BECKHOFF New Automation Technology

Manual | EN

TwinCAT 3

Installation

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1 Foreword

1.1 Notes on the documentation

This description is intended exclusively for trained specialists in control and automation technology who are familiar with the applicable national standards.
For installation and commissioning of the components, it is absolutely necessary to observe the documentation and the following notes and explanations.
The qualified personnel is obliged to always use the currently valid documentation.

The responsible staff must ensure that the application or use of the products described satisfies all requirements for safety, including all the relevant laws, regulations, guidelines, and standards.

Disclaimer

The documentation has been prepared with care. The products described are, however, constantly under development.
We reserve the right to revise and change the documentation at any time and without notice.
No claims to modify products that have already been supplied may be made on the basis of the data, diagrams, and descriptions in this documentation.

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1.2 For your safety

Safety regulations

Read the following explanations for your safety.
Always observe and follow product-specific safety instructions, which you may find at the appropriate places in this document.

Exclusion of liability

All the components are supplied in particular hardware and software configurations which are appropriate for the application. Modifications to hardware or software configurations other than those described in the documentation are not permitted, and nullify the liability of Beckhoff Automation GmbH & Co. KG.

Personnel qualification

This description is only intended for trained specialists in control, automation, and drive technology who are familiar with the applicable national standards.

Signal words

The signal words used in the documentation are classified below. In order to prevent injury and damage to persons and property, read and follow the safety and warning notices.

Personal injury warnings

⚠ DANGER

Hazard with high risk of death or serious injury.

⚠ WARNING

Hazard with medium risk of death or serious injury.

⚠ CAUTION

There is a low-risk hazard that could result in medium or minor injury.

Warning of damage to property or environment

NOTICE

The environment, equipment, or data may be damaged.

Information on handling the product

This information includes, for example:
recommendations for action, assistance or further information on the product.

1.3 Notes on information security

The products of Beckhoff Automation GmbH & Co. KG (Beckhoff), insofar as they can be accessed online, are equipped with security functions that support the secure operation of plants, systems, machines and networks. Despite the security functions, the creation, implementation and constant updating of a holistic security concept for the operation are necessary to protect the respective plant, system, machine and networks against cyber threats. The products sold by Beckhoff are only part of the overall security concept. The customer is responsible for preventing unauthorized access by third parties to its equipment, systems, machines and networks. The latter should be connected to the corporate network or the Internet only if appropriate protective measures have been set up.

In addition, the recommendations from Beckhoff regarding appropriate protective measures should be observed. Further information regarding information security and industrial security can be found in our https://www.beckhoff.com/secguide.

Beckhoff products and solutions undergo continuous further development. This also applies to security functions. In light of this continuous further development, Beckhoff expressly recommends that the products are kept up to date at all times and that updates are installed for the products once they have been made available. Using outdated or unsupported product versions can increase the risk of cyber threats.

To stay informed about information security for Beckhoff products, subscribe to the RSS feed at https://www.beckhoff.com/secinfo.

2 Installation TwinCAT 3.1 Build 4026

The following installation instructions are intended for users installing TwinCAT 3.1 Build 4026. To install TwinCAT 3.1 Build 4024, read the documentation Installation TwinCAT 3.1 Build 4024 [▶ 22].

TwinCAT 3.1 Build 4026 is installed with the help of the TwinCAT Package Manager. With this setup, you can not only install TwinCAT in three variants as before, but also select and install additional TwinCAT components individually. You can also update and uninstall TwinCAT components individually.

To be able to use TwinCAT Package Manager and TwinCAT 3.1 Build 4026, you need the myBeckhoff account.

The TwinCAT Package Manager is based on two components that build on each other:

- TwinCAT Package Manager: The interface [▶ 19] for menu-driven installation (User Interface)
- TwinCAT Package Manager Command Line Interface "TcPkg": The command line program [▶ 16] is used by the user interface.

All actions on the interface lead to calls to the command line program. This means that all functions of the interface can be mapped in the command line, but the command line can sometimes provide more detailed functions that are not mapped in the interface.

Basic principles

The TwinCAT Package Manager downloads packages and their dependencies from one or more so-called feeds. "Stable" and "Testing" feeds are available from Beckhoff. However, customers can also provide their own feeds if these contain TwinCAT packages for offline installation, for example. The bases for this are either normal directories ("*c:\packagesoffline*", possibly provided via a network drive) or Nuget Package Server.

Products, as displayed in the interface, contain a list of packages with versions, i.e. they have dependencies on specific package versions. These packages for representing products are called workloads, as is also common in Visual Studio.
It is the task of the TwinCAT Package Manager to resolve these dependencies and fulfill them through installation.

2.1 Initial installation of the TwinCAT Package Manager

The following chapter describes how to prepare the TwinCAT Package Manager so that TwinCAT 3.1 Build 4026 and individual TwinCAT components can then be installed and used.

2.1.1 Downloading and installing TwinCAT Package Manager

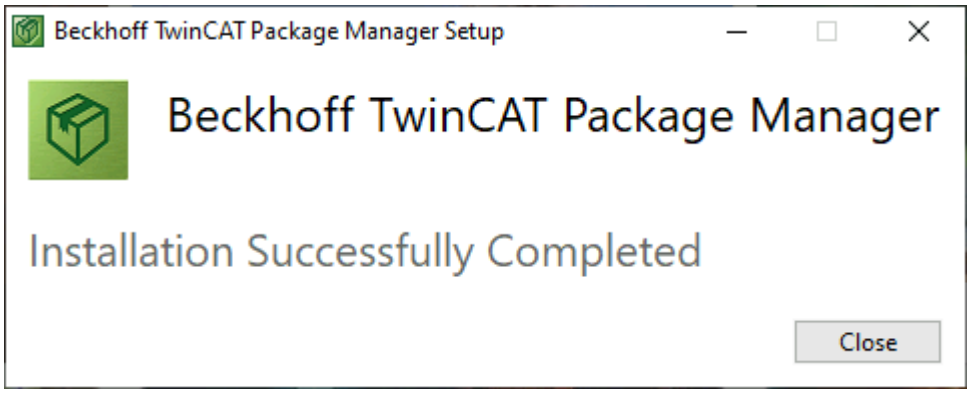
You can download the TwinCAT Package Manager from the Download section of the Beckhoff homepage.

Install the TwinCAT Package Manager as follows:

✓ No older version of TwinCAT is installed on the computer.

1. Download the setup file.
2. The setup file is saved in the download folder.
3. Open the setup file.
4. Accept the license agreement and click **Install**.
   ⇨ The TwinCAT Package Manager is installed.

5. Close the installation window.



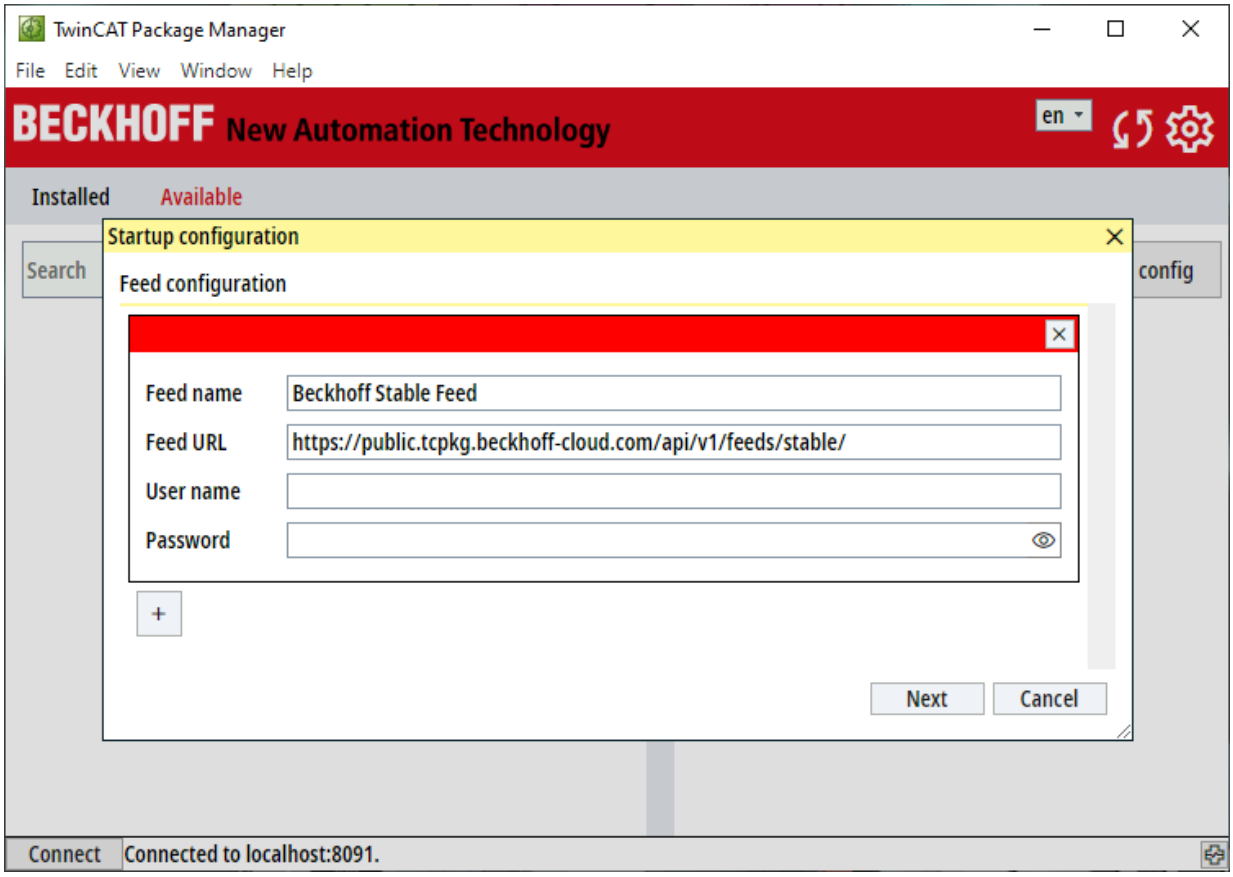
⇨ The TwinCAT Package Manager has been installed.

2.1.2 Setting up the TwinCAT Package Manager

Creating a new feed

To access the TwinCAT installation options, you must first create your own feed. The Startup configuration guides you through setting up the feed the first time you use it.

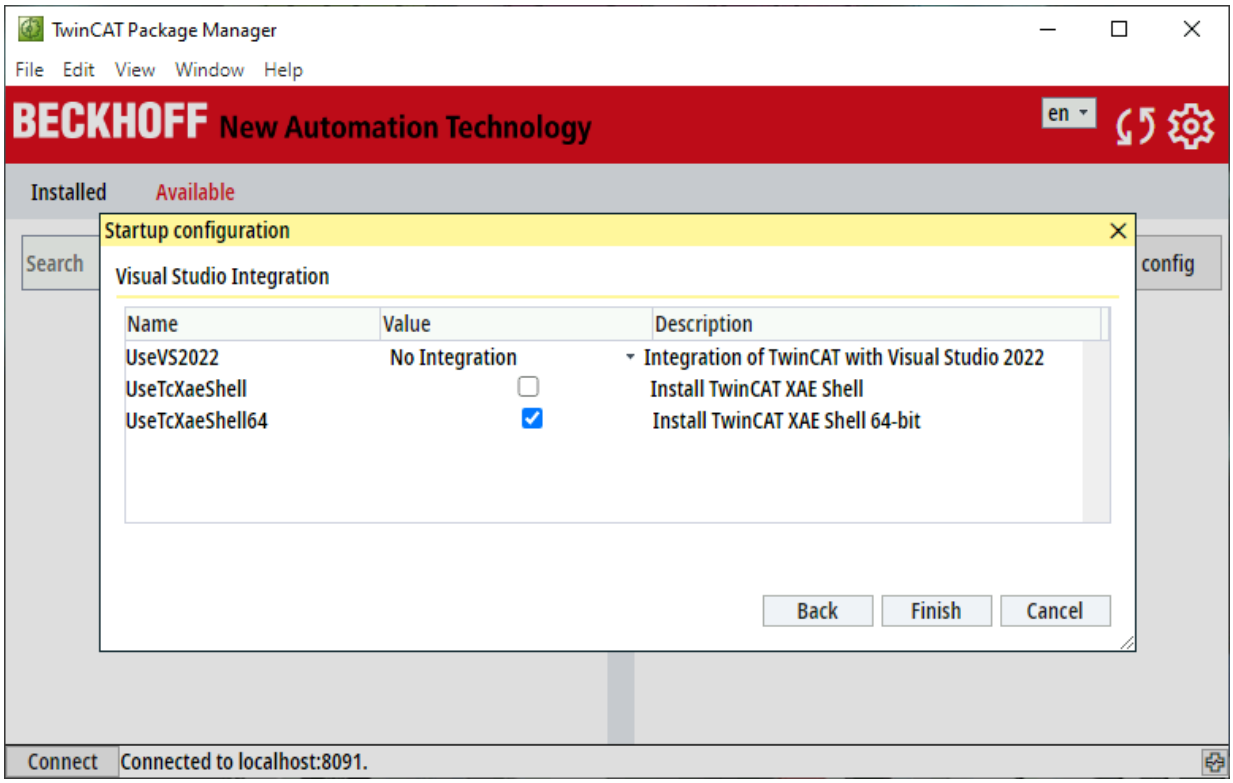
1. Open the TwinCAT Package Manager.



2. Fill in the fields **Feed name** and **Feed URL**.
   Feed name can be used freely. The **Feed URL** is https://public.tcpkg.beckhoff-cloud.com/api/v1/feeds/Stable. To access beta versions, https://public.tcpkg.beckhoff-cloud.com/api/v1/feeds/Testing can also be activated.
3. Enter your myBeckhoff login data in the fields **User name** and **Password**.

⇨ Your login will be checked. If you have problems logging in, you can check your login details at www.beckhoff.com.
Information: New conditions must be accepted for error code 451. Log in to www.beckhoff.com.

4. Click **Next**.
5. Choose a suitable Visual Studio version or shell for the integration of Visual Studio



6. Click **Finish**.
   ⇨ A new feed is created.

⇨ The TwinCAT Package Manager reloads the information after a feed change. This may take a moment. You can already exit the settings page by clicking **x**.

Setting the language

By default, the TwinCAT Package Manager is set to English.

1. You can change the language in the drop-down field next to the button.

2. Confirm the message that the page is being reloaded with **OK**.

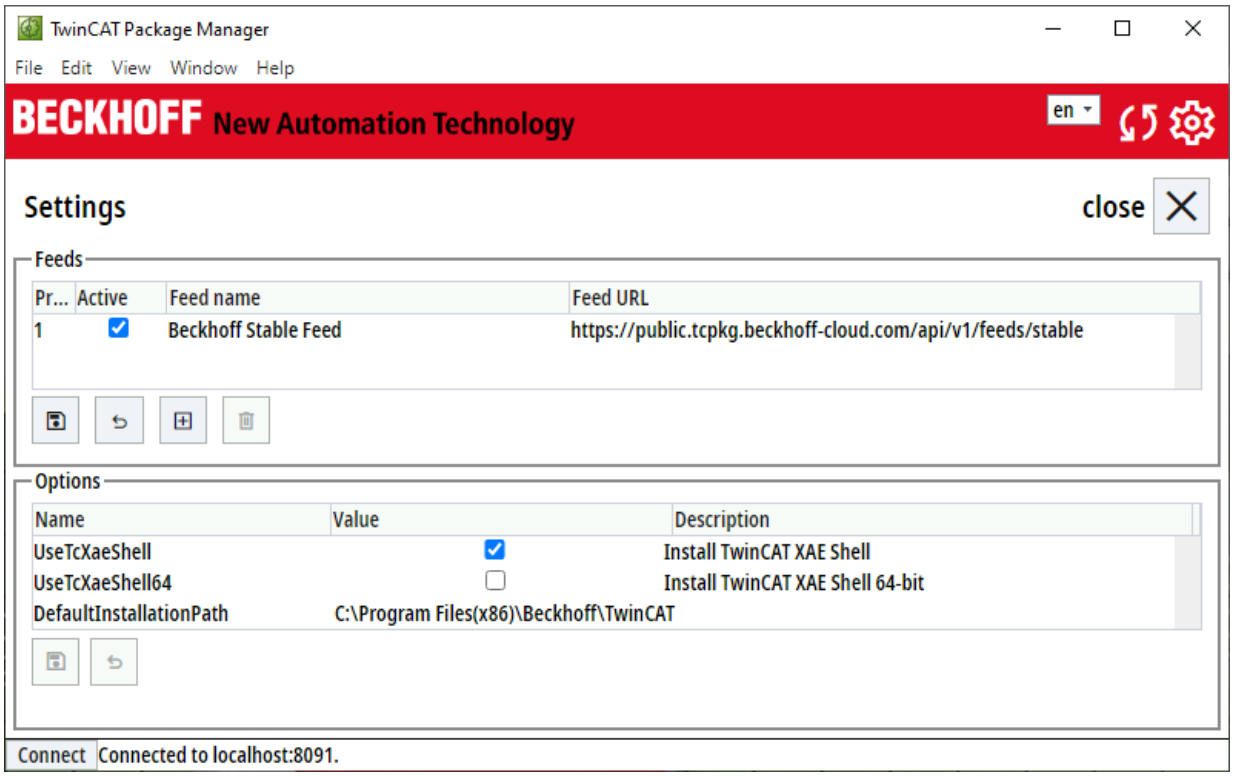
⇨ The page is loaded in the selected language.

2.1.3 Integrating into Visual Studio

With TwinCAT 3.1 Build 4026, you can also configure the integration in different Visual Studio versions and XAE Shell versions at a later date without reinstallation. To do this, set the desired version in the options.

Changing the version of Visual Studio used

1. Use the gear to open the settings. The Visual Studio integrations are part of the options in the lower area.
2. Change the selected Visual Studio version.
   ⇨ For Visual Studio versions, existing variants are displayed here, depending on the system configuration.
3. For the XAE Shell (32bit Shell based on Visual Studio 2017) and XAE Shell64 (64bit Shell based on Visual Studio 2022), configure the integration using the checkbox.



4. Click on the floppy disk to save your settings.
   ⇨ A progress window opens and updates the integrations. The XAE Shell or XAE Shell64 is automatically installed or uninstalled and the selected integrations are made or removed.
5. Click OK to close the progress window when the change is complete.

2.1.4 Configuring Proxy

If the computer does not have a direct connection to the Internet, you can use a proxy.

The TwinCAT Package Manager attempts to read this information from the operating system. However, as there are many ways in which this can be stored, it can also be configured manually.

1. Open a command line with administrator rights.
2. Set the proxy via the TcPkg command line:
   `tcpkg config set proxy -d <ipadress:port> -u <user>`
3. Enter the password when you are prompted to do so.

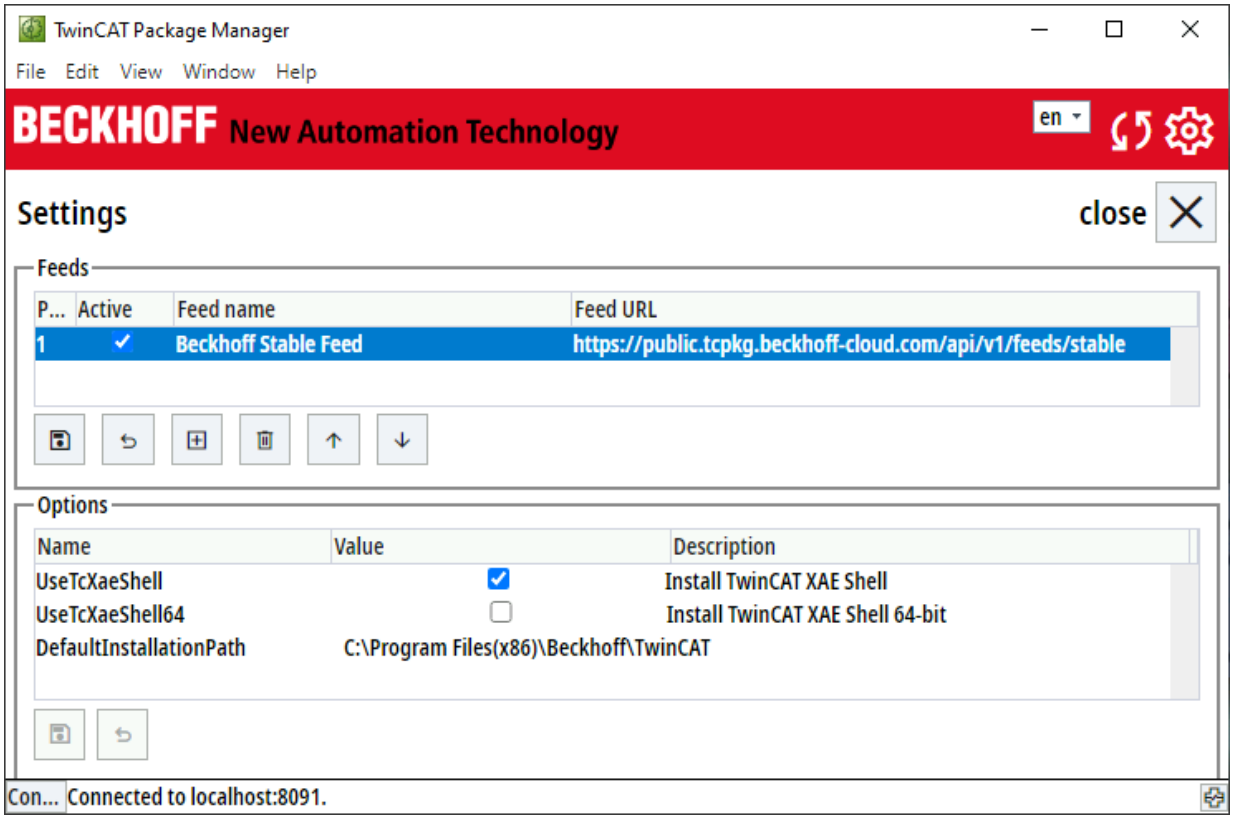
Further options are available via Help:
`tcpkg set proxy -h`

If you do not have information about a proxy available, you can download the packages from another system and transfer them manually to this system. The exact procedure is documented in the chapter Working offline [▶ 18].

2.1.5 Prepare machine delivery

To ensure that you do not pass on your Beckhoff customer data to your customers when the machine is delivered, please delete the feed entries that you have created.
Proceed as follows:

1. Open the TwinCAT Package Manager settings via the gear button.
2. Select the feed you have created.



3. Click on the recycle bin to delete your myBeckhoff login data.
4. Click on the disk to save.

⇨ The feed is deleted.

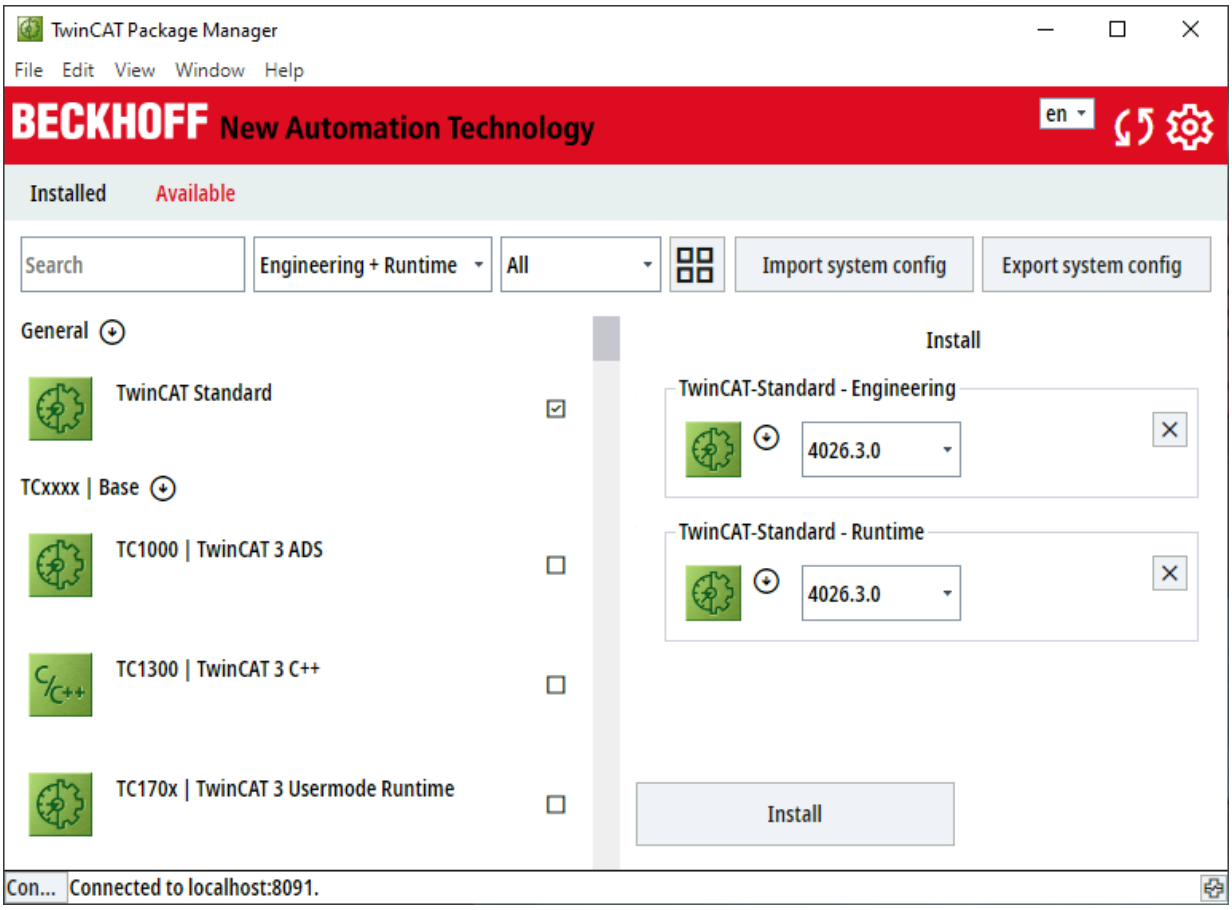
2.2 Product installation

All TwinCAT products are installed with the help of the TwinCAT Package Manager. This applies to TwinCAT 3.1 Build 4026 as well as to engineering products and functions, for example. The following chapter describes how TwinCAT products are installed, updated and uninstalled.

2.2.1 Installing TwinCAT 3.1 Build 4026

The first step is to install TwinCAT 3.1 Build 4026. We recommend installing the TwinCAT Standard workload for this purpose. This workload contains everything you need to use TwinCAT: PLC, Motion NC PTP, System Configuration, Safety Configuration. You can then install additional TwinCAT components individually.

1. Select the **TwinCAT Standard** workload in the choice area of the window.



2. If necessary, adjust the version of the workload.
3. Click on **Install**.
   ⇨ The installation process starts.
   ⇨ TwinCAT 3.1.4026 is installed in the selected version.
   ⇨ If an error occurs during installation, this will be displayed in the progress window.
4. When the installation is complete, close the progress window with **Close**.

