

ELIAS 18

Administrator's Guide

How to create individual images

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0. Legal information

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1. Overview

Our new web-based ELIAS 18 front-end is platform-independent and easy to use. It helps administrators keep their firmware images up-to-date with the latest software packages, always with regard to compatibility between all packages and components.

Our eLux Image Administration Service (ELIAS) allows you to easily manage the firmware of devices running eLux. Firmware images contain the operating system and applications and can be modified by using ELIAS. ELIAS helps you create individual image definition files (IDF). An IDF is a structured package list defining all software packages for the operating system and applications that will be installed on the devices' flash memory. Once created, an IDF can be used as target for a firmware recovery or a firmware update. After a successful recovery installation or update to an individual IDF, the firmware image installed on the device is consistent with the image defined in the IDF.

For reasons of simplicity, in the following, we shall simply call an IDF **image**.

ELIAS ensures that all software packages required for an operational image are included, checks software dependencies and avoids version mismatches. Required packages are automatically identified and requested. You can even choose whether ELIAS should always provide the latest version of a specific software package and, at the same time, you need not worry about compatibility with other packages.

For the API documentation, see [ELIAS API documentation](#).

2. Starting ELIAS 18



Requires

ELIAS has been installed successfully. For further information, see [Installation: ELIAS 18](#) in the **Installation** guide.

ELIAS is started with an URL pointing to your installed ELIAS web service.

Without IIS:

- ▶ In the web browser, type the following URL:

`http://<host name>:<port number>` or
`https://<host name>:<port number>`

`<host name>` refers to the computer name or IP address of the computer ELIAS is installed on.

`<port number>` is the port you have specified for the ELIAS web service

With IIS redirection:

- ▶ In the web browser, type the following URL:

`http://<host name>/path` or
`https://<host name>/path`

`<host name>` refers to the computer name or IP address of the computer ELIAS is installed on / your web server.

`<path>` is the specified ELIAS path name under your web site (`elias` in the example above)

Note

The computer ELIAS is installed on provides an ELIAS desktop icon.

For access from outside the network, see [Installation: ELIAS 18](#) in the **Installation** guide.

3. Access management and login

When you start ELIAS, you will be prompted to log on.

ELIAS 18 offers users three different ways to log on:

- Active Directory user accounts
- Local admin account
- Keycloak user role (identity management software / OpenID Connect)¹

By default, the logon types are available side by side and you can switch between them. The user accounts for Active Directory and Keycloak must be prepared for this purpose.

If needed, you can deactivate the local logon option.

Logging on to ELIAS 18

1. To choose the logon type, click the required tab or the link for Keycloak logon:

- 1 AD logon: The AD user account must be authorized for ELIAS.
- 2 Local logon with username **admin**
- 3 Logon via Keycloak:² Redirection to the Keycloak logon page

2. Type your username and password.
3. Confirm with **Log on**.³

The user you are logged on as is shown on the ELIAS menu bar next to the  **User profile** icon.

3.1. ELIAS role concept

- from ELIAS 18.3 -

¹from ELIAS 18.3

²from ELIAS 18.3

³or press the Enter key (from ELIAS 18 2110)

Regardless of whether users are authenticated via Active Directory or via Keycloak, they obtain their access rights by being assigned to one of the ELIAS roles **Info**, **User** or **Admin**. The rights of the three roles build on each other.

Info: View the content of images, no changes possible

User: Create and edit templates and images within a container

Admin: Manage container, delete software packages, import / edit certificates within a container

On top of this is the **Global admin**, who manages access rights, can manage multiple containers and change ELIAS settings. The **Global admin** is defined by an ELIAS access right with **global access**. Initially - directly after the installation - the local admin account is provided for this purpose. With the local admin account, you initially define the ELIAS access rights. An ELIAS access right contains the following:

- Relevant users (AD or Keycloak)
- ELIAS role with rights
- Container to which the ELIAS role rights refer
- Option for global access

You can see that the user and access management depends on the ELIAS access right. After you have defined an ELIAS access right with global access (**Global admin**), you are free to disable the local admin account.

List of ELIAS role rights

Feature		Admin	User	Info
Templates and images	create	✓	✓	X
	save (as)			
	edit			
	rename			
	solve			
	delete			
	sign			
	lock			
	export			
Container	export	✓	✓	X
	create	✓	X	X
	import			
	rename			
	clean up			
Container information	delete			
	view	✓	✓	X
Software packages	delete	✓	X	X












Feature		Admin	User	Info
Change log	view export	✓	✓	X
Notification history	view	✓	✓	X
Certificates	view	✓	✓	X
Certificates for package validation	import	✓	X	X
Certificates for image signing	edit	✓	X	X

3.2. ELIAS access rights

- from ELIAS 18.3 -

ELIAS access rights assign users to a container and an ELIAS role, which in turn controls the individual rights within the container. To cover multiple combinations, define as many ELIAS access rights as you need.

The figure below shows the **Access rights** dialog after access rights for AD users and groups have been defined:

Access rights			
User 1	Container ↓ 5	ELIAS role 6	7
 		Global admin	
 elias@int.sampletec-01.com 2		Global admin	
 it-3@int.sampletec-01 3	UC_RP6_X64	User	
 it-4@int.sampletec-01.com	UC_RP6_X64	Info	
 mmi@int.sampletec-01.com 4	UC_RP6_X64	Admin	

- 1 Users / User groups originating from Active Directory or Keycloak
- 2 **ELIAS AD group as access right with global access (created by installation routine)**
- 3 AD group as basis for ELIAS access right (defined by global administrator)
- 4 AD user as basis for ELIAS access right (defined by global administrator)
- 5 Container that users are allowed to access


The global administrator is allowed to access all containers

6 Defines the allowed functions, see "ELIAS role concept" on page 6

7 Delete access right





Note: The access right is deleted without confirmation.

Defining access rights

1. Prepare the relevant users in your Active Directory or Keycloak system. For further information, see "Access management via AD" on page 11 and "Access management via Keycloak" on page 11 .
2. Log on as **Global admin**. To do so, you can use the user account of the local administrator (Local logon).¹
3. On the ELIAS menu bar, click  **Access rights**.
4. At the bottom right, click **Add**. For your new ELIAS access right, specify the properties. The figure shows the definition of an access right for an AD group.

¹the local admin password has been defined during installation

New access right

AD group

IT-3

AD domain

int.sampletec-01.com

ELIAS role

User

Container

UC_RP6_X64

Global admin

☐

1 Origin of the user accounts

Keycloak role: All members of the Keycloak role to be specified under (2)

AD username: AD username to be specified under (2)

AD group: All members of the AD group to be specified under (2)

AD domain: All members of the AD domain to be specified under (2)

2 Name of the Keycloak role, AD user, AD group or AD domain

3 AD domain - only for AD users and AD groups

4 ELIAS role that will be assigned to the users selected above

5 Container the selected users are allowed to access

6 Global access for the selected user(s)

No assignment to a role or a container is made.

Important Users who receive **global access** via their ELIAS access right are authorized for rights management, container administration and ELIAS configuration.

5. Save the ELIAS access right.
6. Create further access rights, if required.

Note

Once ELIAS access rights have been defined, they cannot be edited. Delete and recreate an access right if required.

3.3. Access management via AD

Provided, you have activated the **AD logon** during installation, AD users can log on to ELIAS 18 with their accounts if they are either members of the **ELIAS** AD group or are authorized via an access right defined in ELIAS.¹

AD group ELIAS

Members of the **ELIAS** AD group, which has been set up in your AD system for this purpose, can log on directly with their AD account to ELIAS 18.

Prerequisite:

- ▶ In your Active directory system, create an AD group named **ELIAS** and add the relevant users to this group.

After installation, you will find a group named `elias@<AD domain>` in ELIAS under **Access rights**. `<AD domain>` corresponds to the domain specified during installation. Example:

`elias@int.sampletec-01.com`

Note

All members of the **ELIAS** AD group have the **Global Admin** role and thus access to all functions and all containers.

After the ELIAS installation, you can change the AD group name:

- ▶ Edit the file `Program Files\Unicon\Scout\ELIAS\server.json` and modify the value of the **adGroup** parameter. Subsequently, restart the ELIAS service in `Services.msc`

ELIAS access rights²

The users are granted an access right configured in ELIAS. This may be a user or a group of any domain. The access rights are defined by an administrator with global access. Included in the access right is the ELIAS role that defines which functions the users have access to.

