User Guide

3GSwupFU2 for the Qualcomm Multi Image Boot Concept

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History of Change

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2.0.7	02.08.2006	Przemyslaw Tomalik	release	
2.0.7.1	04.08.2006	Przemyslaw Tomalik	release	Added GUI messages and FAQ

3GSwupFU2 user guide

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1 Introduction

This tool supports updating your mobile phone software using the BenQ 3GSwup2 application. The 'Multi Image Boot concept' was introduced by Qualcomm with the Wolf 5 integration build IB 7. It describes a mechanism, which divides the firmware into several pieces, the so called "mbn" files, i.e. multi image binaries. Before the 'Multi Image Boot concept' was introduced, there was the 'Single Image Boot concept' implemented, which provides the firmware a single binary file. It is not possible to update phones from 'Single Image Boot concept' to 'Multi Image Boot concept' using 3GSwup2. You can do this using Qualcomm's QPST Server version 2.7.209 (or greater).

This tool has also functionality of Duck tool (only download direction, see "*DUCK_spec_v1255.doc*" document)

There are three use cases:
- 3GSwup2 for Developers - 3GSwup2
  - version that use QPST Server
  - version that do not use QPST Server – you have to switch off QPST Server
- 3GSwup2 for Friend Users - 3GSwupFU2
- 3GSwup2 for End Users – Internet Update

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2 Manual

2.1 Delivery Content

3GSwupFU2 installer, for installing and removing the 3GSwupFU2 including mobile software, customization and USB drivers.

Example of the installer name:
W5V0_1433_SGLFK_009.05_de-BRDHandel-std_12_0087.exe

During installation of the packet, shortcut on the desktop will be created. Packet for uploading the software should be launched using that shortcut.

2.2 Functionality

- Backup/restore NV-items
- Downloading software
- Downloading entire customization (CEFS, EFS, NV-items)

2.3 Package creation

To create Friendly User package you should use PCC.exe tool (see *PCC(1).doc* documentation)

2.4 Graphical User Interface

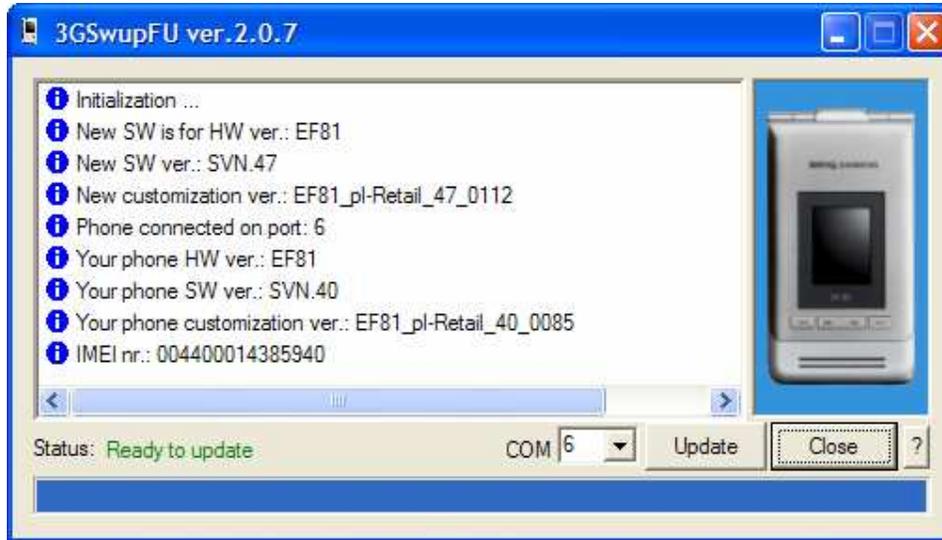Upon launching 3GSwupFU2 the following GUI will be shown.

Figure 2.4.1: 3GSwupFU2 GUI

The tool will automatically look for a connected device on the USB ports. Status will be displayed on screen. If after one or two minutes phone will not be recognized, please make sure that phone is on and USB cable is connected in the proper way. If tool still was not able to recognize the phone, please take off the USB cable and plug it in again. Please remember that you can always choose the phone by clicking combo box button "COM" and selecting the available USB port from the list. In combo box "COM" user can read the number of the USB port on which mobile was found. Additionally user can read version of the software that is currently in the mobile and version of the software that is going to be loaded to the mobile.