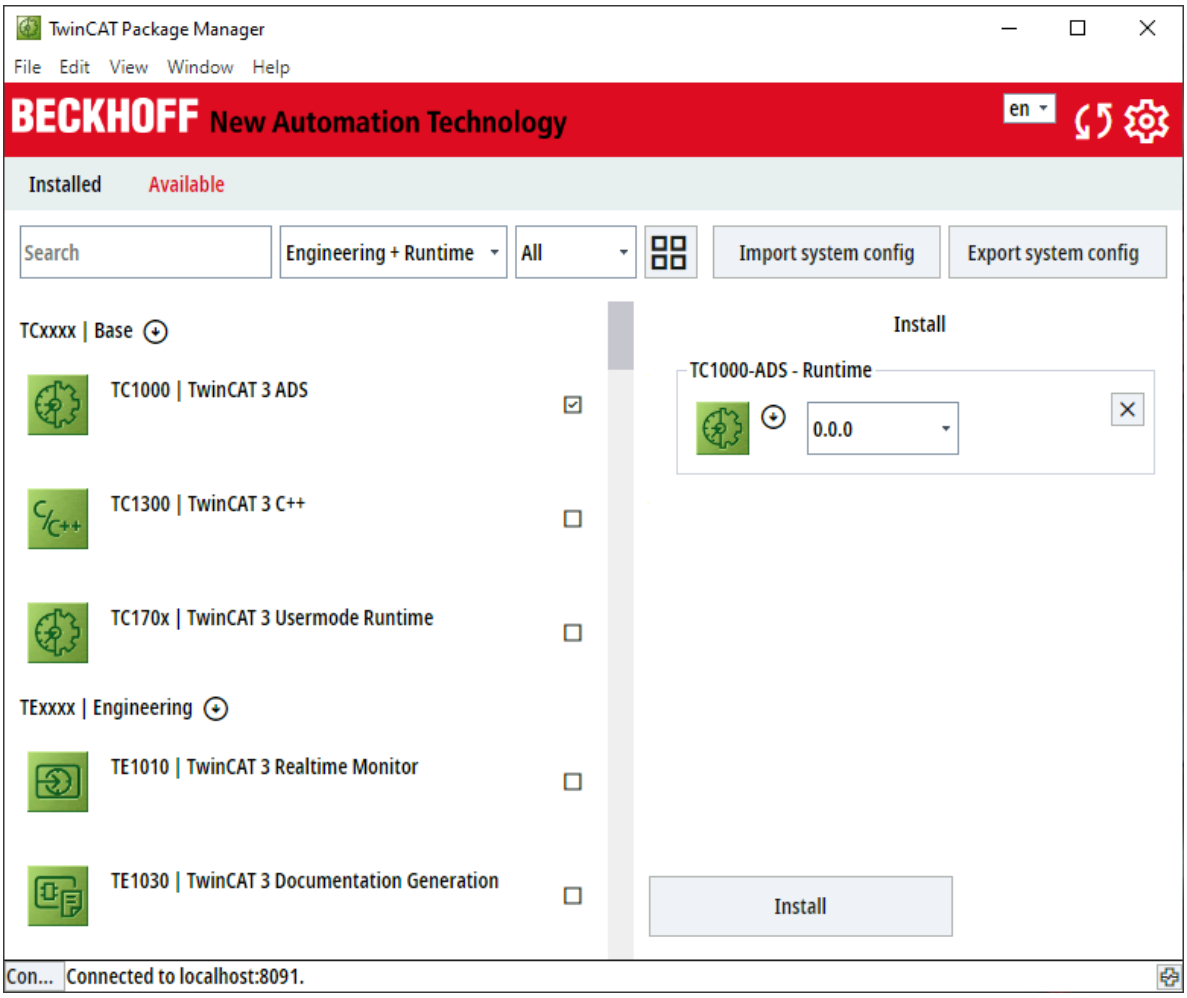
⇨ TwinCAT 3.1 Build 4026 has been installed on your system.

2.2.2 Installing workloads

The individual TwinCAT components are divided into workloads. You can choose which workloads you need and install them in the same way as TwinCAT standard.

1. Select the desired workload in the selection area of the window.

⇨ "Install" is displayed in the top right-hand corner of the window.



2. Adjust the version if necessary.
3. Click on **Install**.
   ⇨ The installation process starts.
   ⇨ If an error occurs during installation, this will be displayed in the progress window.
4. When the installation is complete, close the progress window with **Close**.

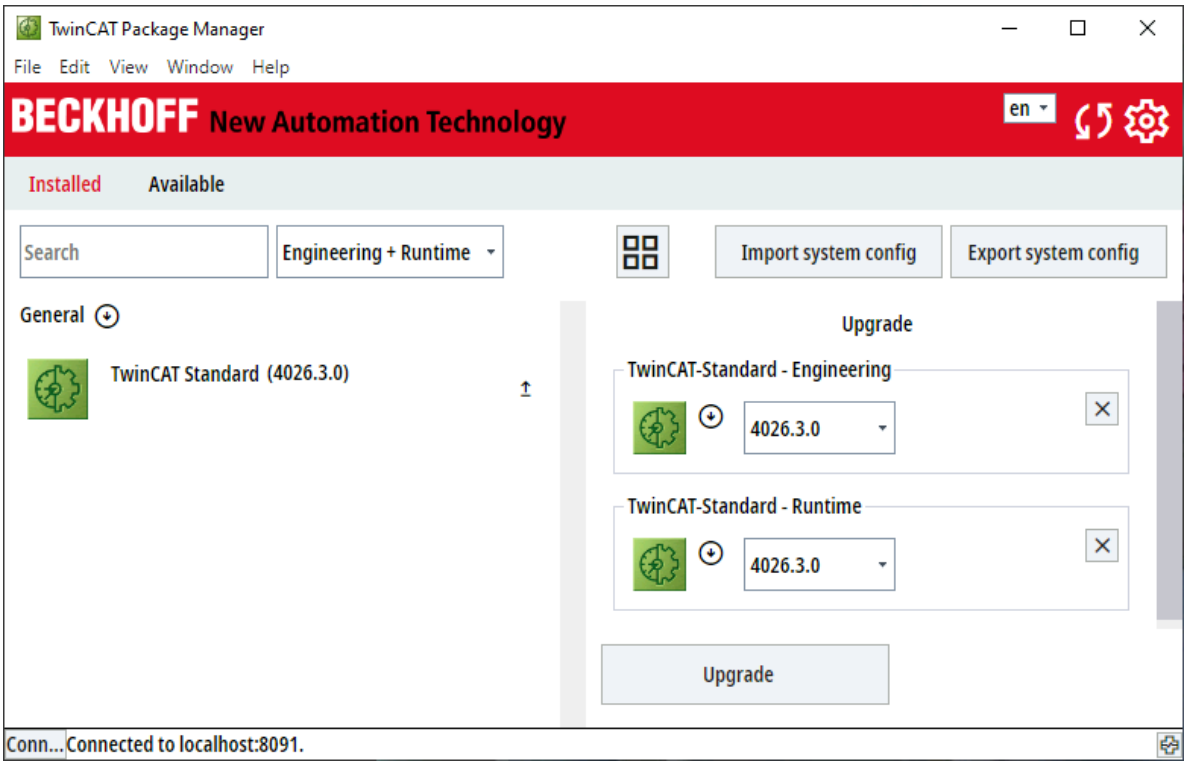
⇨ The desired workload has been installed on your system.

2.2.3 Upgrading workloads

Installed workloads can be updated individually in the TwinCAT Package Manager.

1. Open the **Installed** tab.
2. Select the desired workload in the selection area of the window.
3. Click on the workload again so that "Upgrade" appears in the top right-hand corner of the window.

⇨ An arrow icon is then displayed in front of the selected workload.



4. You can use **X** to remove workloads that should not be updated from the right-hand window area
5. Click on **Upgrade**.
   ⇨ The update process starts.
6. Close the progress window with **Close** when the process is complete.

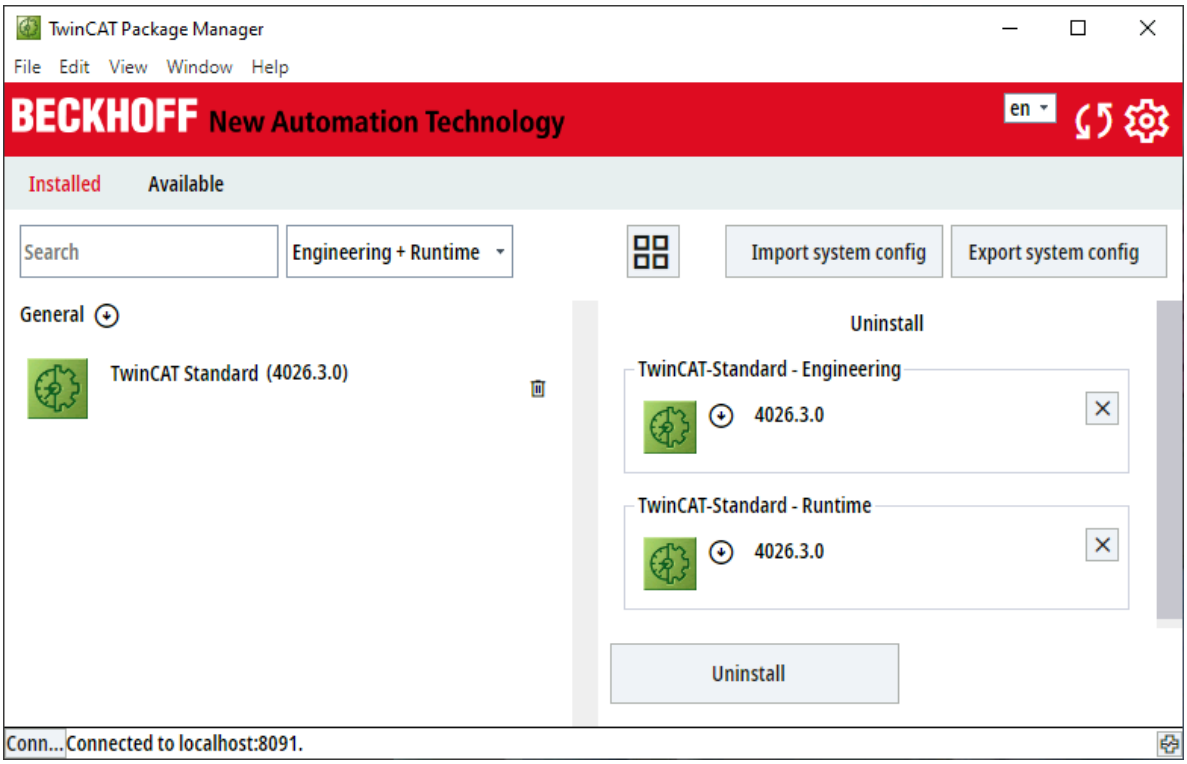
⇨ The workload has been updated on your system.

2.2.4 Uninstalling workloads

Installed workloads can be uninstalled individually in the TwinCAT Package Manager.

1. Open the **Installed** tab.
2. Select the desired workload in the selection area of the window.
3. Click on the workload again until you see "Uninstall" in the top right-hand corner of the window.

⇨ A recycle bin icon is then displayed in front of the selected workload



4. You can use **X** to remove workloads that are not to be uninstalled from the right-hand window area,
5. Click on **Uninstall**.
   ⇨ The workload is uninstalled.
6. Close the progress window with **Close** when the process is complete.

⇨ The workload has been uninstalled from your system.

2.3 Working with the command line

The command line program "tcpkg" enables the management of TwinCAT components (workloads) or individual packages.

- The TwinCAT Package Manager must be installed. The "tcpkg" command is then available on the system.
- The command line program "tcpkg" can be executed in a Powershell or a classic command line. Administration rights are required for most actions.
- The command integrates a help system. With "tcpkg -h" the top-level help can be called up; with "tcpkg list -h", for example, detailed help for the "list" command can be called up.
- Visual Studio/XAE Shell may need to be closed for the installation.

Commands for the command line

This list is a choice to give an overview of the most important commands.

Queries

- List of all available packages incl. workloads
  `tcpkg list`
- List of all versions of all available packages
  `tcpkg list -a`
- List of all available workloads
  `tcpkg list -t workload`
- List of all configured feeds
  `tcpkg source list`

- List of all available packages from a specific feed
  `tcpkg list -n [NameOfSource]`
- List of all available packages by word
  `tcpkg list plc --partial`
- List of all installed packages
  `tcpkg list -i`
- List of all installed packages that can be upgraded
  `tcpkg list -o`
- Display information about a package
  `tcpkg show [NameOfPackage]`
- List of the dependencies of a package
  `tcpkg resolve [NameOfPackage]`

Working with packages: Installing, upgrading and uninstalling

- Installation of a package or workload with the dependencies
  `tcpkg install [NameOfPackage]`
- Installation of a package or workload in a given version
  `tcpkg install [NameOfPackage] -v [VersionOfPackage]`
- Installation of a Visual Studio integration package (after the configuration has been changed, see below)
  `tcpkg install [vs2017.ext|vs2019.ext|vs2022.ext|tcxaeshell.ext|tcxaeshell64.ext]`
- Upgrade a package
  `tcpkg upgrade [NameOfPackage]`
- Upgrade of all installed packages
  `tcpkg upgrade all`
- Uninstalling a package
  `tcpkg uninstall [NameOfPackage]`
- Uninstalling a package with the dependencies
  `tcpkg uninstall [NameOfPackage] --include-dependencies`

Configuration

- Add a feed
  `tcpkg source add -n=[NameOfSource] -s=[LinkToSource] --priority=[UniqueValue, highest is 1] -u=[UserName]`
  Information: LinksToSource normally at: https://public.tcpkg.beckhoff-cloud.com/api/v1/feeds/[testing/stable]
  UserName for Beckhoff Feeds: E-Mail address of myBeckhoff-account)
- Changing a feed
  `tcpkg source edit [NameOfSource] --priority=[NewUniqueValue]`
- Switching a feed on or off without deleting it
  `tcpkg source edit [NameOfSource] --enabled true / false`
- Setting the Visual Studio integrations:
  `tcpkg config set -n [useVS2017|useVS2019|useVS2022|useTcXaeShell|useTcXaeShell64]`
  Information: After a change, the corresponding integration must be made:
  For example: `tcpkg installl vs2022.ext`
- Removing the Visual Studio integrations
  `tcpkg config unset -n [useVS2017|useVS2019|useVS2022|useTcXaeShell|useTcXaeShell64]`
  Information: The corresponding integration must be made after a change:
  For example: `tcpkg uninstalll vs2022.ext`

2.4 Working offline

If you want to set up a system that does not have direct access to the Internet ("offline system"), you can download the packages from another system and store them locally. These stored packages can then be transferred to the offline system and installed there.
You will find the necessary procedure below:

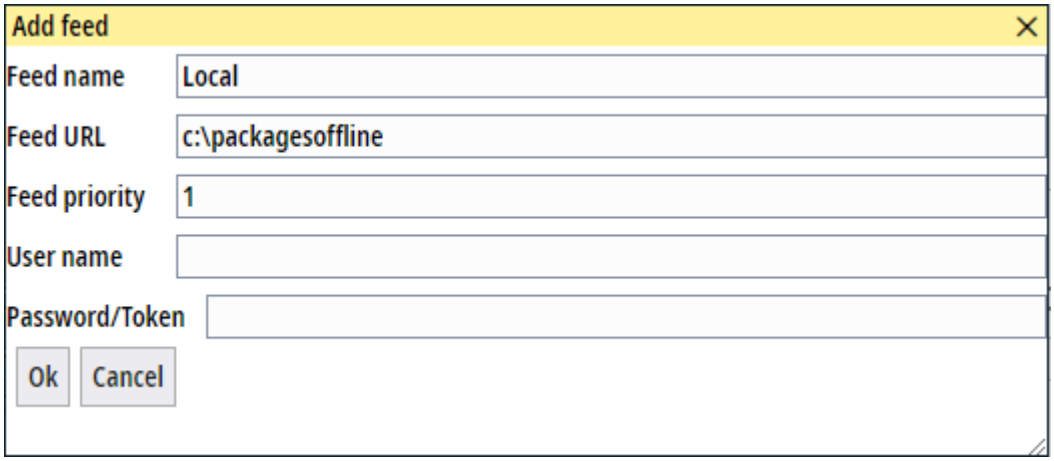
✓ You need a system with access to the feeds.

✓ The TwinCAT Package Manager is installed there and a feed is configured.

1. Create a local folder in which you want to save the packages. For example *c:\packagesoffline*
2. Open a command line or alternatively Windows PowerShell with administrator rights.
3. You can use this command to call up a list of available products:
   `tcpkg list -t workload`
4. You can use this command to download the workload (TwinCAT Standard in this sample) with all dependencies:
   `tcpkg download TwinCAT.Standard.XAE -o "C:\packagesoffline"`
5. If the product has an XAR component, please also download this workload if necessary
   `tcpkg download TwinCAT.Standard.XAR -o "C:\packagesoffline"`
6. Transfer the directory *c:\packagesoffline* and the setup of the TwinCAT System Manager to the other offline system.

Proceed as follows on the offline system:

7. Install the TwinCAT Package Manager as usual.
8. Start the TwinCAT Package Manager.
9. Create a new feed and enter the path to the local folder (e.g. c:\packagesoffline) as the **Feed URL**. Username and password remain empty.

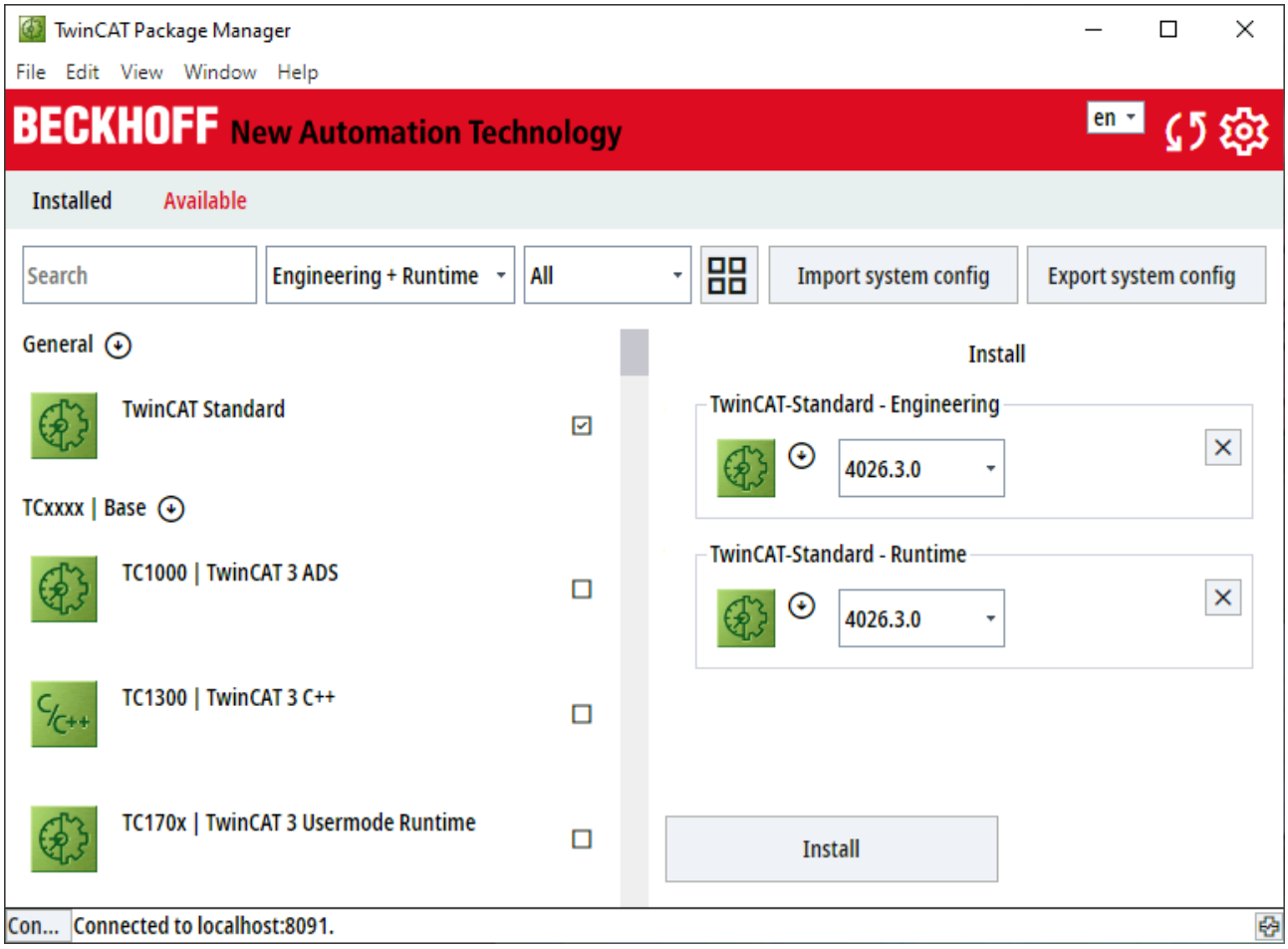


⇨ The provided workloads are then available. They can be displayed in the user interface or via the command line `tcpkg list -t workload`.

⇨ The workloads can be installed as usual via the user interface or the command line.

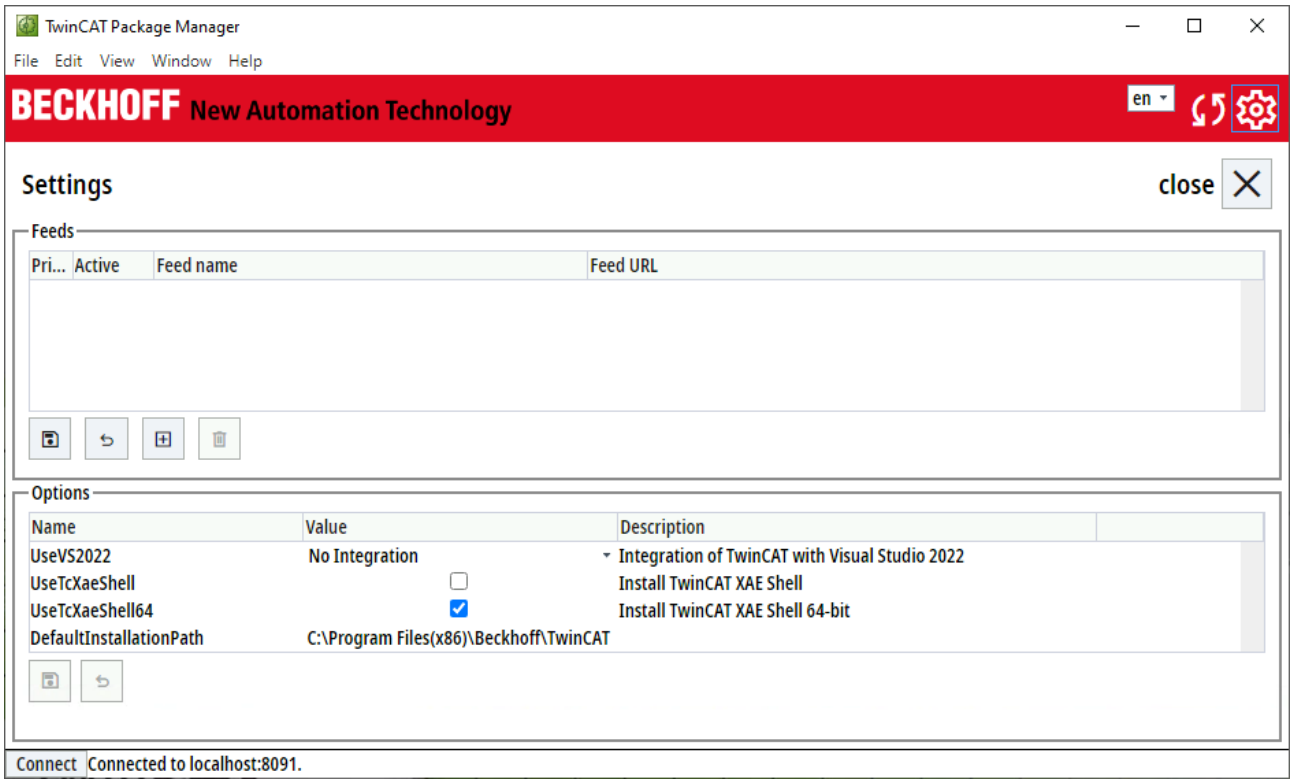
2.5 User interface TwinCAT Package Manager

Structure of the main window of the TwinCAT Package Manager



en / de	Change language.
	Reload information from the configured feeds and local information.
	Open the TwinCAT Package Manager settings.
Installed / Available	The **Installed** tab shows the installed products. The **Available** tab shows products that are ready for installation.
Search	Filters the list of products.
Engineering / Runtime / Engineering + Runtime	This drop-down list allows you to choose whether products with an engineering or runtime component can be selected or a combination of both.
Feed choice / All	Selection area, whether products from only one feed or all ("All") should be displayed.
	Switch between line and tile view.
Import system config	Import product configuration from a file and install accordingly.
Export system config	Export current product configuration to a file.
Display area left	Products are displayed and can be chosen for installation, uninstallation and upgrading.
Display area right	List of changes to be made to installations as well as uninstallations or upgrades / downgrades.
Modify	Execute the displayed changes.

Structure of the TwinCAT Package Manager settings window



close	Close settings.
Feeds	Display of the configured feeds
	Save. Note: New conditions must be accepted for error code 451. Please log in at www.beckhoff.com.
	Discard changes.
	Add a new feed.
	Delete feed.
Options	Various options can be set here, including the Visual Studio installations, which can also be changed here later, and the customization of the destination directory before the first installation.

2.6 FAQ

Error code 451 when accessing myBeckhoff (create feed / fetch packages)

New conditions must be accepted for error code 451. Please log in at www.beckhoff.com.

Visual Studio mapping at package level

Packages that represent a Visual Studio or XAE Shell integration have one corresponding package per supported Visual Studio variant. Depending on the configuration, this is used automatically and transparently by the TwinCAT Package Manager to realize the corresponding integration.

As they are handled transparently, these packages are not normally displayed separately, but appear as separate files on the file system, for example.

For example, the following Visual Studio integration packages also exist for the "TwinCAT.XAE.SystemManagerVS" component:

```
TwinCAT.XAE.SystemManagerVS
TwinCAT.XAE.SystemManagerVS.TcXaeShell64
TwinCAT.XAE.SystemManagerVS.TcXaeShell
TwinCAT.XAE.SystemManagerVS.VS2017
TwinCAT.XAE.SystemManagerVS.VS2019
TwinCAT.XAE.SystemManagerVS.VS2022
```

3 Installation TwinCAT 3.1 Build 4024

The following installation instructions are intended for users installing TwinCAT 3.1 Build 4024. To install TwinCAT 3.1 Build 4026, read the documentation Installation TwinCAT 3.1 Build 4026 [▶ 8].

3.1 Installation options

TwinCAT 3 is delivered with a component-based setup that you can download from the Download section on the Beckhoff homepage.

TwinCAT 3 is installed by default in the directory *C:\TwinCAT\3.x* (*x = TwinCAT-version number*). Changing the installation path is not recommended.

The following setups are available for each new version of TwinCAT 3.1:

- TwinCAT 3.1 eXtended Automation Engineering (XAE) (full installation)
- TwinCAT 3.1 eXtended Automation Runtime (XAR)
- TwinCAT 3.1 Engineering Remote Manager
- TwinCAT 3.1 ADS

Full installation - TwinCAT 3.1 eXtended Automation Engineering (XAE)

The full installation of TwinCAT 3.1 contains various installation options that you can select during the installation:

- Full installation - TwinCAT 3.1 Engineering and Runtime (**Complete** option)
- Full installation - TwinCAT 3.1 Engineering (**Custom** option)
- Full installation - TwinCAT 3.1 Runtime (**Custom** option)

Installation option	Scope	Use
Full installation - TwinCAT 3 Engineering and Runtime (Standard installation)	Installs the complete TwinCAT system on a single PC: • TwinCAT 3 Engineering (XAE, development system/environment) • local TwinCAT 3 Runtime (real-time runtime system/environment, XAR)	• First installation • On development workstations that use the PC at the same time as a control computer. • No external test system required: you can also use the development system as a test system. Additional control hardware for tests is not absolutely necessary.
TwinCAT 3 Engineering full installation	Installs the TwinCAT 3 Engineering for the development computer	• If the control computer is always strictly separated from the development system. • External test system required: you CANNOT use the development computer as a test system for the control program.
Full installation - TwinCAT 3 Runtime	Installs the TwinCAT 3 Runtime for the control computer The TwinCAT 3 Runtime (XAR) is already pre-installed on many Beckhoff IPCs or can be ordered as an option.	• For pure control computers without a development system

See also:

- Integration in Visual Studio® [▶ 23]
- Installation of TwinCAT 3 Engineering and Runtime [▶ 25]

Installation of the TwinCAT 3 eXtended Automation Runtime (XAR)

This installation contains only the components that are needed for the TwinCAT 3 Runtime. The setup is thus much smaller than that for the full installation of TwinCAT 3.

Typical application for the setup:

- New installation or update of the TwinCAT 3 Runtime system on a target system.

Installation of the TwinCAT 3 Engineering Remote Manager

This installation contains only the engineering components of a TwinCAT 3 version and cannot be installed stand-alone. It always requires a newer full version of TwinCAT 3.1.

Typical application for the setup:

- Use of older TwinCAT 3 Engineering versions without several TwinCAT 3 versions being completely installed alongside one another. Following the installation, a TwinCAT 3 Engineering version is then available in the Remote Manager and can be selected before loading a project. This installer is thus always only provided for downloading with the subsequent TwinCAT version.

Installation of TwinCAT 3 ADS

This installation contains only the components necessary for the use of ADS. ADS (TwinCAT Automation Device Specification) is a medium-independent protocol for communication with/between TwinCAT components. ADS is normally installed automatically together with TwinCAT 3 XAE or TwinCAT 3 XAR.

Typical application for the setup:

- A separate HMI system (with no control function of its own) that exchanges its process data with a TwinCAT-based control computer via ADS.

See also:

- Command line-based installation [▶ 42]
- Parallel installation of TwinCAT 2 and TwinCAT 3 [▶ 48]

3.2 Integration in Visual Studio®

TwinCAT 3.1 is integrated into Visual Studio® during installation.

Requirements for integration in Visual Studio®

- Full version of Visual Studio® 2013-2019

or

- Visual Studio® Shell 2013-2019

but

- no Visual Studio® Express

Installation order

For the integration of TwinCAT 3 in Visual Studio® you have to install Visual Studio® first, only then you can install TwinCAT 3 and integrate it in Visual Studio®.

