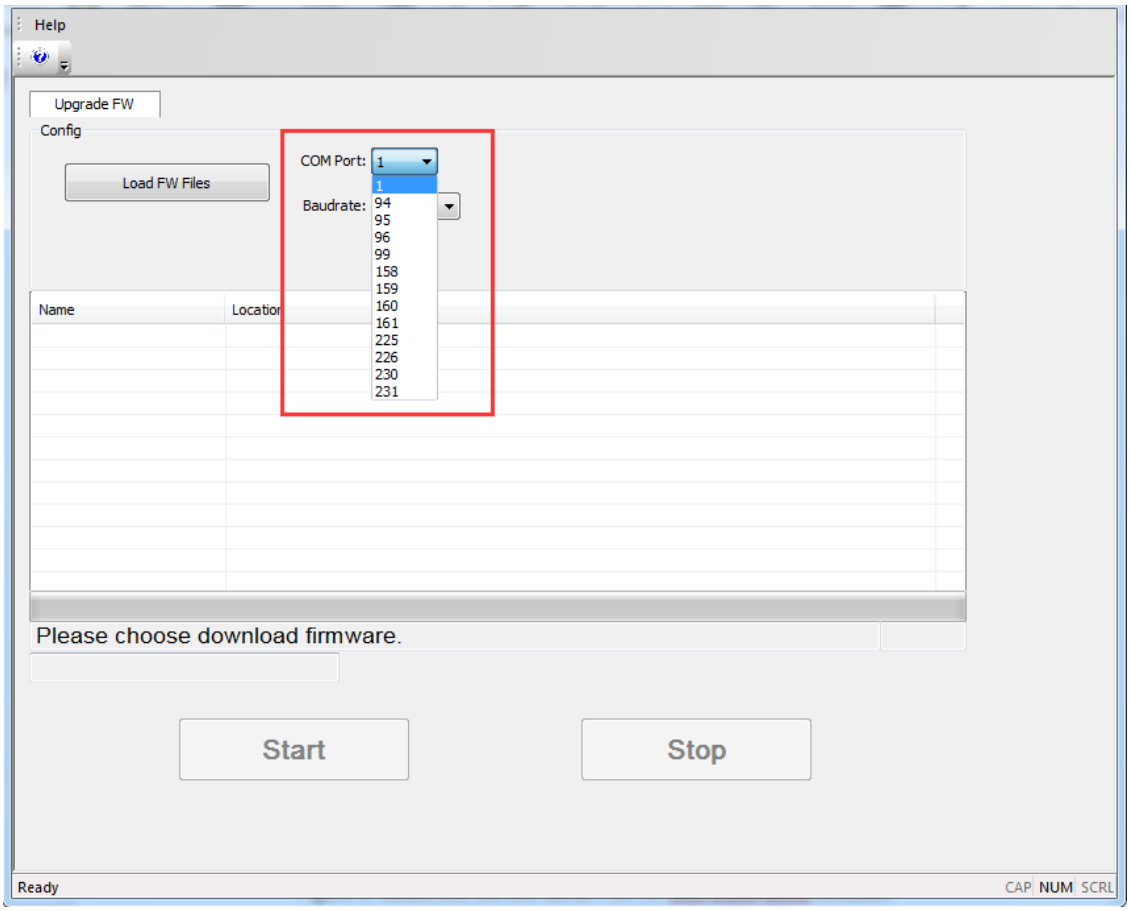

Figure 3: Select the Correct Serial Port (Mxx/GCxx/BCxx)

NOTES

1. For M10/M66/M72/M80/M85/M95/MC60 modules, it is the main UART to be used for firmware upgrade. After the port is selected, please manually restart the module.
2. For M65 and GCxx modules, it is the USB port to be used for firmware upgrade, and the module will be automatically restarted after clicking "**Start**" button.
3. For BC95 module, it is the main UART to be used for firmware upgrade. 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, it is the USB UART Ch A to be used for firmware upgrade. 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, it is the USB UART Ch A to be used for firmware upgrade. 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 modules, it is the USB port to be used for firmware upgrade, and it can be selected automatically. When firmware files are uploaded, "USB" will be displayed in gray in "**COM Port**" dropdown list. The module needs to be turned off before clicking "**Start**". After clicking "**Start**", please turn on the module within 10 seconds. The interface is shown in the following figure.

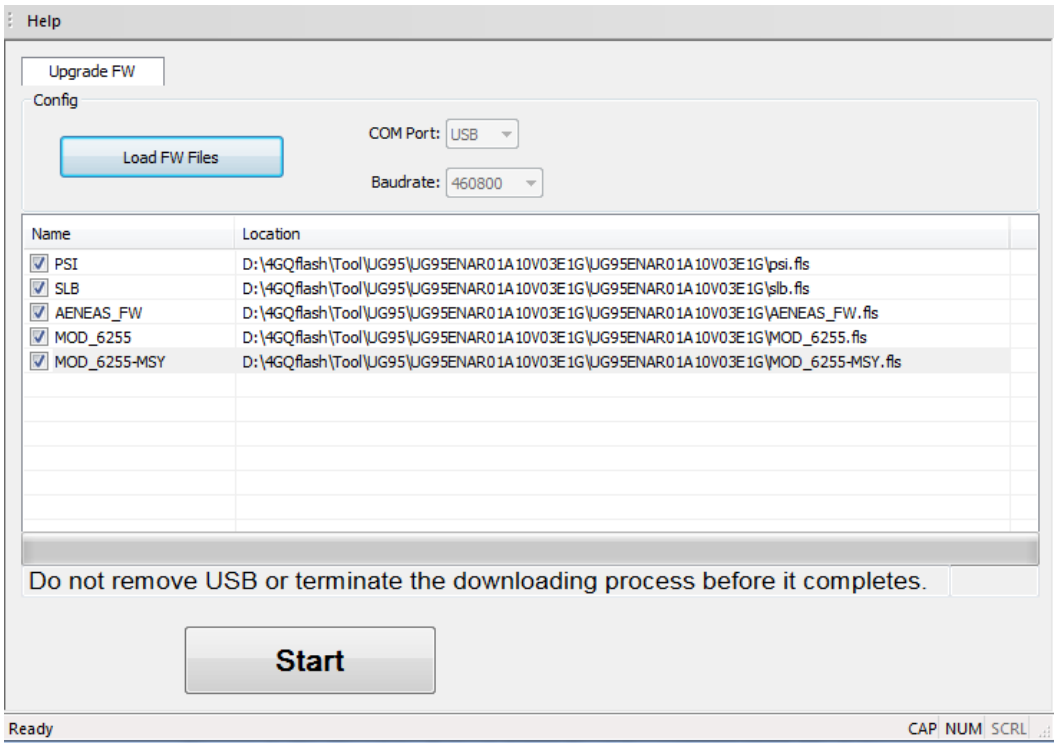

Figure 4: No Need to Select COM Port (UGxx)

2.1.1.3. COM Port Selection for UCxx/ECxx/EGxx/Ex06/EM05/AG35/AG15/BG96/EM12

For UCxx/ECxx/EGxx/Ex06/EM05/AG35/AG15/BG96/EM12, the USB DM port can be used for firmware upgrade. Click "**COM Port**" dropdown list and select the USB DM port for upgrade, as shown in the following figure.

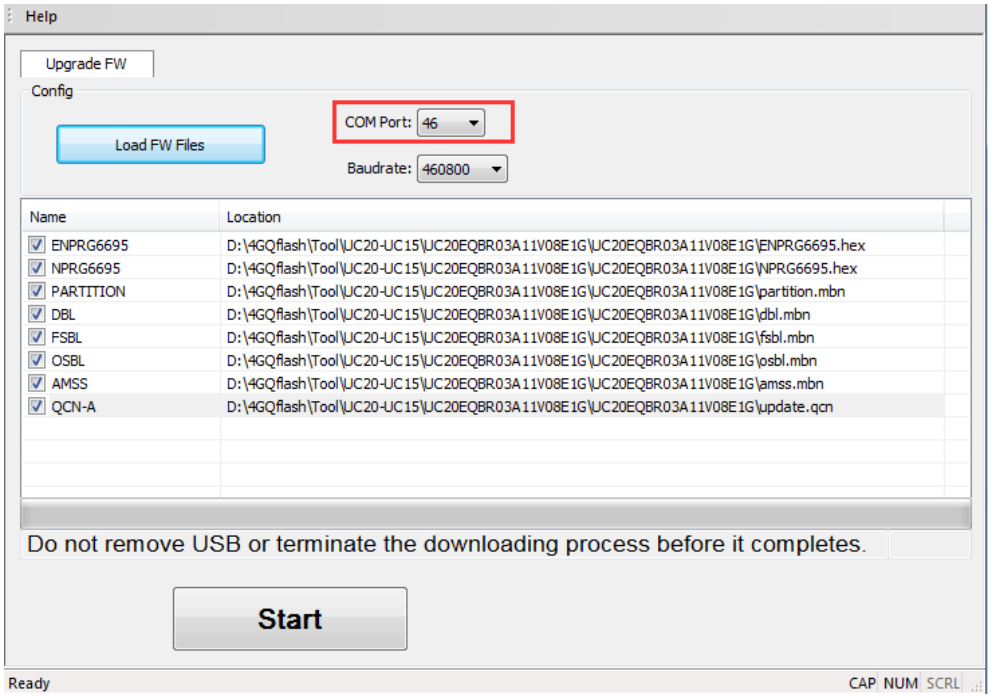

Figure 5: Select the USB DM Port (UCxx/ECxx/EGxx/Ex06/EM05/AG35/AG15/BG96/EM12)

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**" dropdown list and select the HS-USB Diagnostics 9091 port for upgrade, as shown in the following figure.

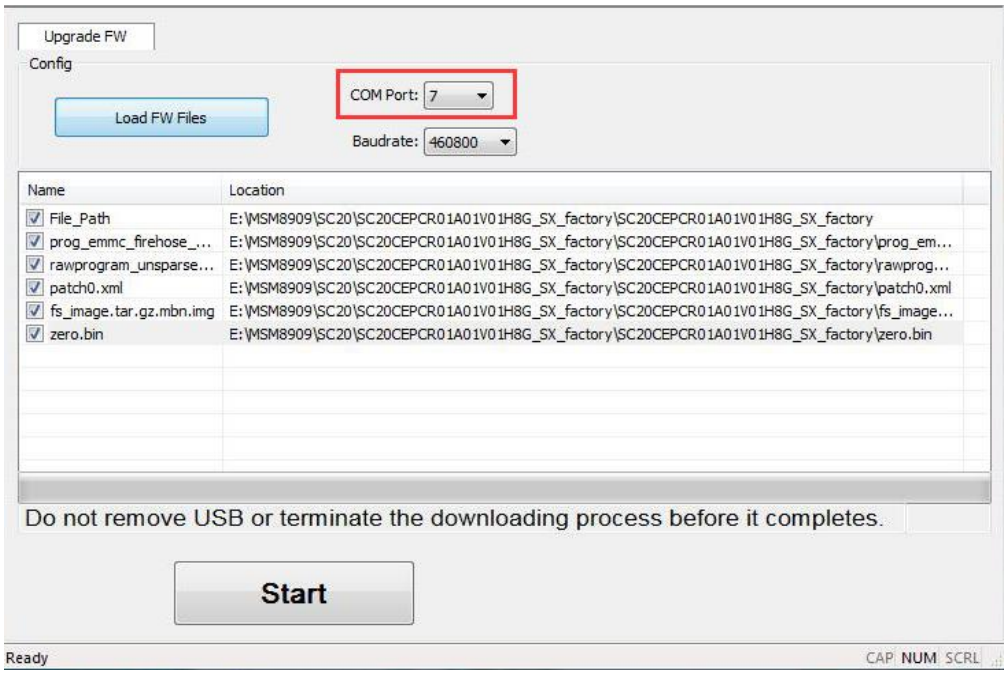

Figure 6: Select the HS-USB Diagnostics 9091 Port (SCxx)

2.1.2. Set Baud Rate

Click the "**Baudrate**" dropdown 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.

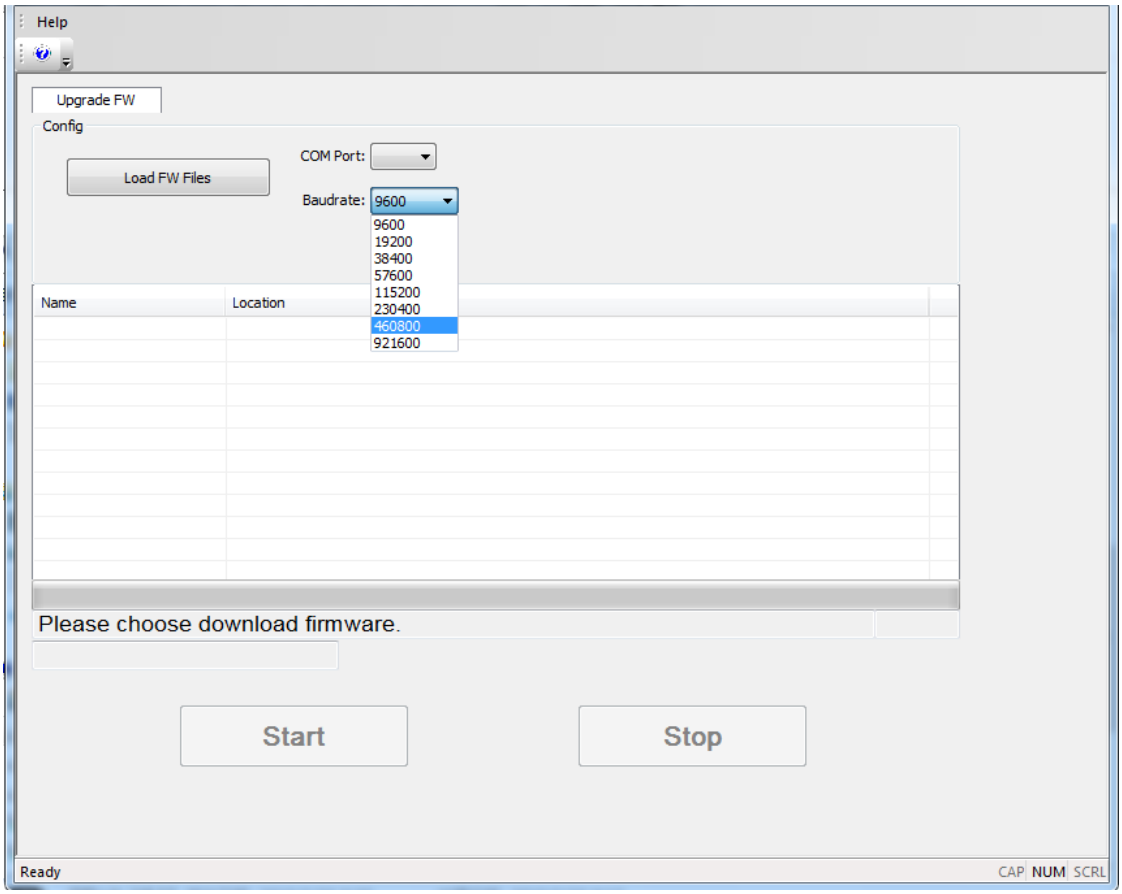

Figure 7: Select the Baud Rate

NOTES

1. Baud rates have many different values, 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 for loading 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.

