1.   Introduction

This instruction explains how to update NETA-21 remote monitoring tool firmware using SD (SecureDigital) memory card. The NEXA-21 DDCS extension module does not require any firmware updates.

Quick explanation of firmware update:

- With any official sales releases: put the update file on the root of SD memory card, and NETA-21 will apply the update (or full system restore.n21) on next reboot. Update takes around 5 minutes and is indicated by blinking STAT + SD leds.

- With oldest NETA-21 releases (firmware 2.01 and older pilot deliveries): only the .NTU update mechanism is supported and the update file needs to be put to "autoinst" folder on SD card. Web interface update mechanism (Chapter 3) takes care of the folder creation.

Chapter 3 shows detailed steps how NETA-21 firmware can be updated over existing remote connection.

Chapter 4 explains the procedure to update multiple NETA-21 in parallel in "off-line" mode just with SD card.

2.   Pre- requirements

You need to have a NETA-21 software auto update file available. File name is FMZAAvrr.NTU where vrr are version and subversion numbers, for example FMZAA221.NTU for firmware version 2.21.

You need an SD memory card:

- Minumum size 512 MB, maximum size 32 GB

- There must be minimum 200 MB free disk space before update starts

- SD card must be formatted with FAT or FAT32 file system

- Default SD cards included in each shipped NETA-21 are fine for this purpose

- The SD card must be read-writable (not write protected) for the update to succeed

Auto update has no effect if the existing software is already up to date. Auto update can be done between minor versions such as 2.12.x.y and 2.13.x.y but not between patch versions of the same minor version such as 2.13.0.0 -> 2.13.1.0. Auto update such as 2.12.2.0 -> 2.13.1.0 will succeed because the minor version number is updated.

2.1.   Notes about firmware update feature

All delivered NETA-21 units (beginning firmware version 2.00) support the firmware update feature. Refer to NETA-21 installation and start-up guide (3AUA0000096881) for power and network connection information.

Auto update of firmware will attempt to keep all previous settings of the NETA-21, most importantly network settings. This means that a remotely connected NETA-21 should stay reachable after the firmware update is complete. (As comparison, full system restore image will also restore network settings).

Factory reset is recommended after major firmware updates (especially when upgrading from 2.11 or older releases, or when upgrading higher step than one minor version number). However, factory reset will also reset the network settings and may make NETA-21 unreachable in network.

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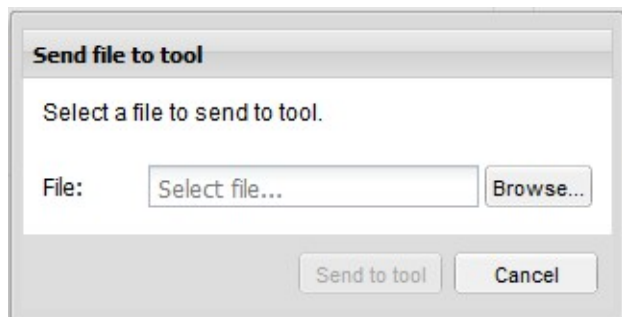# 3.   Updating NETA-21 firmware over remote web connection