Users who are authorized to log on via an ELIAS access right also log on with their AD account. However, authentication is independent of any predefined group or domain membership.

Prerequisite:

- ▶ In ELIAS 18, in the **Globaler Admin** role, create access rights based on your AD system.

For further information, see "ELIAS access rights" on page 8.

3.4. Access management via Keycloak

- from ELIAS 18.3 -

¹from ELIAS 18.3

²from ELIAS 18.3

Keycloak is an open source solution for identity and access management. Keycloak also acts as an identity broker and supports user accounts from social networks. In order to use Keycloak for user logon, Keycloak must be configured on the server side and a Keycloak client must be installed.

Keycloak uses role-based access rights. In Keycloak, you define and assign roles and users. The Keycloak roles are then assigned to the ELIAS roles **Info**, **User** and **Admin**.

Configuring Keycloak

1. In the Keycloak administration console, create a realm for your environment.
2. Create your Keycloak client.
3. Within your client, create roles and users. Assign a role to each user.

Note

Only Keycloak **roles** (and no Keycloak users) can be assigned in ELIAS. To make distinctions in access rights or the assigned container, define a separate Keycloak role for each combination.

4. From your Keycloak client, on the **Installation** tab, download the Keycloak configuration file as **Keycloak OIDC JSON**.
5. Add the Keycloak configuration file `keycloak.json` to your ELIAS installation directory (Example: `C:\Program Files\Unicon\Scout\ELIAS`).
Alternatively, save the file in a different directory that you specify during the ELIAS installation. The Keycloak configuration file will then be copied into the installation directory as `keycloak.json`.

Configuring ELIAS for Keycloak after installation

1. Copy the Keycloak configuratio file `keycloak.json` manually into the ELIAS installation directory.
2. In the **ELIAS settings > Authentication**, select the option **Use Keycloak logon**.

Installing certificates for HTTPS connection



Requires

To allow Keycloak logon via a secured Keycloak server, web server certificates are required.


1. In the ELIAS installation directory, create a new directory named `certificates`.
2. Copy your web server certificates (intermediate and root) into the new directory. The certificate files can be of type `.pem` or `.crt`
3. Additionally copy the certificates into your browser's certificate store.

3.5. Logon as local admin

For local logon, use the **admin** user account. During the installation, you are requested to define an initial password for it. The admin password will be hashed and saved to the file `Program Files\Unicon\Scout\ELIAS\server.json` under the **adminPassword** parameter.

The local **admin** account is equipped with global access and is primarily intended for initial configuration independent of access management via AD or Keycloak. Use the local **admin** account to define ELIAS access rights. Once you have defined an access right with global access, you may deactivate the local account.

Changing password for local admin account

1. On the ELIAS menu bar, click  **Logon**.
2. In the logon dialog, click **Change password**.


Disabling local admin account

Note

First make sure that there is another admin account with global access.

1. Edit the file `Program Files\Unicon\Scout\ELIAS\server.json`
2. Set the **adminPassword** parameter to an empty string ("").
3. Restart the ELIAS service in `Services.msc`.

3.6. Switching between the accounts

1. On the ELIAS menu bar, click  **User profile**.
2. Click **Log off**.
3. In the **Logon** dialog, click the required logon type. Then type your username and password.

4. First steps

4.1. Importing software packages

Before creating an image, you need to make the relevant eLux software packages available in ELIAS, in a container.

The first container is created by the installation routine, but is still empty. One container is sufficient if you use only one major eLux version such as eLux RP 6. For further information on creating additional containers, see "Creating a container" on page 32.

You will need to fill your container with the required software packages. To do so, import software packages downloaded as `.zip` files from our portal into the container. To be on the safe side, we recommend that you download the `eLuxRP-X.X.X_AllPackages.zip` for the relevant eLux version. This archive contains all available software packages of an eLux version.

Of course, you can download and import individual packages at any time to obtain up-to-date software packages.

Important Before importing `.zip` files, do **not** unpack them. This is done by ELIAS.

1. To download software packages from our portal, sign in at myelux.com. Then, under **Downloads > eLux Software Packages**, click the required eLux version and download the relevant `.zip` file or files.
2. In ELIAS 18, open the container you want to fill. Switch to the **Package Library**.
*The name of the open container is shown on the ELIAS title bar. The **Package Library** of new containers is initially empty.*
3. In the **Package Library**, at the bottom, click **Import**.
4. Select the relevant `.zip` file from the file system and click **Open**.

Note

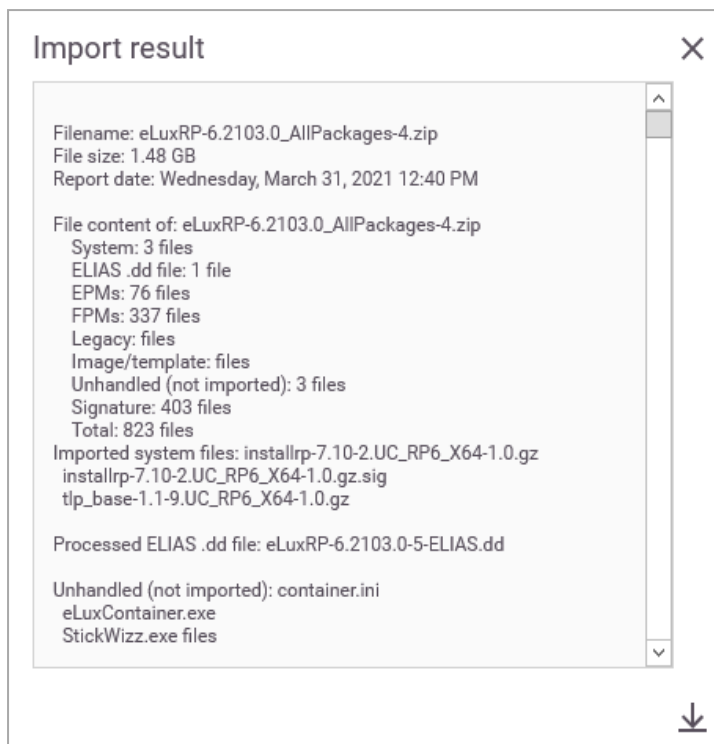
Importing the `AllPackages.zip` may take some minutes.

During the import process ELIAS performs the following tasks:

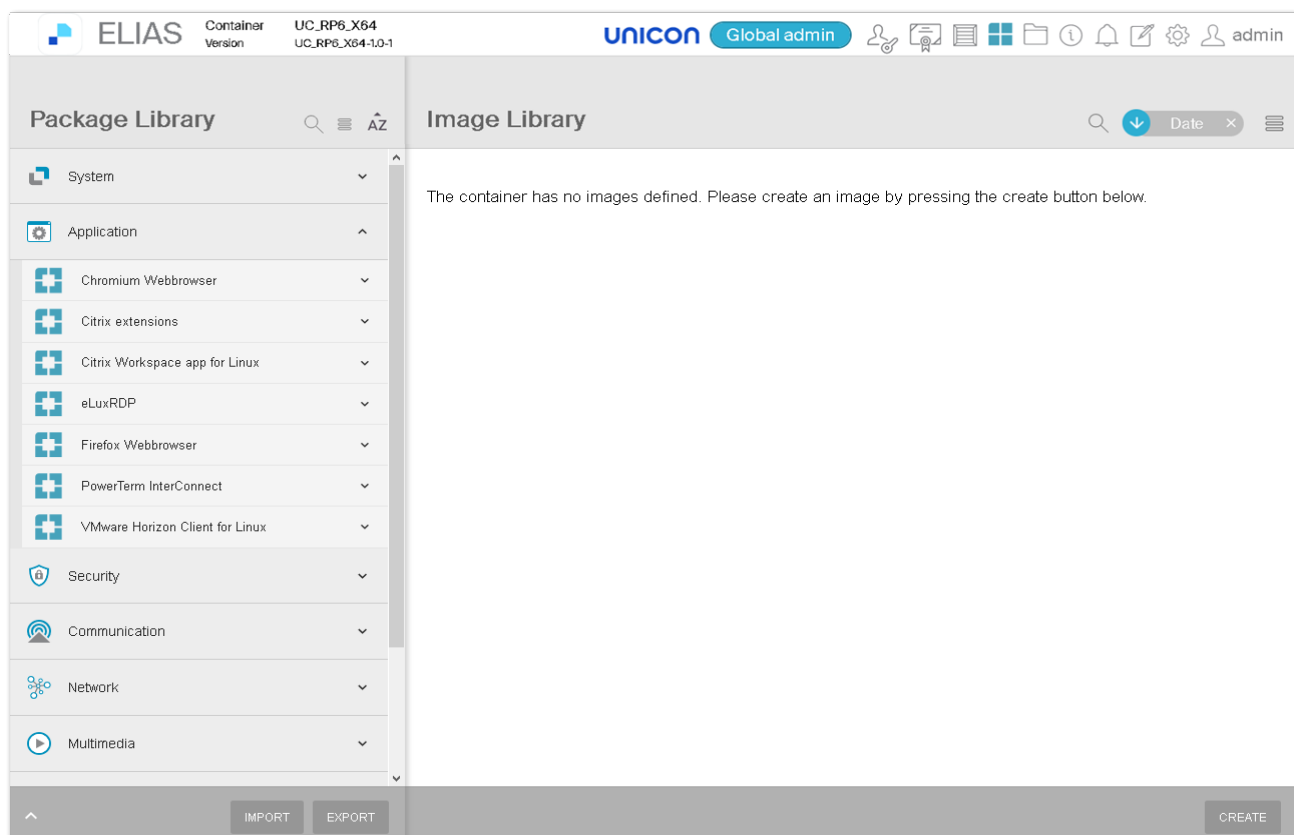
- The file or files are uploaded and extracted.
- System files, software packages and, if available, images and templates are imported into the current container.
- The signatures of the software packages are verified.
- The solver is generated to resolve the dependencies.

