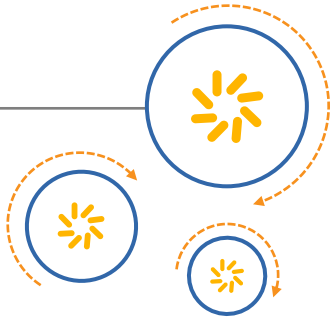
Qualcomm Technologies, Inc.



IPQ40xx Emergency Download

Application Note

80-Y8951-2 Rev. D

August 30, 2016

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Revision history

Revision	Date	Description
A	September 2015	Initial release
B	January 2016	Updated the following sections: ▪ Section 2 ▪ Section 3.3.1 Added Section 3.3.2
C	April 2016	Updated Table 2-1
D	August 2016	Updated Section 2 and Table 2-1 Added Section 4

Contents

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1 Purpose and scope

This document provides the instructions to recover a board by using QPST software download feature on Qualcomm® systems, including its architecture, components, and the supported targets.

This document is intended for licensees to use the emergency download feature on their devices.

2 Emergency download overview

Emergency download is the process by which licensees can program a Flash device that contains a broken Secondary Boot Loader (SBL). This is in contrast to using a Lauterbach power debug for download, which is required for various batch files that are to be composed.

In DK04, the emergency download is used when the SBL is not broken. If the jumper J39 is set to force USB Boot, the device is forced to go to download mode and flashes the image. For other boards, JTAG recovery mechanism is used.

Download process

To download and install the QPST configuration tool from Qualcomm CreatePoint, go to:

QPST.WIN.2.7 Installer 00436.1

To download and install the Qualcomm USB drivers for Windows, go to:
QUD.WIN.1.1 Installer 10037.3

There are different .xml files for each type of flash available in \common\build\ipq folder.

1. According to the flash that is required, copy the following xml files:
   ```
   download_qpst_nand_img.xml
   download_qpst_nor_img.xml
   download_qpst_norplusnand_img.xml
   download_qpst_sahara_emmc.xml
   download_qpst_emmc_img.xml
   ```
2. Copy the **ipq** folder from \common\build directory
3. Copy the cdt binary partition based on the configuration of the board, from the same directory and rename it as cdt.bin

NOTE: Choose the correct configuration for cdt. If the wrong cdt is chosen, the board will not reboot up to the U-Boot prompt and SBL partition will also be written. In this case, JTag has to be used to recover the board. For DK04, EDL is used through force USB boot option.

Table 2-1 has the information related to CDT binary files for different boards.

Table 2-1 List of binary partitions

Boards	CDT bin
AP.DK01.1-C1	cdt-AP.DK01.1-C1.bin
AP.DK01.1-C2	cdt-AP.DK01.1-C2.bin
AP.DK04.1-C1	cdt-AP.DK04.1-C1.bin
AP.DK04.1-C2	cdt-AP.DK04.1-C2.bin
AP.DK04.1-C5	cdt-AP.DK04.1-C5.bin
AP.DK05.1-C1	cdt-AP.DK05.1-C1.bin
AP.DK06.1-C1	cdt-AP.DK06.1-C1.bin
AP.DK07.1-C1	cdt-AP.DK07.1-C1.bin

NOTE: For DK03, cdt binary of DK01 is used.

Table 2-2 List of files

Flash	Download XML file
NOR	download_qpst_nor_img.xml
NAND	download_qpst_nand_img.xml
NOR plus NAND	download_qpst_norplusnand_img.xml
eMMC	download_qpst_sahara_emmc.xml download_qpst_emmc_img.xml

3 Emergency process details

This section provides the details related to IPQ40xx emergency process, wherein, AP.DK.04.1-C1 is used as an example.

