X4 Installation Guide

SoftProject

Digitize business processes successfully

Accelerate digital transformation with the X4 BPMS low code platform

SoftProject

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1 Introduction

This guide contains all information about the installation of the X4 BPMS. The guide chapters correspond to the installation packages you can download from the Download section of the SoftProject website:

- All-in-One - Interactive installation
- X4 Designer - Interactive installation
- X4 Designer - ZIP archive for Windows
- X4 Server und Keycloak - ZIP archive for Windows
- X4 Designer - ZIP archive for macOS
- X4 Server and Keycloak - ZIP archive for Linux
- X4 Server und Keycloak - RPM package for Red Hat Enterprise Linux
- X4 Server und Keycloak - RPM package for SuSe Linux Enterprise Server
- X4 Server und Keycloak - Debian package for Ubuntu Linux
- Docker image for the X4 Server and the Keycloak

Every chapter contains the information you will need for the installation of the corresponding package. Furthermore, you can download the **Update tool** from the Download section of the SoftProject website to perform an update from Release 5.5.4 of the X4 BPMS onwards.

> You will find all the important information on licenses in a separate chapter, Manage Licenses.

> **Note:**
> Please make sure you inform yourself about the system requirements. You can download the system requirements in the **Documents** tab in the Download section of the SoftProject website.

2 Installation Components of the X4 BPMS

The installation of the X4 BPMS consists of three components:

- **X4 Server** – administration and process control in the background
- **X4 Designer** – graphical user interface
- **Keycloak** – user and role management system

2.1 X4 Server

The X4 Server constitutes the core part of the X4 BPMS. As a central component of the X4 BPMS architecture, the X4 Server is the central repository for projects and business processes on the one hand. On the other, it is responsible for the execution and control of all processes.

Without a connection to the X4 Server the X4 Designer cannot be fully used as the X4 Server controls the background processes required for the usage of the X4 Designer.

2.2 X4 Designer

As a built-in developer tool, the X4 Designer constitutes the graphical user interface of the X4 BPMS. The X4 Designer can be used to model business processes based on BPMN 2.0 (Business Process Model and Notation) and business rules based on DMN 1.1 (Decision Model and Notation). The X4 Designer can be used to create processes graphically via drag-and-drop. Furthermore, the user is provided with suitable input screens which can be used to configure the individual process components.

2.3 Keycloak

The X4 BPMS uses the open-source solution Keycloak for the user and role management. Keycloak serves as identity and access management solution, protects the X4 BPMS from unauthorized access and allows the creation of various users and user groups with different privileges and roles.

In order to use the X4 BPMS, Keycloak must be installed and running.

> ⓘ In case of questions or issues do not hesitate to contact your SoftProject representative or get in touch with the SoftProject support at support@softproject.de.

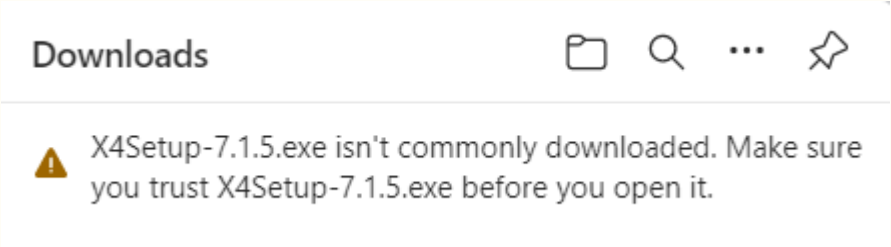
3 All-in-One - Interactive installation

This installation package contains the X4 Designer, the X4 Server, and the authentication provider Keycloak and will be provided as an EXE file for the installation on Windows. Please see Installation Components of the X4 BPMS for more information on the installation components.

> The Download section of the SoftProject website contains a video tutorial which guides you through the installation of the all-in-one installation package within less than ten minutes.

