QFlash User Guide

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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

Contents

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1 Introduction

1.1. OS and Version

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

- Windows XP
- Windows 7
- Windows 8
- Windows 10

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

1.2. Applicable Modules

QFlash is applicable to the following Quectel modules.

Table 1: Applicable Modules

NB-IoT Module Series	BCxx: BC95/BC95-G/BC68/BC66 module
LTE Module Series	ECxx: includes EC20/EC25/EC21 modules
	EG9x: includes EG91/EG95 modules
	Ex06: includes EP06/EG06/EM06 modules
	SCxx: includes SC20/SC60 modules
	SGxx: includes SG30/SG36 modules
	EM05 module
	AG35 module

	BG96 module
	EM12 module
UMTS/HSPA(+) Module Series	UCxx: includes UC15/UC20 modules
	UGxx: includes UG95/UG96 modules
GSM/GPRS Module Series	Mxx: includes M10/M66/M72/M80/M85/M95/MC60 modules
	GCxx: GC10 module

1.3. About QFlash Tool

The QFlash tool developed by Quectel is shown as below.

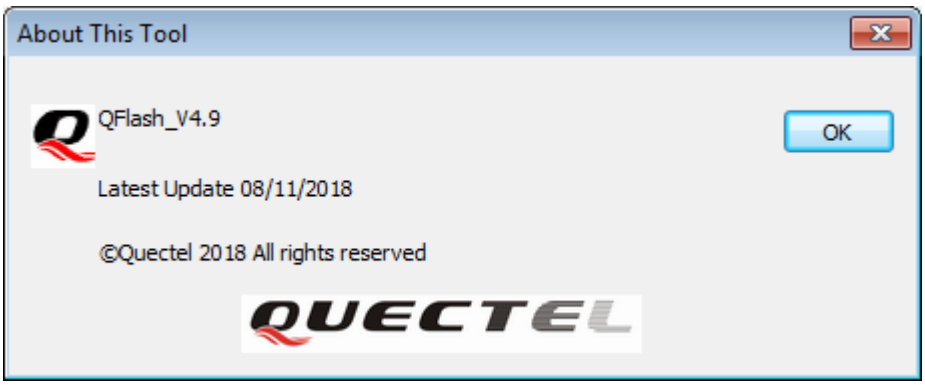

Figure 1: About the Tool

NOTE

The paths where the tool and firmware are stored should NOT contain any spaces, and English characters are preferred.

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

When the QFlash tool is opened, the main interface will show as below.

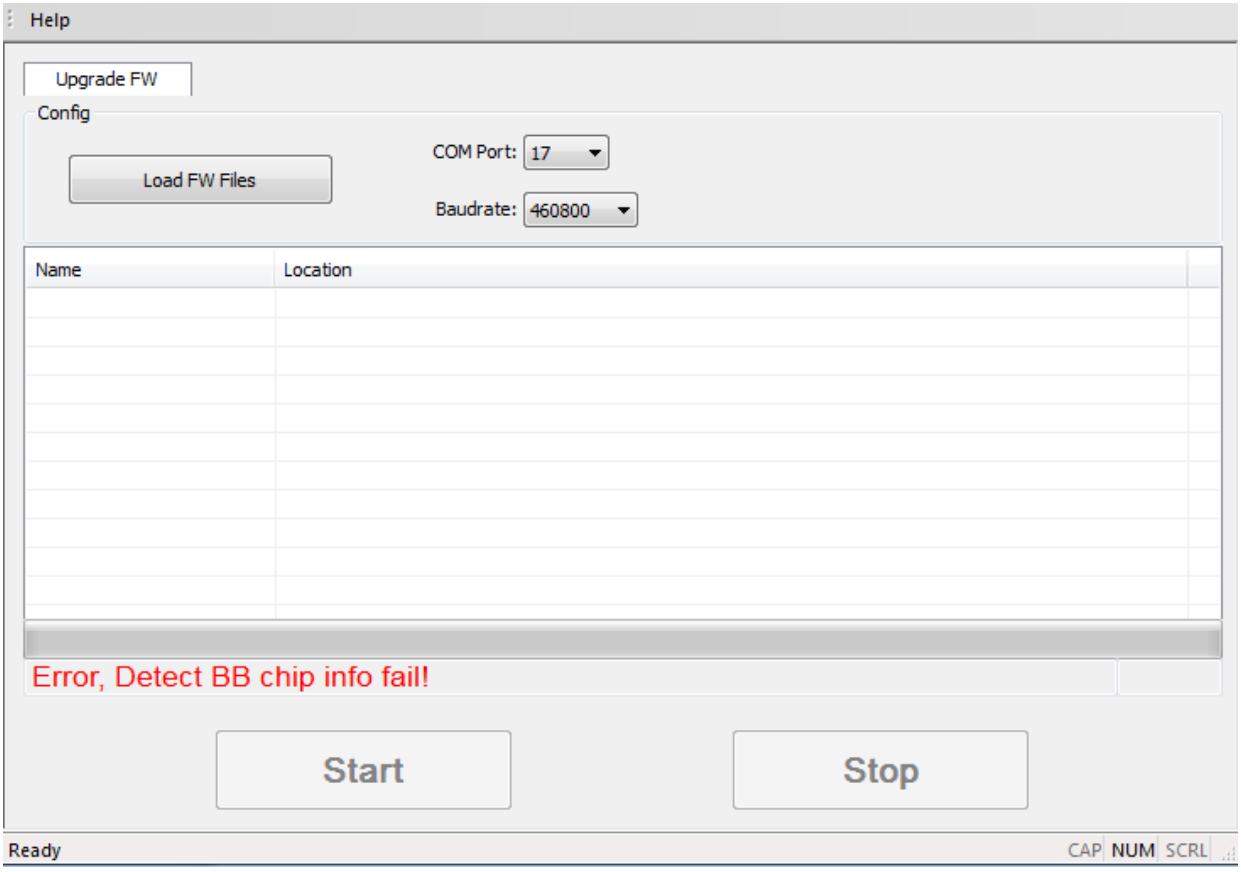

Figure 2: Main Interface

2.1.1. Set Serial 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 is upgraded. As shown in the following figure.

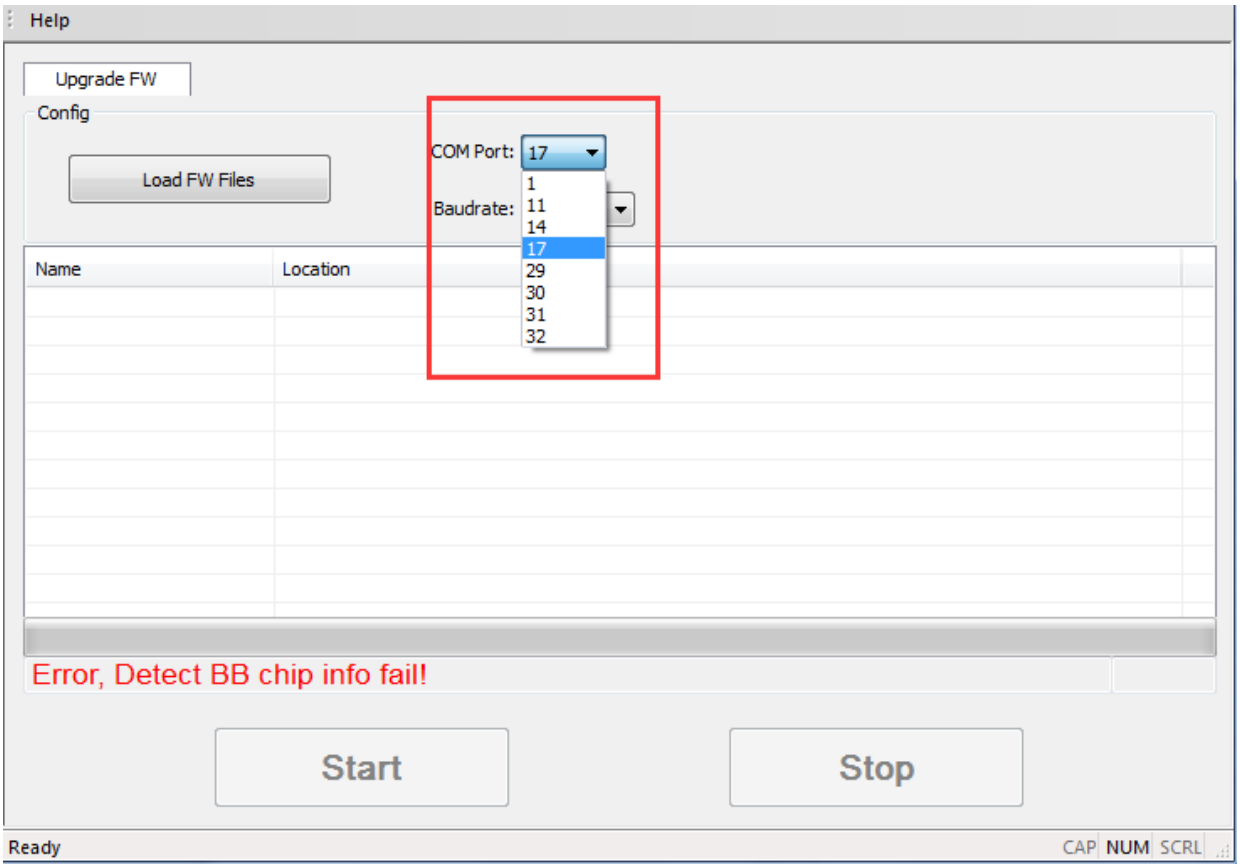

Figure 3: Select the Correct Serial Port for Mxx/GCxx/BCxx Modules

NOTES

1. For Mxx modules, it is the main UART to be used for firmware upgrade. After the port is selected, please manually restart the module.
2. For GCxx modules, it is the USB port to be used for firmware upgrade, and then the module will be automatically restarted.
3. For BC95 modules, it is the main UART to be used for firmware upgrade. After the port is selected, please click the "**Start**" button to 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 to 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 to wait for the prompt "**reset**", and then manually restart the module.

2.1.1.2. COM Port Selection for UGxx Modules

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, "**COM Port**" dropdown list will display "USB" in gray. Then the module will be automatically restarted and ready to upgrade, and the USB port will be identified. The interface is shown in the following figure.

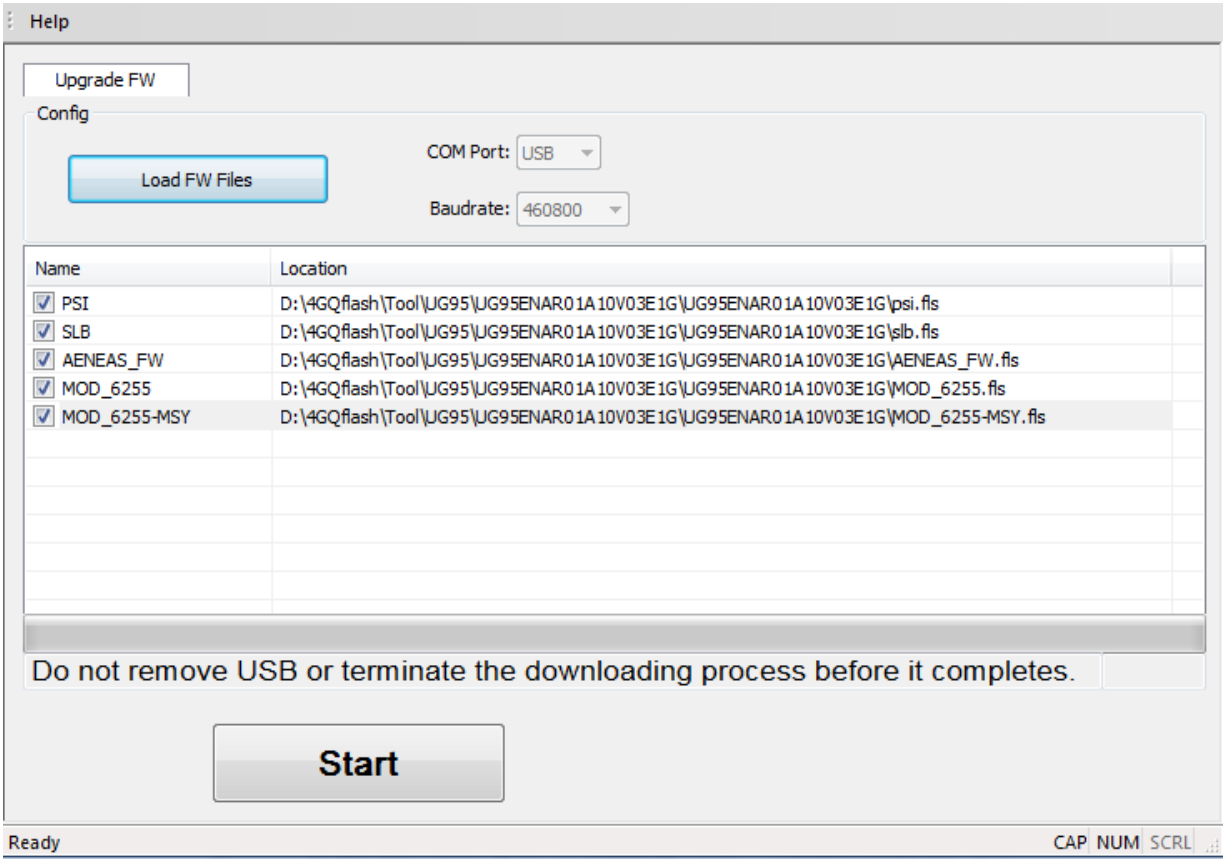

Figure 4: No Need to Select COM Port for UGxx Modules

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

For UCxx/ECxx/EGxx/Ex06/EM05/AG35/BG96/EM12 modules, 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.

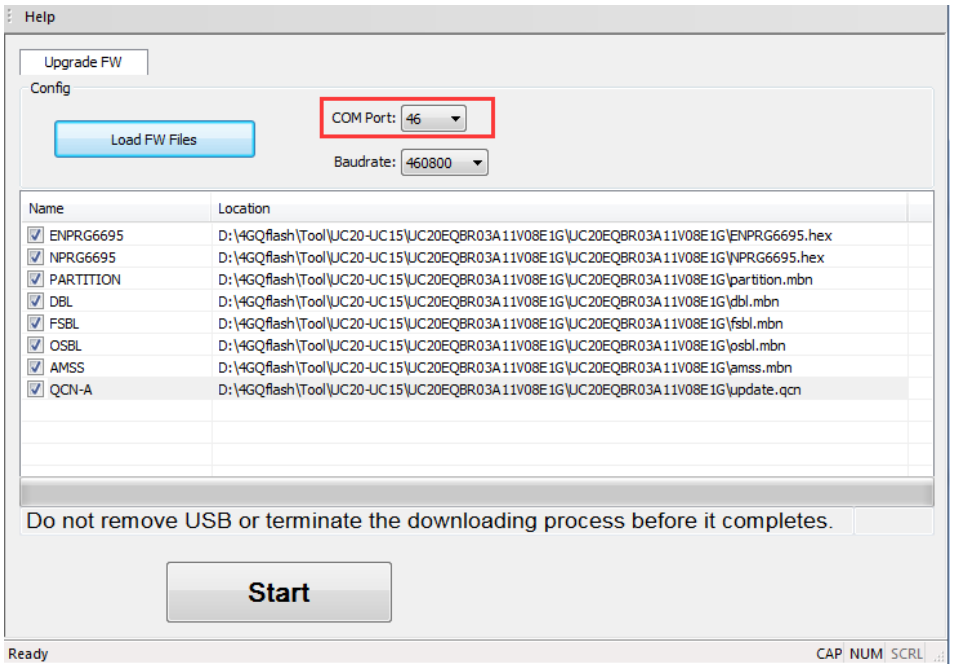

Figure 5: Select the USB DM Port for UCxx/ECxx/EGxx/Ex06/EM05/AG35/BG96/EM12 Modules

2.1.1.4. COM Port Selection for SCxx/SGxx Modules

For SCxx/SGxx modules, 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.

