

ELIAS

Administrator's Guide

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0. Legal information

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1. Representation

The following representations and conventions for instructions are used throughout the documentation:

Representation	Description
Control element	All graphical user interface controls are displayed in bold
Menu > menu command	Whenever running a command involves clicking a series of menus, the single GUI controls such as menu commands or dialog tabs are linked by > .
Value	All data that have to be entered by the user or data that represent a field value are displayed in <code>Courier New</code> . Also, file names and path names are displayed in <code>Courier New</code> .
STRG	Keys to be pressed are displayed in CAPITAL LETTERS.
<Placeholder>	Placeholders in instructions and user input are displayed in <i>italics</i> and in <angle brackets>.
1. Instruction	Procedures to be carried out step by step are realized as numbered steps.
<i>Result</i>	System responses and results are displayed in <i>italics</i> .

Abbreviations and acronyms

Abbreviation	Description
AD	Active Directory , directory service of Microsoft Windows Server
EBKGUI	Interface of the eLux Builder Kit (Tool for creating eLux software packages)
EPM	eLux package module (<code>.epm</code> , software package)
FPM	Feature package module (<code>.fpm</code> , part of a software package)
FQDN	Fully qualified domain name
GB	Gigabyte
GHz	Gigahertz (processing speed)
HDD	Hard disk drive (flash memory)
IDF	Image Definition File (<code>.idf</code>)
IIS	Internet Information Services: Microsoft Web server
MB	Megabyte
OU	Organizational unit Unit or group within the organizational structure
VPN	Virtual Private Network

2. Overview

The eLux Image Administration Service (ELIAS) allows you to easily manage the firmware of devices running eLux. Default images such as `recovery.idf` contain the operating system and applications but can be modified by using ELIAS. ELIAS helps you create new image definition files (IDF) or modify the existing ones.

For an individual client image, you select exactly those software packages for your IDF you want to have installed on the devices' flash memory. An IDF is a structured package list defining all software packages for the operating system and applications.

Administrators can select all required software packages available in a container and define them in an IDF. Once created, an IDF can be used as target for a firmware recovery or a firmware update. After successful recovery or update to an individual IDF, the firmware image installed on a device is consistent with the image defined in the relevant IDF.

ELIAS is part of the Scout Enterprise Management Suite and is installed as a component of it. For further information, see [Installing Scout Enterprise Management Suite](#) in the **Installation** guide.

ELIAS offers the following features:

- User-friendly graphical interface that allows you to easily create software images
- Easy management of device firmware by using the “container method”
- Software components can be activated/de-activated to optimize the use of available resources
- Image size bar to avoid exceeding flash size
- Automatic check of software dependencies
- Import feature to add the latest software versions
- Export feature to export a package along with its software dependency information
- Digital signatures to verify the originality of software packages and IDFs.
- Creating USB Recovery sticks or disk images containing an individual software image

2.1. Starting ELIAS

From the Scout Console:

- ▶ Click **View > ELIAS**.

From the Windows start menu:

- ▶ Click **Programs > Scout > ELIAS**.

If you have installed the Scout Enterprise Management Suite by using the default settings, ELIAS automatically opens the defined container at start-up. Otherwise, you have to select the relevant container in a first step.