The import result is displayed containing information on all imported files and any error messages.

Use the download  icon to download and save it as a text file:



After they have been imported, the packages are shown in the **Package Library**, grouped by categories. If you have imported images or templates, they are shown in the **Image Library**.



For further information, see "Package Library" on page 23.

Further information on package import

- In addition to software packages (.zip), you can import images (.jif) and templates (.idt).
- Files to be imported may have a maximum size of 10 GB¹ (2 GB via API)
- You can import multiple files in one step. To do so, select them while pressing CTRL.
- Several import processes may be triggered and executed in parallel.²

¹from ELIAS 18 2104

²from ELIAS 18 2104

4.2. Quick run to create an image

Before taking a closer look at detailed functions, let's first do a quick run to create an image.



Requires

Container with all software packages of an eLux version

For further information, see "Importing software packages" on page 14.

1. To create a new template, in the **Image Library**, at the bottom, click **Create**. Type a name for the template and press ENTER.

Your new image template is created but still empty.

2. To add software packages, in the **Package Library**, open a category. Then use drag-and-drop operations to add at least one software package to your template. Click **Save**.

Your template is saved.

3. Click **Solve** to create an image out of the template.

ELIAS replaces unversioned packages by the latest version.

Also, ELIAS checks for additionally required packages and adds missing packages. These are displayed as colorless icons, unless you click to pin them.

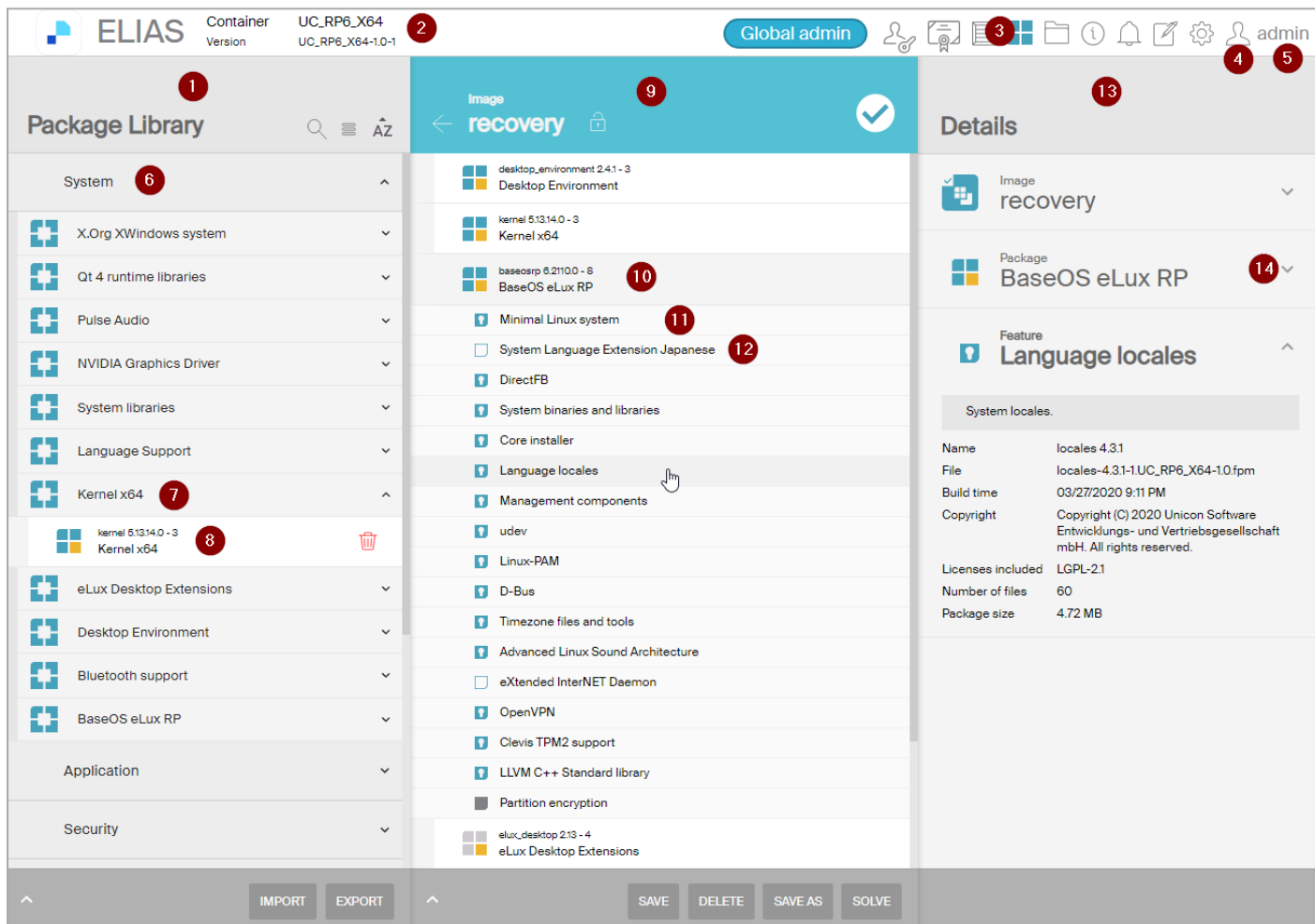
4. Click **Save** to save the image.

5. Interface

After you have installed ELIAS, you can change its look to something similar to below. To do so:

- ▶ Fill your container by importing software packages.
- ▶ Create an image template.
- ▶ Solve the template to an executable image.

When you use ELIAS, you will mostly use the **Package Library** view. The ELIAS interface then is divided into two sections. The figure shows a container with imported software packages on the left (**Package Library**) and an open image to the right of it (**Image Library**). On the very right, you see details of the image and selected package and feature.



1 **Package Library** of the open container

2 Name and version of the open containers

3 Switch from **Package Library** to **Certificate Library** or **Container Library**

4 Open user profile

5	User admin logged on
6	One of the categories the software packages are grouped by
7	eLux software package (unversioned)
8	eLux software package in current version
9	Image Library with open image (IDF) related to the open container, is currently being edited and is marked as complete ✓
10	eLux software package defined in the image
11	Subordinate feature, mandatory
12	Subordinate feature, optional
13	Details of the image and selected package and feature
14	Hide/Show details

In the **Image Library**, you can alternatively open an image template or show all available images and image templates.

5.1. ELIAS menu bar










The icons on the menu bar depend on the user logged on and the ELIAS role assigned to him.¹ Members of the **Info** role have only few functions available, the **Global Admin** has all functions, see figure above.