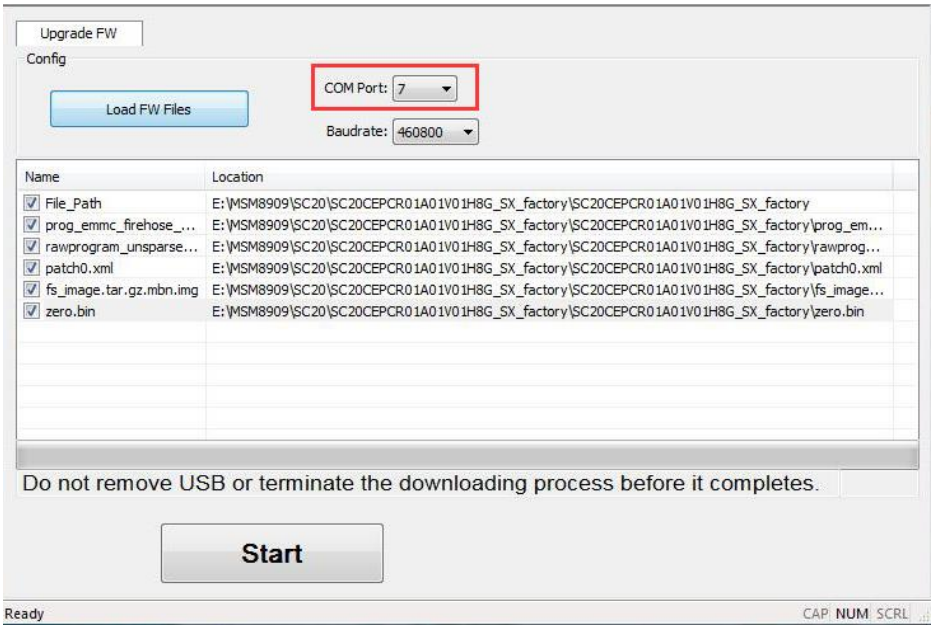

Figure 6: Select the HS-USB Diagnostics 9091 Port for SCxx/SGxx Modules

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.

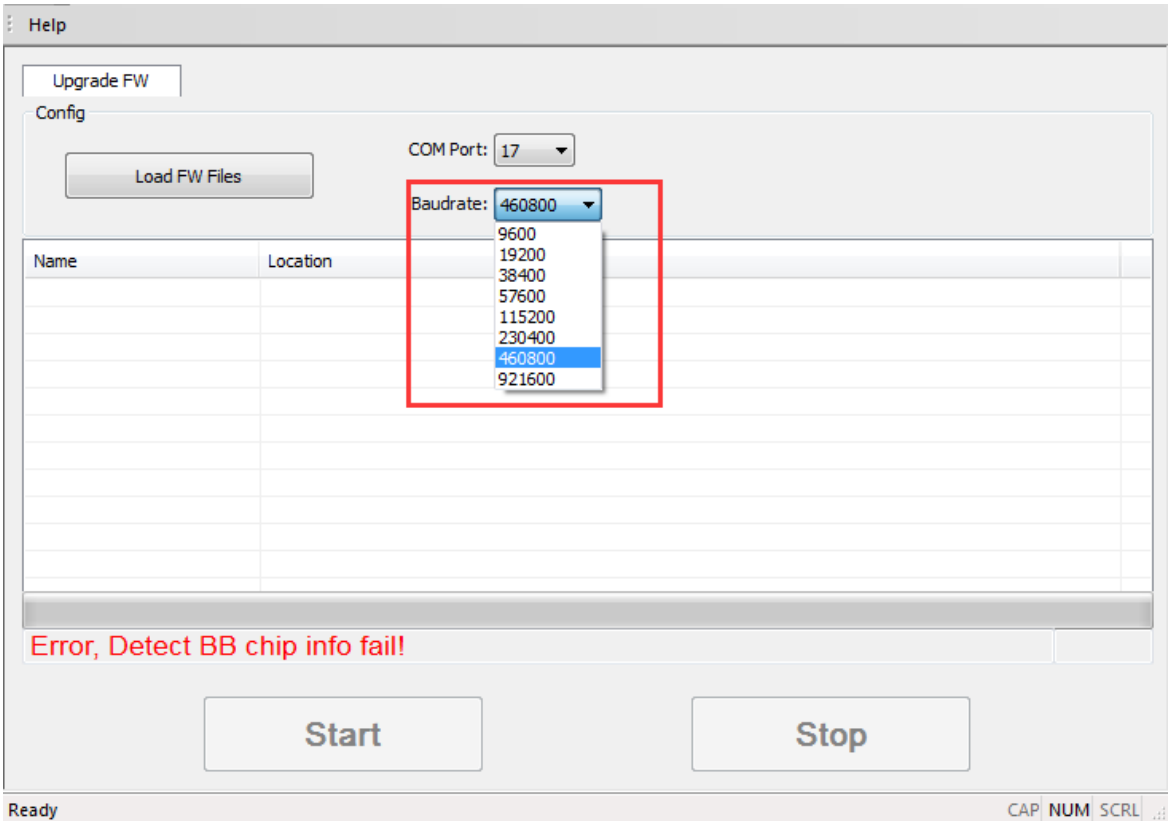

Figure 7: Select the Baud Rate

NOTES

1. Baud rates have many different values, and it is the hardware environment that 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 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

Step 1: Click the button "**Load FW Files**".

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

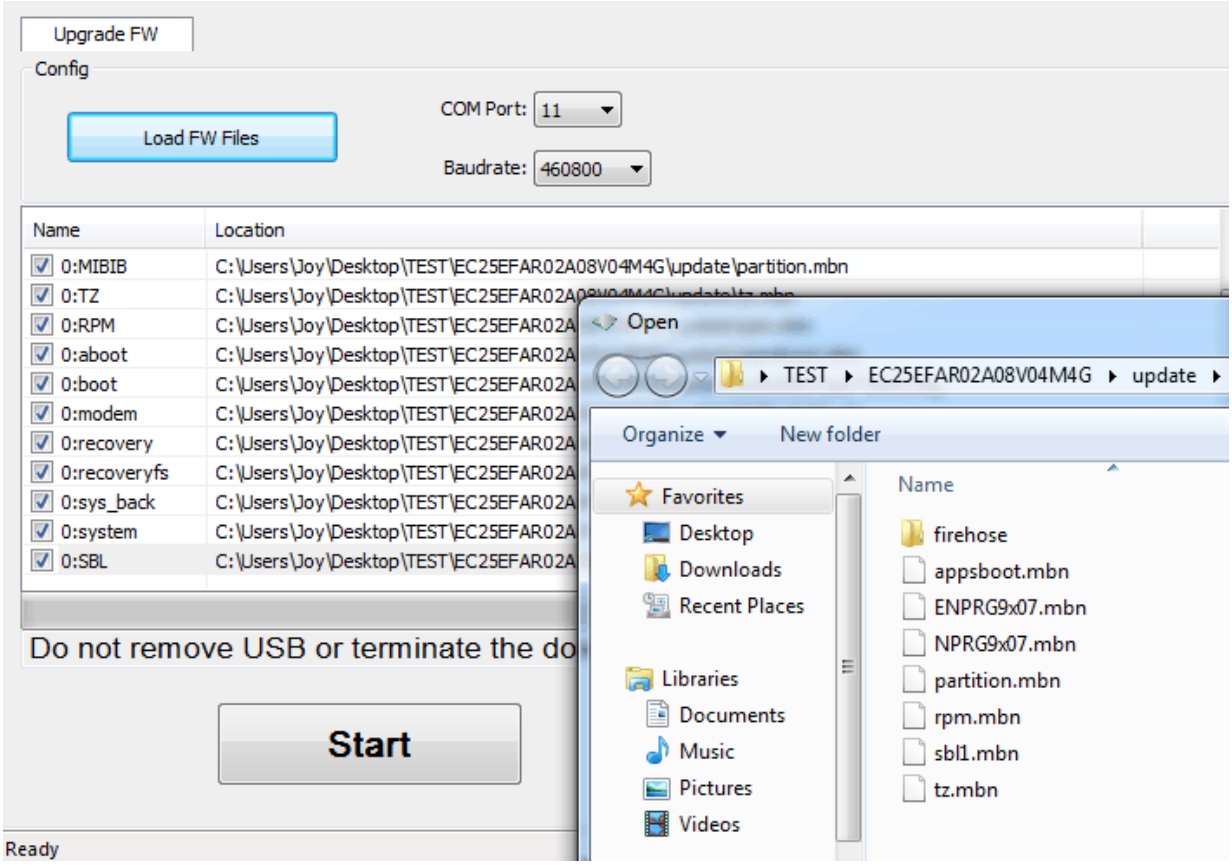

Figure 8: Select the File to be Downloaded

NOTE

The path where the firmware is stored should NOT contain any spaces, and English characters are preferred.

2.2.1. Load APP Firmware for OpenCPU or Quecopen Modules

This step is only necessary for Quectel OpenCPU or Quecopen modules.

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

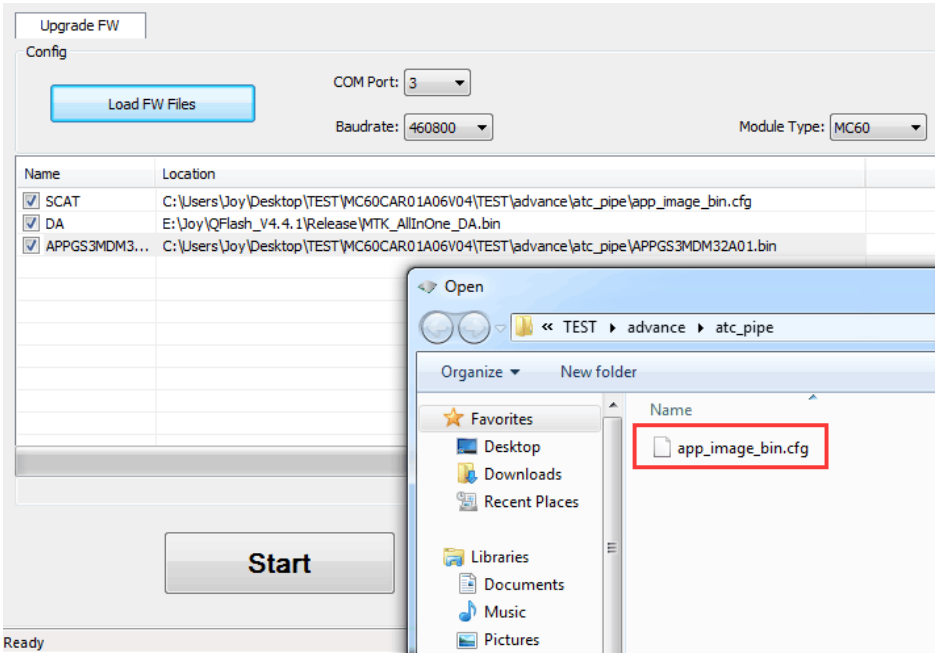

Figure 9: Select the .cfg File

NOTE

The path where the firmware is stored should NOT contain any spaces, and English characters are preferred.

Step 2: Click the "**Module Type**" dropdown list and choose an appropriate module type.

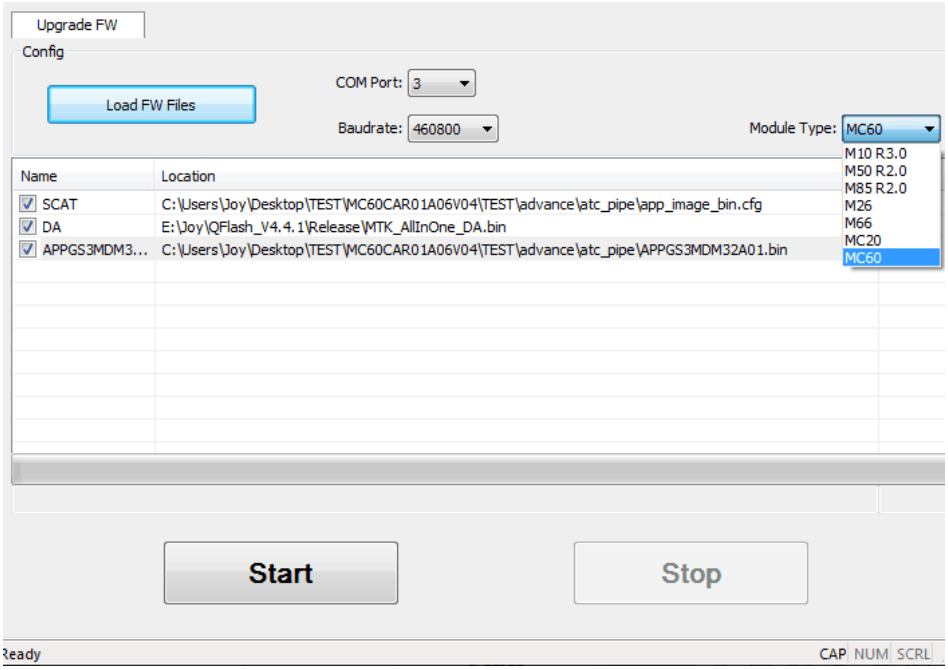

Figure 10: Select the Module Type

2.3. Upgrade the Firmware

Step 1: Click "**Start**" button to upgrade the firmware. There is no "**Stop**" button while upgrading firmware for GCxx/UCxx/UGxx/ECxx/EG9x/Ex06/SCxx/SGxx/BCxx/EM05/AG35/BG96/EM12 modules

