AIR. NOTHING ELSE.

FIRMWARE UPDATE TOOL (FUT)

FIRMWARE UPDATE TOOL (FUT)

FOR MAS-100 NT / NT EX, MAS-100 ISO NT

INHALT

MBV AG, Industriestrasse 9, CH-8712 Stäfa, T +41 44 928 30 80, info@mbv.ch, www.mbv.ch

USER MANUAL FIRMWARE UPDATE TOOL (FUT)

1. CHANGE HISTORY

V.	COMMENTS	DATE	RESP.
3	– Update for FW 1.7.18	2017.03.29	MH
2	– Chapter 2.3 about the device driver added – Notes edited in chapter 5.1	2017.01.12	LF
1	– First release of this manual	2015.09.15	LF

2. GENERAL INFORMATION

This section gives an overview about the tool, its use and important notes.

This manual describes the procedure how to update Firmware on the listed instruments.

The update process is slightly different from MAS-100 NT/NT Ex and the Iso NT and MH.

Most screenshots in this manual were created with a Microsoft Windows 8 / 8.1 computer.

The screenshots on other Microsoft Windows operating systems may look different.

2.1. ABOUT THE FIRMWARE UPDATE TOOL

This software is used to update the Firmware on the following instruments:

- MAS-100 NT / NT Ex
- MAS-100 Iso NT
- MAS-100 Iso MH

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2.2. ABOUT FIRMWARE UPDATE AND DOWNGRADE

2.2.1. UPDATE

A Firmware Update is the process to change the instruments FW version from a lower (V1.4) to any higher version (V1.7.18).

Updates do not change or alter the settings, the parameters or the calibration values. They remain as they have been before.

2.2.2. DOWNGRADE

A Firmware Downgrade is the process to change the instruments FW version from a higher (V1.7.18) to any lower version (V1.4).

Downgrades will set the instrument to default values and reset all parameters, statistics and adjustment/calibration data.

If assistance is needed for configuration of the instrument and setting its serial number please contact service@mbv.ch.

2.3. ABOUT THE DEVICE DRIVER

Instruments with FW Version 1.6 and older have the FTDI chip programmed with special parameters.

The instrument can only be installed on Windows operating systems with the special "USB Measurement Device" driver included in our MAS-100 NT PC Software installer package.

Instruments with FW V1.7.18 and later have the FTDI chip programmed with generic parameters.

The according "USB Serial Converter" driver can be installed by Windows Update function with or without having our latest PC SW V1.6.31 installed.

In MAS-100 NT C&C PC SW V1.6.31, booth the old and new device drivers are included.

Note: In this manual, the term "USB Measurement Device" is also used for "USB Serial Converter". And the term "USB Measurement Device Serial Port" is also used for "USB Serial Port".

3. COMPATIBILITY

This Software can be used on the listed Microsoft Windows OS versions (32 or 64-bit systems):

- Windows 7
- Windows 8 / 8.1
- Windows 10

Note: Windows XP is not supported

4. INCLUDED FIRMWARE VERSIONS

Firmware Update Tool Software version: 1.0.5

Included Firmware versions:

INSTRUMENT	FW VERSION
MAS-100 NT / NT Ex	1.6.0
MAS-100 Iso NT	2.8.5
MAS-100 Iso MH	1.2.6

Note: The latest PC SW versions and tools are updated to work with 3-digit version numbers. Any 2-digit FW version like 1.6 will be enhanced to be displayed as 3-digit version like 1.6.0.

4.1. ADDITIONAL FIRMWARE VERSIONS

If the needed Firmware version is not enclosed in the FUT, there can be added more at any time.

The FW version must have the ending .mas100fw to work with the new FUT!

If the needed FW is not available on our homepage, please do not hesitate to contact service@mbv.ch.

4.1.1. PROCEDURE

1. The FUT should be closed.
2. Copy the FW file into the Downloads folder in Windows
   OR into My Documents -> MBV -> MAS-100 Series Firmware.
3. Continue with the FW update process described in chapter 6.

Note: If the same Firmware is available more than once in the FUT, it is very likely that the same FW is installed in different folder locations.

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5. PREPARATION (FIRST USE ONLY)

Describes the preparation if no PC SW and no Update Tool SW has been installed on a PC.