Possible actions:
- user can change automatically chosen port by clicking combo box button "COM" and selecting the available USB port from the list.
- user can close the application by clicking "Close" button,
- user can start the download process by clicking the "Update" button,

If during download any problems interrupted downloading the mobile software file, tool will automatically prepare emergency download. Emergency download is a download operation without changing mobile mode into download. Mobile in such case should be by default in download mode, because only boot loaders should be active.

2.5 Updating the Software

Note: It appears that the update process runs more stable if you reboot your device before starting the update process. It is therefore recommended to reset the phone before launching 3GSwupFU2.

1. Make sure that your battery is charged at least 25%
2. Launch 3GSwupFU2 application and you will see the GUI as shown in Figure 2.4.1: 3GSwupFU2 GUI
3. Wait, until "Ready to update" message is shown
   a. Note: the application will look for a connected mobile automatically
   b. If it does not find any port then user can choose it manually by click on combo box button "COM" and selecting the available USB port from the list"
4. Launch 3GSwupFU by pressing button "Update".
5. You will see information about the progress of the download process.
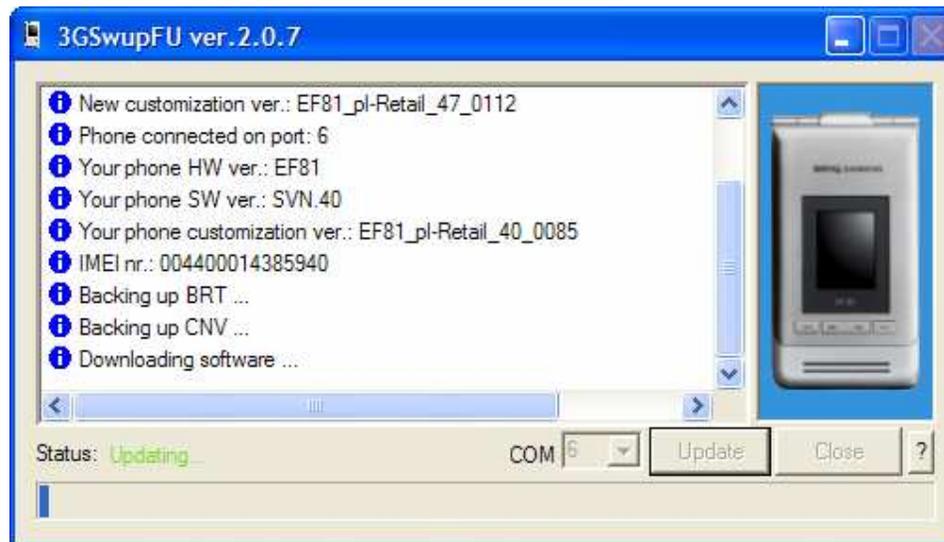
Figure 2.5.1: 3GSwupFU2 – download in progress

6. When the download process is finished you will see the "SW update completed successfully"
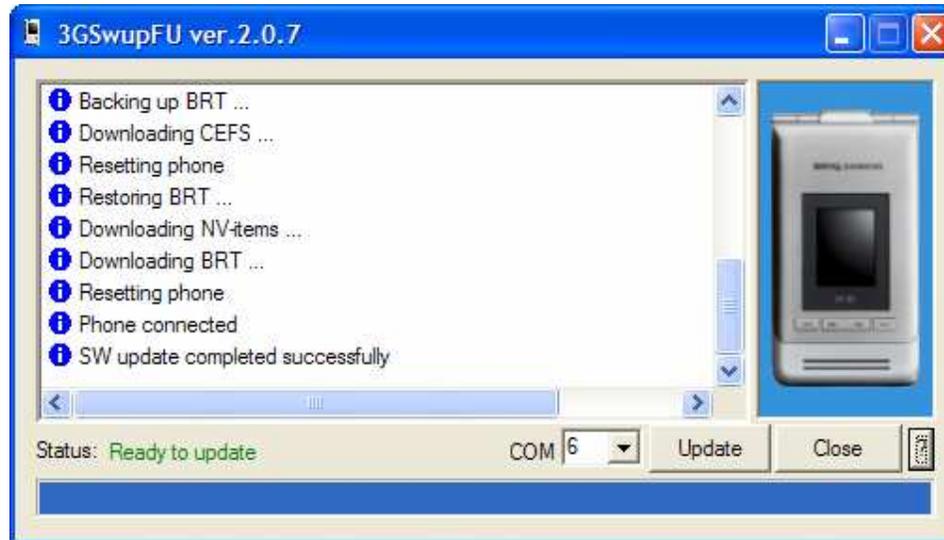
Figure 2.5.2: 3GSwupFU2 – download successfully finished

