NAT-MCH
Ethernet Switch
Configuration Manual
Firmware v2.19.2

The NAT-MCH has been designed by:

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Table of Contents

Introduction

This update procedure describes the upgrade to version V2.19.2 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 by:

- User's Manual V1.31
- Release Notes Firmware V2.19.2

Please read carefully this documentation, especially the chapter "Configuration" of the User's Manual for relevant changes that 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:

```
nat>version

**********************************************************************
*** MCH CM/ShM Firmware V2.19.2 Final (r 14539) (Aug 24 2017 - 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
```

There is a hardware revision code 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

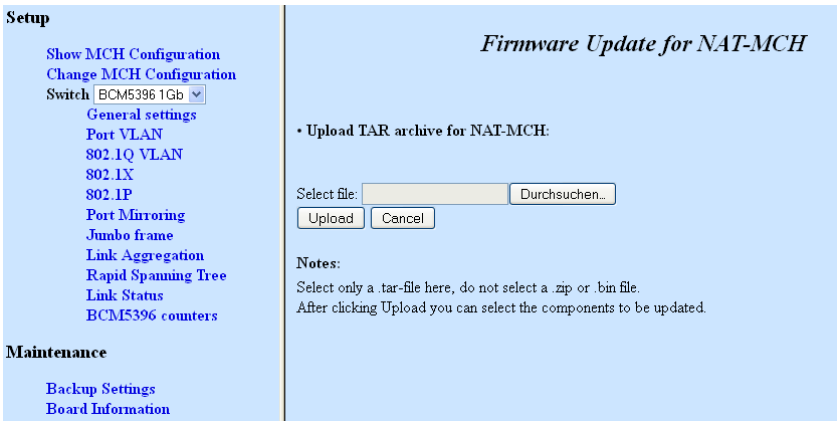
Extract and copy the files from the provided ZIP archive to a local TFTP server for a later download of the files by the NAT-MCH.

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

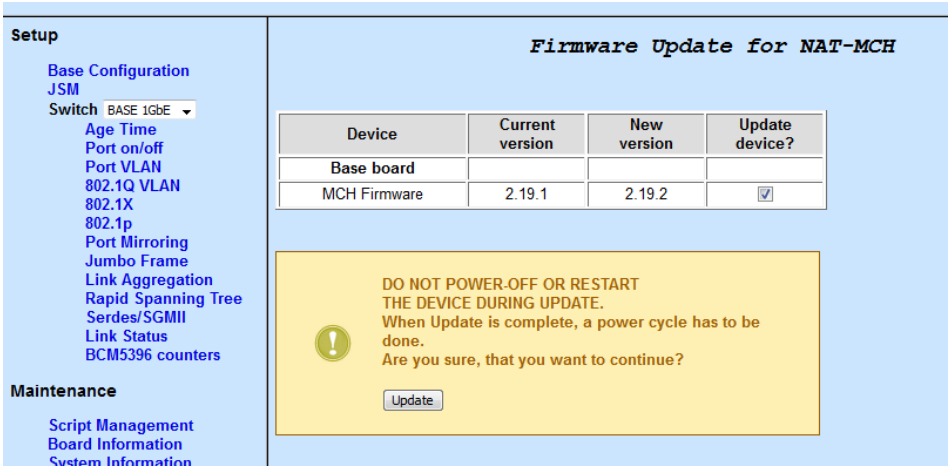
Step 4: Upgrading the Base-Module Firmware

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_19_2_webupdate.tar from the package and upload this file on the “Firmware Update for NAT-MCH” page.



After that, you will see the following webpage:



Please, check the update option and press button “Update”. When the update process is completed, reboot the NAT-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 has be downloaded by the NAT-MCH.