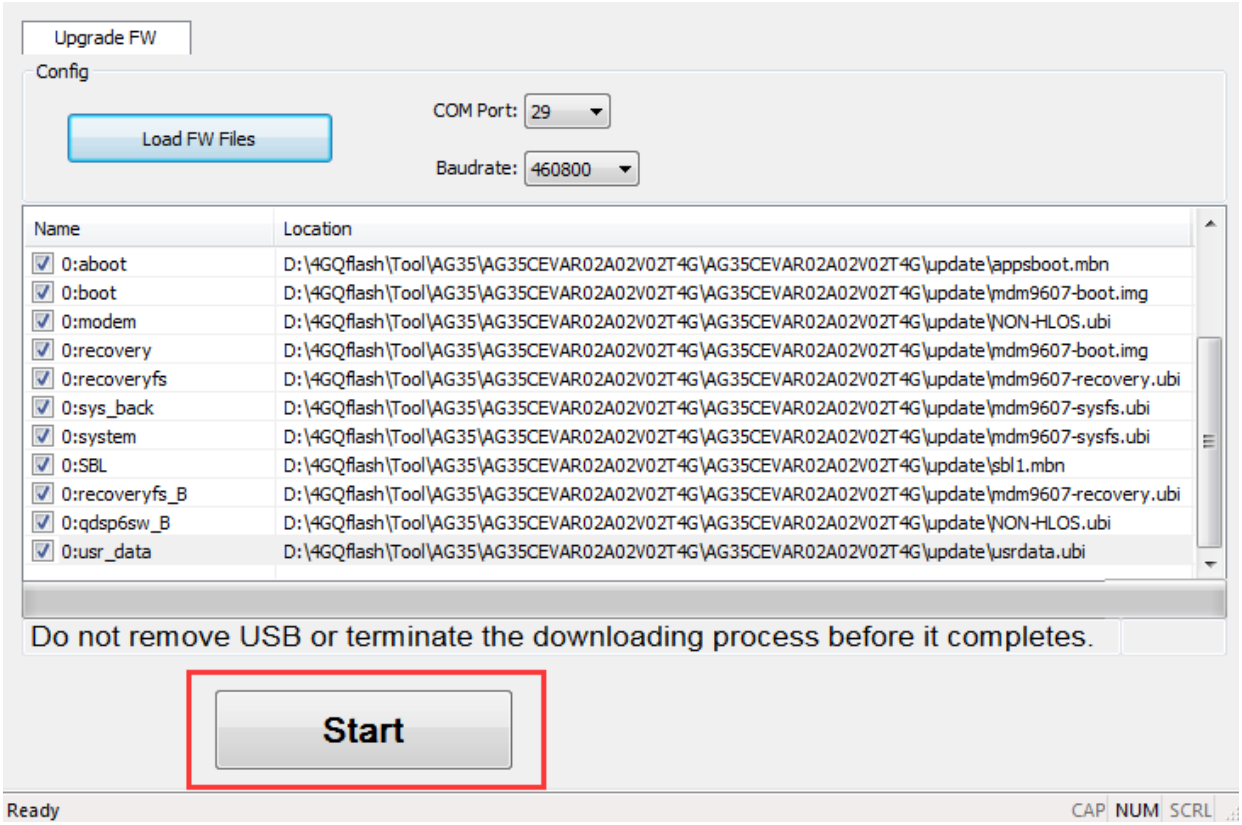

Figure 11: Click the Start Button

NOTES

1. Please note that it is NOT permitted to stop the upgrading process, and please do NOT remove USB or terminate the downloading process before 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: For Mxx/BC95 modules, switch the D/L to "**ON**" on EVB after clicking "**Start**" button in 30 seconds, and then manually restart the module. It will start to upgrade the firmware as shown in the following figure.

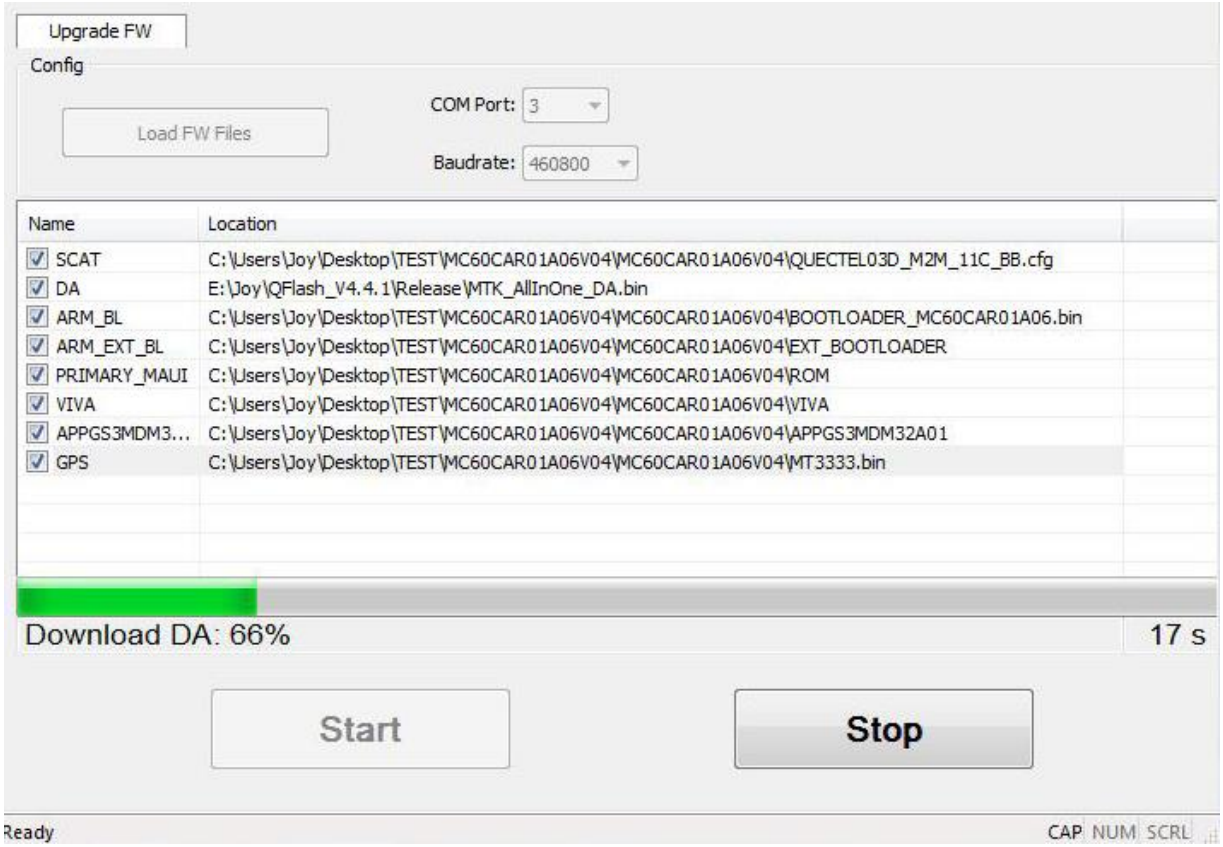

Figure 12: Start to Upgrade after Restarting the Mxx Modules

NOTE

On Mxx 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.

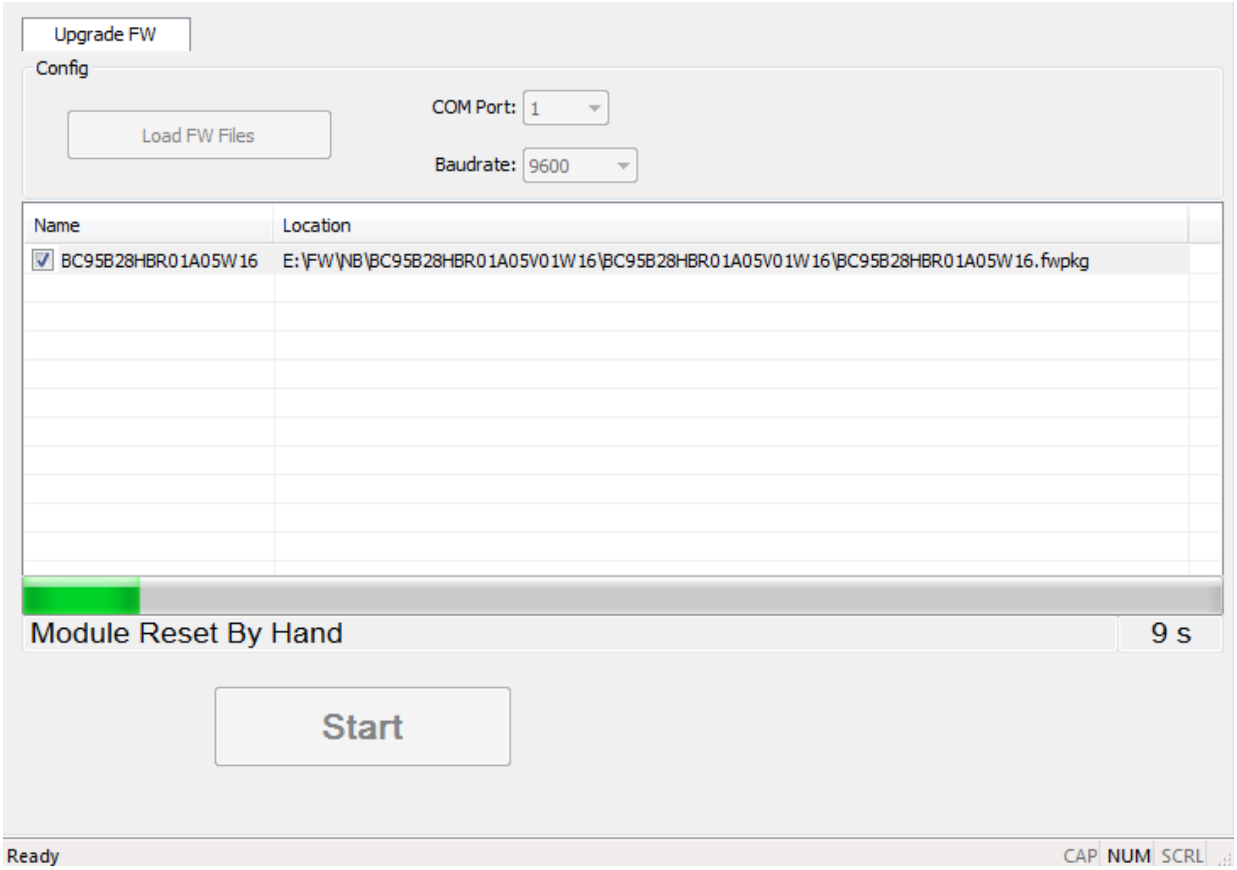

Figure 13: Start to Upgrade after Restarting the BCxx Modules

NOTE

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 to wait for the prompt "**Module Reset By Hand**", then manually restart the module.

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

If users are upgrading the firmware for GCxx/UCxx/UGxx/ECxx/EG9x/Ex06/SCxx/SGxx/EM05/AG35/BG96/EM12 modules, the module will be restarted automatically, so there is no need to restart the module. Please refer to the following figure.

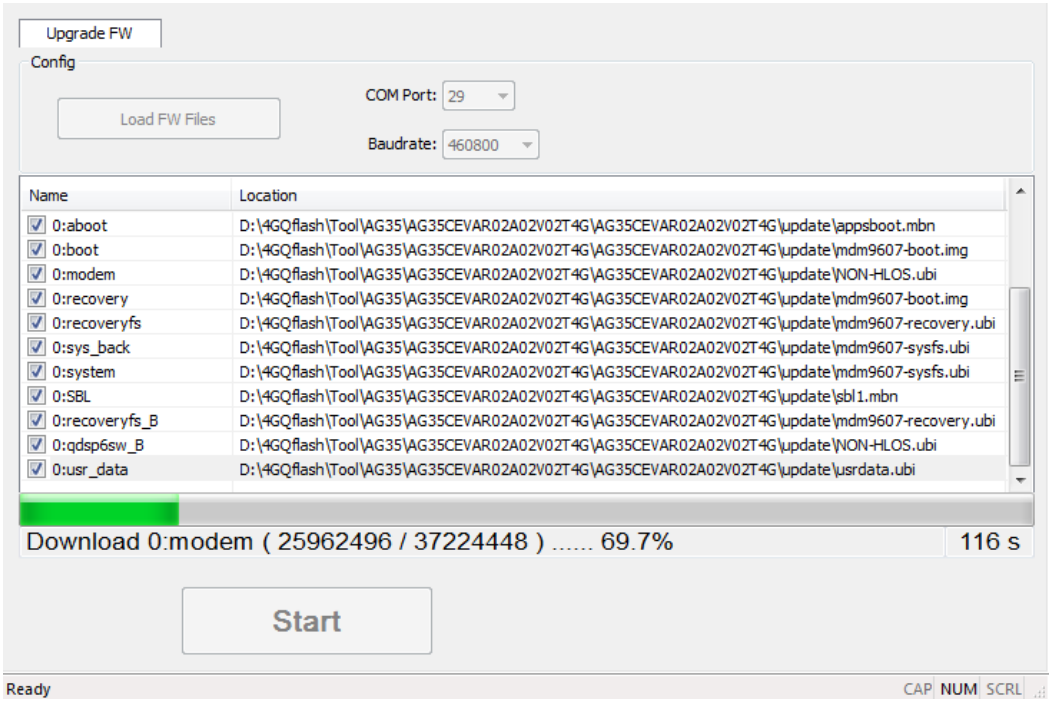

Figure 14: Start to Upgrade Firmware

NOTE

If there is no EVB for module firmware upgrading, please drive the PWRKEY pin to low level after clicking the "**Start**" button in 30 seconds.

Step 3: "**FW upgrade success**" will be shown on the interface after the firmware has been successfully upgraded, as shown in the following figure.

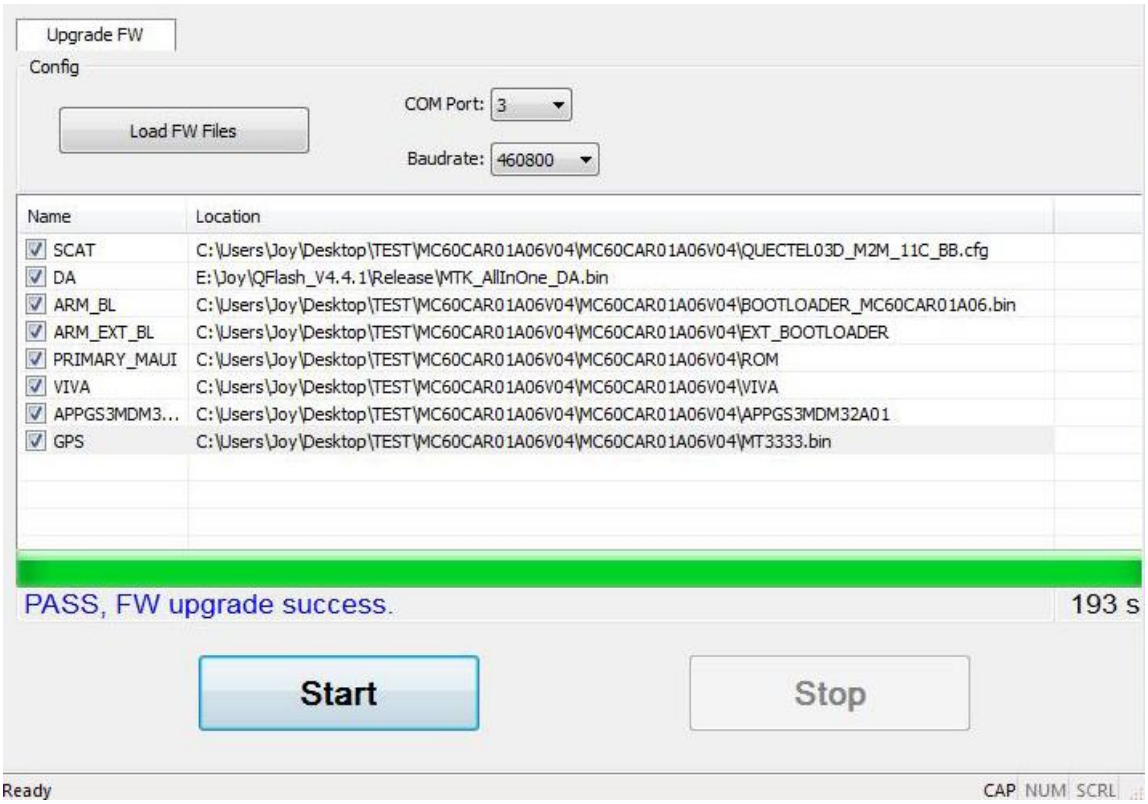

Figure 15: Successful Upgrade

2.4. Abnormalities

Abnormalities may be caused by 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