You cannot integrate TwinCAT 3 with Visual Studio® if Visual Studio® was installed after TwinCAT 3. In this case, you must first uninstall TwinCAT 3, install Visual Studio® and then reinstall TwinCAT 3.

Example: After installing TwinCAT 3, you decide to program in C++ and therefore want to install a full version of Visual Studio®.

Standard installation cases

Case 1: You do not have a full version of Visual Studio® installed on the development computer.

In this case, a Visual Studio® 2017 Shell supplied by TwinCAT 3 is installed as the standard development environment for TwinCAT.

Case 2: One or more full version(s) of Visual Studio® 2013-2019 is installed on the development computer.

The TwinCAT 3 setup offers you the possibility to select in which full version of Visual Studio® TwinCAT 3 should be integrated (multiple selection possible).

Case 3: A Visual Studio® 2013-2019 Shell is installed on the development computer.

The TwinCAT 3 setup offers you the possibility to integrate TwinCAT 3 into the already installed Visual Studio® Shell (instead of installing the default Visual Studio® 2019 Shell)

See also: Installation of TwinCAT 3 Engineering and Runtime [▶ 25]

Download and installation of the Visual Studio® Shell

With the exception of the Visual Studio® 2019 Shell included in the installer, Beckhoff does not deliver any other Visual Studio® Shell versions together with TwinCAT 3. However, you can download and install them free of charge from the Microsoft website. Visual Studio® Shells are free of charge, but they do not allow high-level language programming such as C++ or C#.

Installation requirements: Windows 7, Windows 8 or Windows 10

Go to http://www.microsoft.com/download in your browser.

- Search for "Visual Studio 201x Shell (Isolated) Redistributable Package", download and install it.
- Search for "Visual Studio 201x Shell (Integrated) Redistributable Package", download and install it.

Visual Studio® 201x Shell (Integrated) Redistributable Package is an add-on to Visual Studio® 201x Shell (Isolated) Redistributable Package, therefore the "Isolated" version must be installed first. For details visit the Microsoft website.

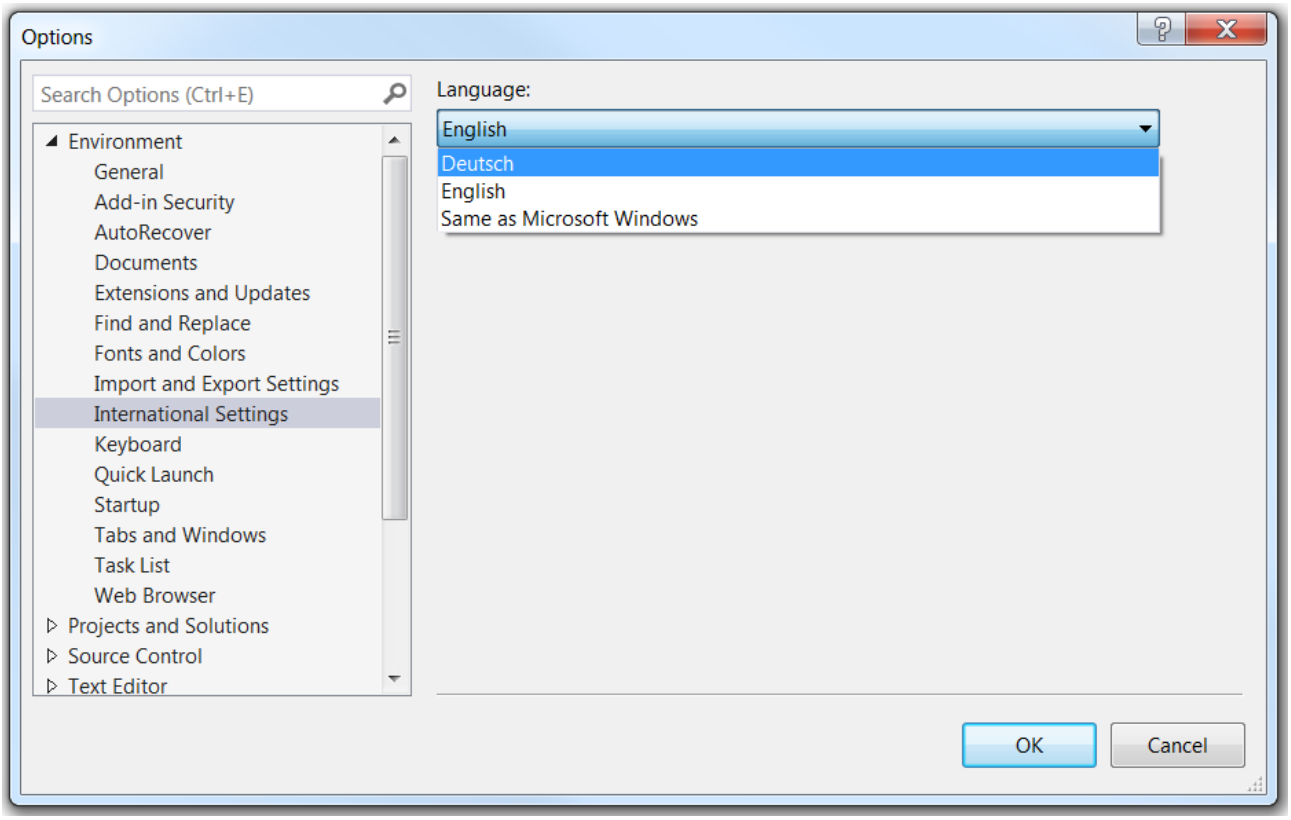
Use of TwinCAT C++

If you want to use TwinCAT C++, it is mandatory to install the option "Microsoft Foundation Classes for C++" during the full installation of Visual Studio®. Otherwise the SDK is missing and TwinCAT C++ is not available even with a full Visual Studio®.

Language settings

The language used in TwinCAT depends on the language of the pre-installed Visual Studio® version. If TwinCAT 3 is to be displayed in German, Visual Studio® (Shell) must also be installed and selected in German.

You can install the language packs of Visual Studio® afterwards after installing TwinCAT 3. In the settings of Visual Studio® you can then switch the language.



3.3 Installation of TwinCAT 3 Engineering and Runtime

The following sections describe how to install all TwinCAT 3 components on one system (full installation). During the installation you can choose whether you want to install the entire TwinCAT 3 system (Engineering and Runtime), only the TwinCAT 3 Engineering or only the TwinCAT 3 Runtime. TwinCAT is integrated into Visual Studio® during installation. See also Integration in Visual Studio® [▶ 23].

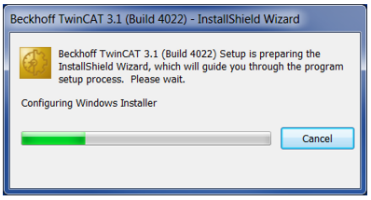
3.3.1 Installing TwinCAT 3 Engineering and Runtime

✓ You have read the section Integration in Visual Studio® [▶ 23].

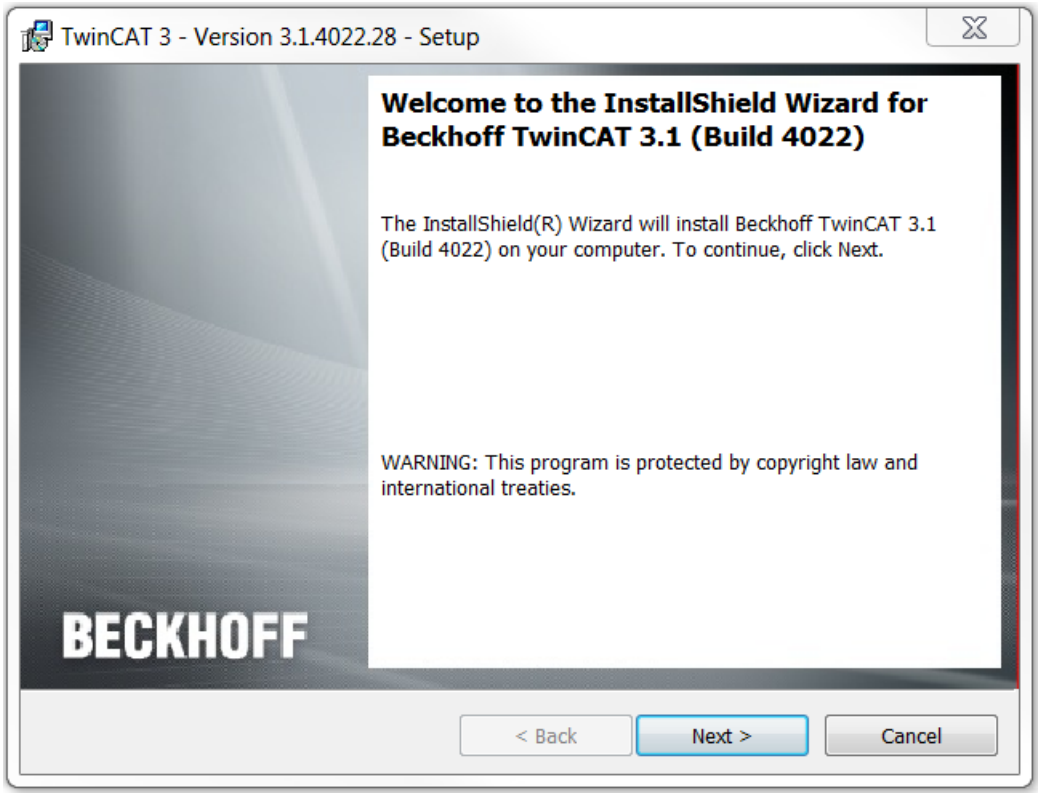
✓ You have downloaded the current installation program *TC31-Full-Setup 3.1* from the Beckhoff homepage.

1. Run the program to start the installation. If you use Windows 7 or Windows 8, run the program as an administrator. To do this, right-click on the file and select the corresponding option in the context menu.

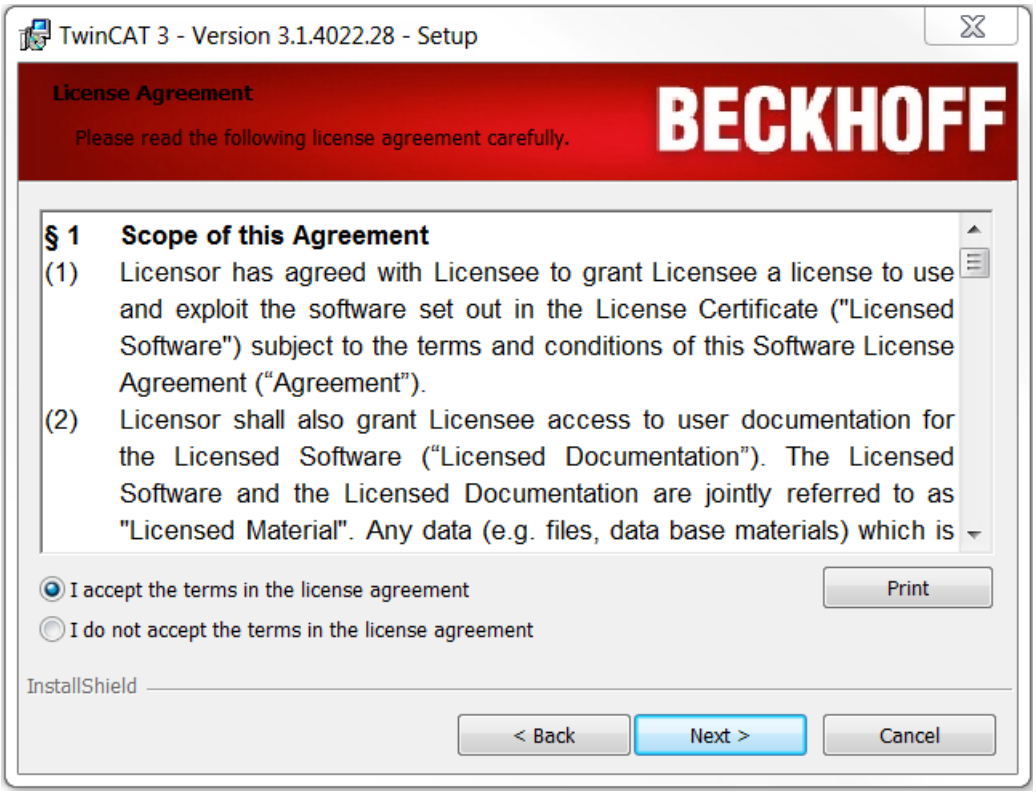
⇨ The TwinCAT 3.1 - Install Shield Wizard will open, which guides you through the installation and in which you make all further installation settings (licence agreement, customer information, setup type).



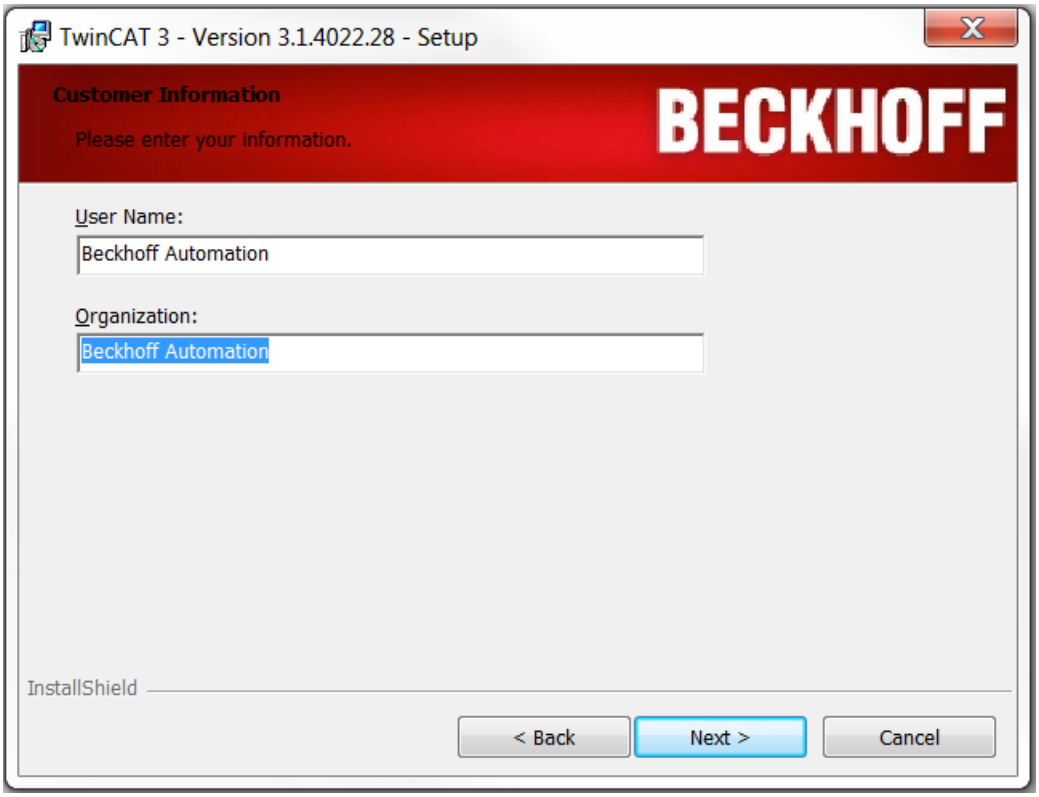
2. Click on **Next** to proceed with the installation.



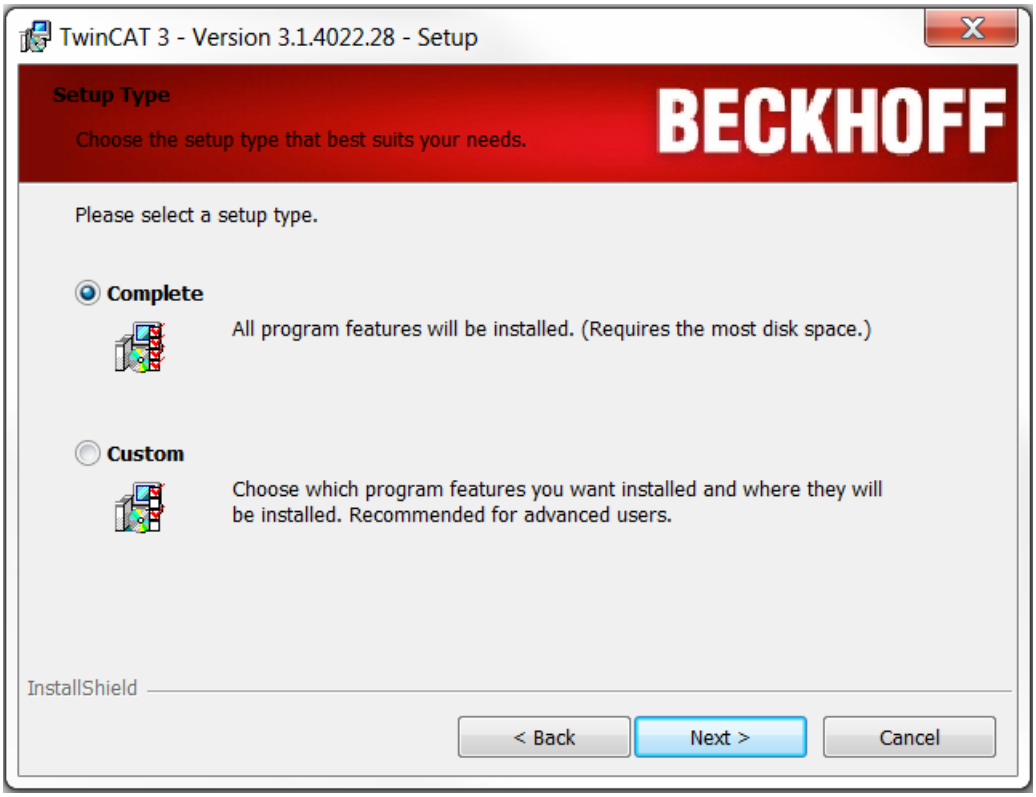
3. Accept the license agreement and click on **Next**.



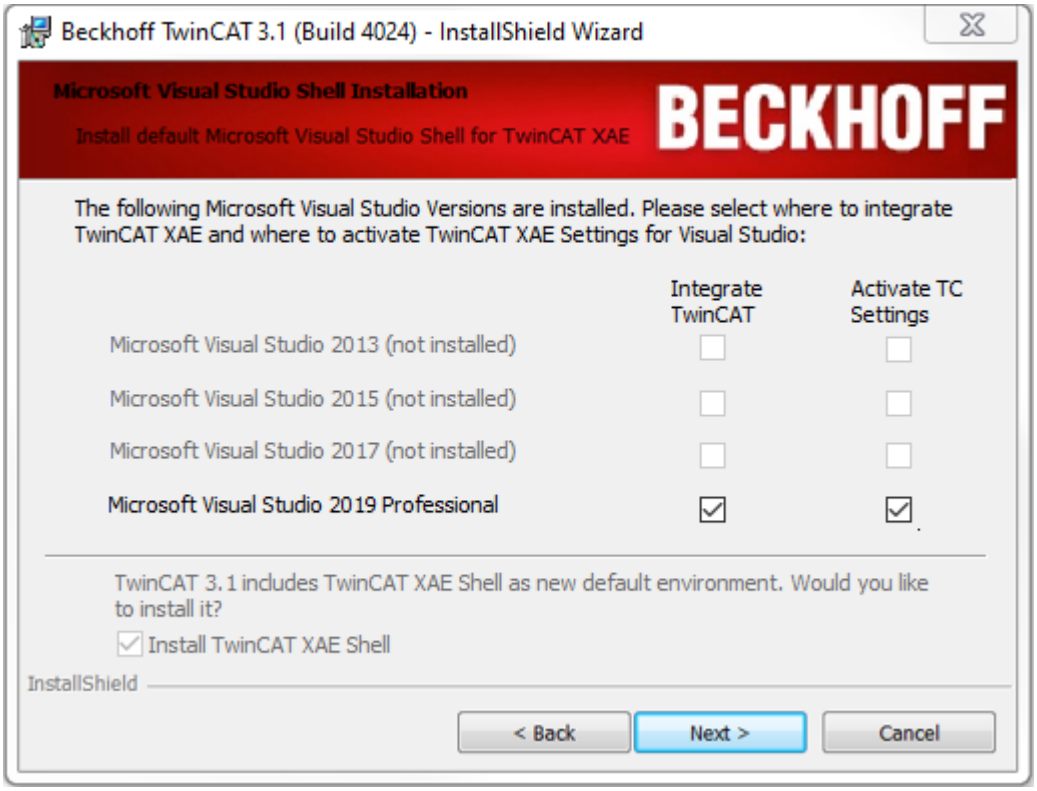
4. Enter your **User Name** and **Organization**. Click on **Next**.



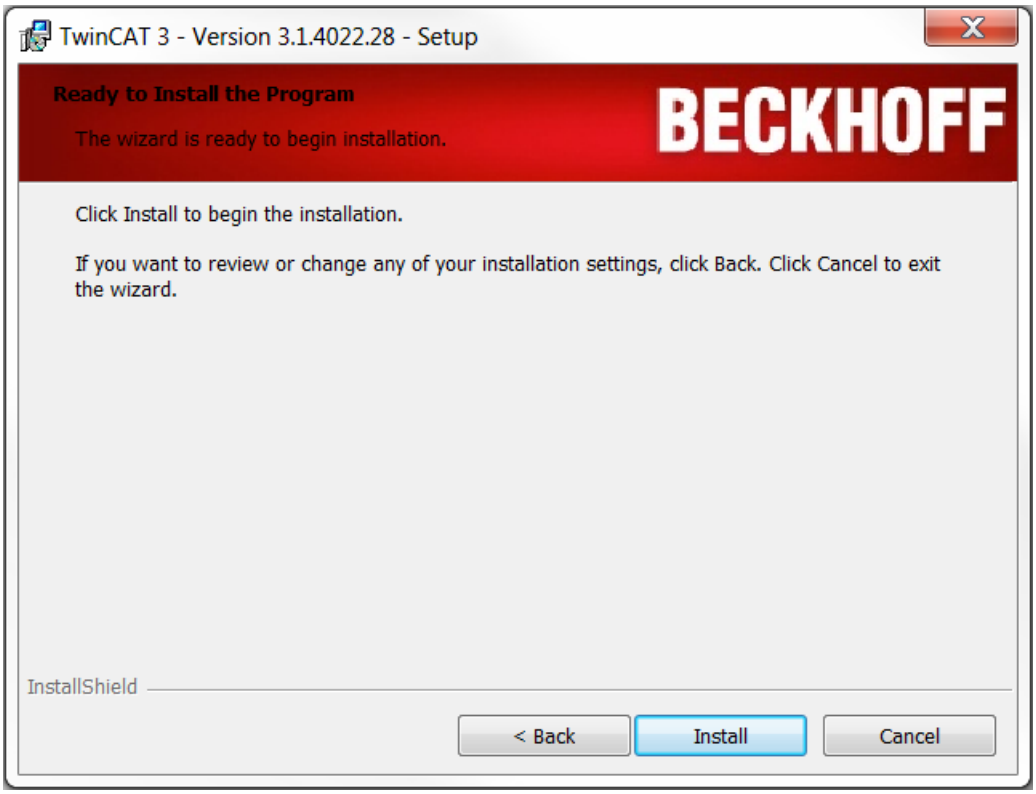
1. Activate the **Complete** option to install the complete TwinCAT system. Click on **Next**.



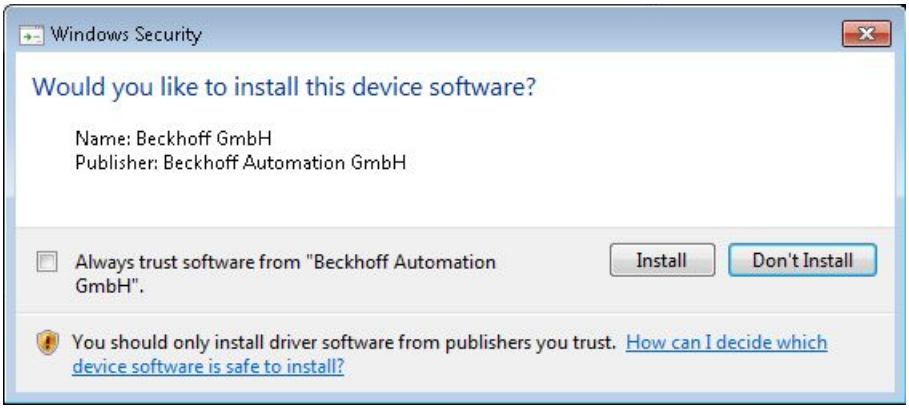
2. If you have already installed Visual Studio® 2013/2015/2017/2019 (or a Visual Studio® Shell 2013-2019), activate the **Integrate TwinCAT** selection boxes for the versions in which you wish to install TwinCAT 3.
3. If you also want to (re-)activate the TwinCAT XAE settings, activate the associated **Activate TC Settings** selection boxes.
4. If you have not yet installed any Visual Studio® version, activate the **Install TwinCAT XAE Shell** selection box in order to install the Visual Studio® Shell as the environment. Click on **Next**.



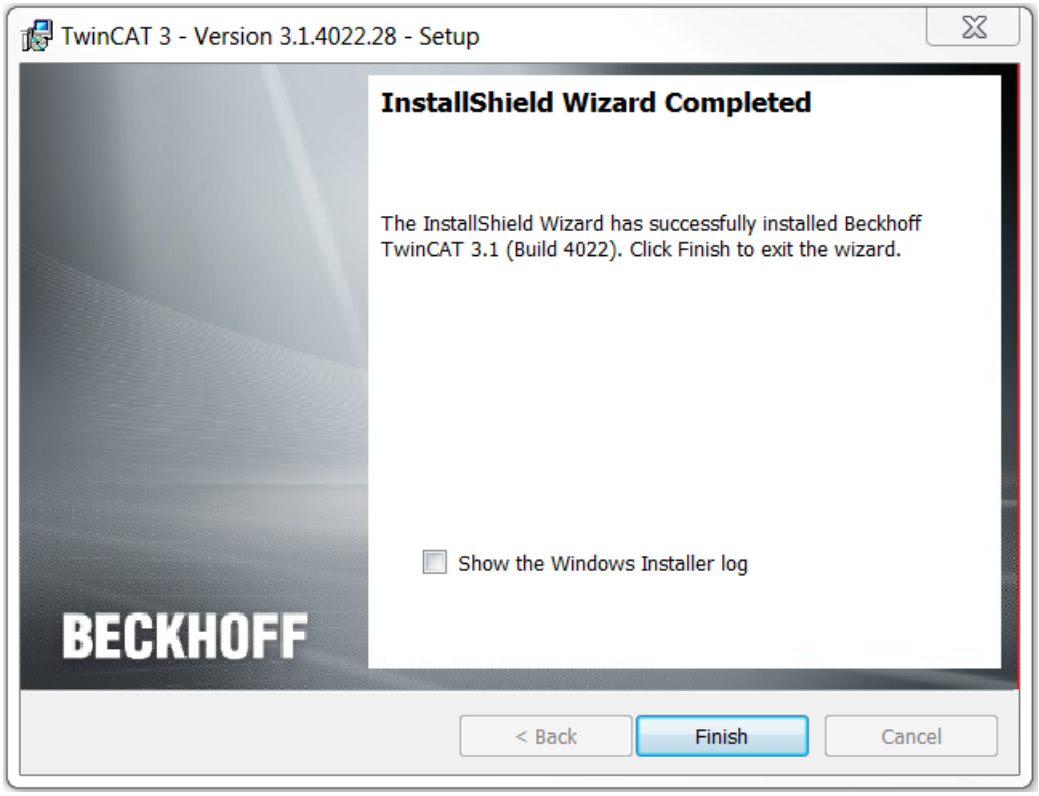
1. Click on **Install** to start the installation. TwinCAT 3 will be installed in the specified directory *C:\TwinCAT\3.1*.



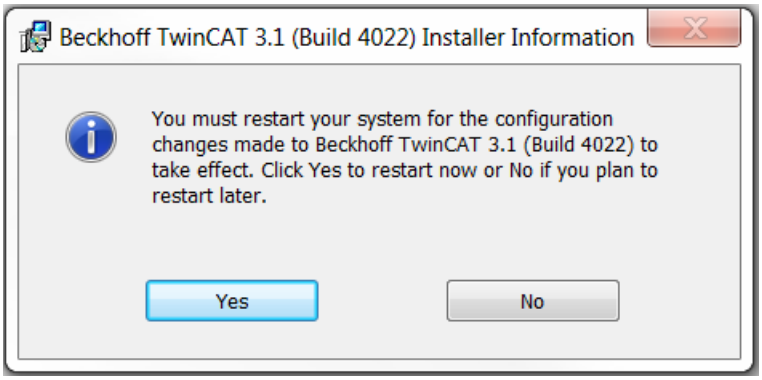
2. Activate the **Always trust software from Beckhoff Automation GmbH** selection box and click on **Install** to install all drivers (alternatively you will be requested several times to confirm).