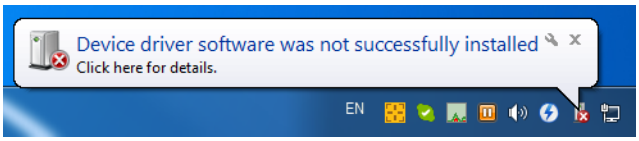
Administrator rights may be needed for device driver installation.

5.1. FIRMWARE UPDATE TOOL INSTALLATION

1. The instrument must be switched off or disconnected during the installation process.
2. Run the Firmware Update Tool setup file. The system usually asks to confirm running this file.
3. Install into the predefined location.
4. Connect the instrument to the PC with a USB cable.
5. Switch on the instrument, the instrument-specific driver is being installed: USB Measurement Device or USB Serial Converter.
6. Wait until "Ready to use" is displayed. This picture can be displayed if the driver installation message is pressed.

Notes:

During driver installation, the following error message may be displayed if no PC SW has been installed before and should be ignored.



The FUT can be used as stand-alone application. No additional SW must be installed. The USB Measurement Device driver comes with the FUT setup package. FUT.exe itself does not include any driver.

If any instrument-specific PC SW has been installed, the VCP=Virtual Com Port driver will be installed as well. The VCP creates a Comport number (COMx). The instruments are installed as "USB Measurement Device Serial Port" or "USB Serial Port" and must be disabled for the update process in use with MAS-100 NT / NT Ex instruments. Disabling the VCP is described in chapter 6.1

6. UPDATE PROCEDURE

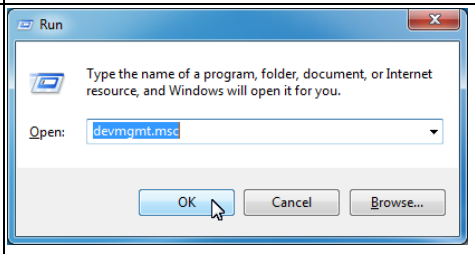
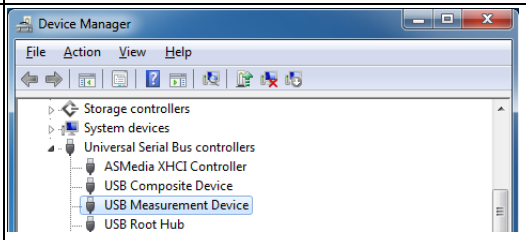
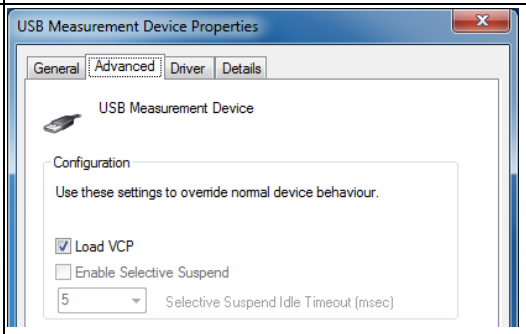
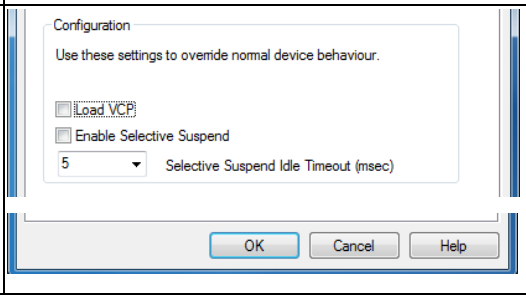
Detailed description of the preparation and the upgrade process.

6.1. PREPARATION PROCESS FOR MAS-100 NT / NT EX INSTRUMENTS ONLY (DEACTIVATE VCP)

If you have problems during the update process with getting a connection to the instrument the VCP in the device manager needs to be deactivated. For MAS-100 Iso NT/MH go directly to chapter 6.2.

To deactivate the "Load VCP" function, no software must be running accessing the instrument.

Note: This procedure needs to be performed once with each new instrument. Windows can remember the choice only for a specific instrument, not for all possible MAS-100 NT.
To permanently disable loading the VCP driver, please follow the instruction in chapter 8.