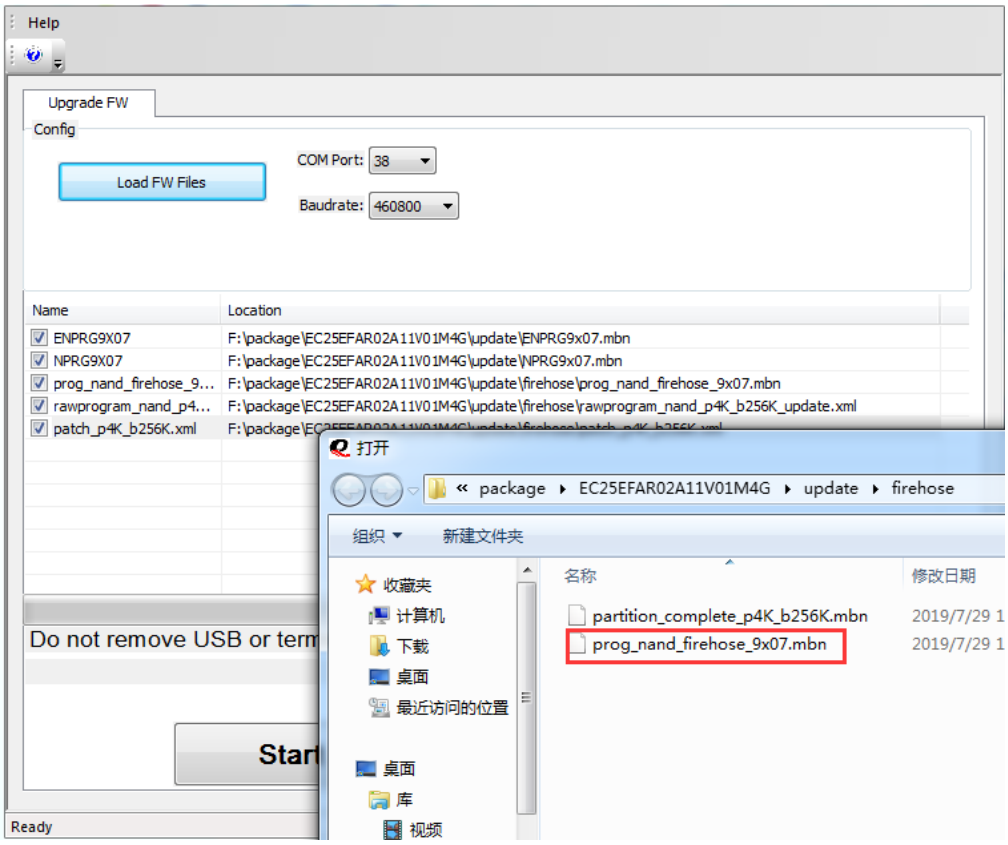

Figure 8: Select the File to Be Downloaded (Standard or QuecOpen Modules)

2.2.1.2. Load Firmware File for OpenCPU Modules

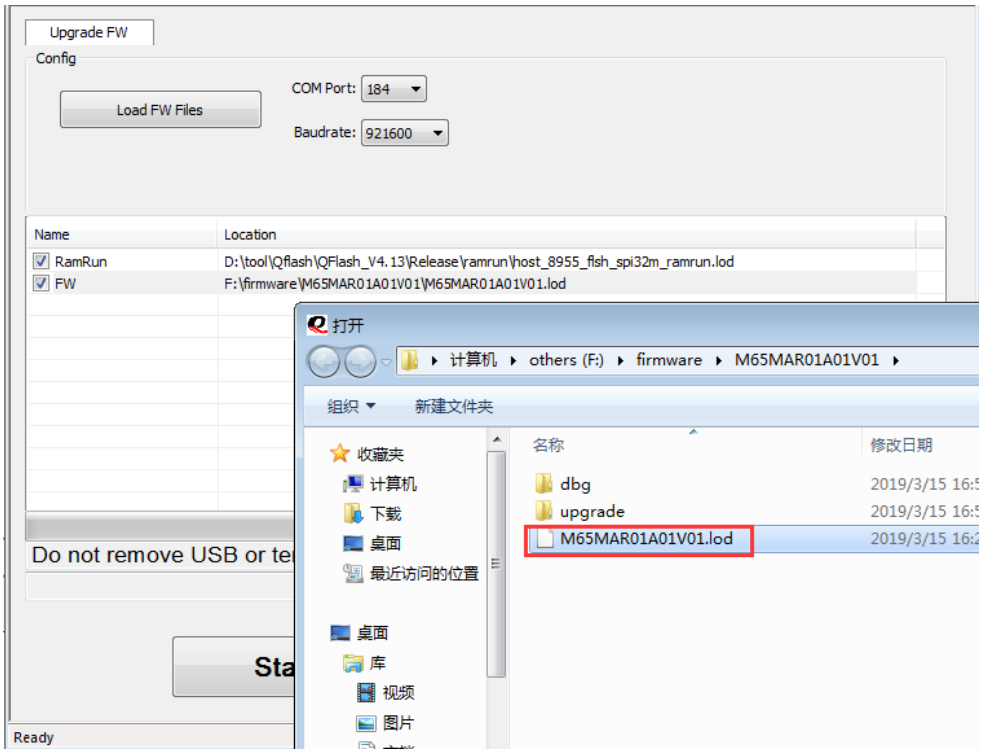

Figure 9: Select the File to Be Downloaded (OpenCPU Modules)

2.2.2. Load APP Firmware for OpenCPU Modules

The steps in this chapter are for loading APP firmware for OpenCPU 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.

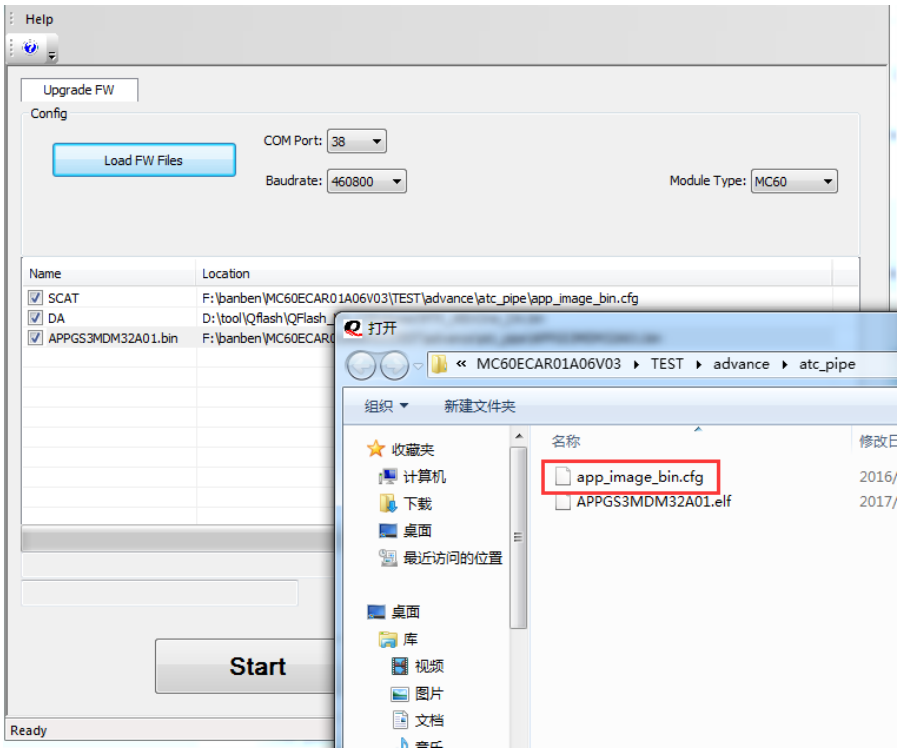

Figure 10: Select the .cfg File

Step 2: Click the "**Module Type**" dropdown list and select the module type.

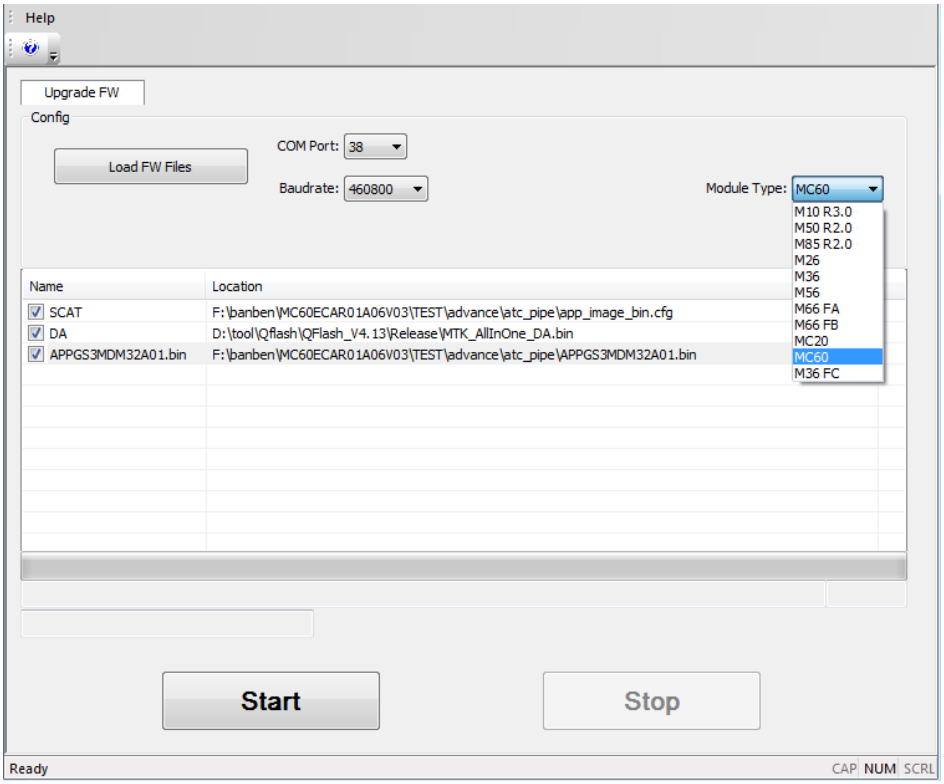

Figure 11: Select the Module Type

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.

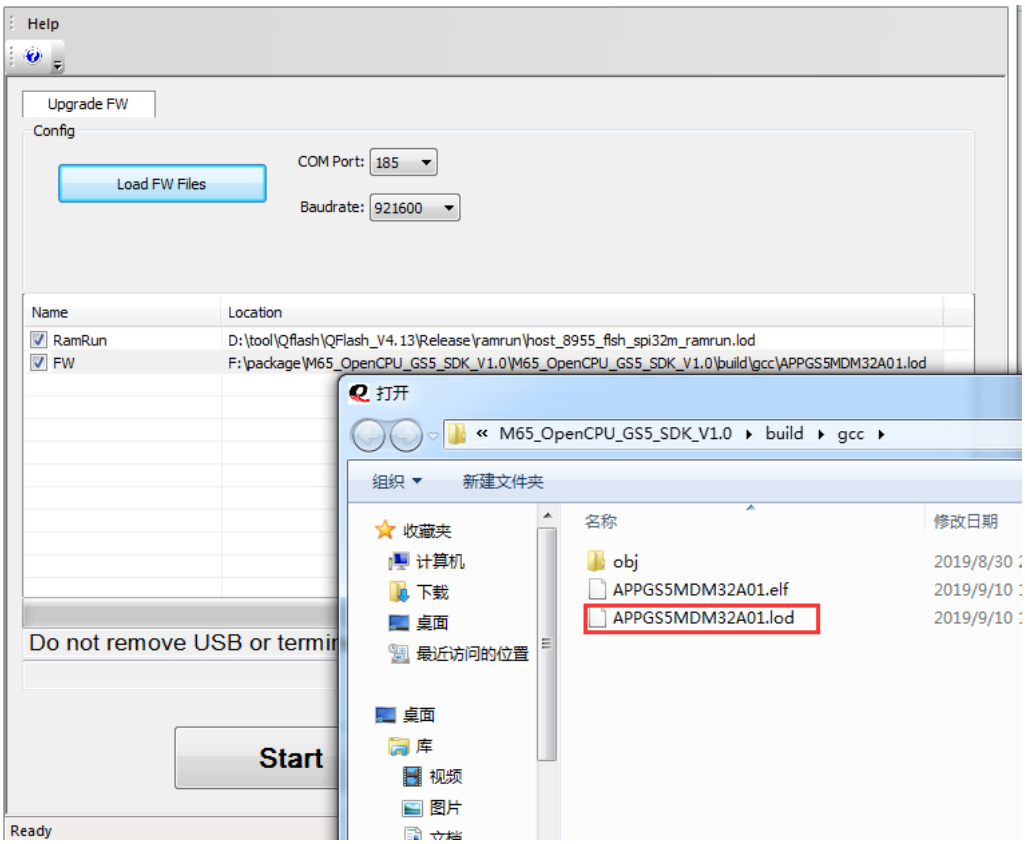

Figure 12: Select the .lod File

2.3. Upgrade Firmware

2.3.1. Standard Method to Upgrade Firmware

Step 1: Click the "**Start**" button.

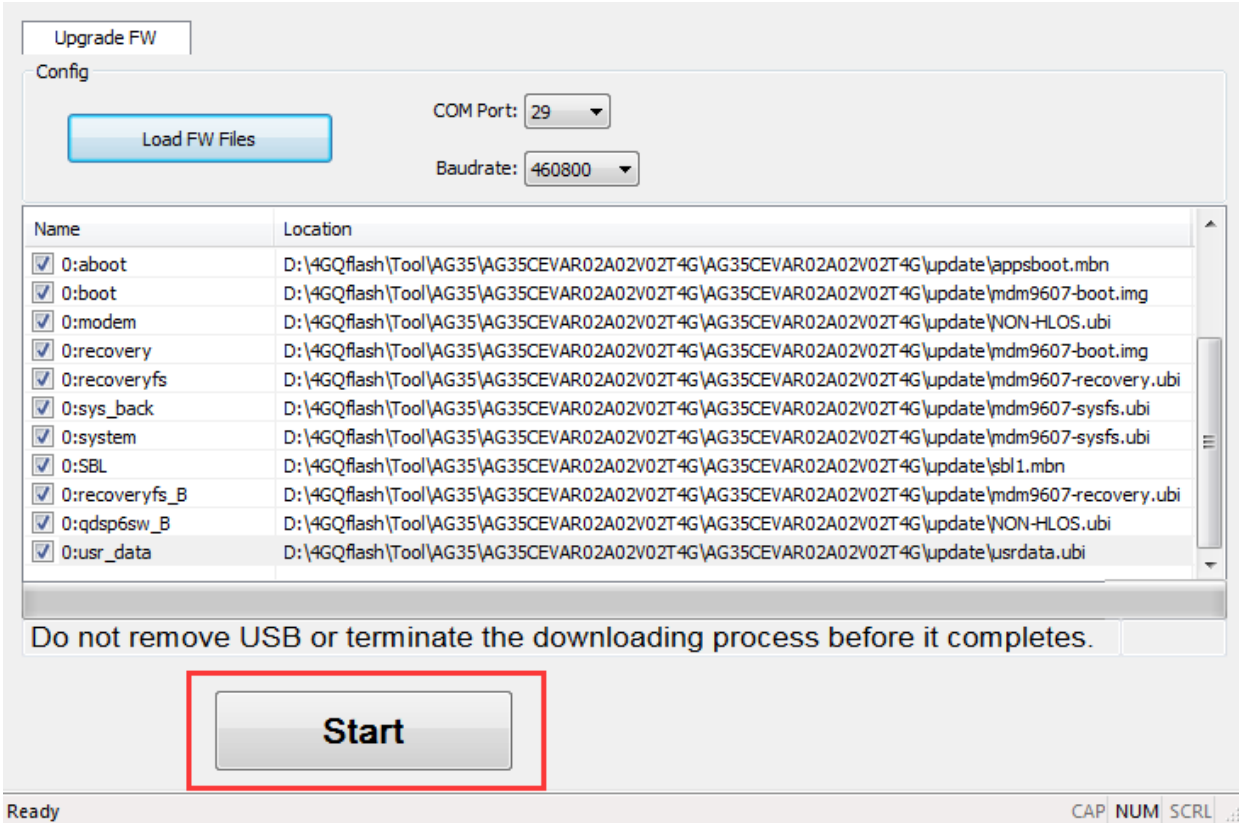

Figure 13: Click the Start Button

NOTES

1. Please note that there is no "**Stop**" button while upgrading firmware for GCxx/UCxx/UGxx/ECxx/EG9x/Ex06/SCxx/BCxx/EM05/AG35/AG15/BG96/EM12, as shown above. In this case, the upgrading process is NOT allowed to stop, 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.

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

(1) For GCxx/UCxx/UGxx/ECxx/EG9x/Ex06/SCxx/EM05/AG35/AG15/BG96/EM12/M65 modules, the module will be restarted automatically after clicking the "**Start**" button, so there is no need to restart the module manually. Please refer to the following figure.

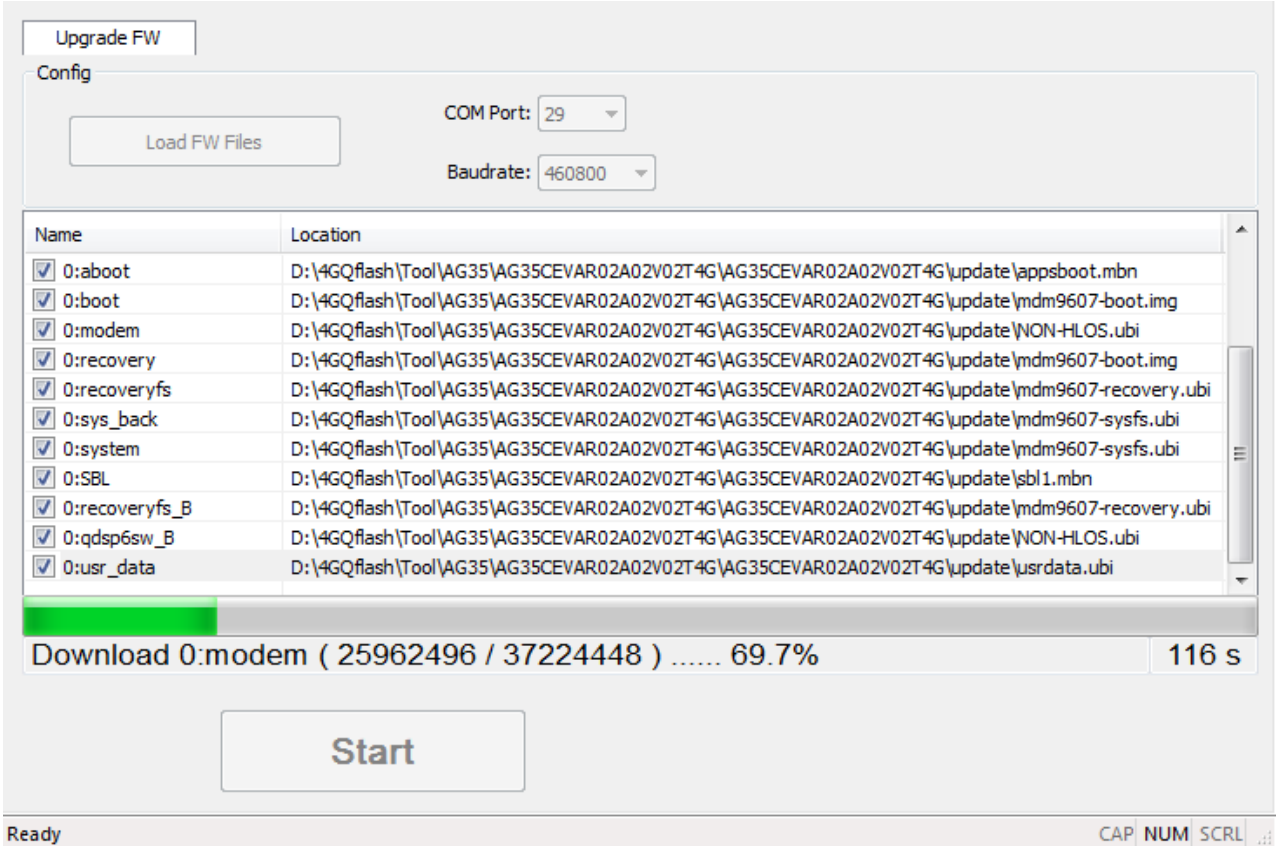

Figure 14: Start Firmware Upgrade Automatically After Clicking "Start" Button

NOTE

For GCxx/UCxx/UGxx/ECxx/EG9x/Ex06/SCxx/EM05/AG35/AG15/BG96/EM12/M65, 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. After that, the firmware upgrade will be started as shown in the following figures.