3. Click on **Finish**.



4. To complete the installation, you have to restart the system. If you wish to automatically restart the system immediately, click on **Yes** in the following dialog.



⇨ Following the restart TwinCAT is ready for use. The status of the runtime system (XAR) is indicated by a blue (configuration mode) or green (run mode) symbol in the Windows menu bar.

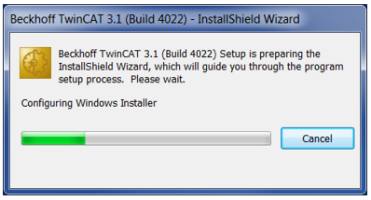
3.3.2 Installing TwinCAT 3 Engineering

✓ You have read the section Integration in Visual Studio® [▶ 23].

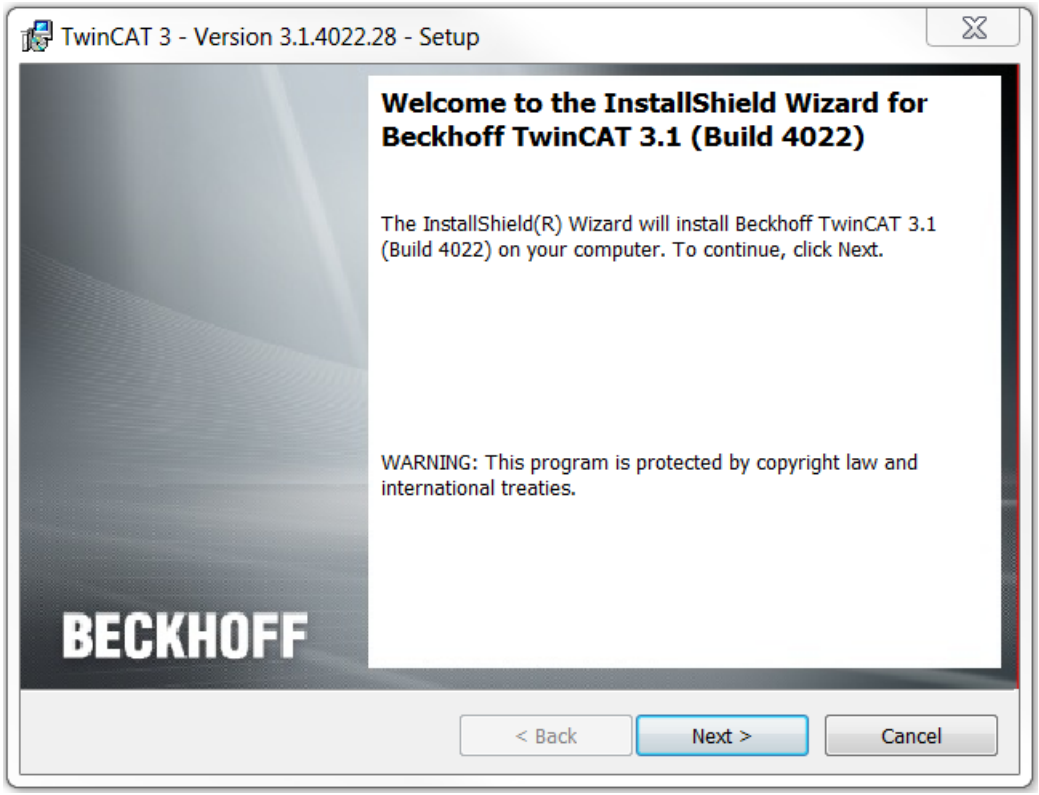
✓ You have downloaded the current installation program *TC31-Full-Setup 3.1* from the Beckhoff homepage.

1. Run the program to start the installation. If you use Windows 7 or Windows 8, run the program as an administrator. To do this, right-click on the file and select the corresponding option in the context menu.

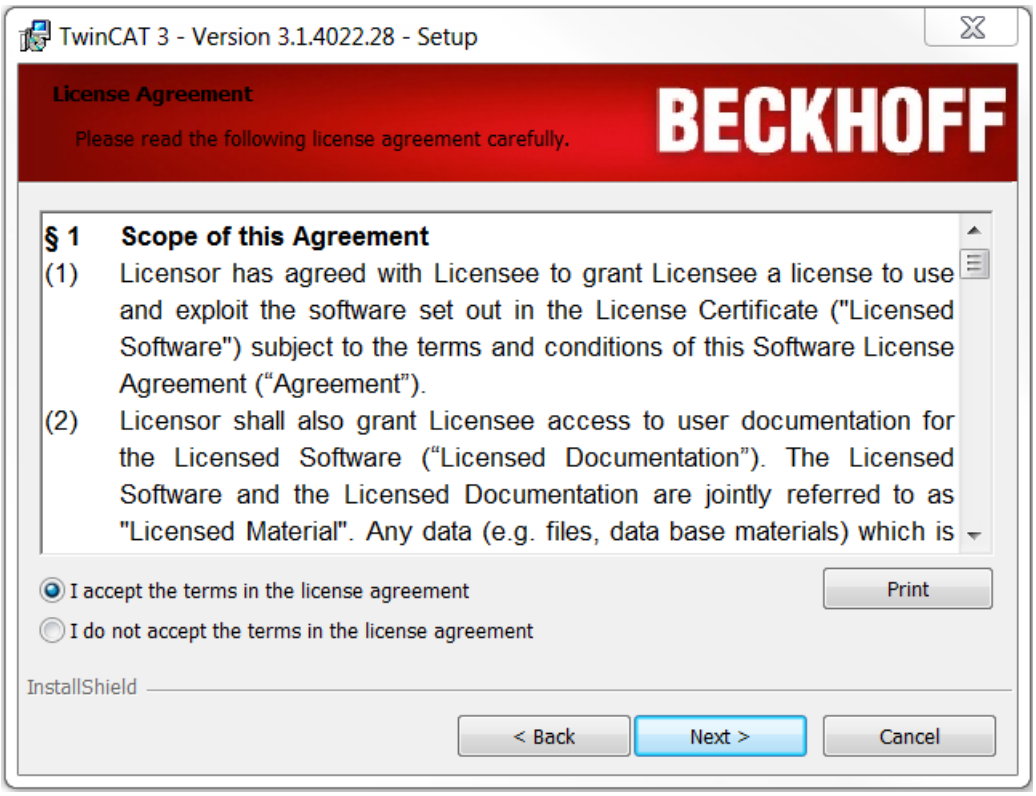
⇨ The TwinCAT 3.1 - Install Shield Wizard will open, which guides you through the installation and in which you make all further installation settings (licence agreement, customer information, setup type).



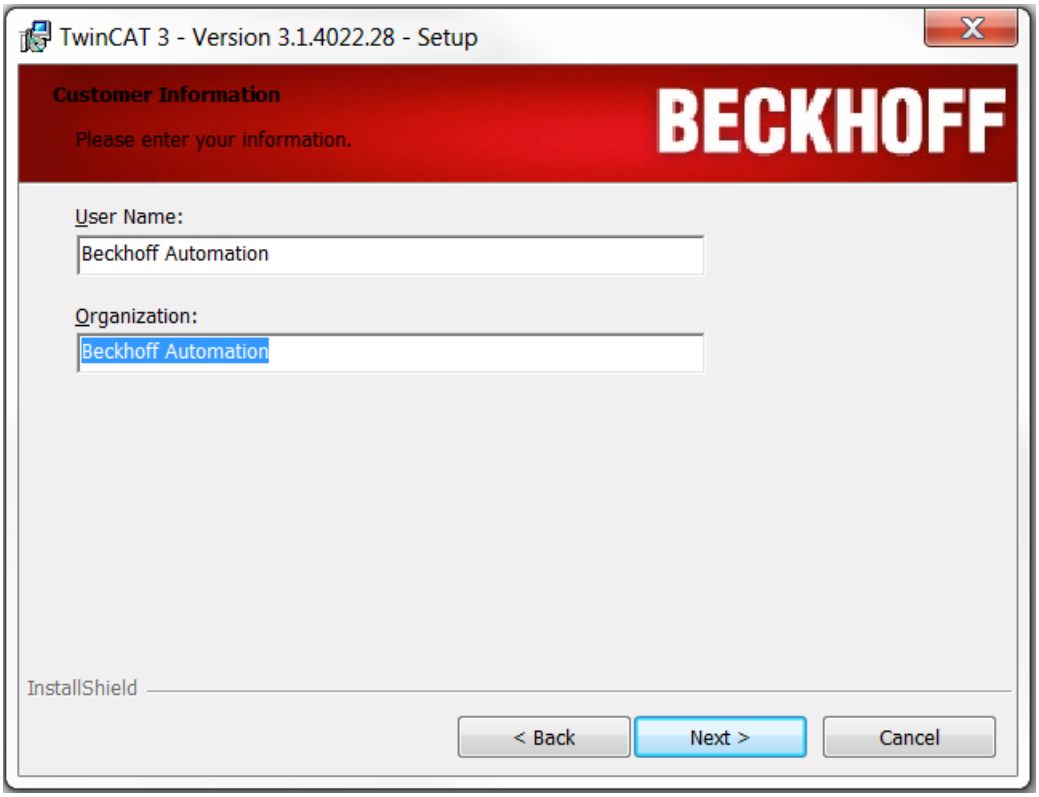
2. Click on **Next** to proceed with the installation.



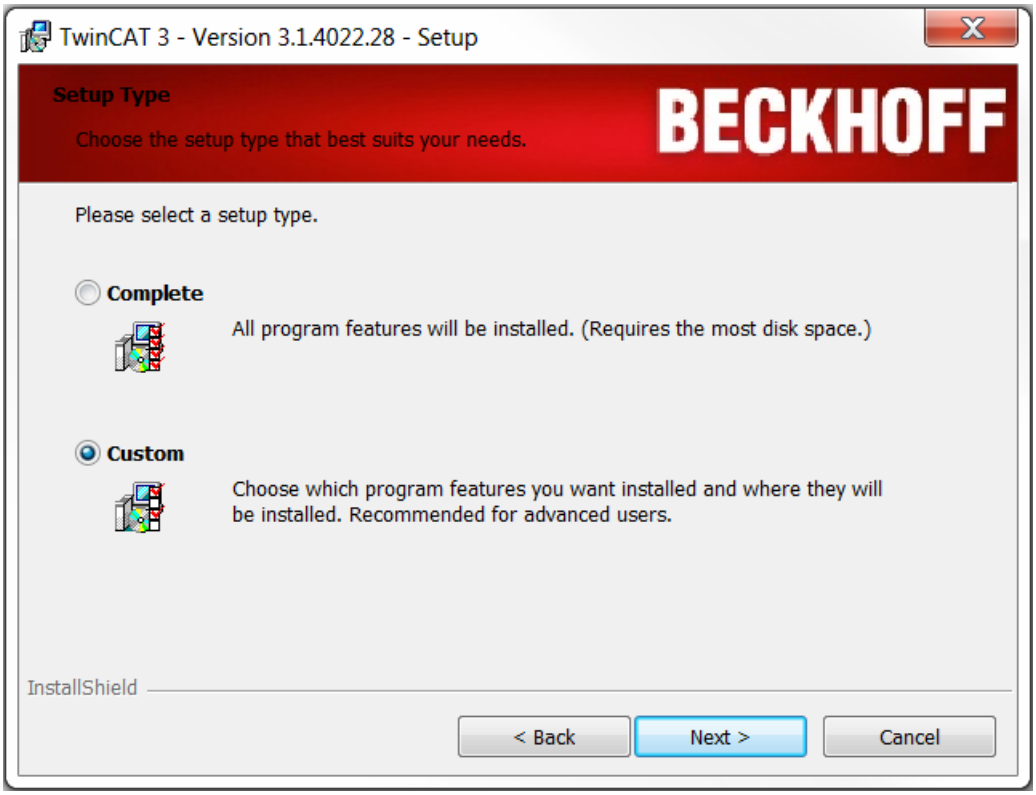
3. Accept the license agreement and click on **Next**.



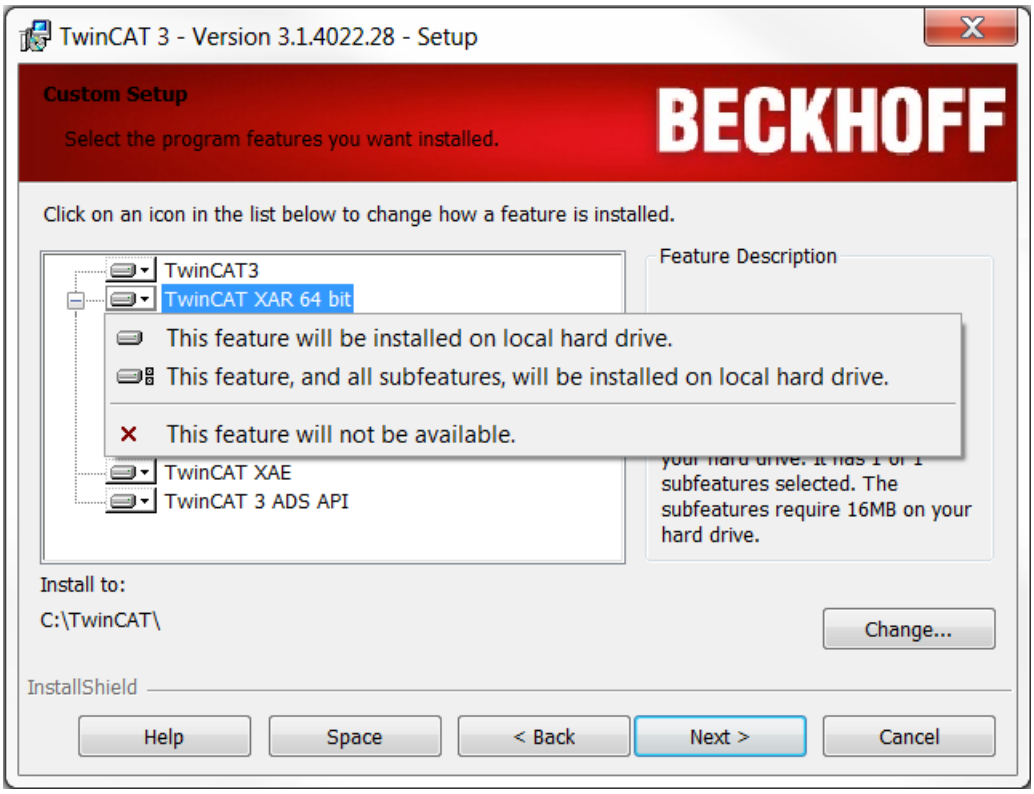
4. Enter your **User Name** and **Organization**. Click on **Next**.

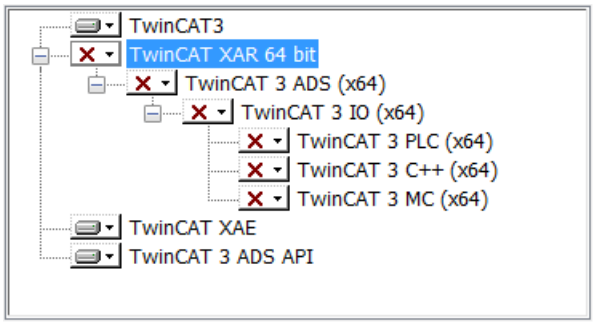


1. Activate the **Custom** option to install just the TwinCAT 3 Engineering. Click on **Next**.



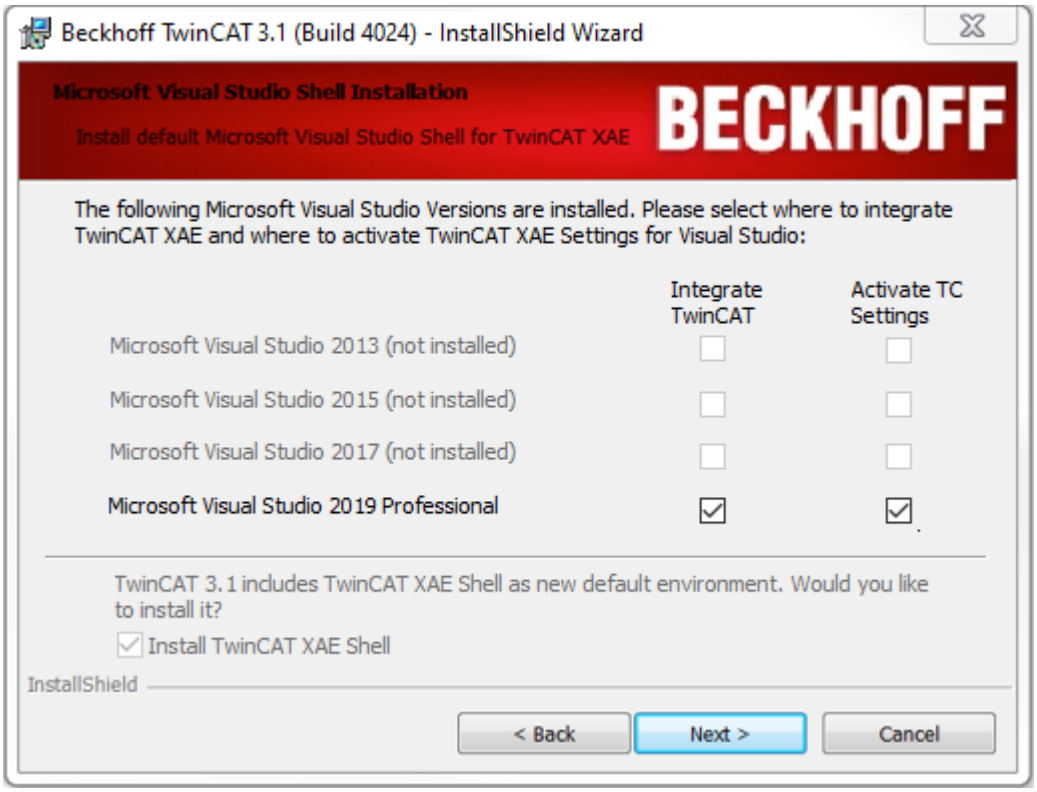
2. Deselect **TwinCAT XAR** and the subordinate features by clicking on the symbol in front of the respective entry and selecting **This feature will not be available** in the opening context menu. Click on **Next**.



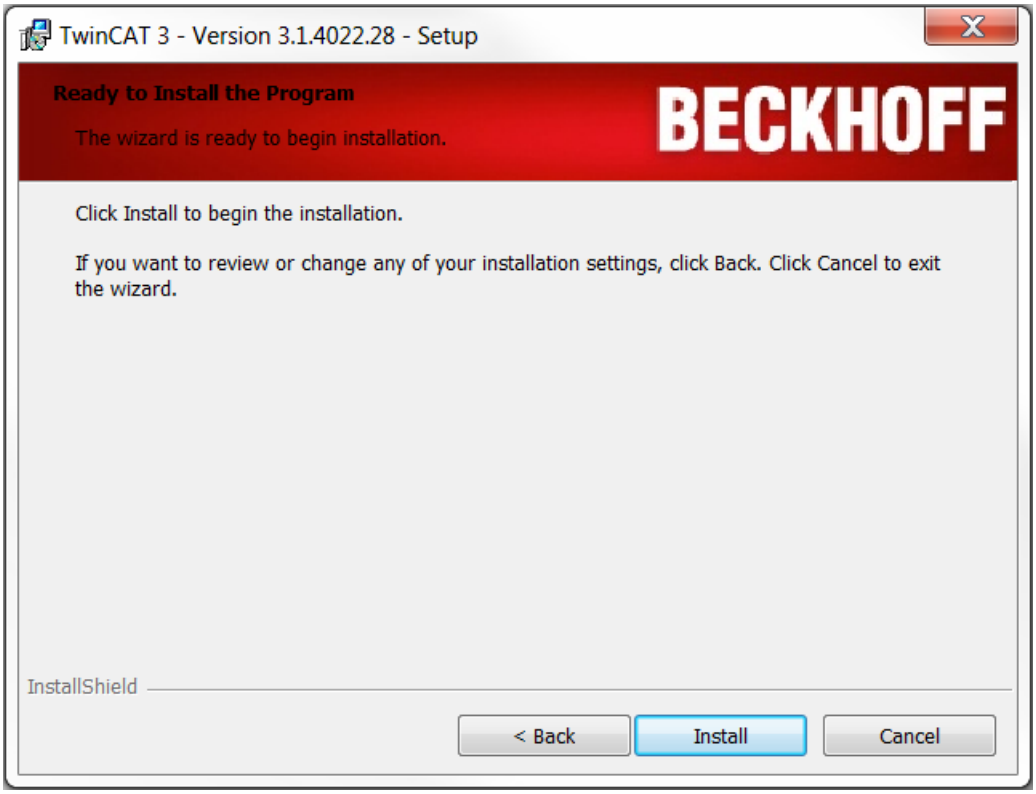


3. If you have already installed Visual Studio® 2013/2015/2017/2019 (or a Visual Studio® Shell 2013-2019), activate the **Integrate TwinCAT** selection boxes for the versions in which you wish to install TwinCAT 3.
4. If you also want to (re-)activate the TwinCAT XAE settings, activate the associated **Activate TC Settings** selection boxes.

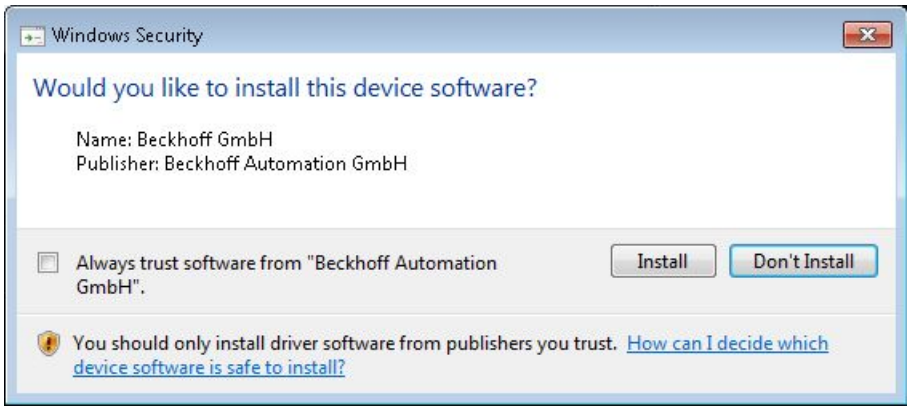
5. If you have not yet installed any Visual Studio® version, activate the **Install TwinCAT XEA Shell** selection box in order to install the Visual Studio® Shell as the environment. Click on **Next.**



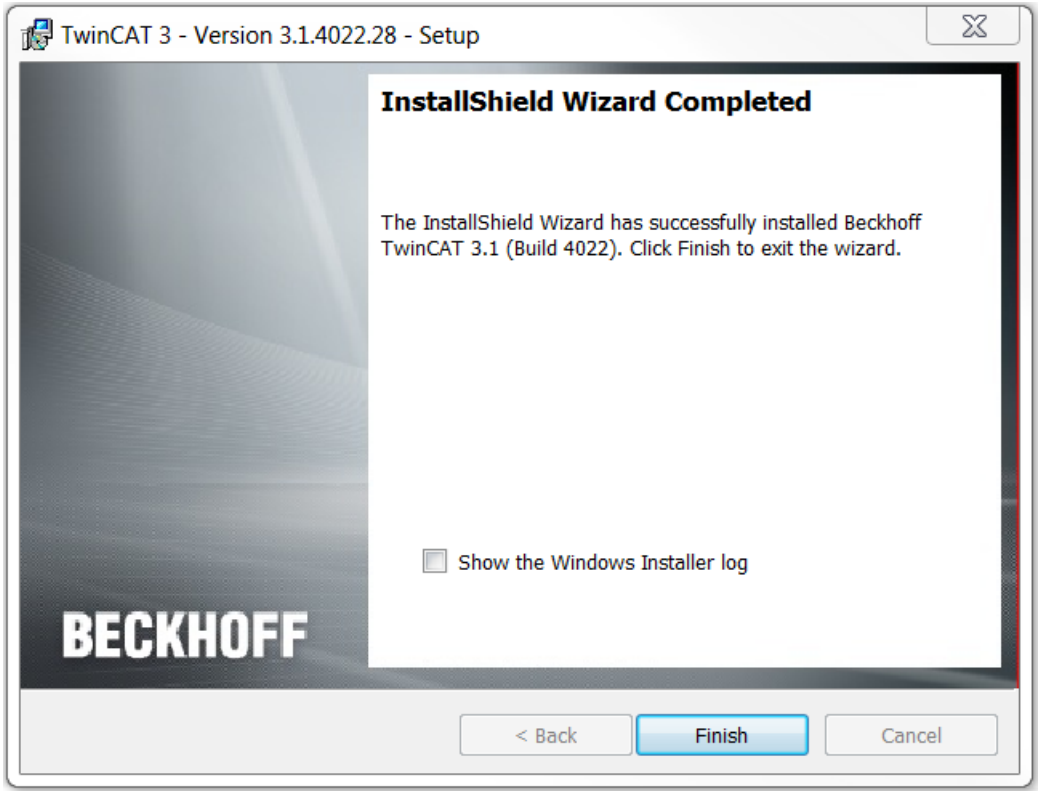
1. Click on **Install** to start the installation. TwinCAT 3 will be installed in the specified directory *C:\TwinCAT\3.1*.



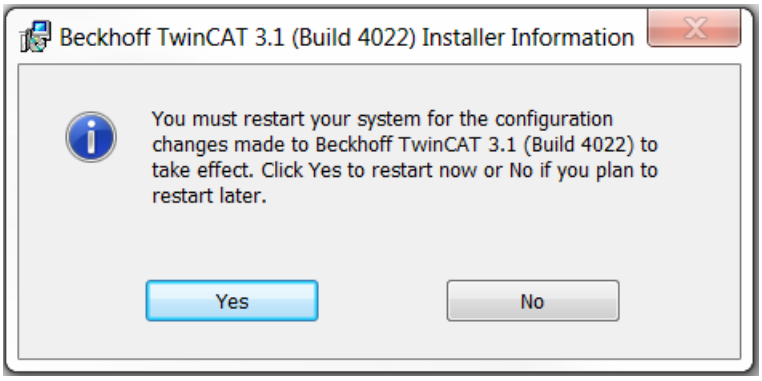
2. Activate the **Always trust software from Beckhoff Automation GmbH** selection box and click on **Install** to install all drivers (alternatively you will be requested several times to confirm).



3. Click on **Finish**.



4. To complete the installation, you have to restart the system. If you wish to automatically restart the system immediately, click on **Yes** in the following dialog.



⇨ Following the restart TwinCAT is ready for use. The status of the runtime system (XAR) is indicated by a blue (configuration mode) or green (run mode) symbol in the Windows menu bar.

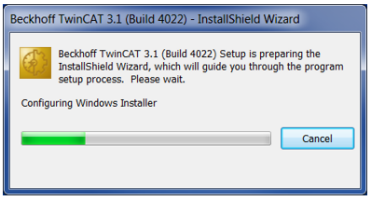
3.3.3 Installing the TwinCAT 3 Runtime

✓ You have read the section Integration in Visual Studio® [▶ 23].

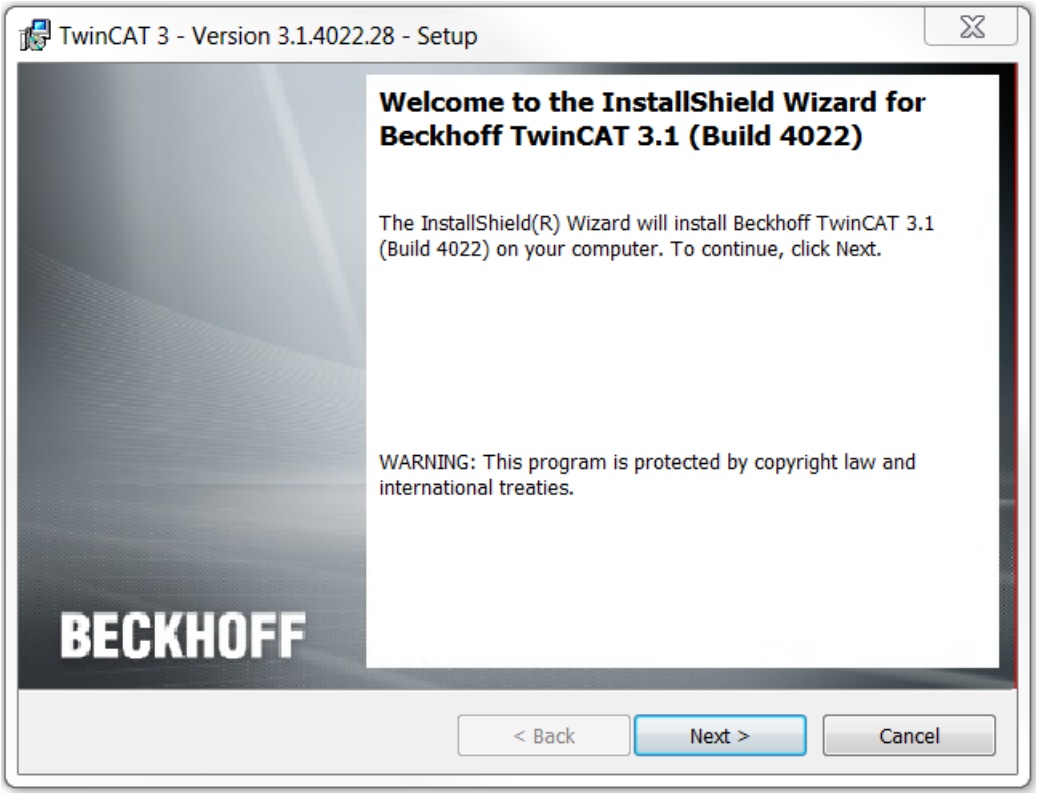
✓ You have downloaded the current installation program *TC31-Full-Setup 3.1* from the Beckhoff homepage.

