This update procedure describes the upgrade to version V2.17 of the NAT-MCH firmware, which contains major improvements and new features.

This guide is valid for all existing hardware releases. Together with this update a set of documents is provided:

- User's Manual V1.31
- Release Notes Firmware V2.18

Please read carefully this documentation, especially the chapter "Configuration" of the User's Manual for relevant changes which may affect the operation of the NAT-MCH in your environment.

This guide is divided into several chapters which describe the steps to be taken to upgrade the NAT-MCH. These steps may differ depending on the hardware release of your NAT-MCH. To perform the upgrade you might need the serial or USB console cable supplied with the NAT-MCH to be connected to the console port of the NAT-MCH (please refer to the NAT-MCH User's manual for details).

Step 1: Determine the current hardware and firmware releases
This is a necessary pre-requisite to successfully upgrading the NAT-MCH to the new release!

We recommend that you insert the following information for later reference:

Hardware Release:_____
Firmware Release:_____
FPGA Release :_____

This information is printed to the console port of the NAT-MCH during the bootstrap process or as result of the "version" command:
"

……
****
*** MCH CM/ShM Firmware V2.18 Final (r13030) (Aug 23 2016 - 10:50) ***
****

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NAT-MCH-PHYS HW: M4 PCB V2.1 Rev 150127 FPGA V1.12 AVR 1.2 - sn: 113521-0476 - Rel:150127
AOPT: 0x3d - SMA CLK, SRAM, HS Ctrl, 2nd FRT ETH, LED MOD **……**
"

The hardware revision code is coded in the form "yymmdd"

Step2: Saving the existing MCH configuration

If you are updating from an older firmware version than V2.1 you need to preserve your existing MCH configuration as the structure of the MCHs internal configuration record has been changed.
To show the actual configuration, type at the console prompt:

nat> mch

Save the printout for later use.

Step 3: Defining the steps for applying the upgrade

This upgrade is valid for all so far delivered NAT-MCH modules:

V1.1 – Initial production boards
V2.x – Gen 2 MCH - Production boards with Harting Plug
V3.x – Gen 3 MCH

Extract and copy the files from the provided ZIP archive to a local TFTP server for a later download of the files by the NAT-MCH.

If you have a Gen2 MCH and your current firmware version is older then V2.1 or your FPGA release is lower then V1.8, please contact N.A.T. for further update instructions!