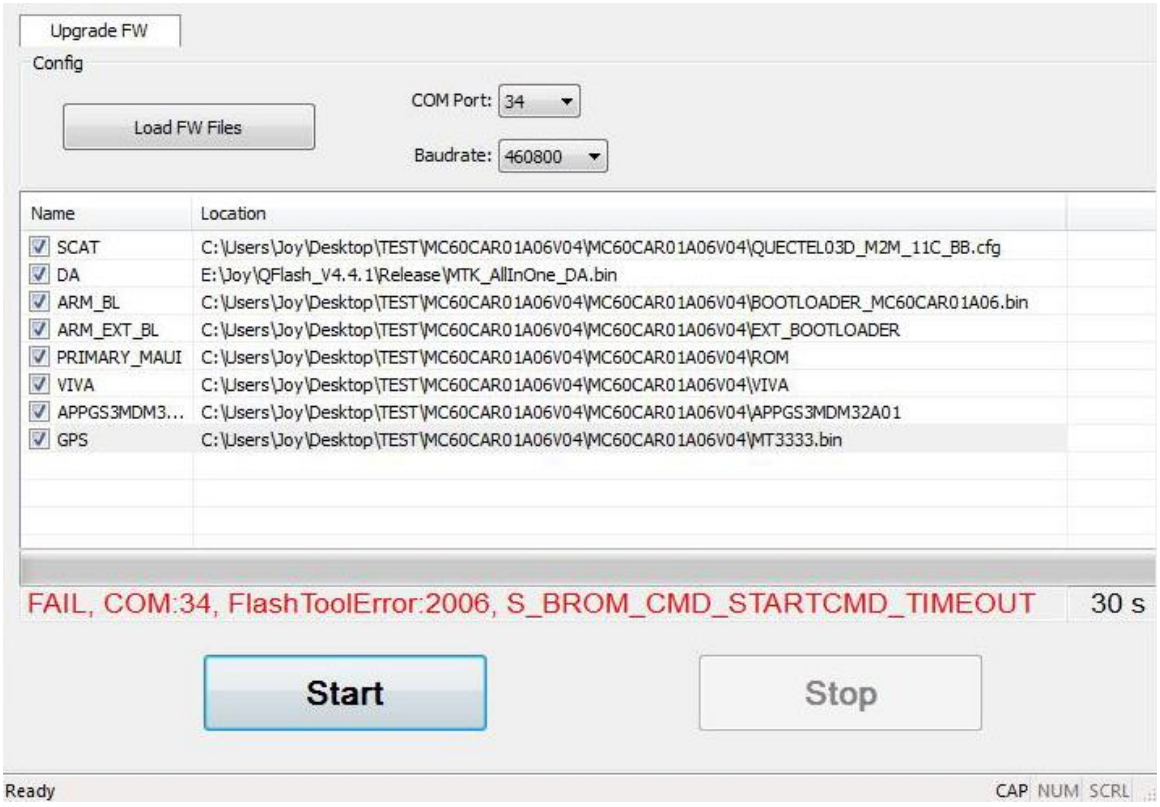

Figure 16: Connected to a Wrong Serial Port (Mxx Modules)

NOTE

After selecting a correct serial port, if the Mxx modules are not restarted, then the error message will be the same as that of selecting a wrong serial port.

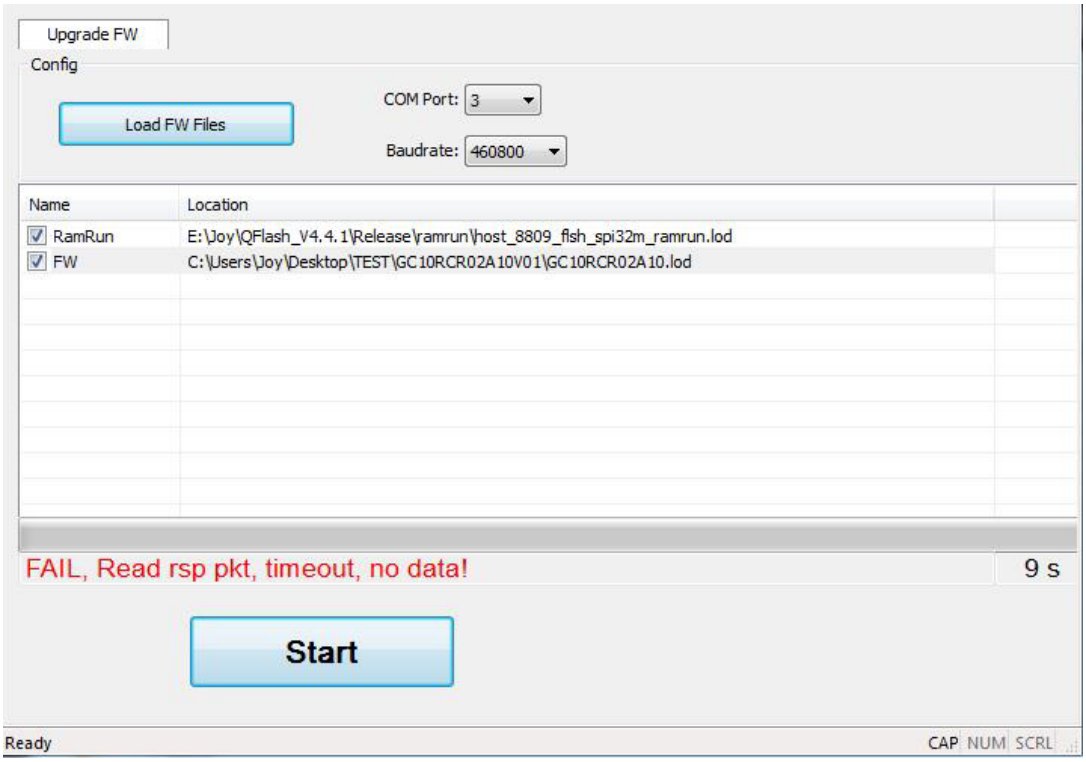

Figure 17: Connected to a Wrong Serial Port (GCxx Modules)

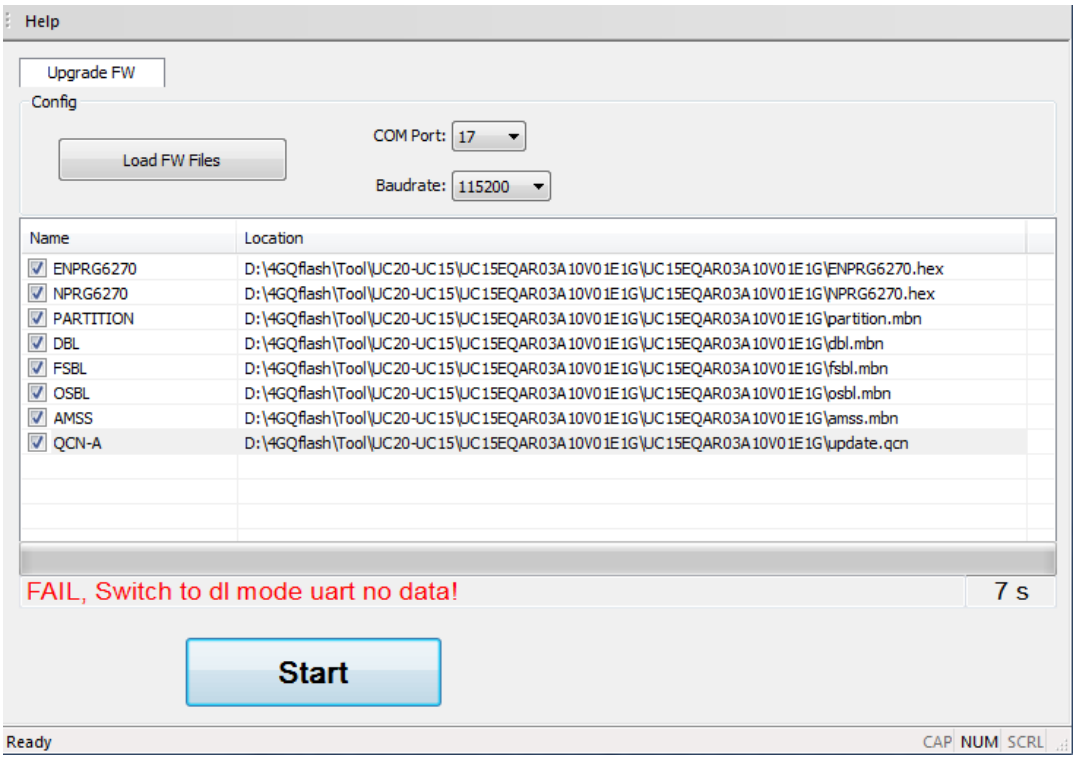

Figure 18: Connected to a Wrong Serial Port (UCxx Modules)

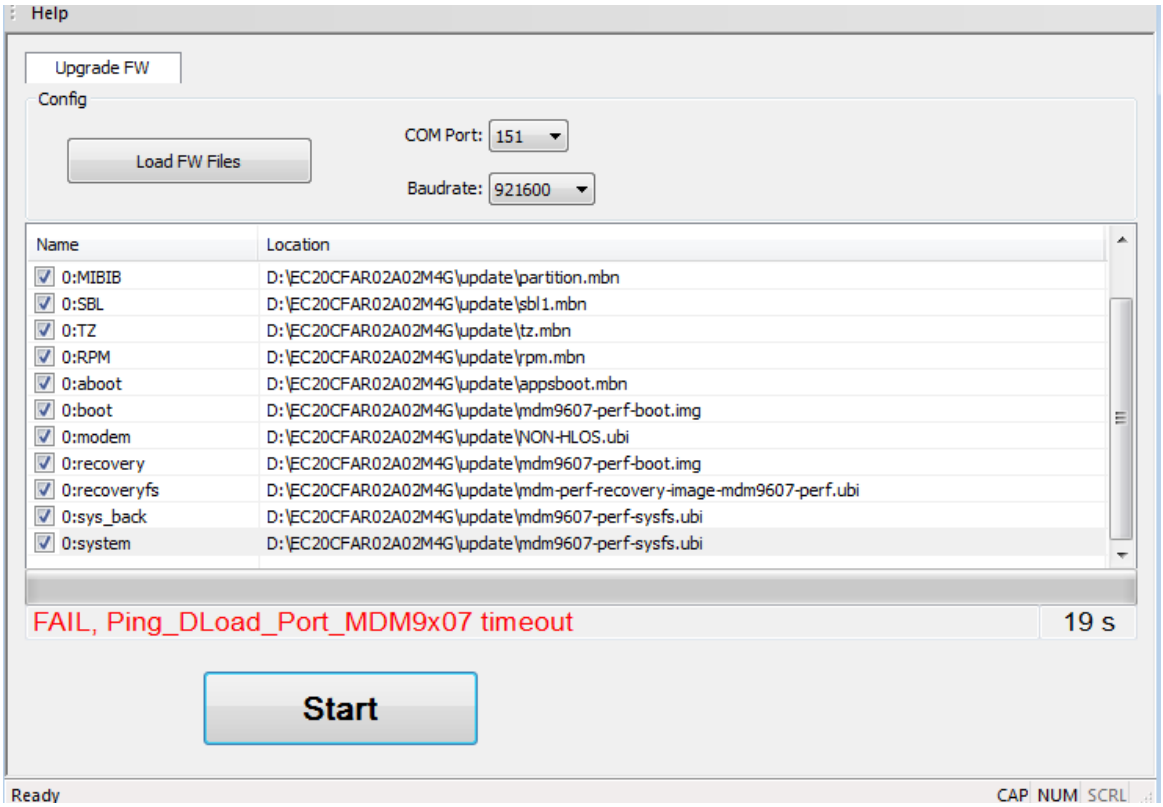

Figure 19: Connected to a Wrong Serial Port (ECxx/EG9x/Ex06/EM05/BG96/EM12 Modules)

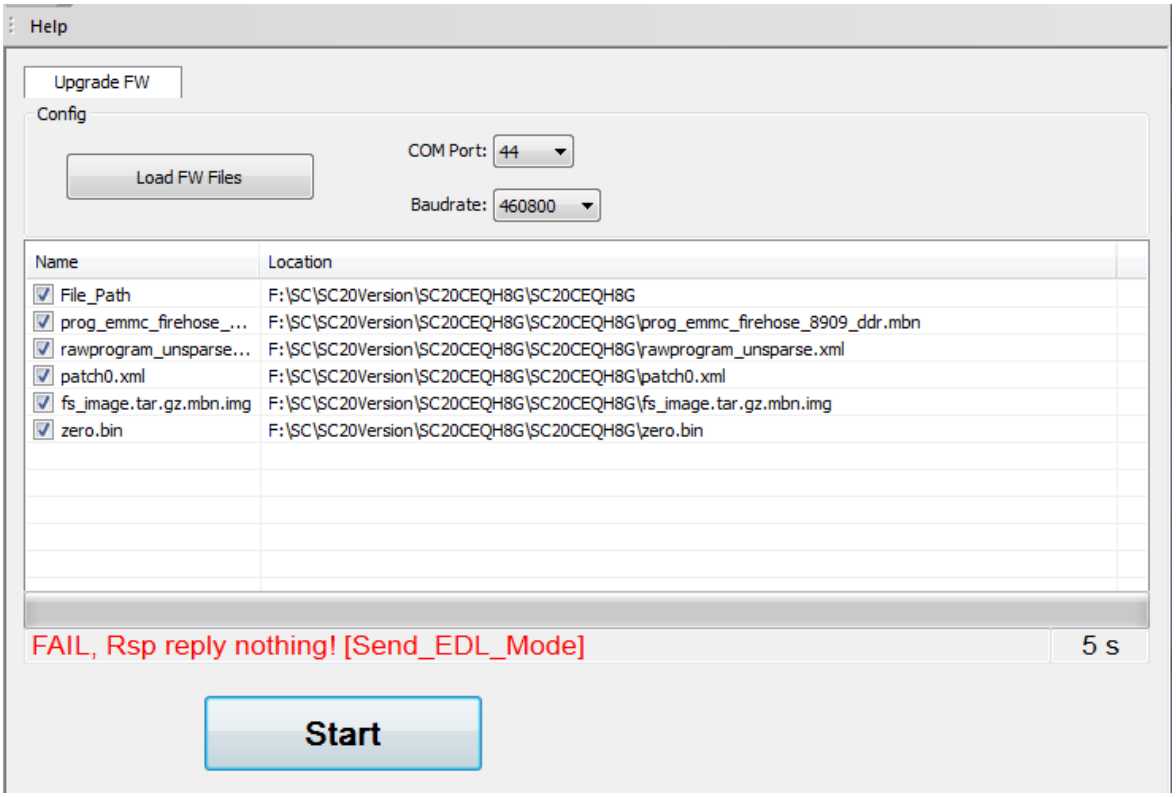

Figure 20: Connected to a Wrong Serial Port (SCxx/SGxx Modules)