In case error you should repeat the whole process from the beginning. You have to restart mobile by putting batteries off while it is disconnected. Then you should run application again.

3 3GSwupFU2 messages

	GUI message	Explanation and user action 3GSwupFU2
Messages and errors during phone initialization	Phone connected on port: x	MESSAGE - Phone was connected on x COM port.
	Your phone HW ver.: xx	MESSAGE - Phone hardware version.
	Your phone SW ver.: xx	MESSAGE - Phone software version number.
	Your phone customization ver.: xx	MESSAGE - Phone customization version.
	IMEI nr.: xx	MESSAGE - Phone IMEI number.
	New SW is for HW ver.: xx	MESSAGE - Software for download hardware version.
	New SW ver.: xx	MESSAGE - Software for download version number.
	New customization ver.: xx	MESSAGE - Customization for download version.
	Phone in DOWNLOAD mode (EMERGENCY DL)	MESSAGE - Phone is in Download mode, emergency download will be performed. See point 4.3.
	Can not read customization version	MESSAGE - Phone is not customized.
	Can not read IMEI	ERROR - IMEI is non-initialized on phone. IMEI was never initialized or was lost. You can write IMEI by restoring NV-Items (if you have backed up NV-Items) or using NV Editor tool.
	No phone connected	ERROR - Phone was not found. See point 4.1.
	Another application has open USB MODEM port	ERROR - Phone modem port is open by another application. You have to close this application (e.g. MPM, QPST Server).
	To low battery	ERROR - Battery is empty. You have to charge battery.
	Not enough space on the mobile phone to perform software update	ERROR - Phone has no free space for perform CNV backup. Phone has to have at least 4MB free space. You have to delete files from phone.
Messages and errors during software download initialization	None of software images was chosen	MESSAGE - No software image was chosen for download.
	No partition table	ERROR - Partition table is obligatory when you want to download software or CEFS.
	Do you want to download the same software version	MESSAGE - Software that you try to download is the same that phone software.
	You try to downgrade software	MESSAGE - Software that you try to download is older than phone software.
	Your new software does not have information about software KEY	MESSAGE - Software that you want to download is not signed with O'zapft is! string.
	Your phone does not have information about software KEY	MESSAGE - Phone software is not signed with O'zapft is! string.
	Your new software does not match to your phone	ERROR - Software that you want download to phone does not mach to phone.
	OEM Secondary Boot Image and Header should be used together	ERROR - Use both images.