3.1 QPST USB connection

Connect the board through USB and open QPST configuration. The board under ports is an active phone under Sahara configuration as shown in Figure 3-1

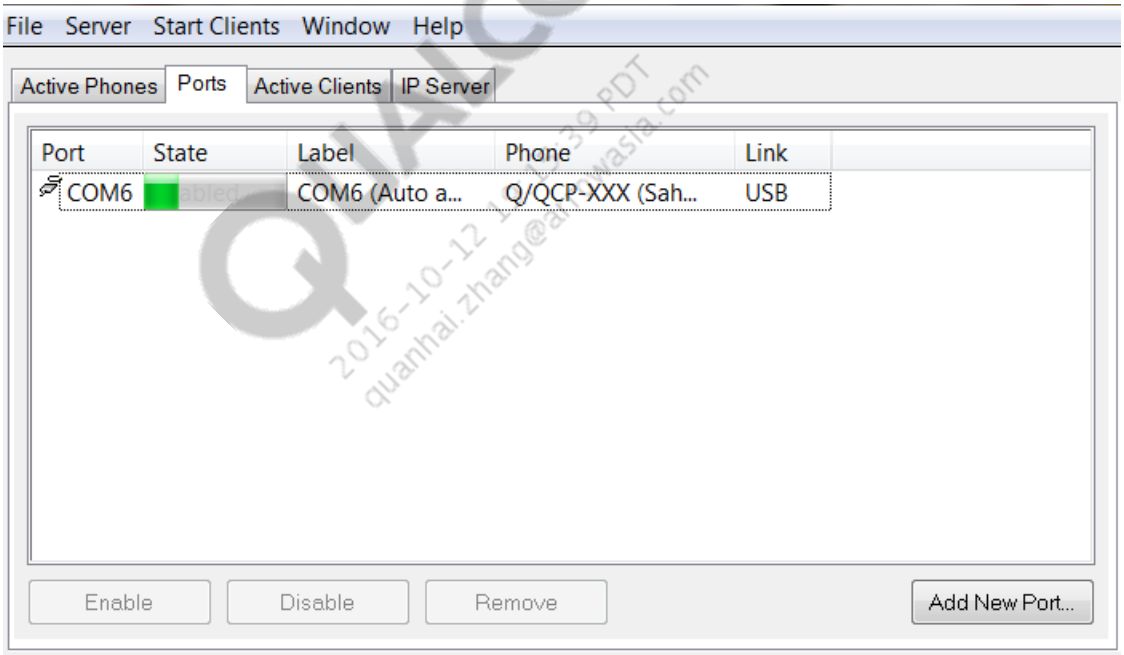


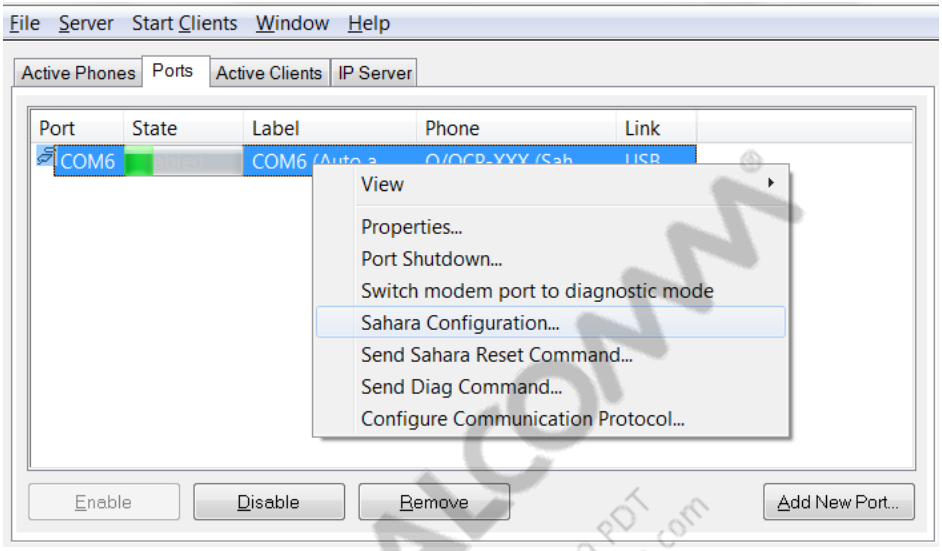
Figure 3-1 USB connection

NOTE: If the board is not shown in this port, the SBL is not corrupted. When SBL partition is corrupted, it is possible to recover the board through QPST software download.