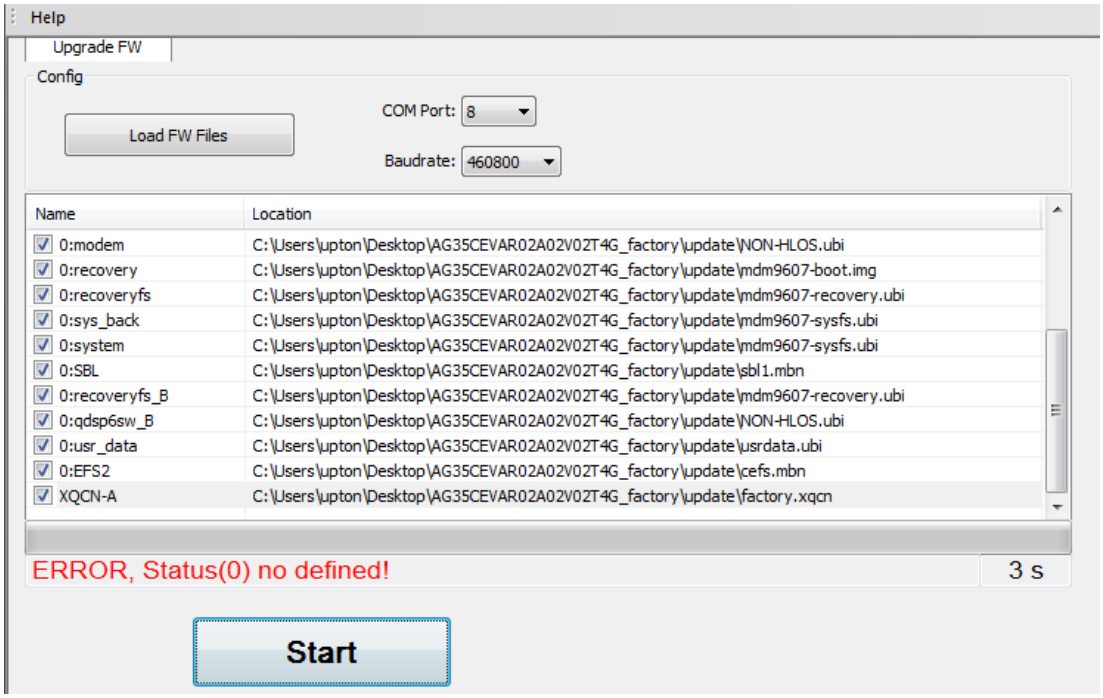

Figure 21: Connected to a Wrong Serial Port (AG35 Module)

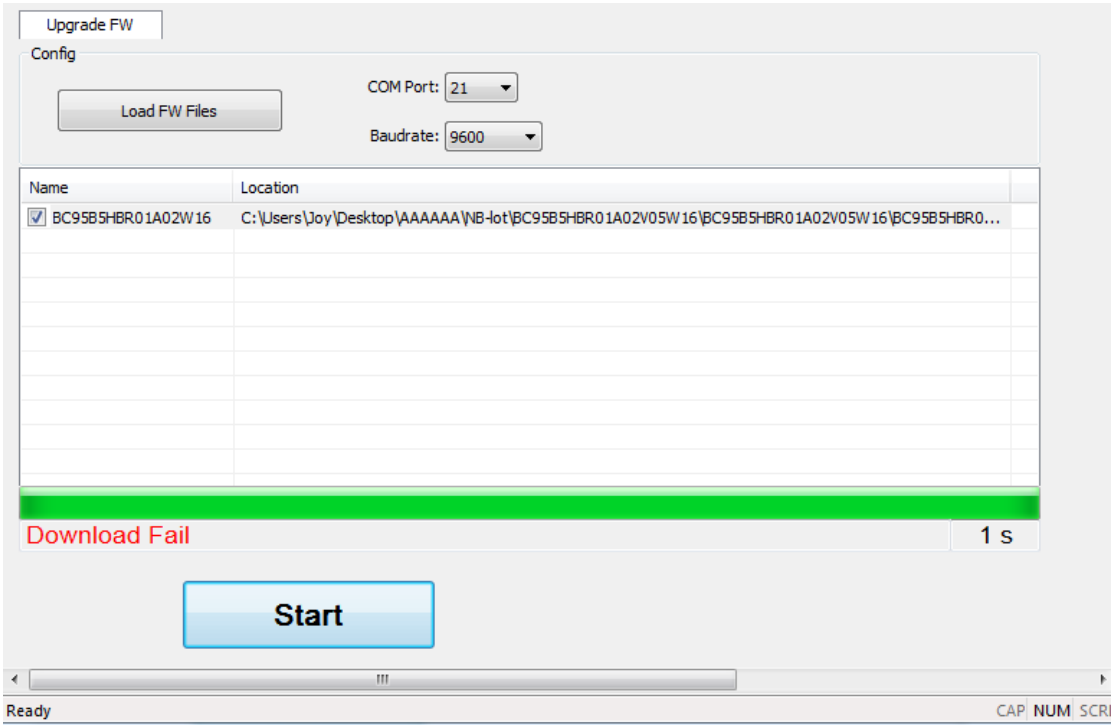

Figure 22: Connected to a Wrong Serial Port (BCxx Modules)

2.4.2. Connected to an Occupied Serial Port

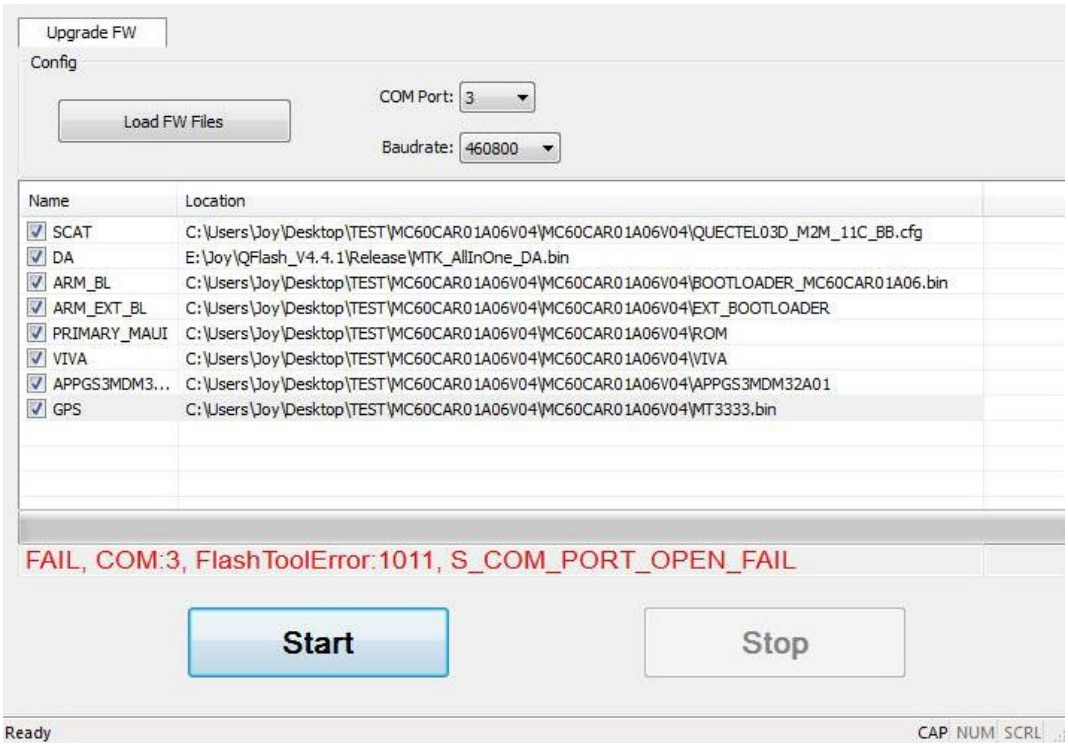

Figure 23: Connected to an Occupied Serial Port (Mxx Modules)

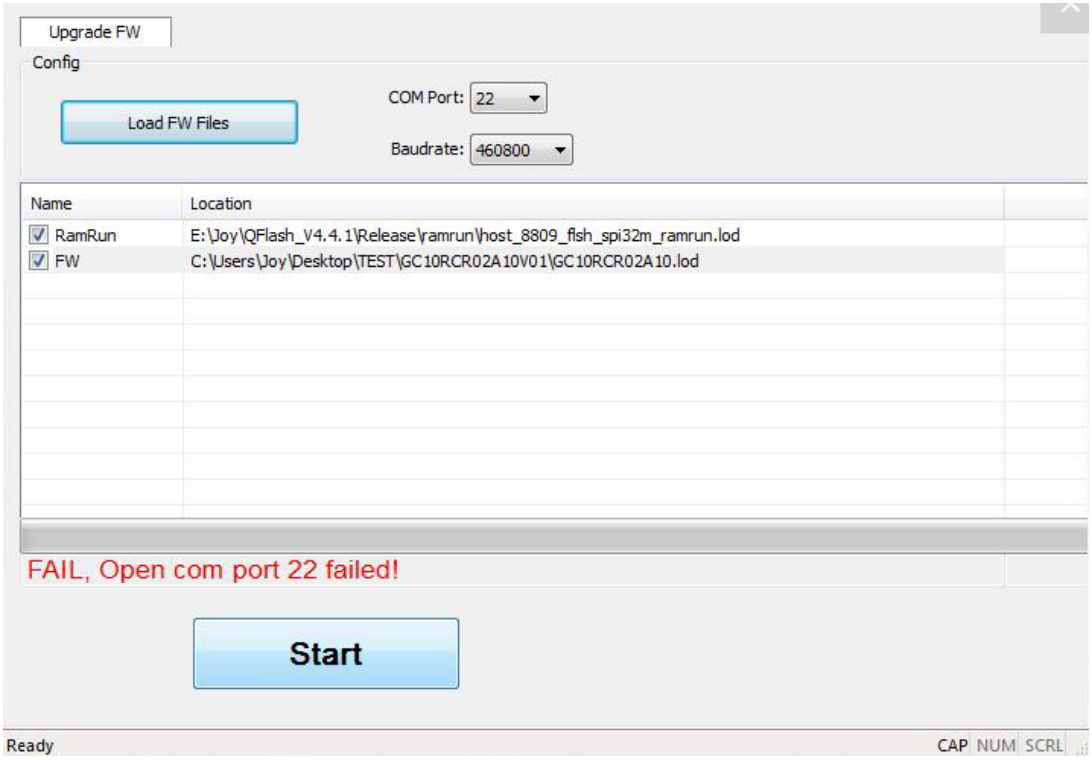

Figure 24: Connected to an Occupied Serial Port (GCxx Modules)

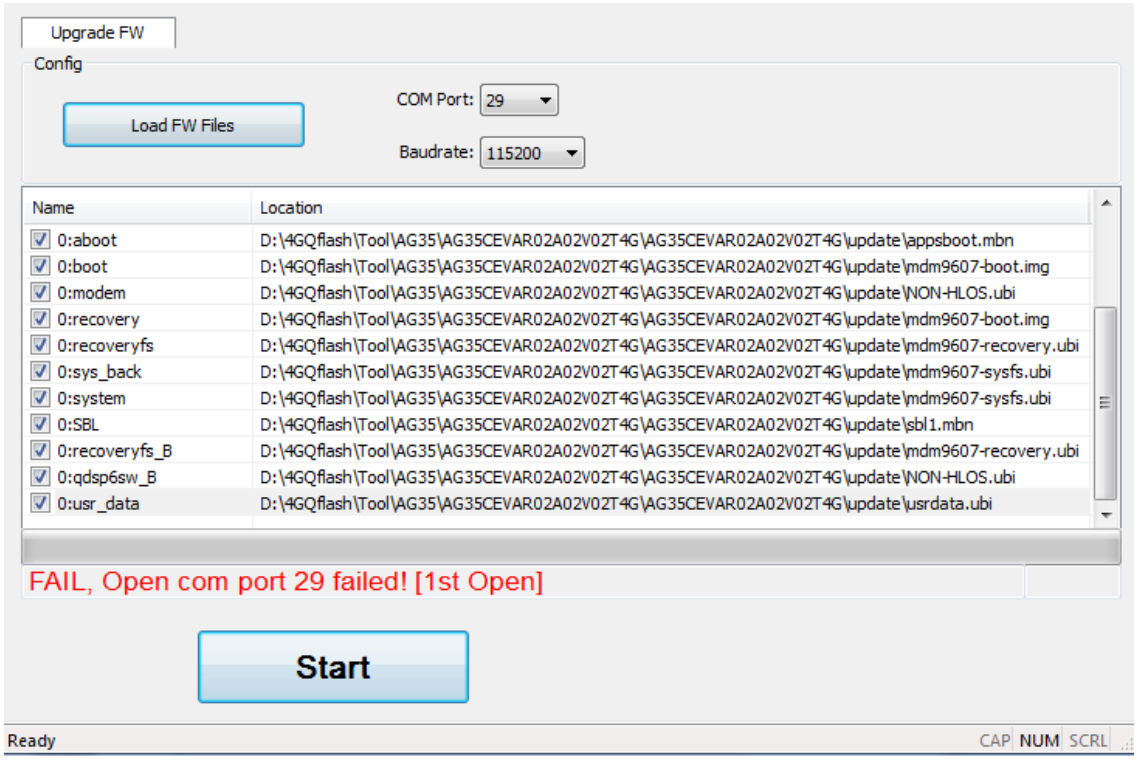

Figure 25: Connected to an Occupied Serial Port (UCxx/ECxx/EG9x/Ex06/SCxx/SGxx/EM05/AG35/ BG96/EM12 Modules)