2.2. Keyboard shortcuts

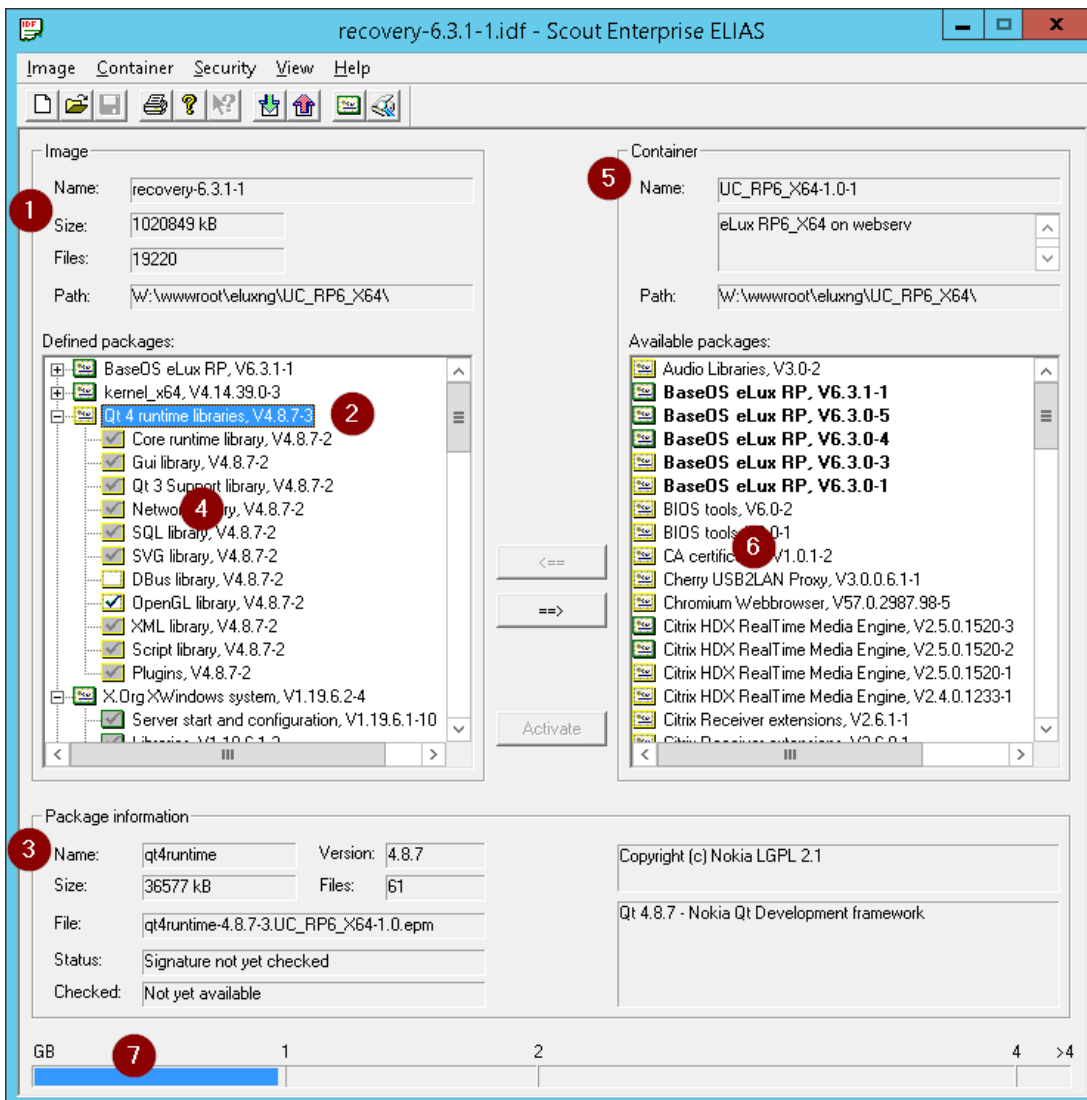
Keys	Selected element	Description
↑↓	Any list entry	Moves selection
TAB	Anywhere	Screen navigation in the ELIAS window
CTRL+←	Available packages list entry	Adds selected package to the Defined packages list
DEL	Available packages list entry	Removes the selected package from the container
INSERT	Available packages list entry	Opens the Import package dialog
→ ←	Defined packages list entry	Shows or hides feature packages (FPM) of the selected package
CTRL+→	Defined packages list entry	Removes the selected package from the Defined packages list
SPACE	Defined packages list entry	<ol style="list-style-type: none"> 1. Expands/collapses the selected eLux package (EPM) 2. Activates/deactivates the selected feature package (FPM)

2. Interface

The ELIAS application window is divided into the **Image** section on the left and the **Container** section on the right.

- ▶ To view the available packages on the container, select the relevant software container from your web server or FTP server.
- ▶ To view an existing image definition file (IDF), open the relevant .idf file from the selected container. If you create a new image definition file, you start with an empty list in the left section.

With both lists in front of you, you can easily define your image, adding software packages from the container, and if required, removing packages from the IDF.



Legend to numbers

- 1 Image definition file (.idf) with name, total size of all packages selected so far, number of defined files and storage location

The current image size is graphically represented on a status bar on the bottom of the window (7).