1. Run the program to start the installation. If you use Windows 7 or Windows 8, run the program as an administrator. To do this, right-click on the file and select the corresponding option in the context menu.

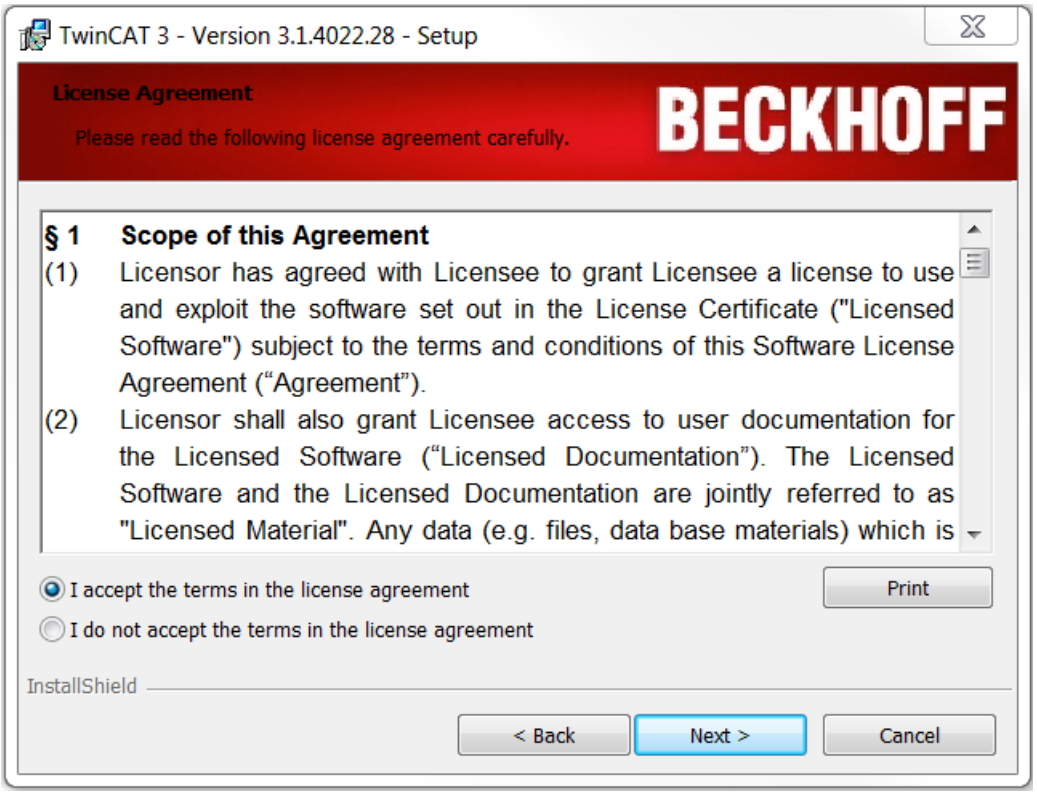
   ⇨ The TwinCAT 3.1 - Install Shield Wizard will open, which guides you through the installation and in which you make all further installation settings (licence agreement, customer information, setup type).



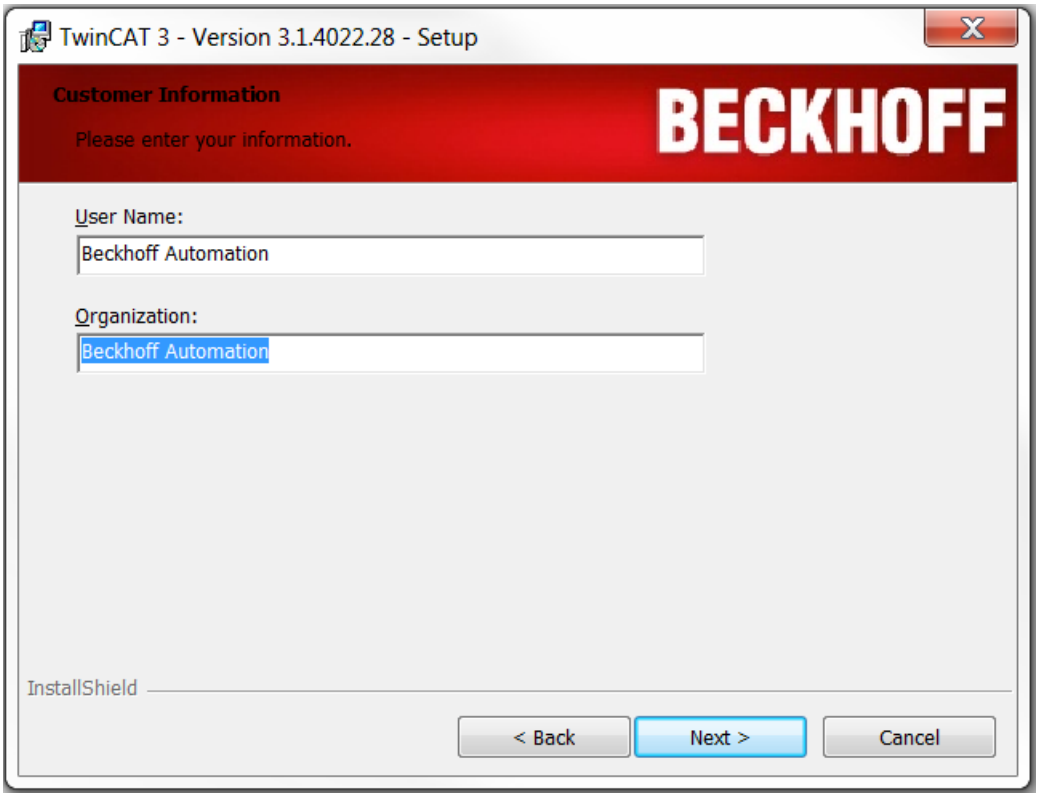
2. Click on **Next** to proceed with the installation.



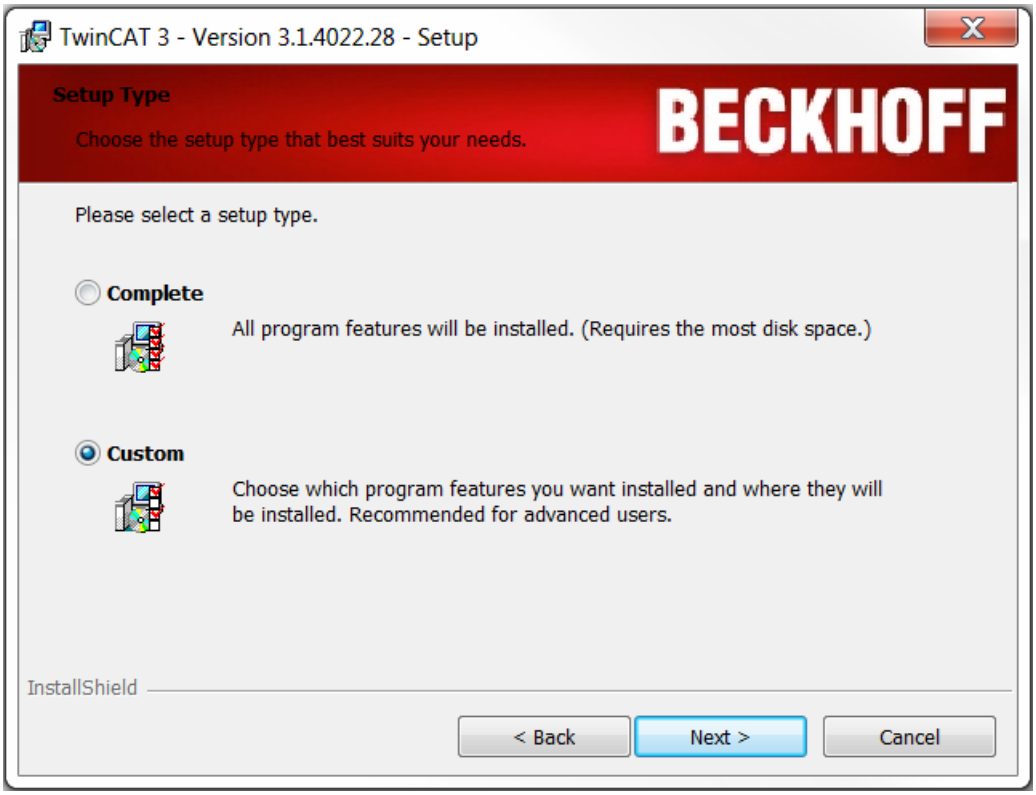
3. Accept the license agreement and click on **Next**.



4. Enter your **User Name** and **Organization**. Click on **Next**.

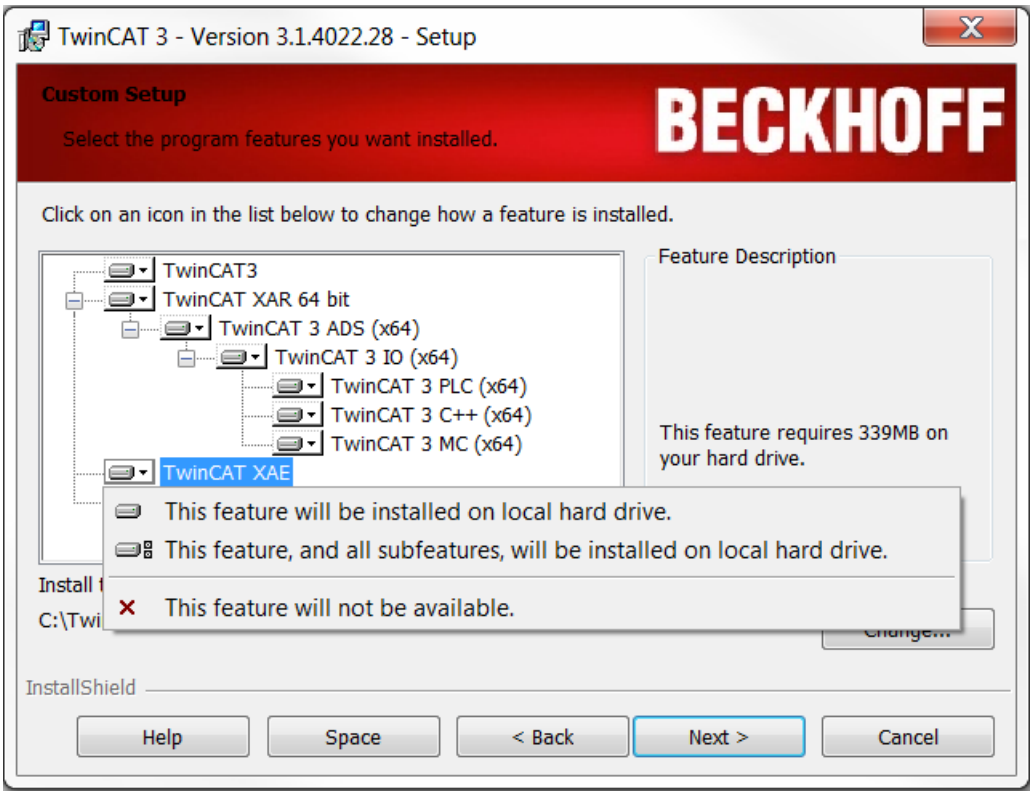


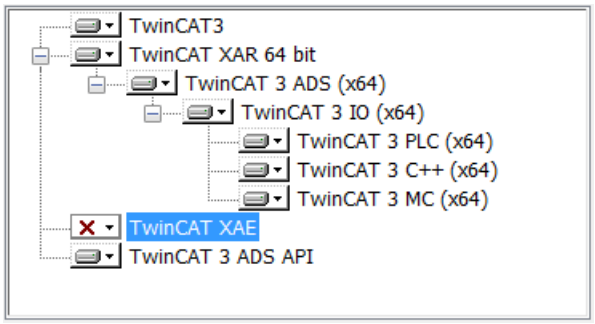
1. Activate the **Custom** option to install just the TwinCAT 3 Runtime. Click on **Next**.



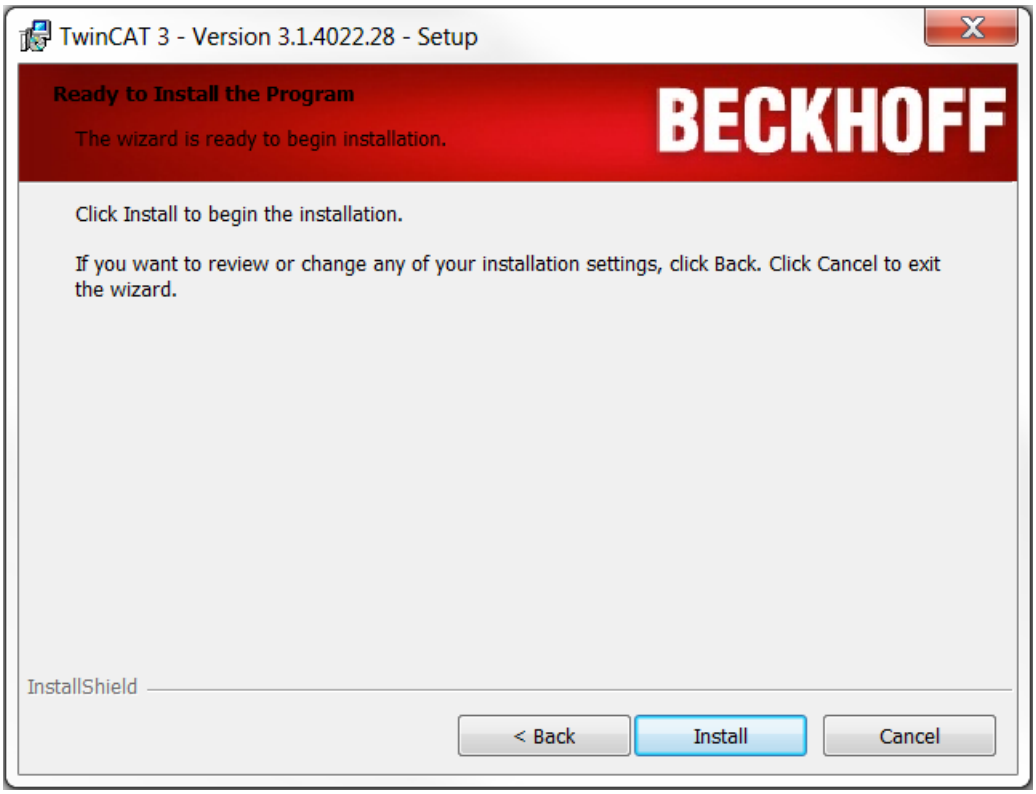
2. Deselect **TwinCAT XAE** and the subordinate features by clicking on the symbol in front of the respective entry and selection **This feature will not be available** in the opening context menu. You can choose which of the runtime environments you wish to install: TwinCAT 3 PLC, TwinCAT 3 C++ or TwinCAT 3 MC. If you deselect a runtime environment you cannot operate the corresponding module on the

computer. Click on **Next**.

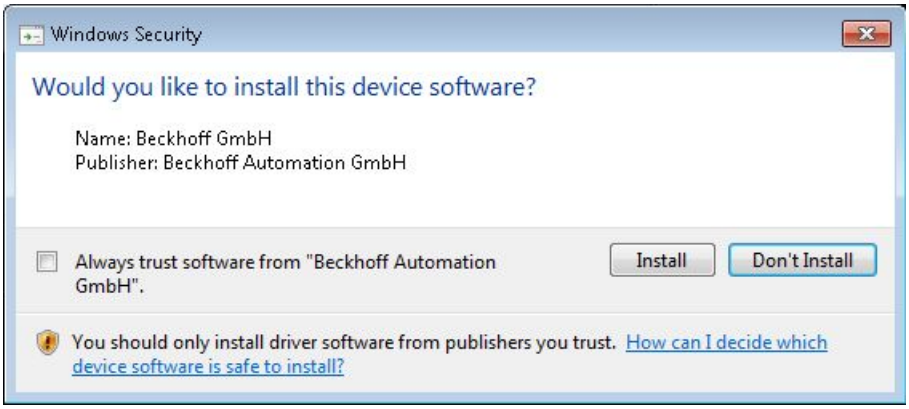




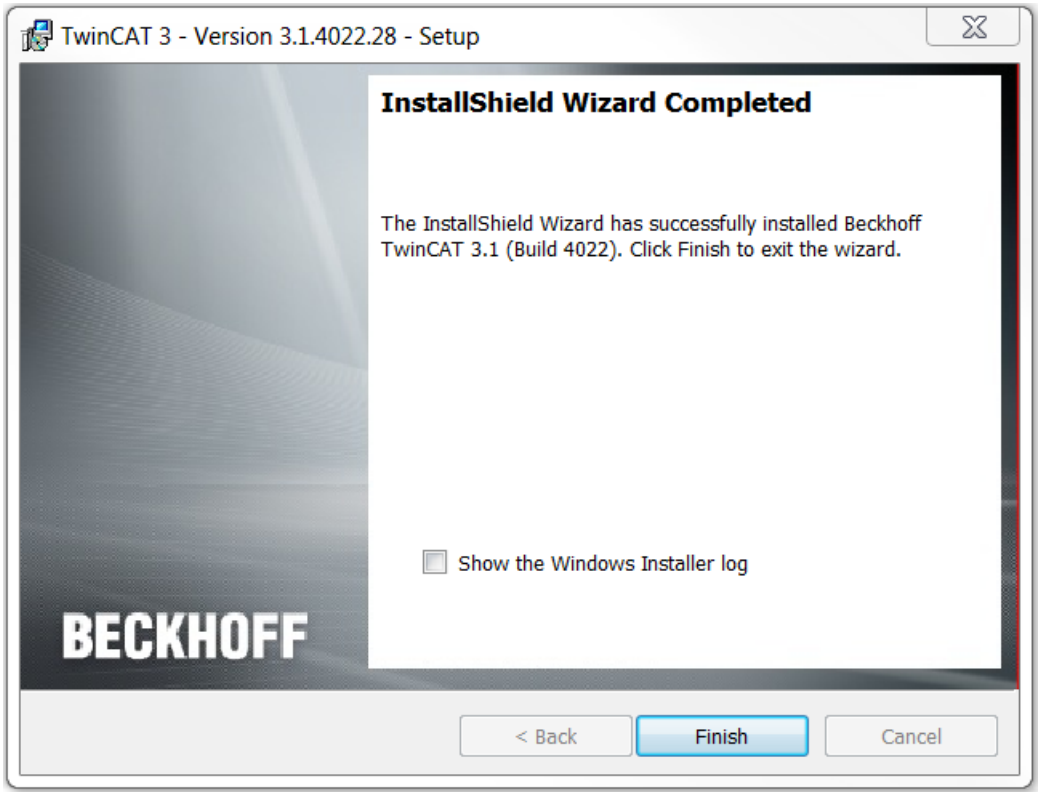
1. Click on **Install** to start the installation. TwinCAT 3 will be installed in the specified directory *C:\TwinCAT\3.1*.



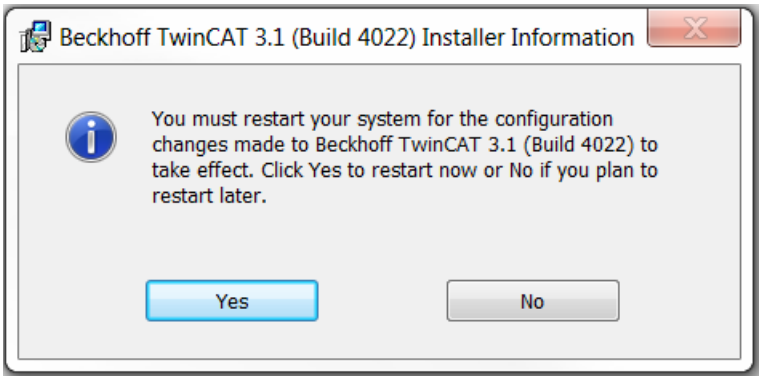
2. Activate the **Always trust software from Beckhoff Automation GmbH** selection box and click on **Install** to install all drivers (alternatively you will be requested several times to confirm).



3. Click on **Finish**.



4. To complete the installation, you have to restart the system. If you wish to automatically restart the system immediately, click on **Yes** in the following dialog.



⇨ Following the restart TwinCAT is ready for use. The status of the runtime system (XAR) is indicated by a blue (configuration mode) or green (run mode) symbol in the Windows menu bar.

3.4 Command line-based installation

In general, TwinCAT 3.1 can only be installed "unattended", but not "silently". This means that you can install TwinCAT by script or command line command, but windows will be opened and closed automatically despite that. The installation therefore doesn't proceed "silently".

Command line command for the installation

The complete command line command to install TwinCAT 3.1 is:

```
TC31-Full-Setup.exe /s /v"/qr ALLUSERS=1"
```

Activation of the TwinCAT XAE Settings

Depending on the installed Visual Studio® version you can activate the TwinCAT settings for a corresponding Visual Studio® version with the following additions (corresponds to an activated check box in the TwinCAT 3.1 – InstallShield Wizard):

ACTIVATEVS2013SETTINGS=1 , if VS2013 is installed
ACTIVATEVS2015SETTINGS=1 , if VS2015 is installed
ACTIVATEVS2017SETTINGS=1 , if VS2017 is installed
ACTIVATEVS2019SETTINGS=1 , if VS2019 is installed

If there is no Visual Studio® (Shell) installed on the system, do not call ACTIVATEVS201xSETTINGS, the Visual Studio® 2013 Shell and all settings will be installed automatically in this case.

Example for Visual Studio® 2015:

TC31-Full-Setup.exe /s /v"/qr ALLUSERS=1 ACTIVATEVS2015SETTINGS=1"

To activate the settings, Visual Studio® 2015 is automatically started with the corresponding call and also closed again.

Suppression of the automatic reboot

The automatic reboot can be suppressed with the following addition.

REBOOT=ReallySuppress

Sample:

TC31-Full-Setup.exe /s /v"/qr REBOOT=ReallySuppress ALLUSERS=1 ACTIVATEVS2015SETTINGS=1"

See also:

- Integration in Visual Studio® [▶ 23]
- Installation of TwinCAT 3 Engineering and Runtime [▶ 25]

3.5 Installation: TwinCAT runtime (XAR)

Preconditions for Proper Real-Time Behavior

For a reliable, optimized and performant realtime behavior, a completely aligned system design (hardware, BIOS, OS, drivers, realtime-runtime) is mandatory. Each single component of the control system has to be checked and optimized for this type of application - that is the one and only way for an optimal, reliable and performant realtime behavior. Beckhoff IPCs are optimized in each detail for this type of operation. There is no guarantee for proper, reliable realtime behavior on third-party PCs.

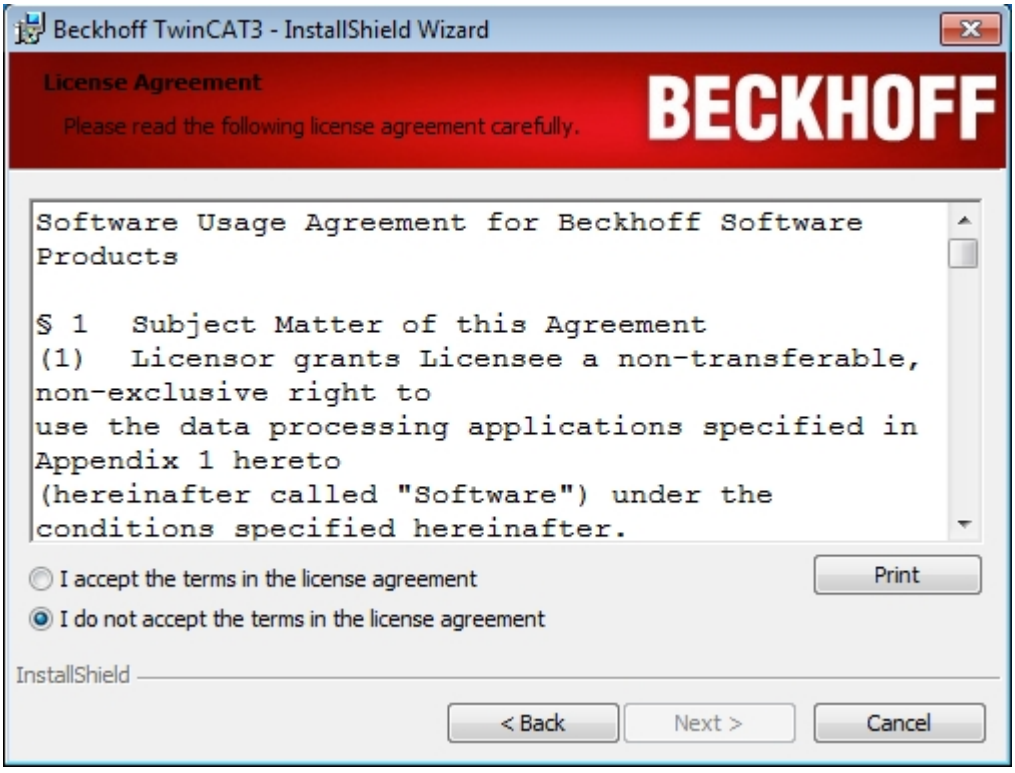
TwinCAT XAR represents the TC3 runtime. To install only a TC3 runtime, please perform the following steps.

1. Download the XAR setup.
2. Start TwinCAT 3 XAR setup by right-clicking its corresponding setup file. This will start the TwinCAT 3 installation process.

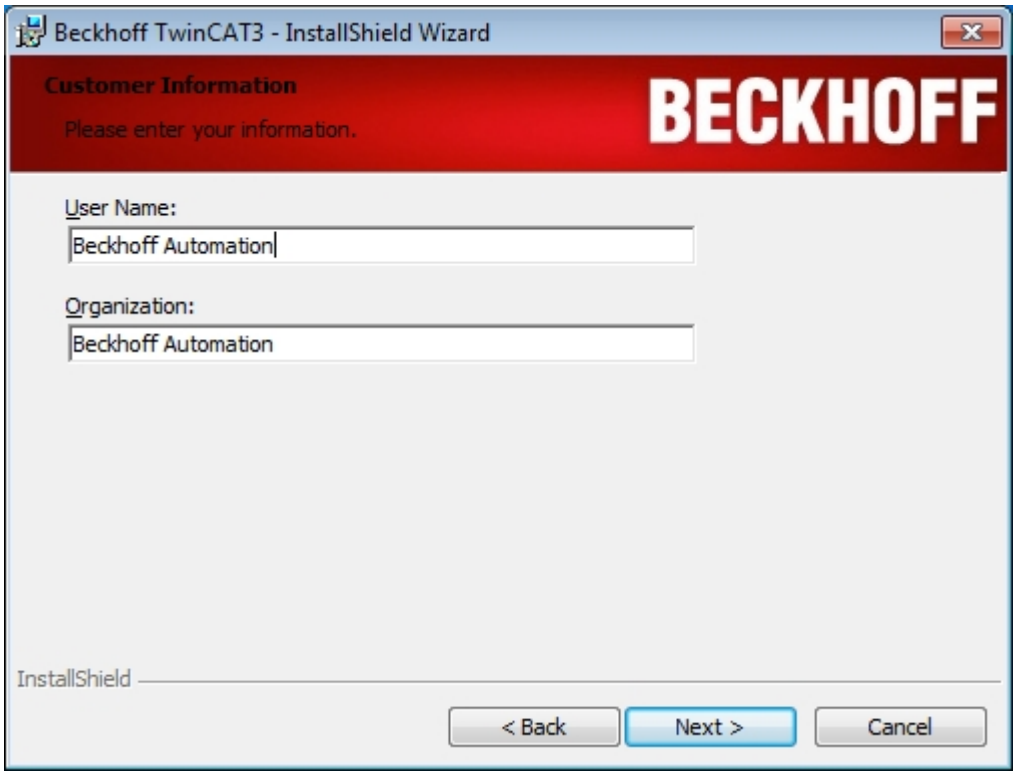
Run as Administrator

With Windows 7 or 8 operating system, please execute the setup with the option "Run as Administrator" by right-clicking the setup file and selecting the corresponding option from the context menu.