Global admin	ELIAS role of the logged-on user or Global Admin ²
	ELIAS access rights ³ only visible for Global Admin
	Certificate Library
	Container Library

¹from ELIAS 18.3




²from ELIAS 18.3

³from ELIAS 18.3

	Package Library
	Container Explorer ¹
	Information on the software version API and documentation links
	View all notifications ²
	Change log for images and templates ³
	ELIAS settings ⁴ only visible for Global Admin
	User profile <ul style="list-style-type: none"> Change language and date format Change password Log off

5.2. Library icons

Image Library (Overview) icons



Icon	Description
	Image template Serves as a basis for all images (IDFs)
	Incomplete image Image definition file (IDF) that is not yet operational
	Complete image Image definition file (IDF) that is operational

¹from ELIAS 18 2104




²from ELIAS 18.3

³from ELIAS 18.3



⁴from ELIAS 18.3





Icon	Description
	<p>Imported image that has defined packages/features that are not contained in the container</p> <p>To make the image operational, replace or delete the packages/features shown in red.</p>
	Signed image

Package Library icons

Icon	Description
	<p>eLux software package</p> <p>Package placeholder (unversioned package) in the Package Library</p> <p>Under a package placeholder, one or more specific versions can be found</p>
	<p>eLux software package in a specific version</p> <p>Signature is verified</p>
	<p>eLux software package in a specific version</p> <p>Signature is not verified</p>

Package and feature icons used in open images or templates (Image Library)

Icon	Description
	<p>eLux software package</p> <p>Can act as a package placeholder (unversioned package) in a template but is transformed in a versioned package when you create an image (with same icon)</p>
	<p>eLux software package in a specific version, unpinned</p> <ul style="list-style-type: none"> Automatically added to an image as required package when you solve a template that lacks these packages. Can be created by you: After dragging packages with a specific version into your image or template, click their icon to unpin them. <p>Unpinned software packages are replaced by the latest version when you solve an image or template.</p> <p>The yellow corner indicates that the signature has been verified by ELIAS.</p>

Icon	Description
	<p>eLux software package in a specific version, pinned</p> <ul style="list-style-type: none"> ■ When you drag software packages with a specific version into your image or template, they are automatically pinned. ■ You can pin automatically added packages to anchor the current package version. <p>The package version of pinned software packages is saved in an image/template and remains anchored when you solve the image or template.</p> <p>The yellow corner indicates that the signature has been verified by ELIAS.</p>
	Mandatory feature of a package that you cannot deactivate
	Optional feature, excluded
	Optional feature, included

5.3. Package Library

In the **Package Library**, the container you have selected in the **Container Library** is displayed.

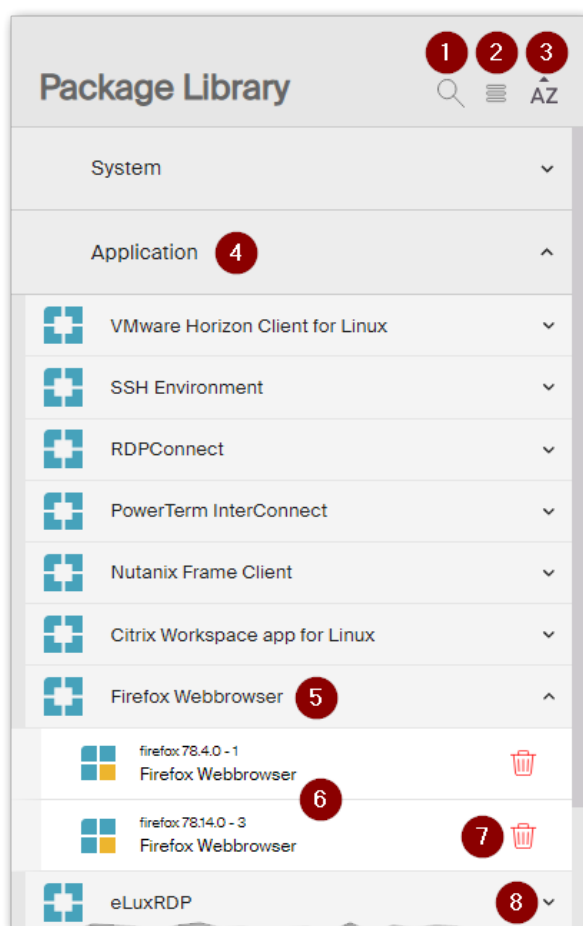
Once you have imported software packages into the container, they are shown in the **Package Library**. The figure below shows the packages of an imported `eLuxRP-6.4.0_AllPackages.zip` file.

Note

The term **Packages** refers to eLux software packages (EPM, eLux package module). They are stored in `.epm` files and normally have subordinate features (FPM, Feature package module) which are stored in `.fpm` files.

The **Package Library** allows you to do the following:

- Import and export packages. For further information, see "Importing software packages" on page 14.
- Select and define packages for an image or image template. For further information, see "Creating a template" on page 35 and "Creating an image" on page 37.



- 1 Search for package names and descriptions
For further information, see "Searching for packages, images and templates" on page 30
- 2 Switch to list view: Shows packages in alphabetical order
- 3 Toggle alphabetical sort order (ascending / descending)¹
- 4 Category: Related packages are grouped in categories.
- 5 Package placeholder (unversioned package)
- 6 Packages in specific versions
- 7 Delete package (**Admin** role required)
- 8 Show/Hide subordinate entries

¹from ELIAS 18.3

Note







You will probably mostly work with the **Package Library** and **Image Library**. If required, to change the view, click one of the buttons **Certificate Library** or **Container Library** on the ELIAS title bar.

5.4. Image Library

The **Image Library** contains all images and templates created so far. As soon as you open an image or template, you will see their details.

The **Image Library** allows you to do the following:

- From the overview (see screenshot): Create new image templates. For further information, see "Creating a template" on page 35.
- From an open image/template: Solve templates or images to create operational images. For further information, see "Creating an image" on page 37.
- From an open image/template: Edit, sign, export, delete and save templates and images under a new name.

Image Library					
		<div> <div>3</div> <div>4</div> <div> <div>Search</div> <div> <div>↓</div> <div>Date</div> <div>×</div> </div> <div> <div>Grid</div> </div> </div> </div>			
Image/Template	Status	Type	Size	Last modified	
 stec_04	Incomplete	idf	729.8 MB	a minute ago	
 stec_03	Complete	idf	987.2 MB	2 minutes ago	
 quick	Complete	idf	726.7 MB	7 minutes ago	
 quick	Incomplete	template	0 B	8 minutes ago	
 recovery	Complete	idf	793.9 MB	9 minutes ago	
 recovery	Incomplete	template	0 B	43 minutes ago	
				<div>5</div> <div>CREATE</div>	

- 1 Image template, click to open
- 2 Image (IDF), click to open operational/complete
- 3 Change sorting
- 4 Switch to icon view
- 5 Create new template

The icon color indicates whether it is a template or an image. If a template or image is complete in the sense of operational, it is displayed with a check mark.

Note

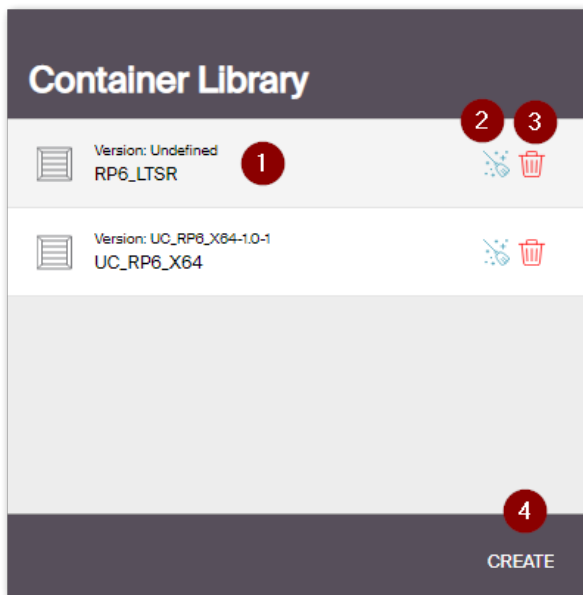
All images are based on templates. Templates do not need to be complete but images do to be operational.

5.5. Container Library

Note

All container functions require the **Admin** role.

- ▶ To view the **Container Library**, on the ELIAS title bar, click the **Container Library** icon.



1 Name and version of the currently open container (dark highlighting)

2 A container version is undefined until the first software package or image / template is imported.

3 Clean up container

All packages that are not used by any image are deleted. Sub-ordinated features are deleted unless they are used by an active package.

4 Delete container

After confirmation, the container and its contents are deleted.

You can manage multiple containers, for example one for each operating system version. The first container is created by the installation routine. To create further containers, at the bottom, click the **Create** button. For further information on creating and renaming, see "Creating a container" on page 32.

Note that initially, the containers are empty. In the **Package Library**, to fill them, import software packages as `.zip` files. For further information, see "Importing software packages" on page 14.

