WAGO KNX DCA

for the configuration of WAGO KNX devices

Product manual
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Every conceivable measure has been taken to ensure the accuracy and completeness of this documentation. However, as errors can never be fully excluded, we always appreciate any information or suggestions for improving the documentation.

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Inhaltsverzeichnis

1 Provisions

1.1 Scope of Applicability

This document applies to the software:

WAGO KNX DCA, Software Version 1.1.0.0

The software must only be installed and operated in accordance with the operating instructions. Knowledge of the operating instructions is required for proper use. You can find all documents and information on the detailed product page.

Additional documents

Besides this documentation/online help, the following supplementary documents are available:

- 🕮 WAGO Controller KNX IP **Product Manual**
- 🕮 **Product manuals** of the WAGO I/O modules used

You can find all documents and information at:

🌍 **www.wago.com/knx**

1.2 Intended Use

The software is an engineering tool and is used in conjunction with the KNX Association ETS.

The software is used for planning, designing and commissioning KNX networks.

Software operation is only permitted if the system requirements and license conditions are met.

Improper Use

Improper use of the software is prohibited.

Improper use occurs in particular in the following cases:

- Non-observance of the intended use
- Implementation of a Known Misuse
- Use of the software in areas with special risk that require continuous fault-free operation and in which failure of or operation of the software can result in an imminent risk to life, limb or health or cause serious damage to property or the environment (such as the operation of nuclear power plants, weapons systems, aircraft and motor vehicles)

Warranty and Liability

The provisions of the latest WAGO General Terms and Conditions of Deliveries and Services (GTC) apply as well as the Software License Terms for Standard Software (SW-License) applicable to software products und software embedded in WAGO hardware products, both available at: 🌍 **www.wago.com**.

In particular, the warranty is void when:

- The software is improperly used.

- The defect is based on (customer-)specific specifications (hardware and software configurations).
- Modifications of the hardware or software by the user or third parties were made that are not described in this documentation and are at least responsible for the occurrence of the defect.

Individual agreements always take precedence.

Obligations of the installer/operator

The responsibility for the safety of an installation or system assembled with the software lies with the installer/operator.

The installer/operator is responsible for the proper installation and the safety of the system. It must comply with the laws, standards, guidelines, local regulations, the state and the rules of technology applicable at the time of installation and must observe the guidelines and instructions described in the operating instructions. The installation requirements of the approvals must also be met.

In the event of non-compliance, the software may not be operated within the scope of the approval.

1.3 Typographical Conventions

Number Notation

100	Decimals: Normal notation
0x64	Hexadecimals: C-notation
‘100’	Binary: In single quotation marks
‘0110.0100’	Nibbles separated by a period

Text Markups

italic	Names of paths or files
bold	Menu items, entry or selection fields, emphasis
`Code`	Excerpts from program code
>	Selection of a menu point from a menu
“Value”	Value entries
[F5]	Identification of buttons or keys

Cross References / Links

	Cross references/links to a topic in a document
	Cross references / links to a separate document
	Cross references / links to a website
	Cross references / links to an email address

Sequence of Action

✓ This symbol identifies a precondition.

1. Action step

2. Action step

   ⇨ This symbol identifies an intermediate result.

➡ This symbol identifies the result of an action.

- Individual action step

Lists

- Lists, first level
  – Lists, second level

Figures

Figures in this documentation are for better understanding and may differ from the actual product design.

Warning Messages

⚠ DANGER

Type and source of hazard

Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

- Action step to reduce risk

⚠ WARNING

Type and source of hazard

Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

- Action step to reduce risk

⚠ CAUTION

Type and source of hazard

Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

- Action step to reduce risk

⚠ NOTICE

Type and source of malfunction (property damage only)

Indicates a potentially hazardous situation which, if not avoided, may result in damage to property.

- Action step to reduce risk

Information Notices

Note

Information

Indicates information, clarifications, recommendations, referrals, etc.

1.4 Legal Information

Intellectual property

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Third-party trademarks are referred to in the product documentation. The “®” and “™” symbols are omitted hereinafter. The trademarks are listed in the Appendix: **Protected Rights [▶ 53]**.

Subject to Change

The instructions, guidelines, standards, etc., in this manual correspond to state of the art at the time the documentation was created and are not subject to updating service. The installer and operator bear sole responsibility to ensure they are complied with in their currently applicable form. WAGO GmbH & Co. KG retains the right to carry out technical changes and improvements of the products and the data, specifications and illustrations of this manual. All claims for change or improvement of products that have already been delivered – excepting change or improvement performed under guarantee agreement – are excluded.

2 Security

2.1 General Safety Regulations

- This documentation is part of the software. Therefore, keep the documentation for the entire service life of the software. Pass on the documentation to the next user of the software. In addition, ensure that any supplement to this documentation is included, if necessary.
- Any actions related to the use of WAGO software may only be performed by qualified staff with sufficient knowledge to use the respective PC system.
  Steps in which files are created or changed on a PC system may only be performed by qualified employees with sufficient knowledge in the administration of the PC system used in addition to file creation or modification.
  Steps that change the PC system's behavior within a network may only be performed by qualified employees with sufficient knowledge of administration of the responsible network.
- Set up permissions management for authorized persons.
  – Digital access may only be made by authorized persons.
- Comply with the laws, standards, guidelines, local regulations and accepted technology standards and practices applicable at the time of installation.

2.2 Indirect Safety

- If automation solutions are implemented that can lead to personal injury or significant property damage in the event of failure, you must take appropriate measures to ensure that the system remains in a safe operating state even in the event of failure.
- Give all products in a network different IP addresses.
- Never connect a PC on which a DHCP server is installed to a global network. Larger networks usually already have a DHCP server, which can cause collisions that lead to network breakdown.
- Use only the latest security software.
- Uninstall or disable all software components or programs on your PC that are not required for the intended use.

3 Overview

ETS (Engineering Tool Software) is software specifically developed for planning, project design and commissioning of KNX networks. In the course of its development, ETS's functionality was optimized, and the latest version includes options for setting up, maintaining, servicing and expanding KNX networks. The software integrates all the major components of a KNX network, such as lines, devices and building areas, into an intuitive, easy-to-use package that can be used to set up or modify controllers and device behaviors. With the software, individual devices within the bus system can be programmed and configured for targeted implementation of new requirements with minimum time and effort. The manufacturer-independent design of ETS enables manufacturers in the building automation industry to integrate their devices into the ETS product database using certified standards.

The control software WAGO KNX DCA represents an extension of the ETS product database. The software enables configuration of WAGO KNX devices via ETS.

The WAGO KNX DCA software enables the use of the following WAGO KNX devices in particular:

- KNX/EIB/TP1 Interface (Item No. 753-646)
- KNX TP Secure Interface (Item No. 753-1646)
- KNX IP Controller (Item No. 750-889)
- KNXnet/IP router (consisting of KNX/EIB/TP1 interface and KNX IP controller)

The key feature of the KNX/EIB/TP1 interface and controller software is the ability to map WAGO network variables to communication objects one-to-one in ETS.

Operation as a KNXnet/IP router is not possible with the KNX TP Secure Interface module.

Communication objects are given the same name as the network variables to which they are mapped. This ensures that the WAGO software's internal mapping is also represented within ETS.

4 Requirements

4.1 System Requirements

The following system requirements apply to the WAGO KNX DCA software.

Table 1: Minimum System Requirements

Component	Requirements
Operating System	Windows 10 x86
Memory	2 GB
Free hard disk space	20 GB
Processor	4 CPU cores
Screen resolution	1366 × 768 pixels
Software	The WAGO KNX DCA software requires the KNX Association's ETS (Engineering Tool Software) Version 6 or higher.
Interfaces	A KNX interface, e.g., Controller KNX IP (Item No. 750-889) with KNX/EIB/TP1 interface (Item No. 753-646) as router, a KNXnet/IP-to-TP router or a KNX-TP-USB interface
Licenses	A KNX license is required to download or operate the WAGO KNX DCA software (see **https://my.knx.org/de/shop/ets-apps**).