	AMSS Image and Header should be used together	ERROR - Use both images.
	For the action you have selected all software images are mandatory	ERROR - You have to download all software images, e.g. after flash erase.
	You try to change from single boot to multi boot	ERROR - Phone use single boot concept, you have to use QPST software download to change to multi image concept.
	Your new software KEY does not match to your phone software KEY	ERROR - Software that you want download to phone is signed with different key than phone software.
Errors during software or CEFS download	Software Download Aborted	ERROR - Software download was interrupted. You have to close application and reset phone. It appears only in 3GSwup2 for developers with QPST.
	Communication error, please restart the mobile and try again.	ERROR - Wrong CRC in data. You have to close application, reset phone and try again. It appears only in 3GSwup2 without QPST.
	Operation failed, please restart the mobile and try again.	ERROR - Operation failed. You have to close application, reset phone and try again. It appears only in 3GSwup2 without QPST.
	Connection with the mobile interrupted. Please make sure that connection is valid and phone is turned On.	ERROR - There was no response from phone. You have to close application, reset phone and try again. It appears only in 3GSwup2 without QPST.
	Critical error, please contact distributor.	ERROR - Error in communication protocol. You have to close application, reset phone and try again. It appears only in 3GSwup2 without QPST.
Process status	Initialization ...	MESSAGE - Process initialization.
	Downloading software …	MESSAGE - Software download.
	Downloading CEFS …	MESSAGE - CEFS download.
	Downloading EFS …	MESSAGE - EFS (zip format) download.
	Downloading NV-items …	MESSAGE - Customization download.
	Downloading QCN …	MESSAGE - Template QCN download.
	Downloading BRT …	MESSAGE - Template BRT download.
	Backing up CNV …	MESSAGE - Backup NV-Items in CNV format.
	Backing up QCN …	MESSAGE - Backup NV-Items in QCN format.
	Restoring QCN …	MESSAGE - Restore NV-Items in QCN format.
	Backing up BRT …	MESSAGE - Backup NV-Items in BRT format.
	Restoring BRT …	MESSAGE - Restore NV-Items in BRT format.
	Deleting mobile files …	MESSAGE - Deleting files from mobile.
	Resetting phone	MESSAGE - Phone is resetting (after SW download, CEFS download, customization download, NV-Items restore).
	Phone connected	MESSAGE - Phone was connected after reset.
	You have to many uninitialized NV-Items on your phone	MESSAGE - Device specific NV-Items on phone are not initialized. See point 4.5.
	Error during initialization	ERROR - Process initialization failed. You have to close application, reset phone and try again.
	Error during downloading software	ERROR - Software download failed. You have to close application, reset phone and try again. See point 4.3.

	Error during downloading CEFS	ERROR - CEFS download failed. You have to close application, reset phone and try again. See point 3.3.
	Error during downloading EFS	ERROR - EFS (zip) format failed. You have to close application, reset phone and try again.
	Error during downloading NV-items	ERROR - Customization download failed. You have to close application, reset phone and try again.
	Error during downloading QCN	ERROR - Template QCN download failed. You have to close application, reset phone and try again.
	Error during downloading BRT	ERROR - Template BRT download failed. You have to close application, reset phone and try again.
	Error during backing up CNV	ERROR - Backup NV-Items in CNV format failed. You have to close application, reset phone and try again.
	Error during backing up QCN	ERROR - Backup NV-Items in QCN format failed. You have to close application, reset phone and try again.
	Error during restoring QCN	ERROR - Restore NV-Items in QCN format failed. You have to close application, reset phone and try again.
	Error during backing up BRT	ERROR - Backup NV-Items in BRT format failed. You have to close application, reset phone and try again.
	Error during restoring BRT	ERROR - Restore NV-Items in BRT format failed. You have to close application, reset phone and try again.
	Error during deleting files from mobile	ERROR - Deleting files from mobile failed. You have to close application, reset phone and try again.
	Error during resetting phone	ERROR - Reset phone failed. You have to close application, reset phone and try again.

4 FAQ

4.1 3GSwupFU2 does not detect the connected mobile

The most common reason that 3GSwup can not detect your phone is QPST Server application running in background, please kill QPST Server process.

Possible Solutions:
1. Is the device switched on?
Check, whether the device is switched on.

2. Is the phone connected to the PC via USB cable?
Check, whether the device is connected to the PC via a USB cable.

3. Is the phone detected by Windows OS?
   Check, whether the device manager shows the Diagnostic, NMEA and Modem port; see
Figure 5.9: Device manager (example).

3a) No device is shown in the device manager and no USB driver was installed
   1. switch off the mobile and disconnect it from the USB cable
   2. switch on the mobile and wait for the screen "Enter PIN". Then connect the device to USB cable again
   3. in case no USB driver was installed for the specific COM port, Windows should come up with a message like "New Hardware found"
      - go ahead with the installation process

   If Windows is still not able to detect the USB device, please check the USB cable (there is a fuse inside which may be blown) or try a different COM port.

3b) The device is shown in the device manager
   1. close 3GSwup2.exe
   2. kill process QPST Server in the Windows Task Manager explicitly

3c) No device is shown in the device manager and you are sure the USB driver was installed
   1. Launch 3GUSBInstall.exe, can be found in the installation folder of 3GSwup and uninstall the existing driver and install the driver again

      or

   2. Try a different COM port

4.2 Can I run multiple instances of 3GSwupFU2 and update several phones in parallel?

Yes, it is tested with 4 instances in parallel.

