LWR LIGHTWARE

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Application Notes

Firmware Upgrade with LDU

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Document Information

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1.1. Introduction

Lightware Device Updater (LDU) software is the first generation of the LFP-based (Lightware Firmware Package) firmware upgrade process.

DIFFERENCE! This software can be used for uploading the packages with LFP extension only. LDU is not suitable for using LFP2 files, please use LDU**2** software for that firmware upgrade.

1.2. Preparation

If you want to upgrade the firmware of one or more devices you need the following:

- **LFP file**,
- **LDU software** installed on your PC or Mac.

Both can be downloaded from www.lightware.com.

1.2.1. About the Firmware Package (LFP File)

All the necessary tools and binary files are packed into the LFP package file. You need only this file to do the upgrade on your device.

- This allows using the same LFP package for different devices.
- The package contains all the necessary components, binary, and other files.
- There is a descriptor file in the package that contains each firmware with version number, and a list showing the compatible devices. The descriptor is displayed after loading the LFP file in the LDU.

1.2.2. Installation

ATTENTION! Minimum system requirement: 1 GB RAM.

INFO: The Windows and the Mac application has the same look and functionality.

Download the software from https://www.lightware.com/en/products/Software/lightware-device-updater.

Installation Modes

Normal install	Snapshot install
Available for Windows and MacOS	Available for Windows
The installer can update only this instance	Cannot be updated
One updateable instance may exist for all users	Many different versions can be installed for all users

ATTENTION! Using the default Normal install is highly recommended.

Installation in case of macOS

Mount the DMG file with double clicking on it and drag the LDU icon over the Applications icon to copy the program into the Applications folder. If you want to copy the LDU into another location just drag the icon over the desired folder.

INFO: This type of the installer is equal with the **Normal install** in case of Windows

Windows Install

Installation of LDC for Windows can be done in few easy steps.

█ INFO: LDU can be installed to Windows XP or newer Windows OS.

Step 1. Run the setup file and click **Next** in the opening window.


Step 2. Select the type of the installation: normal or snapshot install. Select the optional components then click **Next**. (Using the Normal install as the default method is highly recommended.)
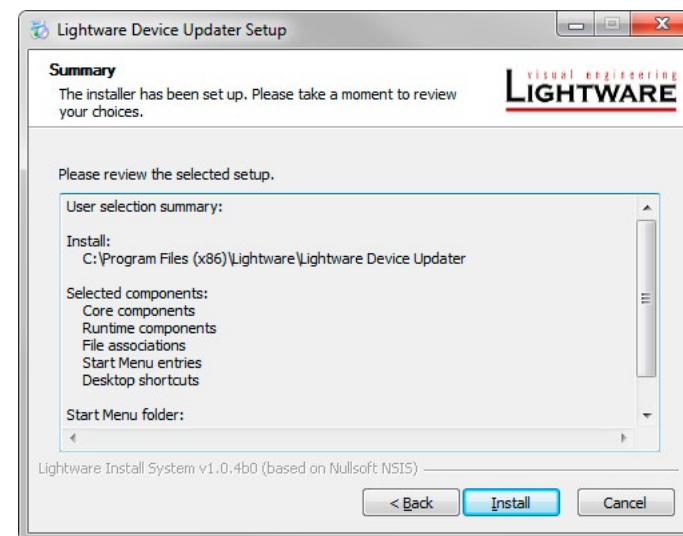
**Step 3.** Select the destination folder and click **Next**. Using the default path is highly recommended.
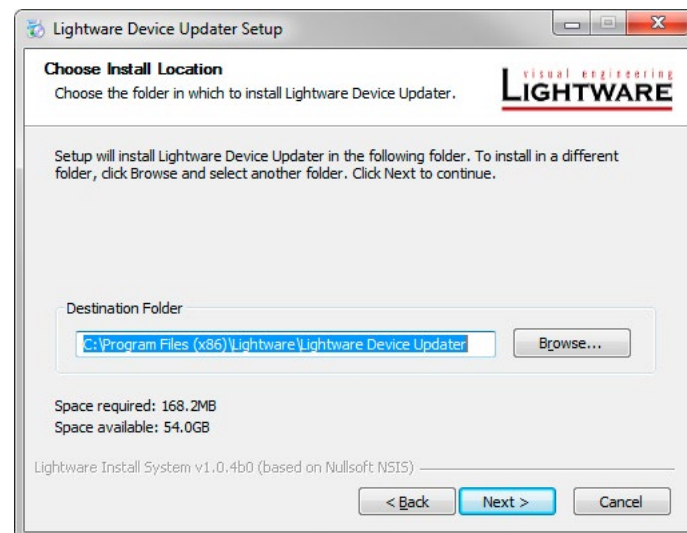
Step 4. Select the **Start Menu Folder** and click **Next**. Using the default folder is highly recommended.
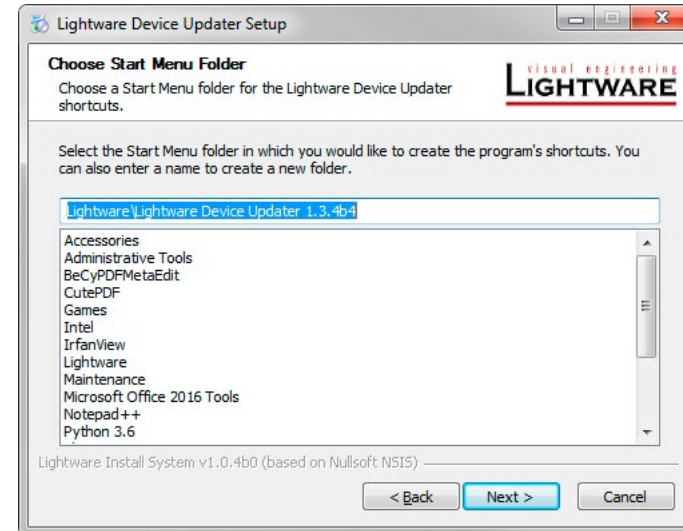
Step 5. Verify the settings and if they are correct click **Install**. (If not, click Back and change the setting.)

Step 6. After the installation of the last component, press the **Next** button.
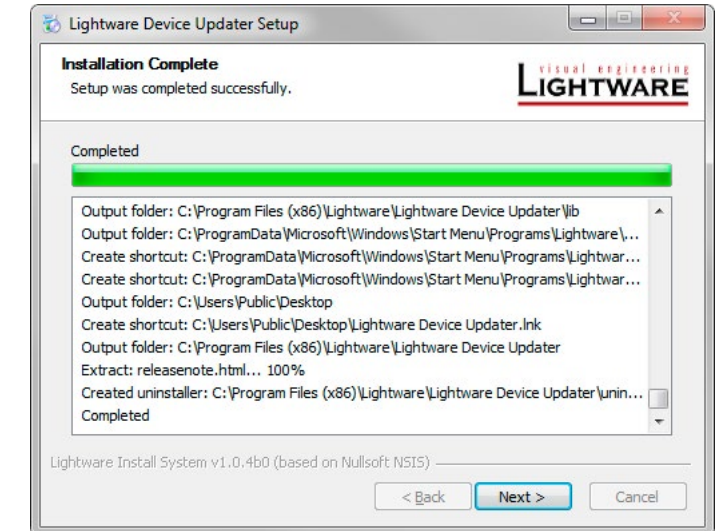
Step 7. If the installation is complete, click **Finish**. Uncheck the box if the running of the LDU will be postponed. Checking in release notes box will show the latest released updates in LDU.

1.3. Firmware Upgrade – Extender Mode

> **ATTENTION!** While the firmware is being upgraded, normal operation mode is suspended as the extender is switched to bootload mode. Signal processing between the extenders is not performed. Do not interrupt the firmware upgrade. If any problem occur, switch off the extender and restart the process.

Step 1. Establish the connection between the computer and the device(s).

- Devices with **Ethernet connection**: If you have a DHCP server on your local network, then it is recommended to switch the device to DHCP mode. If you connect the device directly to the computer, set a static IP address.

- Devices with **USB connection**: It is recommended to connect only one Lightware device to the PC directly at the same time. Close all other programs which may conflict on the USB (especially the Lightware Device Controller or Lightware Matrix Controller).
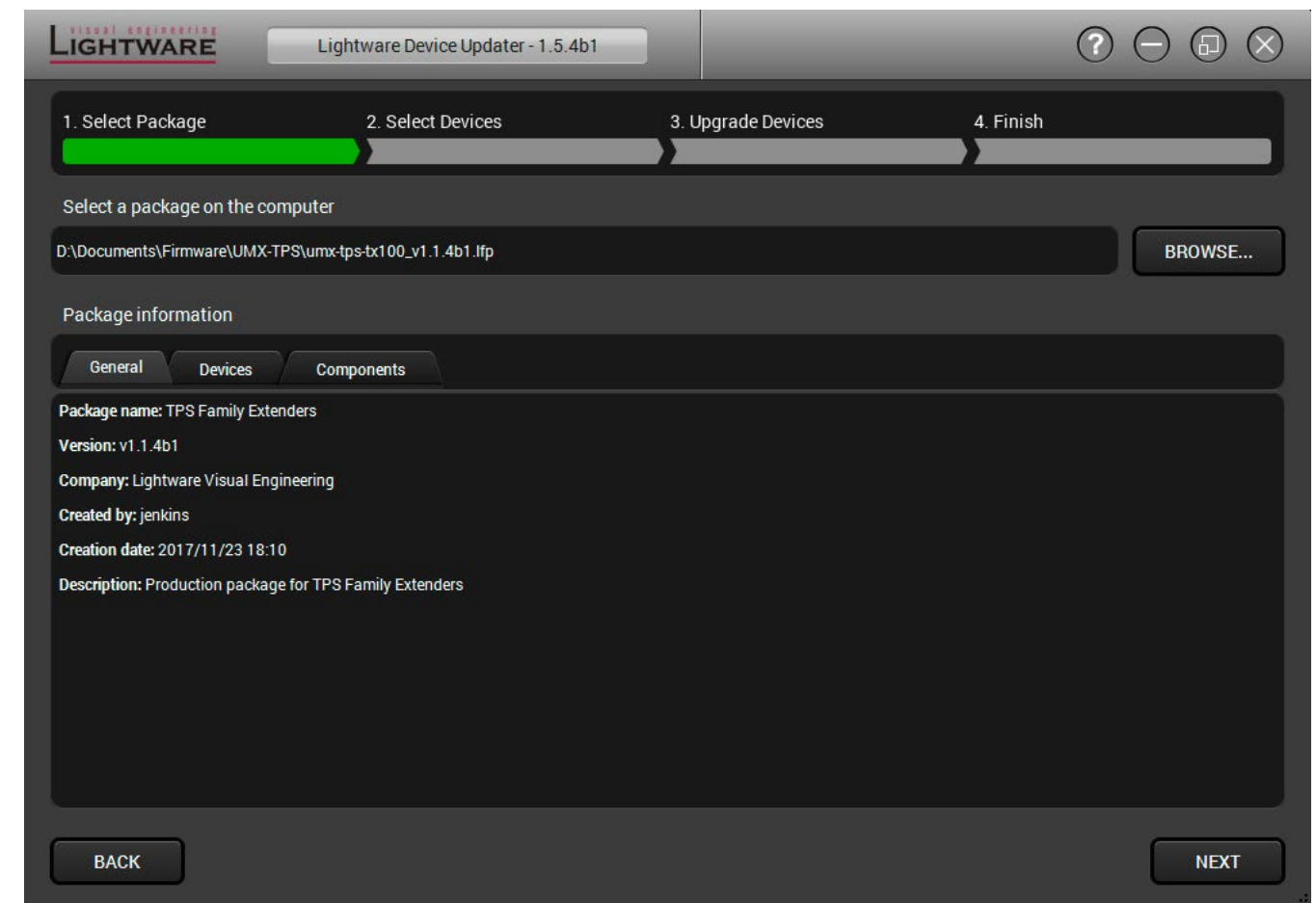
Step 2. Start the LDU and follow the instructions; the welcome screen will appear:
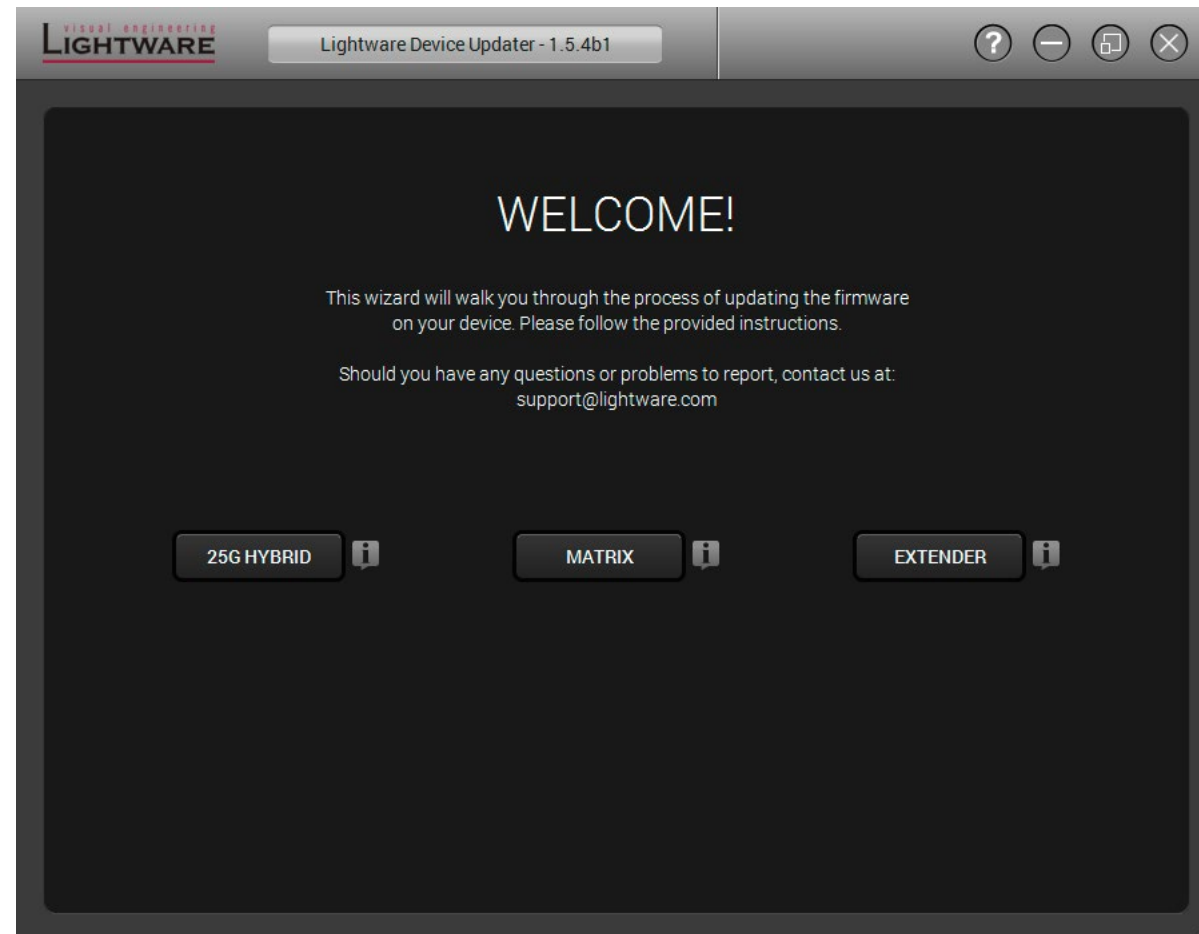
Pressing the button a list will appear showing the supported devices:
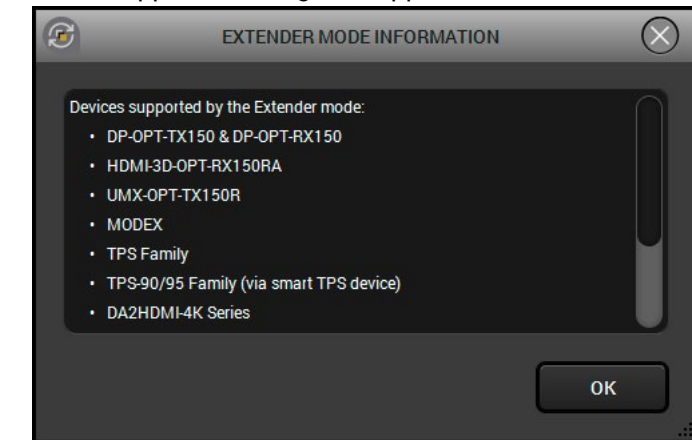
Step 3. Press the **Extender** button, then press the **Browse** button to select the package file.