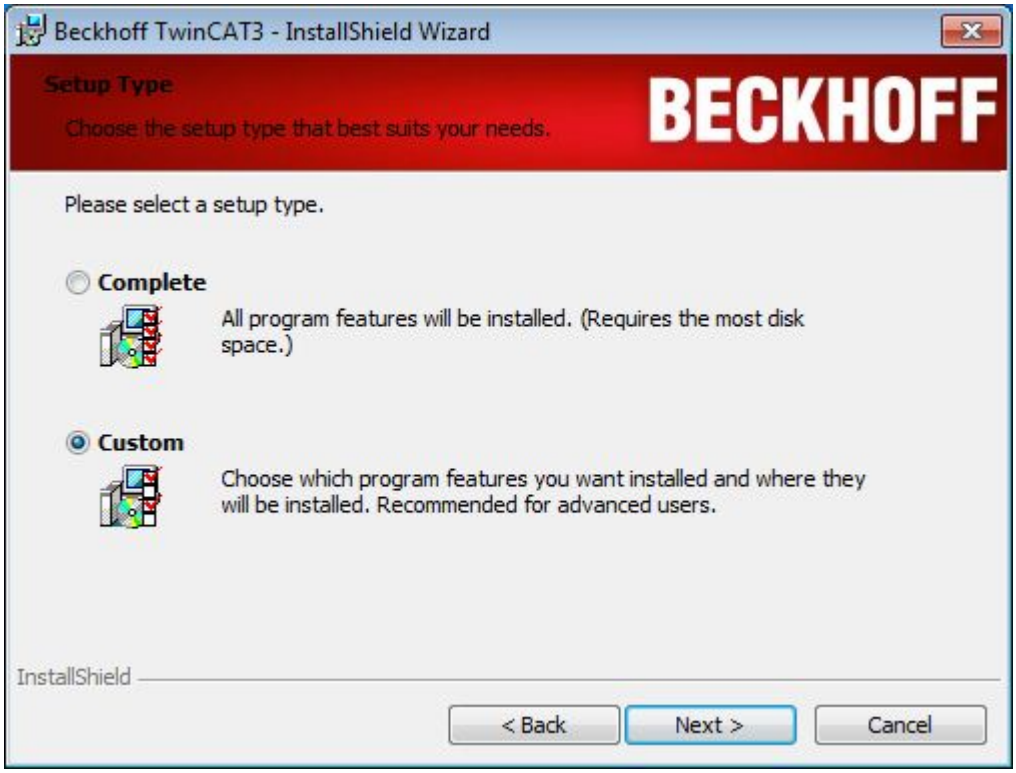
3. Click on **Next** and **accept** the terms in the **license agreement**



4. Enter your **username** and your **organization.** Click on **Next.**



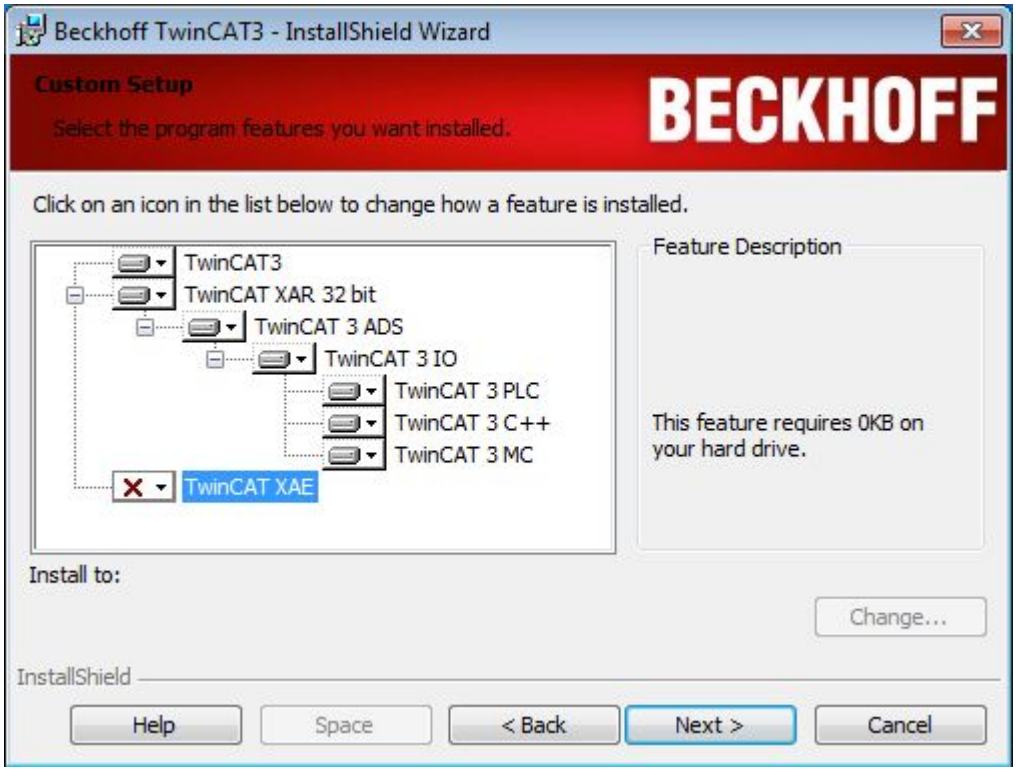
5. Select **Custom** as Setup-Type. Click on **Next**.



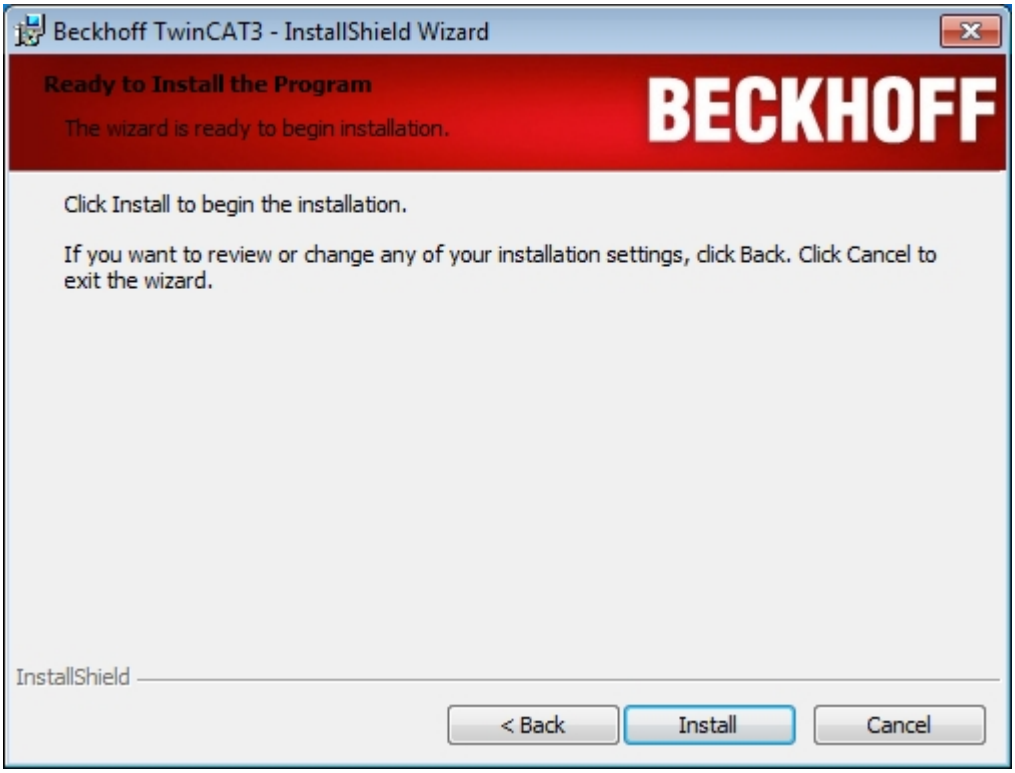
6. Select **TwinCAT 3** and **TwinCAT XAR,** and deselect **TwinCAT XAE** and the subordinates features with a click on the icon in front of each entry.
   In the XAR folder, you can choose which runtime environments you would like to install: TwinCAT 3 PLC, TwinCAT 3 C++ and/or TwinCAT 3 MC. Click on **Next**.

Deselection of a Runtime Environment

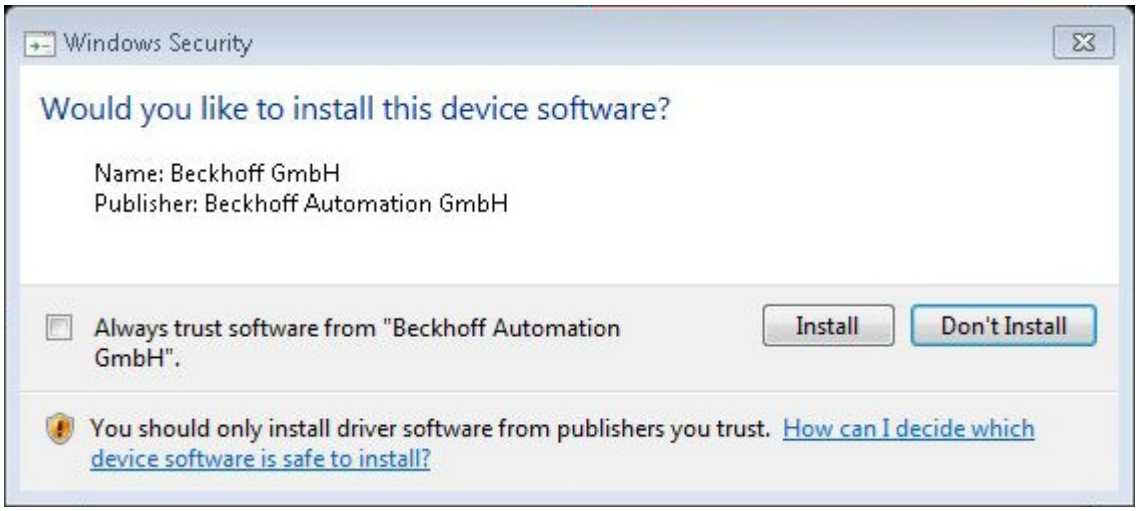
If you deselected a runtime environment, you cannot run the related functionality on this system!



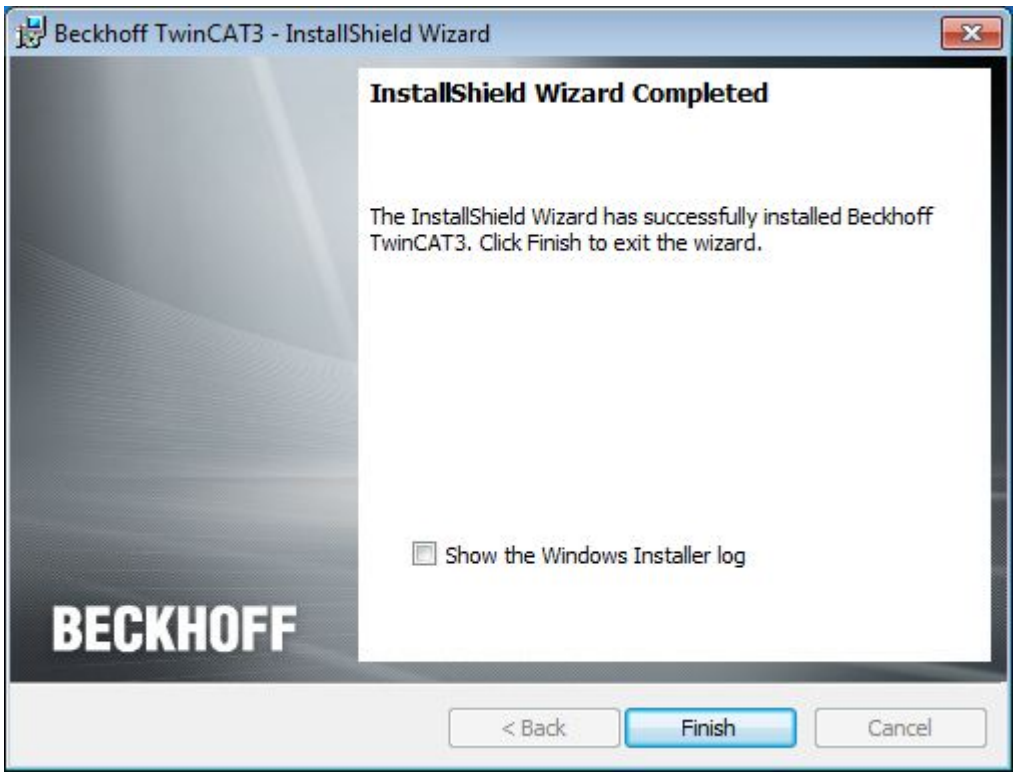
7. Click on **Install** to start the installation process



8. You need to agree to the installation of the Beckhoff Device Software. Click on **Install**.



9. After the installation has finished, the system needs to be restarted. Please click on **Finish** and then answer the following question with **Yes** to automatically restart the system.



⇨ After reboot TwinCAT is ready for use.

The status of the runtime system XAR is indicated by a blue (config-mode) or green (running-mode) systemtray icon.

Hidden Icon

If you cannot see this icon, it might be located in the "hidden icons" area (e.g. Windows 7). This can be reached by clicking on the small arrow pointing upwards.

3.6 Parallel installation of TwinCAT 2 and TwinCAT 3

You can install TwinCAT 3 and TwinCAT 2 on the same computer.

Installation cases

Case 1: TwinCAT 3 is to be installed on a computer on which TwinCAT 2 is already installed.

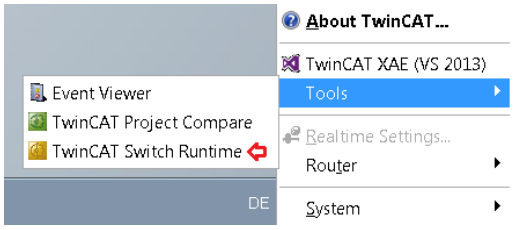
When installing TwinCAT 3, an existing TwinCAT 2 system will be detected and deactivated for the running installation. Following the installation TwinCAT 3 is then activated (see also: Switching between TwinCAT 2 and TwinCAT 3).

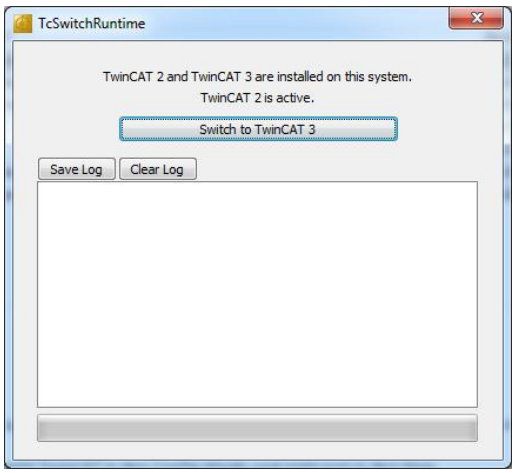
Case 2: TwinCAT 2 is to be installed or updated on a computer on which TwinCAT 3 is already installed.

Prior to the installation or updating of TwinCAT 2, the active TwinCAT 3 version must be deactivated or you must switch to an installed TwinCAT 2 version (see Switching between TwinCAT 2 and TwinCAT 3). Only then may the TwinCAT 2 installation be started. If the TwinCAT 2 installation is executed without deactivating TwinCAT 3 first, the TwinCAT 3 installation will be rendered unusable and will have to be executed again afterwards.

Switching between TwinCAT 2 and TwinCAT 3

In general, only one TwinCAT Runtime System (XAR) may ever be active at any one time. With the help of the **TcSwitchRuntime** program, however, you can switch between the two installations at any time and activate and deactivate TwinCAT 2 and TwinCAT 3. To open the **TcSwitchRuntime** program, right-click on the TwinCAT icon in the Windows menu bar and select **TwinCAT Switch Runtime** from the menu which then opens.





After switching from TwinCAT 3 to TwinCAT 2 using “TwinCAT Switch Runtime” you need to manually open TwinCAT Switch Runtime from “C:\TwinCAT\TcSwitchRuntime\TcSwitchRuntime.exe” in order to switch back from TwinCAT 2 to TwinCAT 3.

3.7 Uninstalling TwinCAT 3

Uninstall order

The TwinCAT 3 installation is modular and consists of a series of component-based setups that are executed one after the other during the installation.

If you want to remove TwinCAT 3 completely from a computer, the following procedure is recommended.

✓ Windows Control Panel > Programs and Features is open.

1. Uninstall all TwinCAT 3 functions. This step should be done before uninstalling TwinCAT, because some functions unregister with TwinCAT during uninstallation. If TwinCAT is no longer available, the uninstallation aborts with an error message.
2. Uninstall all TwinCAT component setups (e.g. TwinCAT Scope, TwinCAT Target Browser, TwinCAT Block Diagram).
3. Uninstall TwinCAT.

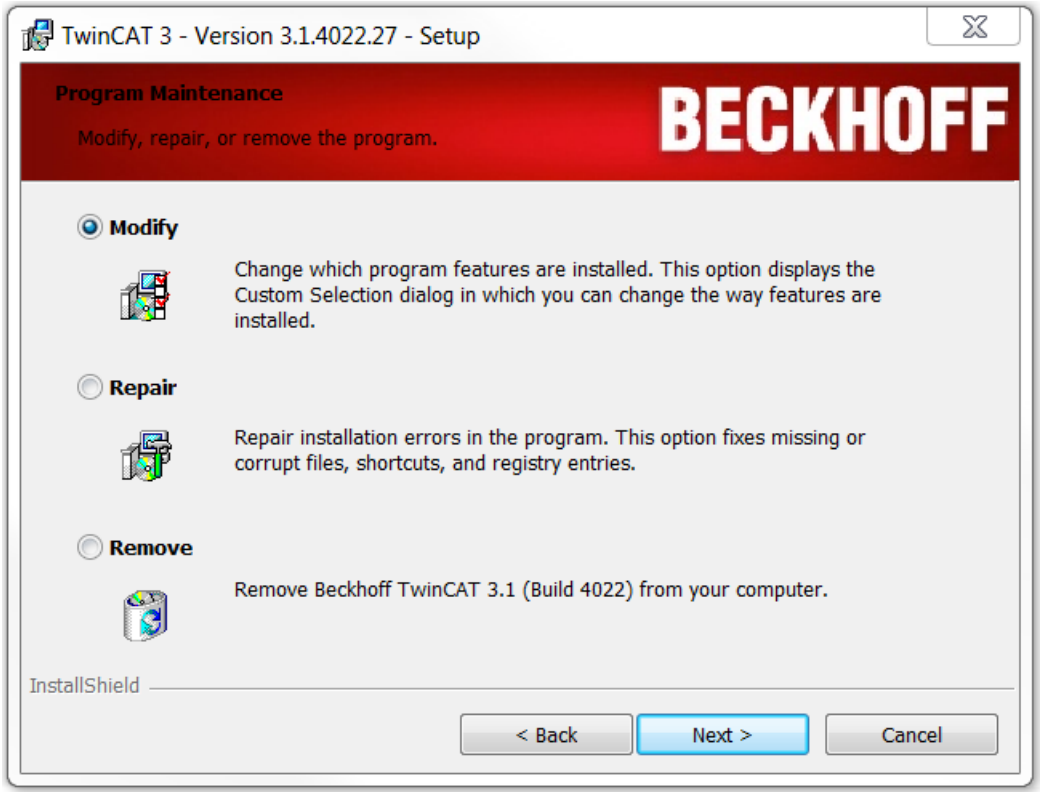
Uninstallation of the Visual Studio® Shell

A Microsoft Visual Studio® 2010 Shell installed by TwinCAT must be uninstalled separately if you do not want to keep it on your system.

Uninstall TwinCAT 3

All components of TwinCAT 3 can be simply uninstalled using the standard Windows functions provided for this purpose; no separate uninstall program is required.

Alternatively, you can run the installation program again. The program recognises that TwinCAT 3 is already installed and offers you the option of modifing (**Modify** option), repairing (**Repair** option) or removing (**Remove** option) the existing installation.



3.8 FAQ

Overview

- Why isn't the TwinCAT runtime icon displayed in the Windows menu bar? [▶ 50]
- How do I install TwinCAT if the user directories are located on a network drive? [▶ 50]

Why isn't the TwinCAT runtime icon displayed in the Windows menu bar?

If the TwinCAT runtime icon is not displayed after the restart, it may be in the "Hidden icons" area (e.g. in the case of Windows 7). To show the hidden icons, click on the triangle icon in the windows menu bar.

How do I install TwinCAT if the user directories are located on a network drive?

Since the TwinCAT setup is run as an administrator, mapped network directories are not available to the installing administrator. In order to carry out the installation despite that, carry out the following steps:

1. Open the command prompt as an administrator.
2. Enter the command line command "net use <Drive>:\\server\folder\" so that the drive is also accessible for the setup.
3. Start the setup from the same command prompt.

4 Installation of the TwinCAT 3 documentation

The TwinCAT 3 Information System is part of the Beckhoff Information System and contains the complete TwinCAT 3 documentation. In order to be able to use the TwinCAT 3 Information System without Internet connection, you can install it locally on your Engineering PC.

TwinCAT 3 uses the Visual Studio® help system (Microsoft Help Viewer), with can be used online or offline. You can use a default browser or the Help Viewer to display the help system.

The setup for the TwinCAT 3 Information System supports the help systems of Visual Studio® 2010 (Help Viewer 1.0, Help Viewer 1.1), Visual Studio® 2012 (Help Viewer 2.0), Visual Studio® 2013 (Help Viewer 2.1), Visual Studio® 2015 (Help Viewer 2.2) and Visual Studio® 2017 (Help Viewer 2.3). It is available in German and English. The setup is updated on a monthly basis.

The TwinCAT 3 Help already installed can be updated. See Updating the TwinCAT 3 documentation.

The installer can be downloaded from the Beckhoff homepage: https://download.beckhoff.com/download/Software/TwinCAT/TwinCAT3/InfoSystem/

System requirements

The following components must be installed for local installation and application of the TwinCAT 3 Information System:

- **TwinCAT 3 Engineering (XAE)** including **Visual Studio® Shell** or **Visual Studio® 2010 / 2012 / 2013 / 2015 / 2017 / 2019**
  (Express versions of Visual Studio® are not supported.)
- **Visual Studio® Help System**
  - Visual Studio® 2010: Installation of the help system in Visual Studio® with Service Pack 1
  - Visual Studio® 2012 / 2013 / 2015: Help system as an integral part of Visual Studio®
  - Visual Studio® 2017 / 2019: Installation of the help system as a component during the installation of Visual Studio®

See also: Installation of the Visual Studio® help system [▶ 56]

Installation of the TwinCAT 3 documentation

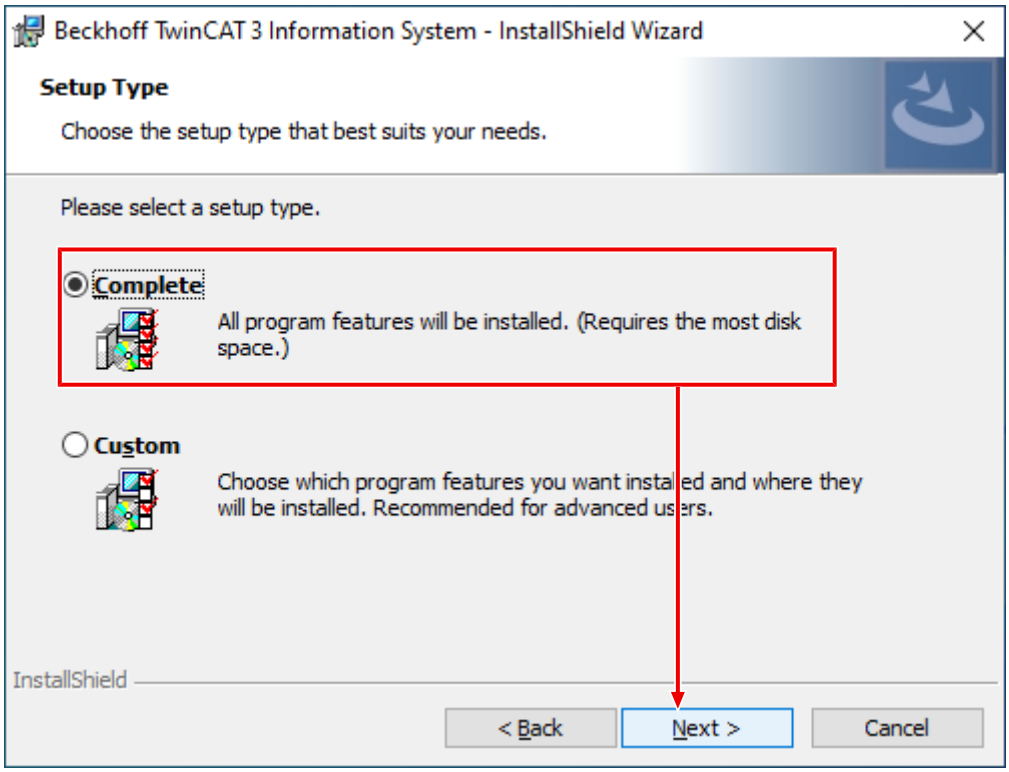
✓ TwinCAT 3 and/or a compatible Visual Studio® help system is available.

✓ All Visual Studio® applications are closed.

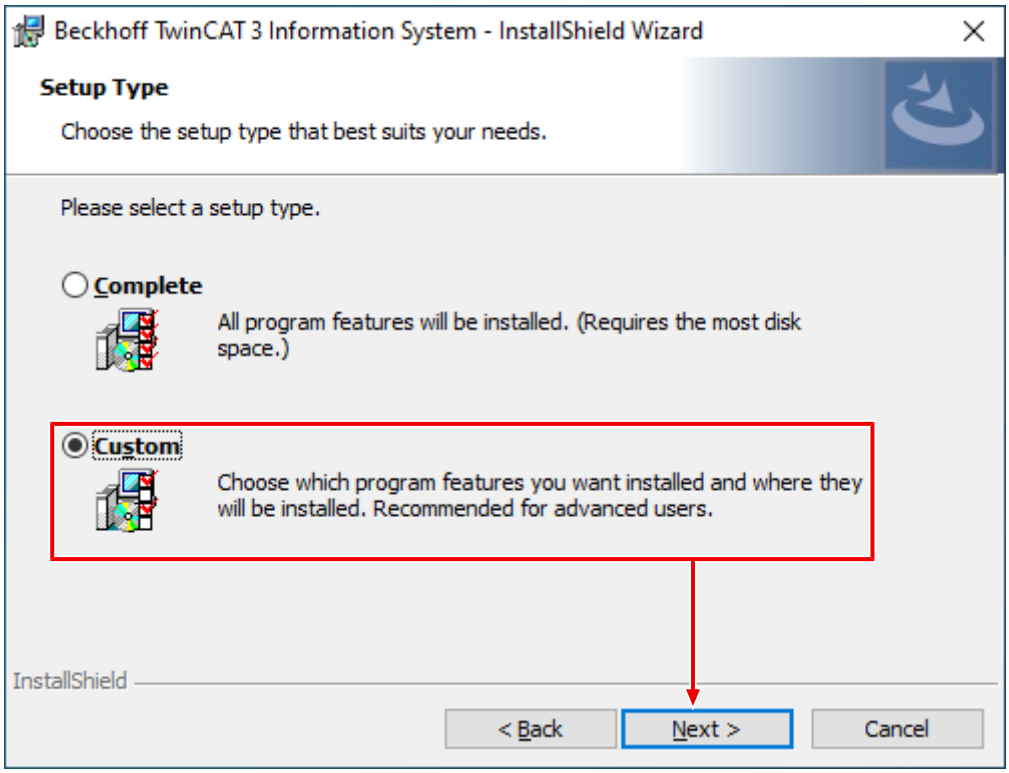
✓ You have downloaded the current installation file *TC3-InfoSys.exe* for the TwinCAT 3 Information System from the Beckhoff website: https://download.beckhoff.com/download/Software/TwinCAT/TwinCAT3/InfoSystem/

1. Right-click the installation file and select **Run as Admin** from the context menu that opens.
2. Follow the instructions of the setup procedure:
   - Activate the **Complete** option if the TwinCAT 3 Information System is to be installed for all compatible and available Visual Studio® help systems and languages.
     Please note that the installation can take up a significant amount of disk space, since the

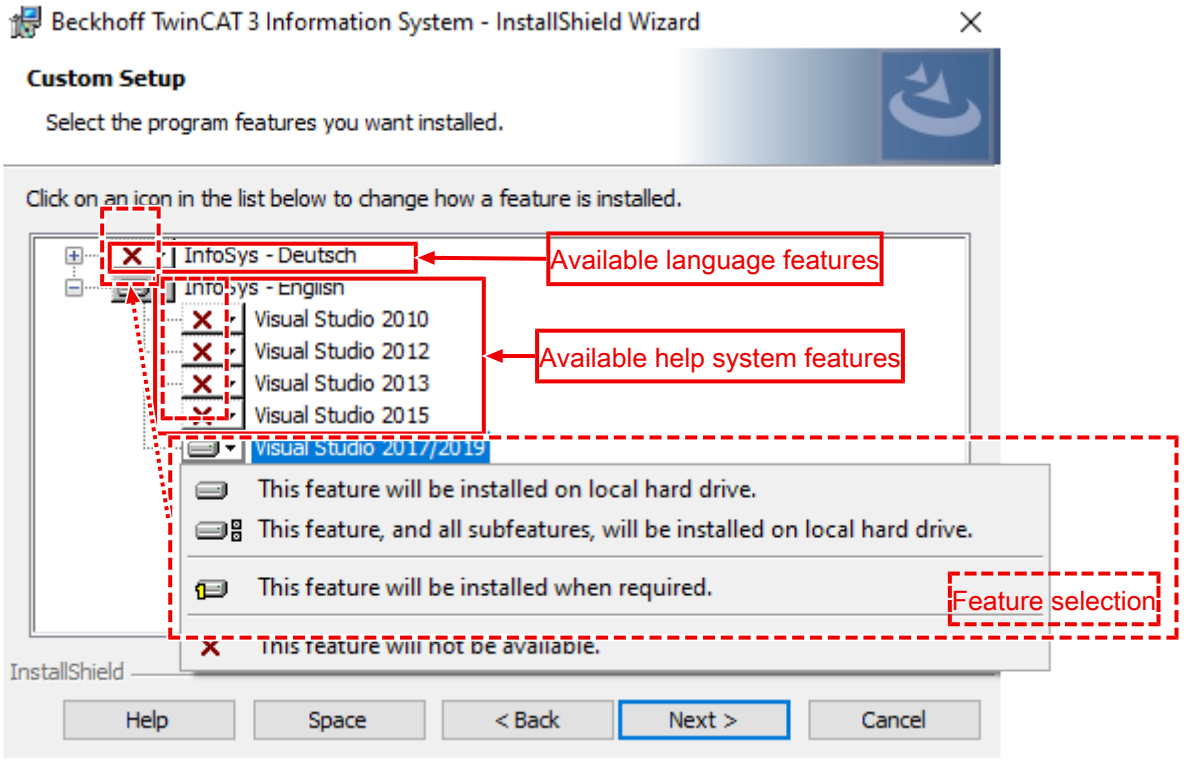
TwinCAT 3 Information System is installed for all help systems when several compatible Visual Studio® versions are present.