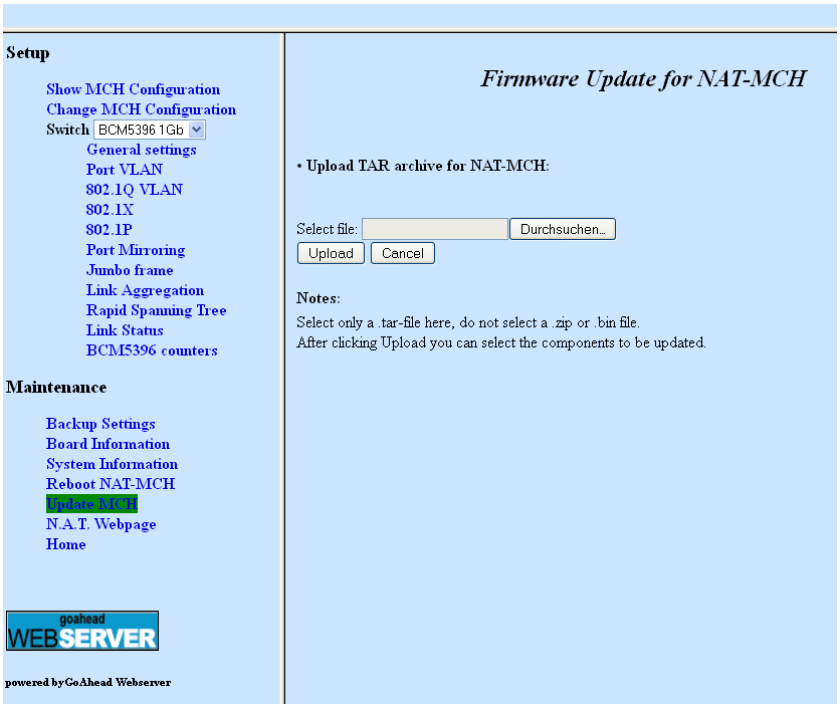
Step 4: Upgrading the Firmware Image

There are two options for updating the MCH firmware on the NAT-MCH. The preferred option is to update the NAT-MCH via the **"Update MCH" interface of the Web-Interface** if you are currently running a firmware version V2.7 or newer. Please extract the file mch_fw_v2_18_webupdate.tar from the package and upload this file on the "Firmware Update for NAT-MCH" page.
In case your MCH is equipped with a **HUB-PCIe (PCB version greater or equal V2.1)** or **HUB-SRIO (PCB version V2.x) those boards has also to be updated**.

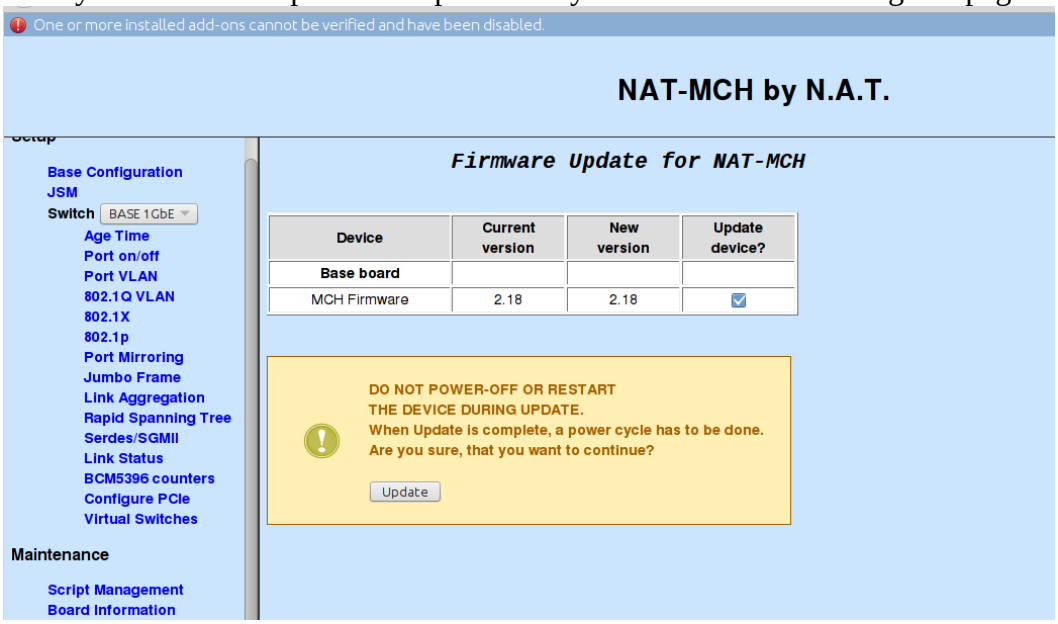
On the HUB-PCIe board the AVR firmware has to be upgraded to V1.10 and the FPGA image has to be upgraded to V1.5. It is important to update the MCH firmware first and reboot the MCH.
The update package "PCIe_Hub_2.x_AVR_FPGA_webupdate.tar" includes these software components. It can be uploaded and updated like the MCH firmware.

On the HUB-SRIO the EEPROMs of the SRIO switch have to be updated in dependency of the SRIO switch revision (A, B or C). Therefore you have to identify the SRIO switch revision first (for details refer to STEP 1). The EEPROM files for the SRIO switch revision C is also already be included in the update package mch_fw_v2_16_webupdate.tar and needs only to be selected when upgrading the firmware. In case the SRIO switch is revision A or B you have to update them separately via the corresponding file mch_srio2_promX_pcb2_2_v2_1_refa.tar or mch_srio2_promX_pcb2_2_v2_1_refb after the MCH firmware is updated.