Package information will be loaded to the tabs:

- General version info, creation date, short description,
- Devices which are compatible with the firmware,
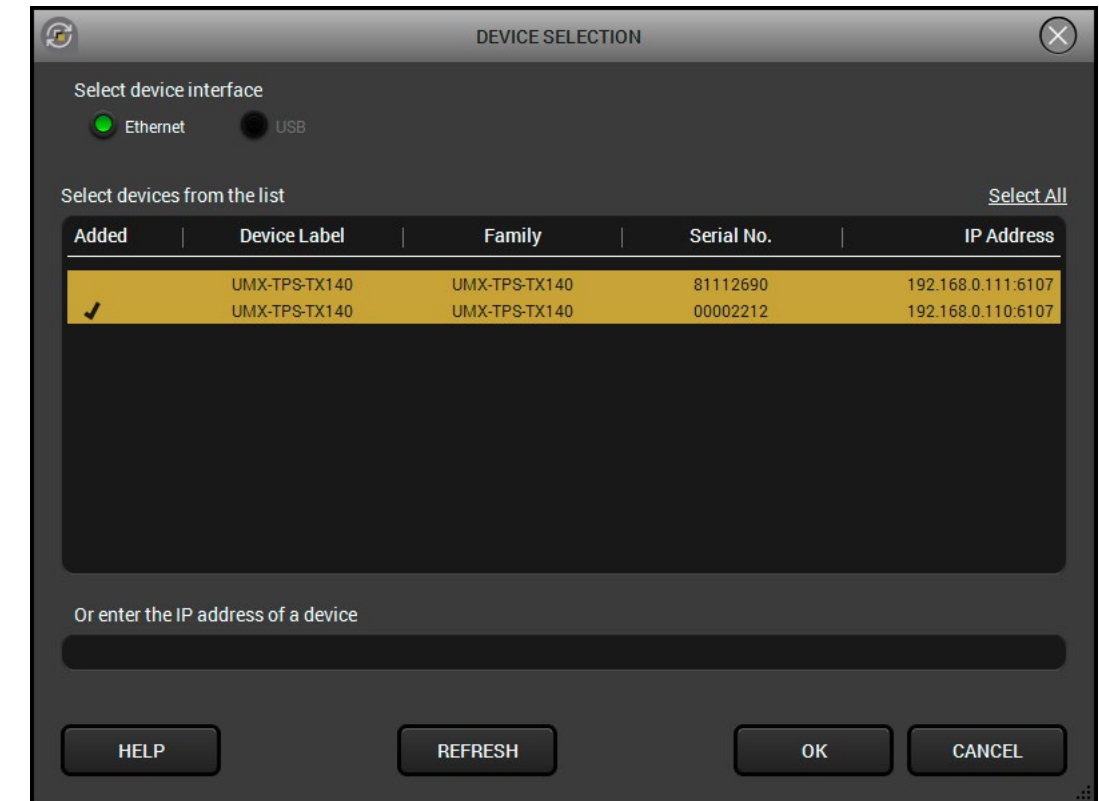- Components in the package with release notes.

Click the **Next** button and follow the instructions.
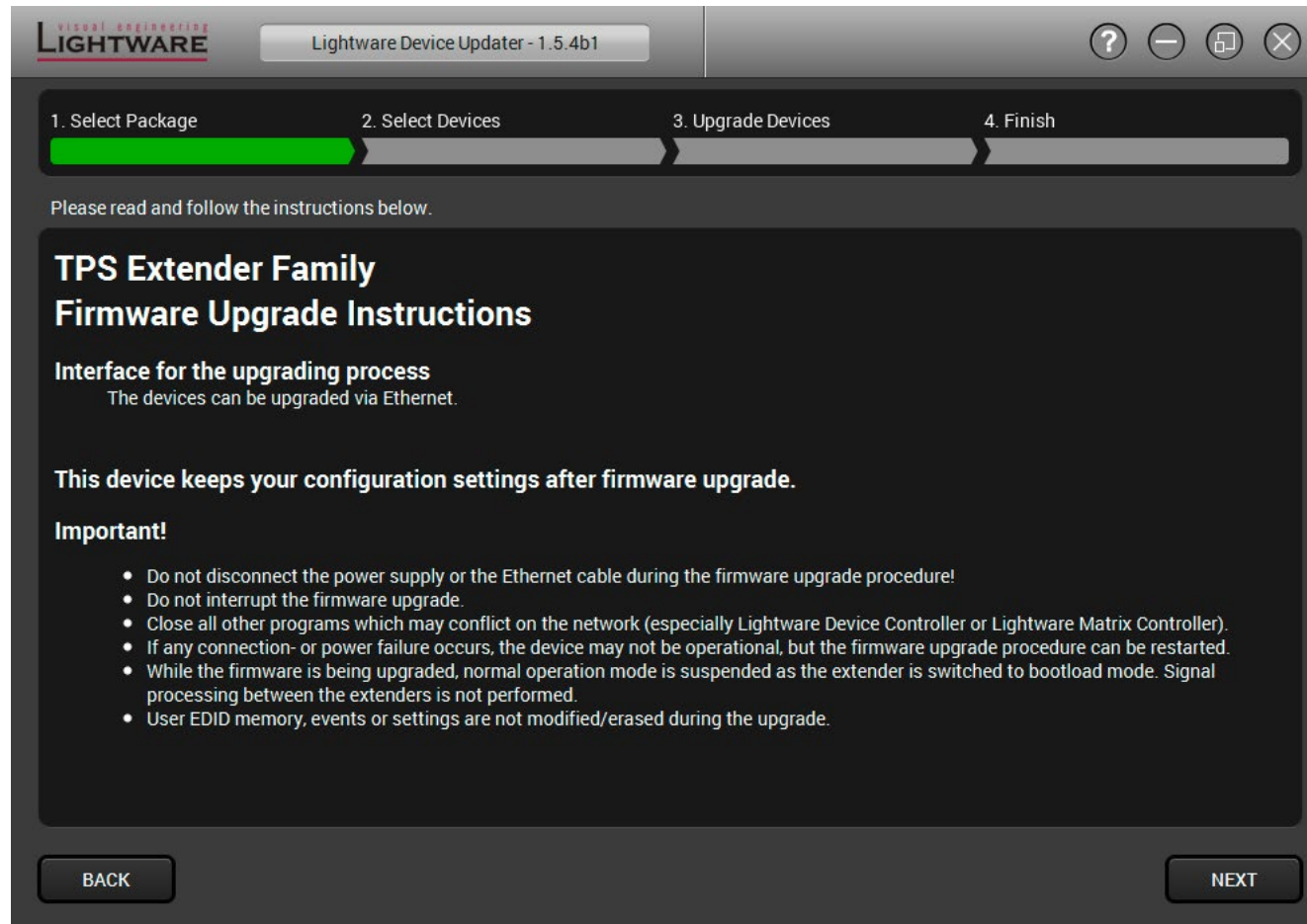
INFO: Files with LFP extension are associated to LDU during installation. If you double click on the LFP file, the application is launched, the package is loaded automatically and above screen is shown.

Step 4. Select the devices.

The available and supported devices are searched and listed automatically. If the desired device is not listed, update the list by clicking the **Refresh** button (devices with Ethernet connection: type the IP address in the line). Select the desired devices: highlight them with yellow cursor, then click **OK**.
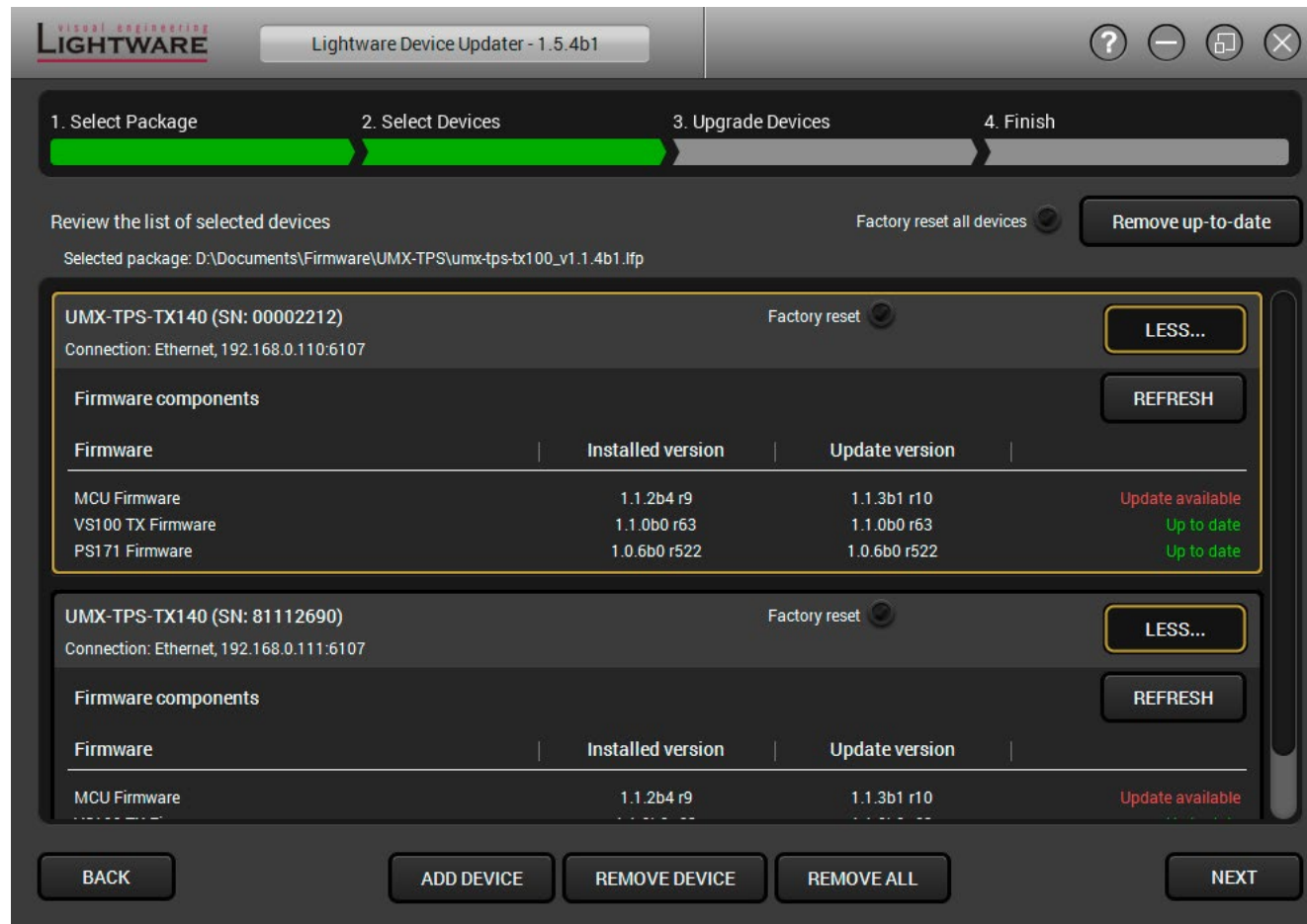

A tick mark can be seen in the Added column if the device was added by the user previously.