- Select **Custom** if you only want to install certain languages for selected Visual Studio® help systems.



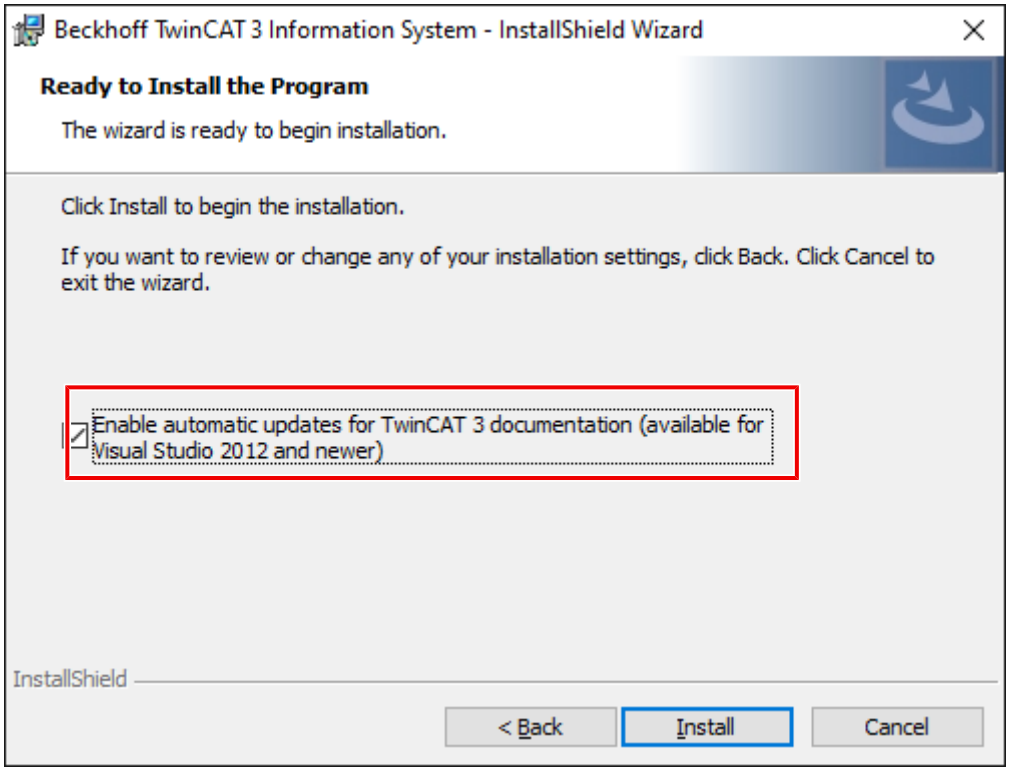
- If you select the **Custom** option, you then have to select the installation components (Features).



The overview shows the languages available for the TwinCAT 3 Information System. Each language contains the available and supported Visual Studio® help systems as a subfeature. The features may vary depending on the system configuration and setup.
You can set the installation for each of the components that are listed. To install the TwinCAT 3 Information System, you have to select at least one language variant from the available languages and one Visual Studio® help system from the available help systems.

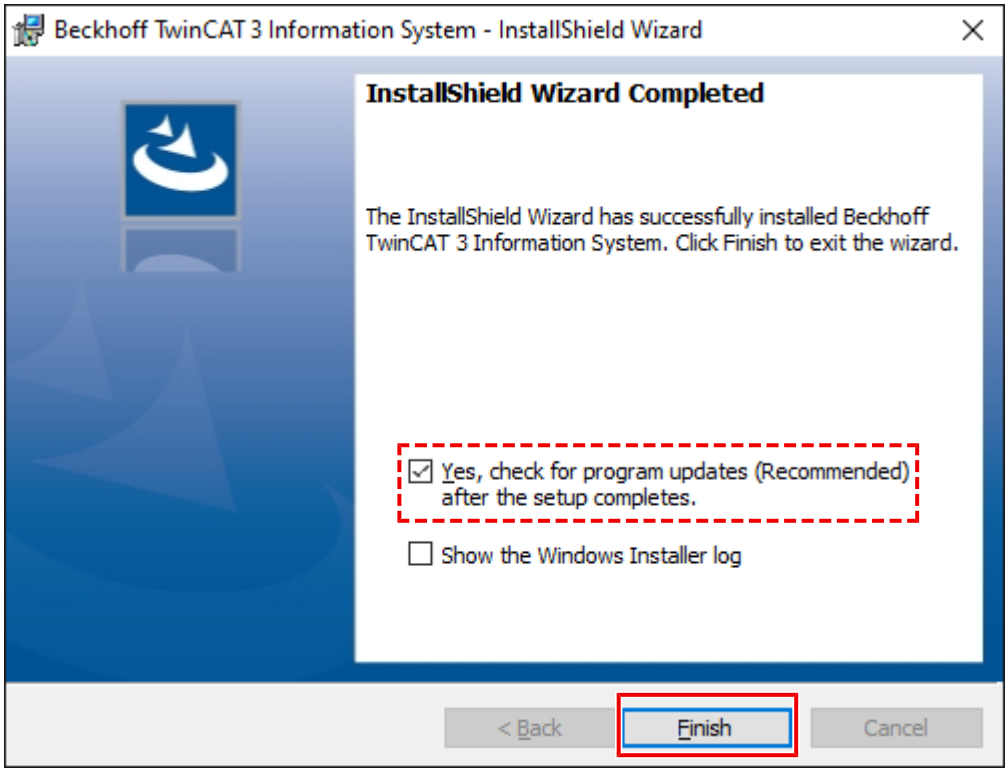
  - A selected feature is marked with a hard disk icon.
  - An unselected / excluded feature is marked with a red cross.

- Enable the option **Automatic updates for TwinCAT 3 documentation** to automatically update the installed TwinCAT 3 Information System via the Visual Studio® help system (this option is available from Visual Studio® 2012).
  If you selected a Visual Studio® help system that supports automatic updating in the previous dialog, this option is enabled by default, otherwise the option is disabled automatically.



If this option is enabled, the setup creates a scheduled task “TwinCAT_3_documentation_update...”. This task checks weekly (every Friday between 11:00 and 17:00) whether updates are available for the installed TwinCAT 3 Information System.

3. Click **Install** to install the TwinCAT 3 Information System with the selected settings.
4. Complete the installation with **Finish.**



⇨ The TwinCAT 3 Information System is installed locally. With Visual Studio® 2012 or later versions, an entry for opening and updating the local TwinCAT 3 Information System is created in the Windows Start menu in the **Beckhoff > TwinCAT3 Information System** folder.

⇨ The Option “Yes, check for program updates (Recommended) after the setup completes.” searches for updates of the installed TwinCAT 3 documentation if an internet connection is available.

See also:

- Updating the TwinCAT 3 documentation [▶ 63]
- Calling the TwinCAT 3 documentations [▶ 58]

5 Installation of the Visual Studio® help system

The local TwinCAT 3 Information System is installed in the Visual Studio® help system (Microsoft Help Viewer). Depending on the Visual Studio® version, the Visual Studio® help system is either an integral part of Visual Studio® or it has to be installed separately.

- Visual Studio 2010 help system [▶ 56]
- Visual Studio 2012 / 2013 / 2015 help system [▶ 56]
- Visual Studio 2017 / 2019 help system [▶ 56]

Visual Studio® 2010 help system

Help Viewer 1.0 or 1.1 is required for displaying and using the locally installed TwinCAT 3 Information System.

Help Viewer 1.0 is automatically installed with Visual Studio® 2010. You can install Help Viewer 1.1 by installing Service Pack 1 for Visual Studio® 2010.

Download Visual Studio® 2010, Service Pack 1

Service Pack 1 can be downloaded from the My.VisualStudio.com website through your Visual Studio® subscription account.

Visual Studio® 2012 / 2013 / 2015 help system

Depending on the Visual Studio® version, one of the following help systems is required for displaying and using the locally installed TwinCAT 3 Information System:

Visual Studio® 2012: Help Viewer 2.0

Visual Studio® 2013: Help Viewer 2.1

Visual Studio® 2015: Help Viewer 2.2

The help systems are included as standard with the installation of Visual Studio® 2012 / 2013 / 2015.

Visual Studio® 2017 / 2019 help system

Help Viewer 2.3 is required for displaying and using the locally installed TwinCAT 3 Information System.

In contrast to previous Visual Studio® versions, the help system is no longer an integrated component of Visual Studio®. Instead, it is provided as an optional component during the installation of Visual Studio® 2017 / 2019.

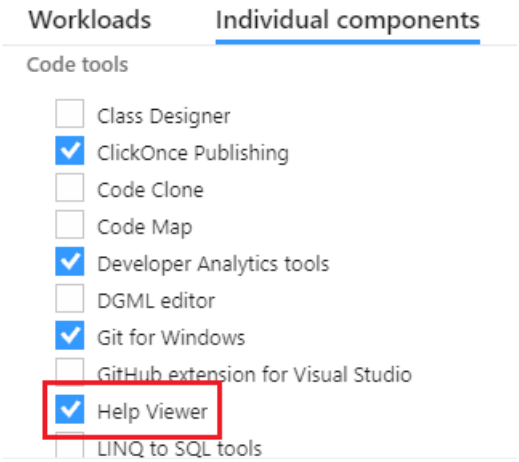
Installing the Visual Studio® help system

The help system is installed as a component during the installation of Visual Studio® 2017 / 2019.

✓ The setup for Visual Studio® 2017 / 2019 has been called.

1. Click the **Individual components** tab.

2. Select the **Help Viewer** component in the **Code tools** section.



(Source: https://docs.microsoft.com/de-de/visualstudio/ide/microsoft-help-viewer-installation?view=vs-2017)

3. Continue installing Visual Studio® 2017 / 2019 and complete the installation.

6 Calling the TwinCAT 3 documentations

From Visual Studio® 2013, the TwinCAT 3 help system uses the Beckhoff Information System if no local TwinCAT Information System has been installed. In this case, the TwinCAT 3 context help uses the browser of the operating system to search for the articles online in the Beckhoff Information System and to display them according to the search in the system's web browser.

An Internet connection is required for this and the address https://infosys.beckhoff.com must be reachable.

With the installation of the TwinCAT 3 Information System, the help system is set to use the local help.

The use of the local help or the online help respectively can be set in the TwinCAT Help menu (Visual Studio® 2013 and later).

In the Help menu, open the submenu "Define help settings".

- **Browser**: Searches online in the Beckhoff Information System for articles on the context help used.
- **Help Viewer**: Searches in the installed local TwinCAT 3 Help for the corresponding articles

You can call the local help system via the Windows Start menu or in the TwinCAT 3 Engineering (XAE) via the context help (F1 Help) or the **Help** menu.

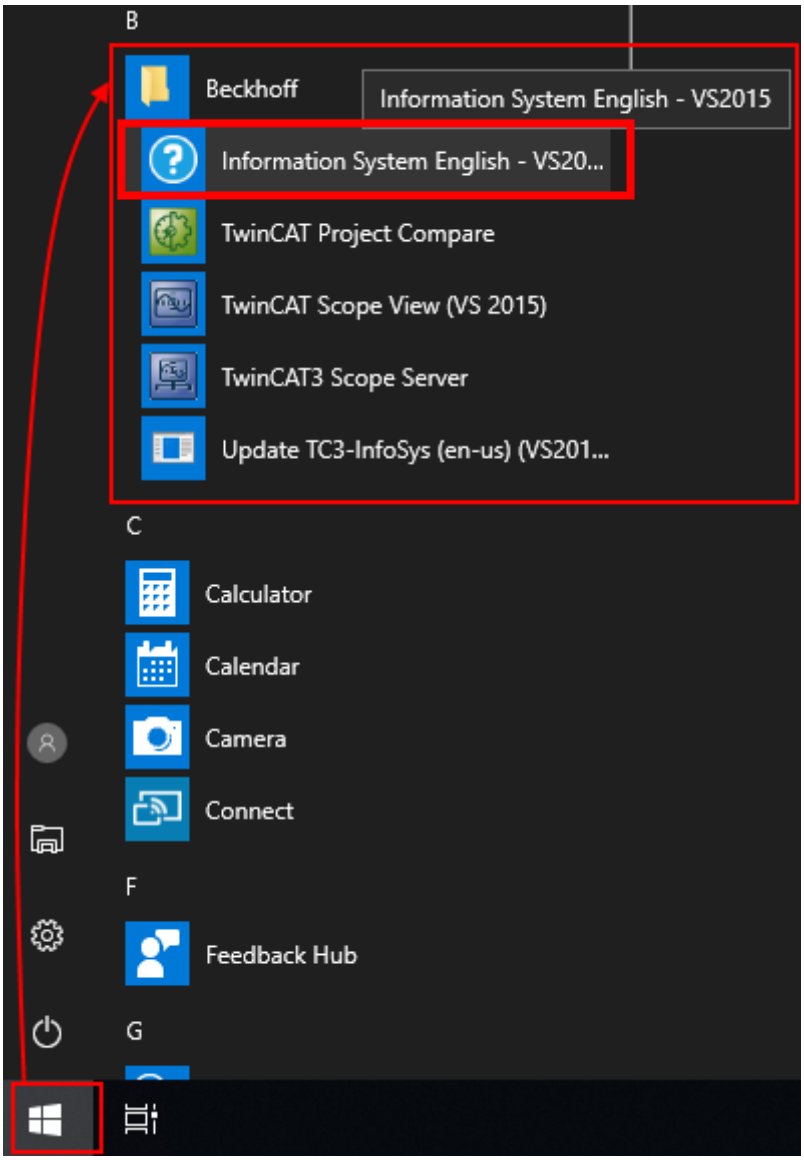
- Calling up the TwinCAT 3 documentation via the Windows Start menu [▶ 60]
- Calling up the TwinCAT 3 documentation via the Help menu [▶ 59]
- Calling up the TwinCAT 3 documentation via the context help [▶ 60]

Calling up the TwinCAT 3 documentation via the Windows Start menu

✓ You have downloaded and installed the TwinCAT 3 Information System.

✓ During the installation, a shortcut to the Help Viewer was created in the Windows Start menu. Depending on the system configuration and the (pre-)set installation components, several links may be available (e.g. for the German and English versions of the TwinCAT 3 Information System).

1. Open the **Beckhoff** folder in the Windows Start menu.



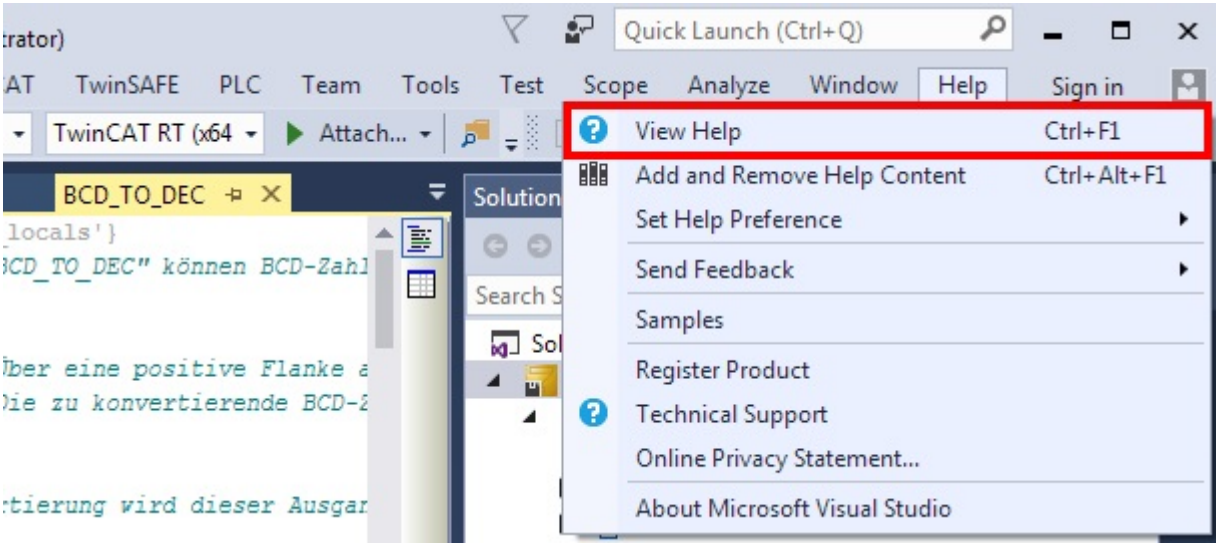
2. Click **Information System <Language> - VS <Version>**.

⇨ The TwinCAT 3 Information System is opened with Help Viewer.

Calling up the TwinCAT 3 documentation via the Help menu

✓ TwinCAT 3 Engineering is open.

1. Open the **Help** menu and select the **Show Help** command.



⇨ The TwinCAT 3 Information System is opened with the Help Viewer of the Visual Studio® help system. In the tree view of the open Help Viewer, select **Help Viewer - Home > Welcome to the Beckhoff Information System > TwinCAT 3**.

Calling up the TwinCAT 3 documentation via the context help

With the context help, the position of the mouse pointer (for graphical elements) or a selected text expression within the editor is evaluated by the help system in order to display the appropriate linked help text.

Limited help function due to different language settings

If you have installed the TwinCAT 3 Information System in a language other than Visual Studio®, the help system is only available to a limited extent.

Various displays

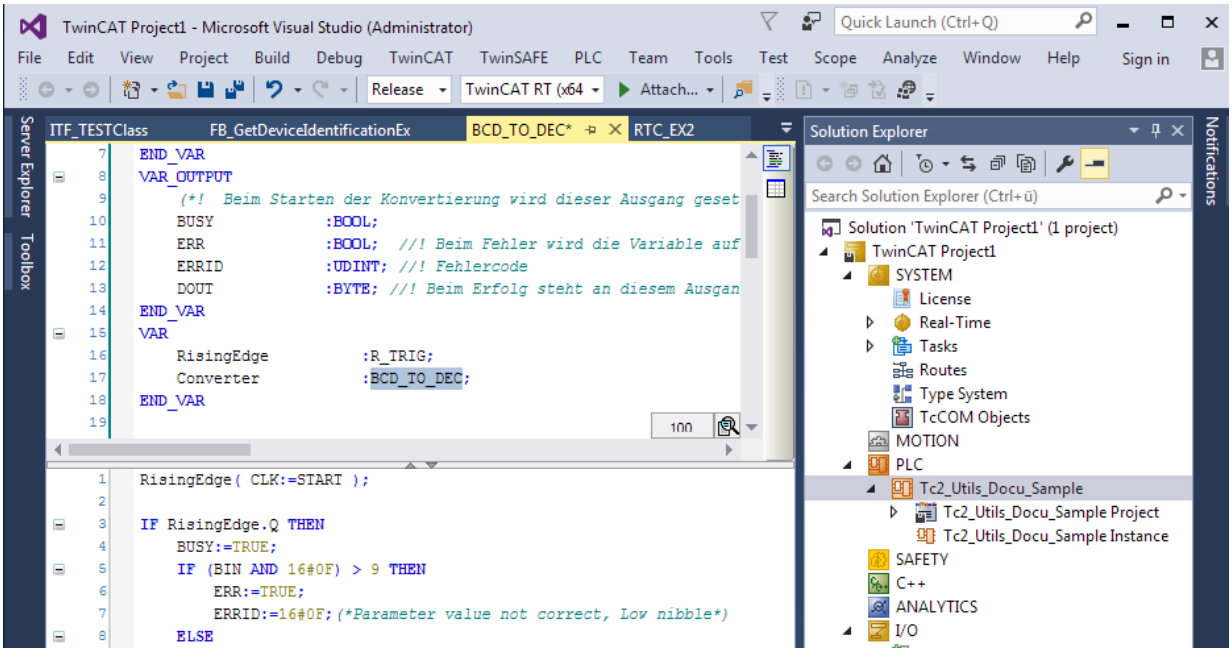
From Visual Studio® 2013 it is possible to use the context help with the Beckhoff Information System.
Depending on the setting of the help system [▶ 58], the result is displayed locally in the Help Viewer or in the system's web browser.

The following guide shows you how to use the local TwinCAT 3 Help. The online help is used analogously. Only the articles are displayed in the web browser.

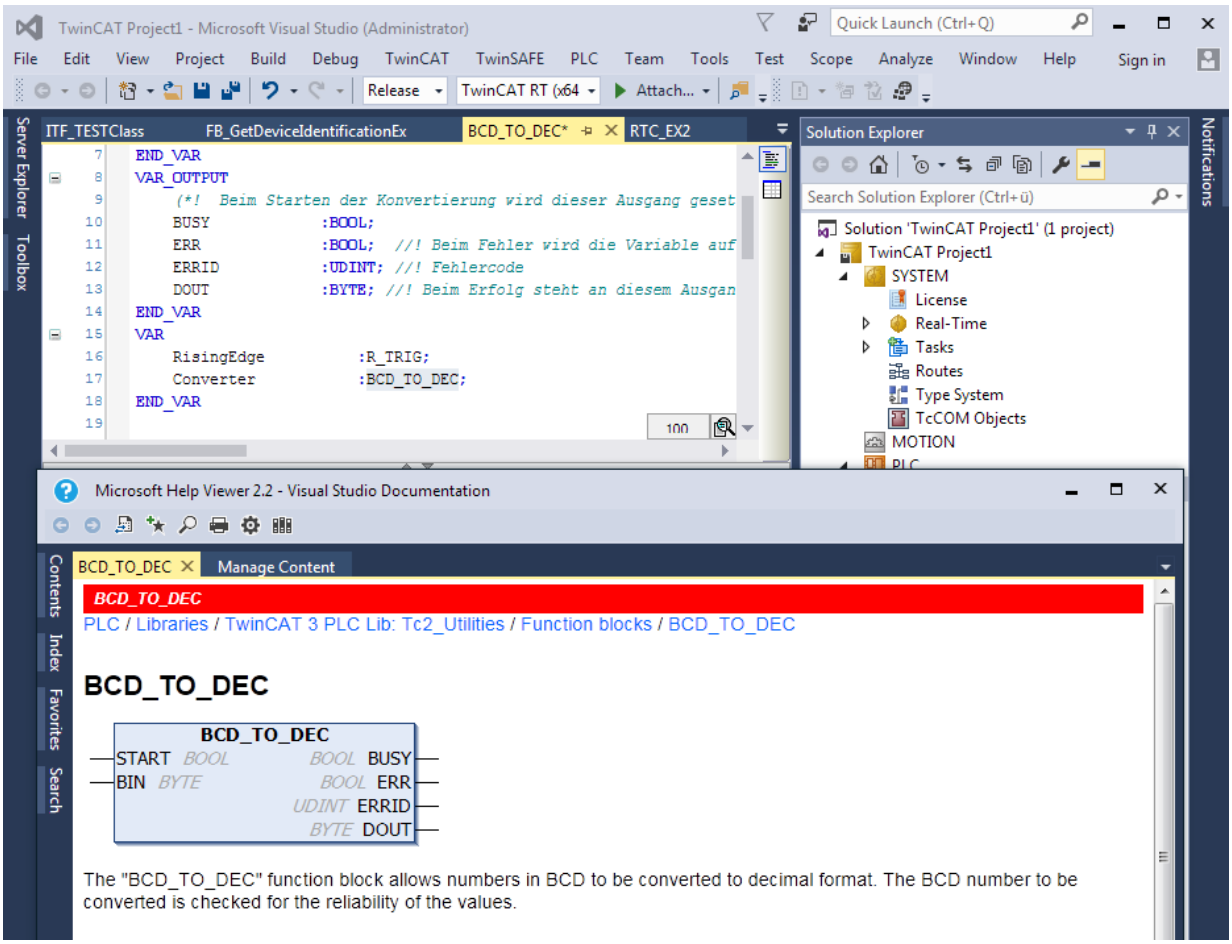
✓ A TwinCAT 3 project is opened.

✓ The **Start in Help Viewer** command is enabled in the menu **Help > Define help settings** (from Help Viewer 2.0).

1. Open an editor for the supported text-based TwinCAT 3 programming languages, e.g. ST or C++.
2. Select the desired expression and press the **[F1]** key.



⇨ The Help Viewer opens, and the corresponding article from the TwinCAT 3 Information System linked to the selected expression is displayed.



7 Updating the TwinCAT 3 documentation

All language variants of the TwinCAT 3 Information System are updated weekly. A locally installed TwinCAT 3 Information System can be updated manually via the Visual Studio® help system. The procedure depends on the Visual Studio® version or the help system.

See also:

- Installation of the TwinCAT 3 documentation [▶ 51]

7.1 Update in Visual Studio®

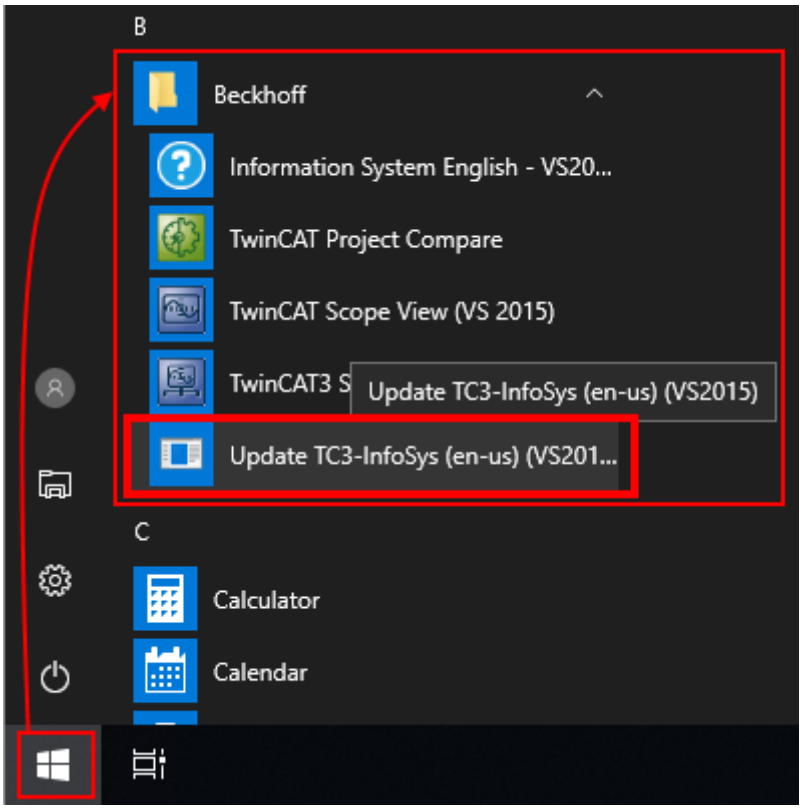
The procedure described below for updating the TwinCAT 3 Information System is valid for Visual Studio® 2012 / 2013 / 2015 / 2017 / 2019.