The **Container Library** is only used to create, delete, clean up and select containers.

Note

To show the content of a container, in the **Container Library**, click the relevant container name or icon. It will be displayed in the **Package Library**.

5.6. Certificate Library

With the **Certificate Library**, you can manage package validation certificates and image signing certificates.

- 1 Each container may include one private signing certificate for signing images and templates.
If no image signing certificate has been imported yet, the button is named **Import**.
- 2 Certificate store for package validation certificates and general certificates
When you install ELIAS, the current package validation certificates are also installed.
- 3 Import further or newer certificates
- 4 Details of the selected certificate
- 5 File name and validity period of the selected certificate

For further information, see "Managing certificates" on page 49.

5.7. Container Explorer

- from ELIAS 18 2104 -



Requires

ELIAS access right with global access (Global admin)

In the **Package library**, all **packages** of a container are displayed. To view all **files** of a container in list form, the **Container Explorer** is provided. eLux software packages (`.epm`), their child features (`.fpm`), archive files, signature files, recovery system files and `.dd` files are displayed.

The **Container Explorer** allows downloading files that are not part of a package. Export of all packages of a container can be done from the **Package library**, export of an image from the **Image library**. In the **Container Explorer**, the administrator now has the option to download other files such as archive files.

For the download, a `.zip` file is created with the selected files, which you can download via the browser function.

The screenshot shows the ELIAS Container Explorer interface. At the top, it displays 'Container UC_RP6_X64' and 'Version UC_RP6_X64-1.0-1'. The main header is 'Container Explorer'. Below this, there's a table with columns: 'File name', 'File ex...', 'File s...', and 'Date'. A red circle '1' points to a checkbox in the 'File name' column. A red circle '2' points to the 'File name' column header. A red circle '3' points to a dropdown menu that appears when clicking the 'File ex...' column header, showing options: 'Unsort', 'Sort by ASC', 'Sort by DESC', 'Filter', 'Hide', and 'Show columns'. A red circle '4' points to a 'DOWNLOAD SELECTED' button at the bottom right. The table lists several files, including 'zoomclient-5.8.0.16-1.UC_RP6_X64-1.0.epm', 'zoomclient_translations-5.8.0.16-1.UC_RP6_X64-1...', 'zoomclient_qt5-5.8.0.16-1.UC_RP6_X64-1.0.fpm', 'zoomclient_base-5.8.0.16-1.UC_RP6_X64-1.0.fpm', 'zoomcitrixplugin-5.8.0.20927-1.UC_RP6_X64-1.0.e...', 'zoomcitrixplugin_library-5.8.0.20927-1.UC_RP6_X...', and 'xorg-1.20.7.7-4.UC_RP6_X64-1.0.epm'. The bottom right shows '1-100 of 491' and navigation arrows.

1 Select all files

2 Sort by file name

Sorting can be done for any column.

3 For each column, sorting and filtering functions are available.

4 Download selected files

For security reasons, `.epm`, `.fpm` and `.sig` files cannot be downloaded.


Files for UEFI updates

To perform UEFI updates in the same way as firmware updates, import the required UEFI file (.udf) and UEFI firmware archives (.bin, .bup, .cab) into your container. These files are only shown in the Container Explorer.¹ For further information, see [UEFI update in analogy to firmware update](#) in the BIOS update guide.

¹from ELIAS 18-2201

5.8. Changing language

ELIAS is started with the language you have chosen for the installation. You can change the display language at any time:

1. On the ELIAS menu bar, click the **User profile** icon .
2. In the **Logon** dialog, select a language.
The display language is immediately changed.
3. To close the dialog, click next to it.

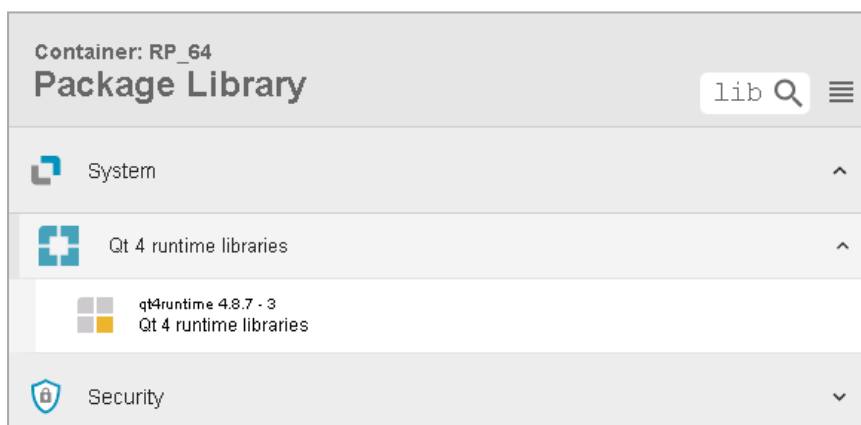
Note

In the **User profile** dialog, also the date format can be changed.

5.9. Searching for packages, images and templates

In the **Package Library**, you can search for software packages. In the **Image Library**, you can search for images and image templates.

Your search is applied in both views, in the list view and group or icon view.



1. To open the **Search** box, click the magnifier icon.
2. Type the name of an element. You can type partial names.

After each typed character, ELIAS filters the list and only shows elements that match the search string.

Note the following:

- The search is not case-sensitive.
- The search finds all matches that contain the specified string on any position. The wild-card character * is not required and not supported.

- In the **Package Library**, the search is applied to names and descriptions of software packages and features and to their details. In the group view, open the relevant categories or groups to see the matches. Note that the search string might be used only in the details. Matches in Features and Details are found, but not necessarily displayed. Features can only be displayed in the image library, so they must be contained in an image or image template. Regardless, ELIAS will find such matches, but will only display the containing packages in the package library

For example, if you search for `editor` and have all packages of an eLux version in the package library, only the **Desktop Environment** package will be displayed. This package contains two features that use `editor` in the name.

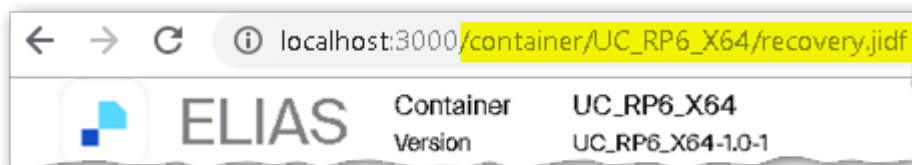
Note

To remove the filter and show all elements again, in the search box, remove the search string.

5.10. Saving views

- for ELIAS 18.1 and later versions -

When you are in one of the libraries, have opened a specific container, or are editing a specific image, the URL in the browser's address bar also indicates this:



- ▶ To save an individual view, save its URL as a bookmark.

6. Creating a container



Requires
Admin role

A container contains software packages of a major eLux version. The container name can be freely chosen and can be changed later on.

A first container is created by the installer and is empty unless you import packages.

Note

You can create and manage multiple containers in ELIAS 18. Within a major eLux version, it is advantageous to manage all packages and images in one container.

1. Switch to the **Container Library**.
2. At the bottom, click the **Create** button.
3. In the **Create Container** dialog, click one of the buttons to name the container according to the eLux version used.
Alternatively, type a name into the text field. Special characters are allowed but no spaces.

4. Confirm with **OK**.

*The new container is created and shown in the **Container Library**. If you have selected the name via a button, the eLux version will be set and displayed immediately. If you have assigned a different name, the version remains undefined and is only set when you import the first software package or an image/template.*

- ▶ Click the new container to show it in the **Package Library** and import software packages.

Note

If you use the container parameter for the firmware configuration of your devices, the container name must correspond to the given eLux version name. The container parameter allows you to operate devices with different eLux main versions with the same device configuration. For further information, see [Different eLux versions](#) in the **Scout** guide.

Renaming an existing container

1. Make sure that the container you want to rename is currently open and its name is shown on the ELIAS menu bar. It does not matter which library you are in.
2. Move the mouse pointer over the container name on the ELIAS title bar.

*An **Edit** icon  is shown.*

3. Click the icon and enter a new name for the container.

7. Creating images and templates

An image -more correct: an image definition file - defines all software packages of the device's firmware. It includes packages for the operational system and for applications.

In ELIAS 18, images are based on templates. An image template can roughly define the software packages required for an OU, while you can create slightly different images from the template. The procedure is very simple:

1. Create a template that contains the main software packages for your image.
2. Solve the template to create an image. ELIAS replaces unversioned packages by the latest package version. Also, ELIAS adds missing packages.
3. Modify the image as required and save it.

