

User's Manual

Version 3.03 - July 2011

XHub3.



XNet High Bandwidth Media Sharing Network Hub System



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What's New?

The following table describes the sections updated to reflect the new and modified features on XHub3 version 3.03 (compared to XHub[2] version 3.03).



In the user manual, the icon  has been added on left margin to highlight information on new and updated features.

Click the section number (or the description) in the table to jump directly to the corresponding section.

Section	Description
2.1	XHub3 dimensions have been added
2.2 and 2.3	New model of the hardware
2.2.4, 2.4	8 branches can now be connected to a XHub3.
2.2.6, 3.1	A version switch allows the identification of the software version so the check is no longer intrusive to operations.
2.5	XHub3 no longer operates at 270 Mbps modes.
3.2	Updated table for the compatibility of the XHub3 software version and the Multicam version.
3.3	Updated procedure to upgrade the XHub3 software: done via USB cable connected to a PC.

1. Introduction

XHub3 is an 8-port SDTI hub for the XNet. It provides information about general network status and status of individual branches of the network, automatically isolating faulty branches in case of unexpected problems, and protects the other sections of the network to guarantee continued operation.

It is possible to connect another XHub to an XHub port to create a new branch and increase the number of available ports. Maximum 29 devices can be connected to the same SDTI network.



Note

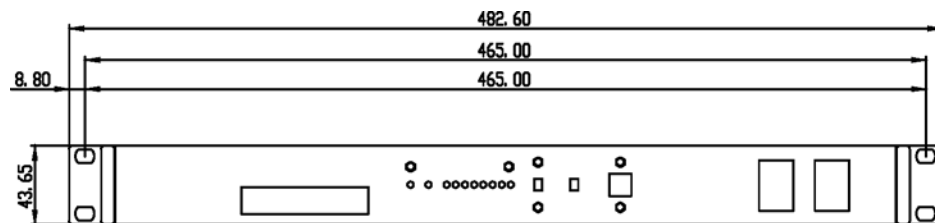
It is not allowed to connect more than one device (EVS server, XHub, XF2, etc.) per XHub port.