To install the **All-in-One - Interactive installation** package, perform the following steps:

1. Download the **All-in-One - Interactive installation** package from the SoftProject website.

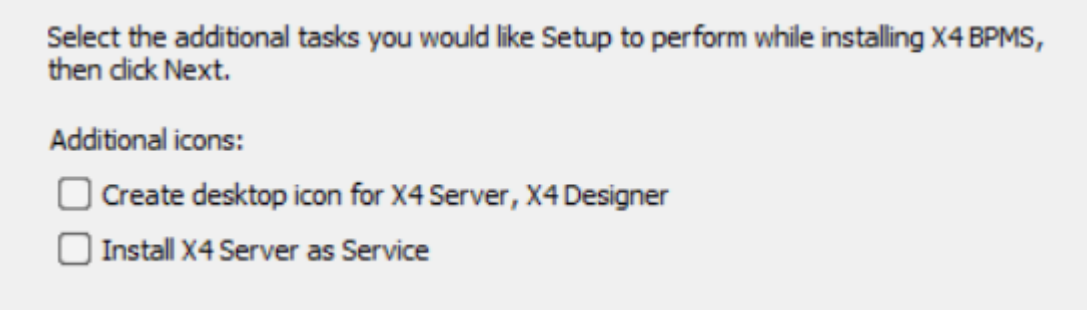
   > **Note:**
   > When downloading EXE files using Microsoft Edge you may see a message as the following:
   >
   > 
   >
   >
   > To save and execute the file, perform the following steps:
   > 1. Hover the cursor over the text and select the three dots (**More actions**) displayed to the right of the text.
   > 2. Choose **Keep**.
   > 3. Choose **Show more** in the dialog that opens and choose **Keep anyway**.

2. Open the EXE file to execute it.
   The installation routing will be started.
3. Choose **Next** to specify the installation path.

   > By default, the X4 BPMS is installed in the **C:\X4** path. However, you can change the installation directory be choosing a different path via **Browse...** or by entering a new path in the text box.

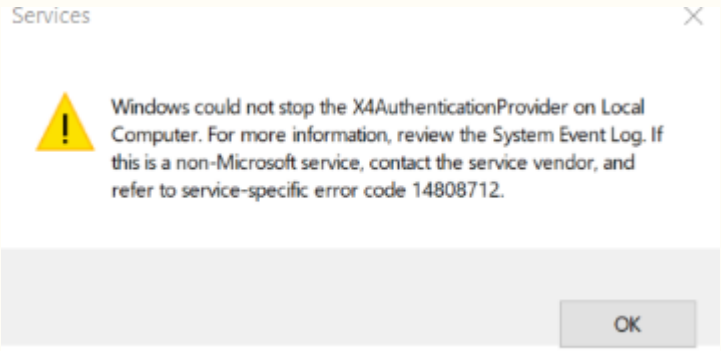
4. Choose **Next** to proceed to the next step where you can select the installation components. As you install the all-in-one package that includes all components, usually you do not change anything here.
5. Choose **Next** to proceed to the next step where you can select additional tasks.
   In the **Select Additional Tasks** dialog you can specify under **Additional Icons** whether a desktop

icon is to be created for the X4 Server and the X4 Designer.
Furthermore, you can choose whether the X4 Server is to be installed as a service.



Note:
When installing the X4 BPMS for the first time, both checkboxes are checked by default. If you have installed a previous version of the X4 BPMS, they are unchecked as shown in the screenshots. Make sure to leave the **Install X4 Server as Service** checkbox unchecked if you use the X4 BPMS with a trial license.

If you enable the **Install X4 Server as Service** and would like to stop the Keycloak service **X4AuthenticationProvider** manually via the Windows task manager, the following message may be displayed:



This is a Windows message that can be ignored. The service is stopped as intended and you can close the dialog box by clicking **OK**.

6. Choose **Next** to proceed to the next step.
   In the **Ready to Install** dialog you check the information you specified in the previous steps.
   If you would like to change anything, you can use **Back** to return to the dialog where you would like to perform changes.
7. Click on **Install** to start the installation routine.
8. Select the components that are to be started and choose **Finish** to complete the installation.
   The X4 BPMS has been installed and the components you selected in the last step will be

started automatically.
If you have not selected any components, please start the desired components manually.

4 X4 Designer - Interactive installation

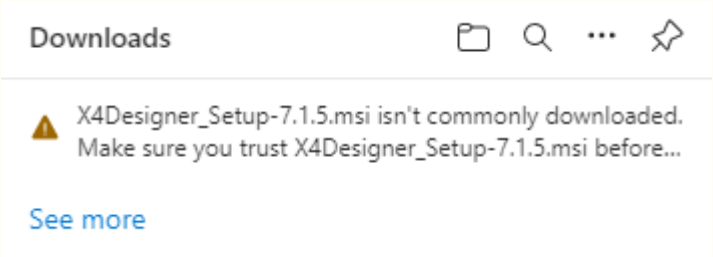
This installation package contains the X4 Designer, i.e. the graphical user interface of the X4 BPMS, and will be provided for production purposes as an MSI file for the installation under Microsoft Windows. Please see Installation Components of the X4 BPMS for more information on the installation components.