Note

To enable eLux devices to use the image for firmware updates, the file is converted internally to `.idf`. In the Scout Console, in the device configuration, the administrator specifies the path name defined during the ELIAS 18 installation and the image name with file extension `.idf`

Example: `.../elias/UC_RP6_X64/recovery.idf`

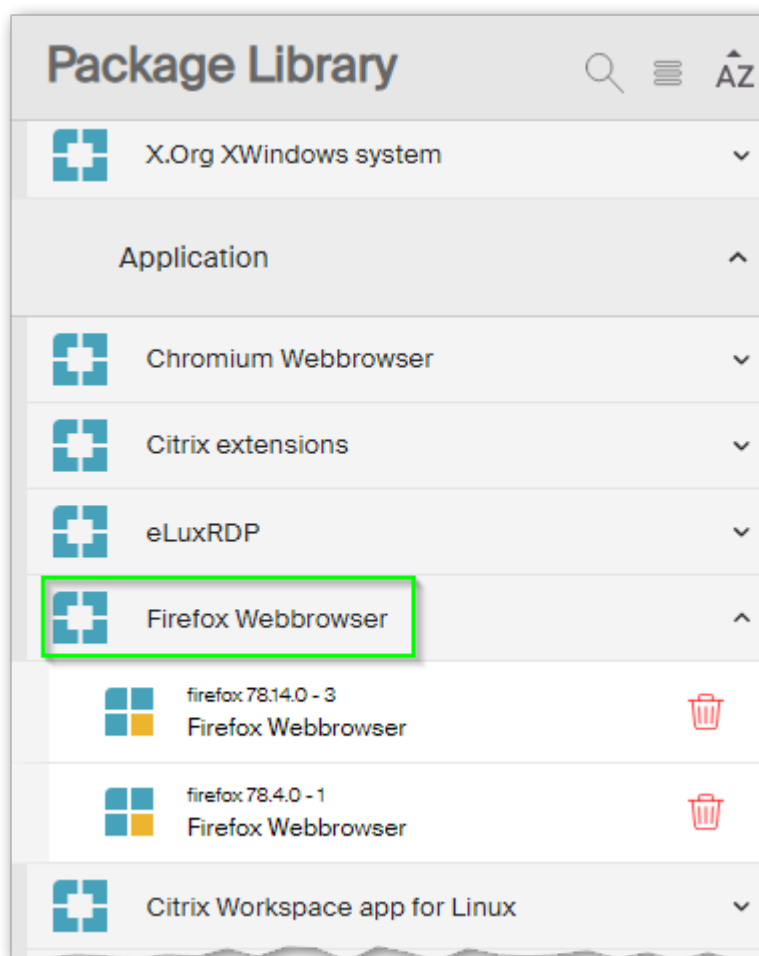
For further information, see [Configuring firmware updates](#) in the **Scout** guide.

7.1. Creating a template

Templates are meant to save time and effort. Normally, templates cover all data that are required as a minimum. In addition, they also provide general information that is to be specified later on.

In ELIAS, use a template to provide the required software packages but, where applicable, leave the version number open. This helps you quickly create images with the latest software packages.

1. To create a new template, in the **Image Library**, at the bottom, click **Create**.
2. Type a name for the template and press ENTER.
3. In the **Package Library**, open a category to view the contained software packages.
4. To add an unversioned software package that will act as a placeholder, select the relevant entry and drag it into your template.



You only need to add packages that are important for you. ELIAS will add all required packages to make your image operational when you solve the template. You even need only one package - ELIAS will do the rest for you.

Important If you add versioned packages, they will not automatically be updated to later versions later on. To avoid conflicts, we recommend that you always use the latest packages provided with an eLux operating system version.

5. Optional: In the image template (Image library), show the features of a package and choose which features to include in all images that will be created based on this template. To show the features, click the package name (versioned or unversioned package).
6. Click **Save**.

*Your template is saved to the **Image Library** and is ready to be solved into an image.*

7.2. Creating an image

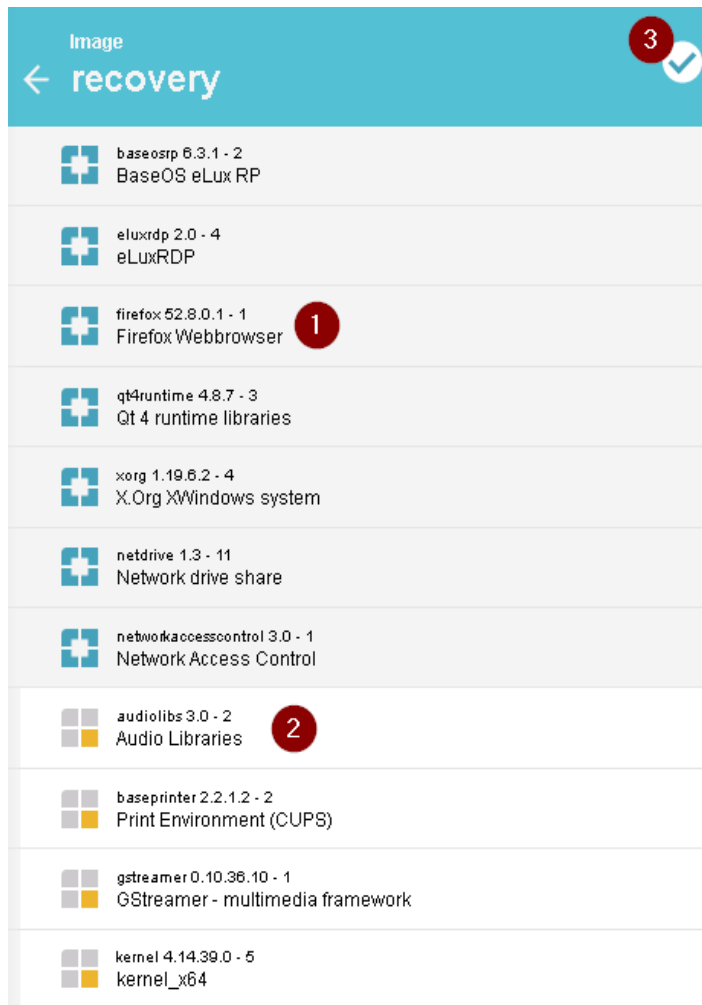
Images are based on image templates.



Requires

An image template ready for use

1. In the **Image Library**, open the relevant image template.
2. Click **Solve** to create an image from the template.

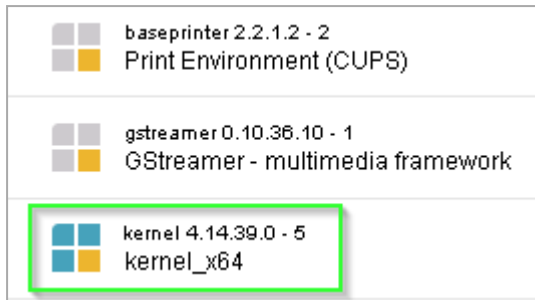


ELIAS replaces package placeholders (unversioned packages) by the latest package versions in the container (1).

Also, ELIAS checks for additionally required packages and adds missing packages (2). These packages are displayed as almost colorless icons unless you click their icon.

The image is marked as complete by showing a check mark (3).

3. To anchor or pin automatically added packages in your image, click the relevant icon.



Pinned packages remain with their version when you solve the image the next time, even if later packages are available.

The icon is shown with blue squares.

Note

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

4. Optionally, to modify the image name, click it. If an image with that name already exists, you may choose a new name or replace the existing image.
5. Save the image with **Save**.

*Your image is saved to the **Image Library**.*

For further information, see "Defining and pinning packages" on the facing page.

System-side solving versus manual image compilation

You can solve templates and images. The idea of solving is to create operational images at any time at the push of a button. If the template contains package placeholders, they are replaced by the latest package version. If the image contains unpinned packages, they are also replaced by the latest package version.

Note

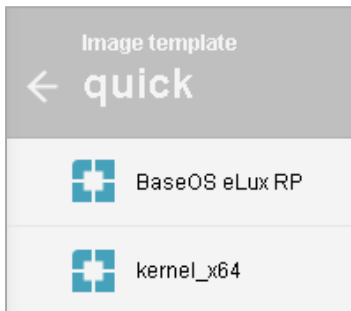
Images can be solved multiple times to allow you to use the latest package versions each time you want to be sure to deliver an up-to-date image.