1) Login to NETA-21. Navigate to Settings -> Tool settings. Tool firmware tab is visible. The "System information" panel shows the currently installed software version.
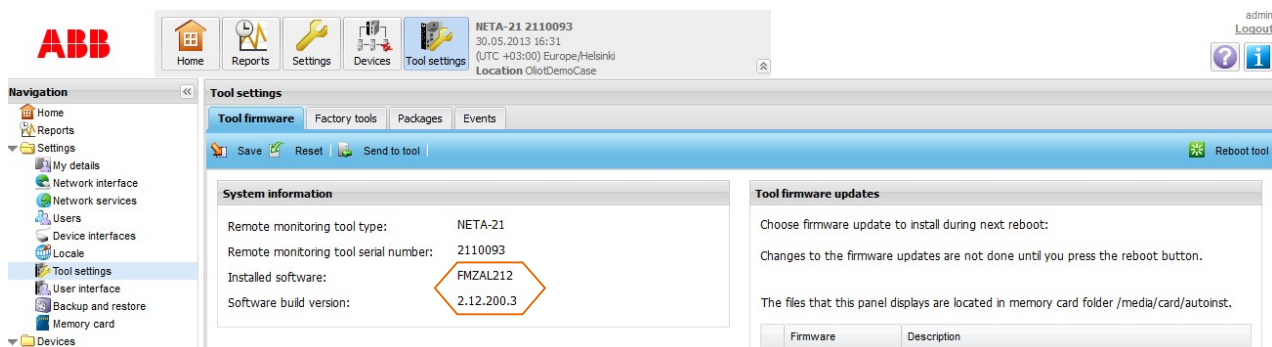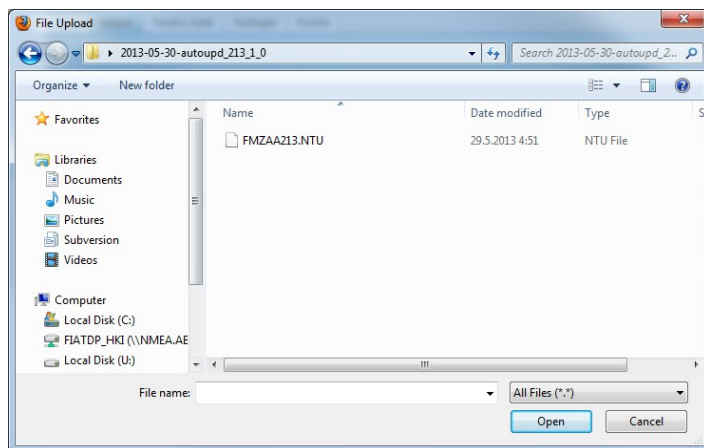

2) Click "Send to tool" button on toolbar:
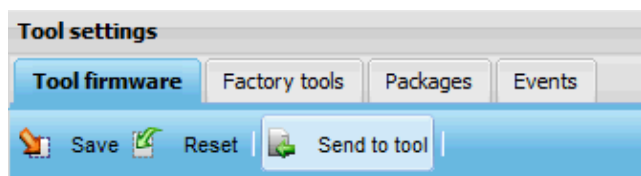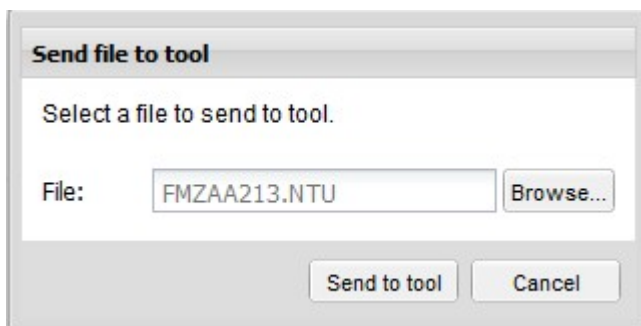

3) "Send file to tool" dialog will appear:

4) Click Browse… to select the FMZAA….NTU file on your computer. Choose the file and click "Open".

5) After the file has been selected, click "Send to tool".

Send file to tool

Select a file to send to tool.
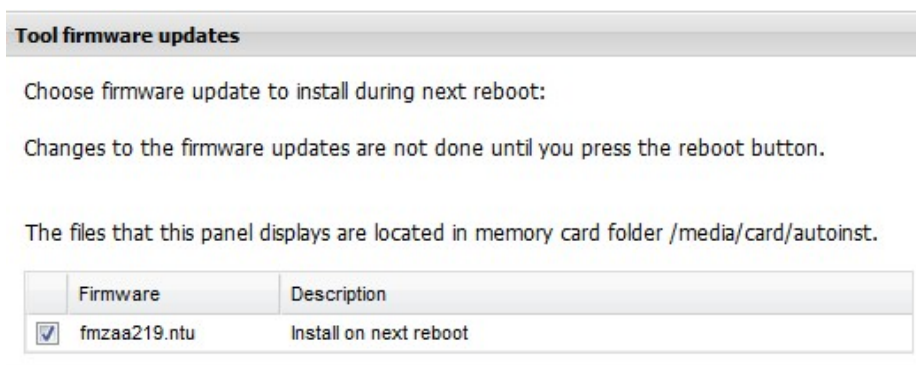
File: FMZAA213.NTU [Browse...]

[Send to tool] [Cancel]

6) While file is being sent from PC to remote monitoring tool, process indicator starts rolling on screen (time to upload is usually few minutes, depending on network speed).

   Note that over really slow network, FTP upload of the file to memory card or local update by copying the file manually to SD card may be preferred.