2. Hardware

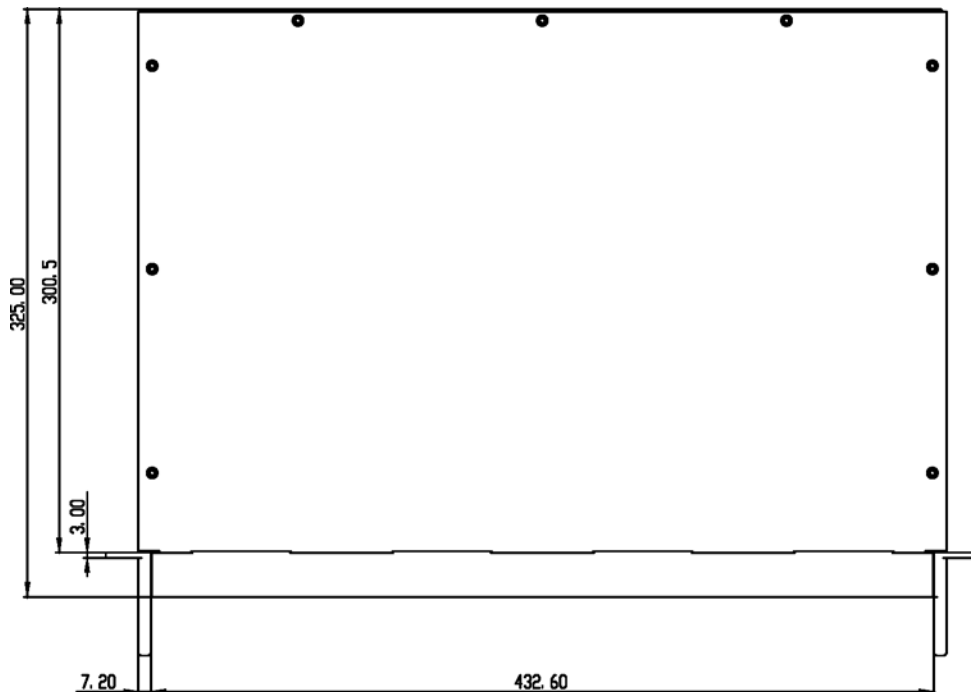
2.1 DIMENSION AND POWER

- 1RU 19" rackmount
- 110/220V auto-switch redundant power supply

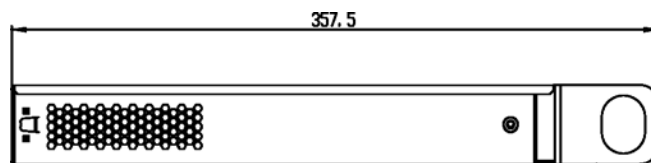
2.1.1 FRONT VIEW



2.1.2 TOP VIEW

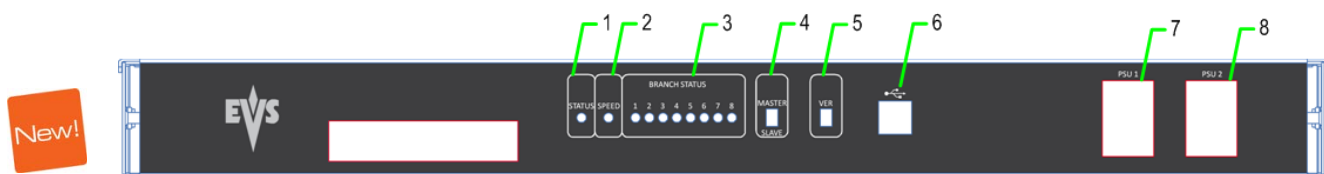


2.1.3 LEFT VIEW



2.2 FRONT PANEL

2.2.1 OVERVIEW



Number	Element
1	Status LED
2	Speed LED
3	Branch Status LEDs
4	Master / Slave switch
5	Version switch
6	USB port (B type)
7	Power switch 1
8	Power switch 2

2.2.2 STATUS LED



The Status LED will blink green when the XHub3 is in operation.

2.2.3 SPEED LED



When all the dip switches are up (normal operation mode), the speed LED is:

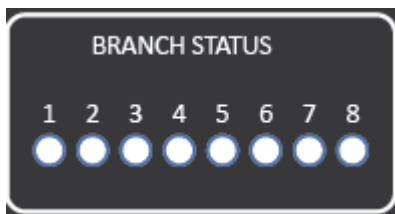
- **off:** not operating
- **green:** XNet operating at 540 Mbps
- **flashing green:** XNet operating at 1485 Mbps
- **red:** no network



Note

From Multicam 10.05 and higher, the XNet will no longer operate in 540 Mbps. XHub3 v3.03 will however still be able to work in this bitrate.

2.2.4 NETWORK BRANCH STATUS LED



Eight LEDs give indication on the status of each of the 8 XHub3 branches.

- **flashing green:** branch status OK, some systems are present on that branch and communicating on the XNet.
- **fast flashing green:** branch status OK, the SDTI server is present on that branch and connected to XNet.
- **solid green:** branch status OK, no system connected to the network on that branch.
- **flashing red:** branch status FAULTY, with an illegal signal on the connector of that branch, or the branch is open.
- **solid red:** branch status FAULTY, no signal is detected on the SDTI IN connector of that branch.

This is the case when the SDTI IN connector from a server is connected (instead of the SDTI OUT connector) to the SDTI IN connector of a XHub.

2.2.5 MASTER / SLAVE SWITCH



A XHub3 can be set as the master by moving the switch up to MASTER. To set a XHub3 as slave, move the switch down to SLAVE. Refer to section 2.4 'Interconnecting XHubs' on page 7 for more information.