4.3 The download was interrupted and does not work proper anymore or the download was performed correctly, but upon reset the phone is resetting.

Solution:
The phone is in a mode, which does not accept any user actions anymore.
1. Switch off the phone completely (take out the battery and disconnect the USB cable)
2. Close 3GSwupFU2 (if application is completely hung up – you have to end the application via the Task Manager explicitly)
3. Kill any QPST Server process via the Task Manager explicitly
4. Insert battery again and keep the # and Power On key pressed for 5 seconds
5. The phone will show the Siemens/BenQ-Siemens splash screen and remain in this state ("*Download Mode*") (if phone still resetting phone may not be recovered anymore)
6. Connect the phone to the USB cable again (the Device Manager should show the device again)
7. Start 3GSwupFU2

Important Note: Using the *Emergency Download* does only work, in case the phone can manually be set into Download Mode. In case the process was interrupted during downloading obl, pbl or qcsbl the phone may be not recoverable.

4.4 The download was performed correctly, but upon reset the phone is completely dead
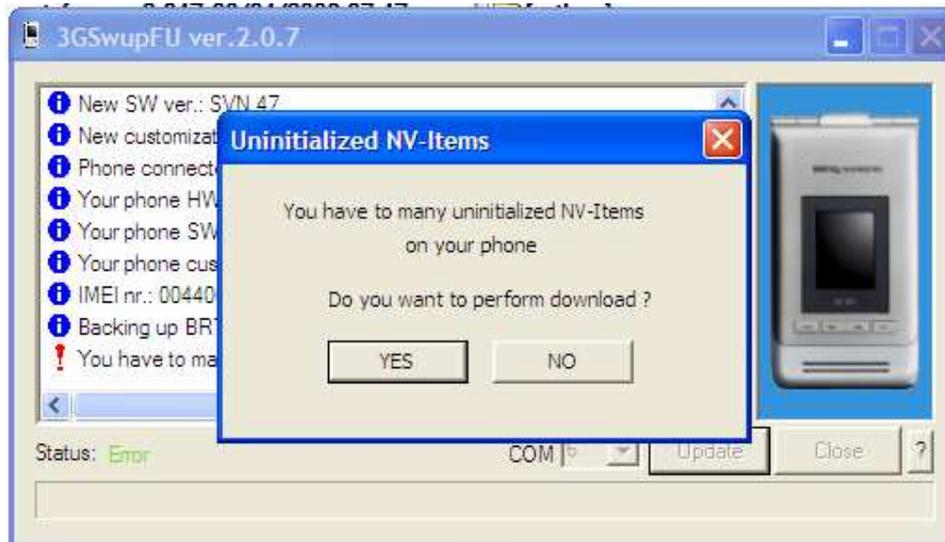
Solution:
Most likely, you have downloaded software, that is
1. not working on this device
2. not signed with the correct key
In both cases try to enter the download mode and try the "*Emergency Download*" (see point 4.3).

Note: It is most likely, that the phone may not be recovered anymore.

4.5 Uninitialized NV-Items combo box appears

This message means that during NV-Items backup not all NV-Items from list were backed up. Reason of this is that on phone these NV-Items are not initialized or does not exist or communication with phone was lost. List of required NV-Items is in file "BackupNVxxxx.csv". This list include device specific NV-Items like GSM calibration etc. Without these NV-Items phone can not work correctly (e.g. "Service Required" message on phone screen). List of not backed up NV-Items from your phone is in log file "BackupBRTList.log". You can push YES to allow update your mobile or push NO to terminate update.

This is phone problem not a tool.

5 Installation

This chapter is concerning 3GSwup2 (developer) and 3GSwupFU2 (Friendly User) installation.

For convenient installation an installation, a single setup executable file is provided. Launching the setup will guide you through the installation process.