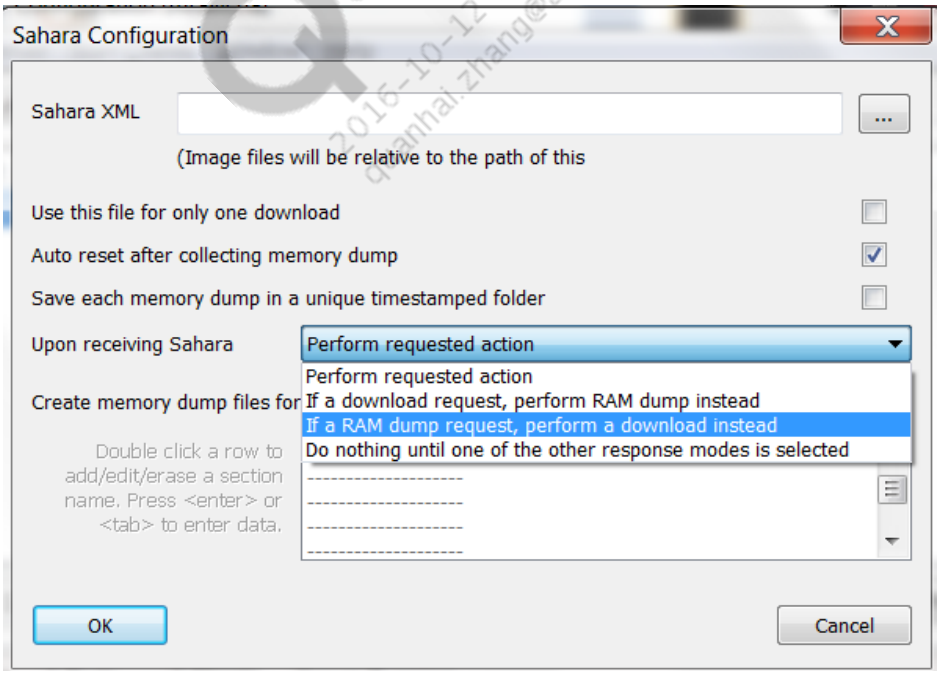
3.2 Sahara configuration

Sahara protocol is a handshake protocol used to communicate with the bricked board.