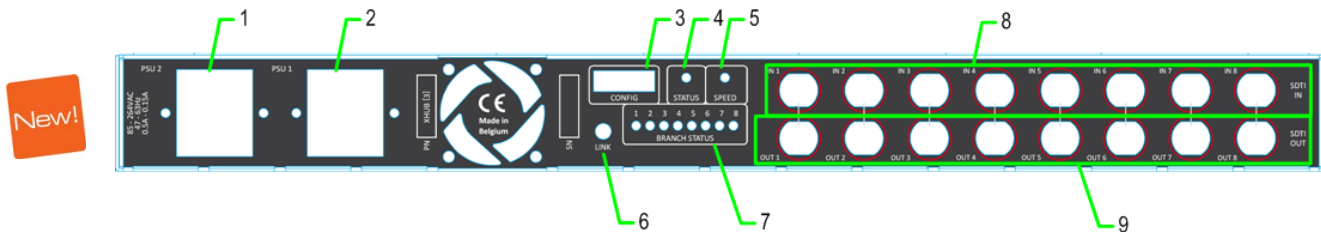
2.2.6 VERSION SWITCH



The Version switch allows the identification of the Xhub3 software version. When the switch is moved up, it is in Version Detection mode. When it is moved down, it is in normal operation mode. Refer to section 3.1 'Identifying the XHub Software Version' on page 9 for more information.

2.3 REAR PANEL

2.3.1 OVERVIEW



Number	Element
1	Power supply 2 (IEC connector)
2	Power supply 1 (IEC connector)
3	Configuration DIP switch matrix
4	Status LED
5	Speed LED
6	Link connector
7	Branch status LEDs
8	Input connectors
9	Output connectors

2.3.2 CONFIG DIP SWITCH MATRIX

All 8 switches must be up for normal operations.

2.3.3 LINK CONNECTOR

For EVS use only.

2.3.4 STATUS, SPEED AND BRANCH STATUS LEDs

Those LEDs match the corresponding front LEDs.



2.3.5 INPUT AND OUTPUT BNC CONNECTORS

8 input BNC connectors and 8 output BNC connectors are used to connect devices in the SDTI network.



Note

The IN and OUT connectors are opposite of the XHub[2] series. On a XHub3, the Input connectors are located on the top row.

2.4 INTERCONNECTING XHUBS

2.4.1 PURPOSE

When more than 8 XNet branches are required, it is possible to connect several XHubs to a master XHub to obtain the required number of branches. In this case please make sure that the rules specified below are followed.

2.4.2 RULES

- One and only one XHub must be configured as MASTER XHub. All other hubs must be configured as SLAVE XHubs.
- The 1st branch of a SLAVE XHub must be used as the uplink branch to the MASTER XHub.
- All SLAVE XHubs must connect directly back to the MASTER XHub; a SLAVE XHub cannot be connected to another SLAVE XHub. Maximum configuration is therefore 1 MASTER XHub connected to up to 8 SLAVE XHubs.
- A MASTER XHub does not need to have any servers connected to it, and can consist completely of 8 Slave Hubs.



2.5 MAXIMUM CABLE LENGTHS



Cable type	@ 1485 Mbps	@ 540 Mbps
RG59	45m / 148ft	100m / 328ft
RG6	90m / 484ft	180m / 590ft
RG11	120m / 393ft	250m / 820ft
Super HiQ	150m / 492ft	350m / 1148ft
Fiber	80km(*)	200km(*)

(*) 80km/200km is the total length of the return path, i.e. the actual distances between the 2 servers connected via the fiber link is half of this value, i.e. 100 km @ 540Mbps or 40 km @ 1485 Mbps..



Note

When using reclockers, the total delay induced by these reclockers between 2 active servers on the network must not **exceed 15µs**.

3. Software



3.1 IDENTIFYING THE XHUB SOFTWARE VERSION

The version run by XHub3 can be determined thanks to the Version switch on the front panel. This does not require switching off the XHub and it maintains normal operations during the version check state.

To identify the version, proceed as follows:

1. Move up the version switch.

The branch status LEDs show the software version in a binary pattern.