Table 2: Recommended System Specifications

Component	Requirements
Operating System	Windows 11 x64
Memory	8 GB
Free hard disk space	30 GB
Processor	8 CPU cores
Screen resolution	1920 × 1080 pixels
Software	The WAGO KNX DCA software requires the KNX Association's ETS (Engineering Tool Software) Version 6 or higher.
Interfaces	USB (optional: a USB interface is required when using a USB-KNX-TP interface)
	Controller KNX IP (Item No. 750-889) as router
	KNXnet/IP (optional: an Ethernet port is required when using a KNXnet/IP router as an interface to the KNX TP line)
Licenses	A KNX license is required to download or operate the WAGO KNX DCA software (see **https://my.knx.org/de/shop/ets-apps**).

WAGO KNX modules 753-646 and 753-1646 Version 1.1 or higher can only be configured in the ETS using the WAGO KNX DCA software.

5 Function Description

5.1 Access to KNX Devices via ETS6

ETS provides the following options in order to access KNX devices within a bus system:
- Via USB
- Via ETHERNET (“KNXnet/IP” or “KNXnet/IP Routing”)

The ETS6-equipped PC used for project design must be connected to a KNX interface. Within ETS6, an interface can then be configured via the “Bus” tabs > Connections > Interfaces > Configured Interfaces > **[+]**.

If the Controller KNX IP functions as a KNXnet/IP router, you can connect it directly to a standard ETHERNET interface on your PC using an RJ45 cable.

In this case, ETHERNET is routed to Twisted Pair and Twisted Pair to ETHERNET via the Controller KNX IP (Item No. 750-889) and the KNX/EIB/TP1 interfaces (see also **Parameterize the KNXnet/IP Router in ETS6 [▶ 48]**).

You can find more information in:
- **ETS6 Start View [▶ 26]**

5.2 Interworking Data Point Types (DPTs)

DPTs describe defined formats and data widths of communication objects.

The KNX module supports the following KNX data widths:
- 1 … 7 bits
- 1 … 4 bytes
- 6 bytes
- 8 bytes
- 10 bytes
- 14 bytes

5.3 Network Variable Name Syntax

Each network variable name contains the so-called program name. It is prefixed and separated from the actual name by a period.

5.3.1 Syntax for Simple Variable

The syntax for simple variable names is:

```
<program name>.M<No1>_<No2>_<basic name>
```

Table 3: Syntax for Simple Variable

Placeholder	Length	Explanation
<No1>	Digit	KNX module number
<No2>	3 digits	Data address

5.3.2 Syntax for Array Variable

The syntax for array variable names is:

```
<program name>.M<No1>_<No2>_<basic name>[<N3>]
```

Table 4: Syntax for Array Variable

Placeholder	Length	Explanation
<No1>	Digit	KNX module number
<No2>	3 digits	Identifies variable array
<No3>	Digits	Identifies variable in array

5.3.3 Syntax for Nested Variables

The syntax for names of nested variables is:

```
<program name>.M<No1>_<No2>_<basic name>[<N3>]
```

Table 5: Syntax for Nested Variables

Placeholder	Length	Explanation
<No1>	Digit	KNX module numbers
<No2>	3 digits	Identifies variable group
<No3>	Digits	Identifies variable in group

5.3.4 Syntax for Nested Array Variables

The syntax for names of nested array variables is:

```
<program name>.M<No1>_<No2>_<basic name>[<N3>]
```

Table 6: Syntax for Nested Array Variables

Placeholder	Length	Explanation
<No1>	Digit	KNX module number
<No2>	3 digits	Identifies main group
<No3>	Digits	Identifies subgroup in main group
<No4>	Digits	Identifies variable and subgroup

5.3.5 Syntax for Short Name

By selecting the “Show Short Names” option in the knx interface (see **“Variable Properties” Area [▶ 30]**), you can reduce the displayed length of the network variable names by hiding the program name. This also removes the prefix, infix (in this case, the “period” character between the basic name and suffix) and suffix.

The communication objects are also displayed in the ETS interface in a corresponding shortened form.

The short form omits components of the name:
- Prefixed program name including separator
- Prefix for identifying the KNX module and index of the DPT function block
- Infix (between basic name and suffix) for identification in the event of nesting

Table 7: Syntax for Short Names – Long/Short Form of the Network Variable Name

Long Form	Short Form
<Program name>.<basic name>	<Basic name>
<Program name>.KNX<No>_<basic name>	<Basic name>

Long Form	Short Form
<Program name>.M<No1>_<No2><basic name>	<Basic name>
<Program name>.M<No1>_<No2><basic name>[<No3>]	<Basic name>[<No3>]
<Program name>.M<No1>_<No2><basic name>.<suffix>	<Basic name>.<suffix>
<Program name>.M<No1>_<No2><basic name>.<suffix>[<No4>]	<Basic name>.<suffix>[<No4>]

5.4 KNXnet/IP Routing

The first KNX module after a Controller KNX IP (and, if applicable, other KNX-external modules) extends the Controller KNX IP to function as a KNXnet/IP router. Any subsequent KNX modules operate in device mode. The KNXnet/IP router routes telegrams from IP to a twisted-pair cable and vice versa.

You can find more information in:

- **Parameterize the KNXnet/IP Router in ETS6 [▶ 48]**

5.5 Import/export functions

The import and export function makes it possible to restore previous configurations or settings even after a new installation of the ETS, or to transfer them to another PC.

5.5.1 File Formats

The following file formats can be exported/imported with WAGO KNX DCA.

Table 8: File Formats

File Format	Function/ Environment	Description
***.SYM_XML**	CODESYS V2.3 SYM_XML file	SYM XML files contain the CODESYS program's symbol configuration and thus the list of existing CODESYS variables.
***.xml**	CODESYS V3 SYM_XML file	SYM XML files contain the CODESYS program's symbol configuration and thus the list of existing CODESYS variables.
		Note: Configuration files created in CODESYS V3 are no longer in *.SYM_XML format, but rather *.xml format.
***.xml**	DCA backup file	DCA backup files are used for saving all device settings. These include: • Network variable assignment • Network variable properties • Network variable settings • Assignment of communication objects to group addresses
		Note: Importing the DCA backup file applies the predefined settings in the devices and replaces any existing settings.
		Note: Backups created with the WAGO ETS plug-in can be imported into WAGO KNX DCA.

File Format	Function/ Environment	Description
***.csv**	CSV parameter file	A CSV file can be used for parameter editing, since it contains all variables visible in ETS in tabular form as ASCII text. CSV format is useful for editing group address associations and other properties of network variables. The imported CSV file must have been previously exported and, if applicable, edited with Excel or a text editor. This method can be used to modify group address associations and other properties of network variables. The first line of a CSV file serves as a header and contains the property names. Each additional row corresponds to a network variable. The property values (table columns) are separated by semicolons. A CSV file can be opened and edited with Excel or a text editor.
		Note: The following parameters cannot be changed: • Name • Data type (DPT) • CO number
		Note: Unlike an exported XML file, a CSV file does not contain a fully specified configuration. Therefore, it is not suitable for the following activities: • Transferring the configuration to another device • Re-import after manual change of ETS visibility of variables • Reimport after intermediate XML or SYM_XML import
		Note: Excel cannot store additional information in CSV format, such as cell formats, row heights or column widths. Therefore, when saving, confirm the format warning prompt with “Yes” in order to retain *.csv file format.