1. The instrument must be switched off or disconnected. 2. Connect the instrument to the PC using a USB cable. 3. Switch on the instrument.	
4. Open the device manager. It can be found in the Control Panel. Another way is to press press "Win+R", then type "devmgmt.msc" in the Run dialog and click OK.	
5. Find the "USB Measurement Device". Double-click on it. Properties window will then appear. Go to the installed USB Measurement Device and open the properties window.	
6. Activate the Advanced tab. Important: If the Update Tool or instrument PC SW is running already, the Advanced tab may not be available. Close any Software accessing the instrument before opening the Properties window.	
7. Uncheck the Load VCP option and click OK. 8. Switch off the instrument.	

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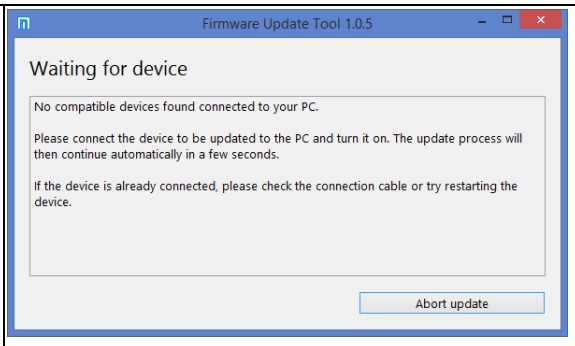
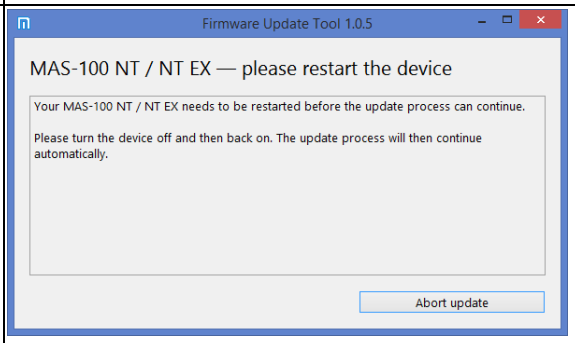
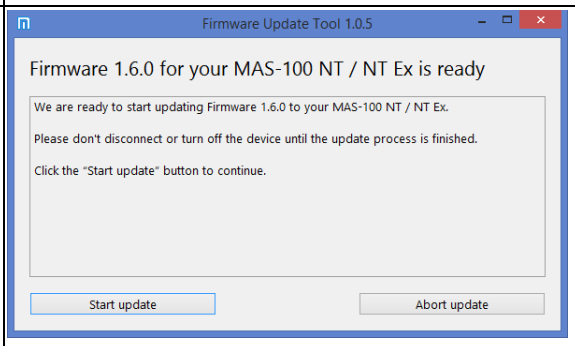
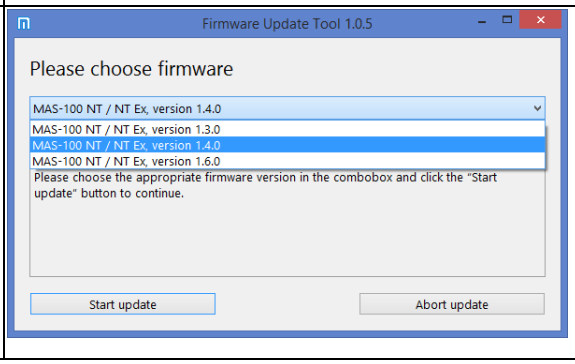
6.2. UPDATE PROCEDURE FOR ALL INSTRUMENTS

For MAS-100 NT and MAS-100 NT Ex instruments, please read the preparation process in chapter 6.1.

For MAS-100 Iso NT and MAS-100 Iso MH instruments, start here.

Note: When in doubt, the process may be canceled any time by clicking on the "Abort update" button and the FUT will be closed. Switch off the instrument, wait until it is switched off, or disconnect it from the PC.

1. The instrument must be switched off! 2. Run the Firmware Update Tool. 3. Connect the instrument to the computer with the USB cable. 4. Connect the power cable to the instrument or switch it on manually.	
5. Some computers will display the following message for MAS-100 NT / NT Ex instruments. Then, the instrument needs to be switched off and on again. Some computers will set the instrument directly into the Update Mode. Then, continue reading the next step.	
6. The Update Tool will detect the device and prompt to update to the latest available version "1.6.0". If additional FW has been installed according to chapter 4.1.1, continue with step 7. If this is the FW that you need, continue with step 8.	
7. If there are several firmware versions availabe for the connected device, choose the right one from the combobox. If the needed FW is not availabe, refer to chapter 4.1.1.	