- 2 Software package defined in the IDF (eLux package module, .epm)

- 3 Details for the selected software package (selected in either the left or the right list):

Name, version, size, number of included files, signature status, signature proof date as well as the copyright information and the description of the selected feature or package

- 4 Subordinate features of the software package (feature package module, .fpm)

- 5 Selected software container with name, description and storage location

- 6 Software packages provided in the software container (.epm)

- 7 Image size based on currently selected software packages
-

3. Installation: eLux Container

The eLux container is a compilation of software packages used to create the firmware (IDF) of a client. The administrator selects a subset of the software package pool to define an IDF (Image definition file) that can be installed on the devices.

The software packages can be provided via the container installation on a web or FTP server (legacy ELIAS) or via the ELIAS 18 web service in a MongoDB (locally or in combination with IIS).

Note

If you use the web-based ELIAS 18, there is no need to install the eLux container. In ELIAS 18, you simply import the relevant software packages or the AllPackages bundle. For further information, see [Importing software packages](#) in the **ELIAS 18** guide.

For the operating system versions eLux RP 6 / 64-bit, eLux RP 6 / 32-bit and eLux RP 5, dedicated containers are provided.

If you install the eLux container to be used by the legacy ELIAS, the containers are stored on the FTP or HTTP server root directory as follows:

- ...\eLuxng\UC_RP6_X64 (for eLux RP 6.3 and later versions)
- ...\eLuxng\UC_RP6 (eLux RP 6.1 and 6.2)
- ...\eLuxng\UC_RP5

3.1. Installing a container

The installation is covered by the [Installation](#) guide. For further information, see [Installing a container](#).

3.2. Exporting packages and containers

Important Use the ELIAS **Export** feature instead of copying files by using the Windows Explorer. This is to ensure that all sub-components and basic information on dependencies are included.

From ELIAS, you can export all packages of an IDF or individual packages:

- By clicking **Image > Export...** you create a new container to which all the packages defined in the relevant IDF are copied. This is particularly useful if you want to update your devices from a USB mass storage device and all packages (optional: only these) should be included on the USB stick to which you want to update.
- By clicking **Container > Export Package...** you export individual packages, for example to provide them on the Scout Server without internet access. As for the import feature, all features of the software packages are automatically transferred and there is no need to copy anything manually.

Exporting all packages of an IDF into a new container

1. Click **Container > Select...** to open the existing container.
2. Click **Image > Open...** to open an existing IDF, or click **Image > New** to create a new image. See also "Creating a new IDF" on page 11. Alternatively, use the provided icons.
3. Click **Image > Export...**
4. Click **Browse** and select a target directory as the new container, and then type a name for the IDF. Confirm with **Save**.
5. Optional: If the target directory, for example on an eLux Recovery USB stick, already contains packages but you only want the defined packages from the IDF, select the option **Deleting packages that are not defined in the IDF from the target directory**.
6. Confirm with **OK**.

The IDF and the defined packages including all features (components) are copied into the new container located in the target directory. The container includes both, the activated and the non-activated features.

Exporting individual packages

1. To open the relevant container, click **Container > Select....**
2. On the right, select one of the packages of the container.
3. Click **Container > Export package....**
4. Select the target directory and confirm with **Save**.

The standard name of the package must not be changed. The package is saved to the selected directory.

5. Repeat these steps until all required packages have been exported.

3.3. Importing packages into a container

A container published on our technical portal includes **all** software packages which have been released for the relevant eLux operating system version. In some cases, there is no need to download a complete container as only few packages suffice.

The **Import Packages** feature allows you to import either a new software package or to overwrite an already existing package in your container. All features and the software dependencies of a software package are kept.

Important To import packages, use the ELIAS **Import** feature instead of copying files in the Windows Explorer. This is to ensure that all sub-components and basic information on dependencies are included.

Important Do not unpack the `.zip` file. This is done by ELIAS.

1. To download individual software packages, sign in at myelux.com.
2. Under **Download > eLux Software Packages**, select the container for the required eLux version and download the relevant package.
3. Save the package on your web server into the directory containing the relevant container. Do not save the package directly into the container!

The software package is saved as a `.zip` file.

4. Start ELIAS and open the required container by clicking **Container > Select...**
5. Click **Container > Import Package**.
6. Select the `.zip` file from the file system and click **Open**. You can open more than one `.zip` file in one step.

The software package is added to the container currently opened in ELIAS.

3.4. Deleting packages from a container

To remove out-of-date software from a container, delete the relevant software package.