You can find more information in:

- **Import Configuration [▶ 39]**
- **“Import” Button [▶ 33]**
- **Export Configuration [▶ 41]**
- **“Export” Button [▶ 33]**

5.6 Maximum Possible Number of Product Properties

The following table summarizes the maximum number of product properties for WAGO KNX devices.

Table 9: Maximum Possible Number of Product Properties

Product Properties		753-1646	750-889
Communication Objects	253	1000	253
Associations (of group addresses)	253	2000	253
Group addresses	253	2000	253

Additional information can be found in the corresponding product manuals for the WAGO KNX devices mentioned.

6 Install

6.1 Download WAGO KNX DCA

✓ A myKNX account is created on https://my.knx.org/.

1. Log into your myKNX account.
2. Purchase a license for the WAGO KNX DCA software from the KNX online shop.
3. From the top side menu, select the menu item “Account” > “Organization” > “Products” to select your purchased license for the WAGO KNX DCA software.
4. Download the WAGO KNX DCA software.

   ⇨ Proceed to the software installation steps (see Install [▶ 16]).

➡ The WAGO KNX DCA software is downloaded.

6.2 Install WAGO KNX DCA

✓ ETS6 is installed, and the Start view is open.

✓ The installation file (*WAGO-KNX-DCA.etsapp*) is downloaded and is ready.

1. On the ETS Start view, click **[Settings]**.

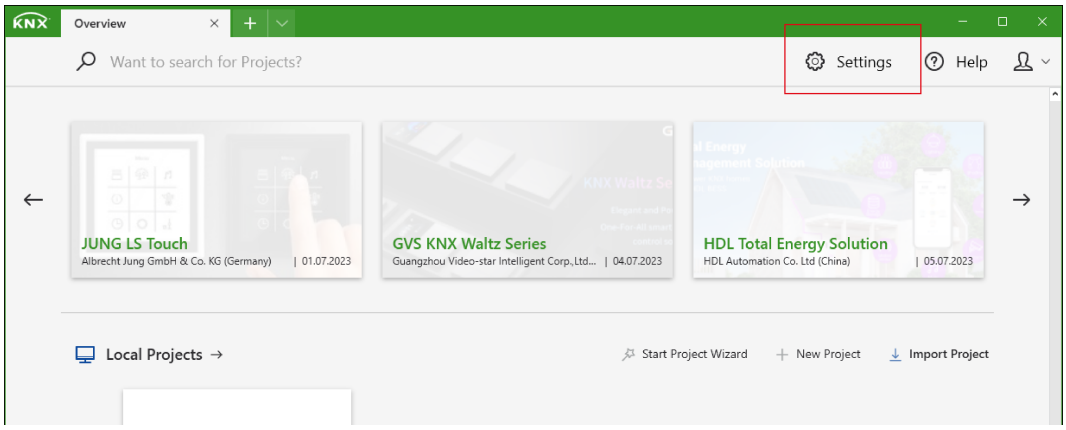


Figure 1: ETS6 Start View > “Settings” Button

⇨ The “Settings” dialog opens.

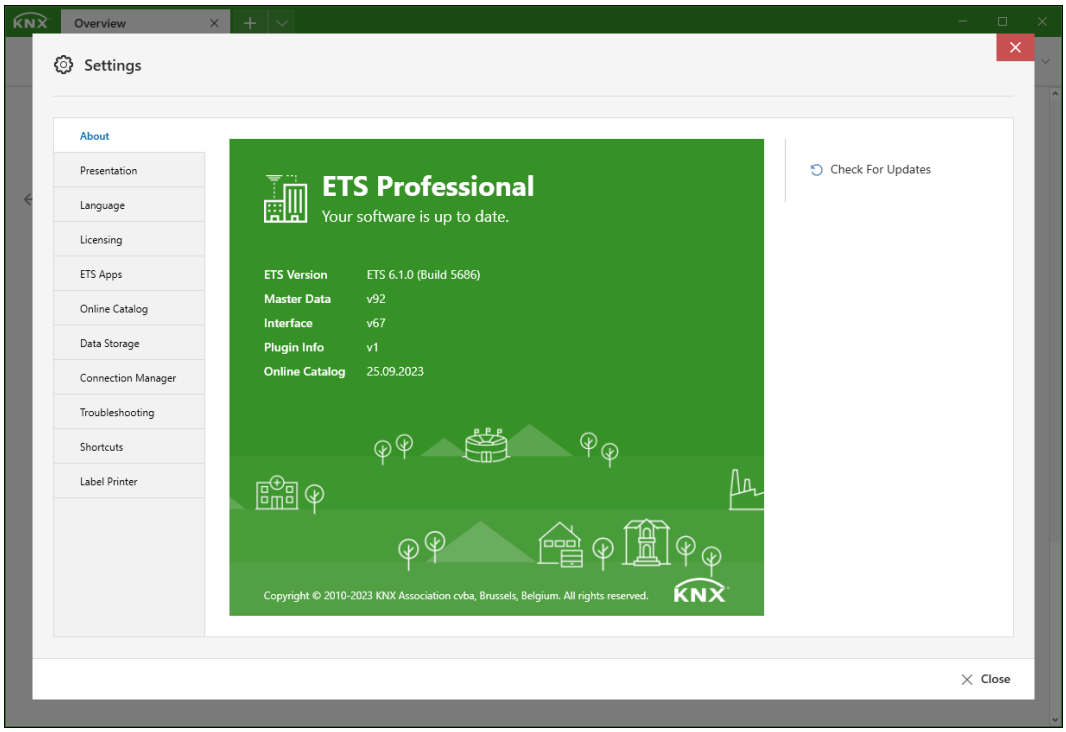


Figure 2: ETS6 > “Settings” Dialog

2. Click the **[ETS Apps]** item within the sub-items of the Settings dialog.

   ⇨ An overview of installed apps appears in ETS.

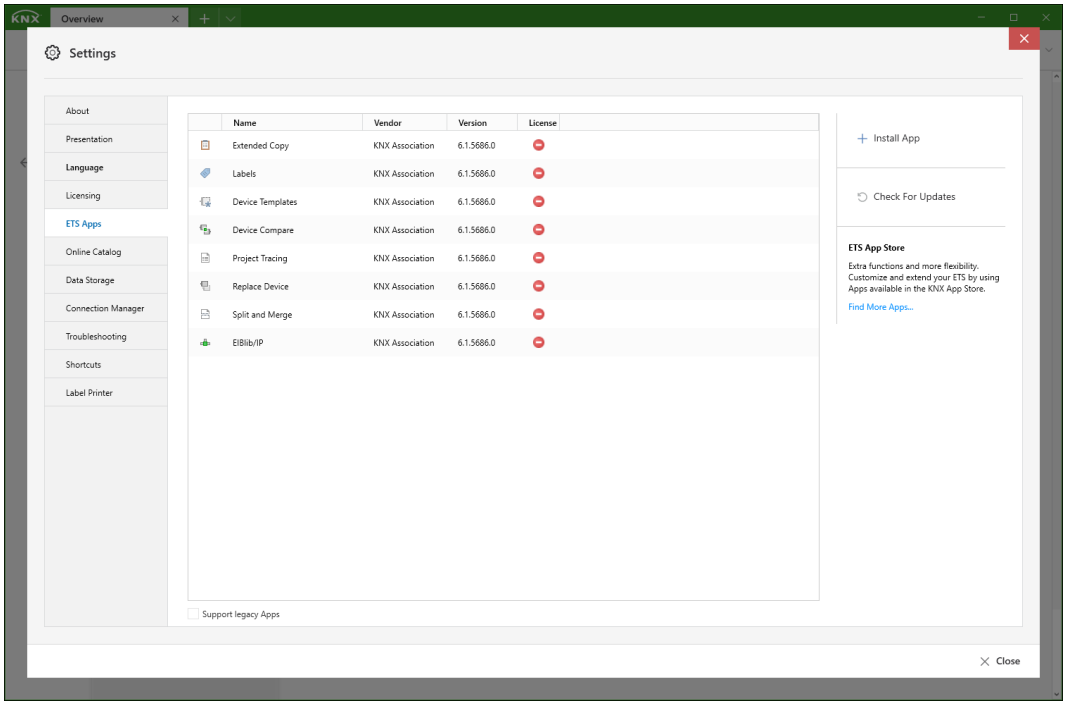


Figure 3: ETS6 > Settings > ETS Apps (The WAGO KNX DCA software not installed)

3. Click **[+ Install App]**.

   ⇨ A standard Windows dialog appears: “Select an ETS App.”