2. To return to normal LED behavior, move down the version switch.

The following table shows the LED status for version 3.03. The red LED corresponds to the dot position for a decimal value, while the green LEDs are managed as a binary count in each section. This means that LEDs 1, 2, 3 are one binary section that can total a value of 7 when all green, and LEDs 5, 6, 7, 8 are another binary section that can total a value of 15 when all are green.

Branch #	LED 1	2	3	4	5	6	7	8
v. 3.03		green	green	red			green	green

3.2 COMPATIBILITY BETWEEN XHUB AND MULTICAM VERSIONS

You will find below a table showing the compatibility between XHub and Multicam versions:



Multicam Version	XHub Version
------------------	--------------

Multicam 10.04	XHub[2] – version 3.03 / XHub3 – version 3.03
----------------	--

XHub[2] version 3.03 is compatible with XHub3 version 3.03.



3.3 UPGRADING THE XHUB SOFTWARE

The upgrade of the XHub3 software is performed via USB cable. The USB driver and the software upgrade can be done at the same time.

1. Connect

- the USB cable between the XHub3 (Standard-B type connector)

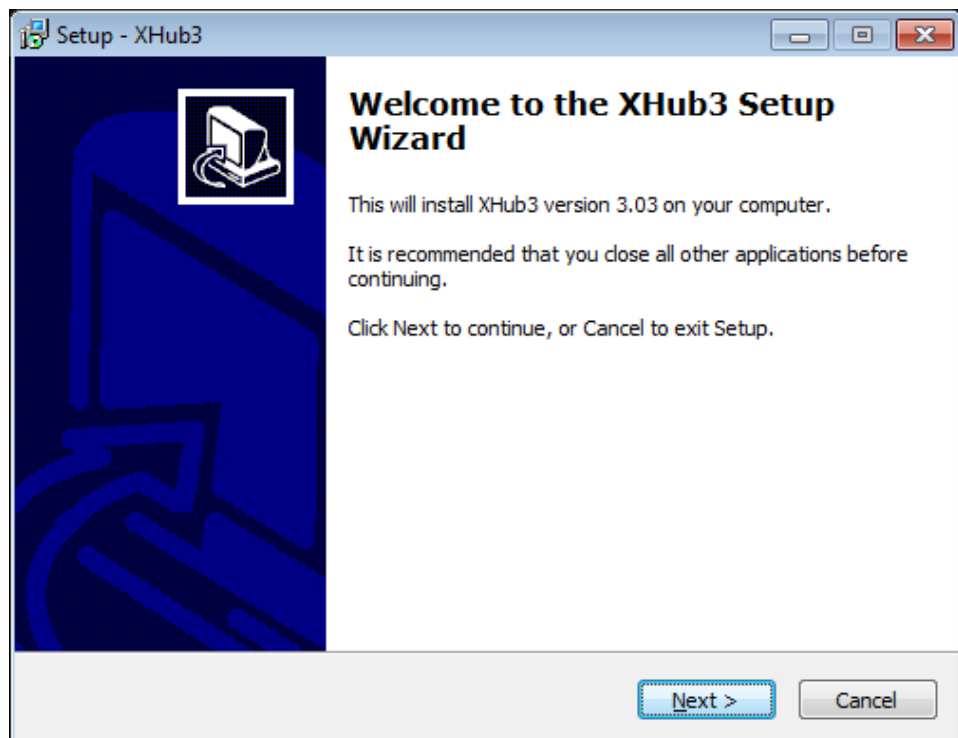


- to the computer (Standard-A type connector).