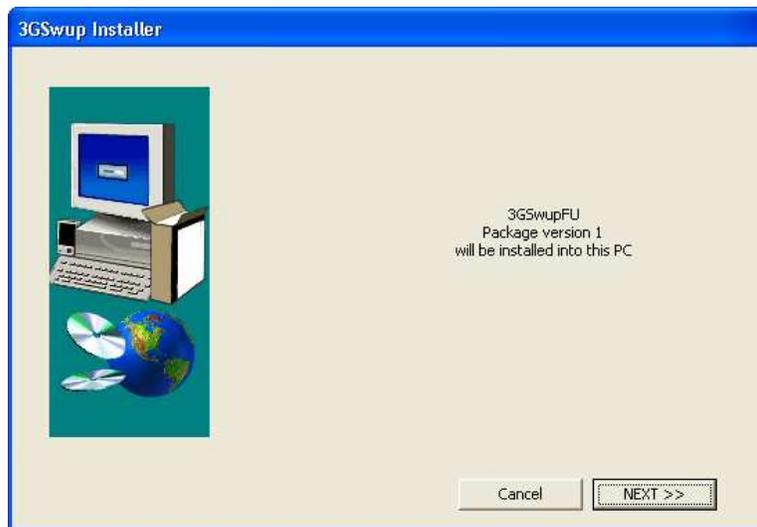1. Disconnect your mobile phone

2. Launch proper *.exe file.

Figure 5.1: Start of installation wizard

... and click next button
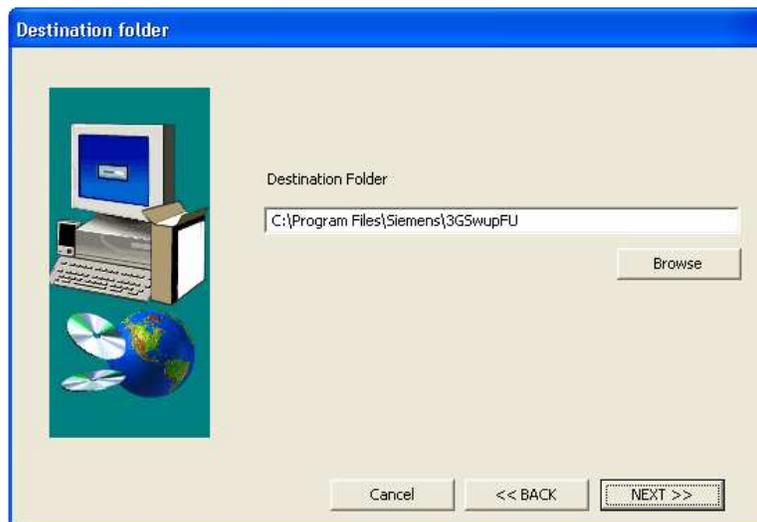
3. Select folder where your application should be installed.

Figure 5.2: Select installation destination

... and click next button.

3a) In case the destination directory already exists, the following warning will be shown.
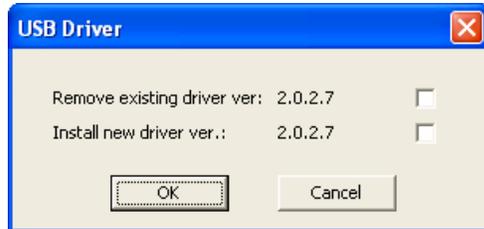

Figure 5.3: Warning

4. Select whether a shortcut and an entry in the Start Menu should be created
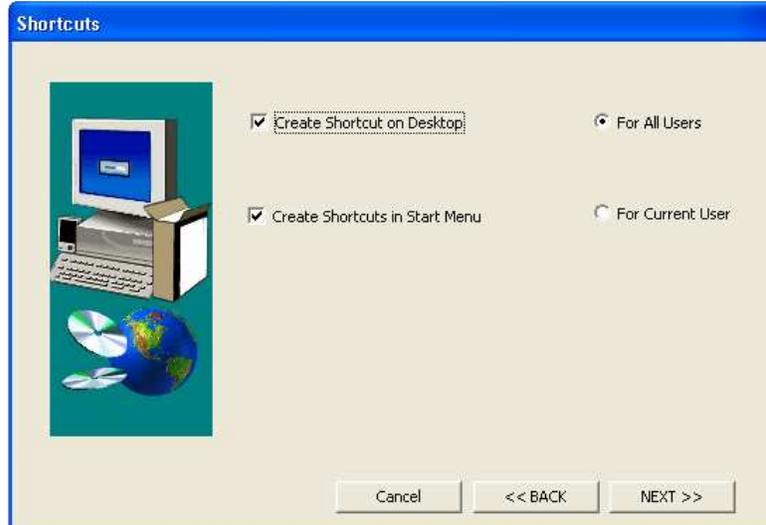
Figure 5.4: Menu settings