4. Select the *WAGO-KNX-DCA.etsapp* app installation file.

5. Install the selected app installation file by clicking **[Open]**.

   ⇨ The WAGO KNX DCA software has been added to the overview of installed apps.

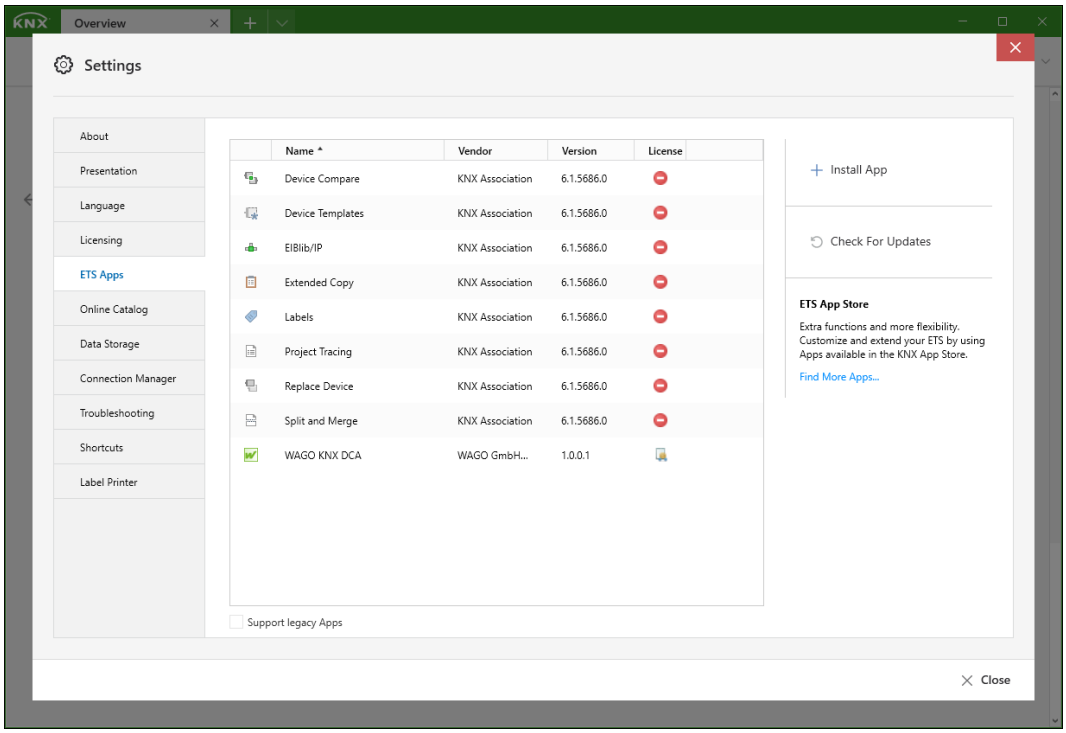


Figure 4: ETS6 > Settings > ETS Apps (the WAGO KNX DCA software installed)

➡ The WAGO KNX DCA software is installed.

7 Start

Note

Autosave!

The ETS6 software saves projects automatically. This includes the configuration in the DCA. Manual saving is not possible in the WAGO KNX DCA software.

7.1 Create a Project in ETS6

In this step, you can create a new KNX project in ETS6.

The following steps are performed in the course of this action. The illustrations and descriptions of the individual dialogs for the action can be found in **Graphical User Interface [▶ 26]**.

✓ ETS6 is installed.

1. Launch the ETS6 software.

   ⇨ The Start view appears.