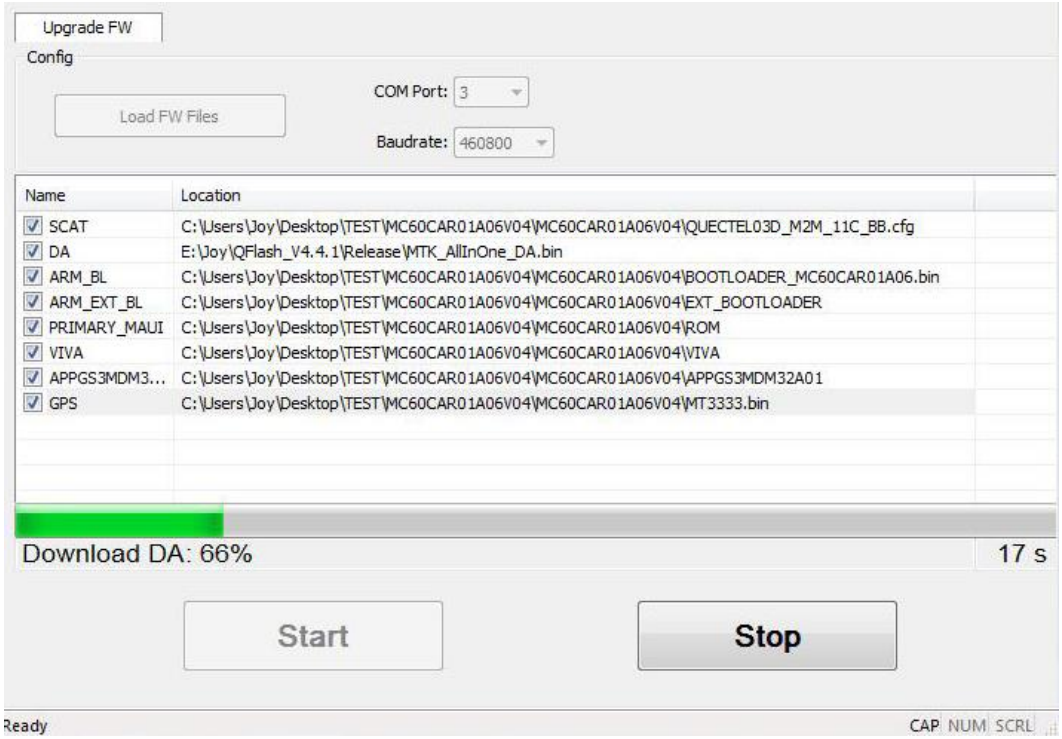

Figure 15: Start Firmware Upgrade After Manually Restarting the Module (M10/M66/M72/M80/M85/M95/MC60)

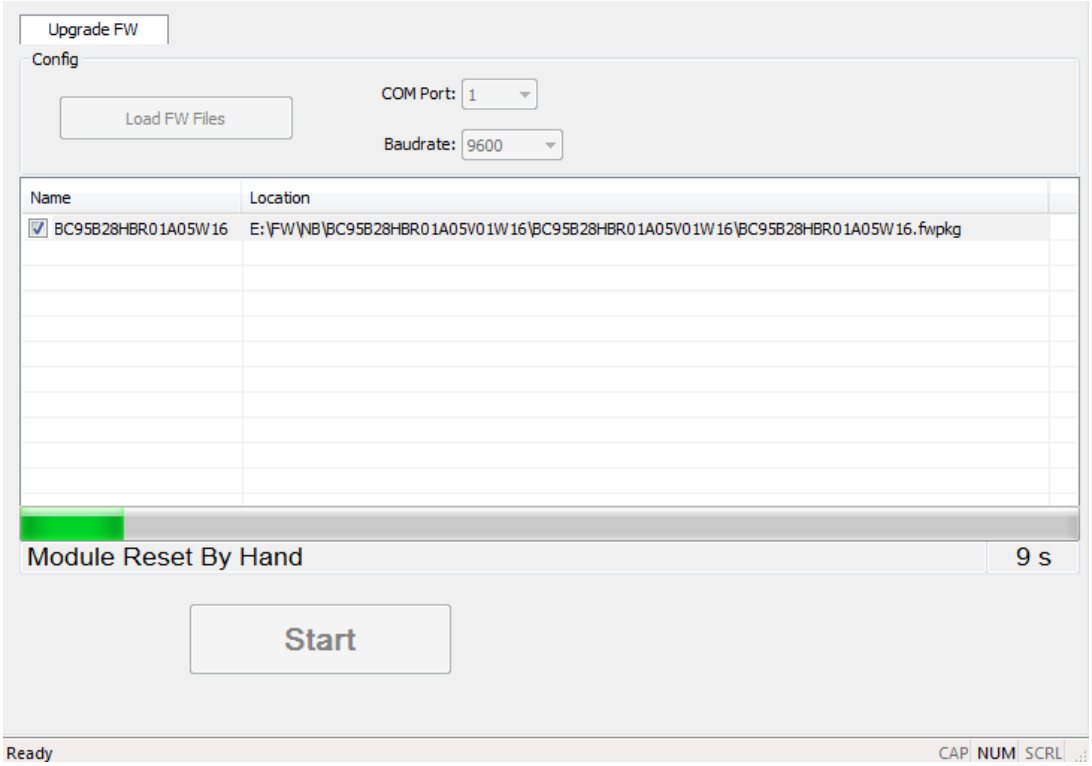

Figure 16: Start to Upgrade After Manually Restarting the Module (BC95)

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 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_V4.13\Release\NB-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.

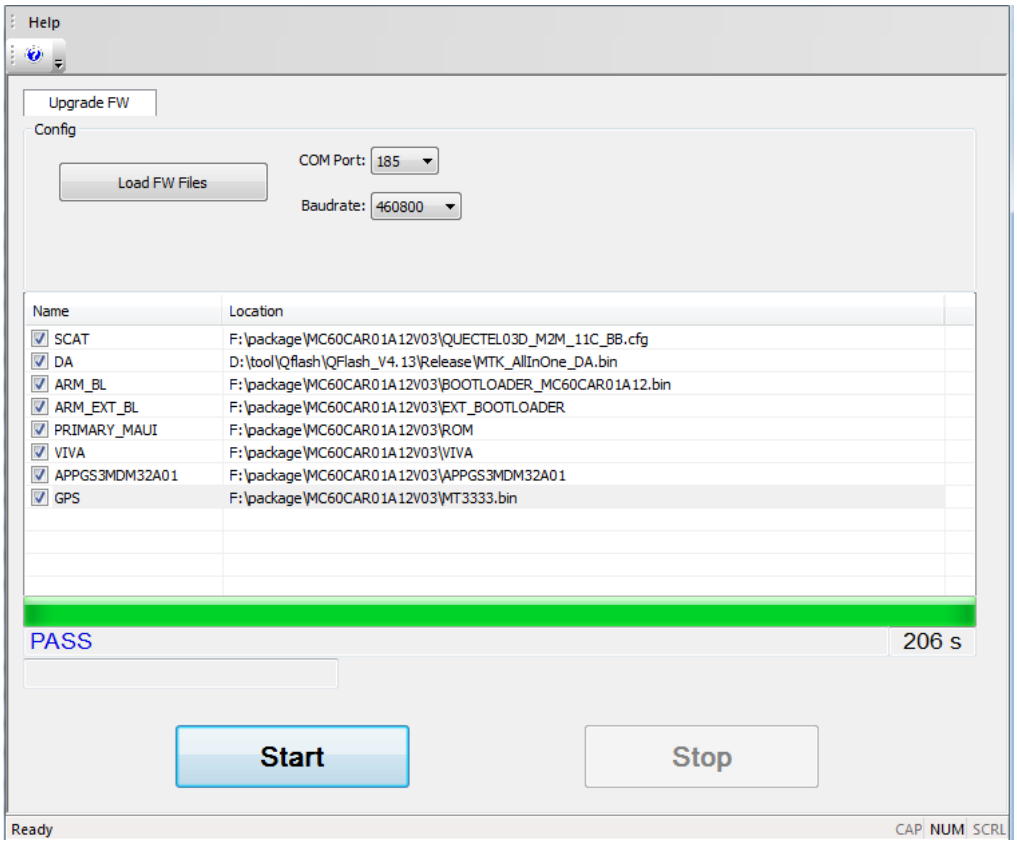

Figure 17: Successful Firmware Upgrade

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 ***2.3.1.2***, the command line download method is also supported to upgrade the firmware. The procedures are as follows:

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

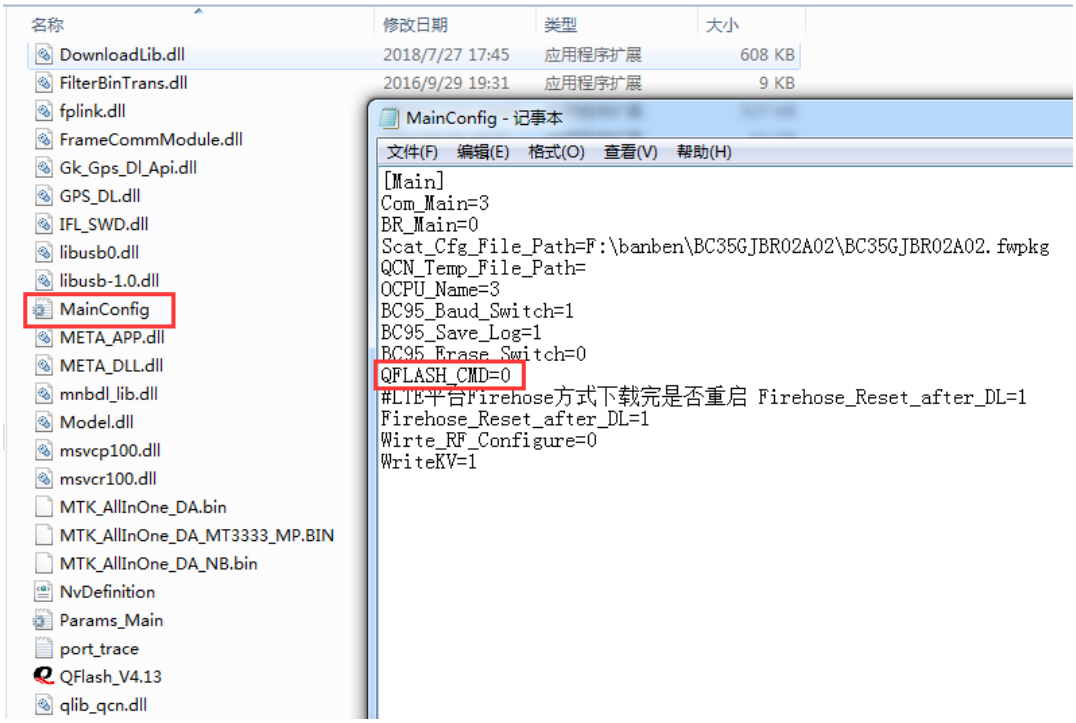

Figure 18: Change the MainConfing.ini Setting

Step 2: Open the file *QFlash_V4.13* in *Release* folder, enter "Port: 37", "Baudrate: 115200", and the "Firmware Path: …", as manifested in the figure below.

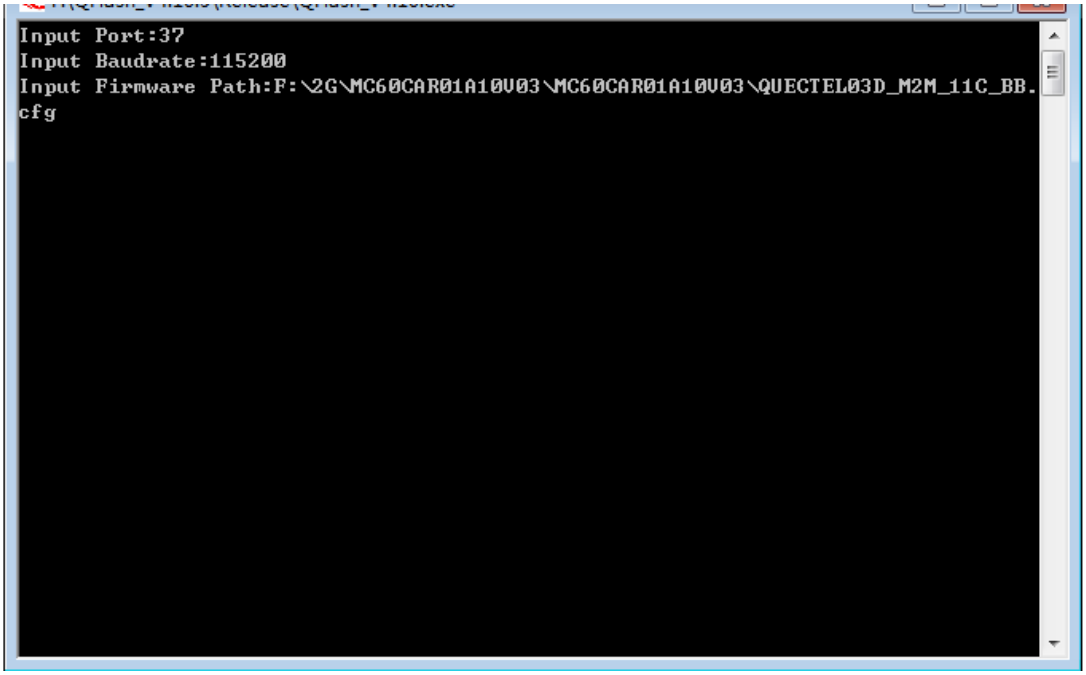

Figure 19: Enter "COM Port", "Baudrate" and "Firmware Path"

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

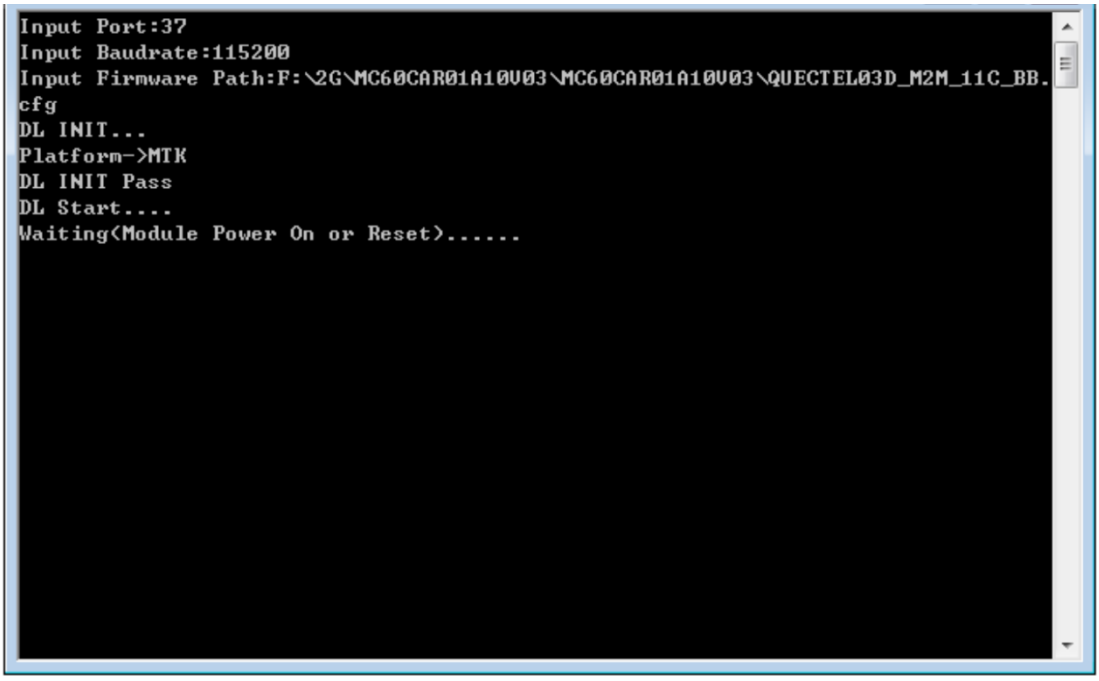

Figure 20: Restart the Module

Step 4: Firmware is upgraded successfully.