5. The installation process will now begin.

During the installation process you will be asked, whether you would like to remove existing USB drivers and/or install new USB drivers.
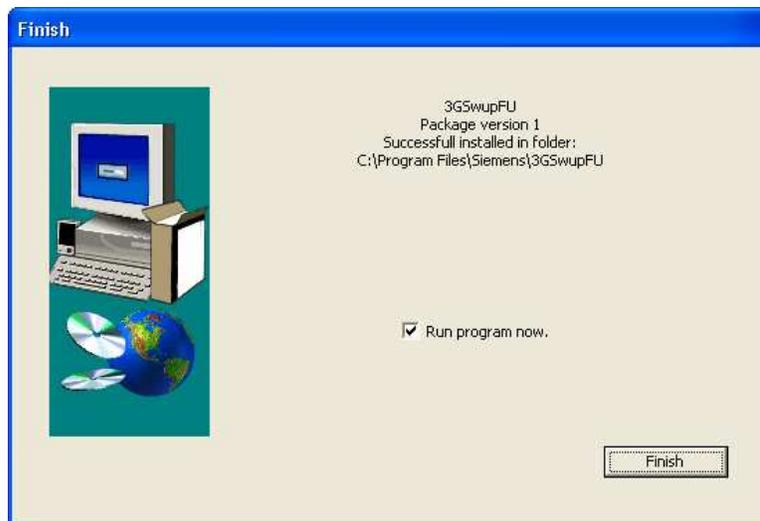

Figure 5.5: USB driver installation query

5a.) After installation you will see the following message.
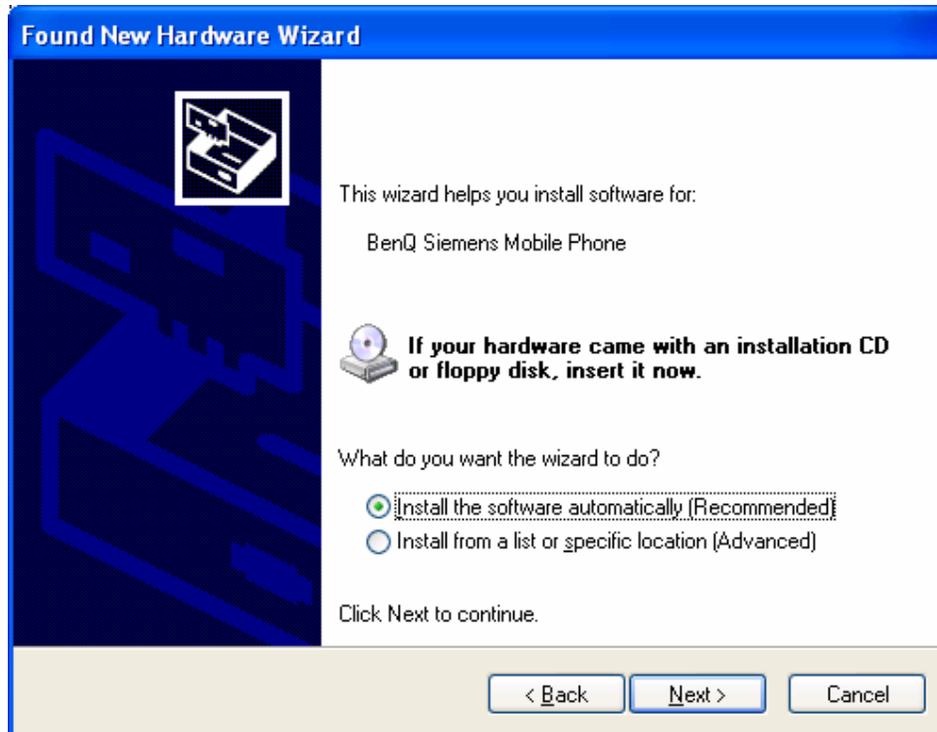

Figure 5.6: USB notification

Click "OK".