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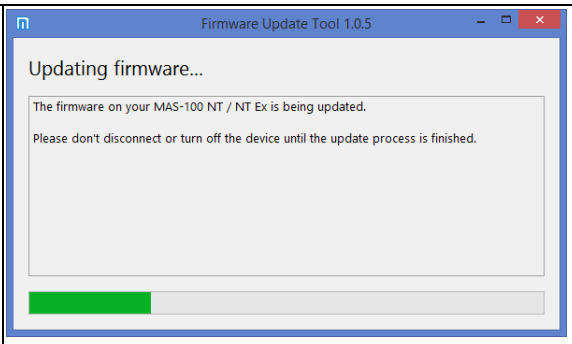
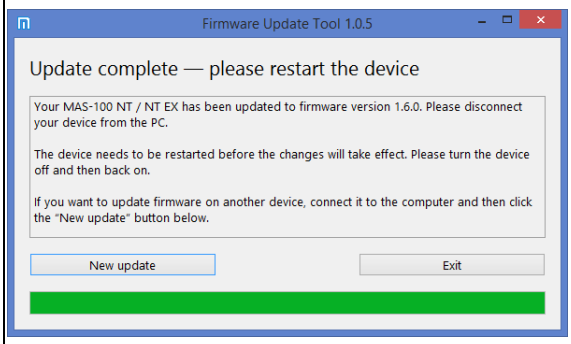
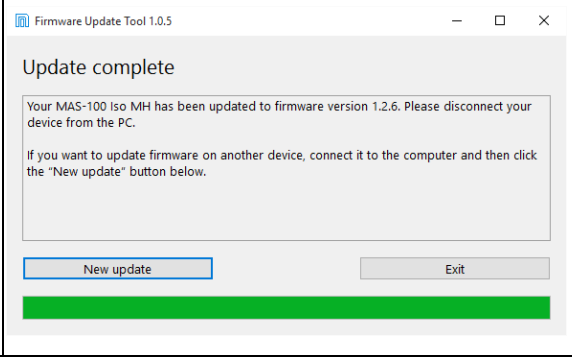
8. Click "Start update" and wait for the Update Tool to finish. The progress bar displays the Update process status.	
9. After the updating process is complete, follow the instruction on the screen. Important: MAS-100 Iso NT and MH instruments are restarted automatically. When the Update Tool prompts to restart the device and the instrument is powered with the battery only, the instrument is switched off automatically. Please be aware, that when connecting a new instrument, the Load VCP might needs to be deactivated before the update can be performed. If the Update Tool is started, the advanced tab in the USB device driver properties window is not available.	Example of a completed firmware update of a MAS-100 NT / NT Ex on a Windows 8 computer.  Example of a completed firmware update of a MAS-100 Iso MH on a Windows 10 computer. 

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7. ADDITIONAL INFORMATION AND TROUBLESHOOTING

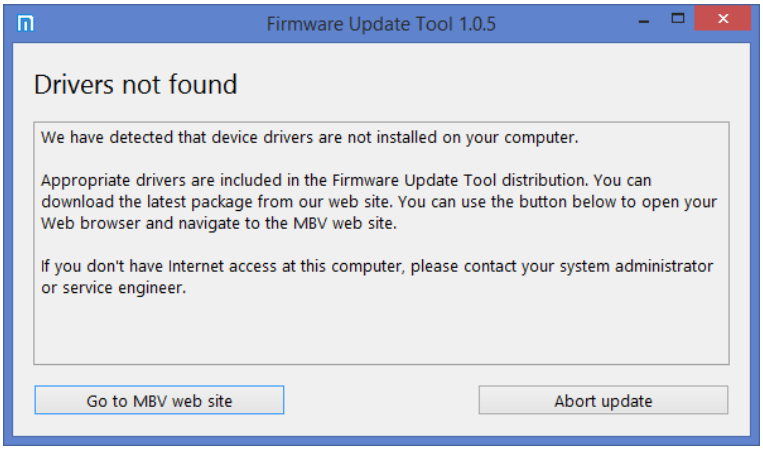
This chapter gives more information about possible FUT status information screens and helps for troubleshooting.

7.1. STARTUP TESTS

At startup, FUT performs the below listed tests.