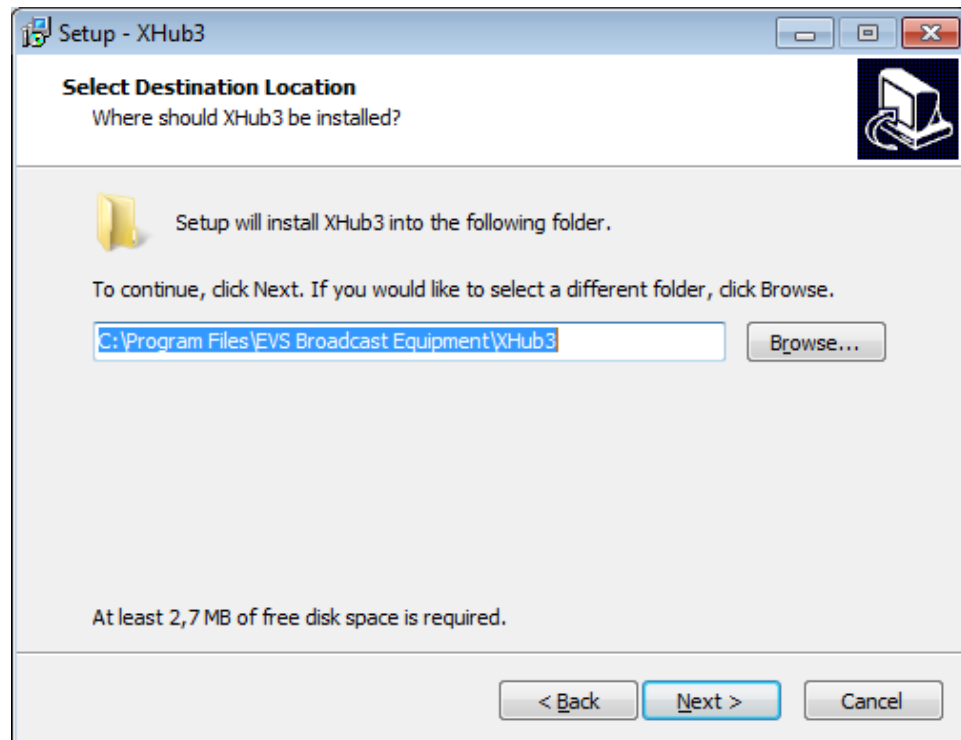


Windows detects the new peripheral.

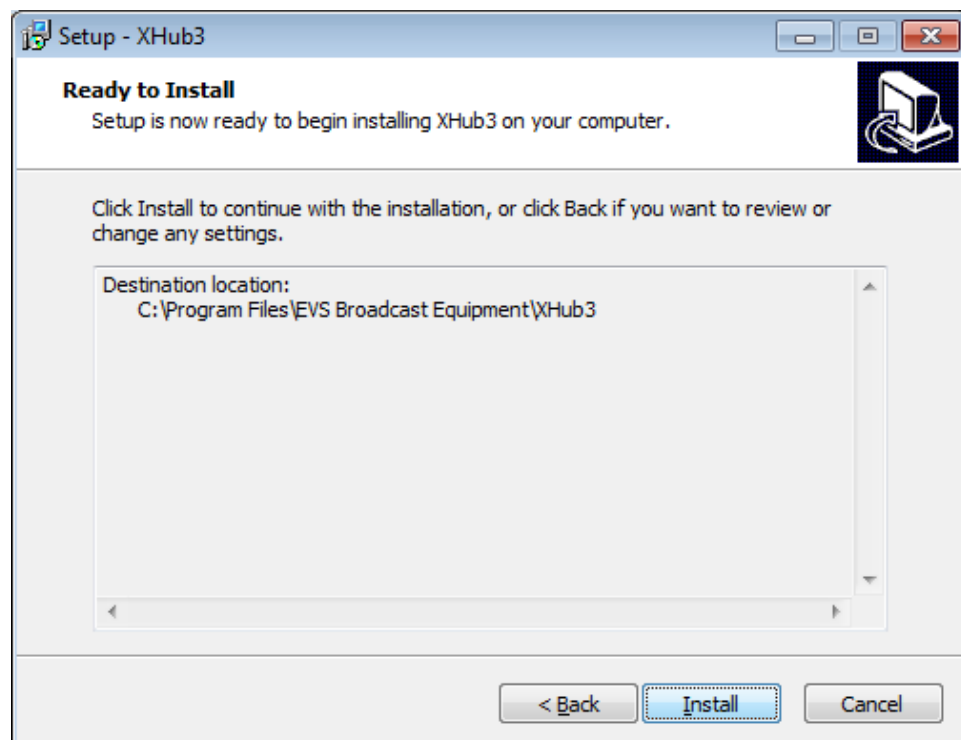
2. Execute the XHub3_Drv_1.3.0_Bin_x.xx.exe (currently x.xx = 3.03)