Important Deleting packages cannot be undone. Before deleting, check if the relevant package is part of any image definition file (`.idf`). To restore packages that have been deleted accidentally, import the package once again.

1. In ELIAS, open the relevant container.
2. Select the software package you want to delete.
3. Press DEL.
4. Confirm the message with **Yes**.

4. IDF

An image definition file is a structured package list defining all software packages for the operating system and applications.

One of the basic ELIAS features is the built-in mechanism checking for conflicts and dependencies regarding other packages. Required packages are automatically identified and requested. They can easily be added with just one click. This prevents software incompatibilities in the image definition file.

4.1. Creating a new IDF

In a image definition file, you define those software packages you want to have installed on the devices' flash memory. This allows you to compose images to be installed according to individual requirements.

In ELIAS, the first step is to load the contents of a software container. These are then shown as available packages on the right. From the available packages, create a list of the packages you want to include in the IDF on the left.

Note

To avoid conflicts, we recommend that you always use the latest packages provided with an eLux operating system version.

During the definition process, note that details on the software packages and the current IDF are shown on the bottom. For further information, see "Interface" on page 6.

Creating a new IDF

1. Make sure that the relevant container is shown on the right. If this is not the case, click **Container > Select...** and, in the file system, on the FTP or HTTP server, open the relevant container directory (Example: UC_RP6) with the `container.ini` file.
*The available container packages are listed on the right under **Available packages**.*
2. Click **Image > New**.
*On the left, the list of **Defined packages** is empty when you start.*
3. On the right, click a container package. You might begin with the relevant BaseOS package. Alternatively, you can begin with the required application, for example Citrix Workspace-App.
For the selected package, the details are shown below.
4. Click the left arrow button **<==** to add the selected package to your IDF.
*The container package selected on the right is copied to the **Defined packages** list on the left.*
5. If a package requests further packages or features for correct installation, confirm with **OK**.
The requested packages are also copied.

Note

ELIAS continues requesting required software packages until the defined firmware is operational. You can only save an IDF that is operational. For example, the `BaseOS`, `XWindows` and `GNOME Desktop` packages represent a minimal eLux firmware.

Depending on the device's hardware, additional drivers packages might be required such as VIA or ATI graphics drivers.

6. To activate/deactivate individual features within a defined package, click the + icon of the package on the left, select the relevant feature and press the SPACEBAR. For further information, see below.
7. Add all relevant packages to the **Defined packages** list.
All packages displayed on the left will be included in the IDF.
8. Click **Image > Save**, choose a descriptive name and save the new IDF to the container.

Activating/Deactivating features in defined packages

Each `.epm` package contains different components, the so-called features (`.fpm`). To expand the package and show the features, click the + icon in front of the package symbol. The features have different symbols:

gray box	Mandatory component that cannot be deactivated
white box	Feature you can activate or deactivate

- ▶ Press the SPACEBAR to activate or deactivate
or
select the feature and click **Deactivate/Activate**.

Deleting packages from an IDF

1. Select a package from the **Defined packages list** on the left.
2. Click ==>.

The package is removed from the Image Definition File.

Size restriction

While defining an IDF, there is no restriction regarding the maximum size. The total size of an image may be greater than the capacity of the flash memory as long as you are trying and testing. The final IDF, however, must not exceed the size of the flash memory. Check the total size before saving the IDF.

4.2. Updating existing IDF's

Updating the firmware of your devices can become necessary or reasonable when specific packages are available in a newer version, for example. In ELIAS, you can easily replace individual packages in your IDF.

Note

The installed BaseOS can be replaced quickly and safely by another BaseOS version. All packages required are also replaced by the respective versions, provided you confirm the replacement in the upcoming dialogs.

Note

To avoid conflicts, we recommend that you always use the latest packages provided with an eLux operating system version.

1. Make sure that the relevant container is shown on the right. If this is not the case, click **Container > Select...** and, in the file system, on the FTP or HTTP server, open the relevant container directory (Example: UC_RP6) with the `container.ini` file.
*The available container packages are listed on the right under **Available packages**.*
2. Open the relevant IDF. To do so, click **Image > Open...** and load the relevant `.idf` file.
*On the left, the list of **Defined packages** is shown.*
3. To add packages to your IDF, select them on the right and click the left arrow button **<==**
4. To activate/deactivate individual features within a defined package, click the **+** icon of the package on the left, select the relevant feature and press the SPACEBAR.
5. To delete a package from the IDF, in the **Defined packages list** on the left, select the package and click **==>**.