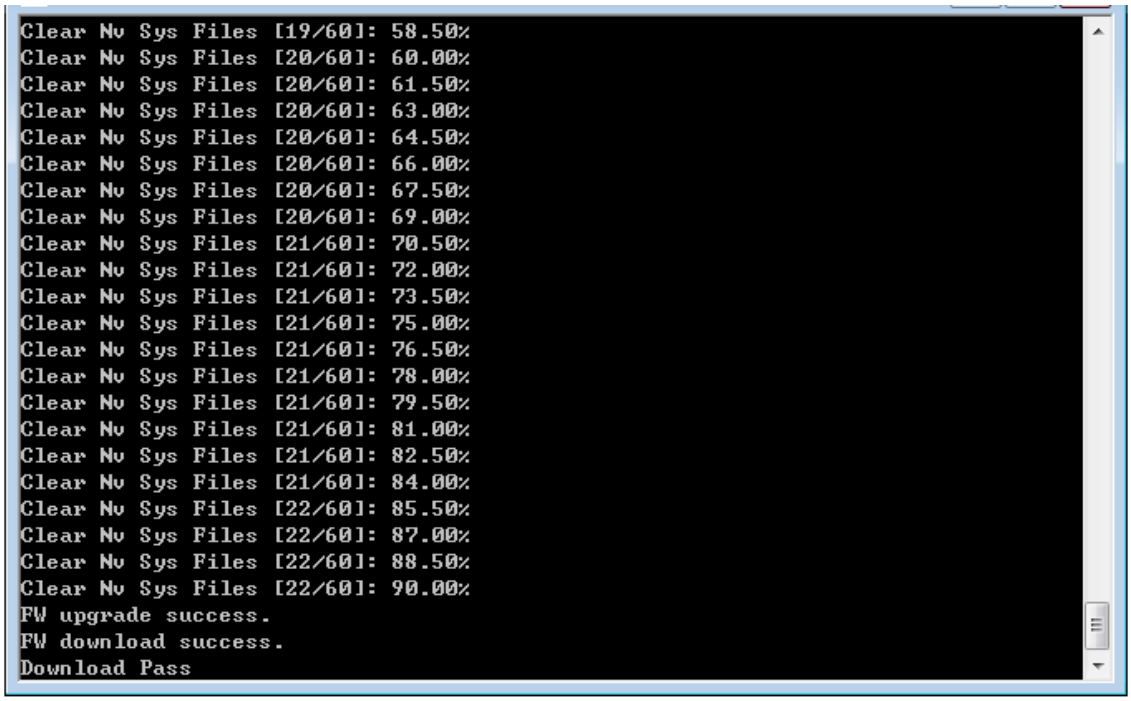

Figure 21: Successful Firmware Upgrade

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

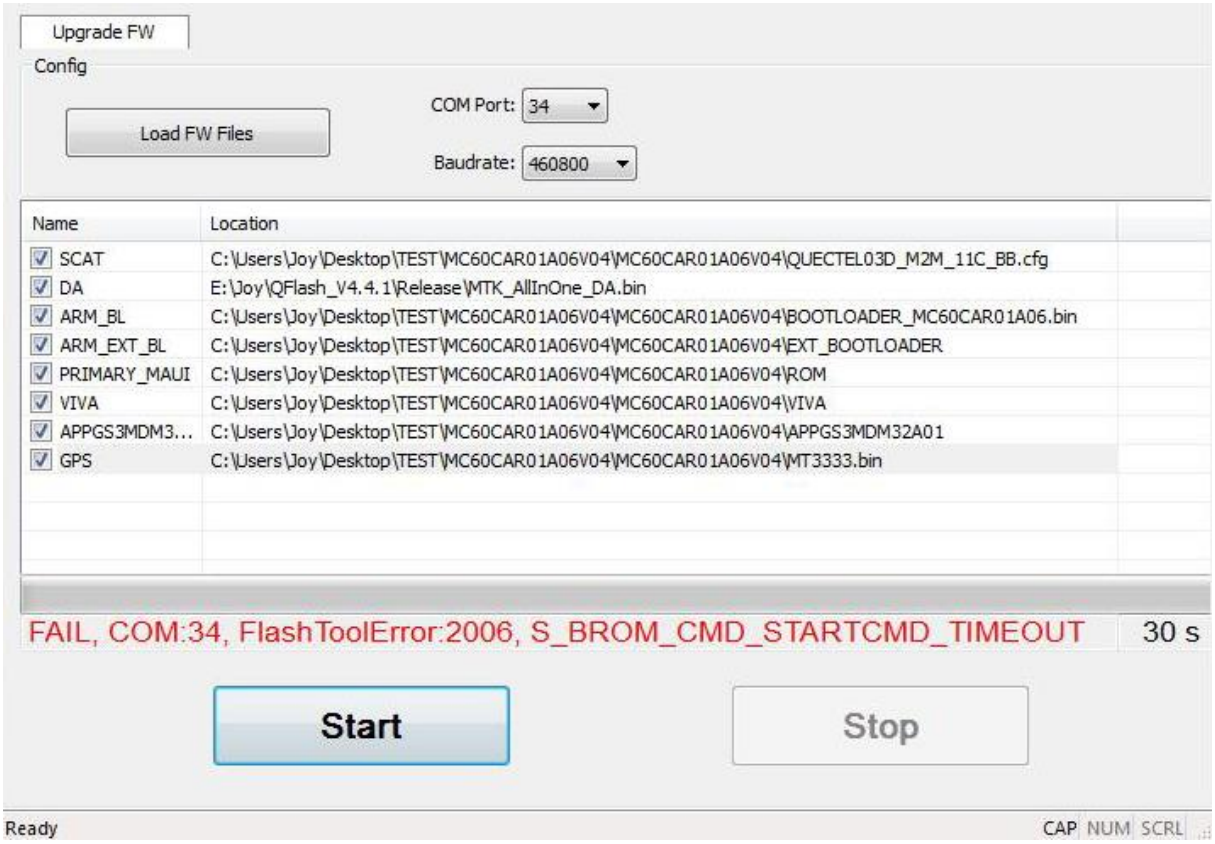

Figure 22: Connected to a Wrong Serial Port (M10/M66/M72/M80/M85/M95/MC60)

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.

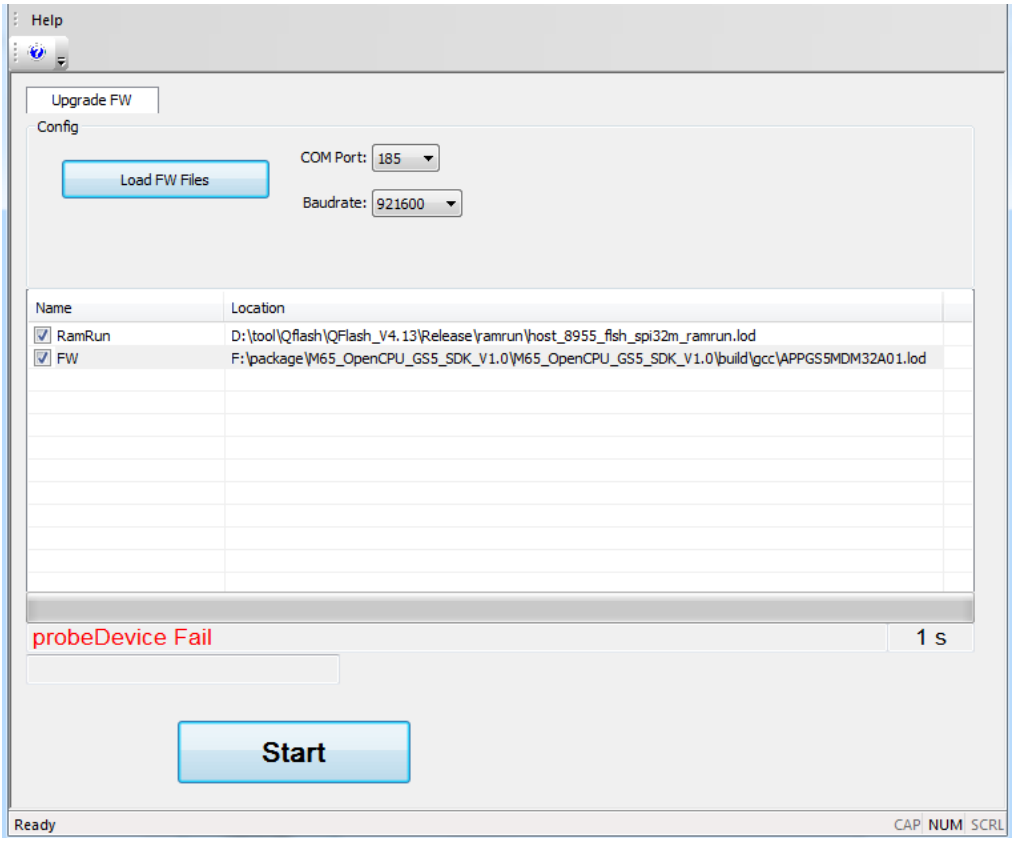

Figure 23: Connected to a Wrong Serial Port (M65)

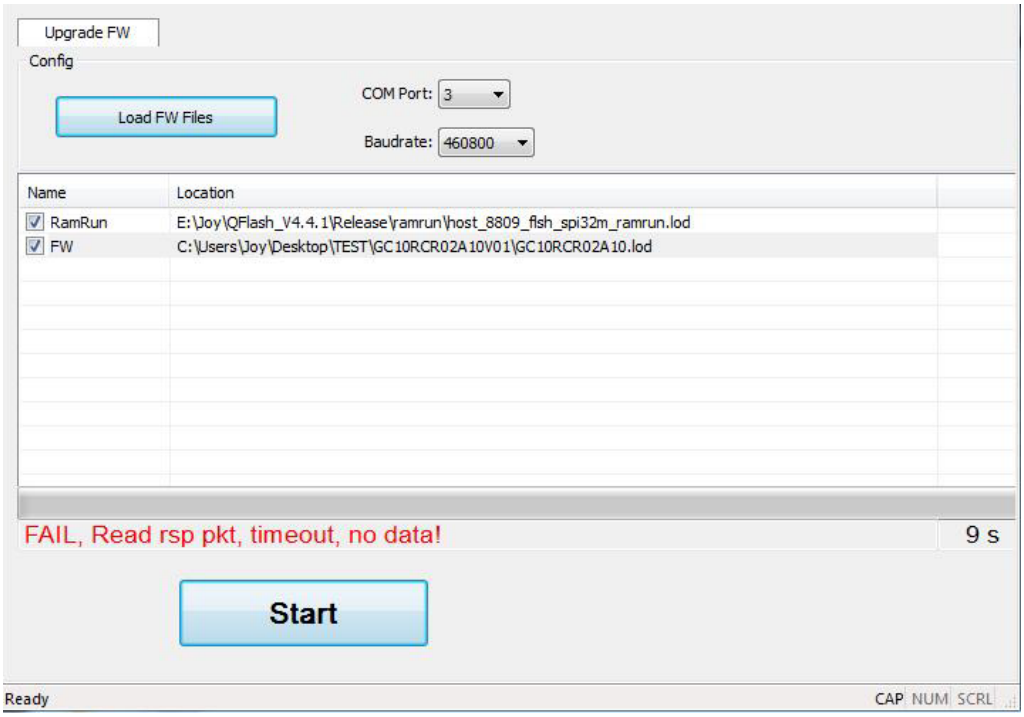

Figure 24: Connected to a Wrong Serial Port (GCxx)

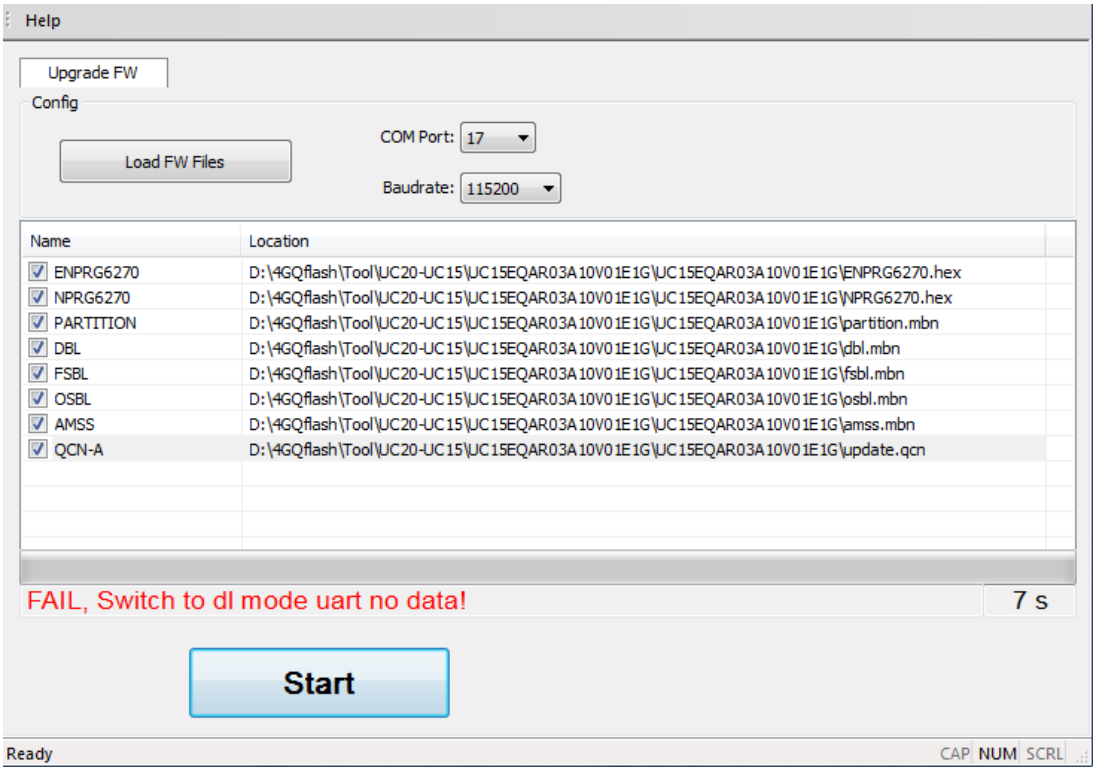

Figure 25: Connected to a Wrong Serial Port (UCxx)

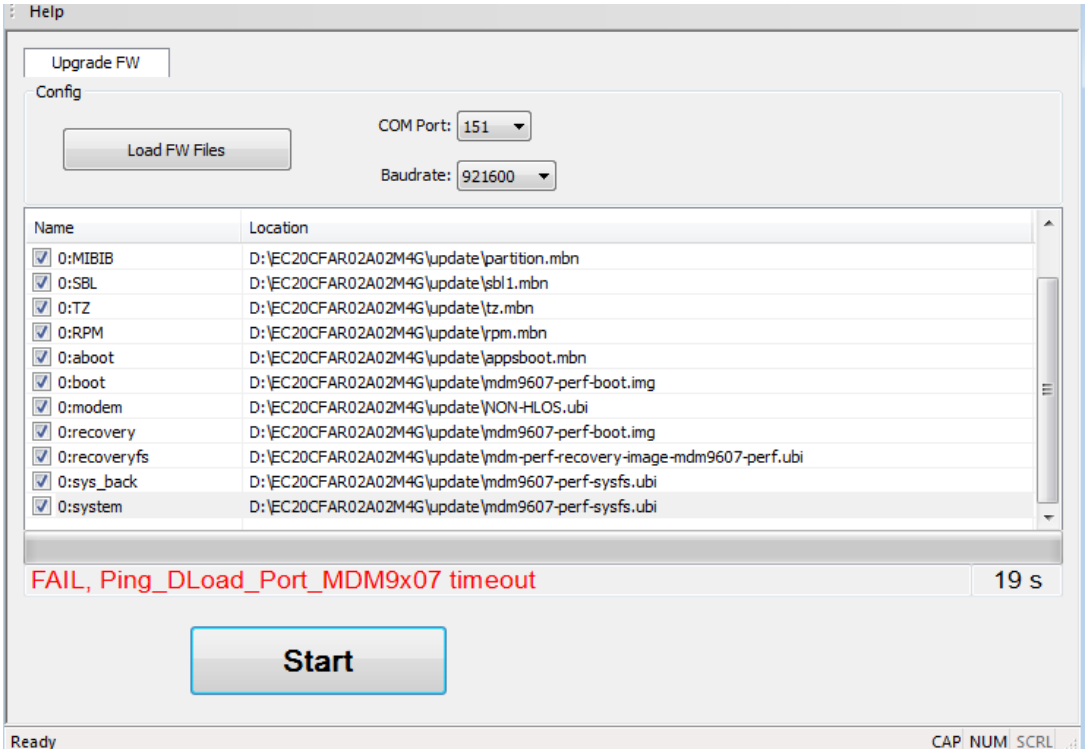

Figure 26: Connected to a Wrong Serial Port (ECxx/EG9x/Ex06/EM05/BG96/EM12)