1. Right-click on the port and select **Sahara Configuration**



2. Select **If a RAM dump occurs, perform a download instead** from the dropdown menu 'Upon receiving Sahara'

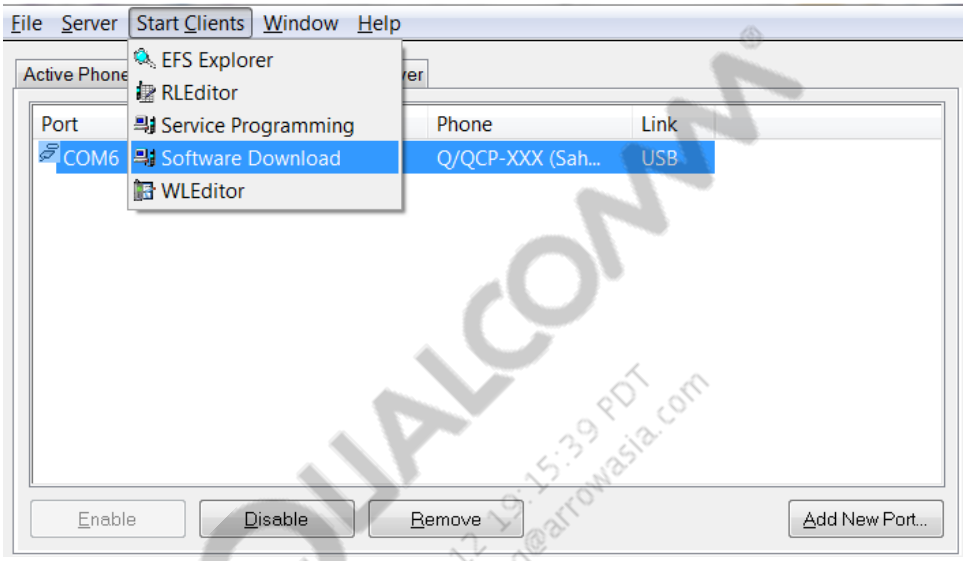


3.3 Software download

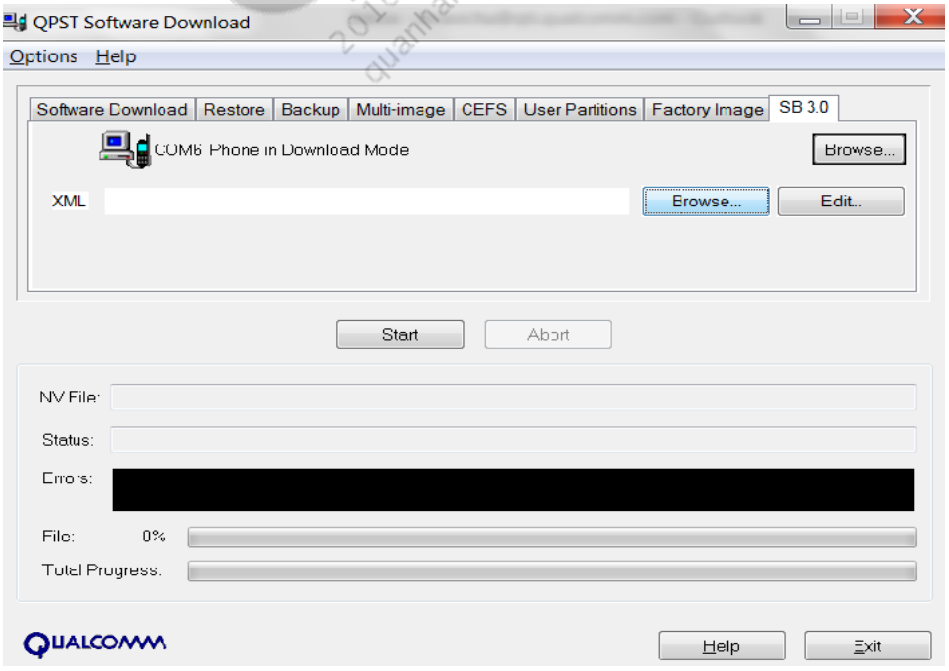
The process in Sections 3.1 and 3.2 remains same for all kinds of flash. However, the software download application is different for NOR and NAND boot from the one for eMMC.