Send file to tool

File

Sending file to tool...
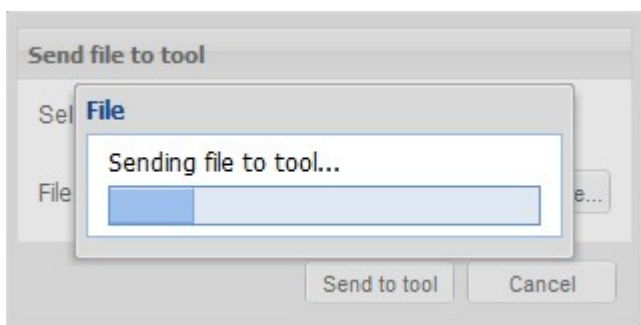
7) After the file has been sent, it should appear in "Tool firmware updates" panel on right side of Tool settings tab. Latest available update version should be checked and description should show "Install on next reboot"

Tool firmware updates

Choose firmware update to install during next reboot:

Changes to the firmware updates are not done until you press the reboot button.

The files that this panel displays are located in memory card folder /media/card/autoinst.

	Firmware	Description
☑	fmzaa219.ntu	Install on next reboot

8) Reboot the tool with top-right corner "Reboot tool" button. You have to confirm reboot.

–>

9) Rebooting will take approx. 5 minutes while firmware update is being done. If dialog does not switch to login dialog in 10 minutes, reopen web browser.

Waiting for server

Waiting for the tool to reboot...

You will be re-directed back to the remote monitoring tool after the server has started up.
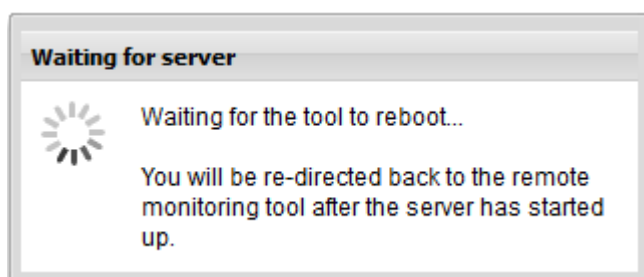
Note that if you are accessing NETA-21 by local PC Ethernet connection, you have to push button and reconnect the Ethernet cable to re-enable DHCP server mode at this stage

10) After reboot has finished, you can login to web UI again.

Login

The server was rebooted.

Username:

Password:

Information...   Login
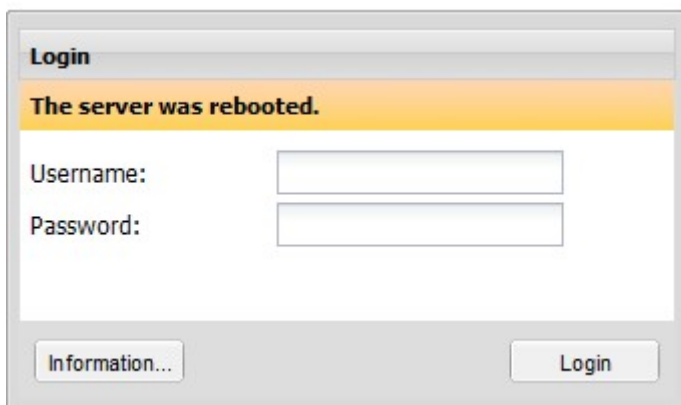
To check whether the update installed successfully, click the **About** button on the navigation bar (either left side of the page or on the top right corner). About dialog will show various software component versions. The "Operating System" version number is the most interesting one regarding software updates. Version information can be seen also in Settings / Tool settings (Tool firmware) page which was described on step 1.

About

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Remote monitoring tool
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Component	Code	Version	Description
	TEST		
DDCS adapter	FMADB212	2.12.200.3	DDCS Device Adapter
Operating System	FMZAL212	2.12.200.3	Factory load 2.12
Panel bus adapter	FMAPB212	2.12.200.3	Panel Port Device Adapter
Data Access	FMCMB212	2.12.200.3	Datahub
Reporting adapter	FMRCB213	2.12.200.3	Reporting
Web UI	FMWPB213	2.12.200.3	User interface

Close

Note: if installation of the new firmware failed, it will be unchecked and put to state "Do not install during next reboot". If firmware update succeeded, then the firmware file will be grayed out on the Tool firmware updates listing. After successful update, files can be cleaned up from SD card (using Settings -> Memory card). Folder "autoinst" will hold the already installed firmware update. Folder "backup" will contain full system backup image which is automatically created before firmware update.

4.   Updating NETA-21 firmware locally with SD card(s)

Local update method can be done with a power source and prepared (chapter 4.1) memory card. Multiple units can be updated in parallel. When local updates are done, it is recommended to reset NETA-21 to factory default settings as the last step.