> ⓘ To use the X4 Designer, a connection to an X4 Server and an authentication provider is required.

> ⚠ **Note:**
> Using an MSI file, you can use one version of the X4 Designer at a time. The installation package containing the MSI file overwrites existing installations which may lead to issues and data loss.
> If you would like to use several concurrent versions of the X4 Designers, please download the **X4 Designer - ZIP archive** package.

To install the **X4 Designer - Interactive installation package**, perform the following steps:

1. Download the **X4 Designer - Interactive installation** from the SoftProject website.

   > ⚠ **Note:**
   > When downloading MSI files using Microsoft Edge you may see a message as the following:
   >
   > 
   >
   >
   > To save and execute the file, perform the following steps:
   > 1. Hover the cursor over the text and select the three dots (**More actions**) displayed to the right of the text.
   > 2. Choose **Keep**.
   > 3. Choose **Show more** in the dialog that opens and choose **Keep anyway**.

2. Open the MSI file to execute it.
   The setup wizard is opened.
3. Choose **Next** to proceed to the next step.
4. Accept the suggested installation path or choose **Change...** to specify a different path. You can use the **Create a shortcut for X4 Designer on the desktop** checkbox to create a shortcut on the desktop.

5. Choose **Next** to confirm your entries and proceed to the next step.
6. Choose **Install** to perform the installation.
   The progress of the installation will be displayed.
7. Choose **Finish** to complete the installation.

   > If you enable the **Launch X4 Designer when setup exits** option, the X4 Designer will be started immediately once the installation is complete.

   The X4 Designer was installed in the specified path.
8. Start the X4 Designer to check the installation unless it has been started automatically already.

> **Note:**
> **Unattended Installation**
> You can also install the X4 Designer via an unattended installation.
> To do so, enter a suitable command containing the location of the installation path and the desired parameters in the command prompt.
> *Example:* `C:\<location of the MSI file> /q/n /L*V C:\temp\test.log`.
> You need administrator privileges to perform an unattended installation.

Deinstalling the X4 Designer

You can deinstall the X4 Designer via the Windows start menu, the Windows control panel, or by executing the installation file (.msi) again.

To do so, perform the following steps:

1. Double-click on the MSI file.
   The start screen of the setup wizard is opened.
2. Choose **Next** to open the **Change, repair, or remove installation** dialog.
3. Choose **Remove**.
4. In the next step, choose **Remove** again to start the deinstallation.
   The progress of the deinstallation is displayed.
5. Choose **Finish** to complete the deinstallation.
   The X4 Designer was deinstalled.

5 X4 Designer - ZIP archive for Windows

This installation package contains the X4 Designer, i.e. the graphical user interface of the X4 BPMS, and will be provided as a ZIP file for the installation under Microsoft Windows. Please see Installation Components of the X4 BPMS for more information on the installation components.

> To use the X4 Designer, a connection to an X4 Server and an authentication provider is required.

To install the **X4 Designer - ZIP archive for Windows** package, perform the following steps:

1. Download the **X4 Designer - ZIP archive for Windows** package from the SoftProject website.
2. Extract the files in the ZIP archive.
3. Double-click on the **X4Designer.exe** file.

> **Note:**
> When opening the **X4Designer.exe** file, the Windows Defender SmartScreen issues a warning. To open the program as usual, choose **Run anyway** under **More information**.

6 X4 Server and Keycloak - ZIP archive for Windows

This installation package contains the X4 Server and the Keycloak authentication provider and will be provided as a ZIP file for the installation on Microsoft Windows. Please see Installation Components of the X4 BPMS for more information on the installation components.

> **Note:**
> You will need this ZIP archive if you want to perform an update using the update tool.

To install the **X4 Server and Keycloak - ZIP archive for Windows** package, perform the following steps:

1. Download the **X4 Server and Keycloak - ZIP archive for Windows** package from the SoftProject website.
2. Extract the files in the ZIP archive.
3. Double-click on the **startKeycloak.bat** file to start the Keycloak.
4. Double-click the **startX4.bat** file to start the X4 Server.