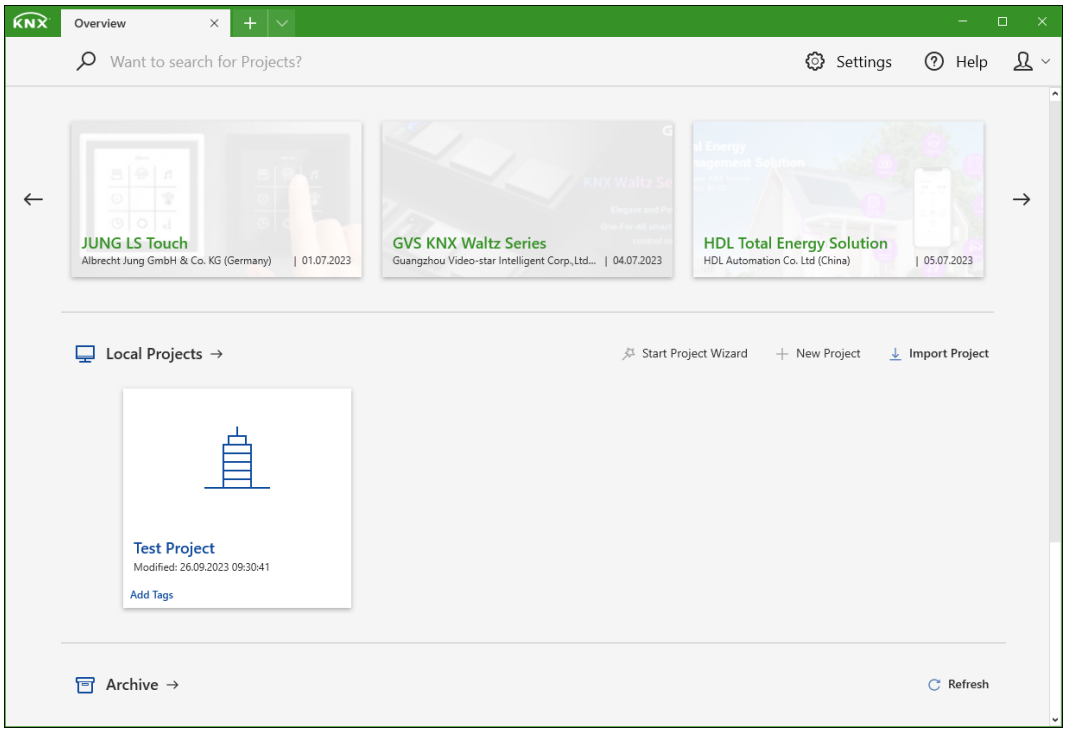


Figure 5: ETS6 Start View

2. In the Start view, click the **[New Project]** button in the “Local Projects” area.

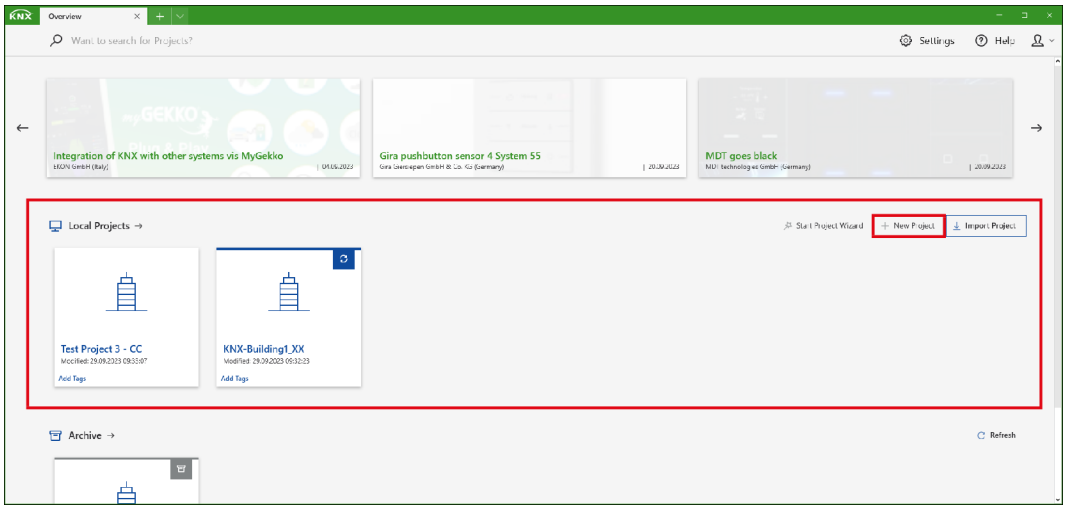


Figure 6: ETS6 Start View > “Local Projects” Area > New Project

⇨ The “New Project” dialog appears.

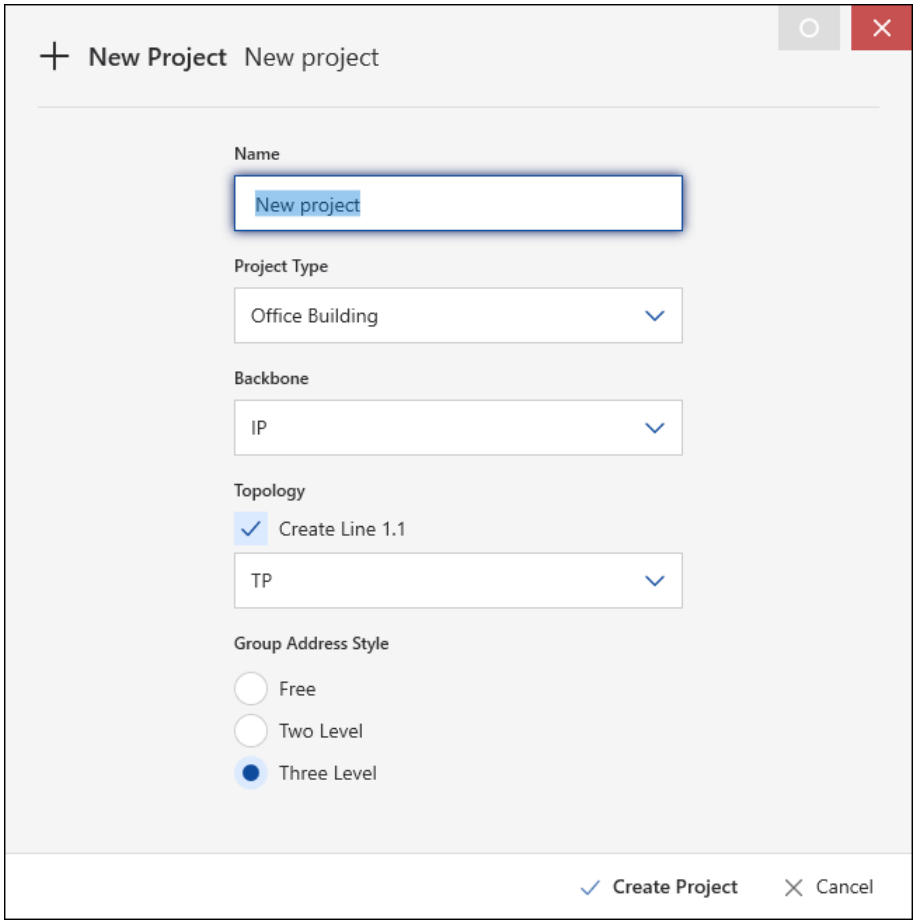


Figure 7: “New Project” Dialog

3. Assign a name for the project you want to create in the “New Project” dialog and make the settings you want.
4. Confirm the settings by clicking **[Create Project]**.

   ⇨ The new project is created and opens automatically.

   ⇨ The project is loaded, and the progress of the loading process is indicated.

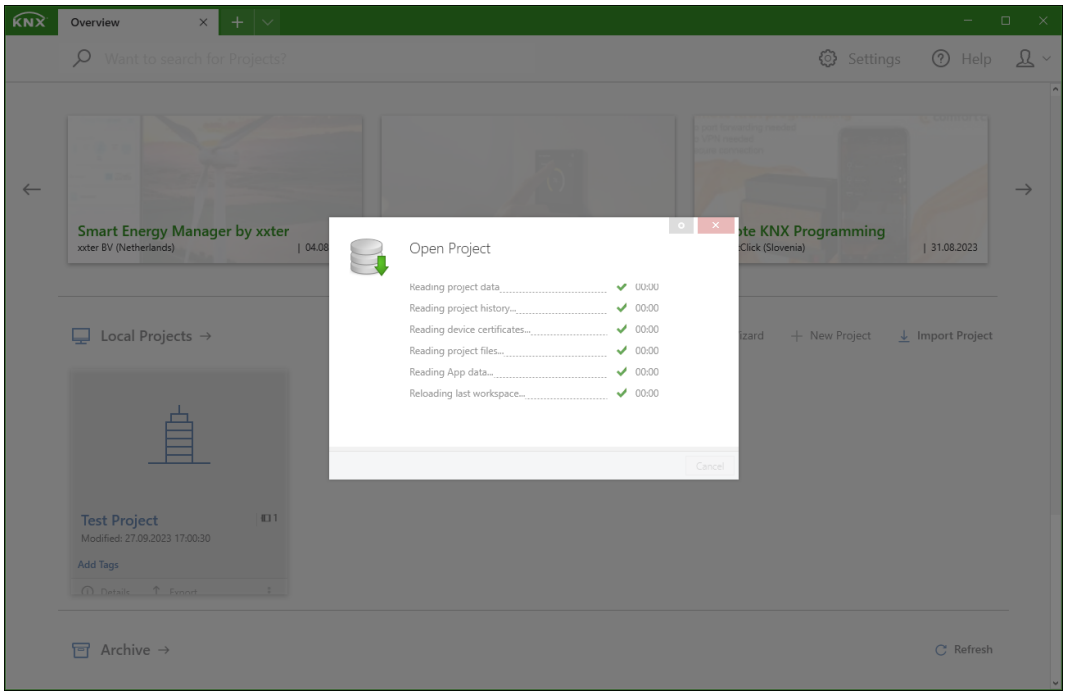


Figure 8: Progress of Loading Process: “Open Project”

5. Add at least one new building to the new project, as well as the building’s associated structural elements: “Building Parts,” “Floors” and “Rooms.”