3.3.1 For NOR and NAND boot

1. From the Start Clients menu, choose **Software Download**.

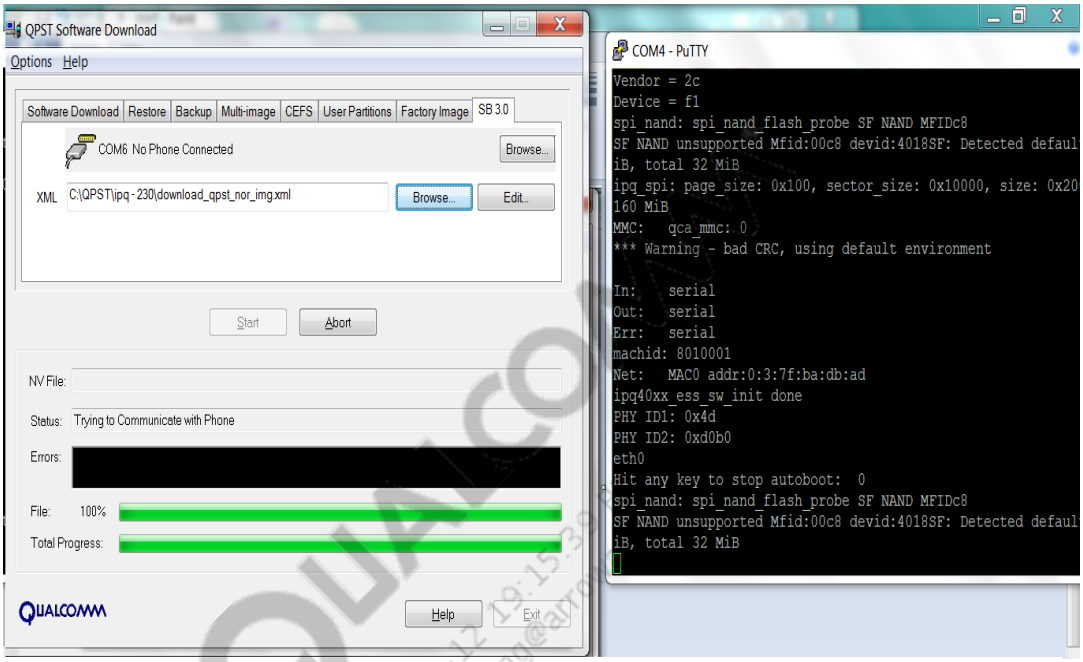


2. From the SB 3.0 tab, click Browse and select the XML file.



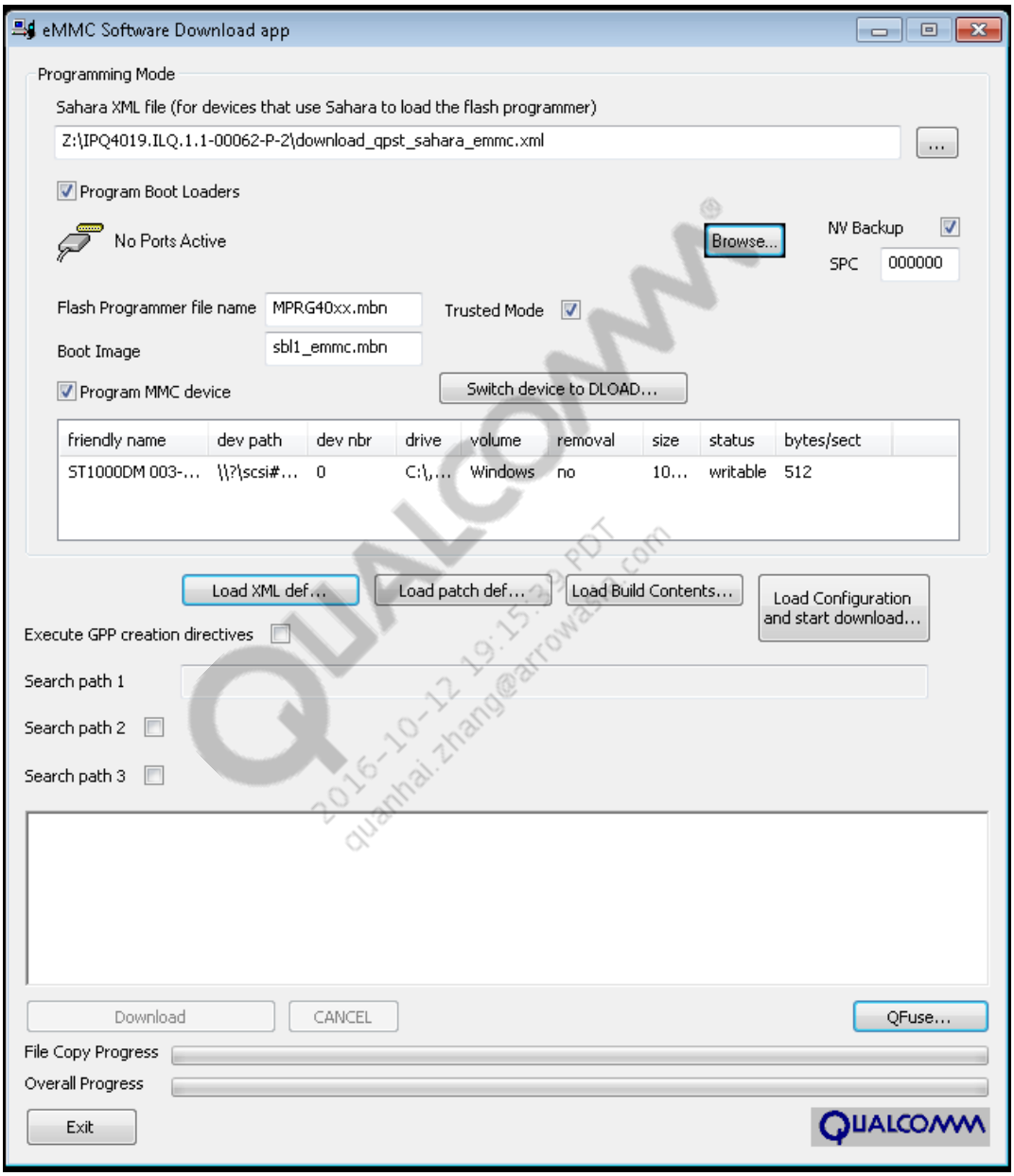
NOTE: The required XML file can be taken from the meta directory.