Help window

General instructions are displayed after clicking the **Help** button. Device-specific instructions are available after clicking the **Next** button. The instruction in the firmware package of the device will inform you about this function availability, reading it is highly recommended in every case. If any problem occurs, follow the steps described in the Help window.

Firmware components

The firmware components of the selected devices are listed on the following screen: installed and update versions. (Update version will be uploaded to the device.)

Add a device by clicking on the **Add device** button. The previous screen will be shown; select the desired device(s) and click on **OK**.

Remove a device by selecting it (highlight with yellow) and click on **Remove device** button; or click on **Remove all** button to empty the list.

Factory reset by enabling will perform factory default values for all settings in the device. Three different status can exist:

- **Enabled by user:** all settings will set to factory default values.
- **Disabled by user:** your settings will be saved and restored after upgrading.
- **Enabled by default and not changeable by user:** firmware upgrade must perform a factory reset to apply all changes coming with the new firmware version.

Step 5. Upgrade the devices

Click on the **Start** button to continue. Before the process, a pop-up window reminds the most important warnings to establish the operation of upgrading.
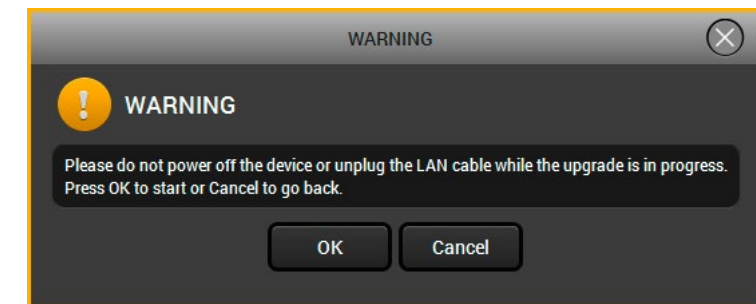
The selected devices and the current status are shown.
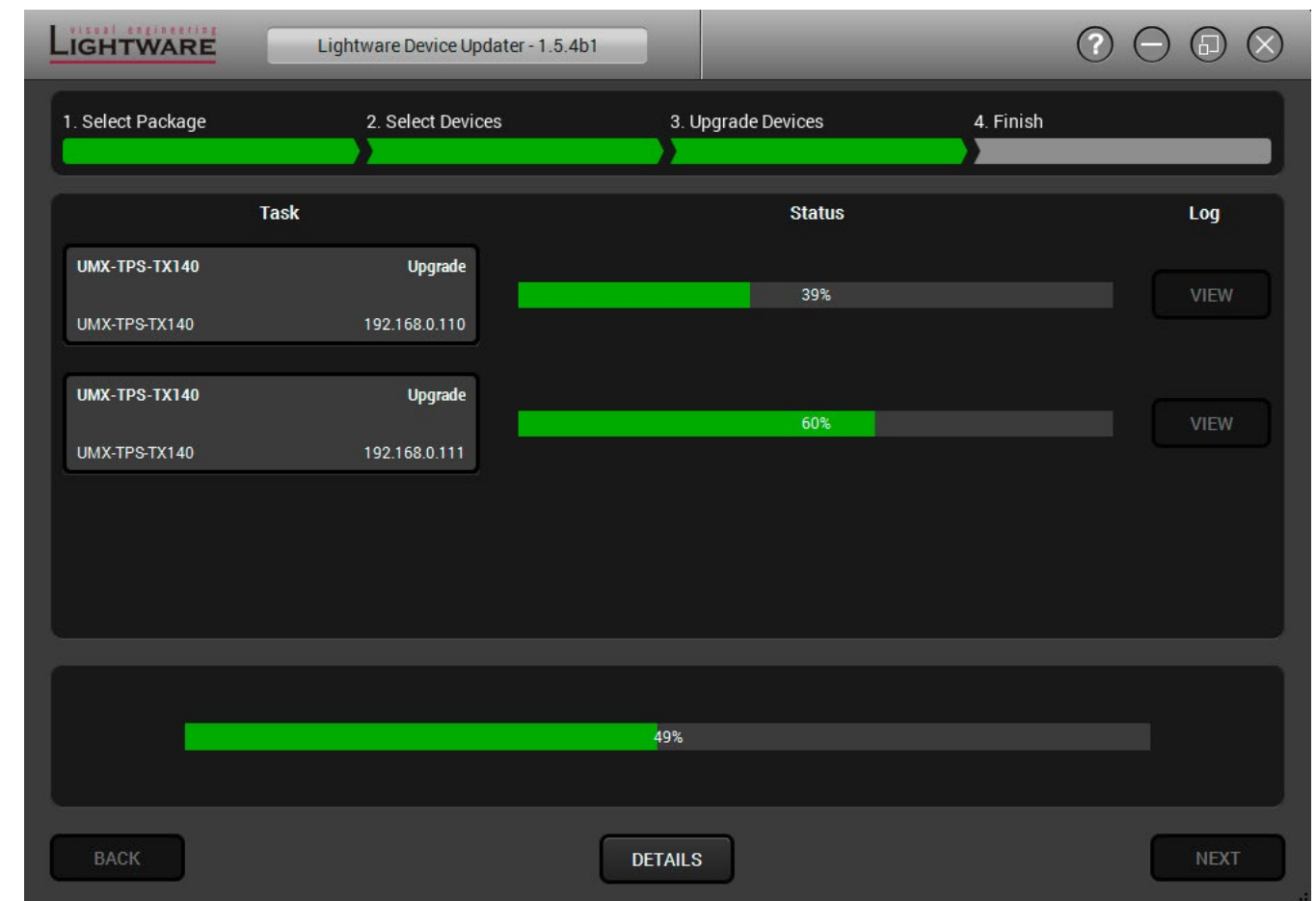
Details button opens a new window where the process is logged – see the following image.

Step 6. Finish.

If the upgrade of a device is finished, the log can be opened by the **View** button on the right. When all the tasks are finished, a window appears; click **OK** to close and **Next** to display the summary page.

Step 7. Press **Exit** to close the program.

ATTENTION! Before clicking exit, log exporting could be useful to provide some additional information about your device in case of any firmware upgrade failure. See details in the next section.
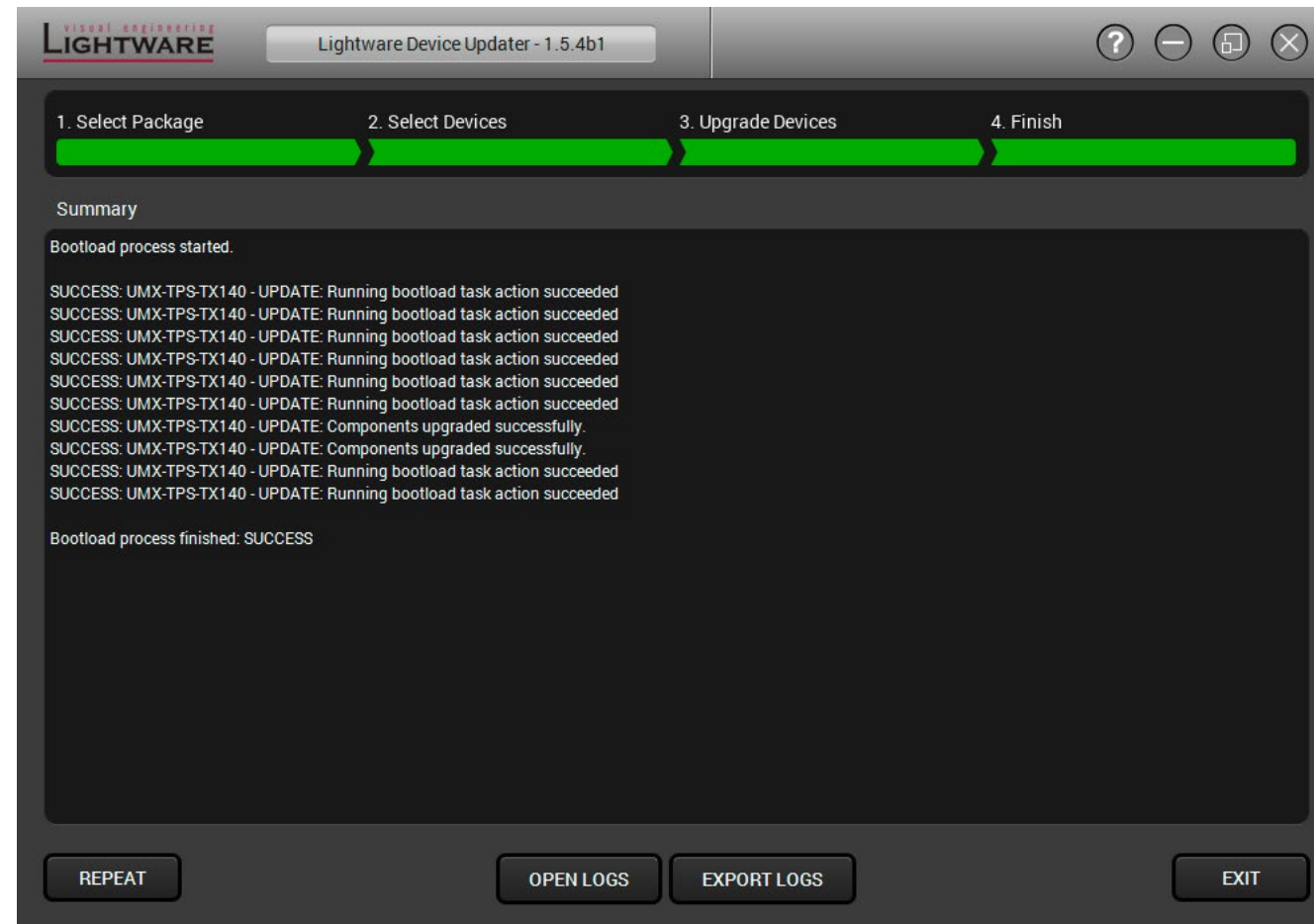
Repeat button starts the process again with the selected device(s).

Open logs button opens the temporary folder where the logs can be found.

Export logs by saving the files as a zipped file.

ATTENTION! However the device is rebooted after the firmware upgrade, switching it off and on again is recommended.

INFO: If the upgrade failed, the progress bar of the device is changed to red; restart the device(s) and repeat the process.

Keeping the Configuration Settings after Firmware Upgrade

User can keep all configuration settings and restore to the device after firmware upgrading or can choose to perform a factory reset – it means all settings will be erased in the device.

The following flow chart demonstrates how this function works in the background.

Flow chart of firmware upgrade

The details about the procedure: when firmware upgrade starts, the first step is making a backup of the settings of the device. The firmware package checks the backup data and if it is needed, a conversion is applied to avoid incompatibility problems between the firmware versions. If you do not want to keep configuration settings, you can set the Factory reset option enabled. It will perform factory default values for all settings in the device.

ATTENTION! The feature is supported by LDU version 1.3.0 and above.

ATTENTION! In specific cases restoring cannot be applied fully and certain settings are not copied back to the device. If a warning message appears, user can get back the original data from the backup. Logs of the upgrade procedure contain all backup data, it can be exported at the end of the upgrade procedure. In case of any questions, please contact Lightware Support.

ATTENTION! In certain cases, the new firmware version requires setting all parameters to set factory defaults. In this case, the "Factory reset" option is enabled by default and not changeable by the user.

1.4. Firmware Upgrade – Matrix Mode

ATTENTION! While the firmware is being upgraded, normal operation mode is suspended as the matrix is switched to bootload mode. Signal processing is not performed. Do not interrupt the firmware upgrade. If any problem occurs, switch off the matrix and restart the process.

ATTENTION! User EDID memory, events or settings are not modified/erased during the upgrade.

Step 1. Establish the connection between the computer and the device(s) established.

- **Devices with Ethernet connection:** if you have a DHCP server on your local network, then it is recommended to switch the device to DHCP mode. If you connect the device directly to the computer, set a fix IP address.