7 X4 Designer - ZIP archive for macOS

This installation package contains the X4 Server and the Keycloak authentication provider and will be provided as a ZIP file for the installation on Microsoft Windows. Please see Installation Components of the X4 BPMS for more information on the installation components.

> You will need this ZIP archive if you want to perform an update using the update tool.

To install the **X4 Designer - ZIP archive for macOS** package, perform the following steps:

1. Download the **X4 Designer - ZIP archive for macOS** package from the SoftProject website.
2. Extract the files in the ZIP archive by double-clicking the ZIP file.
3. Move the `X4Designer.app` file per drag-and-drop in the **Applications** folder.
4. Open the terminal and navigate to the `.app` file.
5. Execute the `sudo xattr -r -d com.apple.quarantine X4Designer.app` command.

8 X4 Designer - ZIP archive for Linux

This installation package contains the X4 Server and the Keycloak authentication provider and will be provided as a ZIP file for the installation on Linux. Please see Installation Components of the X4 BPMS for more information on the installation components.

> **Note:**
> You will need this ZIP archive if you want to perform an update using the update tool.

To install the **X4 Server and Keycloak - ZIP archive for Linux** package, perform the following steps:

1. Download the **X4 Server and Keycloak - ZIP archive for Linux** package from the SoftProject website.
2. Extract the files in the ZIP archive.
3. Execute the **startKeycloak.sh** file in the command line to start the Keycloak.
4. Execute the **startX4.sh** file in the command line to start the X4 Server.

9 X4 Server and Keycloak - RPM package for Red Hat Enterprise Linux

The following sections describe how to automatically install, register as a service and manage the X4 Server and the Keycloak based on an RPM package (`.rpm`) on a Red Hat Enterprise Linux system.

Installing the X4 Server

Before you begin with the installation of the X4 Server:

- Make sure that the IP address of the server and the host name are specified under `/etc/hosts`(*example*: *`192.168.147.153 vmettopensuse01`*).
- Execute the `dnf install redhat-lsb-core` command because the `redhat-lsb-core` module must be installed.

Note:

- The installation package will be started with `sudo` privileges.
- The new user `X4` and the new group `X4` will be created during the installation of the X4 Server.
- Once the installation is complete, the user `X4` and the group `X4` are the owner of the X4 file system.
- Although the installed `X4-Server` service will be started with `sudo` privileges, the user `X4` is the owner of this service execution.
- Make sure that you have the relevant privileges for the specified installation path.

To install the **X4 Server and Keycloak - RPM package for Red Hat Enterprise Linux package**, perform the following steps:

1. Download the **X4 Server and Keycloak - RPM package for Red Hat Enterprise Linux** from the SoftProject website.
2. Execute the installation using the `sudo rpm -i X4-Server_RHEL-7.v.v-r.x86_64.rpm` command.
   Example: *`sudo rpm -i X4-Server_RHEL-7.0.0-1.x86_64.rpm`* for release `1` of the X4 Server version `7.0.0`.
   By default, the X4 Server will be installed at `/opt/X4`. You can use the `--prefix` parameter to change the installation path.
   Example: `sudo rpm -i X4-Server_RHEL-7.v.v-r.x86_64.rpm --prefix=/new_path`
   The X4 Server will be installed in the specified folder, registered as `X4-Server` server and started directly. This process may take several seconds.
3. Copy your `x4.license` license file in the installation folder of the X4 Server.
   Example: *`sudo cp x4.license /opt/X4`*

> In the case of errors during the start of the X4 Server or the Keycloak, you can check the error messages in the corresponding log file (`/opt/X4/wildfly/standalone/log/server.log` for the X4 Server and `/opt/X4/keycloak/data/log/keycloak.log` for the Keycloak).

After the successful installation of the X4 Server and the Keycloak using an RPM package, the installation folder contains the following items:

Item	Explanation
`jdk`	Contains the current Java Runtime Version as runtime environment for the WildFly application server.
`SQL`	Contains the in-memory database provided for testing purposes in the `H2DB` subfolder.
`wildfly`	Contains the preconfigured WildFly application server.
`keycloak`	Contains the Keycloak.
`X4DB`	Contains the central X4 Repository.
`x4.license`	License file for the X4 Server. You have to copy the license file manually into this folder, it will not be available automatically. For more information, see the Licenses chapter.
`X4config.xml`	Central configuration file of the X4 Server. For more information, see the Configuration via X4config.xml chapter in the Administration Guide.
`apache-maven`	Contains maven plug-ins for X4.
`configurations`	Folder to store custom configurations, e.g. the `keycloak_config.js` on file to connect your own Keycloak installation.
`deployments`	Contains the X4 Apps you have configured.
`installation.checksum`	Contains a checksum which is used to check the validity of the installed instance.
`version.txt`	Contains the X4 version number.
`startKeycloak.sh`	Script to start the Keycloak.
`startX4.sh`	Script to start the X4 Server.
`stopX4.sh`	Script to stop the X4 Server.