If, however, you drag versioned packages into an image, conflicts between versions of dependent packages may occur. In such a case, the newly added package is displayed in red and the image cannot be resolved. Then check the package versions and use appropriate packages.

7.3. Defining and pinning packages

Images are based on templates. You can create images by solving a template or an existing image. To see what options are available for defining software packages for your image and what impact they have, view the following example.

Our example image is based on a very simple image template with only two package placeholders (unversioned packages):

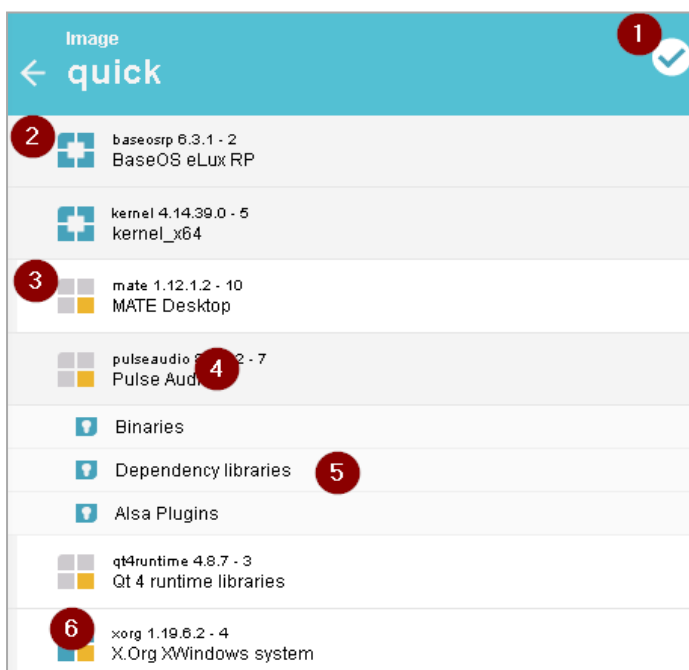


For further information, see "Creating a template" on page 35 and "Creating an image" on page 37.

Once we solve the template and create an image from it, we receive an operational image. ELIAS then completes the image for us by:

- Adding all required but missing packages in the latest available version
- Solving the package placeholders defined by the template to packages in the latest available version

After the image has been created, it looks like this:



- 1 The image is complete
- 2 Defined packages
The latest version has been selected automatically.
- 3 Automatically added packages that are required to make the image complete
- 4 Click the package name to expand the package and view its features.
- 5 These features are locked: You cannot deactivate them.
- 6 Click the package icon to pin or unpin the package.


You can save the image and use it as it is. Also, for most packages, you can select or deselect included features. Moreover, you can pin package versions to anchor the version to your image definition.

Selecting individual features of a defined package

1. In the **Image Library**, for the relevant package, click the icon to pin the package.

Note

This step is necessary to ensure that the relevant features are included in the package. Otherwise, when you re-use and solve the image later on, an updated package version might lack the feature that you have explicitly selected.

2. To expand the package, click the package name.
The features of the package are displayed.
3. Select or deselect features as required. Note that you cannot deactivate locked features .


Note

You can already define in the image template which package features are to be included or excluded.

Pinning package versions

When solving a template or image, ELIAS defines the latest versions for automatically added packages and for package placeholders. To save a specific version with the package in the current image, pin the package:

- ▶ Click the relevant package icon.

The icon of a pinned package is shown with blue squares . The package version is saved in the image and remains anchored when you solve the image at a later time. In contrast, unpinned packages are replaced by a later version if available.

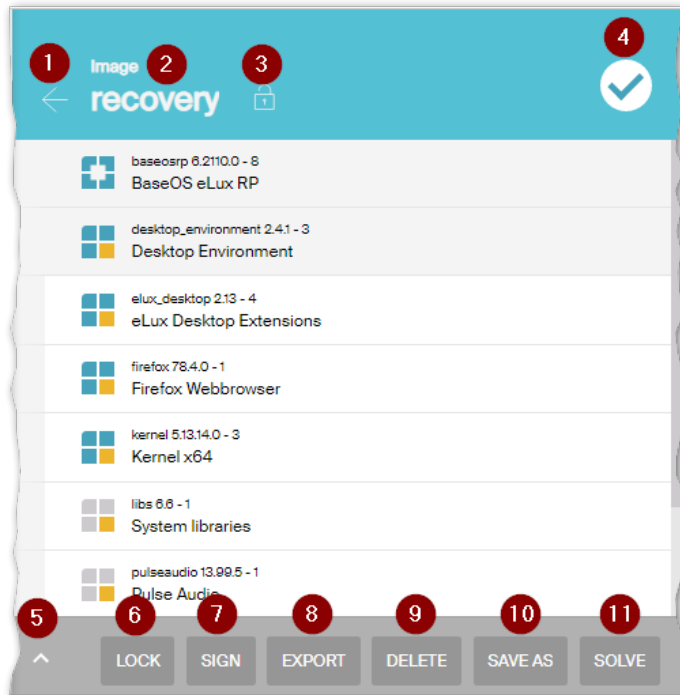
	securitylibs 7.4.0 - 5 Security Libraries
	Citrix Receiver for Linux
	baseosrp 6.3.1 - 2 BaseOS eLux RP
	pulseaudio 8.0.0.2 - 7 Pulse Audio
	qt4runtime 4.8.7 - 3 Qt 4 runtime libraries
	xorg 1.19.6.2 - 4 X.Org XWindows system

Note

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

8. Managing images and templates

To work with an image or template, in the overview of the **Image Library**, click to open it. The operations described below can only be applied to open (and saved) images or templates.



1 Back to the overview of the **Image Library**

2 Rename image or template

Click the name and enter a new name.

3 Image or template is unlocked

4 Image or template is complete

5 Preferences

6 Lock/unlock image or template

To locked images or templates no changes can be made.

7 Sign image or template

Requires a code signing certificate. For further information, see "Signing an image" on the facing page.

8 Export an image with or without packages

The **Export** button is only shown if the image or template is saved. As soon as you make a change, the **Save** button is shown instead.

Fur further information, see "Exporting an image" on page 45.

9 Delete the image or template from the container

10 Save a copy of the image or template under a new name

11 Solve the image or template

For further information, see "Creating an image" on page 37.

8.1. Locking an image

Once you have created a template which is perfectly suited as a basis for creating images, you have the option to lock it. This means that your template will be write-protected and no further changes can be made. The same applies to images: Once you have created an image ready for roll-out, you can lock it. No more changes can be made.



Requires

Admin or User role

1. In the **Image Library**, open the relevant image or template. Make sure it is saved.
2. Click **Lock**.

*No more changes can be made. The only remaining actions are **Unlock**, **Export** and **Save as**. Note that the **Lock** icon next to the name has changed.*

8.2. Signing an image

Images can be provided with a signature that is verified when a device's firmware is updated. Templates can also be signed.



Requires

- Admin or User role
 - A private code signing certificate has been created and imported. For further information, see "Organizing certificates for image signing" on page 50.
-

1. In the **Image Library**, open the image you want to sign.
2. Make sure it is saved. Click **Sign**.
3. Depending on the format of the certificate, enter the path of the private key file.
4. Depending on the configuration of the certificate, enter the password.

*The generated signature file is saved in the container. A signed image is identified by a special icon next to the image name. In the overview of the **Image Library**, a signed image is shown by a yellow stripe in the icon.*

Note

Any changes to a signed image in ELIAS will delete the signature. After having changed and saved a signed image, sign the image again.

Any changes to a signed image in ELIAS will delete the signature. After having changed and saved a signed image, sign the image again.

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.


8.3. Exporting an image

This feature helps you export an image so you can use it in another environment. Depending on your settings, the defined software packages will additionally be included in the target file.



Requires

- **Admin** or **User** role
- To export an image with the **Container** or **StickWizz** option, it must be complete.

1. In the **Image Library**, open the relevant image.
2. To select the export format, at the bottom, click the **Preferences** button 
3. Depending on your intention, select one of the following formats:

Option	Description
Image	Export image definition file as a <code>.jidf</code> file (JSON format) With this option, you can use your image with other ELIAS 18 instances.
Container	Export image definition file and herein defined packages in a <code>.zip</code> file (Admin role required) Use this option to manage an individual image and its variants in a dedicated container. To do so, create an additional container and import the <code>.zip</code> file. The <code>.zip</code> archive contains the image definition file as a <code>.jidf</code> file (in JSON format) and as a <code>.idf</code> file (in formerly used text format).
StickWizz	Export image definition file and packages as a <code>.stw</code> file and create a recovery system in a DD-like format For further information, see "Image as a USB recovery system" on the next page.