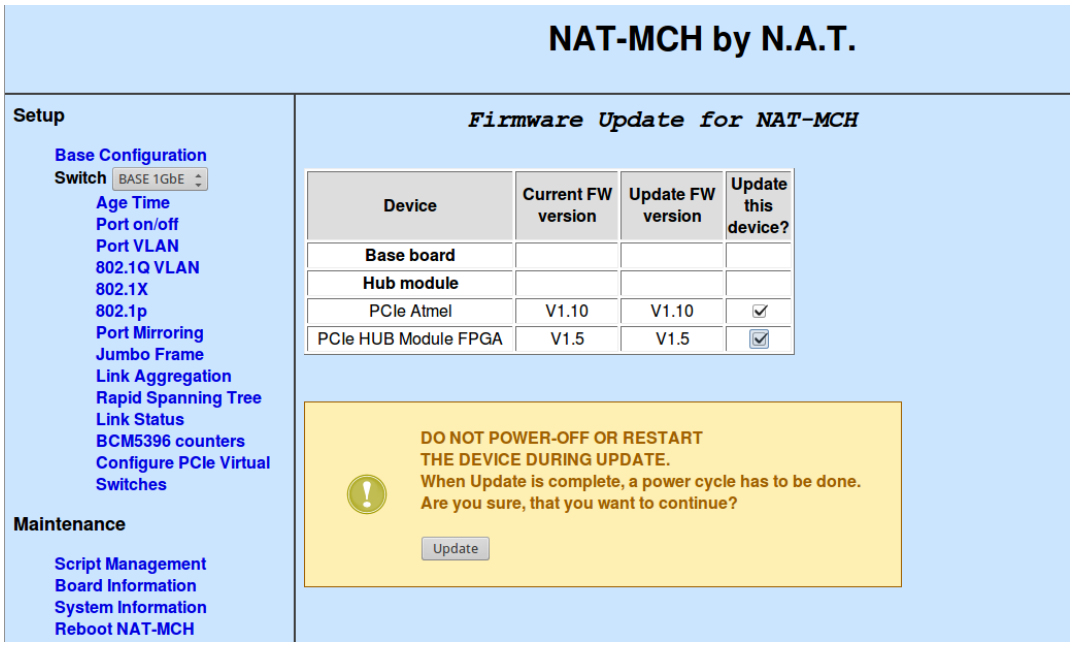
For detailed instructions please refer to the User's Manual chapter "Firmware Update from Web-Interface".



After you choose the update file uploaded it you will see the following webpage:



For the ”PCIe_Hub_2.x_AVR_FPGA_webupdate.tar” you will see the following:



With the checkboxes on the right you can choose which component you like to update. After both updates you have to do a reboot of the MCH.

The second option is to update the firmware via the **MCH serial or USB console.** Please extract the firmware file mch_fw.bin from the package and place it on a TFTP server from which it can be downloaded by the NAT-MCH.

To initiate the update, type at the console prompt:

NAT> update_firmware

You will be asked for the path of the firmware binary image in the form:

IP_addr_of_tftp_server>:/path_to_file/filename

e.g.: 192.168.1.70:/tftp_path/mch_fw.bin

The IP address must be entered in the "Dot" notation and must match the IP configuration of the MCH, means the TFTP server has to be located in the same subnet as the MCH.

After reboot the new firmware version should be ***V2.18 Final***.

Step 5: Updating the MCH Configuration

Your existing MCH configuration will automatically be adapted to the configuration structure of firmware V2.18.

If you are updating from an older version (< V2.1) we recommend using the "reset to defaults" option of the CLI command "mchcfg".

After that the values that have been taken down during ***STEP 2*** should be re-entered.