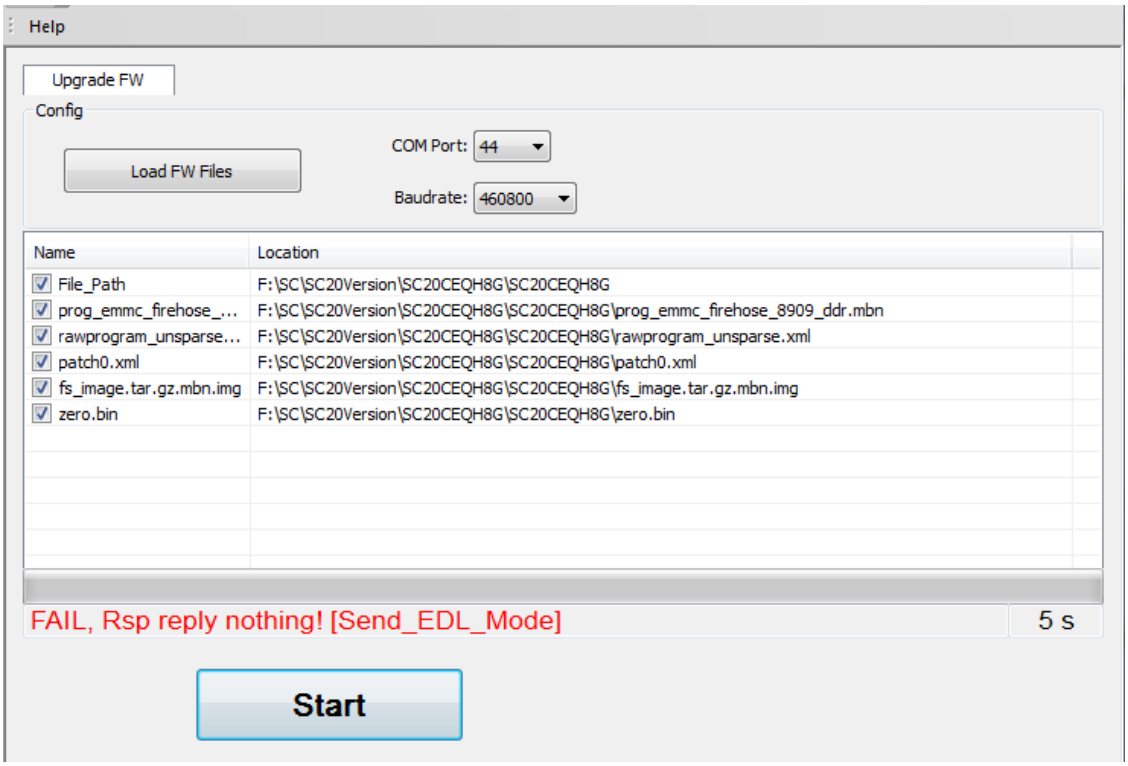

Figure 27: Connected to a Wrong Serial Port (SCxx)

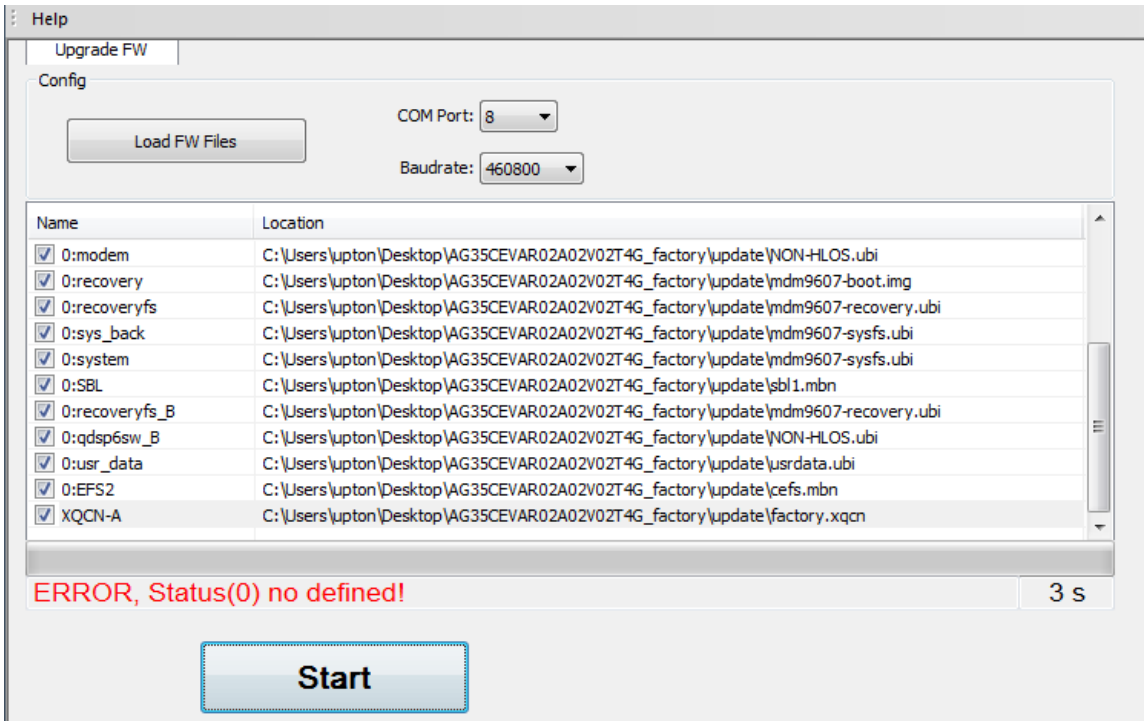

Figure 28: Connected to a Wrong Serial Port (AG35/AG15)

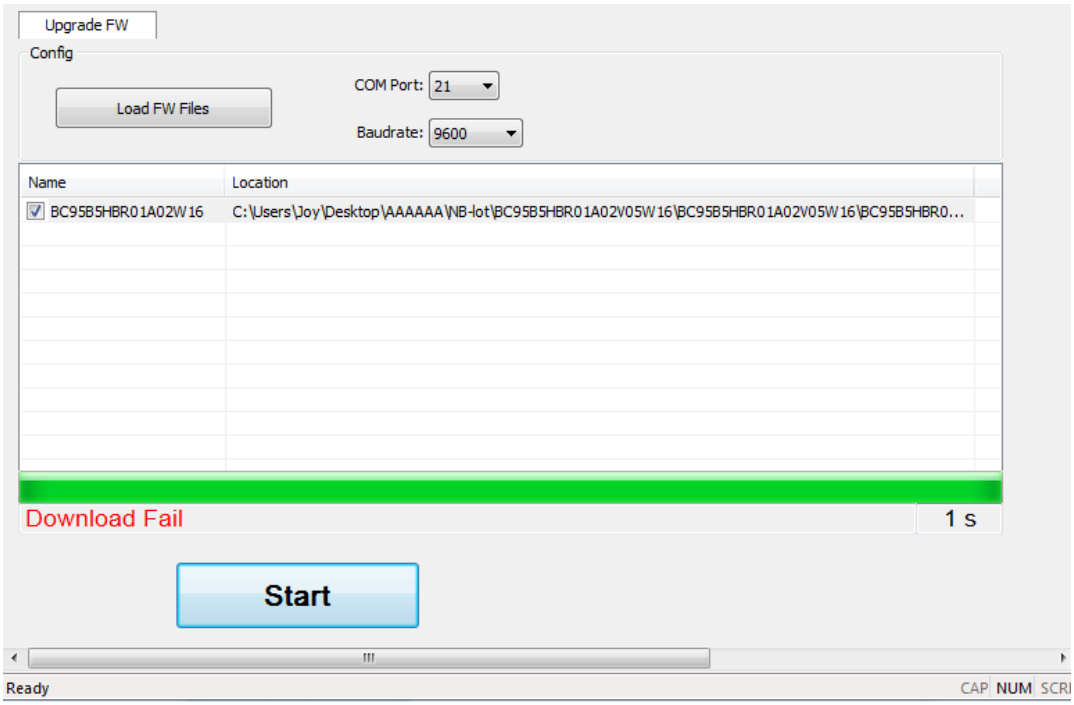

Figure 29: Connected to a Wrong Serial Port (BCxx)

2.4.2. Connected to an Occupied Serial Port

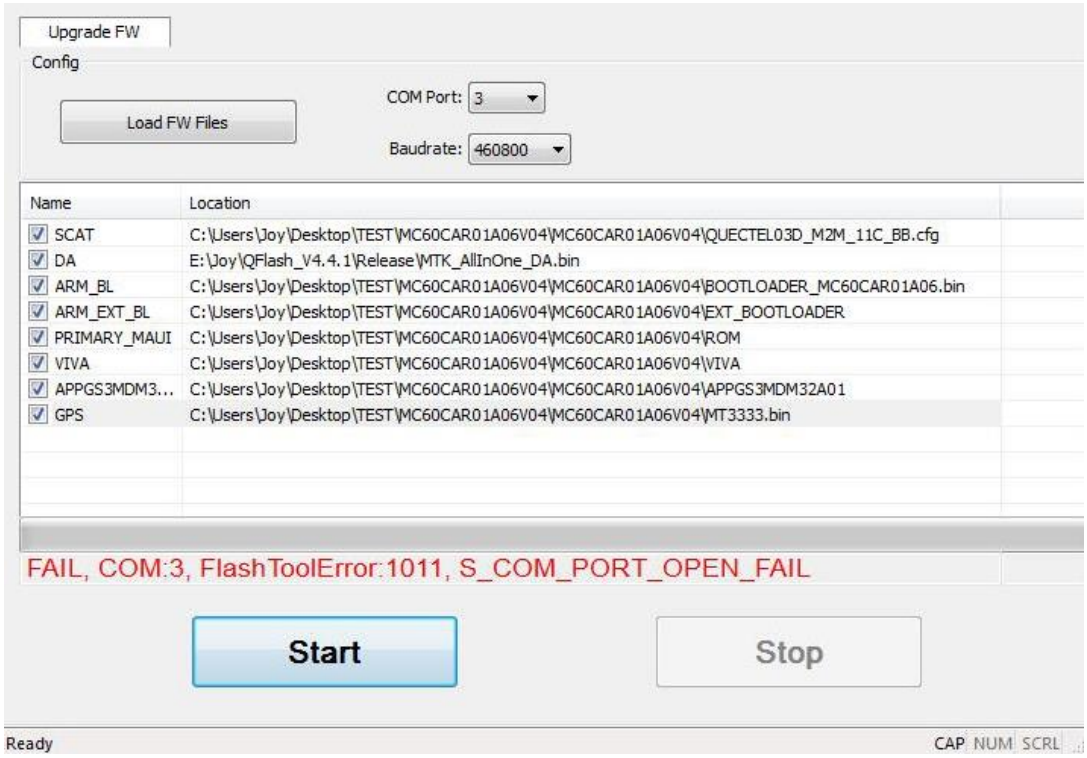

Figure 30: Connected to an Occupied Serial Port (M10/M66/M72/M80/M85/M95/MC60)

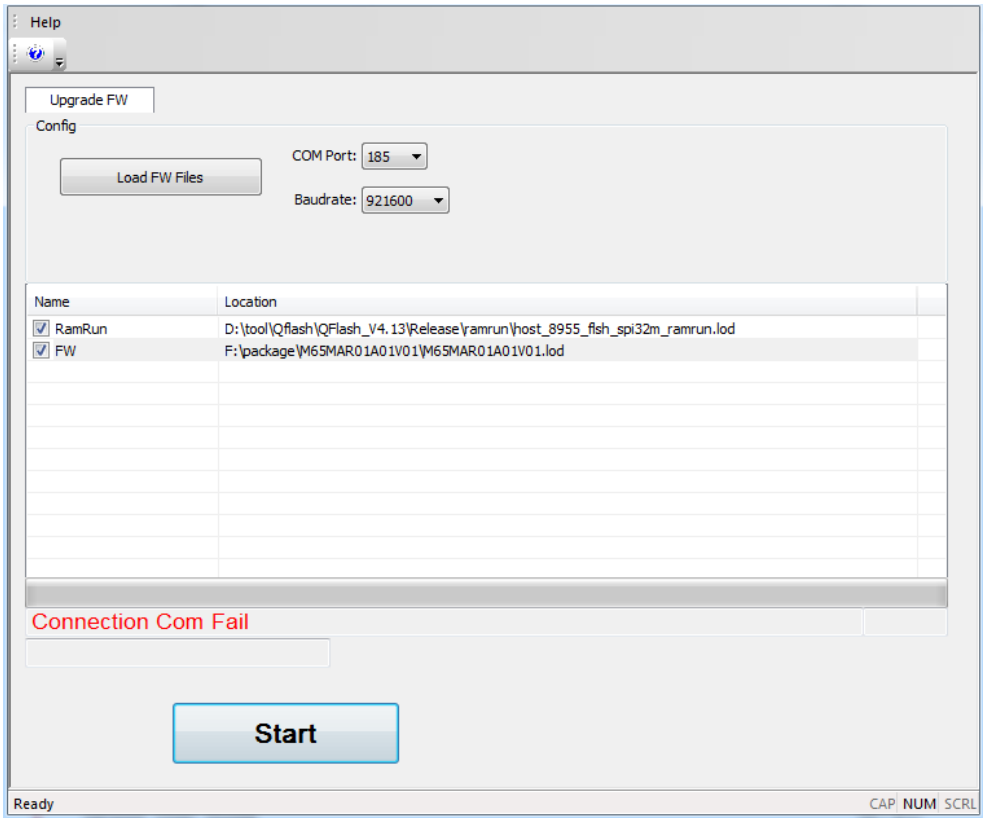

Figure 31: Connected to an Occupied Serial Port (M65)

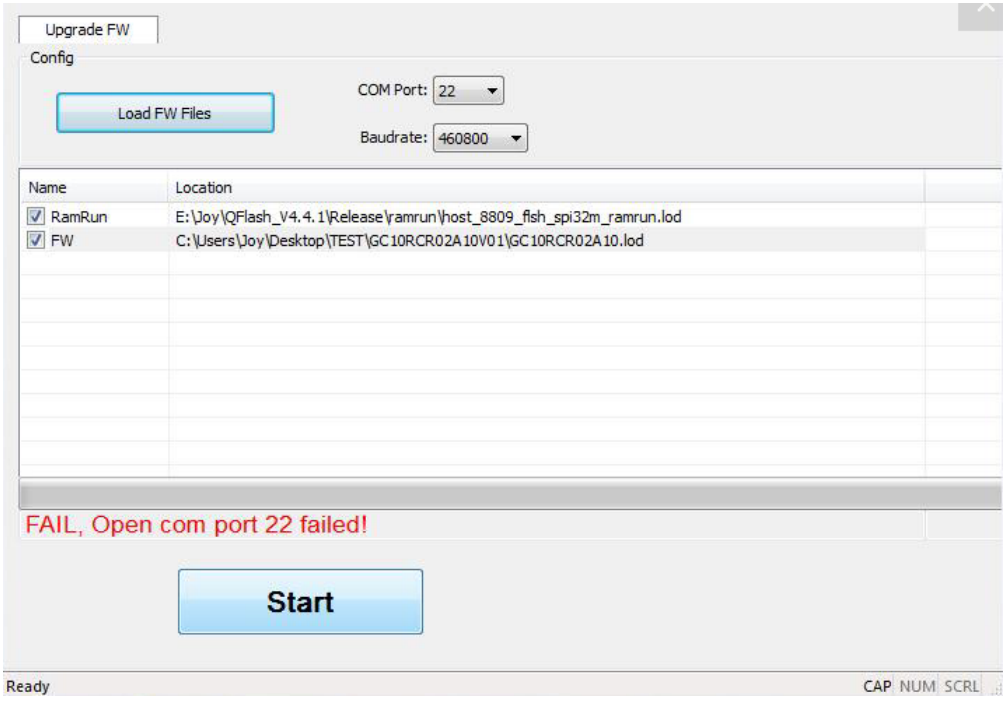

Figure 32: Connected to an Occupied Serial Port (GCxx)