4.1.   Copying FMZAAvrr.NTU file to memory card

Note: "vrr" note the major and minor version number "v.rr" for example "2.13".

Do as follows:

1. Insert SD memory card to PC.

2. Create folder named "autoinst" (without the quotes) to the memory card.

    Note: since release 2.02 you can just skip to step 3 and copy file to SD card root.

3. Copy the auto update file FMZAAvrr.NTU (e.g. FMZAA213.NTU) from PC to the SD memory card.

4. Eject the card safely from PC and insert it to NETA-21.

4.2.   Local update procedure using SD card

Make sure that NETA-21 is powered down.

Insert SD memory card with auto update files to the SD memory card slot of NETA-21.

Power up NETA-21 and wait for 5 minutes. Operation takes 3 .. 5 minutes depending on speed of the memory card and success of the operation. *Note: also amount of data in NETA-21 affects the speed, because NETA-21 takes full system backup of all stored internal data to SD card.*

Do not power off or remove the card until STAT led on NETA-21 has turned green.

- If power is accidentally cut off during update, NETA-21 should roll back to previous system configuration and blacklist the attempted update. Then you will need to retry update over web user interface (or remove blacklisting of the firmware from autoinst folder).

- *Warning: if memory card is removed permanently and not ever inserted back, then the NETA-21 can go to infinite restart loop (indicated by leds flashing on and off every 2 minutes). If the restart loop condition does not fix itself in 10 minutes after restoring the SD card to NETA-21, then the tool may need factory SW programming.*

If STAT led does not turn green, then power off the tool and power it on again. However, do not remove the memory card. Wait 5 minutes for the tool to roll back the software update. Power off when STAT led has been green for 1 minute.

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4.3. Recommended step for local update: reset tool to factory settings

This step is optional but recommended if the tool is newly installed and has not been configured by user.

After the SW update is finished and tool is powered down, connect a straight-through Ethernet (cat5 or higher) cable between PNL1 and PNL2 port (note: between the PNL1 and PNL2 ports, not between Ethernet ports!). Note that the cable must be straight trough, not crossover Ethernet cable.

Press the (unlabeled "RESET") button near NETA-21 PWR and STAT leds while powering up the tool (keep button pressed for minimum 5 seconds, max. until leds indicate next step) and wait for 20..30 seconds, observe when the PNL1 and PNL2 leds turn on yellow.

When the leds have turned yellow, immediately (within a minute) remove the cable between PNL ports.

After removal of the cable, NETA-21 will reset to factory defaults and reboot itself. Reset is complete within 10..20s of disconnecting the cable and indicated by all leds (except PWR) shutting down and then starting up again. You can power off NETA-21 either at reboot, or wait until STAT led has become green again (factory settings have been re-initialized when the STAT led has switched green).

Power off the tool. Note that the 1st reboot will take a little longer than usual unless you already waited for the STAT led to turn green after reset.

4.4. Optional: verifying update results from log files on SD card

After the SW update has been done, there will be some log files and backups generated on the SD memory card. Removing the log files and backups can be optionally done, but that can be also done over remote connection later.

In folder autoinst/ on the SD memory card there will be two new files per each updated NETA-21:

- <serialno>.N21 – backup file
- <serialno>.LOG – log file

… where <serialno> is the 7-digit serial number of the NETA-21 tool, part of the same serial number as in barcode label. (For example barcode label serial number B1500012WS causes a log file 1500012.LOG to be created on memory card).

Below is an example of a successful NETA-21 SW update log file. Timestamps at beginning of each line specify when the operation was done (yyyyMMddThh:mm, log level, Moreton-autoupdate: message text).

```
20111228T06:19:52, 2, Moreton-autoupdate: Found valid update file, starting update.
20111228T06:19:52, 2, Moreton-autoupdate: Starting backup.
20111228T06:21:04, 2, Moreton-autoupdate: Backup done.
20111228T06:21:04, 2, Moreton-autoupdate: Starting flashing.
20111228T06:21:22, 2, Moreton-autoupdate: Flashing done.
20111228T06:21:22, 2, Moreton-updater: Rebooting.
20111228T06:21:31, 2, Moreton-autoupdate: Continuing to init for finishing the update.
```

4.5. Document change history

Date:	Version	Change
30.5.2013	01	Initial version, during firmware 2.13 release
23.5.2014	02	Correction to factory reset instruction (firmware release 2.22)