Control Options for the X4-Server Service

The following options are available via the command line in order to control the X4 Server or the corresponding `X4-Server` service:

Action	Command
Start the `X4-Server` service	`systemctl start X4-Server`
Stop the `X4-Server` service	`systemctl stop X4-Server`
Restart the `X4-Server` service	`systemctl restart X4-Server`
View the status of the `X4-Server` service	`systemctl status X4-Server`
Reload the `X4-Server` service	`systemctl reload X4-Server`

Control Options for the Keycloak Service

The following options are available via the command line in order to control the `X4-Authentication-Provider` Keycloak service:

Action	Command
Start the `X4-Authentication-Provider` service	`systemctl start X4-Authentication-Provider`
Stop the `X4-Authentication-Provider` service	`systemctl stop X4-Authentication-Provider`
Restart the `X4-Authentication-Provider` service	`systemctl restart X4-Authentication-Provider`
View the status of the `X4-Authentication-Provider` service	`systemctl status X4-Authentication-Provider`
Reload the `X4-Authentication-Provider` service	`systemctl reload X4-Authentication-Provider`

Deinstalling the X4-Server Service

To deinstall an X4 Server installed using an RPM package and the corresponding `X4-Server` service, enter the `sudo rpm -e X4-Server_RHEL-7.v.v-r.x86_64` command.

10 X4 Server and Keycloak - RPM package for SuSe Linux Enterprise Server

The following sections describe how to automatically install, register as a service and manage the X4 Server and the Keycloak based on an RPM package (`.rpm`) on an Open SuSe Linux system.

Installing the X4 Server

Before you begin with the installation of the X4 Server:

- Make sure that the **insserv-compat** package was installed.
  You can install the packge using the following command: `zypper install insserv-compat`
- Make sure that the IP address of the server and the host name are specified under `/etc/hosts` *(example*: `192.168.147.153 vmettopensuse01`).

> **Note:**
> - The installation package will be started with `sudo` privileges.
> - The new user `X4` and the new group `X4` will be created during the installation of the X4 Server.
> - Once the installation is complete, the user `X4` and the group `X4` are the owner of the X4 file system.
> - Although the installed `X4-Server` service will be started with `sudo` privileges, the user `X4` is the owner of this service execution.
> - Make sure that you have the relevant privileges for the specified installation path.

To install the **X4 Server and Keycloak - RPM package for SuSe Linux Enterprise Server** package, perform the following steps:

1. Download the **X4 Server and Keycloak - RPM package for SuSe Linux Enterprise Server** package from the SoftProject website.
2. Execute the installation using the `sudo rpm -i X4-Server_SLES-7.v.v-r.x86_64.rpm` command.
   Example: *`sudo rpm -i X4-Server_SLES-7.0.0-1.x86_64.rpm`* for release `1` of the X4 Server version `7.0.0`.
   By default, the X4 Server will be installed at `/opt/X4`. You can use the `--prefix` parameter to change the installation path.
   Example: `sudo rpm -i X4-Server_SLES-7.v.v-r.x86_64.rpm --prefix=/new_path`
   The X4 Server will be installed in the specified folder, registered as `X4-Server` server and started directly. This process may take several seconds.

> In the case of errors during the start of the X4 Server or the Keycloak, you can check the error messages in the corresponding log file (`/opt/X4/wildfly/standalone/log/server.log` for the X4 Server and `/opt/X4/keycloak/data/log/keycloak.log` for the Keycloak).