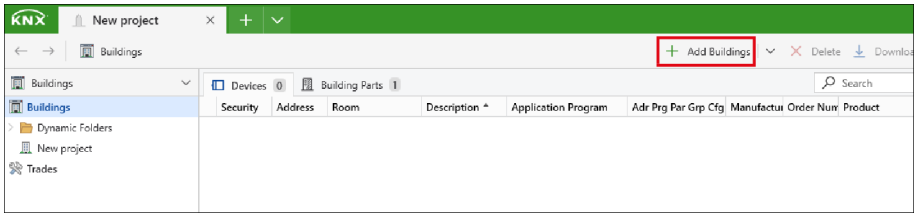


Figure 9: ETS6 > Create a New Building Structure

6. Add new devices to the rooms by dragging and dropping them.

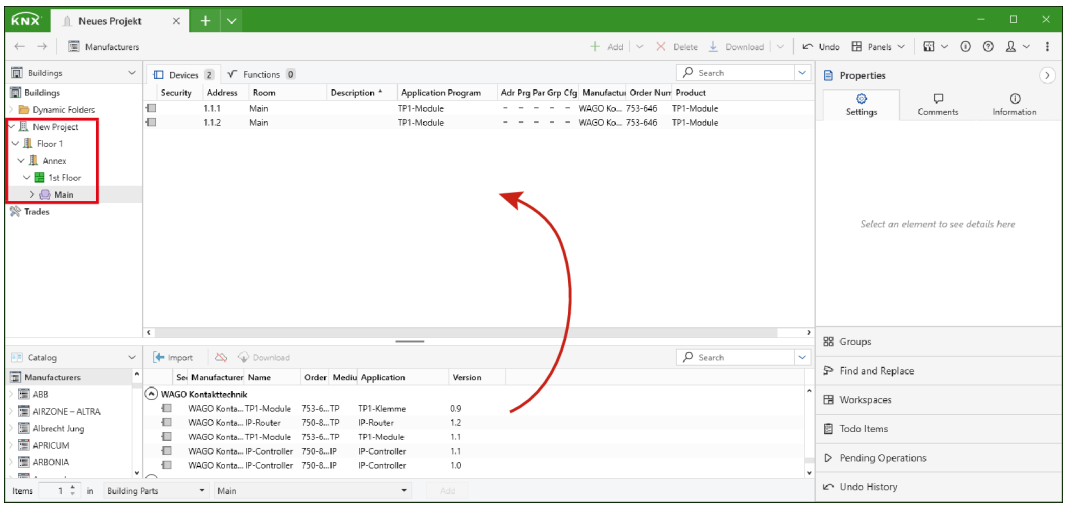


Figure 10: ETS6 > Drag New Devices into a Room

➡ The project is created, and new devices have been integrated.

7.2 Open a Project in ETS6

In this step, you can open an existing KNX project in ETS6.

The following steps are performed in the course of this action. The illustrations and descriptions of the individual dialogs for the action can be found in **Graphical User Interface [▶ 26]**.

✓ ETS6 is installed.

✓ A KNX project file (*.knxproj) exists.

1. Launch the ETS6 software.

   ⇨ The Start view appears.

   ⇨ If you have already imported the project you want into ETS6, proceed with step 4.

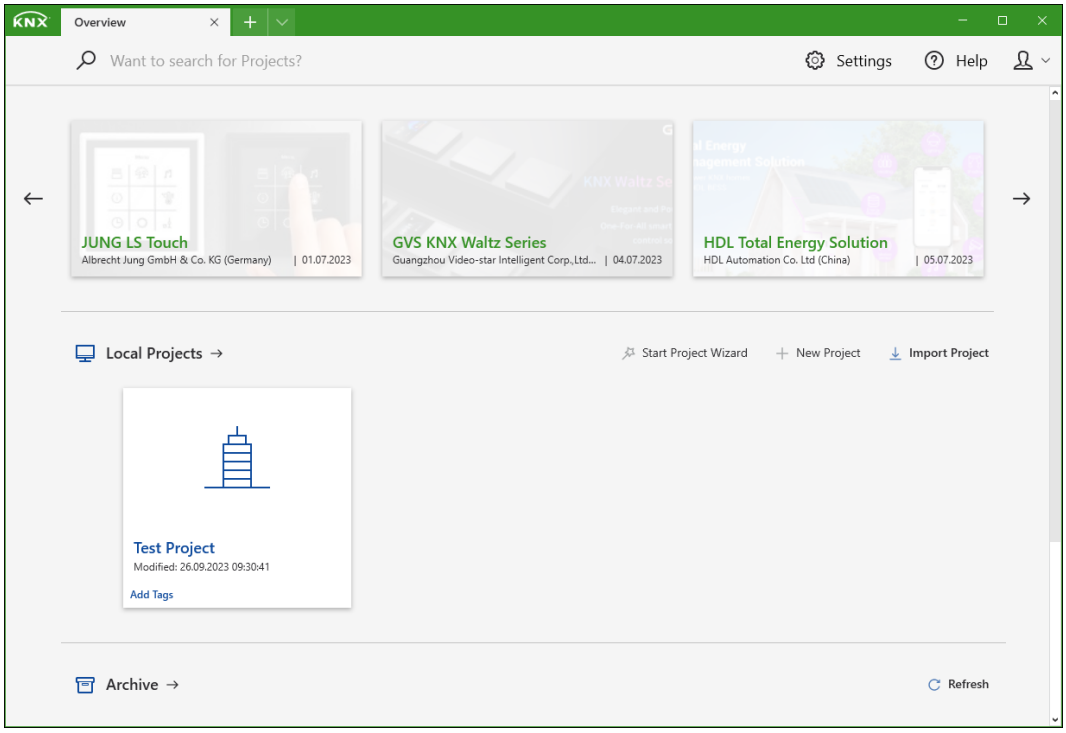


Figure 11: ETS6 Start View

2. In the Start view, click the **[Import Project]** button in the “Local Projects” area.

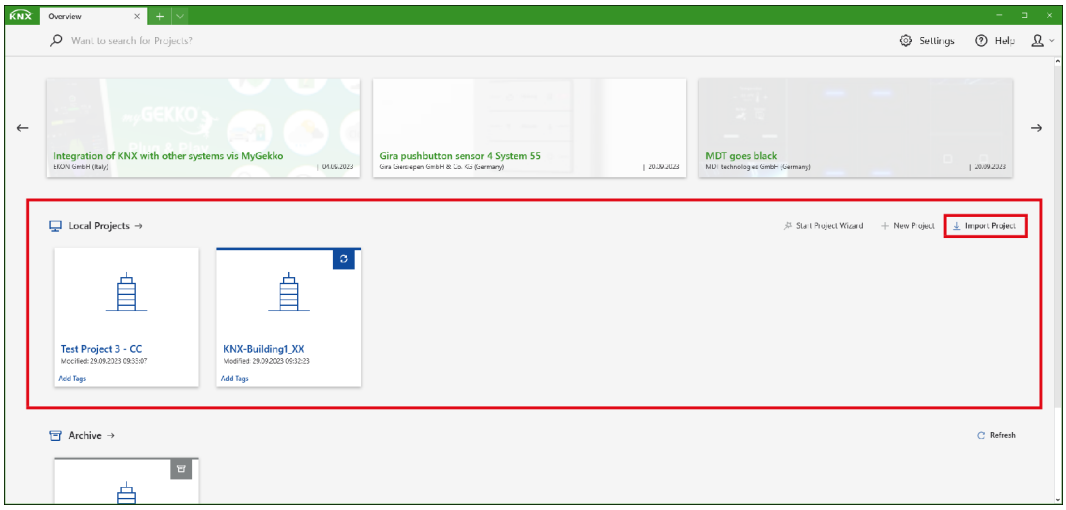


Figure 12: ETS6 Start View > “Local Projects” Area > Import Project

⇨ A standard Windows dialog appears: “Open Project File.”