7.1.1. TEST 1 – SEARCHING FOR DRIVERS

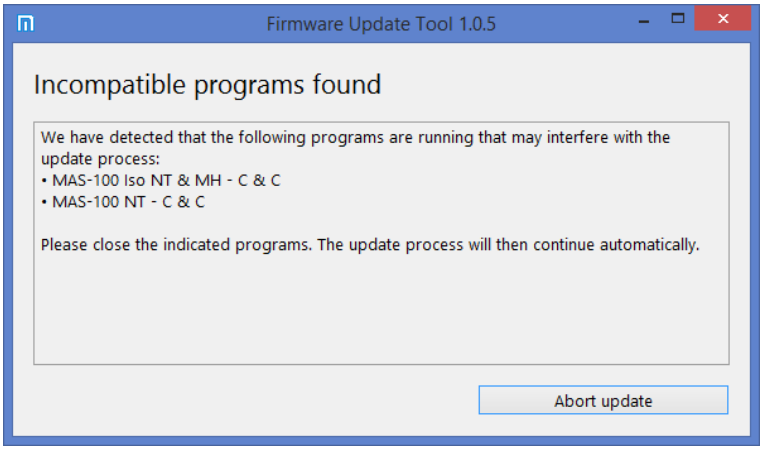
FUT checks for drivers. If there are no drivers installed for any reason, FUT will indicate an error.



7.1.2. TEST 2 – CHECKING PROGRAMS RUNNING

FUT checks if any of the following programs is running: C&C PC-Software (both versions for portable devices and ISO-series devices), extended version of FUT or old "firmware download tool". If so, FUT will wait until the user terminates all of these processes.

When all programs are closed, FUT automatically goes to the next step.



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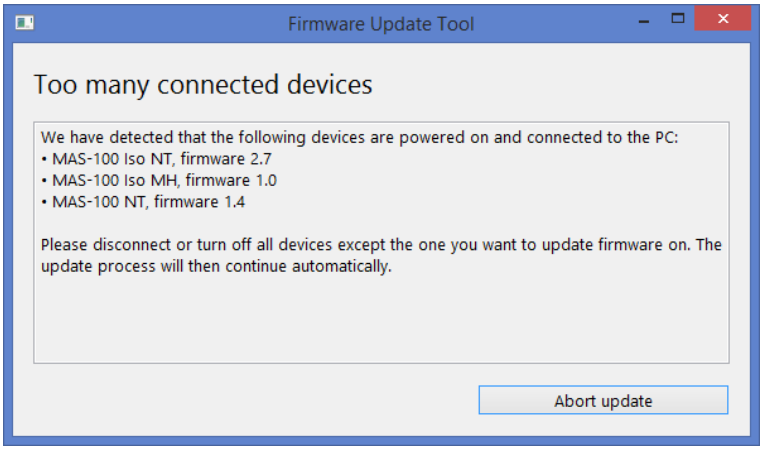
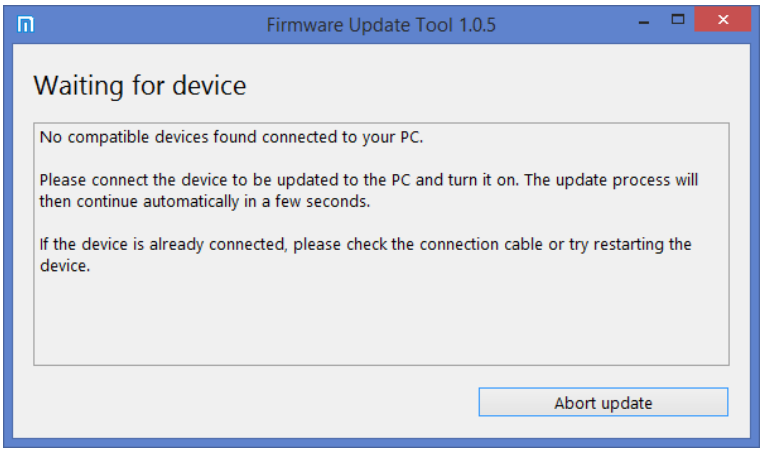
7.1.3. TEST 3 – CHECKING FOR CONNECTED INSTRUMENTS

FUT checks how many MAS-100 devices are connected to the PC. If there are more than one device connected, FUT will show a relevant message and will wait until the user disconnects all devices except at most one.