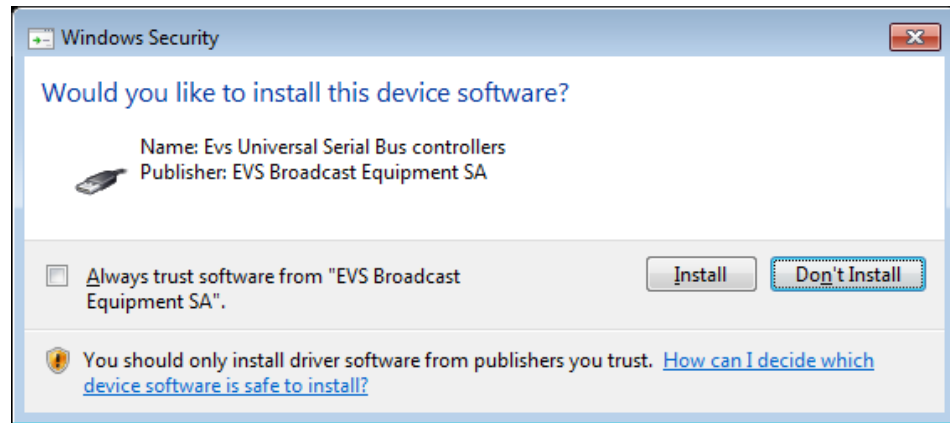
3. Click Next.