After the successful installation of the X4 Server and the Keycloak using an RPM package, the installation folder contains the following items:

Item	Explanation
`jdk`	Contains the current Java Runtime Version as runtime environment for the WildFly application server.
`SQL`	Contains the in-memory database provided for testing purposes in the `H2DB` subfolder.
`wildfly`	Contains the preconfigured WildFly application server.
`keycloak`	Contains the Keycloak.
`X4DB`	Contains the central X4 Repository.
`x4.license`	License file for the X4 Server. You have to copy the license file manually into this folder, it will not be available automatically. For more information, see the Licenses chapter.
`X4config.xml`	Central configuration file of the X4 Server. For more information, see the Configuration via X4config.xml chapter in the Administration Guide.
`apache-maven`	Contains maven plug-ins for X4.
`configurations`	Folder to store custom configurations, e.g. the `keycloak_config.json` file to connect your own Keycloak installation.
`deployments`	Contains the X4 Apps you have configured.
`installation.checksum`	Contains a checksum which is used to check the validity of the installed instance.
`version.txt`	Contains the X4 version number.
`startKeycloak.sh`	Script to start the Keycloak.
`startX4.sh`	Script to start the X4 Server.
`stopX4.sh`	Script to stop the X4 Server.

Control Options for the X4-Server Service

The following options are available via the command line in order to control the X4 Server or the corresponding `X4-Server` service:

Action	Command
Start the `X4-Server` service	`systemctl start X4-Server` or `service X4-Server start`
Stop the `X4-Server` service	`systemctl stop X4-Server` or `service X4-Server stop`

Action	Command
Restart the `X4-Server` service	`systemctl restart X4-Server` or `service X4-Server restart`
View the status of the `X4-Server` service	`systemctl status X4-Server` or `service X4-Server status`
Reload the `X4-Server` service	`systemctl reload X4-Server` or `service X4-Server reload`

Control Options for the Keycloak Service

The following options are available via the command line in order to control the `X4-Authentication-Provider` Keycloak service:

Action	Command
Start the `X4-Authentication-Provider` service	`systemctl start X4-Authentication-Provider`
Stop the `X4-Authentication-Provider` service	`systemctl stop X4-Authentication-Provider`
Restart the `X4-Authentication-Provider` service	`systemctl restart X4-Authentication-Provider`
View the status of the `X4-Authentication-Provider` service	`systemctl status X4-Authentication-Provider`
Reload the `X4-Authentication-Provider` service	`systemctl reload X4-Authentication-Provider`

Deinstalling the X4-Server Service

To deinstall an X4 Server installed using an RPM package and the corresponding `X4-Server` service, enter the `sudo rpm -e X4-Server_SLES-7.v.v-r.x86_64` command.

11 X4 Server and Keycloak - Debian package for Ubuntu Linux

The following sections describe how to automatically install, register as a service and manage the X4 Server and the Keycloak based on a Debian package (`.deb`) on an Ubuntu or Debian Linux system.

Installing the X4 Server

> **Note:**
> - The installation package will be started with `sudo` privileges.
> - The new user `X4` and the new group `X4` will be created during the installation of the X4 Server.
> - Once the installation is complete, the user `X4` and the group `X4` are the owner of the X4 file system.
> - Although the installed `X4-Server` service will be started with `sudo` privileges, the user `X4` is the owner of this service execution.
> - Make sure that you have the relevant privileges for the specified installation path.

> **Important!**
> Before installing the current package, you must deinstall any existing installation of the X4 Server using the corresponding command.

To install the **X4 Server and Keycloak - Debian package for Ubuntu Linux** package, perform the following steps:

1. Download the **X4 Server and Keycloak - Debian package for Ubuntu Linux** package from the SoftProject website.
2. Execute the installation using the `sudo dpkg -i X4-Server_Ubuntu-7.v.v-r.x86_64.deb` command.
   If you do not want to install the Keycloak authentication provider, use the `sudo X4_INSTALL_AUTH_PROVIDER=no dpkg -i X4-Server_Ubuntu-7.v.v-r.x86_64.deb` command.
   Example: *`sudo dpkg -i X4-Server_Ubuntu-7.0.0-1.x86_64.deb`*for release `1` of the X4 Server version `7.0.0`.
   By default, the X4 Server will be installed at `/opt/X4`. You can use the `INSTALL_PATH` variable to change the installation path.
   Example: `sudo INSTALL_PATH=/myNewPath/Tools dpkg -i X4-Server_Ubuntu-7.v.v-r.x86_64.deb`
   The X4 Server will be installed in the specified folder, registered as `X4-Server` server and started directly. This process may take several seconds.