Step 2. Start the LDU and follow the instructions; the welcome screen appears:
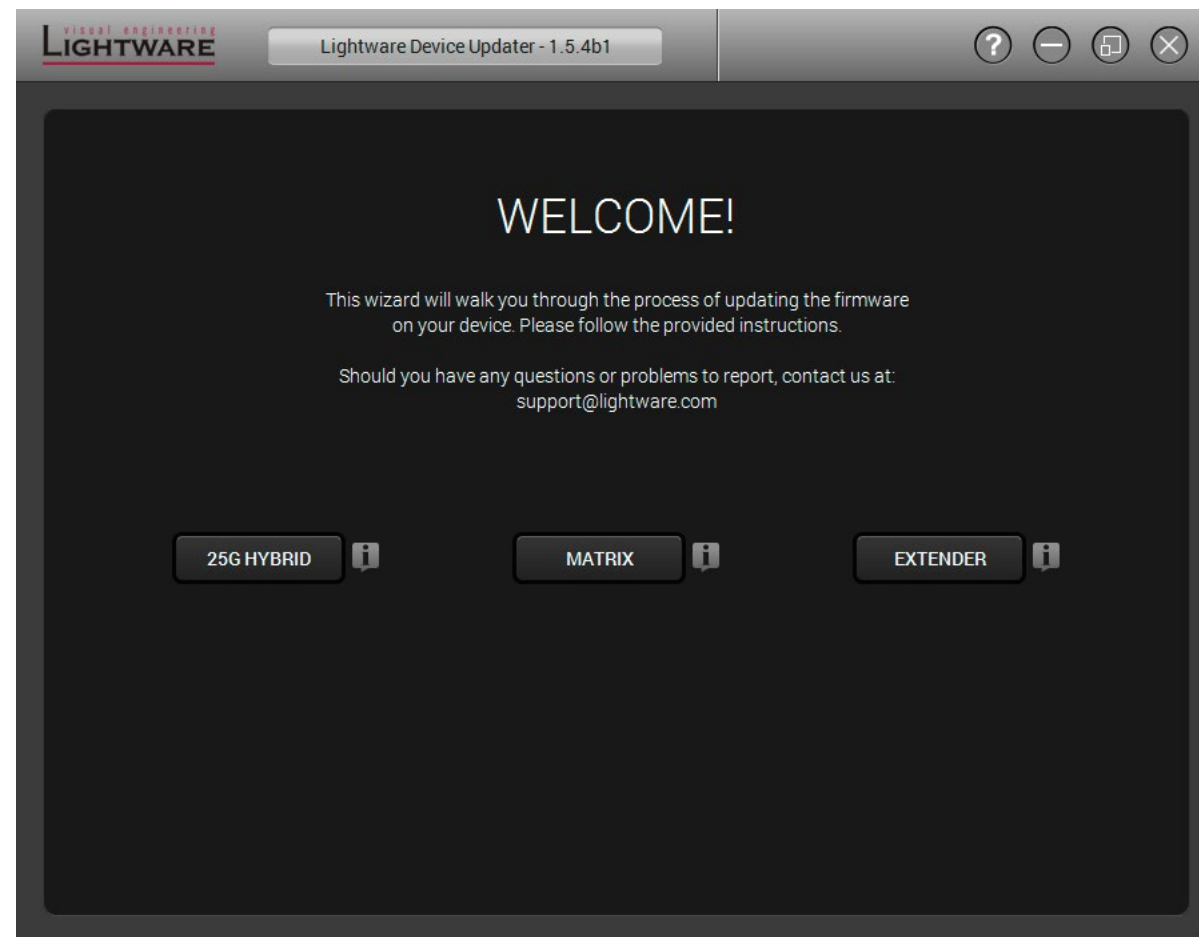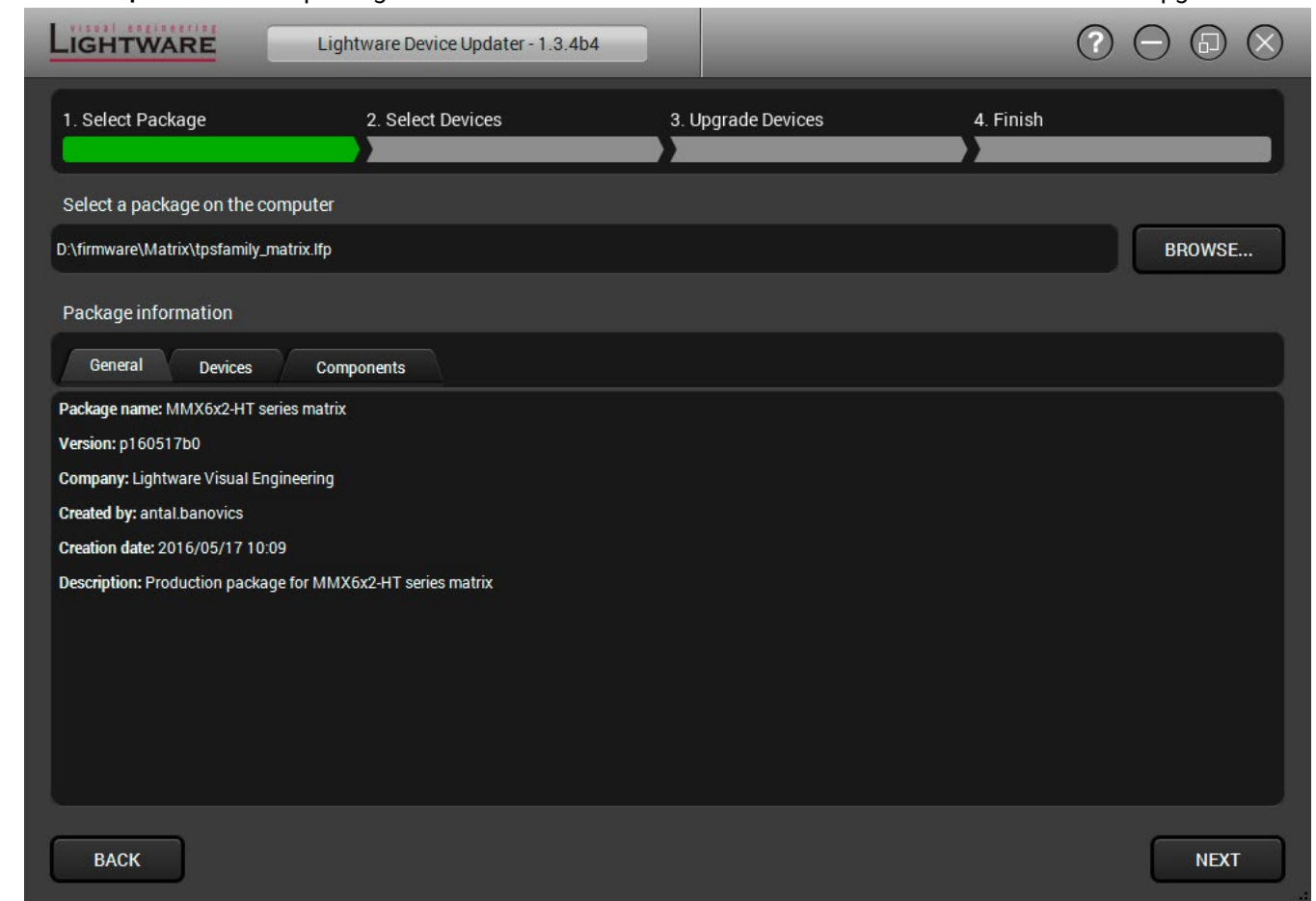

Pressing the ℹ button a list will appear showing the supported devices:

Click on the **Matrix** button on the main screen.

Step 3. Select the package. Click on the **Browse** button and select the desired LFP file for the upgrade.

Package information will be loaded to the tabs:

- ▪ General version info, creation date, short description,
- ▪ Devices which are compatible with the firmware,
- ▪ Components in the package with release notes.

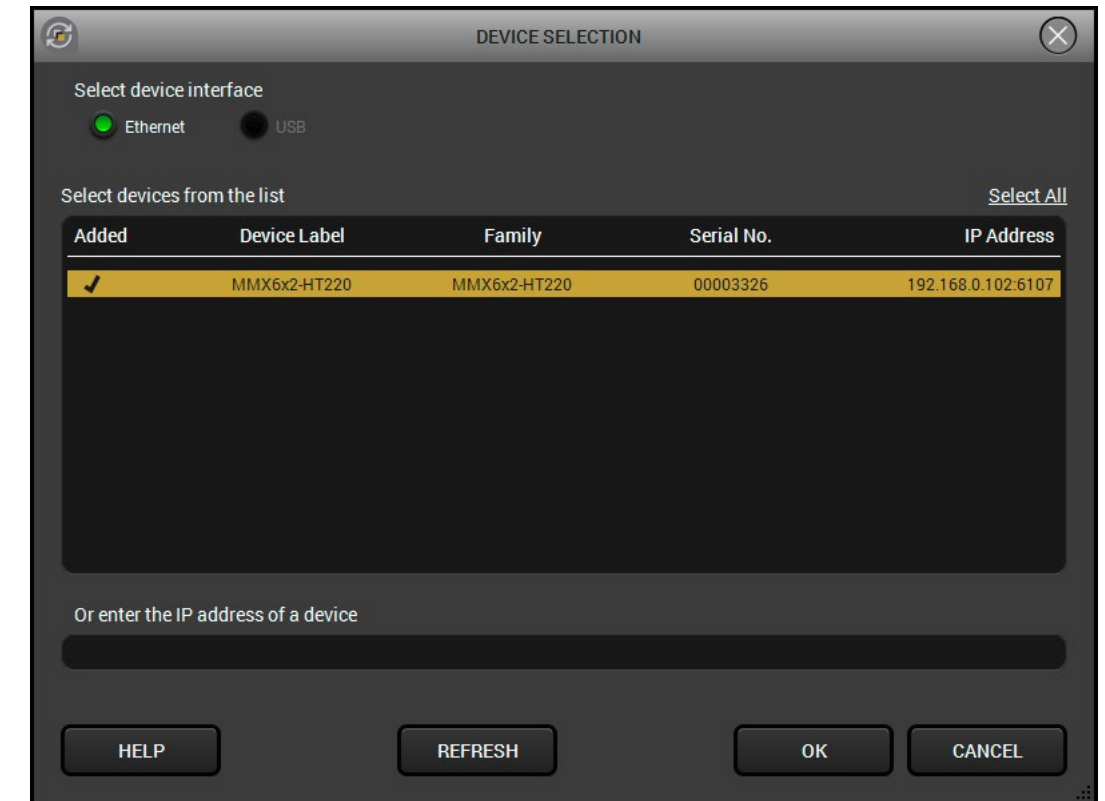Click on the **Next** button and follow the instructions.
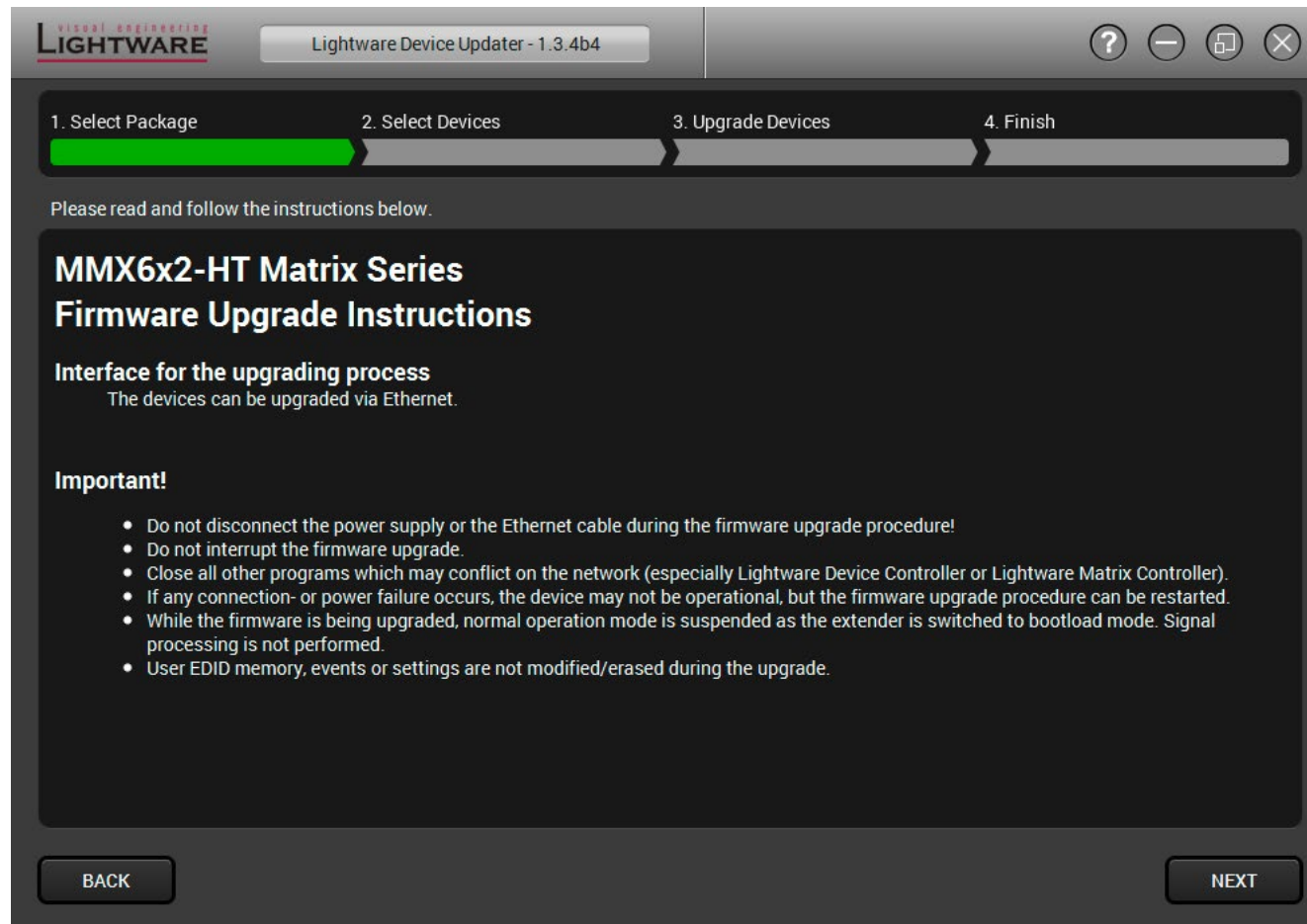
INFO: Files with LFP extension are associated to LDU during installation. If you double click on the LFP file, the application is launched, the package is loaded automatically and above screen is shown.