4. Select the location to save the drivers.
5. Click **Next**.

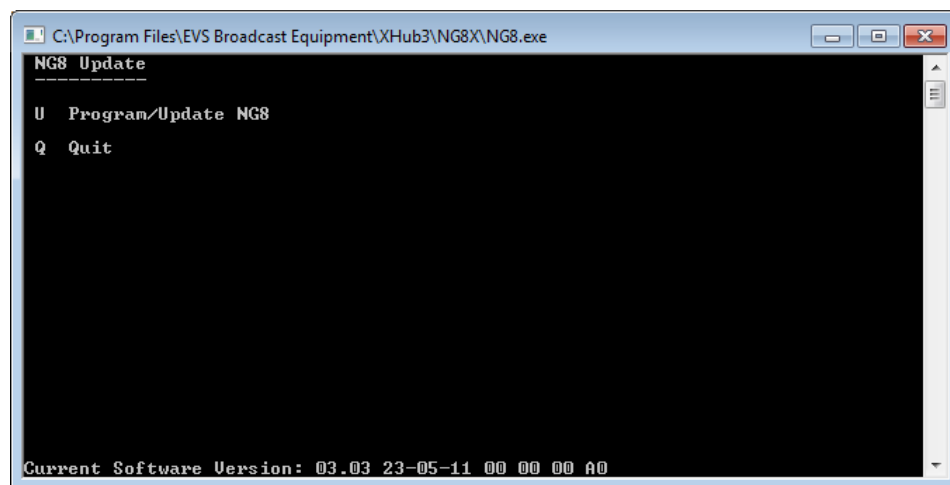


6. Click **Install**.



7. Click Install.

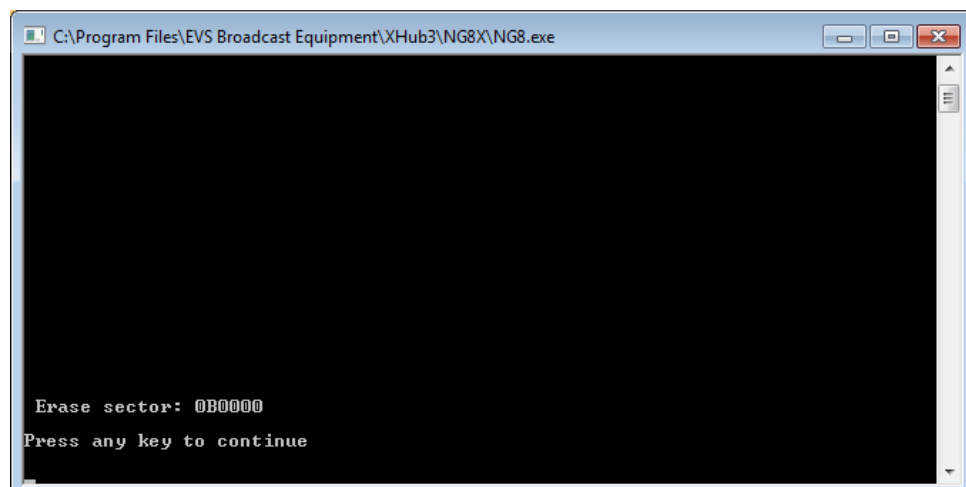
A DOS window opens for update.



The Branch Status LED on the XHub3 front panel show the software version already installed on the XHub3 device.

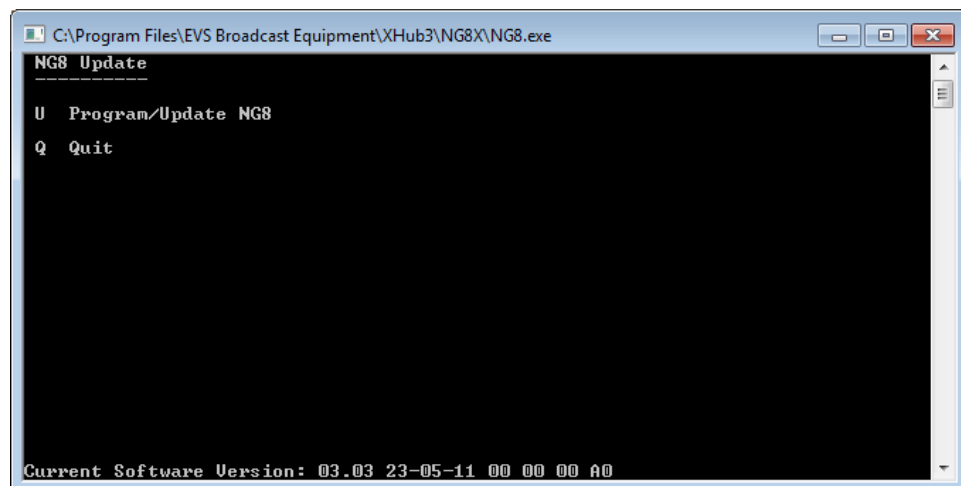
8. Press the **U** key to upgrade the software version (or press the **Q** key to quit without installing).

Once the upgrade is done, the following window opens:

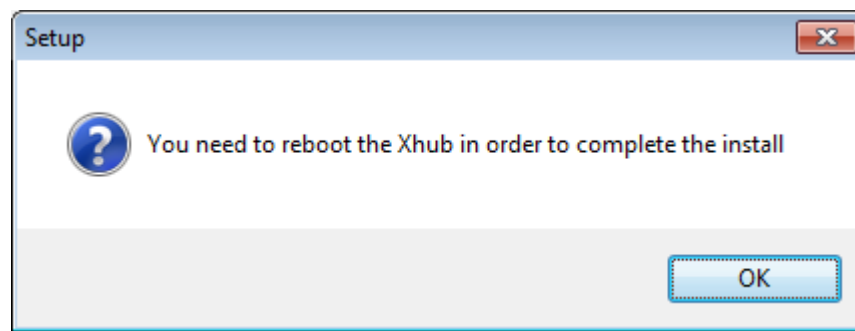


9. Press any key.

The following window appears:



10. Press Q to quit.



11. Click **OK** to close the Setup wizard.
12. Shut down and restart the XHub3.

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