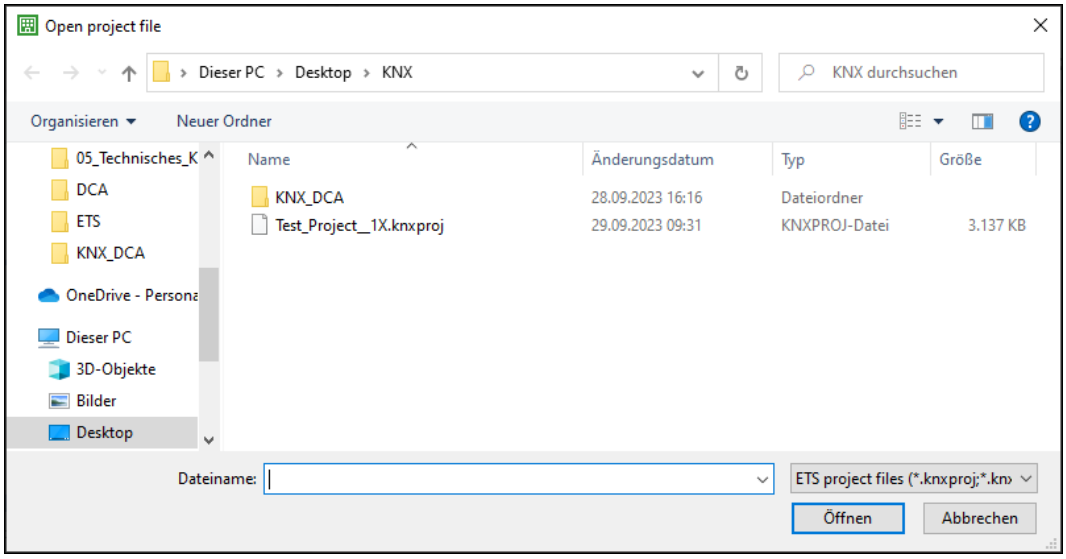


Figure 13: “Open Project File” Dialog

3. Select a KNX project file and import it by clicking **[Open]**.

   ⇨ The project file appears in the “Local Projects” area as a new button and does not need to be imported again in the future.

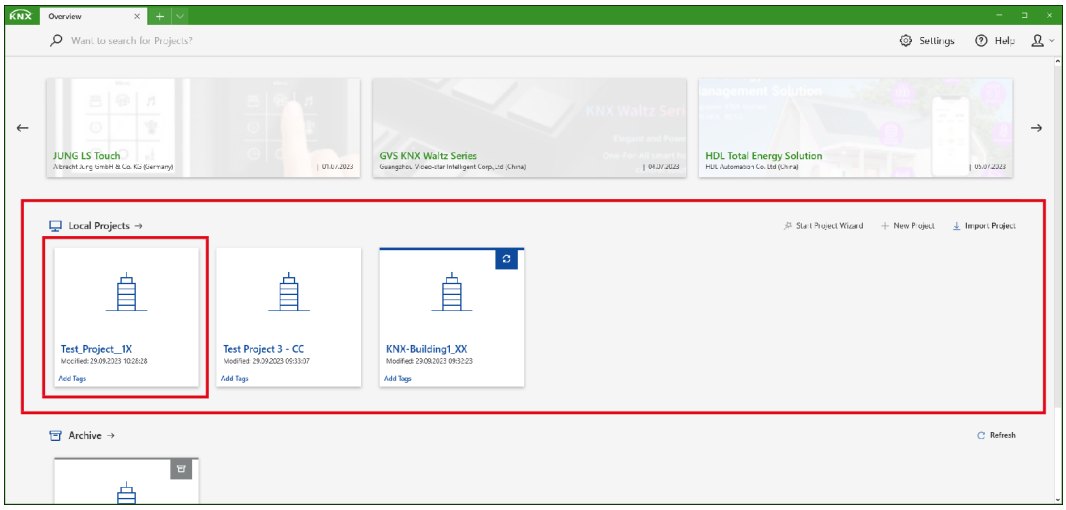


Figure 14: ETS6 Start View > “Local Projects” Area > Newly Imported KNX Project

4. Click the button for the newly imported project.

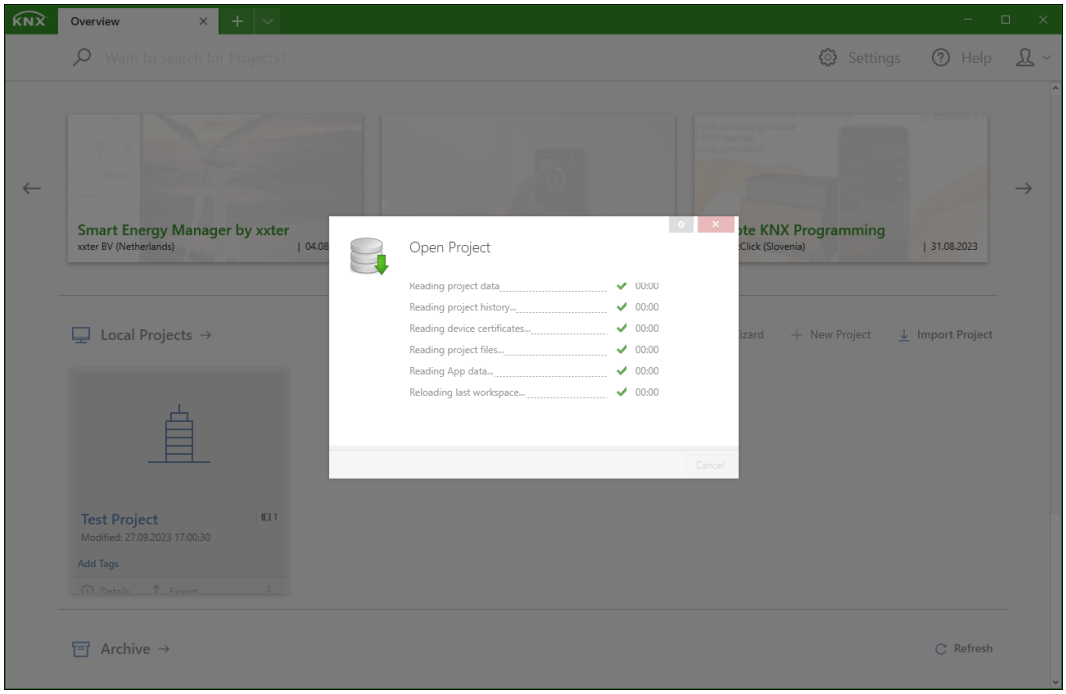


Figure 15: Progress of Loading Process: “Open Project”

⇨ The project is loaded, and the progress of the loading process is indicated.

➡ The project is open.

7.3 Start WAGO KNX DCA in ETS6

The procedure for calling up the WAGO KNX DCA software in the ETS interface depends on whether the software is already installed in ETS6. If the software is already installed, follow the steps in **Starting with KNX DCA Installed [▶ 25]**.

If the WAGO KNX DCA software is not yet installed in ETS6, follow the steps in **Starting without KNX DCA Installed [▶ 25]**.

7.3.1 Starting with KNX DCA Installed

✓ The WAGO KNX DCA software is installed.

✓ An ETS project is opened.

✓ A Version 1.1 device or higher is created in the project.

1. Switch to the Topology view in the ETS tree structure.
2. Select the device you want in the Topology view.
   ⇨ Note: The WAGO KNX DCA software is only suitable for devices Version 1.1 or higher.
   ⇨ The “DCA” tab appears in the workspace.
3. If necessary, switch to the “DCA” tab.
   ⇨ The contents of the WAGO KNX DCA software appear in the workspace.

➡ The WAGO KNX DCA software is started.

7.3.2 Starting without KNX DCA Installed

✓ An ETS project is opened.

✓ A Version 1.1 device or higher is created in the project.

1. Switch to the Topology view in the ETS tree structure.
2. Select the device you want in the Topology view.
3. If necessary, switch to the “Parameters” tab.
   ⇨ A message appears in the “Parameters” tab in the workspace stating that the WAGO KNX DCA software is required and a corresponding link for download.