3. Check if the server log under `/opt/X4/wildfly/standalone/log/server.log` contains any error messages.
   An X4 Server that was installed and started correctly does not issue any error messages (`ERROR` or `FATAL`). This should be the case at the latest after the second start of the X4 Server.

4. Check if the Keycloak log under `/opt/X4/keycloak/standalone/log/server.log` contains any error messages.
   A Keycloadk that was installed and started correctly does not issue any error messages (`ERROR` or `FATAL`). This should be the case at the latest after the second start of the Keycloak.
5. Restart the X4 Server using the `sudo service X4-Server restart` command.
   The X4 Server was installed successfully and will be executed as `X4-Server` service.
6. Restart the Keycloak using the `sudo service X4-Authentication-Provider restart` command.
   The Keycloak was installed successfully.

After the successful installation or update of the X4 Server and the Keycloak using a Debian package, the installation folder contains the following items:

Item	Explanation
`jdk`	Contains the current Java Runtime Version as runtime environment for the WildFly application server.
`SQL`	Contains the in-memory database provided for testing purposes in the `H2DB` subfolder.
`wildfly`	Contains the preconfigured WildFly application server.
`keycloak`	Contains the Keycloak.
`X4DB`	Contains the central X4 Repository.
`x4.license`	License file for the X4 Server. You have to copy the license file manually into this folder, it will not be available automatically. For more information, see the Licenses chapter.
`X4config.xml`	Central configuration file of the X4 Server. For more information, see the Configuration via X4config.xml chapter in the Administration Guide.
`apache-maven`	Contains maven plug-ins for X4.
`configurations`	Folder to store custom configurations, e.g. the `keycloak_config.js` on file to connect your own Keycloak installation.
`deployments`	Contains the X4 Apps you have configured.
`installation.checksum`	Contains a checksum which is used to check the validity of the installed instance.
`version.txt`	Contains the X4 version number.
`startKeycloak.sh`	Script to start the Keycloak.
`startX4.sh`	Script to start the X4 Server.
`stopX4.sh`	Script to stop the X4 Server.

Item	Explanation
`jdk`	Contains the current Java Runtime Version as runtime environment for the WildFly application server.
`SQL`	Contains the in-memory database provided for testing purposes in the `H2DB` subfolder.

Item	Explanation
`wildfly`	Contains the preconfigured WildFly application server.
`keycloak`	Contains the Keycloak.
`X4DB`	Contains the central X4 Repository.
`x4.license`	License file for the X4 Server. For more information, see the Licenses chapter.
`X4config.xml`	Central configuration file of the X4 Server. For more information, see the Configuration via X4config.xml chapter in the Administration Guide.

Control Options for the X4-Server Service

The following options are available via the command line in order to control the X4 Server or the corresponding `X4-Server` service:

Action	Command
Start the `X4-Server` service	`service X4-Server start`
Stop the `X4-Server` service	`service X4-Server stop`
Restart the `X4-Server` service	`service X4-Server restart`

Control Options for the Keycloak Service

The following options are available via the command line in order to control the `X4-Authentication-Provider` Keycloak service:

Action	Command
Start the `X4-Authentication-Provider` service	`service X4-Authentication-Provider`
Stop the `X4-Authentication-Provider` service	`service X4-Authentication-Provider`
Restart the `X4-Authentication-Provider` service	`service X4-Authentication-Provider`

Deinstalling the X4-Server Service

To deinstall an X4 Server installed using a Debian package and the corresponding `X4-Server` service, enter the `sudo dpkg -r X4-Server` command.

Using the `sudo dpkg -P X4-Server` command, it is possible to remove all installation artefacts, including the configuration files, etcs., for the `X4-Server` service without any residue..

It is not required to set the `INSTALL_PATH` variable during the deinstallation.

12 Docker image

You can load the X4 Server and the Keycloak in Docker and start both components as a container. To do so, you must load the corresponding docker image. You can navigate from the Download section of the SoftProject website to Docker Hub and obtain the docker images needed directly. Please refer to the Docker Hub for more information on the docker images.

Loading a Docker Image and Starting it as a Container

In this section, you learn how to load the X4 Server and the Keycloak authentication provider in Docker and start both components as a container.

Prerequisites:

- Docker must be installed and configured on the system. For more information, see the Docker documentation at https://docs.docker.com/.
- Knowledge of the Docker functionality is required.