6. Installation is completed

Figure 5.7: Successfully finished installation

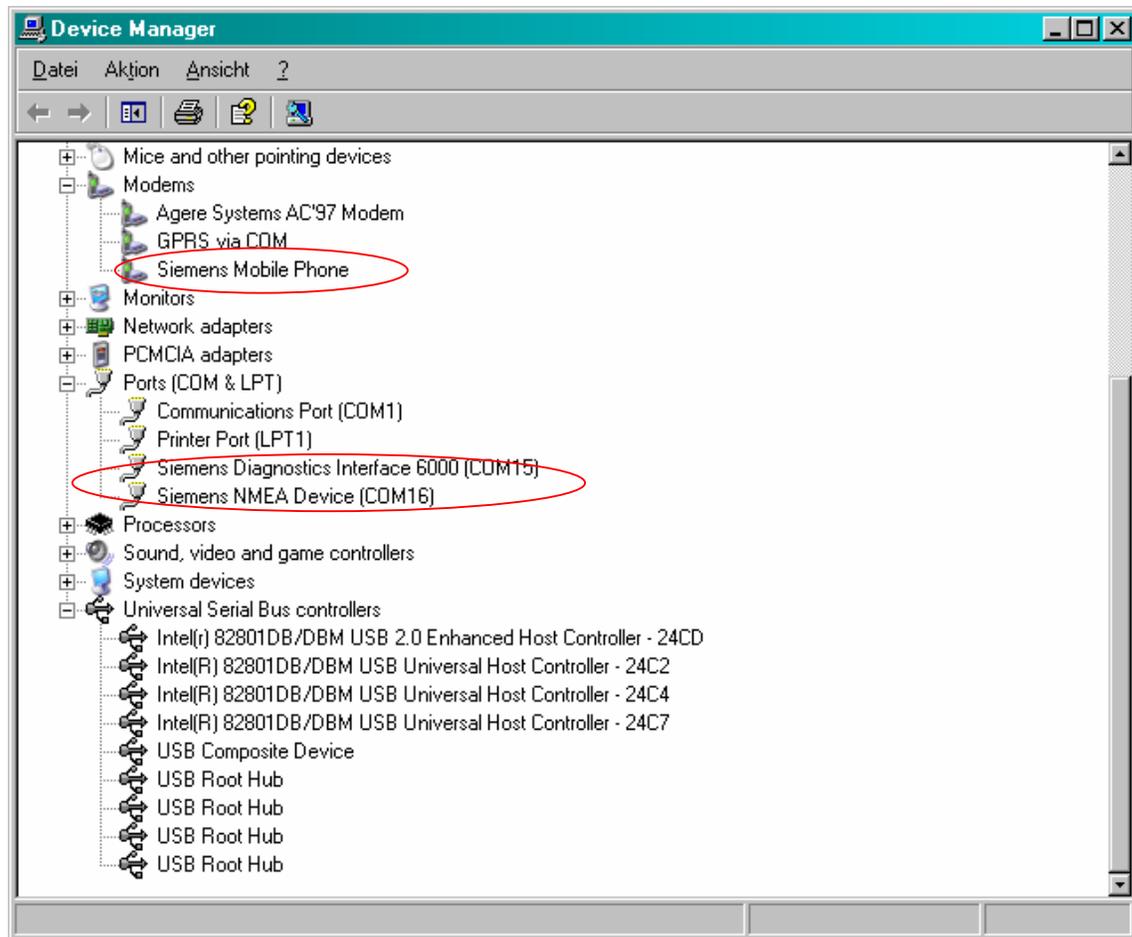7. Connect your mobile (switched on) via USB cable to your PC.

If your phone is connected for the first time you will be asked to install the driver for this specific COM port.

Figure 5.8: Installation of the USB driver on a specific COM port

Because the USB driver is not certified, you will have to manually continue the installation.
Note: The USB driver will install several USB ports on your machine. In the regular case, there are three ports Diagnostic, NMEA and a Modem one. You can verify this by opening the device manager and opening the folders "Ports (COM & LTP)" and "Modems".

Figure 5.9: Device manager (example)