For further information, see "Creating a new IDF" on page 11.
6. Click **Image > Save**, or click the relevant icon to save the updated IDF to the container.

The devices will be updated to the modified IDF without further action if they are configured to check for new versions on start or shutdown.

Note

If an IDF is unchanged, the devices will not update to it as Scout checks the file for modifications.

4.3. Saving an IDF

1. Check the total size of the image shown in the upper section under **Image**. The total size of an image must not exceed the capacity of the devices' flash memory.
2. Select **Image > Save** or **Image > Save as...**
3. Choose a descriptive file name without white spaces for your IDF.

4. Make sure the target directory is pointing to the correct container directory. Normally, the container is located in the root directory of the FTP or HTTP server.
5. Click **Save**.

The IDF is saved to the respective container.

4.4. Signing an IDF

ELIAS provides the possibility to sign image definition files (IDFs) by using private code-signing certificates. To do so, you need to import an appropriate certificate into the ELIAS certificate management.

1. Create and import a code signing certificate (.pem/.cer Base64-encoded) in the certificate management of ELIAS. To do so, select **Security > Manage certificates... > Import...**

Note

The **Organization** attribute of the certificate must be filled to use a certificate in ELIAS.

2. To sign the IDF currently opened in ELIAS, ensure that it is saved, and then select **Security > Sign IDF...**

Depending on the format of the certificate, the signing process might involve specifying the file path of the private key file.

The generated signature file is saved to the directory (container) of the IDF. Once an IDF is signed, the string `signed` is added to the IDF file name shown in the image title.

3. Transfer the code signing certificate and root certificate to the devices to `/setup/cacerts`. To do so, use the Scout feature **Files configured for transfer**. For further information, see [Files configured for transfer](#) in the **Scout** guide.
4. Make sure the signature verification for the devices is enabled. Signature verification is an option of the device configuration in **Device configuration > Firmware > Security**. For further information, see [Firmware security through signature](#).

Note

Any changes to the signed IDF in ELIAS will delete the signature. After having changed and saved a signed IDF, repeat the signing procedure.

The result of the signature verification is documented in the update log on the device. After the update is performed, the update log file is sent to the Scout Server and can be viewed for the selected device in the **Properties** window by double-clicking the **Update status** field.

4.5. Exporting an IDF

This feature helps you export the currently opened IDF and the herein defined software packages to another local directory, to a network file server or to a USB storage device.

1. Click **Image > Export...**
2. Click **Browse** and select the required target directory.
3. If required, change the default file name **recovery.idf**.
4. Click **Save**.
5. To delete packages from the target directory that are not defined in the IDF, select the relevant option.
6. Confirm with **OK..**

The IDF is exported as defined.

4.6. Printing an IDF

For documentation purposes, it might be useful to print a list of the software packages of a particular IDF.

1. To choose layout and printer options, click **Image > Print Options...**
2. If required, click **Image > Print Preview**.
3. Click **Image > Print....**

5. USB recovery stick

Note

This feature is provided for eLux RP 5 - UEFI devices included - and eLux RP 6. Alternatively, for all eLux versions, we provide a predefined recovery image on our portal on myelux.com for download. For further information, see [Recovery via USB](#) in the **Recovery** guide.

ELIAS helps you create a USB recovery stick that you can use to install individual eLux images on your devices.

In addition, to make it distributable, you can use the generated USB recovery stick to create a disk image in `.zip` format.

The installation of eLux with an individual USB recovery stick is carried out in the same way as a USB recovery installation with a USB image from our portal. The installation process is started right after the system prompts you for confirmation of the eLux RP recovery. For further information, see [Performing a USB recovery](#) in the **Recovery** short guide..