Click on the **Next** button to continue.
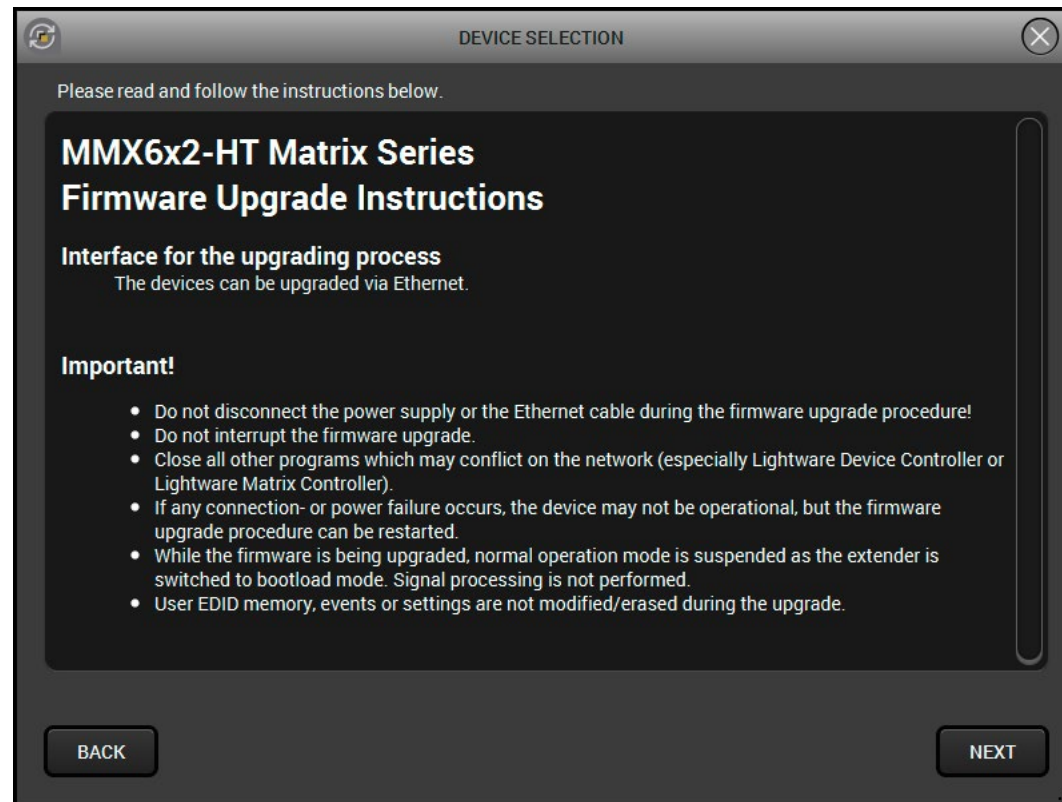
Step 4. Select devices.

The following step is to select the device(s) which will be updated. The available and supported devices are searched and listed automatically. If the desired device is not listed, update the list by clicking the **Refresh** button (devices with Ethernet connection: type the IP address in the line). Select the desired devices: highlight them with yellow cursor, then click **OK**.

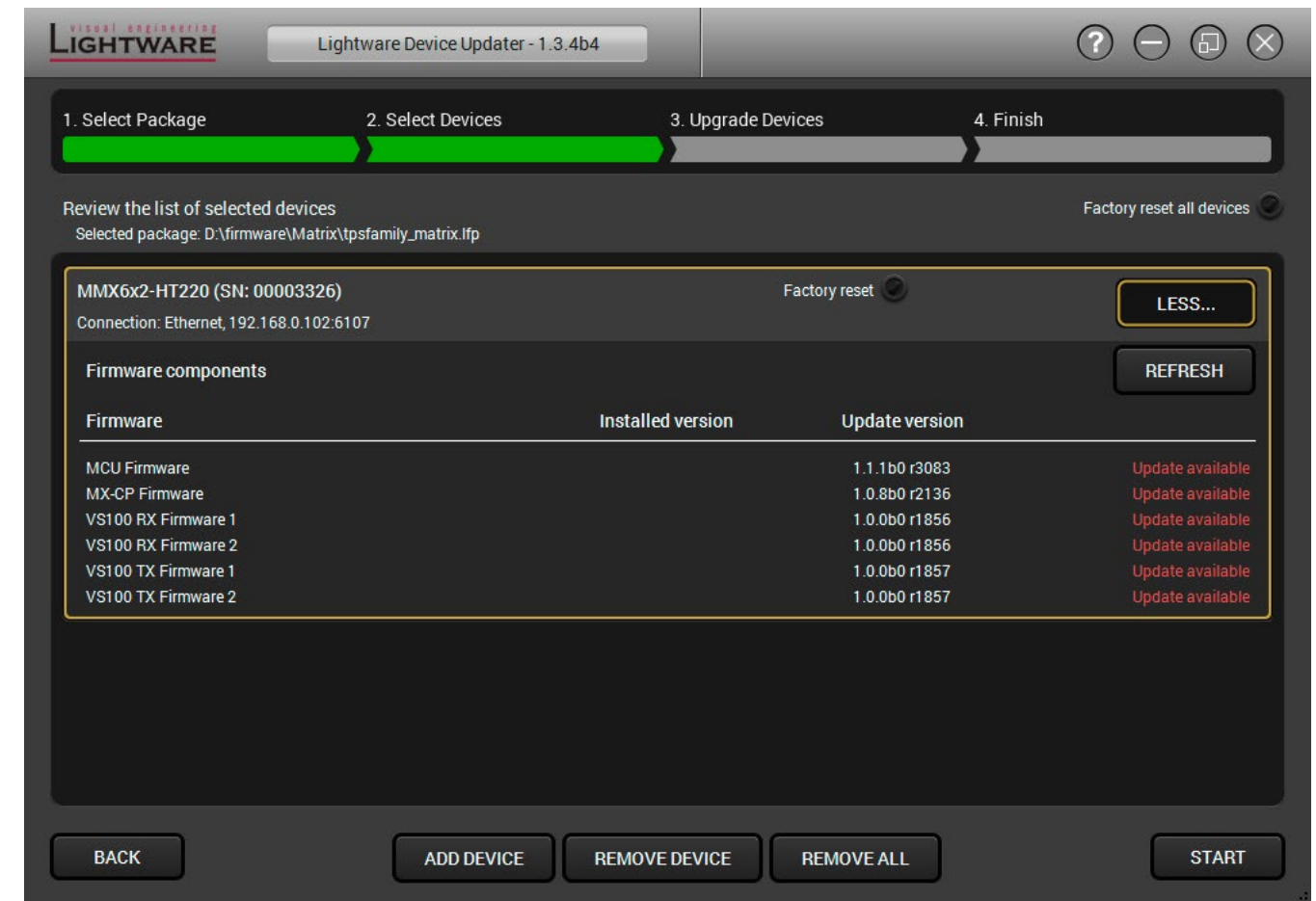A tick mark can be seen in the **Added** column if the device was added by the user previously.

Help window

General instructions are displayed after clicking the **Help** button. Device-specific instructions are available after clicking the **Next** button. The instruction in the firmware package of the device will inform you about this function availability, reading it is highly recommended in every case. If any problem occurs, follow the steps described in the Help window.

Firmware Components

The firmware components of the selected devices are listed on the following screen: installed and update versions. (Update version will be uploaded to the device.)


Factory reset by enabling will perform factory default values for all settings in the device. Three different status can exist:

- **Enabled by user:** all settings will set to factory default values.
- **Disabled by user:** your settings will be saved and restored after upgrading.
- **Enabled by default and not changeable by user:** firmware upgrade must perform a factory reset to apply all changes coming with the new firmware version.

Step 5. Upgrade the devices; click on the **Start** button to continue.
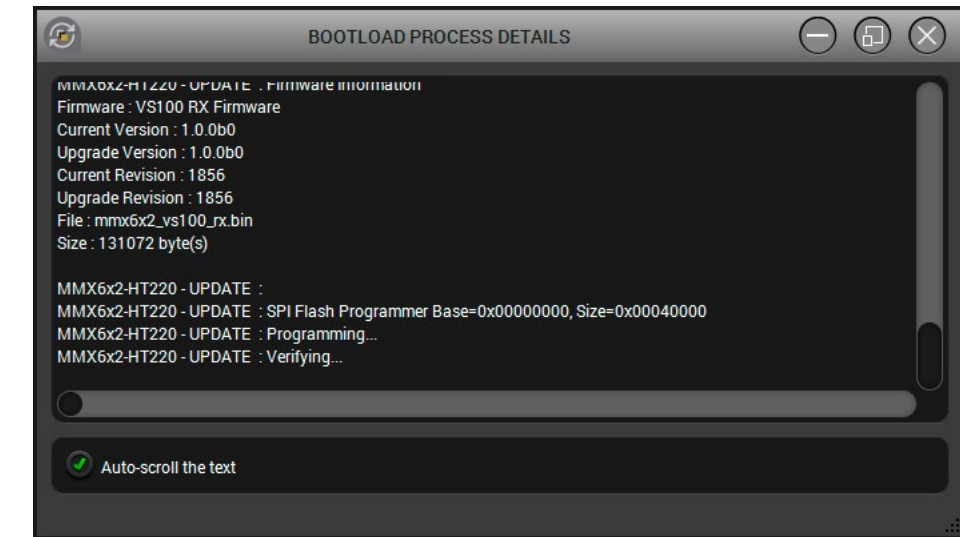
Please note that the device presets will be lost after upgrading. You have a last chance to abort the process and save the presets. If you want to continue the procedure, click **Yes**.
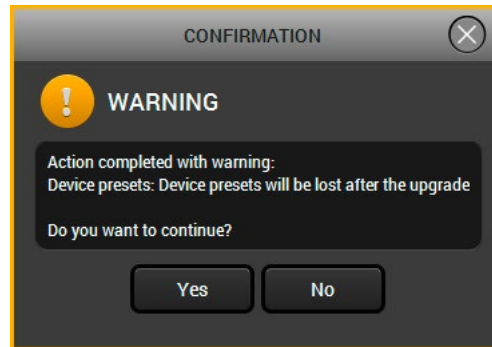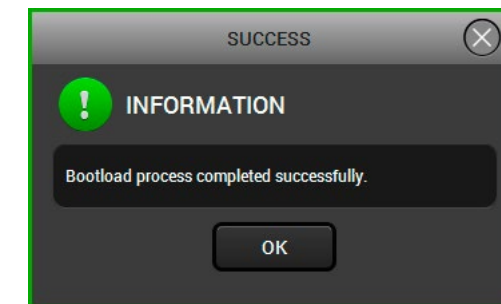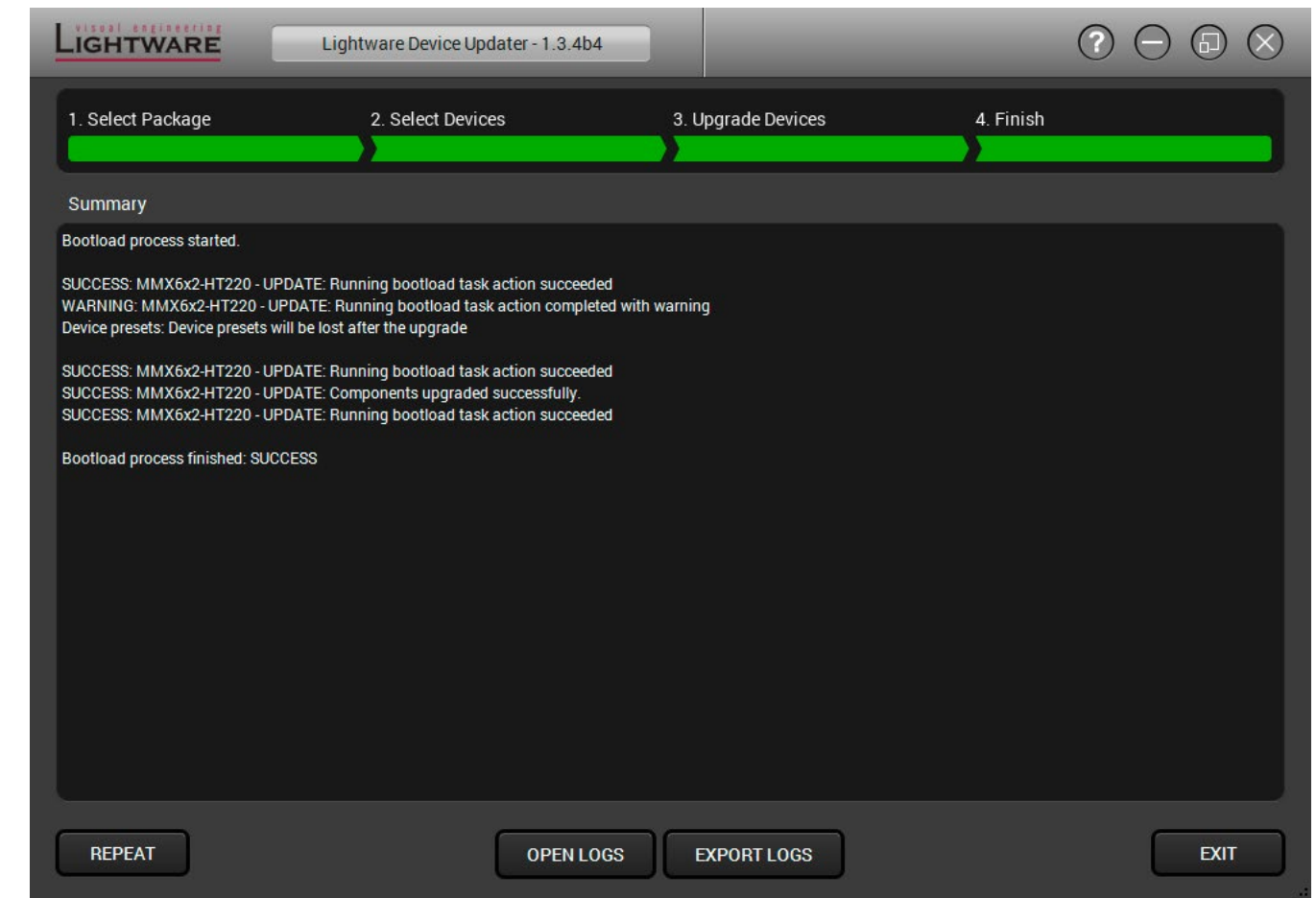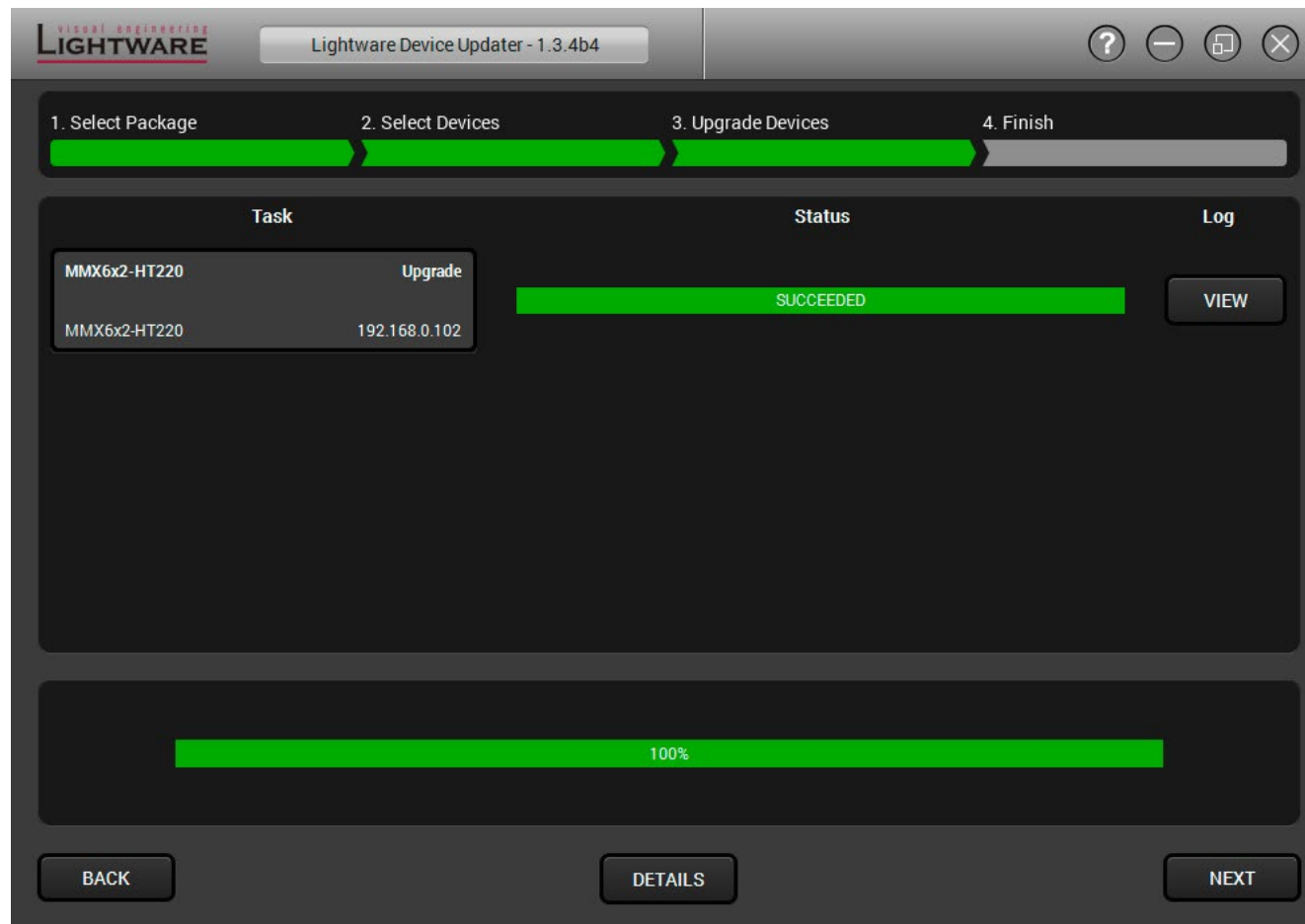