When the TwinCAT 3 Information System is installed, an entry is created in the Windows start menu, which can be used to update the TwinCAT 3 Information System directly.

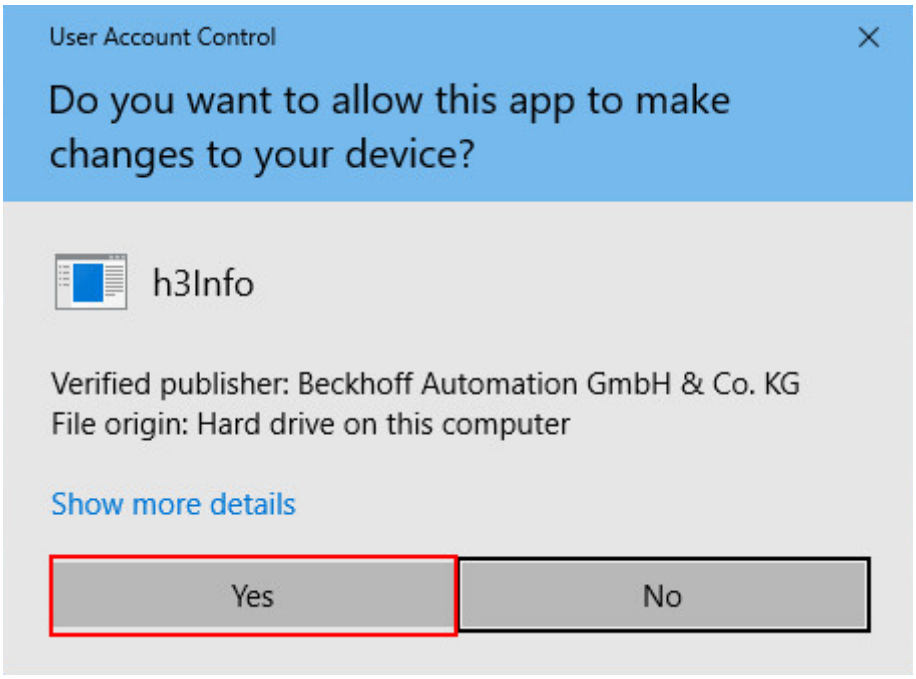
✓ An internet connection is available.

✓ You have administrator rights.

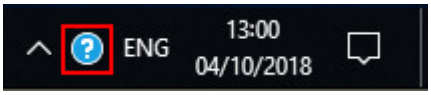
1. Open the **Beckhoff** folder in the Windows Start menu.
2. Click **Update TC3-InfoSys (<Language>) (VS<Version>)**.



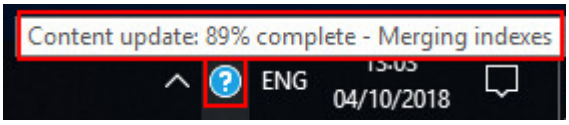
3. In the dialog that opens, confirm that changes may be made to the system.



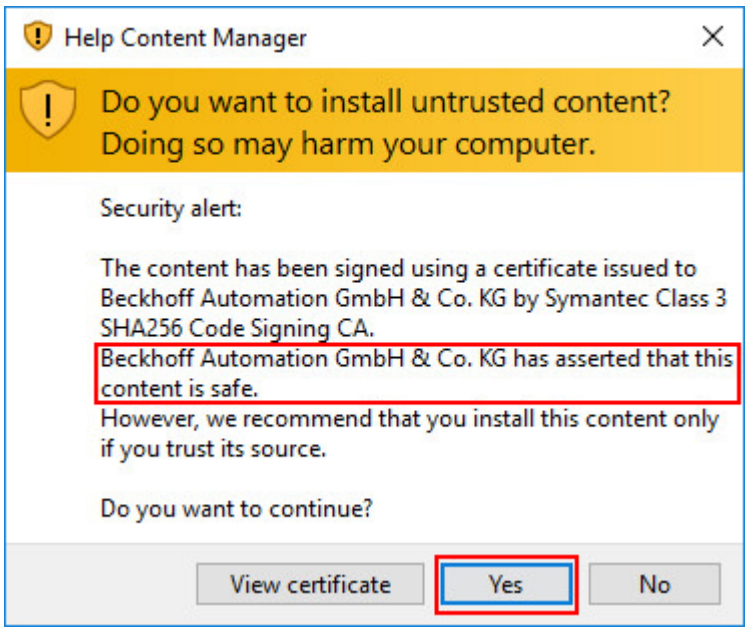
⇨ The help system checks whether an update for the TwinCAT 3 Information System is available. A help system icon is displayed in the Windows menu bar.



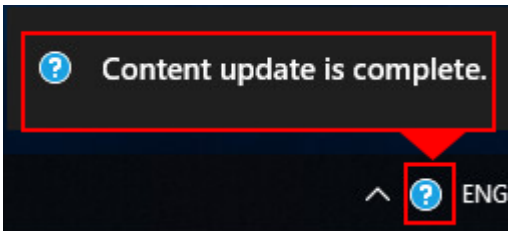
When you move the mouse pointer over the help system icon, the update progress is displayed.



4. Confirm that the TwinCAT 3 Information System may be updated.



⇨ The update status is displayed in the Windows menu bar:

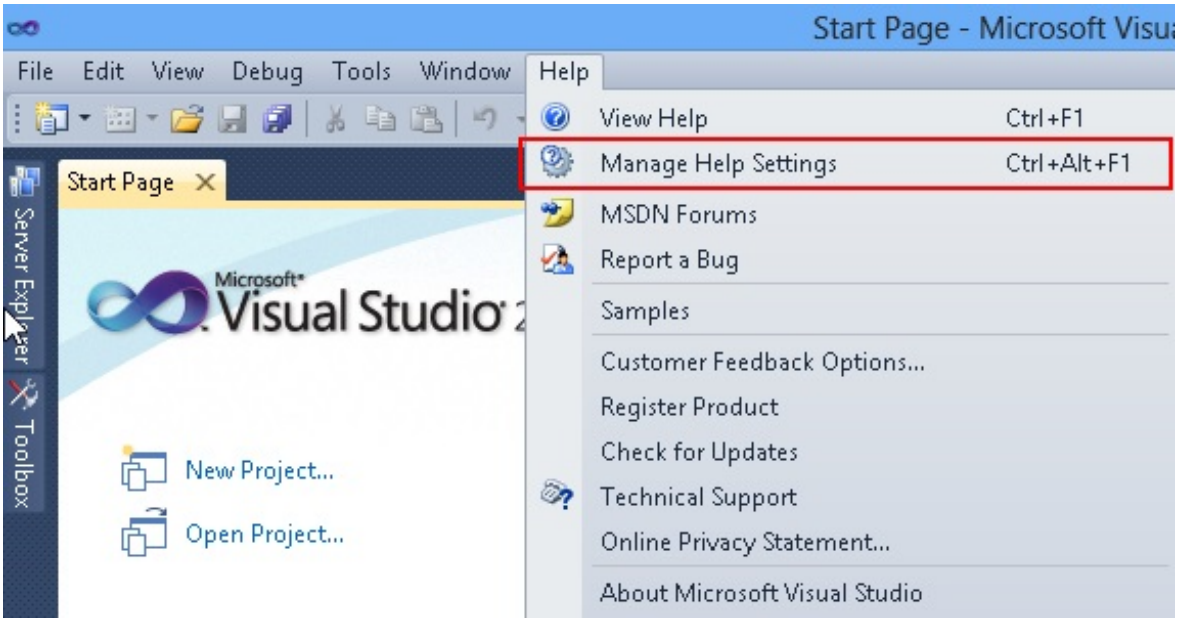


7.2 Update in Visual Studio® 2010

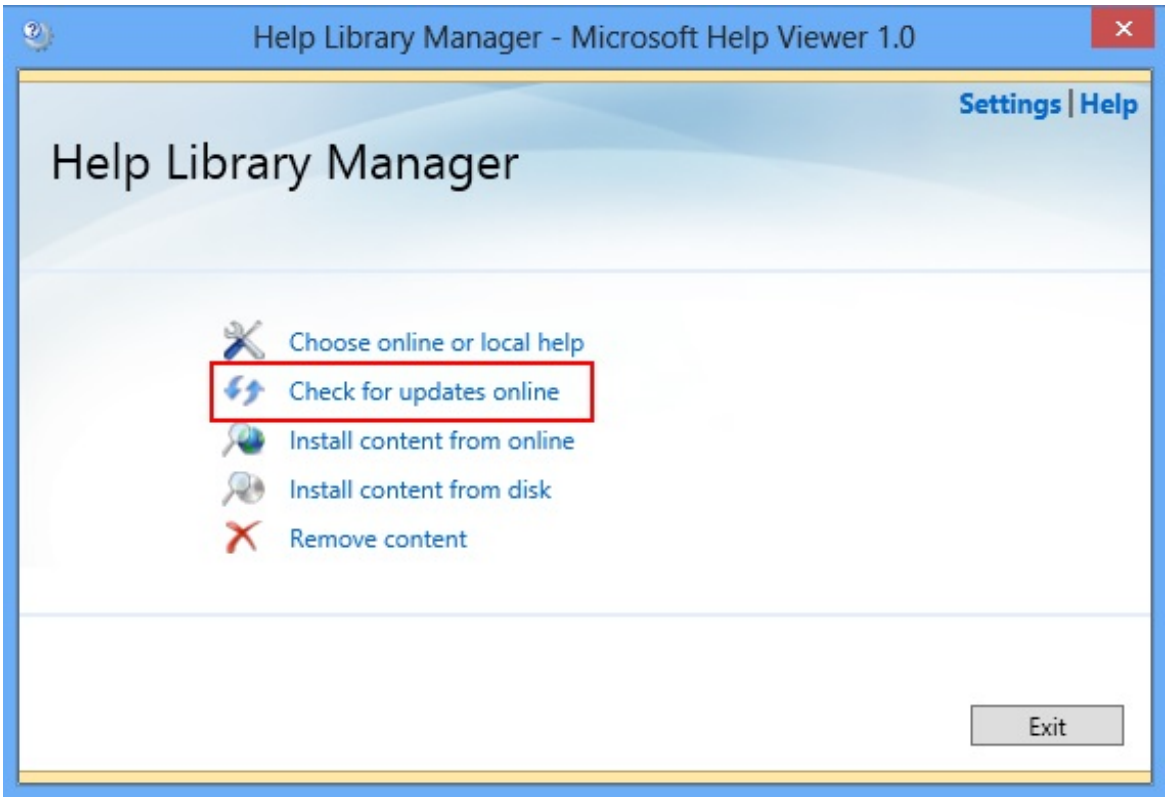
If an internet connection is available, the installed TwinCAT 3 Information System can be updated directly via the Visual Studio® help system in TwinCAT 3 Engineering.

✓ An internet connection is available.

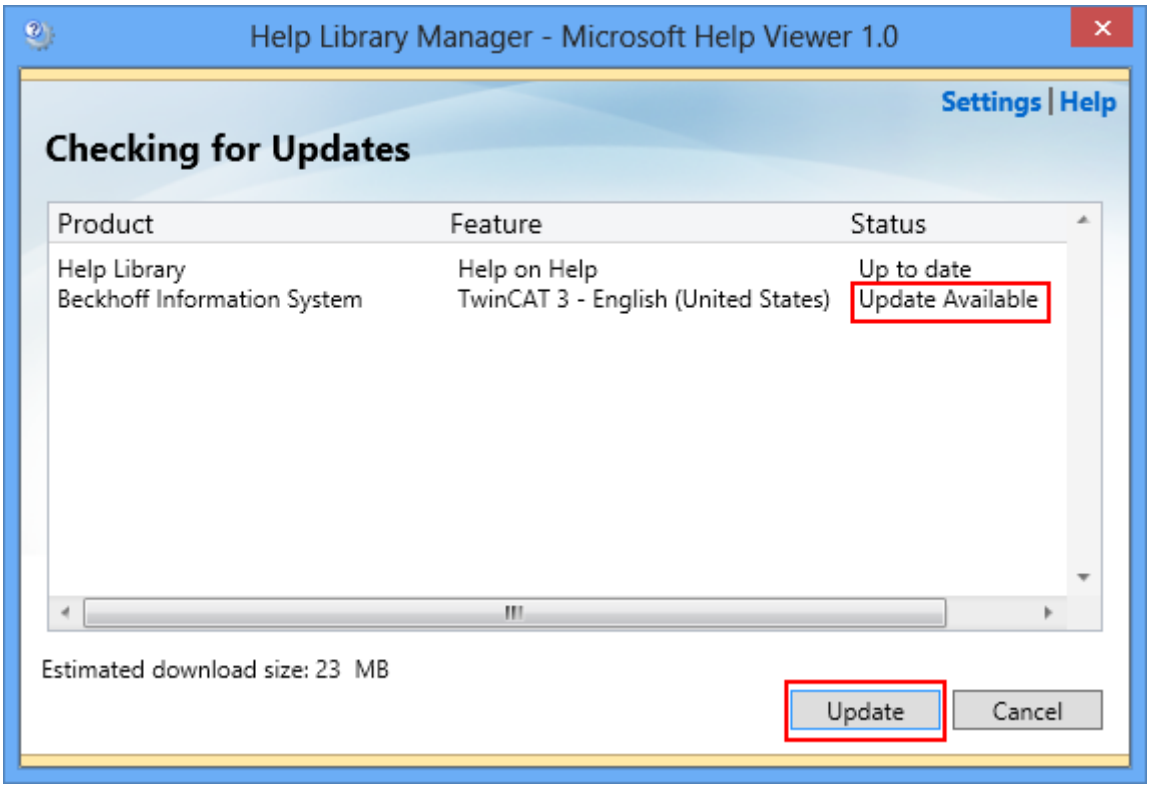
1. Start TwinCAT 3 Engineering or Visual Studio® 2010.
2. Select **Manage Help Settings** from the **Help** menu.



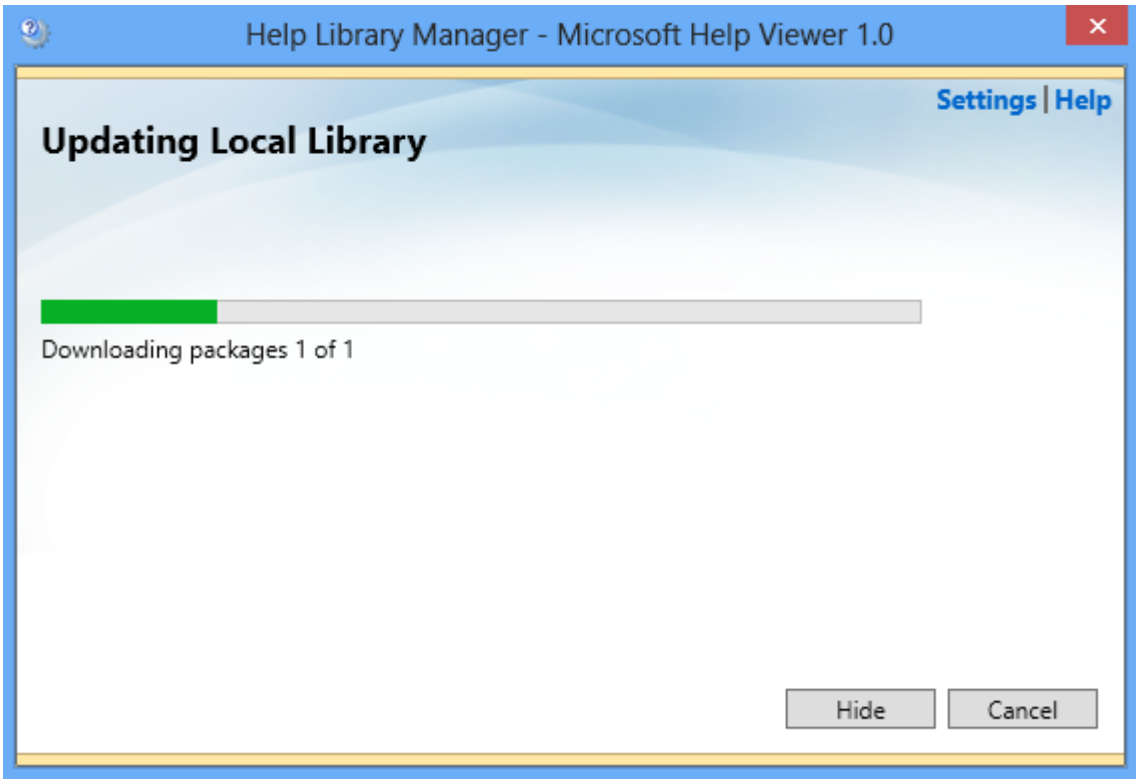
3. In the help system dialog that opens, click **Check for updates online**.



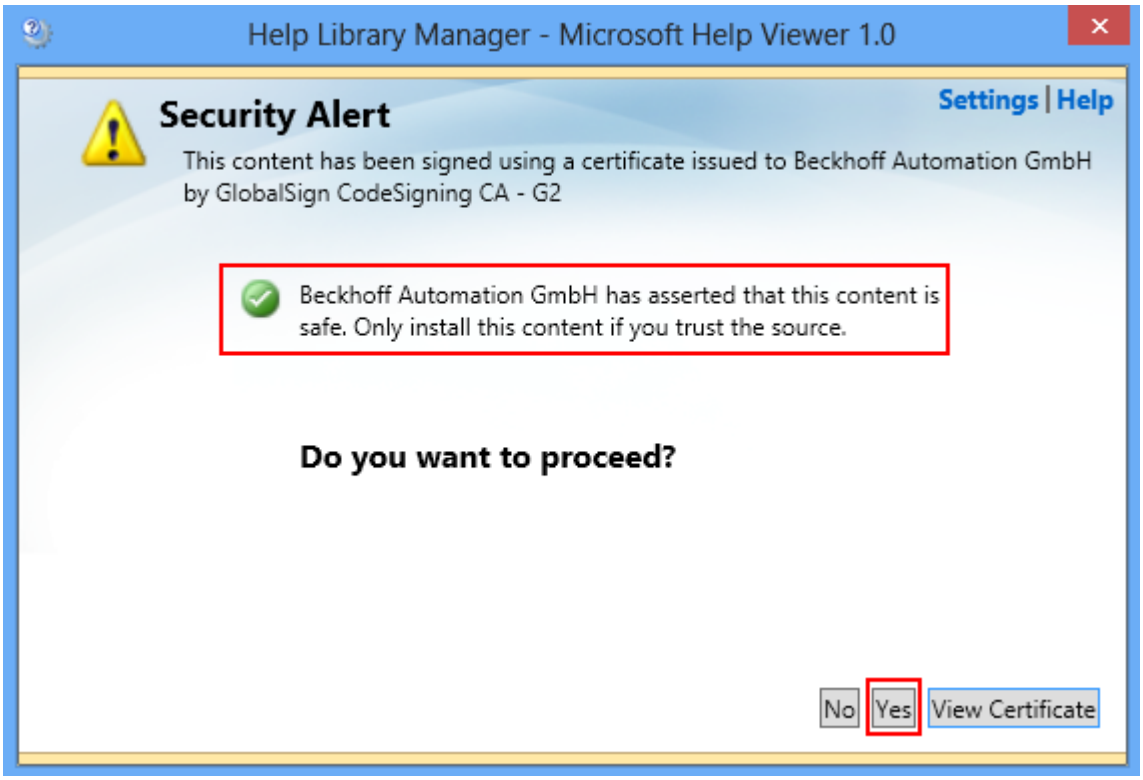
⇨ The help system checks whether an update for the TwinCAT 3 Information System is available. Available updates for installed documentation components are displayed.



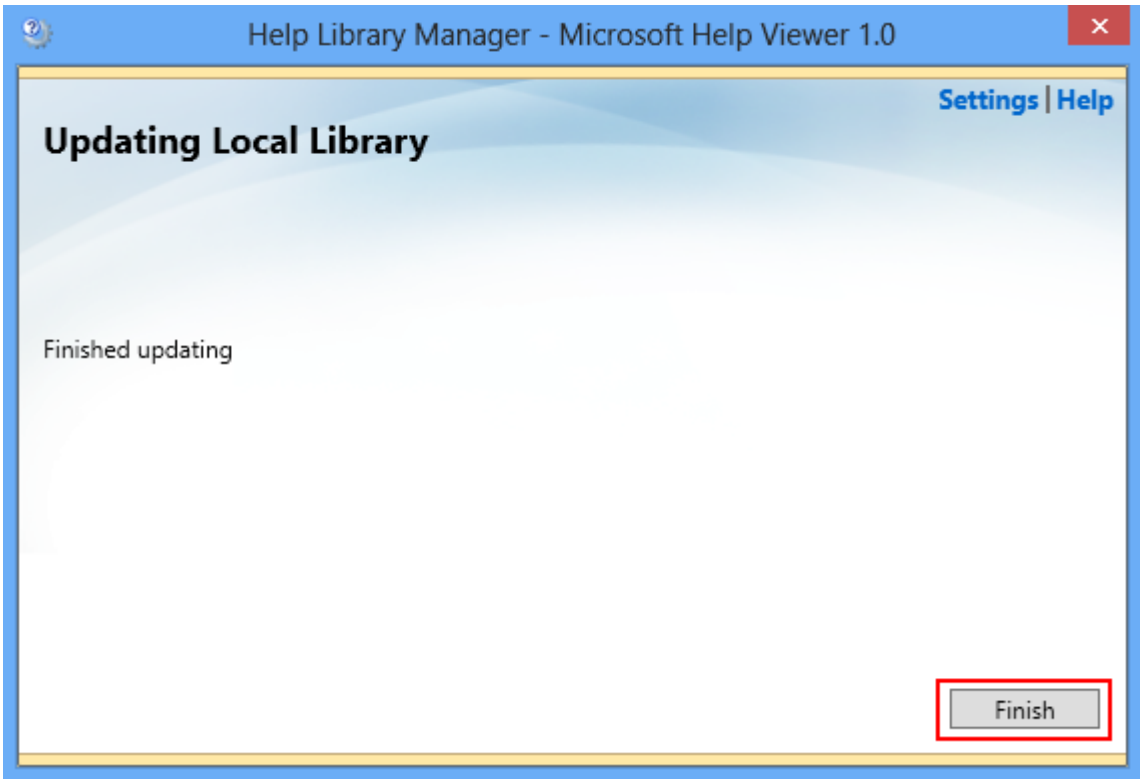
4. Click **Update** to download the available updates.



5. Confirm the installation of the update package with **Yes**.



⇨ Close the dialog after a successful update with **Finish.**



8 Changing the language of the TwinCAT development environment

Installing Visual Studio® language packs

TwinCAT 3 uses Visual Studio® ("Professional" functionality or higher) or the Visual Studio® Shell as the development environment. Various language packs are offered for Visual Studio®. A distinction is thereby made between the functional specification of the development environment and the supported languages.

The languages supported by Visual Studio® are described on the MSDN page:

- Languages supported by Visual Studio® (2013): https://visualstudio.microsoft.com/de/vs/older-downloads/isolated-shell/

Log in to VS or Microsoft to download the speech package.

Installation of the German language pack for the TwinCAT development environment (Visual Studio® Shell)

✓ You have downloaded the appropriate language pack from the MSDN page for the Visual Studio® Shell you are using (https://msdn.microsoft.com):
The language packs can be downloaded from the MSDN customer area (login required).
(a) Language pack for Visual Studio Shell (isolated)
(b) Language pack for Visual Studio Shell (integrated)

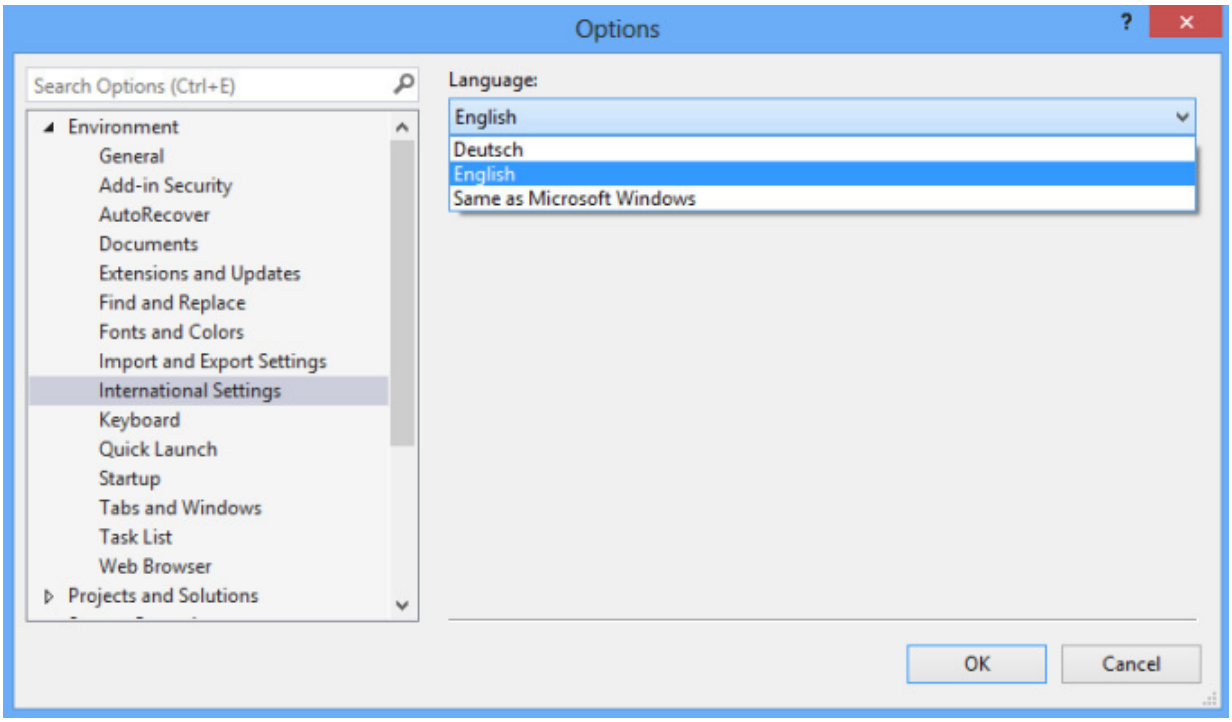
1. First install the language pack for the "isolated shell" (a).
2. Now install the language pack for the "integrated shell" (b).

⇨ Following successful installation, you can change the language of the TwinCAT 3 development environment [▶ 69].

Changing the TwinCAT menu language

The Visual Studio® Shell is used with the installation of TwinCAT 3 without Visual Studio®. The preset menu language is English. You can change the menu language in the Visual Studio® options.

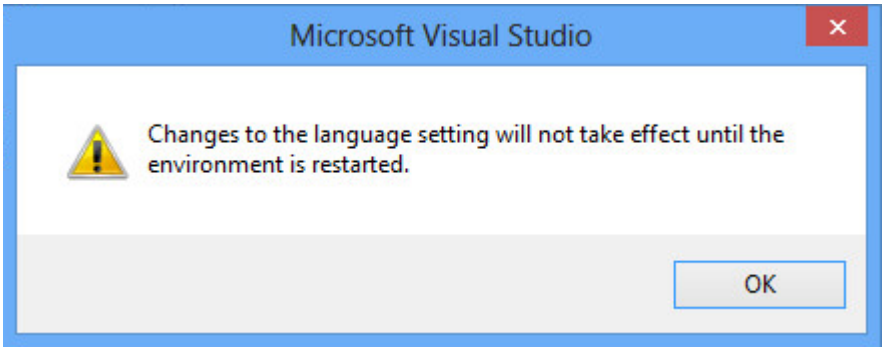
1. Select the **Options** command in the **Tools** menu and **Environment > International Settings** in the options dialog which then opens.



   ⇨ The **Language** area displays the languages (in this case German, English).

2. Select the desired available language and close the dialog with **OK**.

⇨ The language change becomes effective with the next restart of Visual Studio®.



Calling Visual Studio® with language parameters

It is also possible to quickly check the installed menu language of Visual Studio® and to change the language with a direct call.

1. Enter the following command in the command line or in the **Run** window:
   `devenv /lcid 1031` for the German menu language
   or
   `devenv /lcid 1033` for the English menu language

⇨ Visual Studio® or the TwinCAT 3 development environment (Visual Studio® Shell) then opens with the specified menu language, provided this language is installed.

9 Support and Service

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