5.1. Creating an individual USB recovery stick



Requires

- PC running Windows 10 or later versions with the ELIAS tool installed
- Administrator rights for ELIAS
- Write access to a local USB port
- Connected USB stick with 2 GB memory space

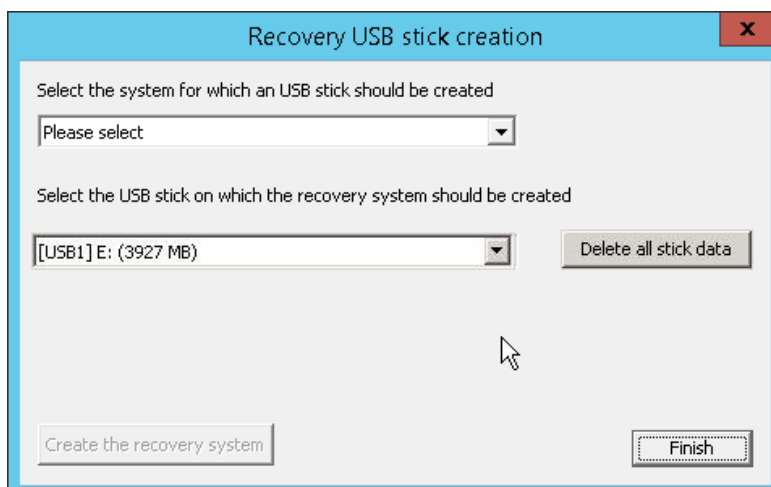
Creating a USB recovery stick

1. In ELIAS, open the relevant IDF (.idf).
2. Click **Image > Create USB stick ...**
3. In the **Recovery USB stick creation** dialog, in the first list field, select the operating system of the relevant devices for which you want to create the recovery flash drive:

eLux RP 6 X64 Recovery	eLux RP 6 (64 Bit) with and without UEFI
eLux RP 5 Recovery	eLux RP 5
eLux RP 5 UEFI Recovery	eLux RP 5 with UEFI

Note that, depending on the selected system, the image must contain the relevant eLux packages for the 64 bit kernel and UEFI.

4. In the second list field, select the appropriate USB drive. If more than one USB storage device is connected, select the relevant one.
5. To delete the contents on the selected USB stick or reset an existing recovery system, click the **Delete all stick data** button.
6. Click **Create recovery system**.



Creating a USB recovery stick involves two important steps:

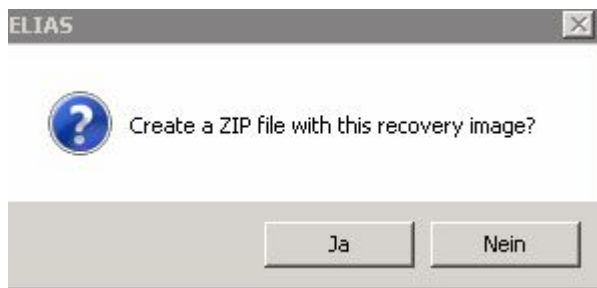
- Creating the recovery system on the USB storage device to turn the USB stick bootable
- Transferring the individual IDF containing the relevant eLux packages to the container directory on the USB stick.

A progress bar at the bottom indicates the status of the copying process. As soon as the USB stick is fully written, a message is displayed.

After having created your USB recovery stick, you can optionally create a disk image in terms of a `.zip` file to make it distributable.

Creating a disk image of the USB recovery stick

1. Immediately after the creation of the USB recovery stick, click **Yes**.



2. Select a storage location and name for the `.zip` file.

ELIAS creates a `.zip` file containing an image of the USB recovery stick as a `DD` file. In addition, the `.zip` file includes the application `StickWizz.exe` and a text file with a description.

The **StickWizz** tool helps you create a bootable USB stick out of the image. For further information, see [Preparing a recovery image for USB](#) in the **Recovery** guide.

Note

Hint: Alternatively create an `stw` file from your image on a local or network drive. The **StickWizz** tool then helps you create a bootable USB stick out of the `stw` file. For further information, see ["Writing an image to USB \(with StickWizz\)"](#) on page 20 in the **Recovery** guide.

5.2. Creating an individual StickWizz file as an installation base

You might want to create a disk image of your image as an installation base on a local or network drive. **StickWizz** helps you create a bootable USB stick out of the `.stw` file.