The selected devices and the current status are shown.
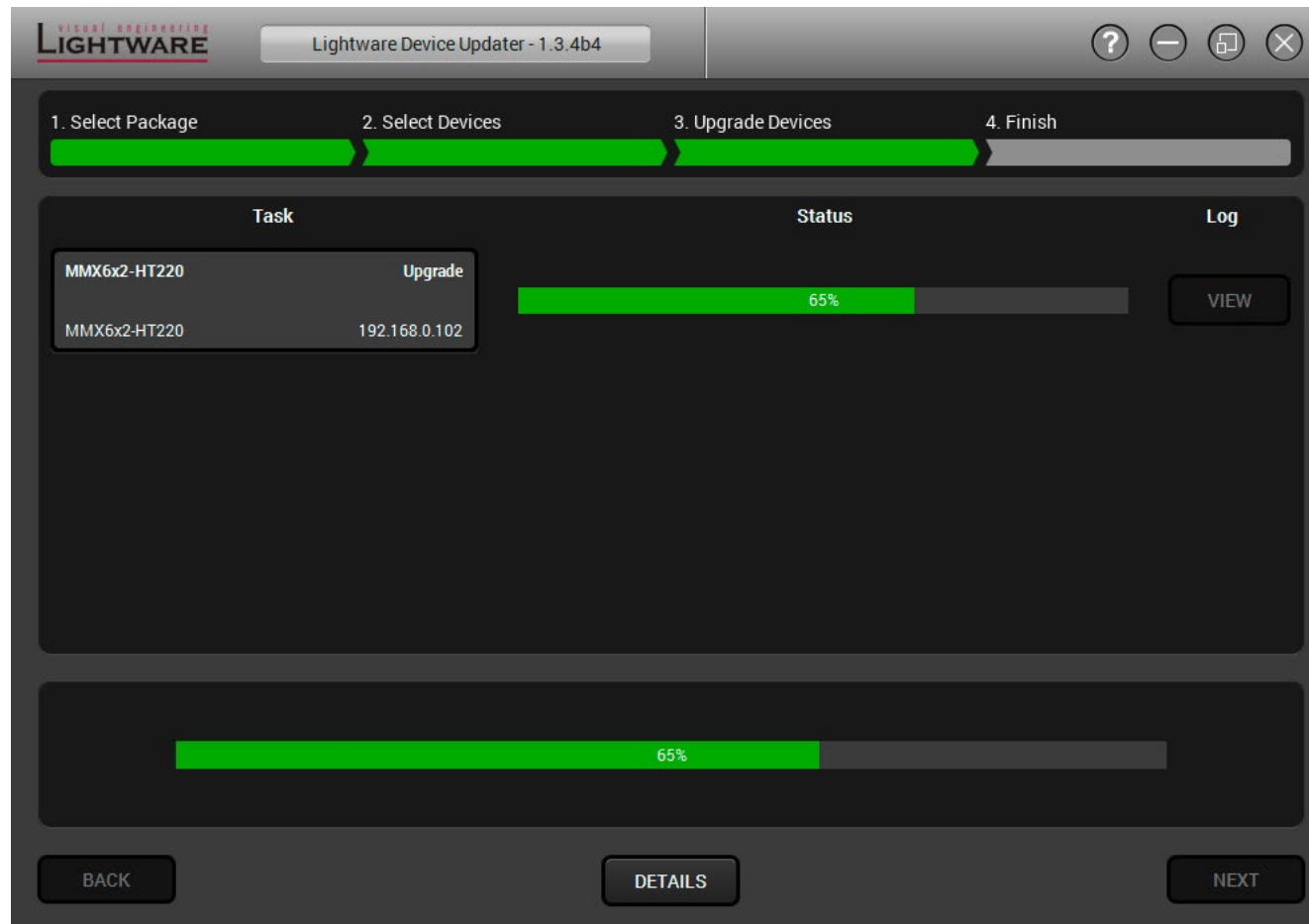
Details button opens a new window where the process is logged – see below.

Step 6. Finish.

When all the tasks are finished, an information window appears. Click **OK** to close and **Next** to display the summary page.

Repeat button starts the process again with the selected device(s).

Open logs button opens the temporary folder where the logs can be found.

Export logs by saving the files as a zipped file.

Before clicking **Exit**, log exporting could be useful to provide some additional information about your device in case of any firmware upgrade failure.

However the device is rebooted after the firmware upgrade, switching it off and on again is recommended.

If the upgrade failed, the progress bar of the device is changed to red; restart the device(s) and repeat the process.

Step 7. Press **Exit** to close the program.

Keeping the Configuration Settings after Firmware Upgrade

User can keep all configuration settings and restore to the device after firmware upgrading or can choose to perform a factory reset – it means all settings will be erased in the device.

The following flow chart demonstrates how this function works in the background.

Flow chart of firmware upgrade

The details about the procedure: when firmware upgrade starts, the first step is making a backup of the settings of the device. The firmware package checks the backup data and if it is needed, a conversion is applied to avoid incompatibility problems between the firmware versions. If you do not want to keep configuration settings, you can set the Factory reset option enabled.

ATTENTION! In specific cases restoring cannot be applied fully and certain settings are not copied back to the device. If a warning message appears, user can get back the original data from the backup. Logs of the upgrade procedure contain all backup data, it can be exported at the end of the upgrade procedure. In case of any question, please contact Lightware Support.

ATTENTION! In certain cases, the new firmware version requires setting all parameters to set factory defaults. In this case, the 'Factory reset' option is enabled by default and not changeable by the user.

ATTENTION! The feature is only supported by LDU version 1.3.0 and above.

## 1.5. Firmware Upgrade – 25G Hybrid Mode

ATTENTION! This chapter is related to v1.2.2b0-1.3.0b0 version of Lightware Device Updater software only.

INFO: While the firmware is being upgraded, normal operation mode is suspended. Do not interrupt the firmware upgrade. If any problem occur, restart the process.

INFO: 25G Controller software is recommended to close before starting the upgrade. The Controller software running on SBC may be disconnected during the upgrade, too. User EDID memory, events or settings are not modified/erased during the upgrade.

Step 1. Establish the connection between the computer and the matrix.