To initiate the update, type at the console prompt:

```
nat>update_firmware
```

Then you have to enter 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
```

Please, enter the IP address in the "Dot" notation. Notice, that the IP address of the path must match configuration of the MCH, means the TFTP server has to be located in the same subnet as the MCH.

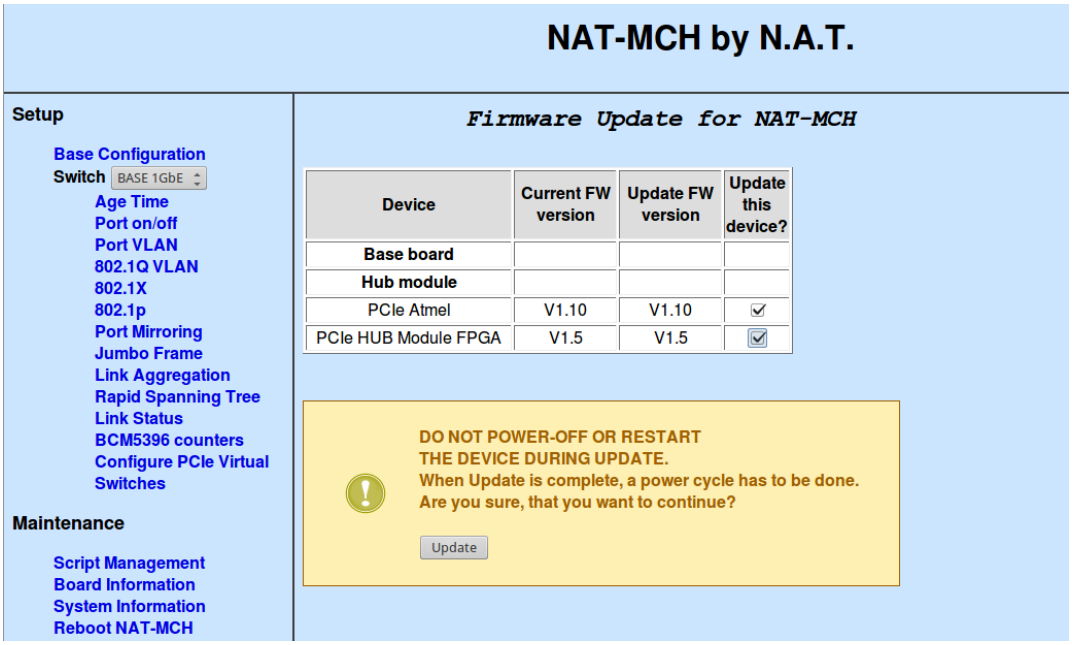
After reboot, the new firmware version should be ***V2.19.2 Final***.

Step 5: Upgrading the Hub-Module Firmware

In case your MCH is equipped with a **HUB-PCIe** (PCB version greater or equal V2.1), **HUB-XAUI** (PCB version V1.2) those boards has also to be **updated**.

HUB-PCIe Firmware Upgrading

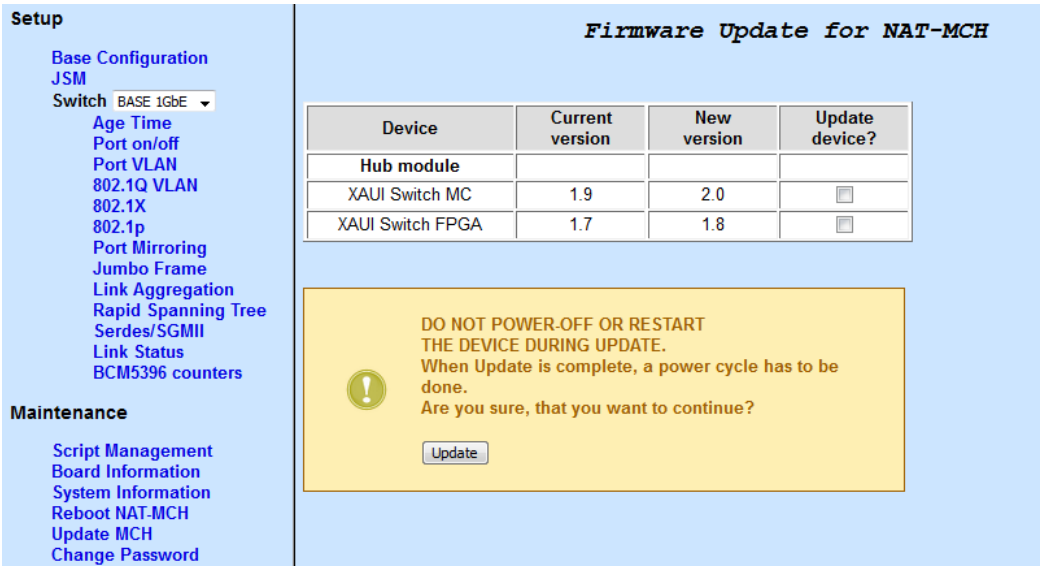
The update package "PCIe_Hub_2.x_AVR_FPGA_webupdate.tar" includes these software components. It can be uploaded and updated like the MCH firmware. The update package will offer you the following options:



The AVR firmware of the HUB-PCIe board 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.

HUB-XAUI Firmware Upgrading

The update package "XAUI_Hub_AVR_FPGA_webupdate_fw_v2_19_2.tar" includes these software components. It has be uploaded and updated like the MCH firmware via "Update MCH" menu. The update package will offer you the following options:



With the checkboxes on the right, choose please, the both components to update. The AVR firmware of the HUB-XAUI board has to be upgraded to V2.0 and the FPGA image has to be upgraded to V1.8.

It is important to update the MCH firmware first and reboot the MCH.

After both updates is completed, you have to do a power cycle of the NAT-MCH.

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

Step 5: Updating the MCH Configuration

Your existing MCH configuration will automatically be adapted to the configuration structure of firmware V2.19.2.

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.