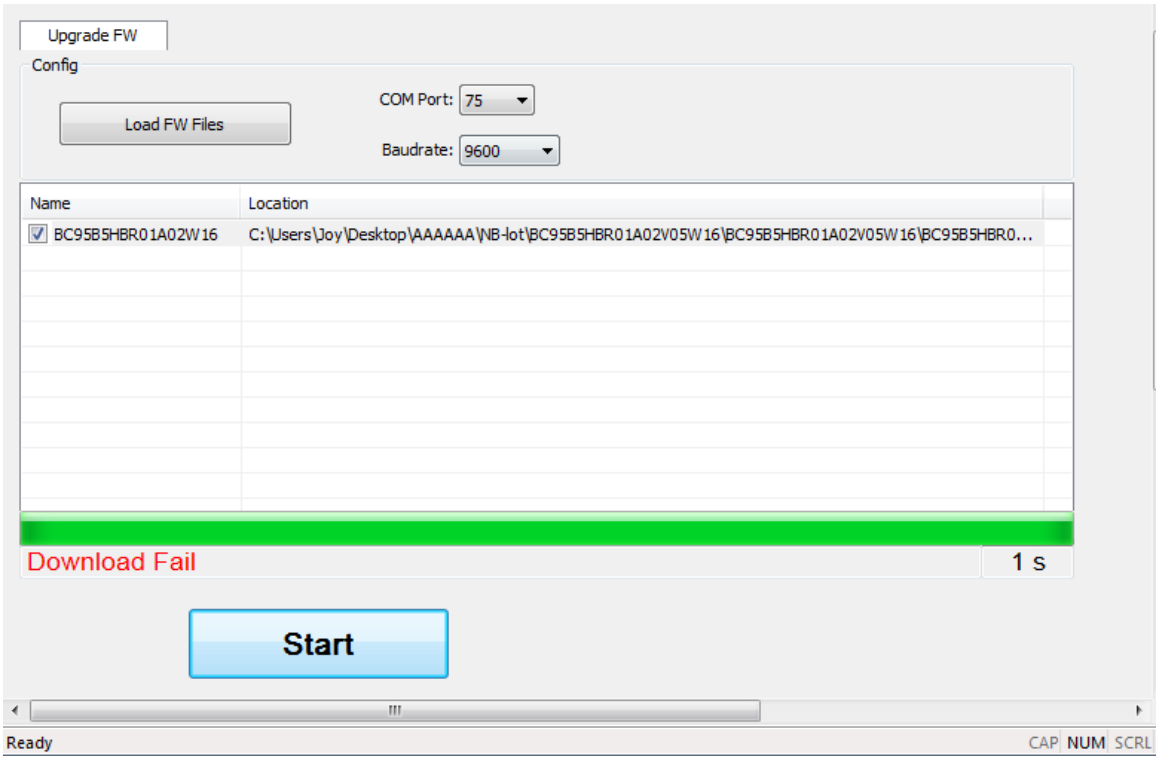

Figure 26: Connected to an Occupied Serial Port (BCxx Modules)

2.4.3. Selected an Unsupported Baud Rate

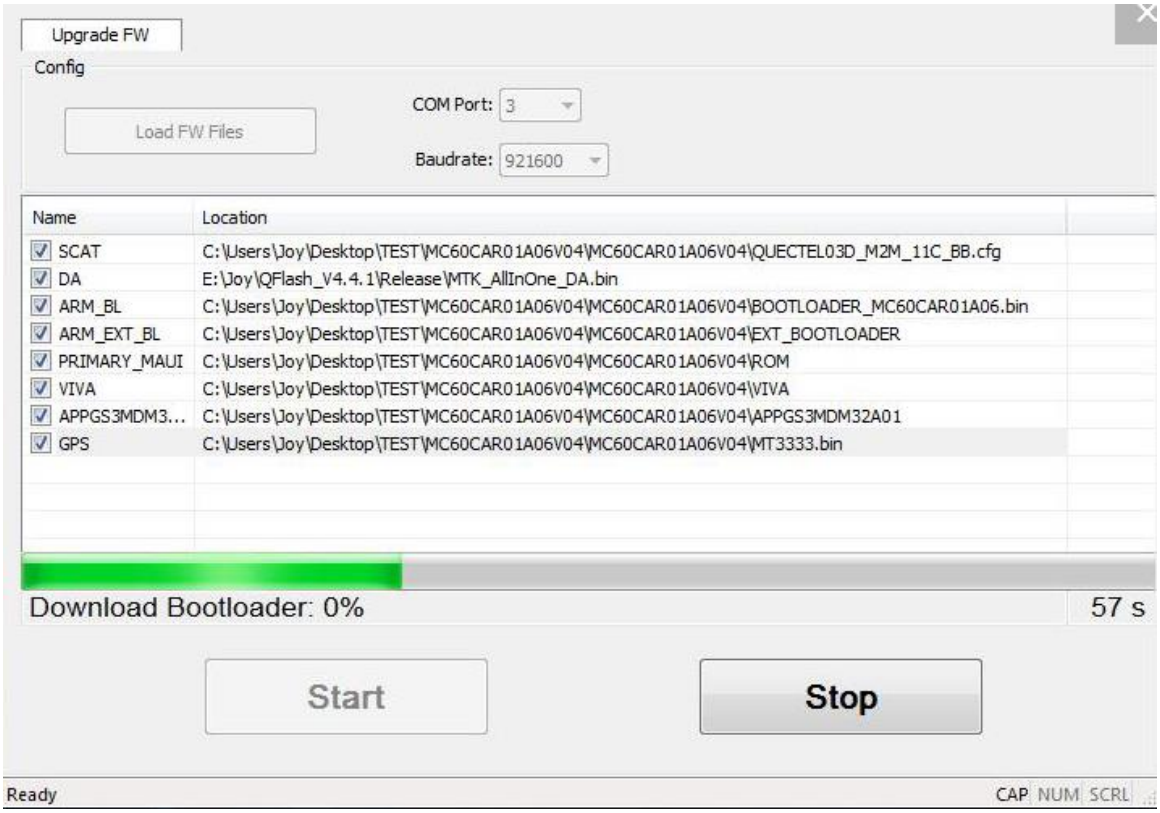

Figure 27: An Unsupported Baud Rate is Selected (Mxx Modules)

NOTE

For Mxx modules, if an unsupported baud rate is selected, the tool will stop to run and no error message will be prompted. In such case, please click the "**Stop**" button to re-select a supported baud rate to upgrade.

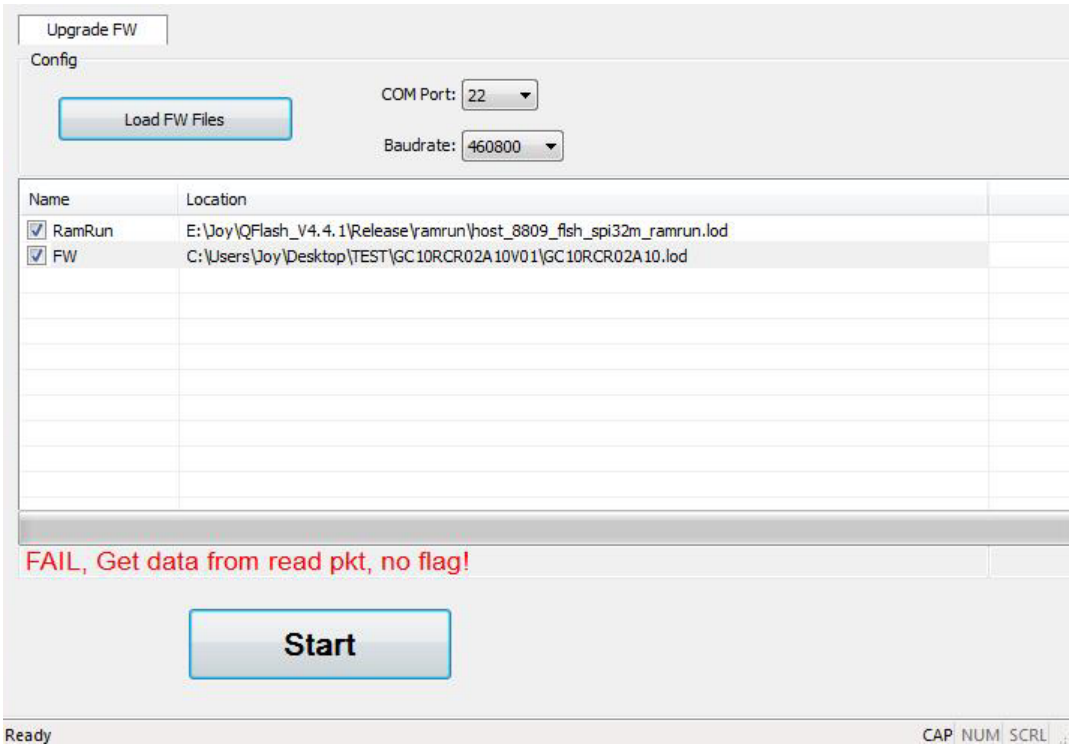

Figure 28: An Unsupported Baud Rate is Selected (GCxx Modules)

2.4.4. Selected an Invalid Load File

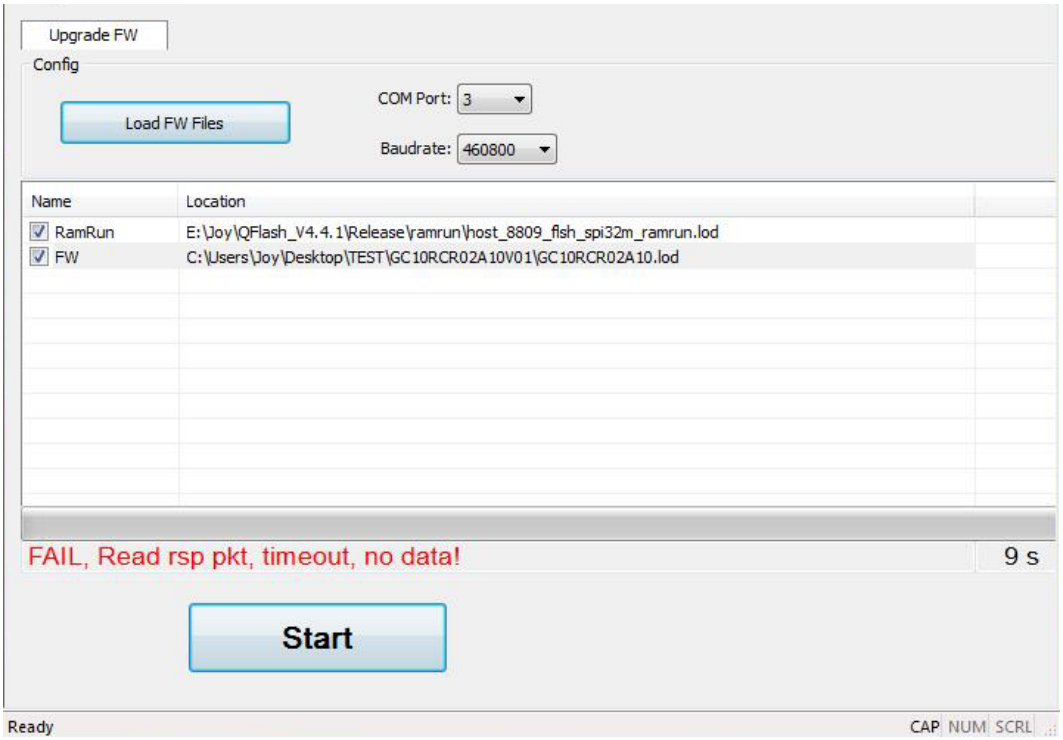

Figure 29: An Invalid Scatter File is Selected (Mxx Modules)

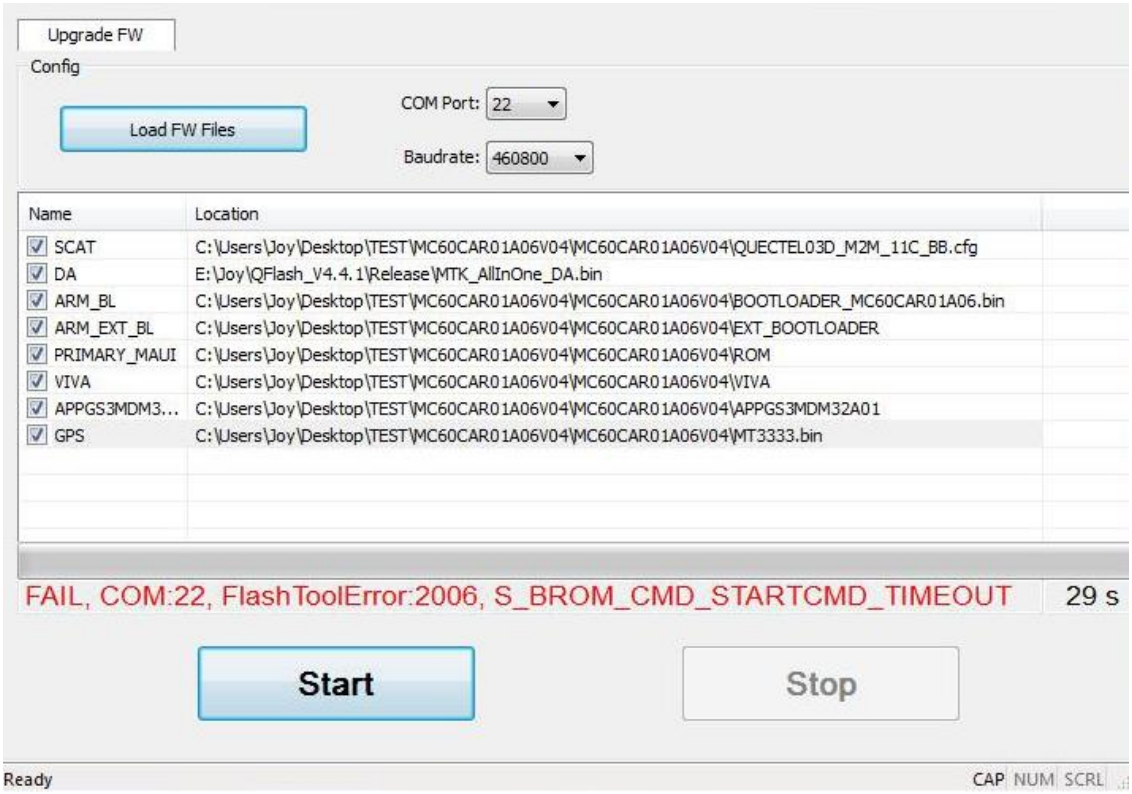

Figure 30: An Invalid Load File is Selected (GCxx Modules)

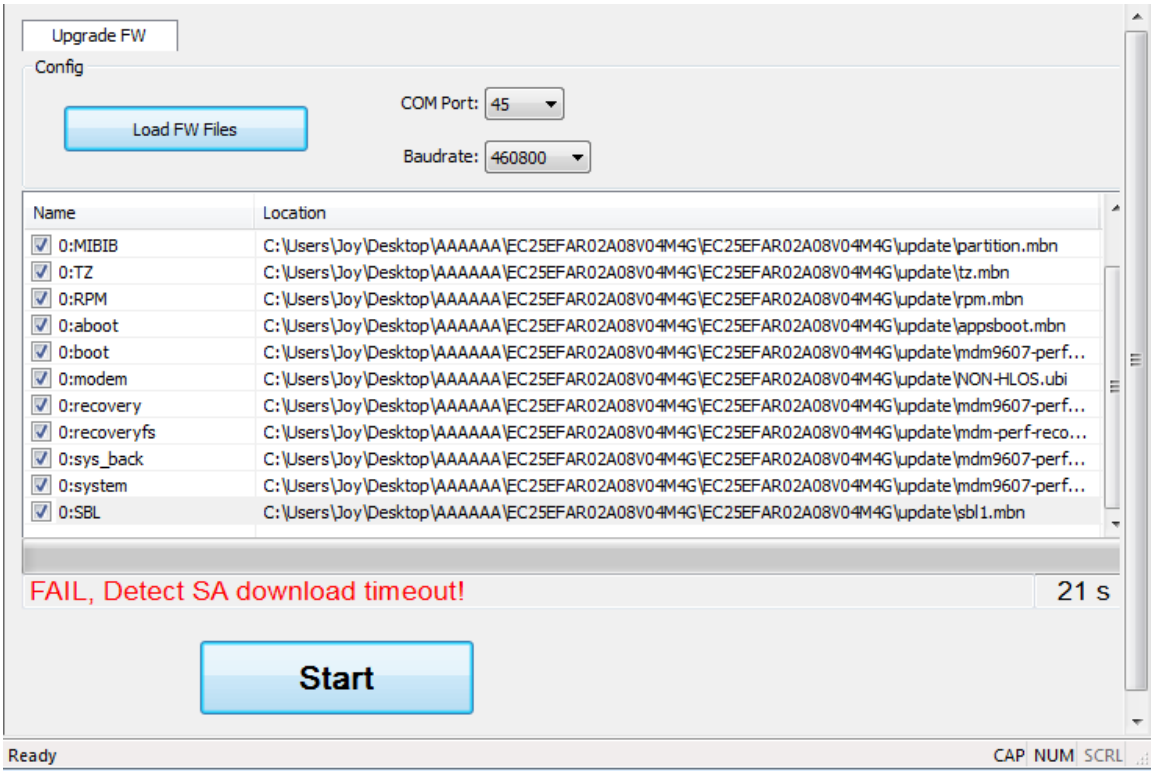

Figure 31: An Invalid Load File is Selected (UCxx Modules)