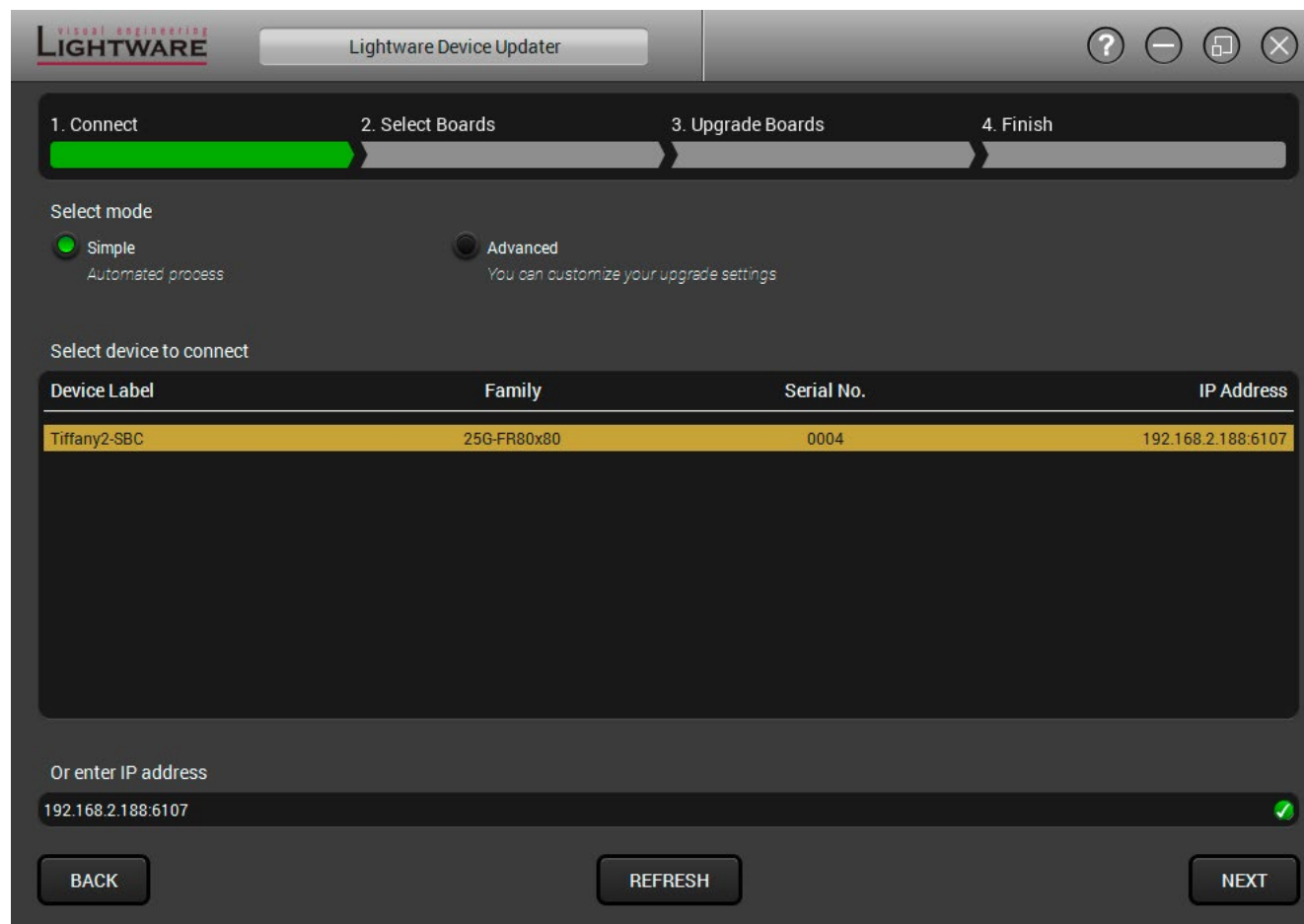**Step 2.** Start the LDU and follow the instructions; the welcome screen will appear:
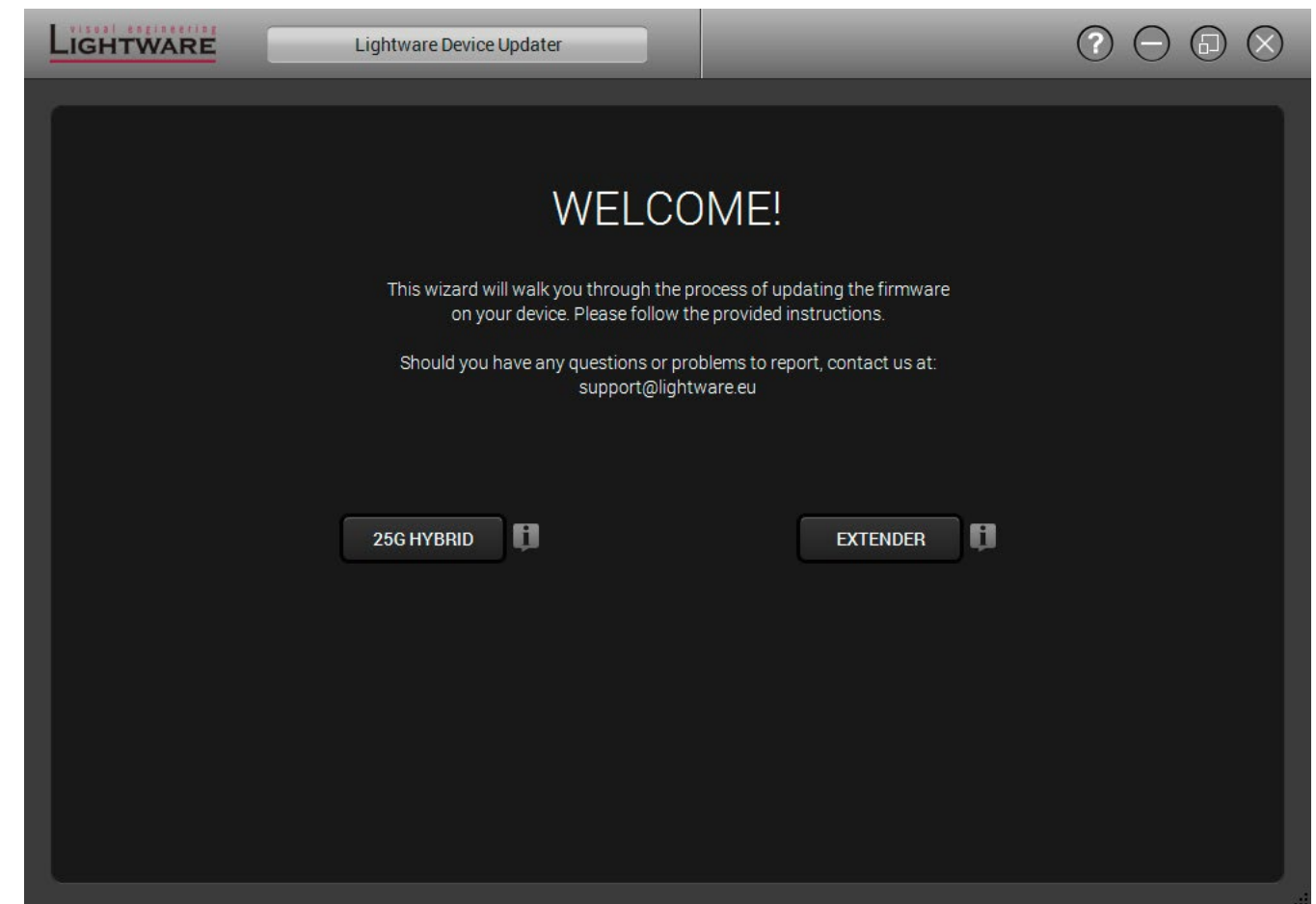
Pressing the 🛈 button a list will appear showing the supported devices: Click on the **25G HYBRID** button on the main screen.
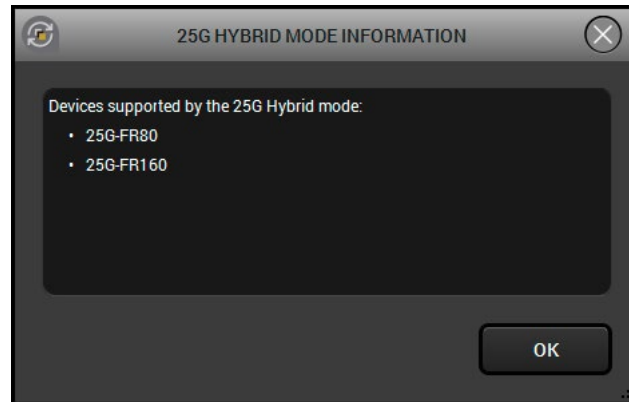
Step 3. Connect.

About the upgrading modes

There are two modes for the upgrade: **Simple** and **Advanced**. The simple mode is the recommended way since it covers almost all the cases.

▌ **ATTENTION!** Advanced mode is made only for special cases, use it only if Lightware asks You to do so.

The available and supported devices are searched and listed automatically. If the desired device is not listed, update the list by clicking the **Refresh** button and/or type its IP address in the bottom line. Select the desired device: highlight it with yellow cursor, then click **Next**.

Before moving forward to the next step, the software-compatibility is checked between the matrix and the LDU:

- ▪ If the software version of the LDU is outdated, it will be uploaded to the matrix automatically.
- ▪ If the bootloader application running on the Single Board Computer (SBC) of the matrix is outdated, it can be upgraded in the next step since the firmware package contains the necessary components.
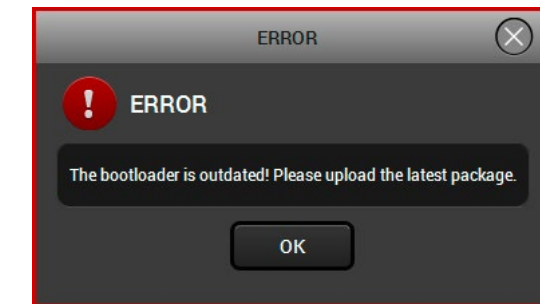

Step 4. Select Boards

The upgrade procedure differs a bit from the extenders at this point:

1. Upload the desired firmware package to the matrix.
2. Browse the available packages in the matrix; select the desired one.
3. The upgrade procedure is executed inside the matrix.

If the bootloader has to be upgraded on the SBC, the LDU will perform this operation. The SBC will be restarted automatically and the firmware upgrade process can be continued.
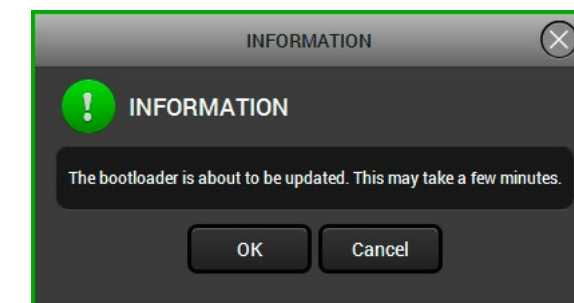
The available firmware packages on the device are shown. The desired firmware package has to be on the matrix. If the package is not listed, you can add it by browsing and uploading it.
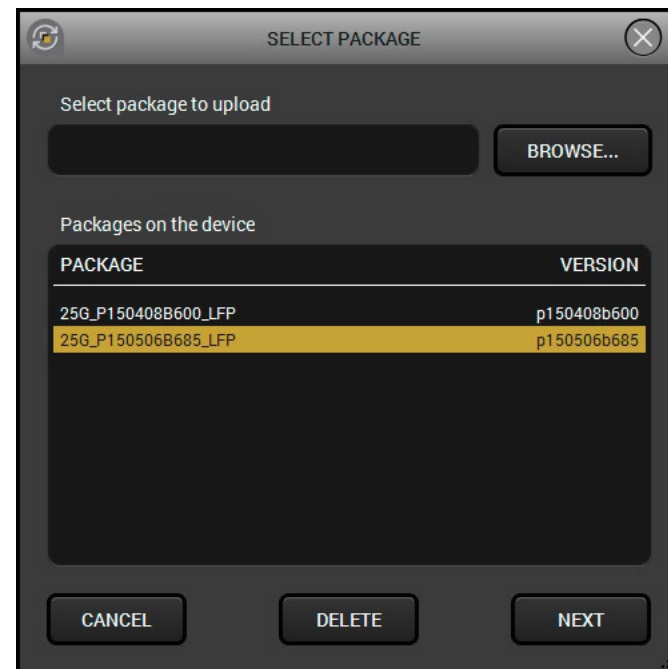

When the package is uploaded, select the desired one and click **Next**. (Packages can be removed from the matrix by selecting and clicking the **Delete** button.)

The following screen shows the (available) boards in the matrix:

1	**Red-bordered button**	A problem occurred in connection with the board (click on the button to display more information): **Unidentified board:** If you press the Use bootloader button, the LDU will switch the device to bootload mode and attempts to read the necessary data. **No package:** There are no suitable firmware components to the given board. You may skip the board from the upgrade, but if it has to be upgraded definitely, please contact Lightware Support.
2	**Yellow-bordered board**	The board can be upgraded to a newer firmware. Click on the button to see the details.
3	**Empty board**	No board is installed in the slot.
4	**Skipped board**	There is no newer firmware to the given

INFO: Please note that if the board is in bootload mode, normal operation mode is suspended.

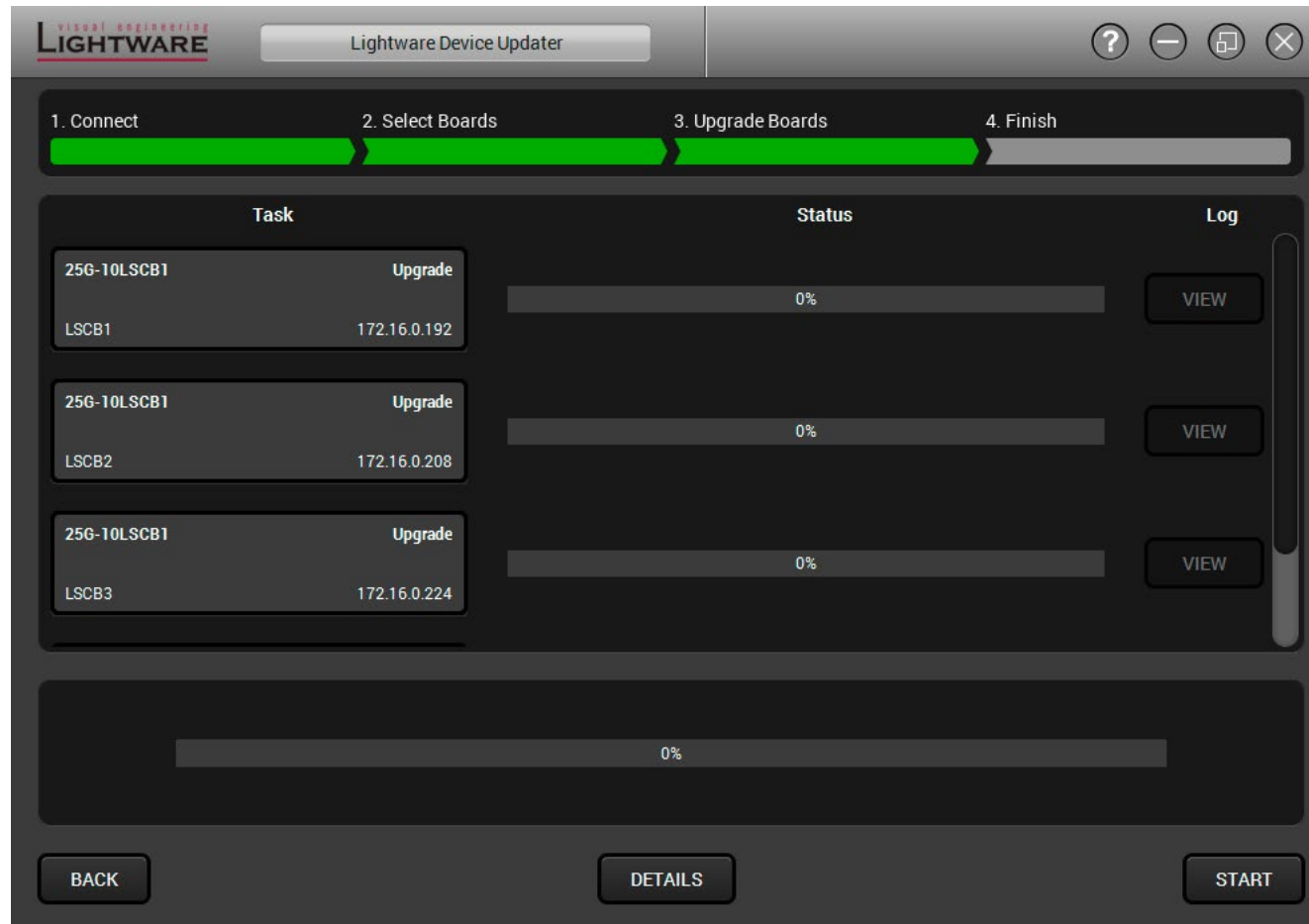The next screen shows the (available) boards in the matrix:
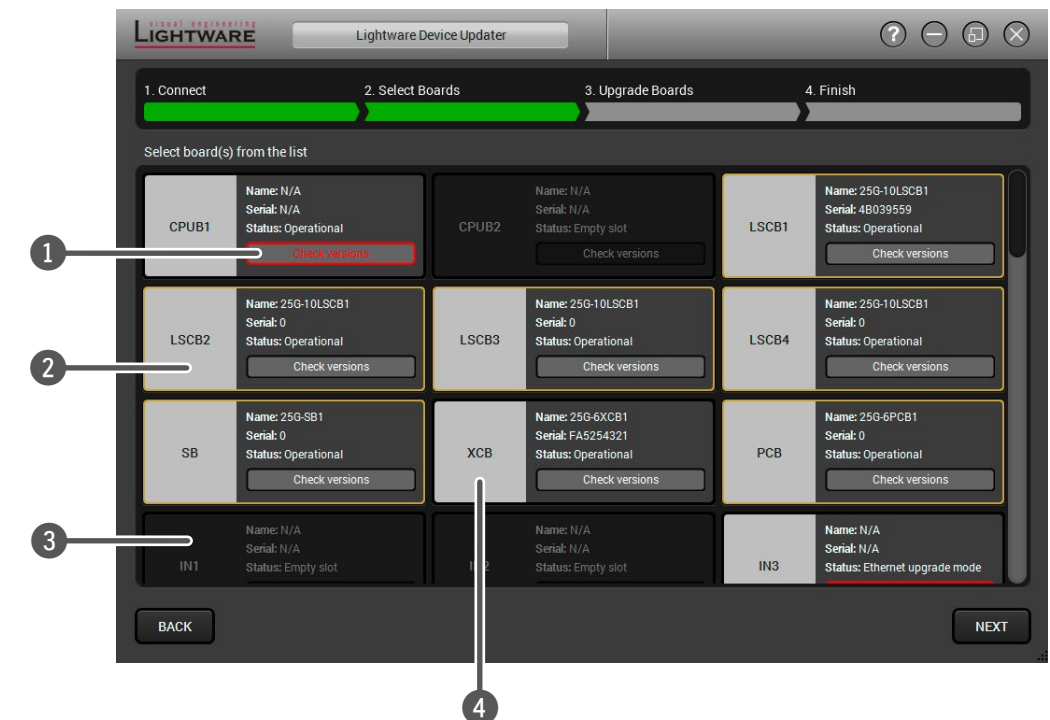
Click on **Next** button to continue; LDU checks the boards. If there is still an unidentified board, you will get a warning window:
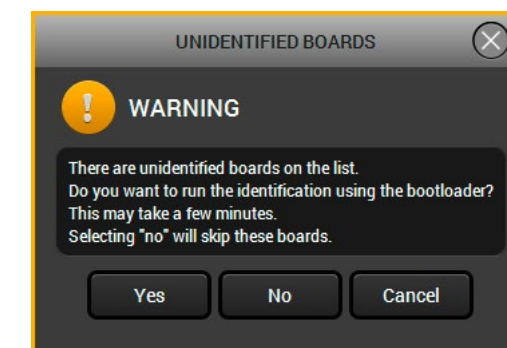