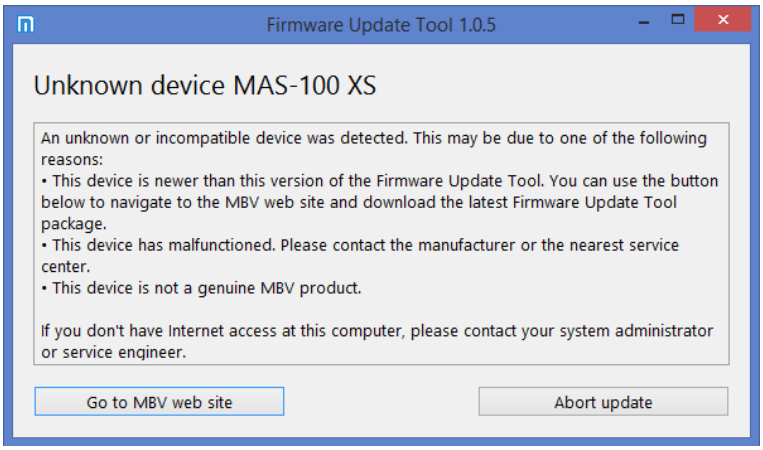
7.2. WAITING FOR DEVICE

If no devices are connected to the PC, FUT will show following message.



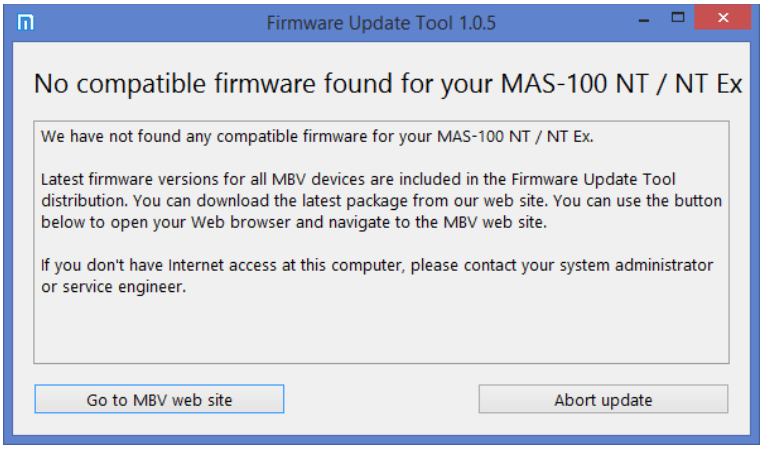
7.3. UNKNOWN DEVICE

If FUT can not detect your device, it will show appropriate message.



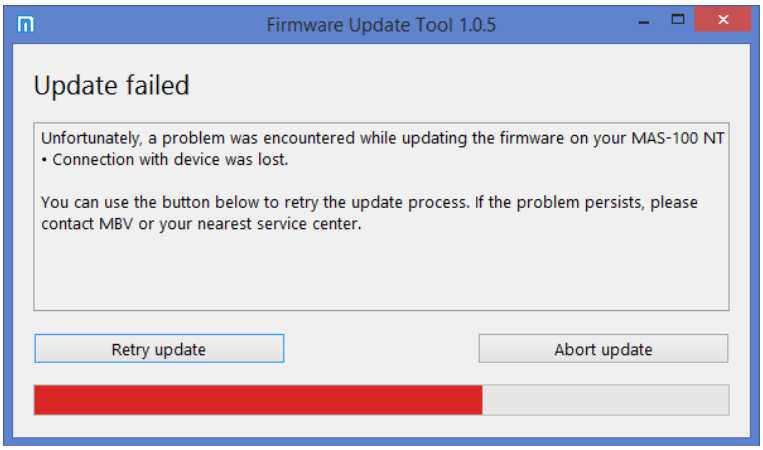
7.4. NO APPROPRIATE FIRMWARE

If FUT can not find any firmware for your device, it will show appropriate message.



7.5. UPDATE ERRORS

If something goes wrong during the update process, FUT will show a relevant message. In some cases (for example, if the device has been occasionally disconnected from the PC) it is possible to restart the update process.



If this error persists, check and replace the USB cable, try to choose another USB socket.

If this not helps, please see the next topic.