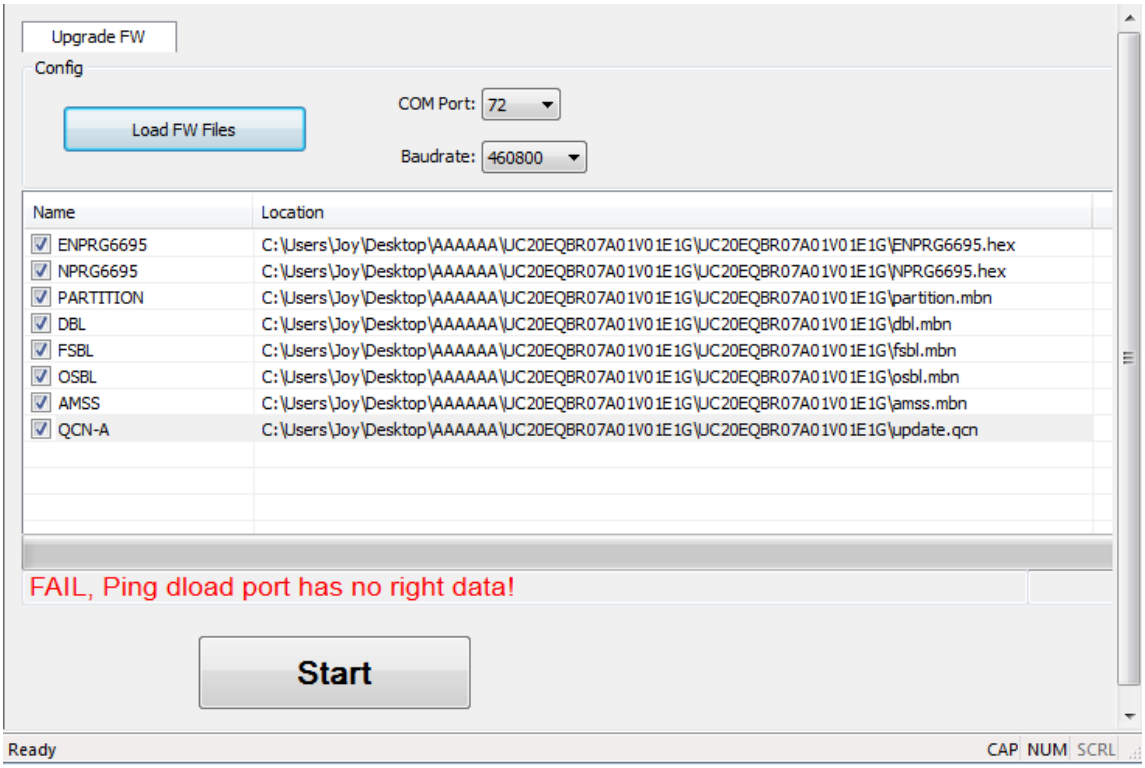

Figure 32: An Invalid Load File is Selected (ECxx/EG9x Modules)

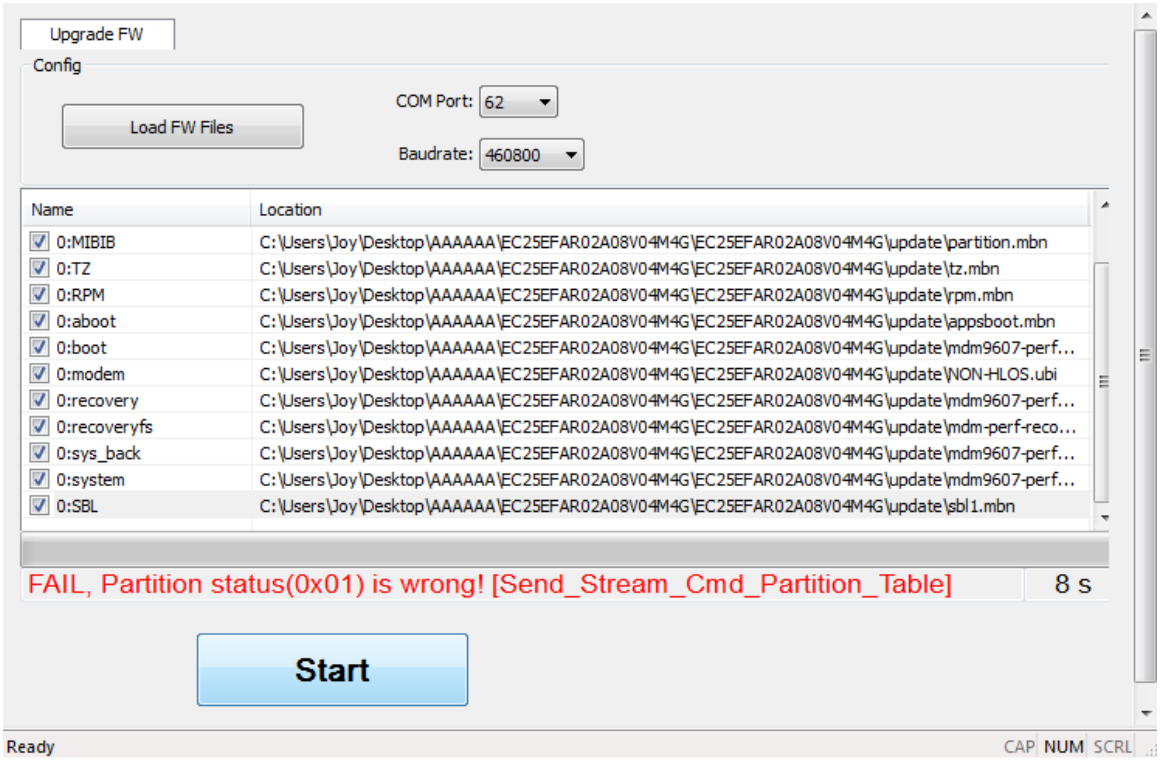

Figure 33: An Invalid Load File is Selected (Ex06/AG35/BG96/EM12 Modules)

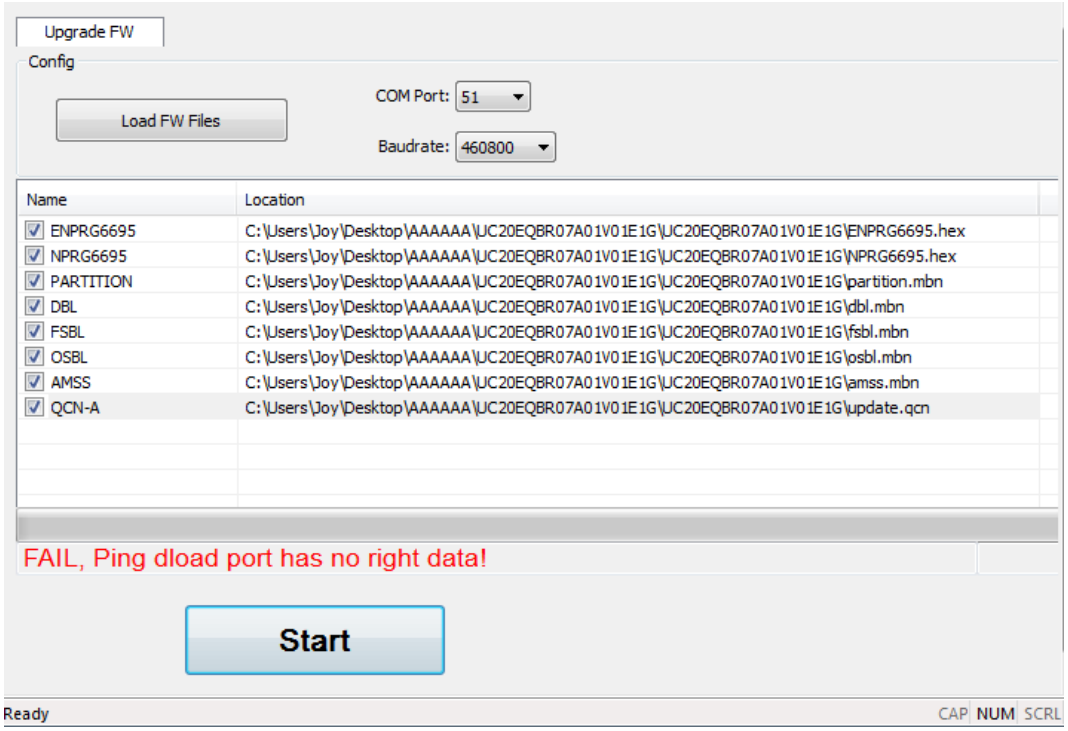

Figure 34: An Invalid Load File is Selected (EM05 Module)

2.4.5. Power Supply is Abnormal

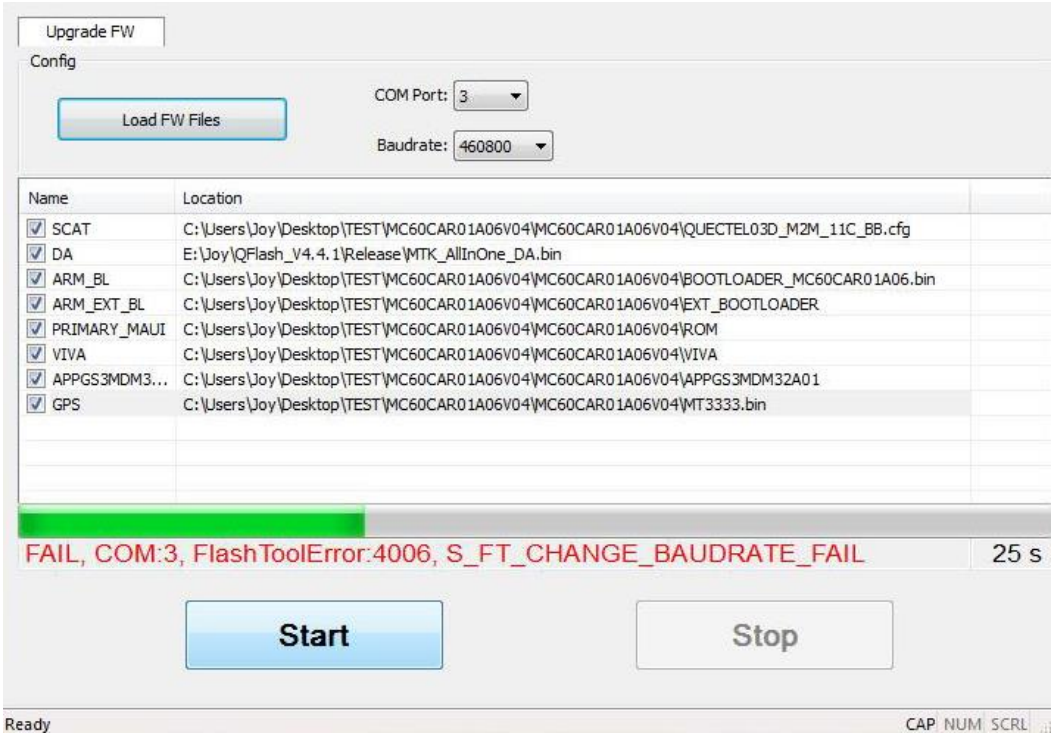

Figure 35: Power Supply is Abnormal (Mxx Modules)

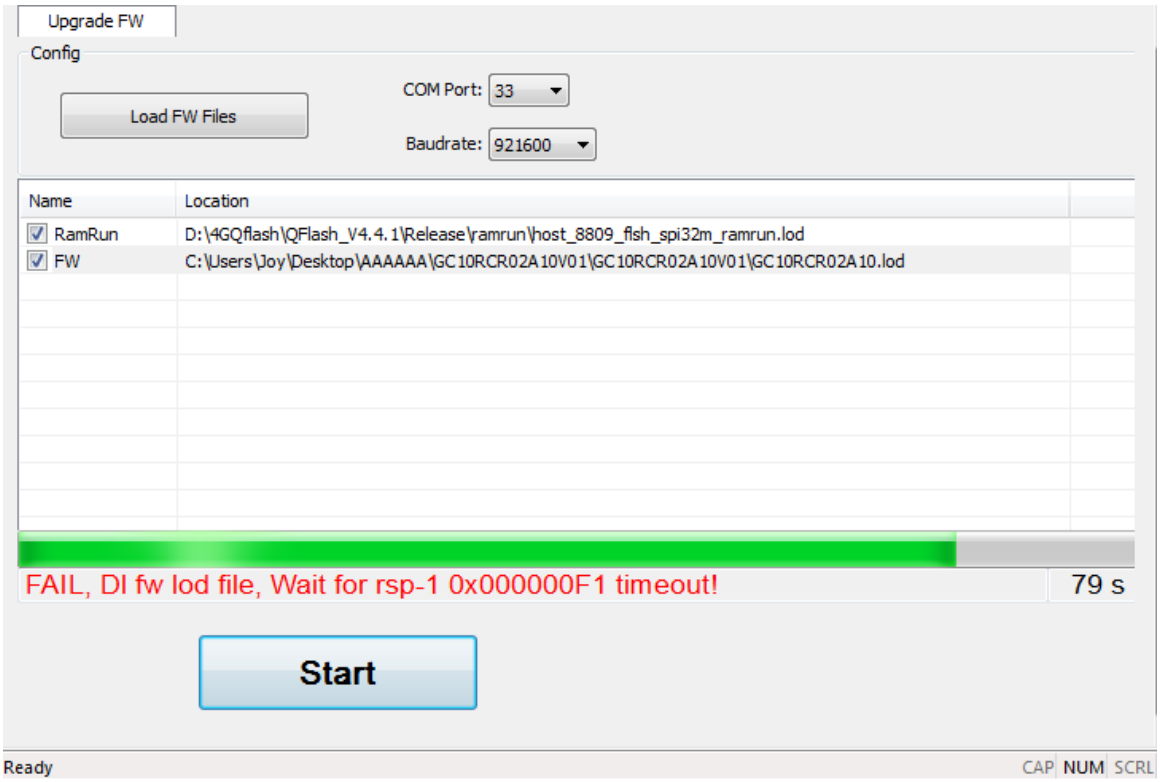

Figure 36: Power Supply is Abnormal (GCxx Modules)