3. Choose the appropriate XML file from For DK03, cdt binary of DK01 is used.
4. Table 2-2 according to the flash that is needed.
5. Click **Start**.
6. The bricked board is now recovered.



3.3.2 For eMMC boot

1. After choosing **Sahara Configuration**, open the eMMC software download application.

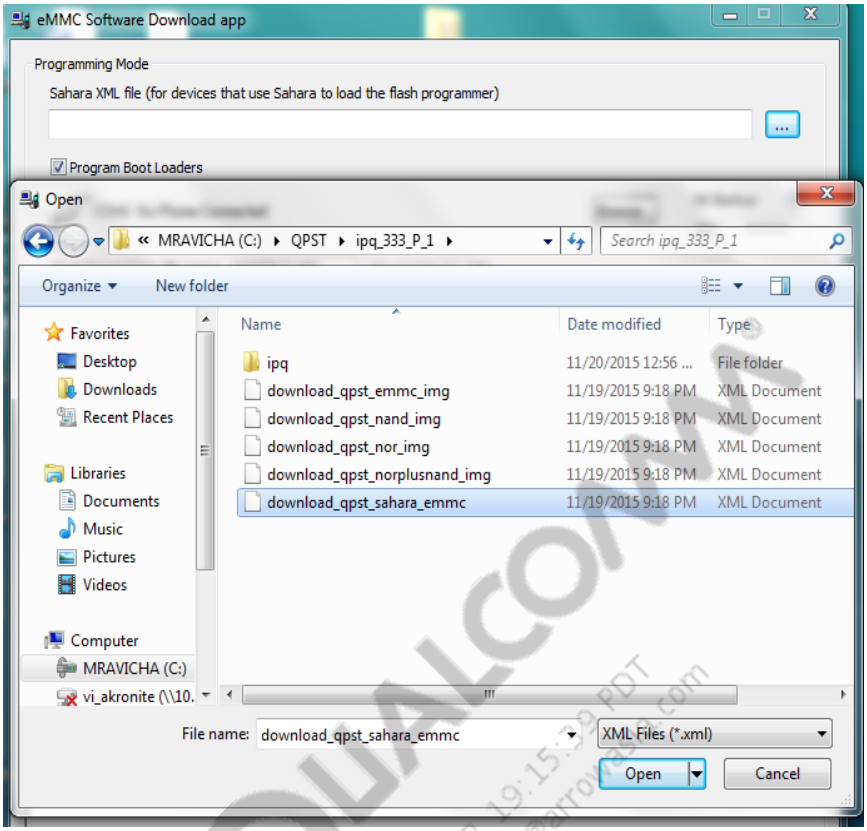


2. Download the following .xml files:

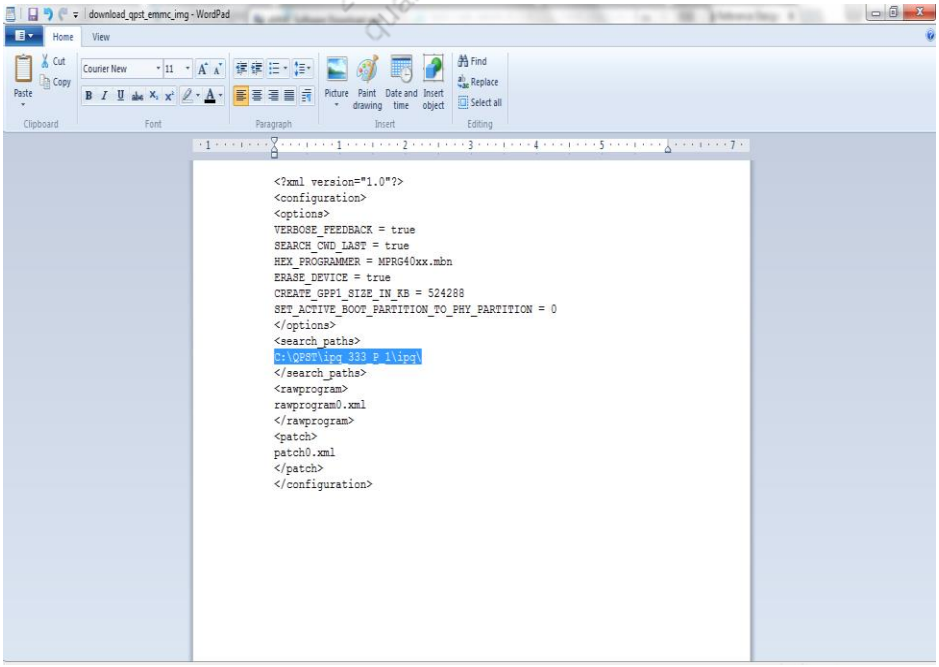
   `download_qpst_sahara_emmc.xml`

   `download_qpst_emmc_img.xml`

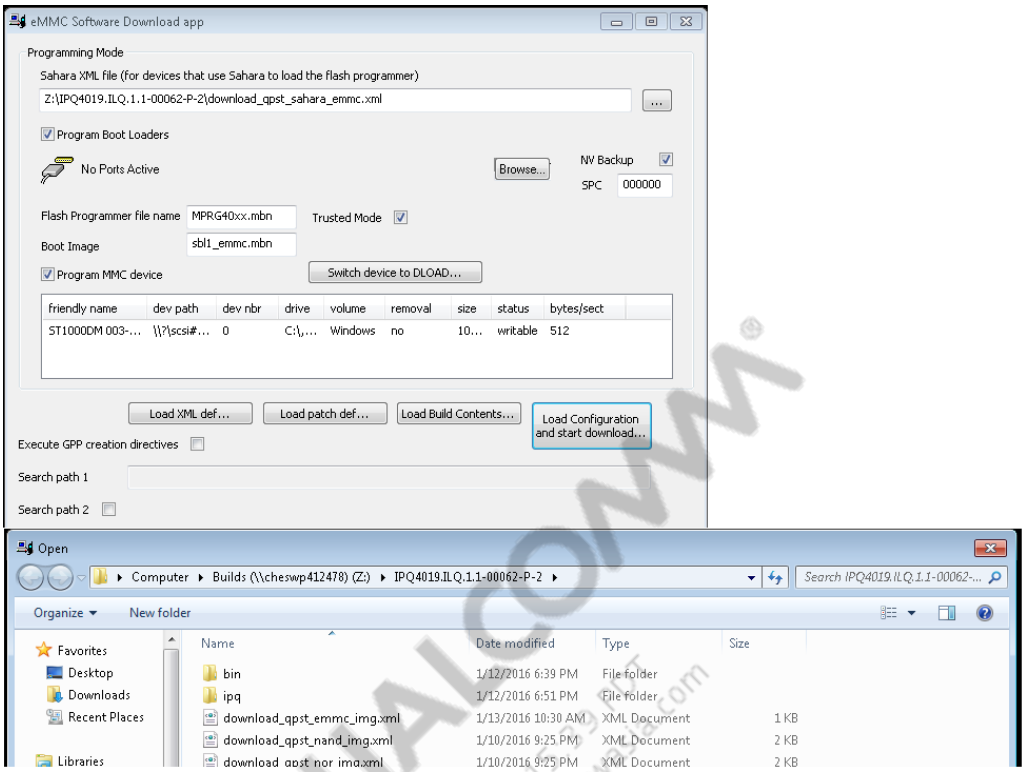
3. In Sahara XML file, select download_qpst_sahara_emmc.xml