To load the docker image for the X4 Server, perform the following steps:

1. Use the `docker pull softproject/x4_server` command to download the X4 Server docker image provided by SoftProject to your system.
2. Execute the docker using the `docker run -d -p 8085:8080 --name x4-keycloak softproject/x4_server` command.

To load the docker image for the Keycloak, perform the following steps:

1. Use the `docker pull softproject/keycloak` command to download the Keycloak docker image provided by SoftProject to your system.
2. Execute the docker using the `docker run -d -p 8080:8080 --name x4-servercontainer softproject/keycloak` command.

13 Update tool

You need the update tool to update existing versions of the X4 BPMS. You will find the current update tool in the Download section of the SoftProject website.

> ⓘ The X4 Server und Keycloak - ZIP archive installation package is required to perform an update using the update tool.

See the **README.txt** in the update tool for more information.

14 Managing Licenses

This chapter contains all information about licenses. A license is always required to use the X4 BPMS. You can request a free trial license that can be used with the all-in-one installation package in the Download section of the SoftProject website. When purchasing an X4 BPMS package, the license is included in the respective package.

Initially installing a license

To install a license for the first time, perform the following steps:

1. In the X4 Designer, choose the icon in the taskbar.
2. Choose the **Install license...** button in the **X4 License** dialog.
3. Navigate to the location of your X4 license, and select the file.
4. Choose **Open**.
   Your new license is installed, and the connection with the X4 Server has been established.

Via **Help > About X4 BPMS > License Info** and **License Features** you have the possibility to retrieve information about your license at any time. Here you can see how long your current license is valid and to which components of X4 BPMS it applies. If your license expires in less than 30 days, you can see how long your license is valid in the status bar at the bottom of X4 Designer.

Displaying license information

> ⓘ To display license information, a license must be installed.

To display information about the currently installed license, perform the following steps:

1. In the X4 Designer, click on **X4 BPMS Help > About X4 BPMS** in the menu bar.
2. Choose the **License Info** or **License Features** tab in the **About X4** dialog.
   In the **License Info** tab, you can view general information about the license. In the **License Features** tab, you can check to which components of the X4 BPMS your license applies.

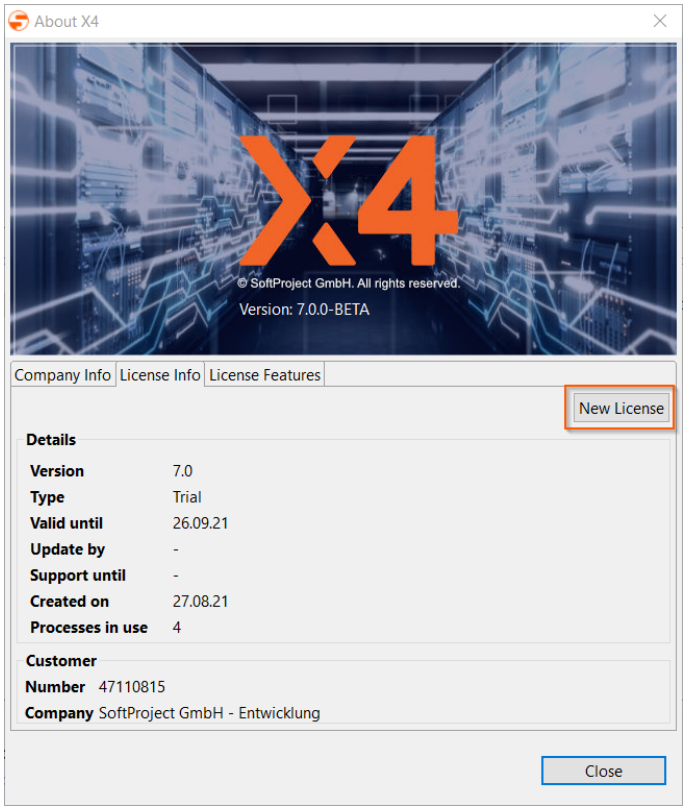
Renewing a license

> ⓘ To renew a license, you must have installed a license previously.

To renew a license, perform the foollowing steps:

1. In the X4 Designer, click on **X4 BPMS Help > About X4 BPMS** in the menu bar.
2. Choose the **License Info** tab in the dialog.

3. Choose the **New License** button.



4. Navigate to the location of the new license file and choose **Open**.
   If the installation is successful, the license information will update automatically after a short time.