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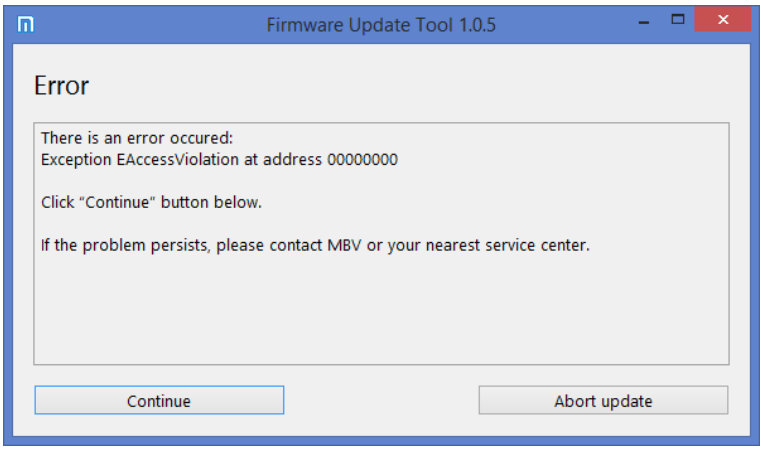
7.6. ALL OTHER ERRORS

If an error raises, FUT will show a relevant message. You can click the Continue button if available.

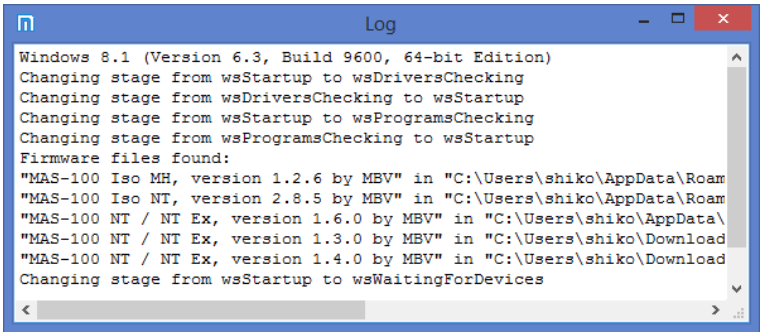
In most cases we can recommend to restart the PC, don't run any programs (including any antivirus software, as much as possible third-party non-system background software, especially any kind of "boosters" or other "speedup" tools) and then try again.



If the error persist, please send us an error report to e-mail service@mbv.ch

Please include in this report:

1. Brief description of your environment (system configuration, known third-party software running).
2. Text in FUT main window (you can select it with mouse and copy to clipboard by Ctrl+C then paste it in your e-mail editor by Ctrl+V).
3. Text in FUT log. To open log, press F12 — log window should appear. Then select all text in this window and copy it to clipboard by Ctrl+C, then paste it in your e-mail editor by Ctrl+V.



8. DISABLING TO LOAD THE VCP DRIVER

This chapter describes how to automate VCP driver disabling.

Notes: Administrator rights may be needed.

Permission and / or assistance of your IT department may be needed.

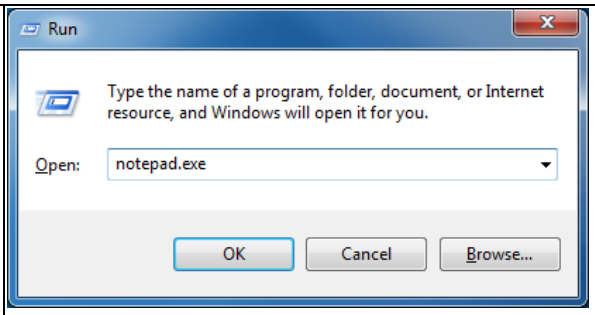
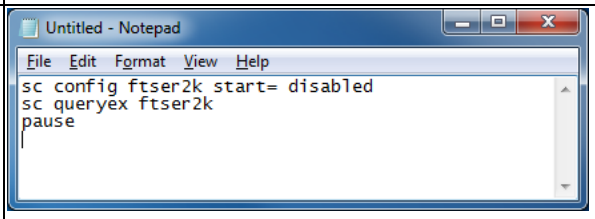
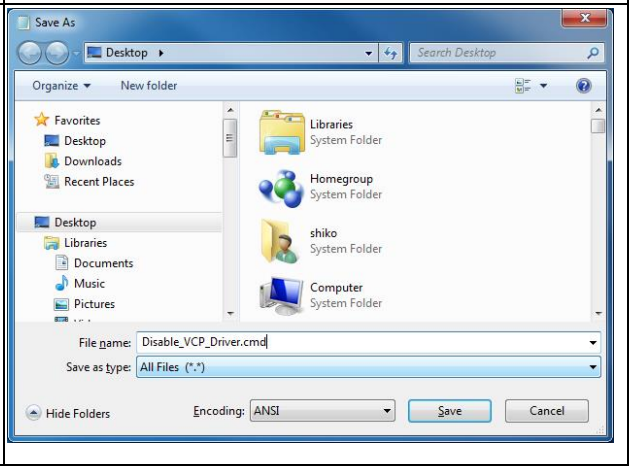
8.1. INTRODUCTION

This instruction will be useful if you have VCP driver installed before, but don't want to remove it from system.