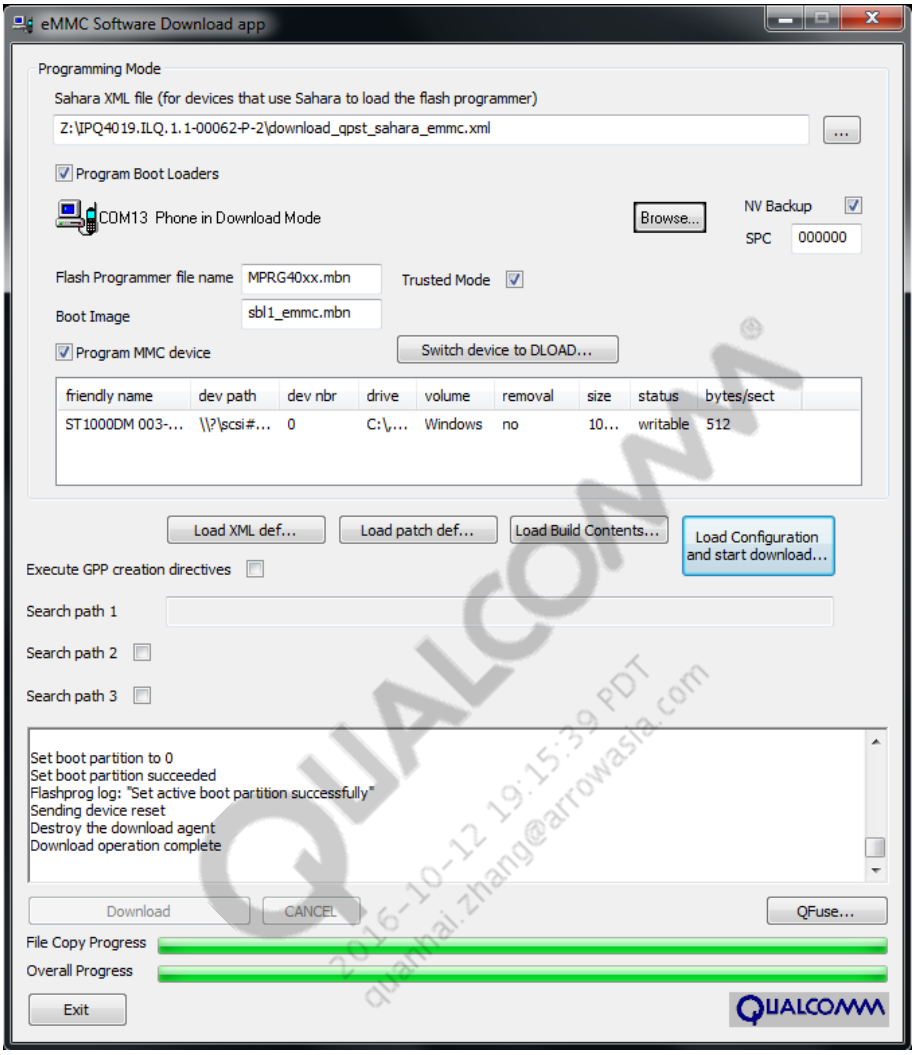
4. Before configuring, change the name of the path where the image is present in the file: `download_qpst_emmc_img.xml`



5. Select **Load Configuration and Start Download** and choose the file `download_qpst_emmc_img.xml`



6. The board is now recovered.



4 Frequently asked questions

1. What type of USB cable is needed?

   USB type A to A cable
2. Which USB port of DK0x is to be used?

   USB 3.0 port