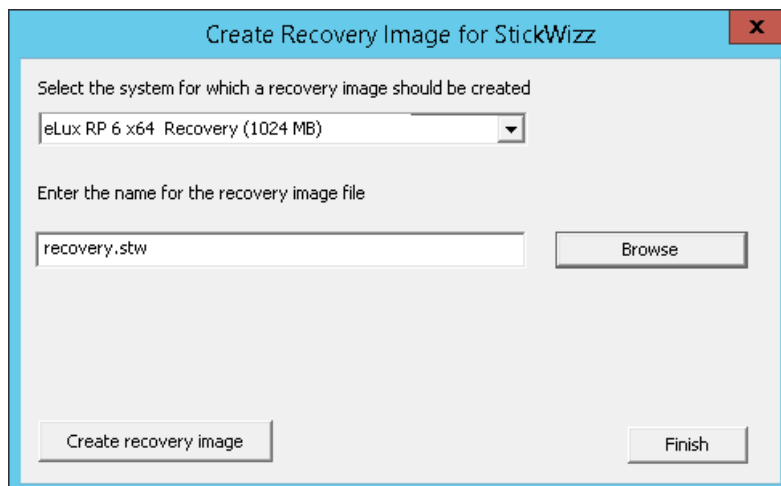
Requires

- PC running Windows 10 or later versions with the ELIAS tool installed
- Administrator rights for ELIAS

1. In ELIAS, open the relevant image (`.idf`).
2. Click **Image > Create StickWizz image...**
3. In the **Create recovery image for StickWizz** dialog, in the first list-field, select the operating system of the relevant devices for which you want to create the recovery flash drive:

eLux RP 6 X64 Recovery	eLux RP 6 (64 Bit) with and without UEFI
eLux RP 5 Recovery	eLux RP 5
eLux RP 5 UEFI Recovery	eLux RP 5 with UEFI

Note that, depending on the selected system, the image must contain the relevant eLux packages for the 64 bit kernel and UEFI.



4. In the second list-field, choose a name for your `.stw` file. To change the storage location, click **Browse**.

By default, the `.stw` file is saved to the container selected in ELIAS.

5. Click **Create recovery image**.

ELIAS creates a recovery image as a disk image in a `DD`-like format.

By using **StickWizz**, you can create a bootable USB stick out of the `.stw` file. For further information, see **Preparing a recovery image for USB** in the **Recovery** guide.

5.3. Writing an image to USB (with StickWizz)



Requires

- Image file as a `.stw` or `.dd` file on a PC running Windows 10 or later versions
- StickWizz application on your PC (see Preparing a recovery image for USB)
- USB stick on local port with 4 GB memory space, write access

1. Plug the USB stick into the PC.
Note that the Windows Explorer must not be open on the USB drive.
2. Run the `StickWizz.exe` program.
The language depends on the Windows display language selected.
The checksum is calculated and compared to the one provided.
3. Check whether the appropriate source under **Image file** (1) and the appropriate destination under **Device** (3) are selected.
4. Click **Write** (7).

The image is written to the USB stick. A message confirms the successful completion.



- 1 After StickWizz is started, it shows a `.stw` or `.dd` file located in the same directory.
- 2 Browse to select your image file from another directory, if required.
- 3 Device /drive, on which a USB stick is connected
Choose a different drive if required.
- 4 Delete all data from the selected device (before writing the image)
- 5 During the write process, each written data packet will be compared to the source.
- 6 As soon as StickWizz opens with the specified file, the checksum is calculated and displayed.
- 7 Start writing

6. Security menu

Option	Description
Checking for signature automatically during import	Signatures are automatically verified during import of the packages.
Check all packages in the container	Verifies the signatures of all packages in the container
Checking selected package	Verifies the signatures of a selected package and its components in the container or image window
Signature and certificate information...	Displays the security status of a package selected in a container or image list and of its components
Signing IDF...	<p>Allows to sign image definition files (IDF) by using private certificate-based signatures (pem/p12)</p> <p>Requires the configuration of an appropriate certificate in the ELIAS certificate management</p>
Manage certificates...	Enables the management of certificates in the "trusted list" of ELIAS
Settings...	<p>An Online Certificate Status Protocol (OCSP) server is used to verify the status of a certificate (<i>valid, revoked, unknown</i>).</p> <p>Proxy server (optional): If you use a proxy server to connect to the Internet, enter the proxy server IP address (or name) and the port.</p> <p>OCSP server: In general, the OCSP server is automatically read from the certificate. If this information is not available, you can enter a default OCSP server in URL format and the port manually. Format: <code>http://<OCSP server URL></code> Default: <code>http://ocsp.openvalidation.org</code> and port 80</p> <p>OCSP check when packaging: Before signature check, the validity of the certificate is automatically verified.</p>