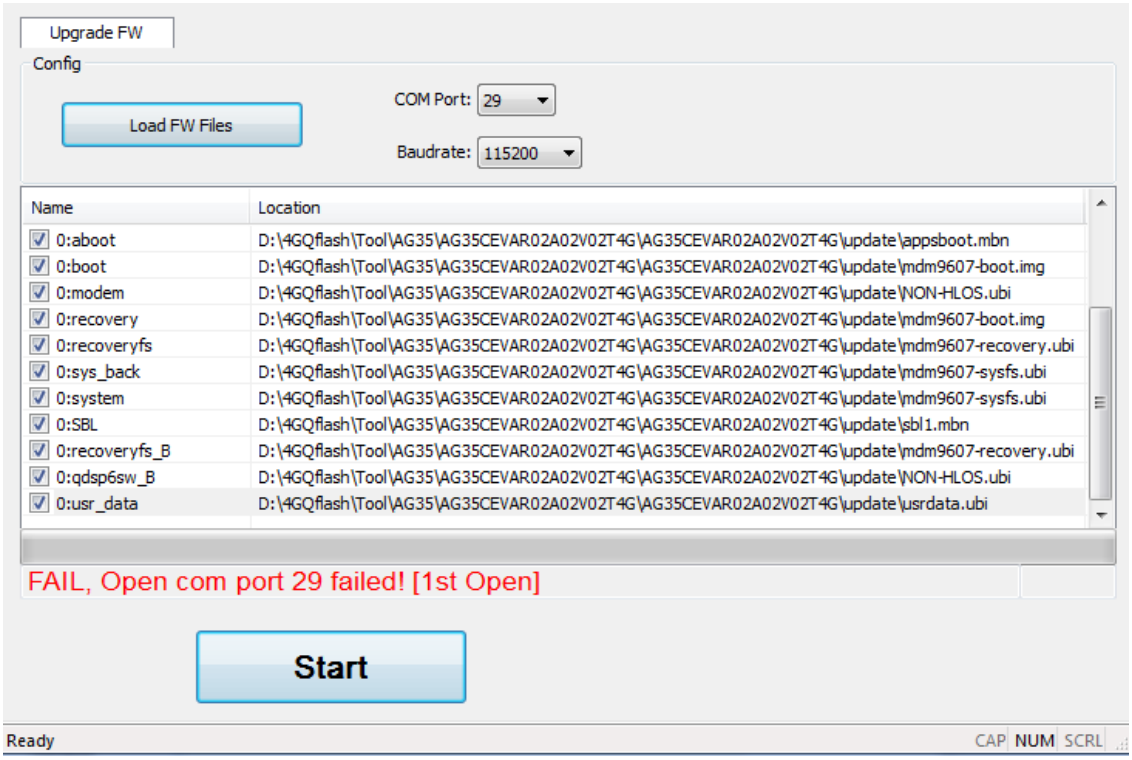

Figure 33: Connected to an Occupied Serial Port (UCxx/ECxx/EG9x/Ex06/SCxx/EM05/AG35/AG15/ BG96/EM12)

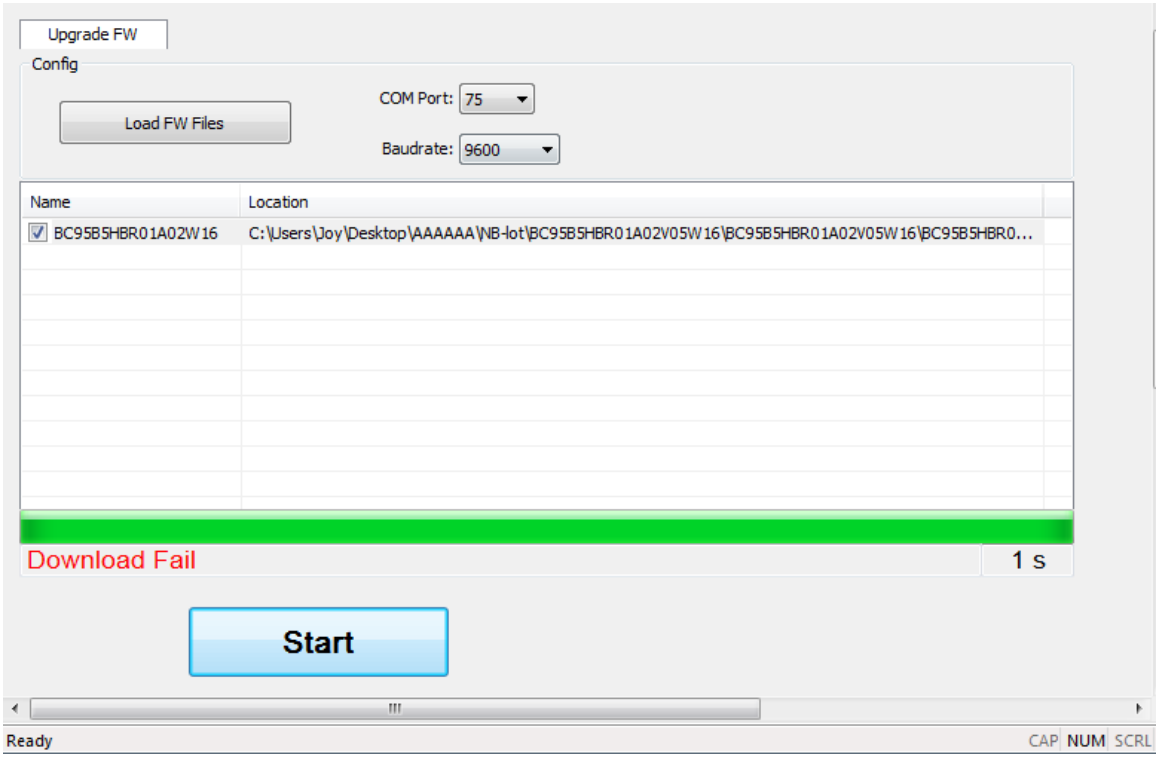

Figure 34: Connected to an Occupied Serial Port (BCxx)

2.4.3. Selected an Unsupported Baud Rate

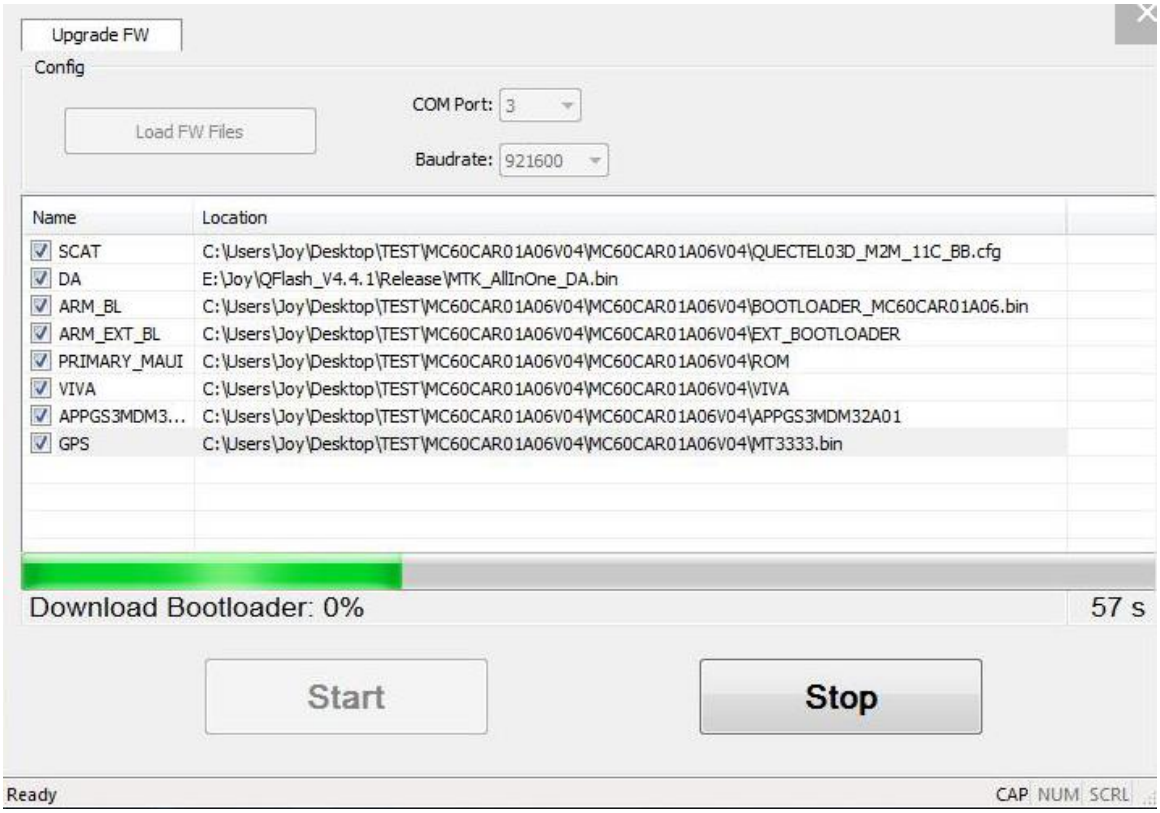

Figure 35: Selected an Unsupported Baud Rate (M10/M66/M72/M80/M85/M95/MC60)

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 this case, please click the "**Stop**" button to re-select a supported baud rate to restart with.

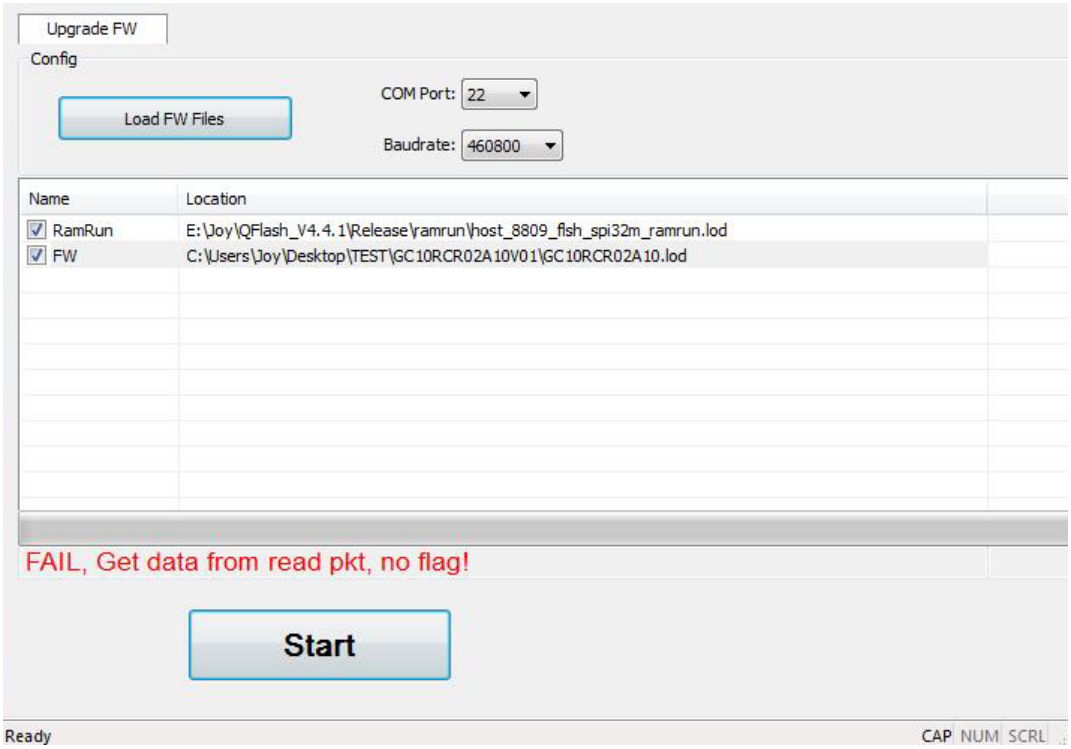

Figure 36: Selected an Unsupported Baud Rate (GCxx)

2.4.4. Selected an Invalid Load File

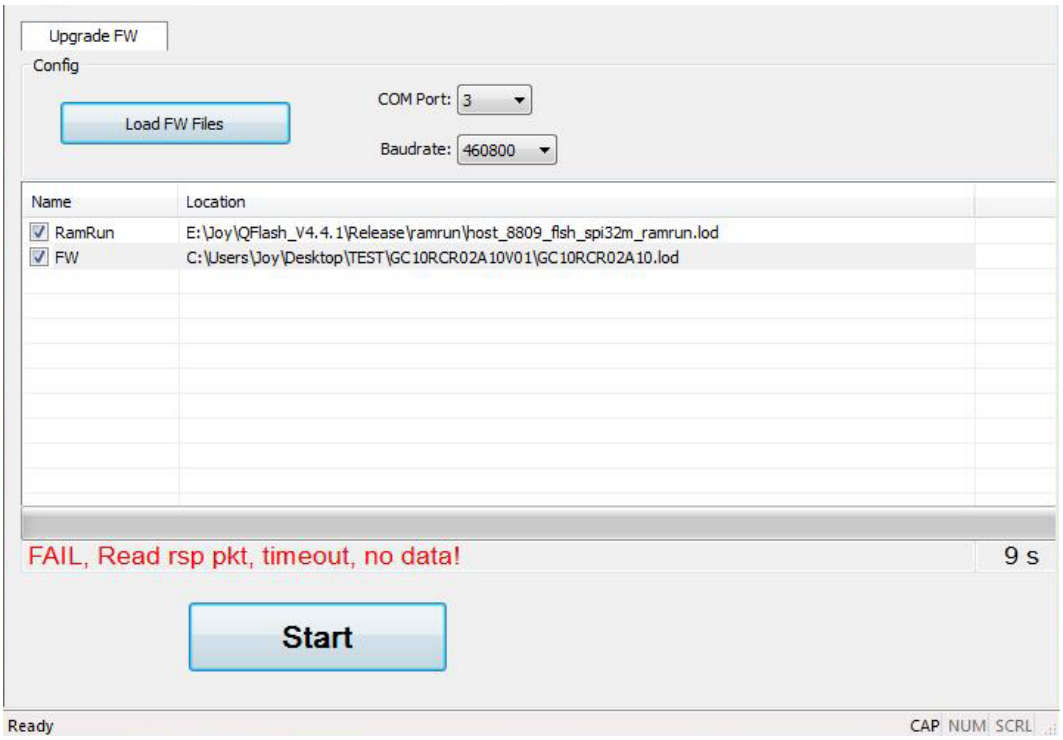

Figure 37: Selected an Invalid Scatter File (M10/M66/M72/M80/M85/M95/MC60)

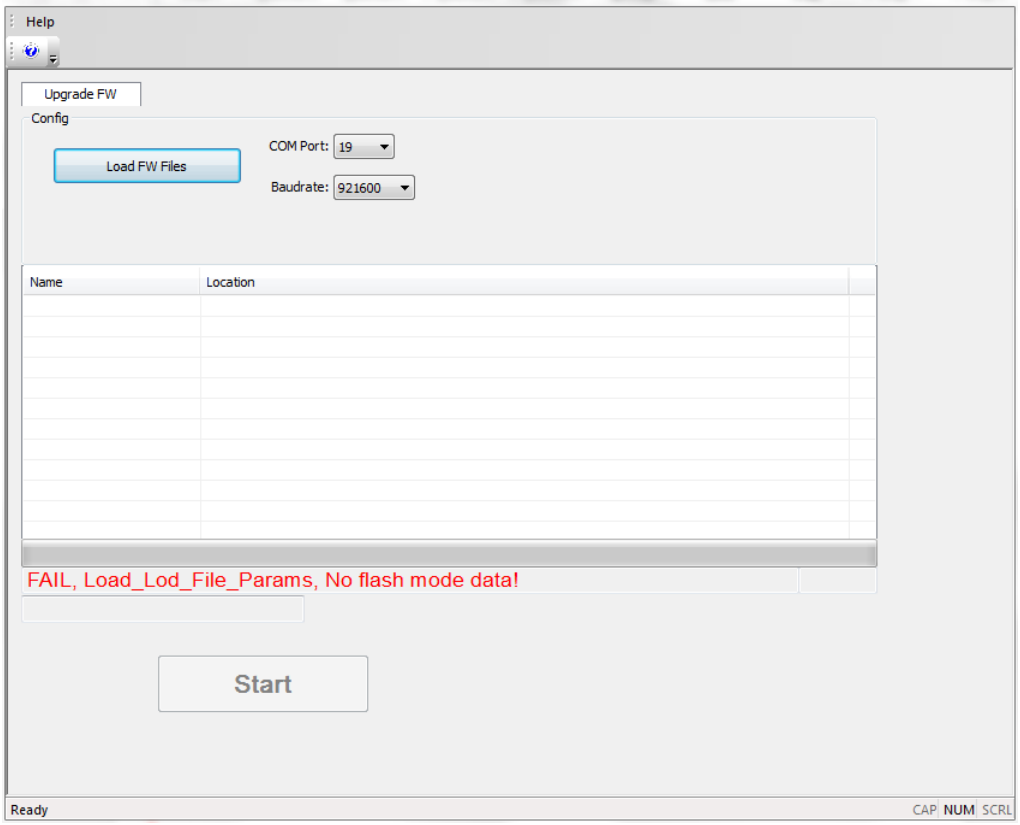

Figure 38: Selected an Invalid Scatter File (M65)

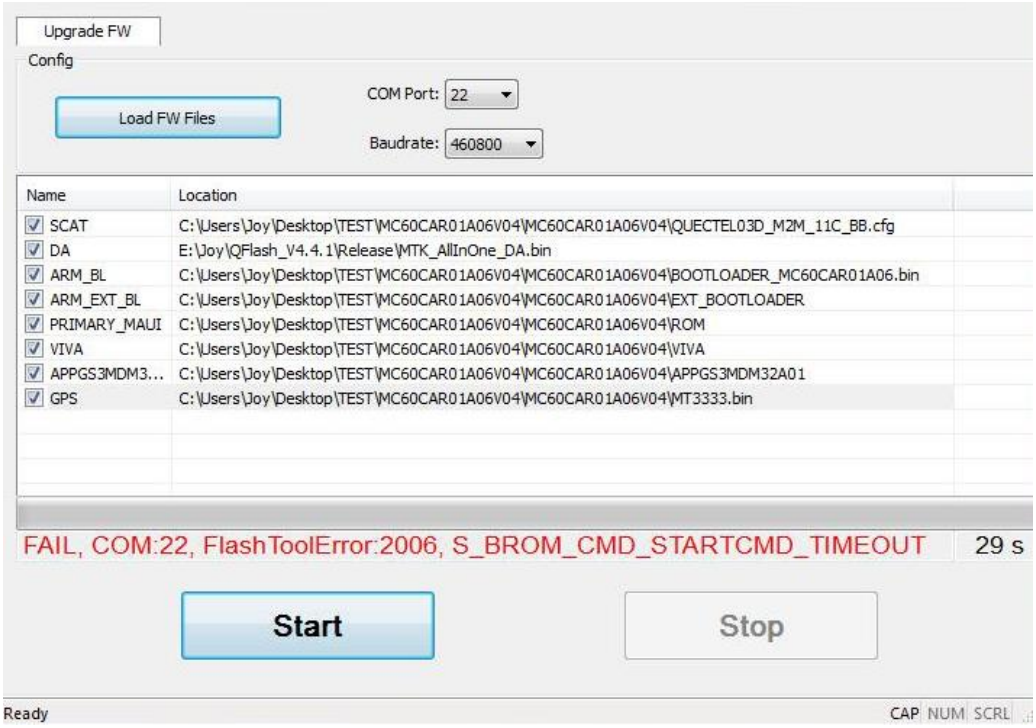

Figure 39: Selected an Invalid Load File (GCxx)