- **Yes:** All affected boards will be switched to bootload mode (similar to the Use the bootloader button, but with this option all affected boards are switched to bootload mode at once).
- **No:** The unidentified boards will be skipped during the upgrade.
- **Cancel:** Close the warning window and back the previous screen.

Step 4. Upgrade the Boards.
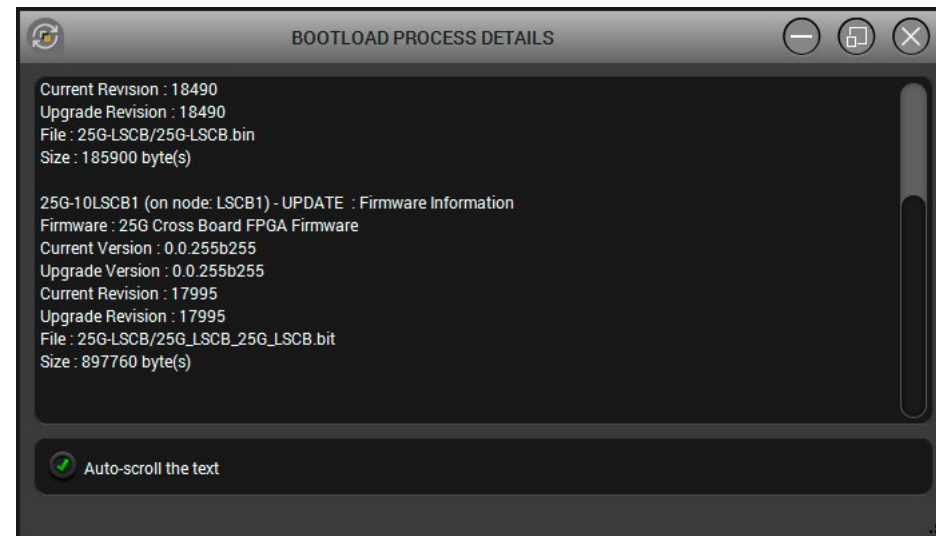
The selected boards and the current status are shown.   Press the **Start** button to begin the upgrade process.
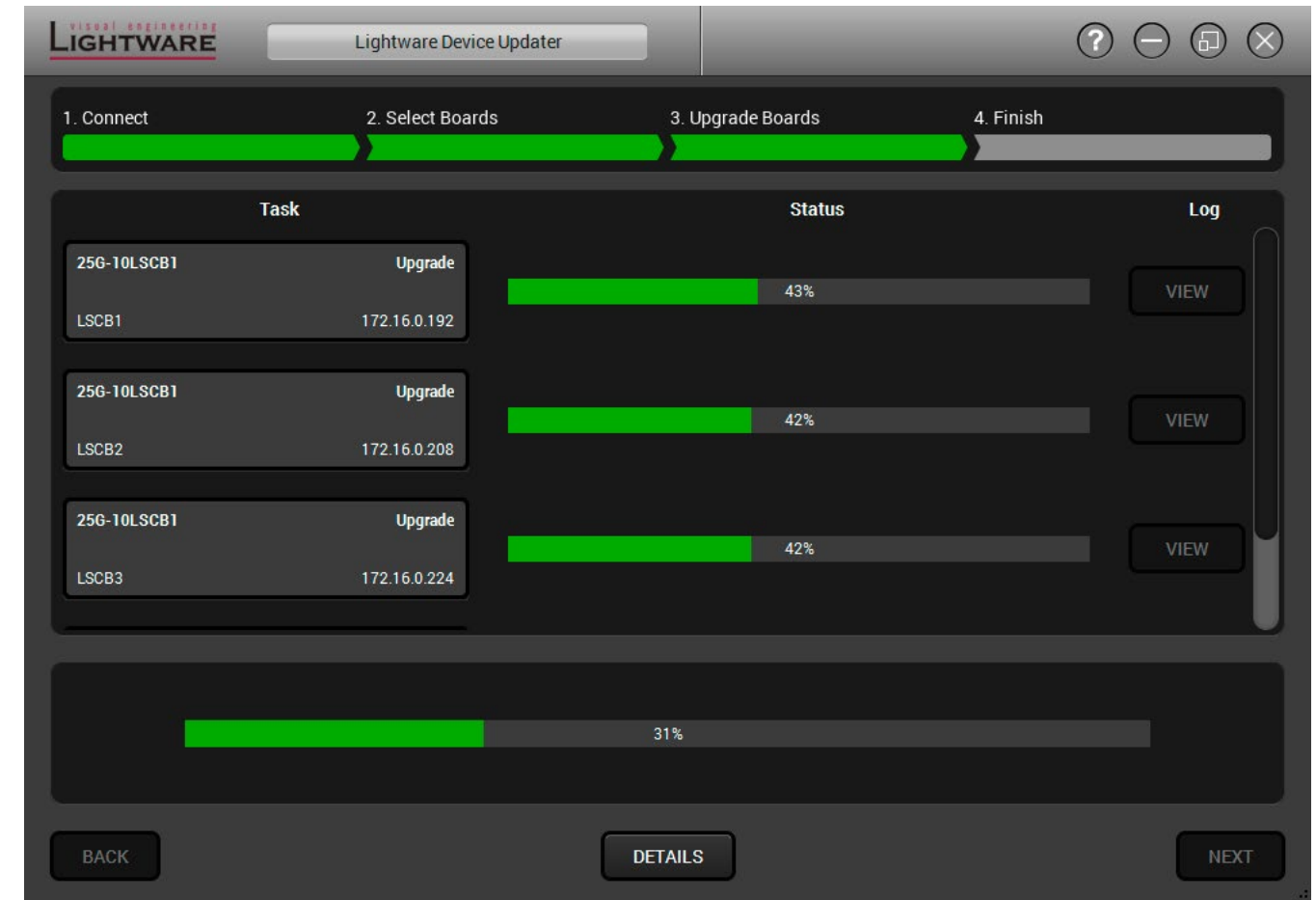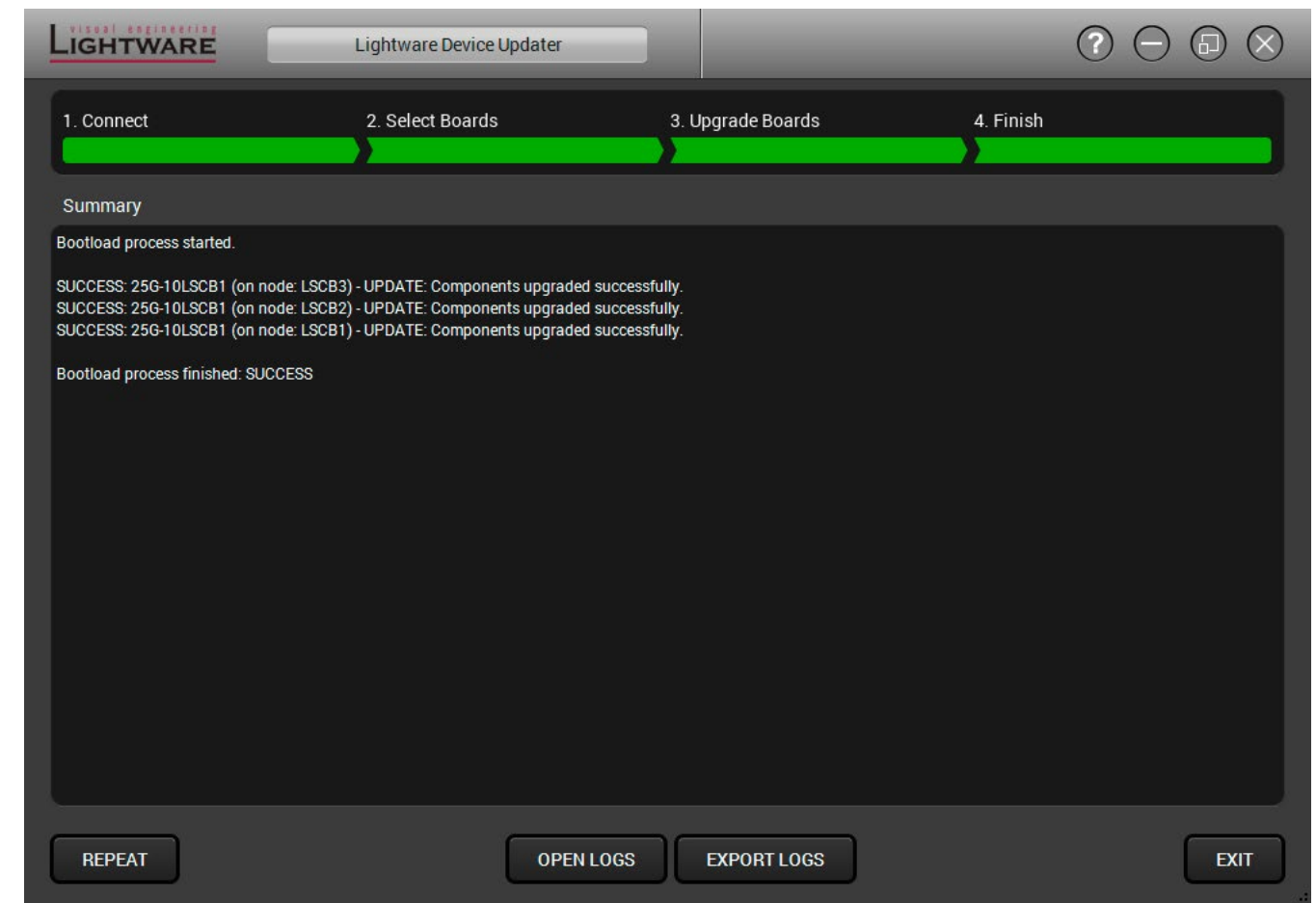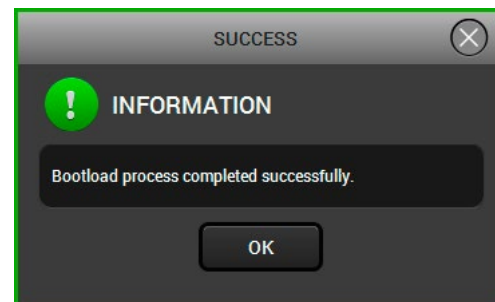
Details button opens a new window where the process is logged – see below.

Step 5. Finish

If the upgrade of a board is finished, the log can be opened by the **View** button on the right. When all the tasks are finished, a window appears. Click **OK** to close and **Next** to display the summary page.

Repeat button starts the process again with the selected board(s).

Open logs button opens the temporary folder where the logs can be found.

Export logs by saving the files as a zipped file.

Step 6. Press **Exit** to close the program.