4. Click **Export**.

The image is exported as defined and made available as a download by your browser.

Note

Templates can also be exported for use in other ELIAS 18 instances.

Exporting image definition file as an `.idf` file

Images created with ELIAS 18 can also be exported to the formerly used `.idf` format (plain text). This option helps you use an ELIAS 18 image in the legacy ELIAS application for mixed environments, for example.

1. In the **Image Library**, open the relevant image.
2. Modify the URL shown in the browser's address bar as follows:
 - Replace the string `container` by `api`
 - Insert the string `export/` before the image name
 - Replace the file extension `.jidf` by `.idf`

Example: `.../elias/container/UC_RP6_X64/recovery.jidf` changes to `.../elias/api/UC_RP6_X64/export/recovery.idf`

3. Call the URL (for example via RETURN).

From the current image, an `.idf` file is created and made available as a download by your browser.

8.4. Image as a USB recovery system

For all current eLux versions we offer a ready-to-use eLux USB stick image for download on our technical portal. Alternatively, you have the option to use an individual firmware image as a basis for your USB recovery stick.

For a USB recovery stick to be bootable for eLux, it must contain the recovery system of the relevant eLux version. For an individual image, the relevant image file and all software packages defined in it are also required. The current recovery system is installed as a `.dd` file with the ELIAS 18 installation.¹ Example: `eLuxRP-6.2103.0-5-ELIAS.dd`. The `.dd` file is located in the ELIAS program directory.

Note

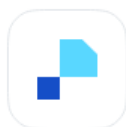
The `.dd` file is not shown in the Container Explorer.

For each eLux version, Unicon additionally provides the recovery system on the technical portal.² To provide an existing ELIAS 18 container with an up-to-date recovery system, download the recovery system (example: `ELIAS USB Recovery system 6.2204.0-10`) from our technical portal and import it into your ELIAS 18 container.

Imported recovery systems are displayed with their version in the **Info** dialog:

¹from ELIAS 18 2104

²ab eLux RP 6 2103



Scout Enterprise ELIAS

Version: 18 2204

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API link:

<https://PRE-Win2-SRV.DEV.unicon-ka.de:443/eliass/api>

Documentation link:

<https://www.unicon-software.com/udocs/en/>

Imported ELIAS .dd file:

eLuxRP-6.2204.0-10-ELIAS.dd

When you export an image with the **Stickwizz** option, all the data you need is written to a `.stw` file, which you then download via your browser and save on a Windows PC. With the help of the **StickWizz** application, in the next step, you transfer the image from the `.stw` file to your stick.

Preparing individual USB recovery system

1. Check whether the recovery system in the ELIAS program directory corresponds to the eLux version (see BaseOS package) in your ELIAS container.
2. If required, download the appropriate recovery system from our portal and import it into your ELIAS container, see "Importing software packages" on page 14
3. In the image library, export your image with the **Stickwizz** option, see "Exporting an image" on page 45.
4. Download the `.stw` file and save it on a Windows system.

Your customized recovery system is now ready to be written to a stick.

For further information, see [Recovery via USB](#) and Writing an image to USB (with StickWizz) in the **Recovery** short guide.


8.5. Tracking and viewing changes

All changes made to images and templates are tracked and reported in a change history.



Requires

Admin or User role

1. On the ELIAS menu bar, click  **Change history**.
2. Filter and sort the columns as required (see screenshot).
3. To download the change history, click **Export**.

The change history lists all actions executed on images and templates (3) with their user (1), relevant image or template (2), changed file (4) and time stamp (5).

Change history				
1 User	2 File name	3 Action	4 Changed file	5 Date ↓
admin	recovery.idf	lock		20220128 153056 UTC
admin	recovery.idf	add	libs-6.6-1.UC_RP6_X64-1.0.epm	20220128 151732 UTC
admin	recovery.idf	add	pulseaudio-13.99.5-1.UC_RP6_X64-1.0.epm	20220128 151732 UTC
admin	recovery.idf	add	libnss-3.45.1-2.UC_RP6_X64-1.0.fpm	20220128 151732 UTC

9. Managing certificates

For firmware updates, you can specify that the signatures of the eLux software packages and/or the signature of the image will be verified.¹ Both certificate types can be managed in ELIAS 18:

■ Package validation certificates

The current certificates for our software packages are automatically imported with the ELIAS installation. Newer certificates can be downloaded and imported from our portal.

■ Image signing certificate

To sign an image with a private signature certificate, you first need to create a code signing certificate. Then, you import the certificate into the container.
You can sign images and templates.

9.1. Organizing certificates for package validation

Note

Along with the ELIAS 18 installation, the current certificates for our software packages are automatically imported. Only if updated certificates are available on our portal, import them to replace the existing ones (see below).

1. Download the package validation certificates from our portal under **eLux Software Packages**. Then extract the `.zip` archive.
2. To enable the devices to verify the software package signatures during a firmware update, transfer the certificates 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.
3. 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](#) in the Scout guide.

Importing updated certificates

1. If newer package validation certificates are available on our portal, under **eLux Software Packages**, download them. Then extract the `.zip` archive into a directory that you can access with ELIAS.
2. In ELIAS 18, switch to the **Certificate Library** and, in the bottom section, click the **Import** button.
3. Import all certificate files (Trusted Root, Trusted Intermediate, Trusted Issuer) into the ELIAS 18 certificate store, one after the other.

¹see Device configuration in the Scout guide

*ELIAS 18 gives feedback whether the certificates have been saved or already exist.
The individual certificates are saved and displayed according to the certificate chain.*

For further information, see "Certificate Library" on page 27.

Note

If you create your own eLux packages and want to apply certificates to them, use the PKCS#6 standard with PEM encoding (file formats `.pem/.crt`). We recommend that you also import the certificates into ELIAS so that the packages are displayed as signed.

9.2. Organizing certificates for image signing



Requires

Certificates must comply with the PKCS#12 standard and be DER-encoded. Certificate and private key are included in a `.pfx` file.

1. Create a private code signing certificate.

Note

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

2. In ELIAS 18, switch to the **Certificate Library** and import the certificate file of the signing certificate and the root certificate into the general certificate store. To do so, in the bottom section, click the **Import** button.
3. Import the signing certificate (such as `.pfx`) into the certificate store intended for image signature certificates. To do so, in the top section, click the **Import** button.

A container can contain one image signing certificate at a time. This can be replaced at any time.

4. To sign an image, switch to the **Image Library** and open the image you want to sign. Make sure it is saved. Click **Sign**.

The generated signature file is saved in the container. A signed image is identified by a special icon next to the image name.

Note

In addition to images, you can also sign templates.

5. Transfer the 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.
6. 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](#) in the **Scout** guide.

For further information, see "Certificate Library" on page 27.

10. ELIAS settings


- from ELIAS 18.3 -



Requires

Administrator with **global access**.



To change any ELIAS settings after it has been installed, on the ELIAS menubar, click  **ELIAS settings**.

Active Directory

- AD protocol (LDAP or LDAPS)
- AD domain

Authentication

For user authentication, the logon types **Active Directory** and **Keycloak** can be enabled or disabled.

API address

Server settings and API

- 1 Protocol used to access the ELIAS server
- 2 Host name of the ELIAS server
- 3 Port for the ELIAS service
- 4 API path
- 5 Resulting API URL
- 6 Check accessibility of the ELIAS API

MongoDB

MongoDB server and MongoDB database settings

ELIAS settings

MongoDB server

localhost

1

MongoDB user

2

MongoDB password

3

MongoDB options

4

Database prefix

elias

5

Base container

UC_RP6_X64

6

After you change database settings, the ELIAS service will restart. When the ELIAS service is back online, you need to log on again.

MongoDB URL

localhost

7

TEST

OK

CANCEL

- 1 Host name of MongoDB server
- 2 Username for MongoDB database
- 3 Password for MongoDB database user
- 4 Optional parameters for MongoDB server
- 5 Database prefix for ELIAS databases
- 6 Name of the base container
- 7 Check accessibility of the MongoDB server

Log level

Enable or disable enhanced logging (**Debug**)

By default, enhanced logging is disabled.¹

The log files are located in the following directory:

- Windows:
C:\Windows\System32\config\systemprofile\AppData\Roaming\ELIAS
- Linux: /var/log/ELIAS

¹from ELIAS 18.3