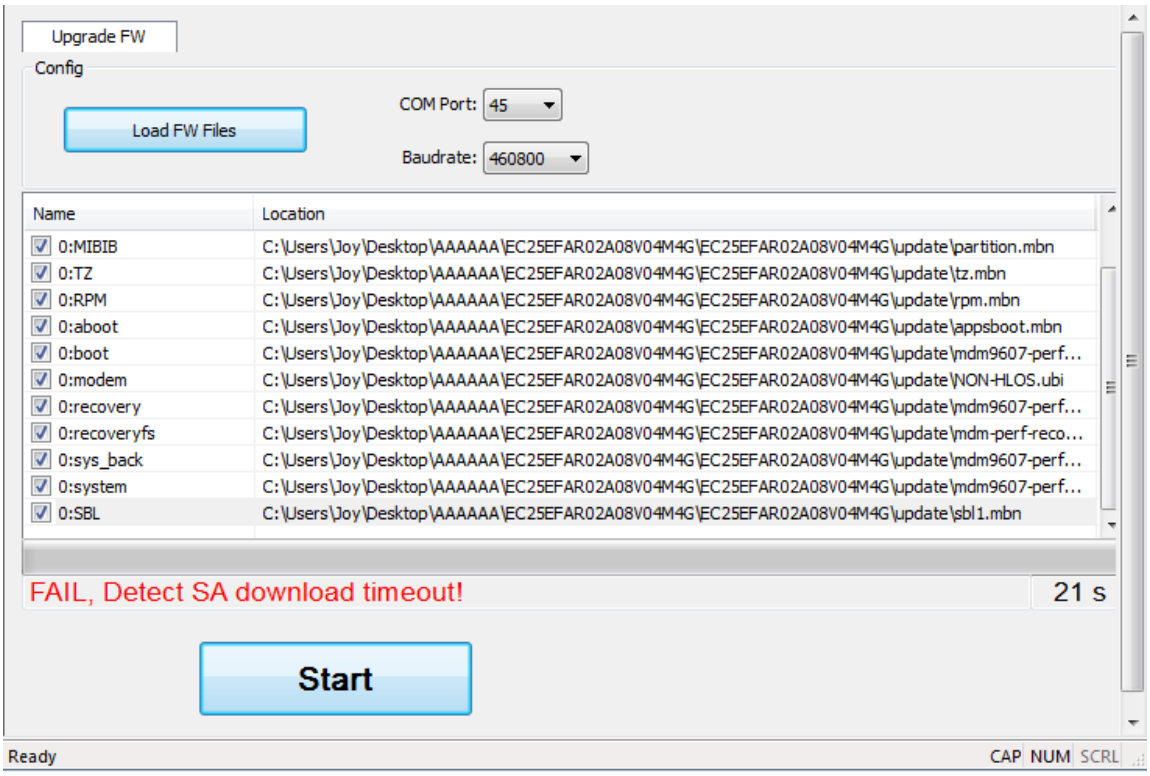

Figure 40: Selected an Invalid Load File (UCxx)

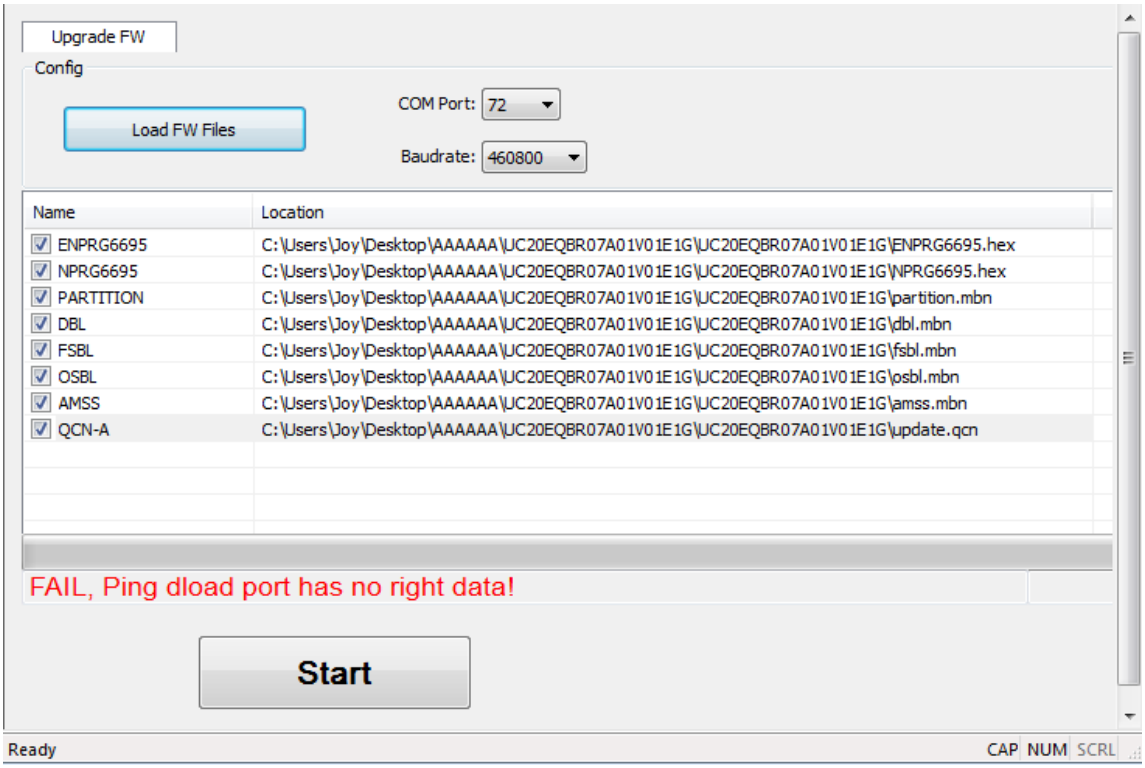

Figure 41: Selected an Invalid Load File (ECxx/EG9x)

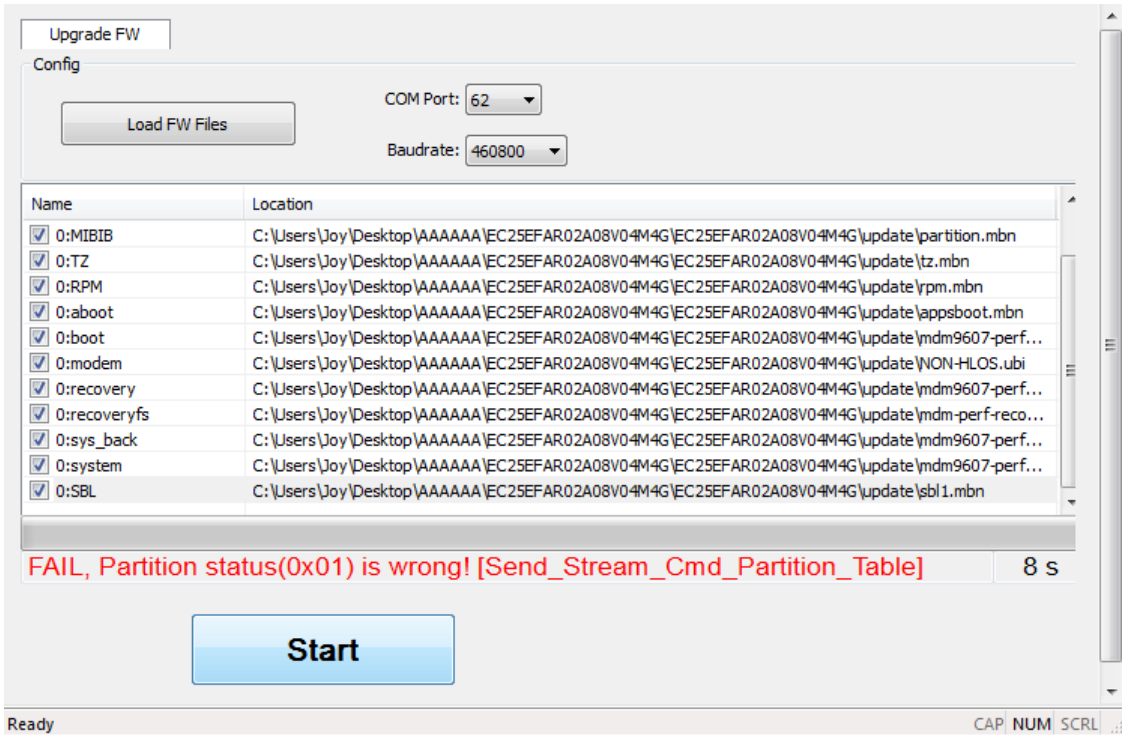

Figure 42: Selected an Invalid Load File (Ex06/AG35/AG15/BG96/EM12)

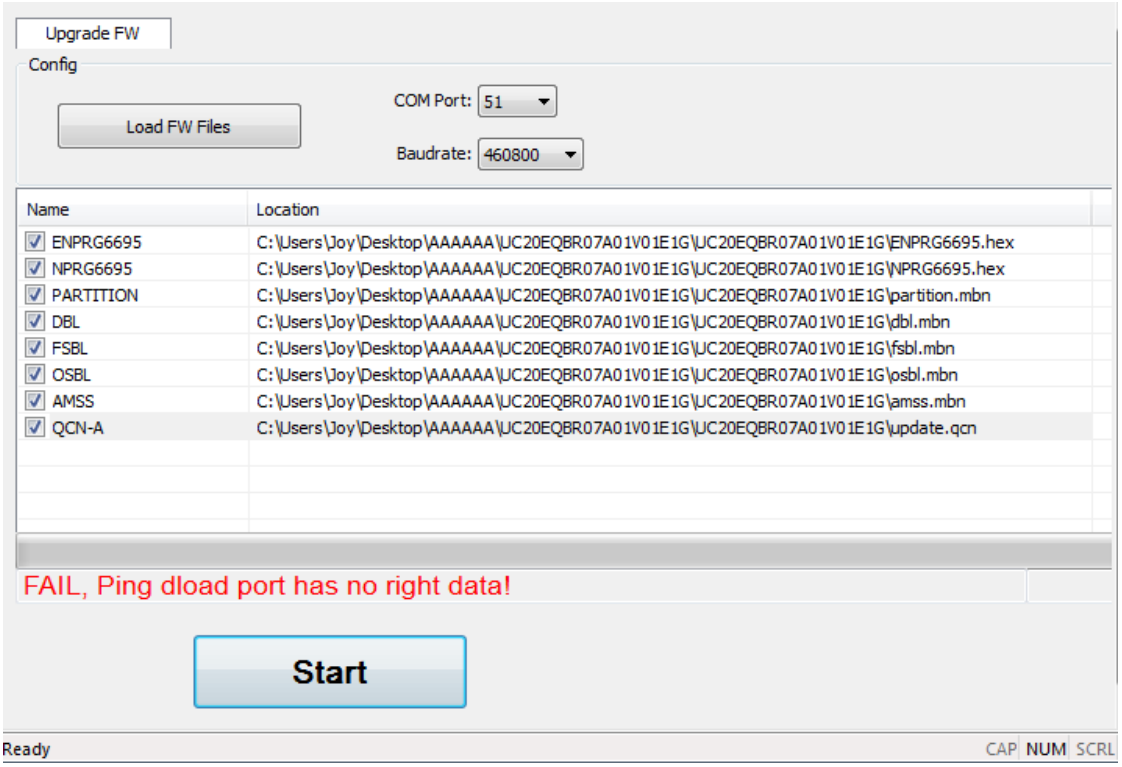

Figure 43: Selected an Invalid Load File (EM05)

2.4.5. Power Supply is Abnormal

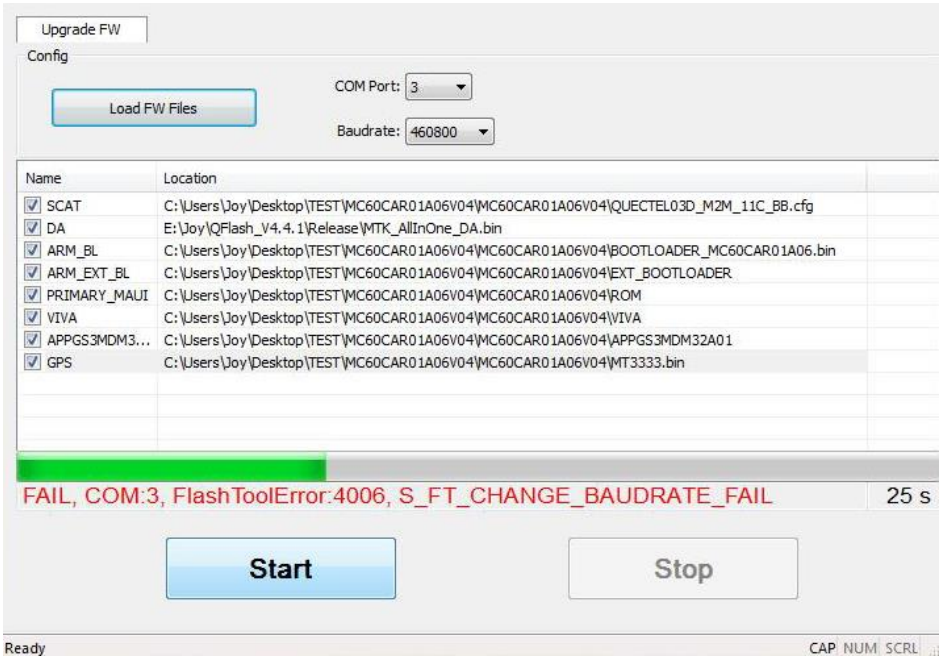

Figure 44: Abnormal Power Supply (M10/M66/M72/M80/M85/M95/MC60)

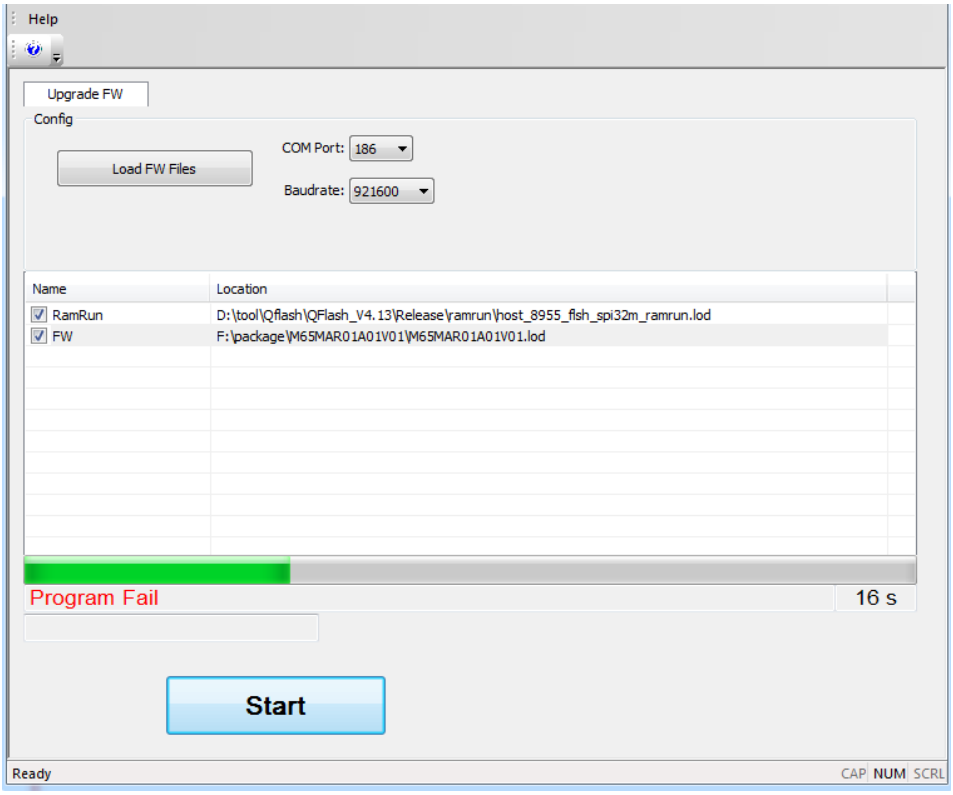

Figure 45: Abnormal Power Supply (M65)