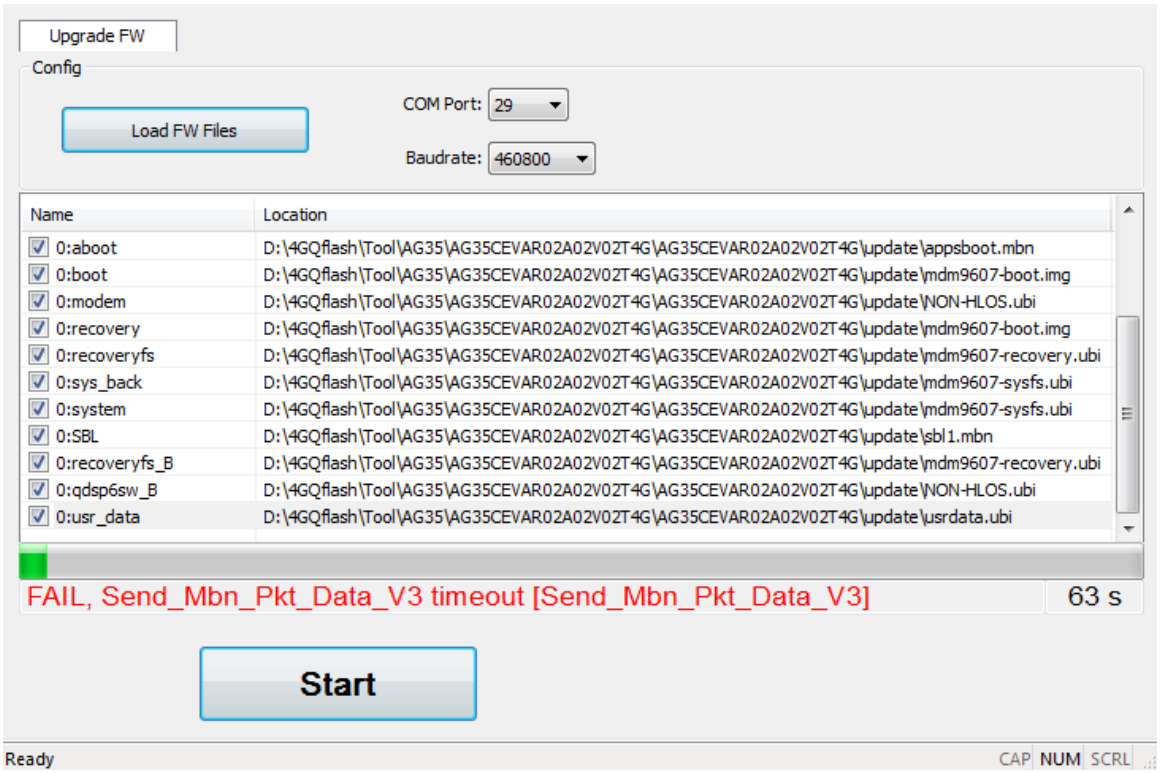

Figure 37: Power Supply is Abnormal (UCxx/ECxx/EG9x/Ex06/EM05/AG35/BG96/EM12 Modules)

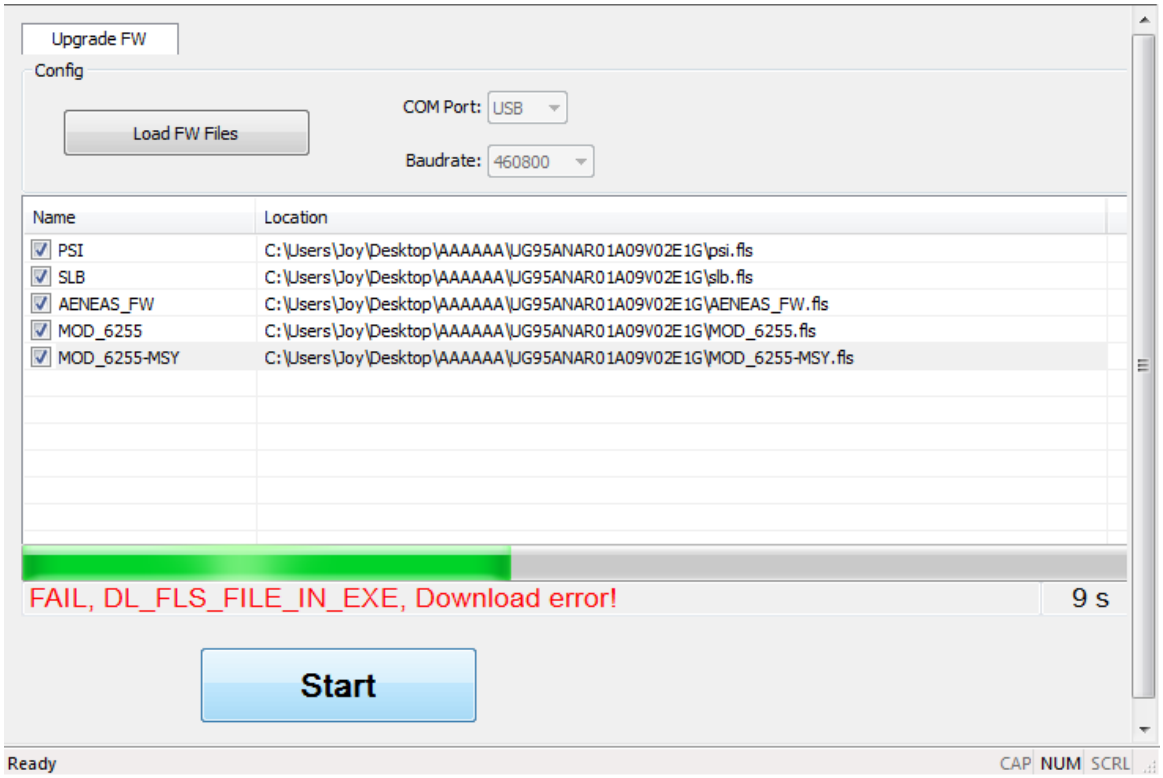

Figure 38: Power Supply is Abnormal (UGxx Modules)

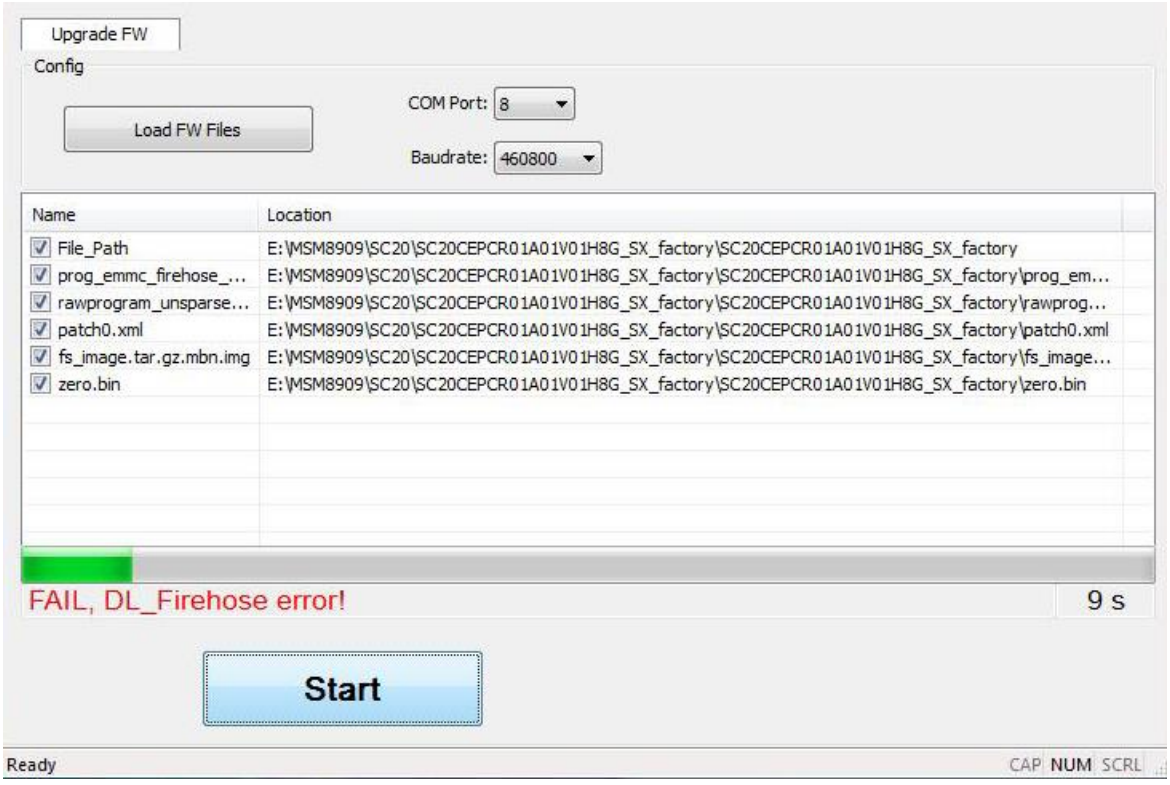

Figure 39: Power Supply is Abnormal (SCxx/SGxx Modules)

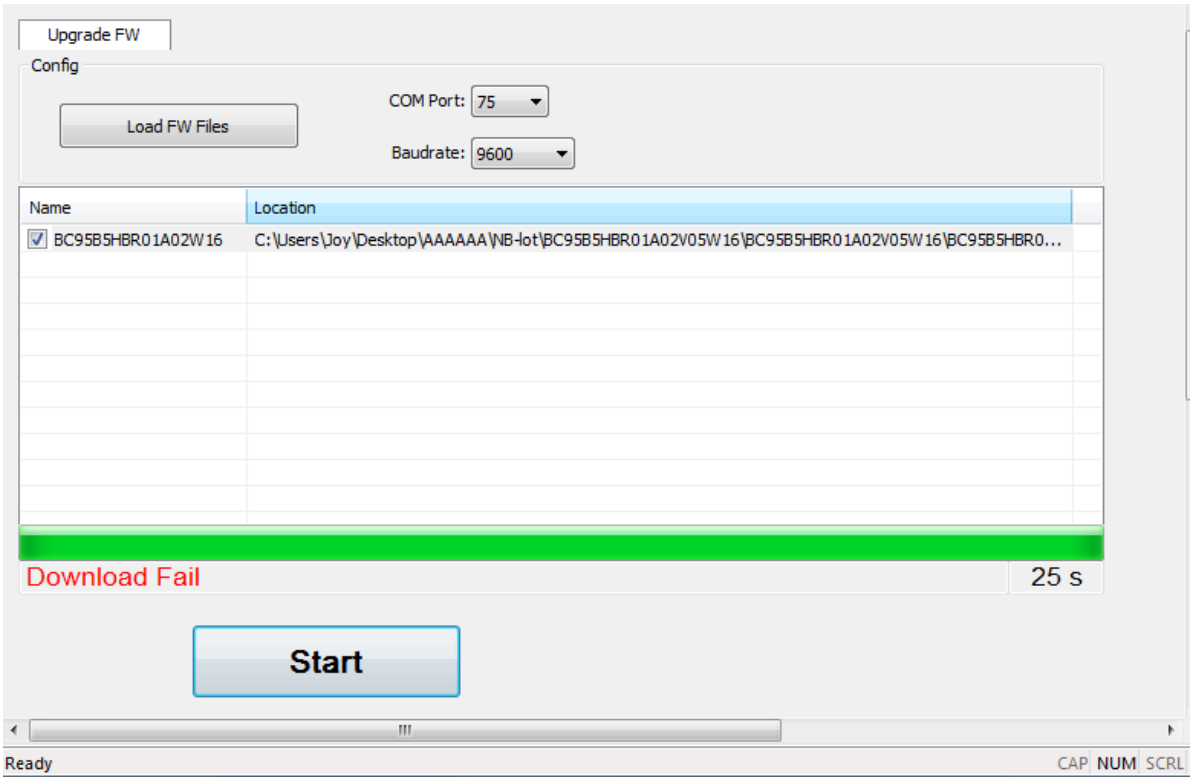

Figure 40: Power Supply is Abnormal (BCxx Modules)

2.4.6. USB to RS-232 Converter Cable is Abnormal

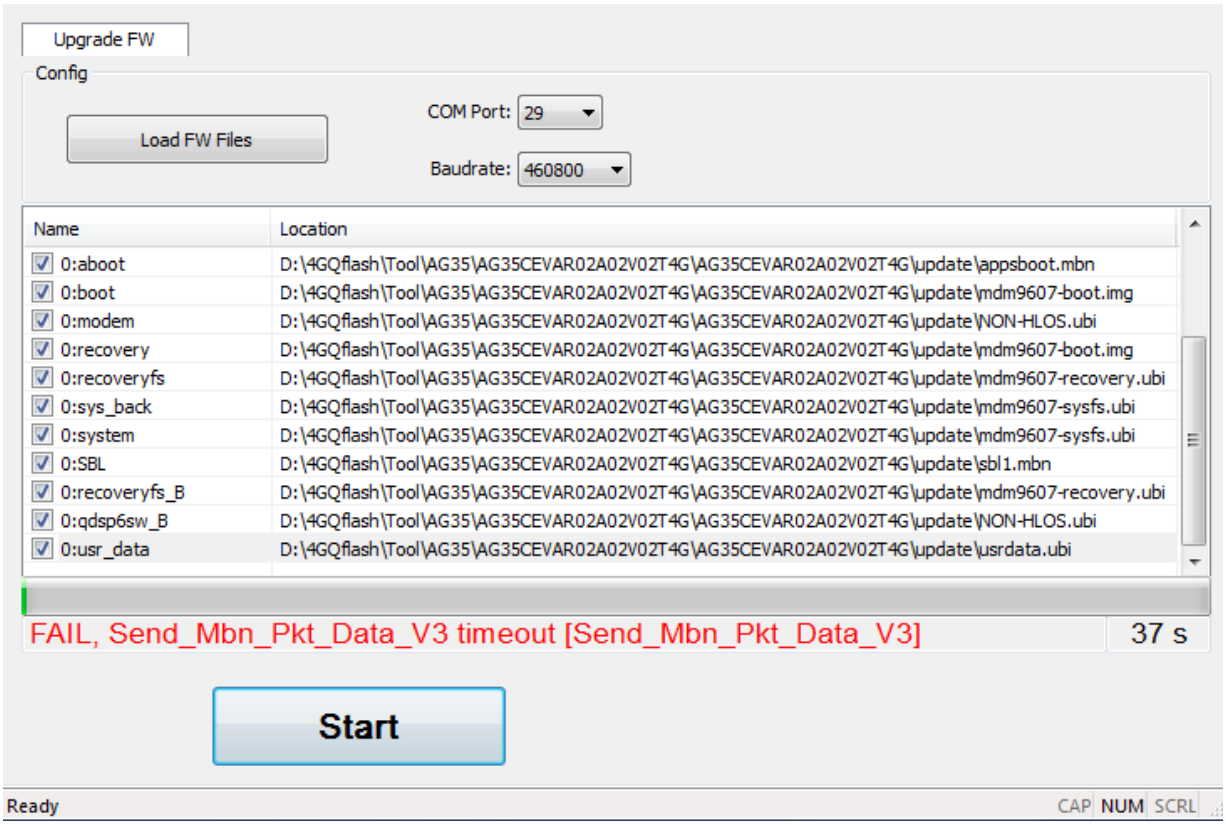

Figure 41: USB to RS-232 Converter Cable is Abnormal