Different Windows versions create registry entries for devices in different ways.

- Windows 7 use per-port enumeration. Before use this instruction, you need to connect MAS-100 NT device to each USB port you will use in the future at least once.
- Windows 8 use per-device enumeration. Before use this instruction, you need to connect each new MAS-100 NT device to any USB port at least once.

8.2. PROCEDURE

1. Preliminaries: Disconnect all MAS-100 devices from the PC. 2. Run the Notepad: Run it from the start menu, or use [Win+R] key combination, type "notepad.exe" in "Run" dialog box and click OK button.	
3. Enter commands: Type these commands: sc config ftser2k start= disabled sc queryex ftser2k pause First command disables automatic driver startup for known VCP devices. Second command shows current driver status.	
4. Save file as: Call from the menu File → Save As... In the "Save As" dialog box: – Choose Desktop as a location (or any other useful location). – Choose "All Files (*.*)" in the "Save as type" drop-down list. – Type "Disable_VCP_Driver.cmd" in the "File name" field. – Click the "Save" button.	

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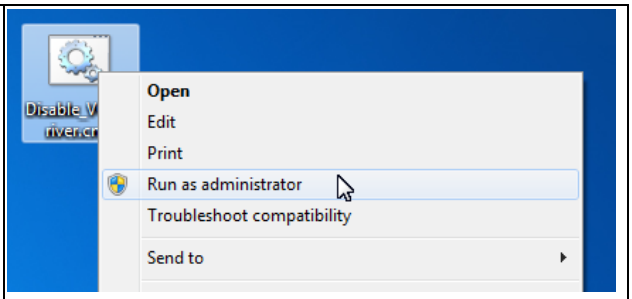
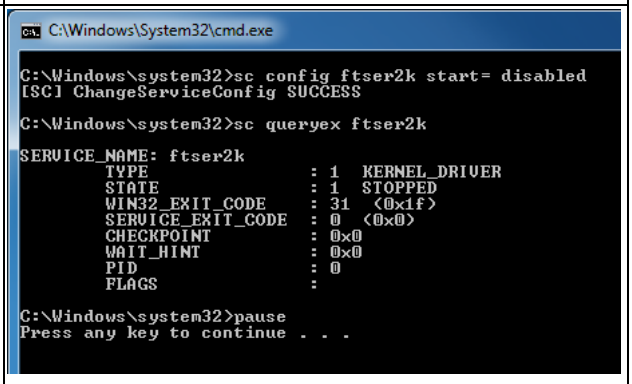
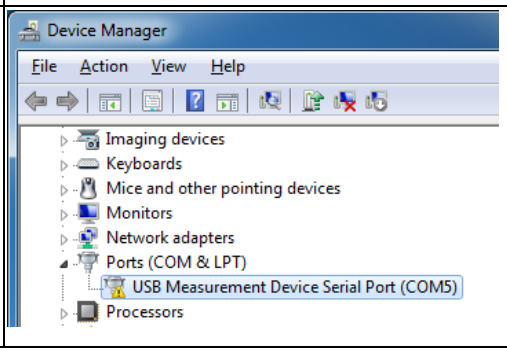
5. Run: Find the file created, right-click on them and choose "Run as administrator" command from the pop-up menu.	
6. The system will then ask you to confirm this operation. After that, the script will be executed. Console window will be opened and you will see inside it something like in the screenshot aside.	
7. Results: Connect a device to the PC. In the Device Manager you may see that VCP is disabled, like on the screenshot below.	

8.2.1. FUTURE USE

Keep the created script file. Under the Windows 8 you may need to use it for each new device you connect to the PC.

8.2.2. ROLLBACK

To turn the VCP back on, create similar file like described before:

- sc config ftser2k start= auto
- sc queryex ftser2k
- pause

Run it like described before when you need to turn VCP driver back on.

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