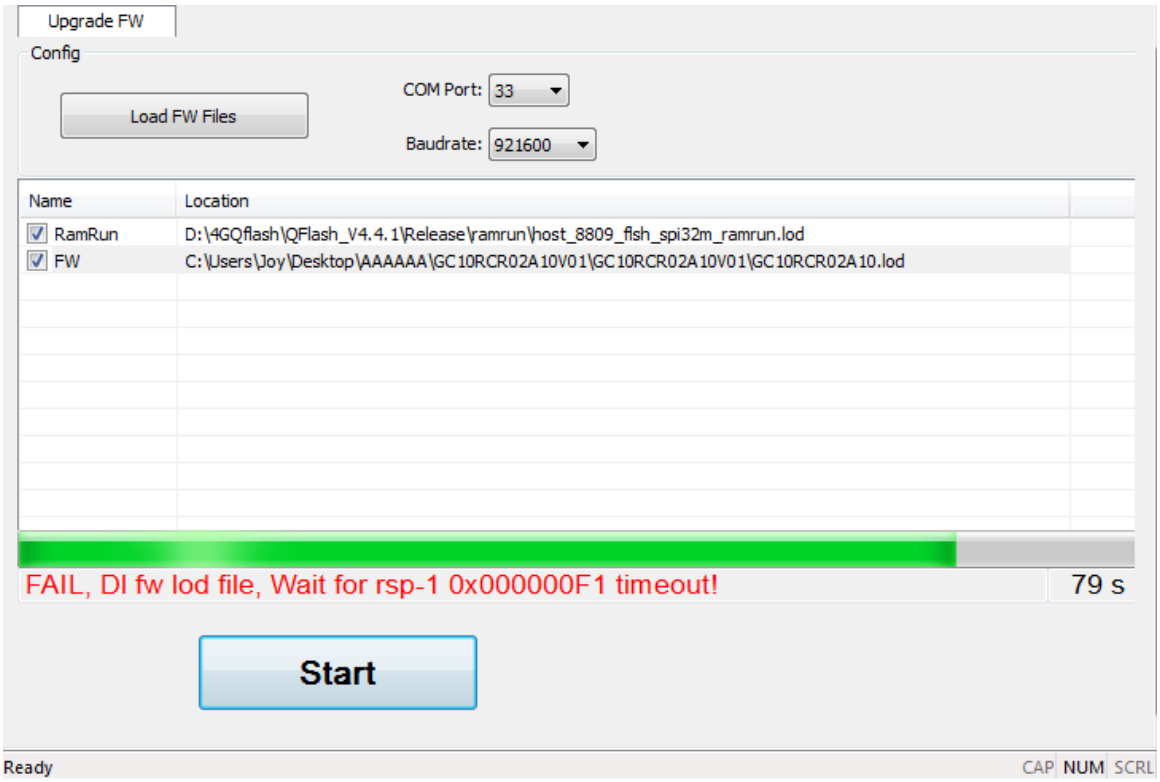

Figure 46: Abnormal Power Supply (GCxx)

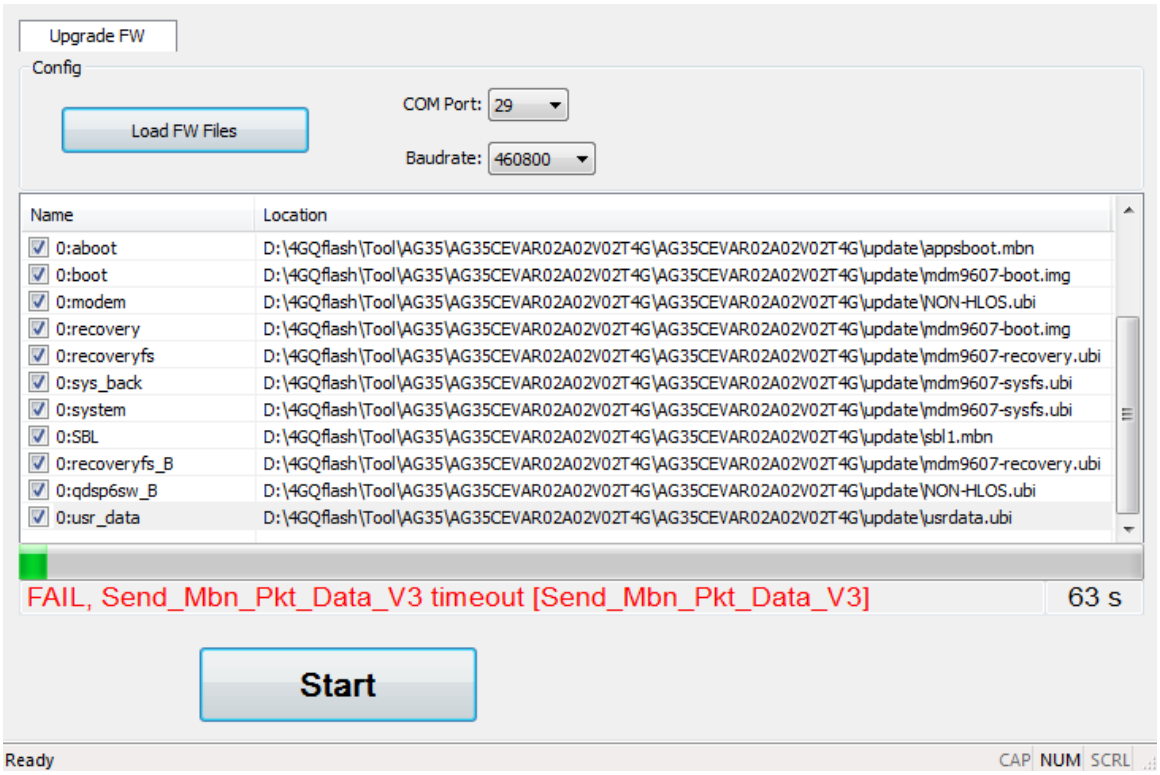

Figure 47: Abnormal Power Supply (UCxx/ECxx/EG9x/Ex06/EM05/AG35/AG15/BG96/EM12)

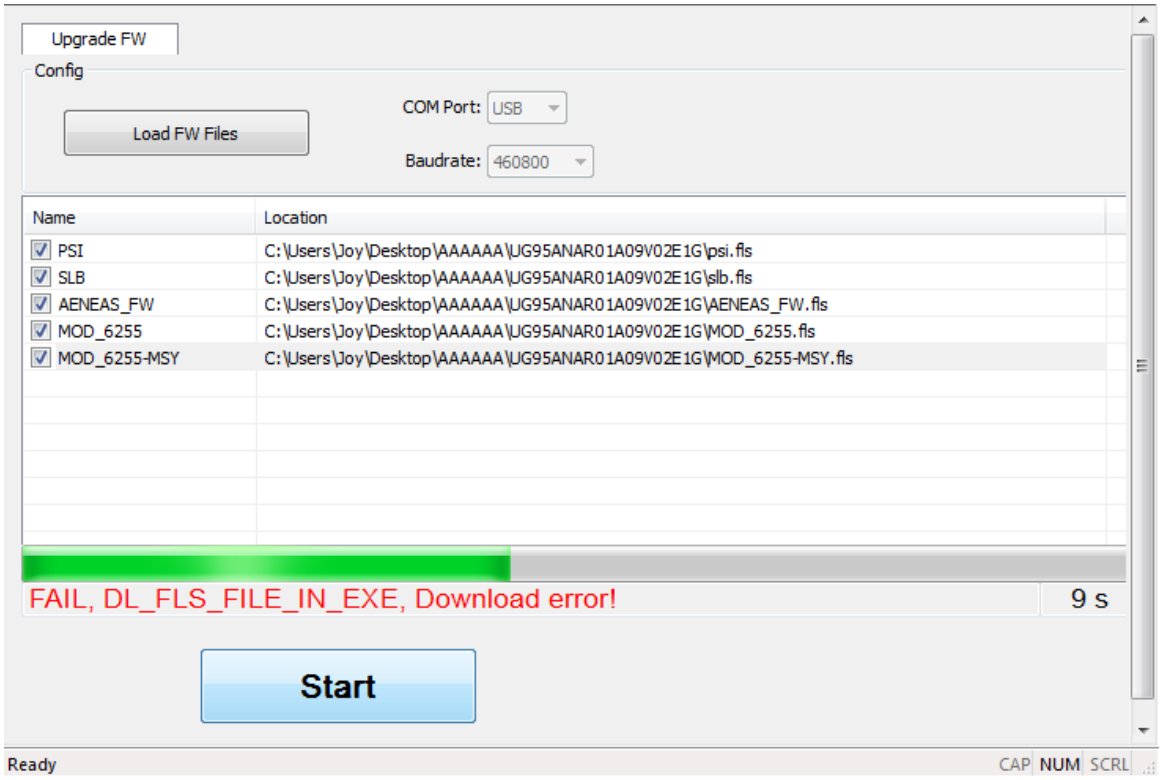

Figure 48: Abnormal Power Supply (UGxx)

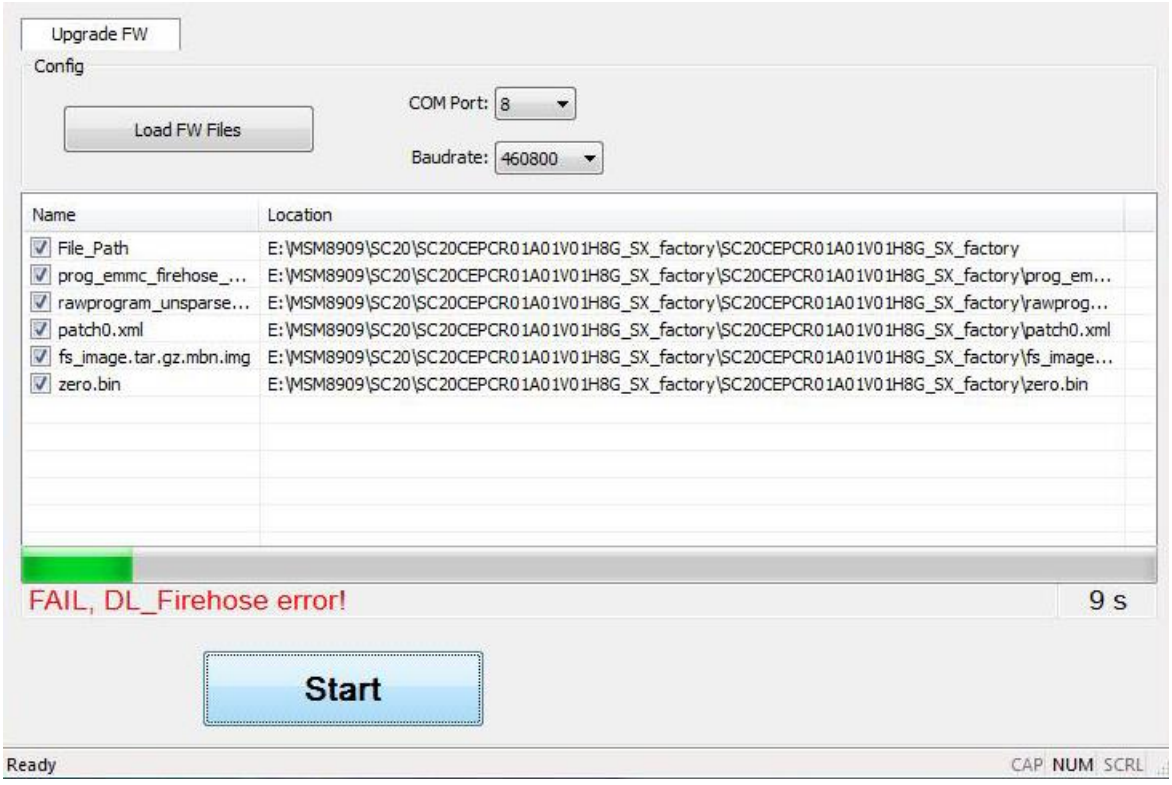

Figure 49: Abnormal Power Supply (SCxx)

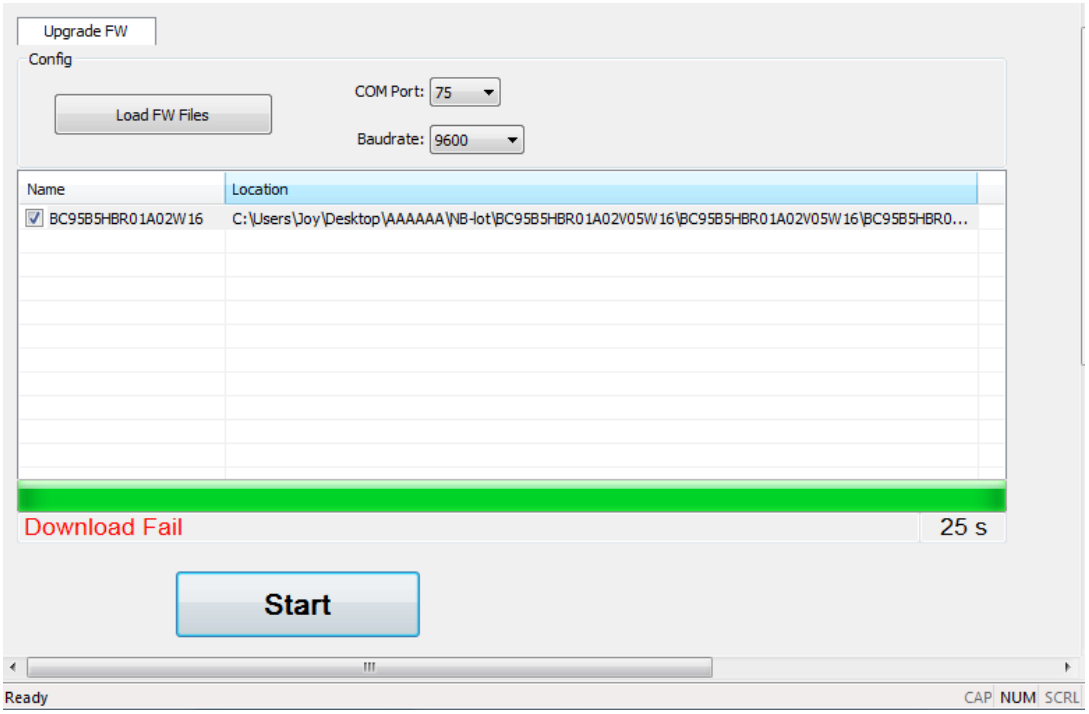

Figure 50: Abnormal Power Supply (BCxx)

2.4.6. USB to RS-232 Converter Cable is Abnormal

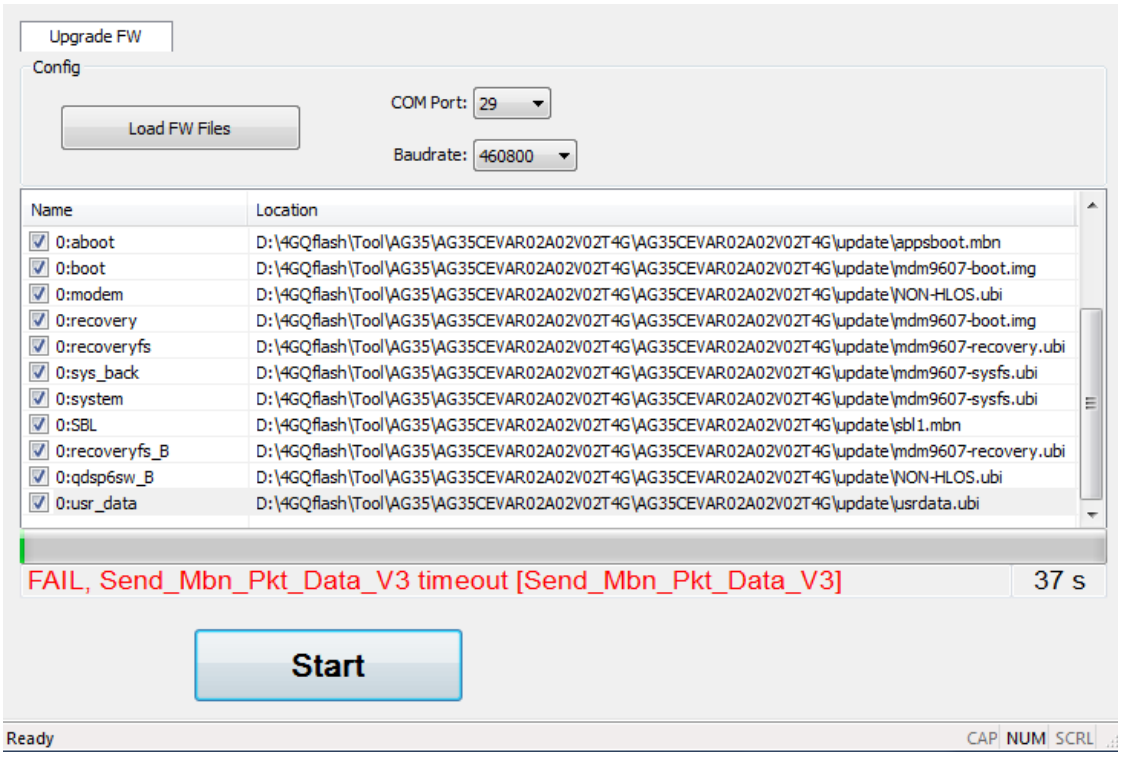

Figure 51: Abnormal USB to RS-232 Converter Cable