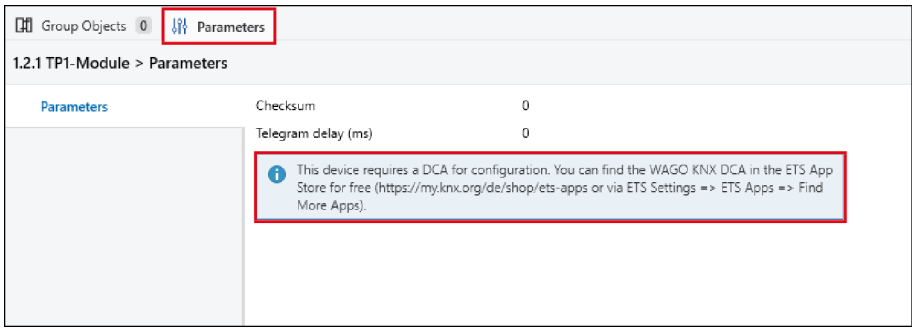


Figure 16: ETS6 > “Parameters” Tab > Note and Download Link for the WAGO KNX DCA Software (Example View for the 753-646 Module)

   ⇨ **Note:** The WAGO KNX DCA software is only suitable for device Version 1.1 or higher.
4. Download the WAGO KNX DCA software according to the displayed note or the steps in Downloading KNX DCA.
5. Install the software according to the steps in **Install [▶ 16]**.
6. Launch the WAGO KNX DCA software after installation according to the steps in **Starting with KNX DCA Installed [▶ 25]**.

➡ The WAGO KNX DCA software is started.

8 Graphical User Interface

The WAGO KNX DCA software is an app extension for ETS6.

The description of the software's graphical user interface also includes some parts of the ETS6 software to provide a better overview and to allow better naming for certain processes.

The description of the graphic elements for the WAGO KNX DCA software can be found at “DCA” Tab (ETS6) [▶ 26].

8.1 ETS6 Start View

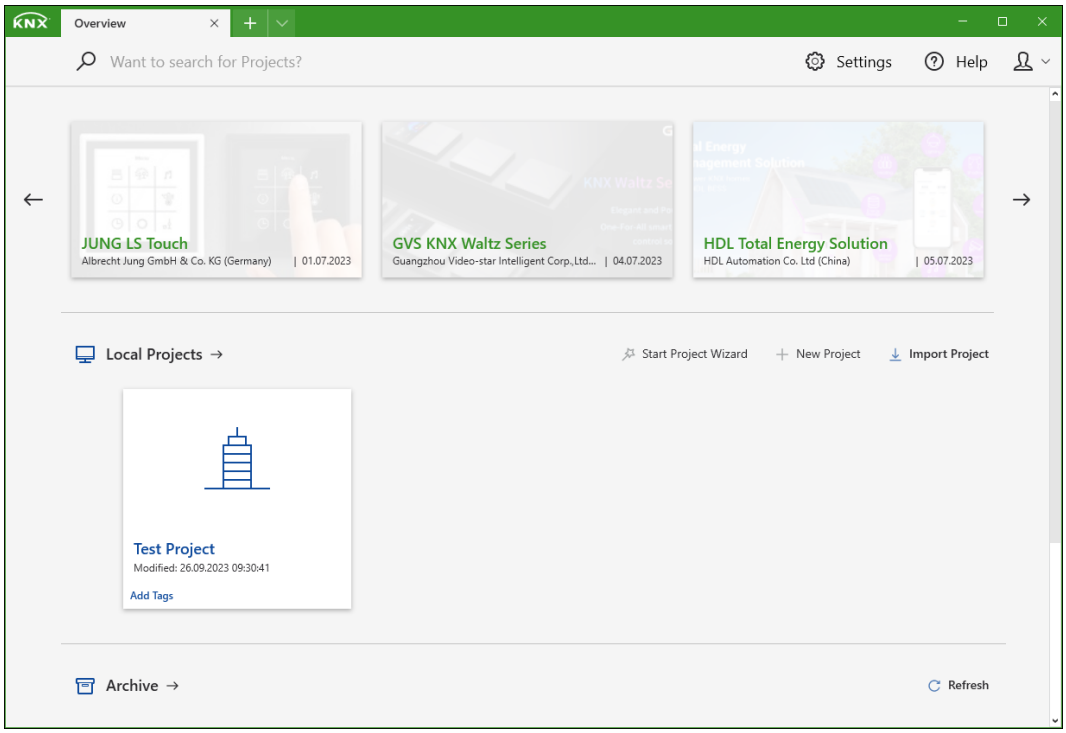


Figure 17: ETS6 Start View

8.2 “DCA” Tab (ETS6)

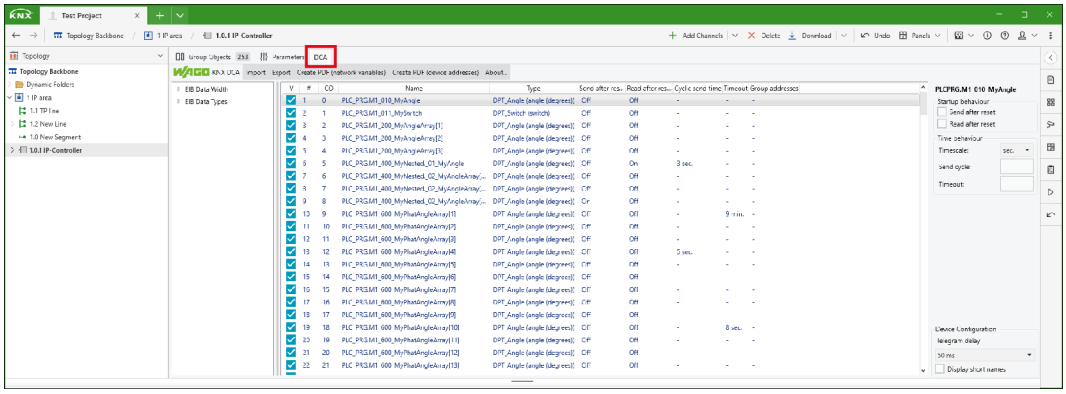


Figure 18: “DCA” Tab (ETS6) > WAGO KNX DCA Start View

8.2.1 “KNX DCA” Main View

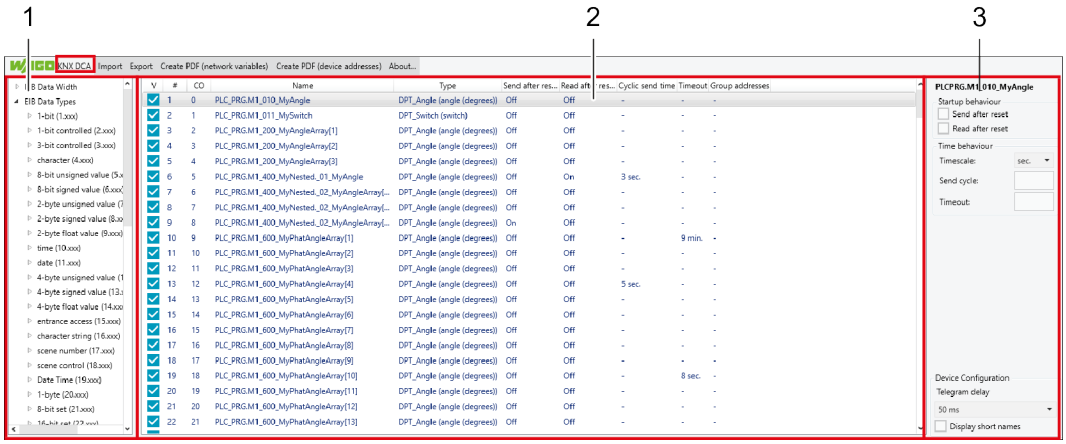


Figure 19: “KNX DCA” Main View

Pos.	Description
1	“(EIB)KNX Data Types and (EIB)KNX Data Width” Area
2	“Network Variable List” Area
3	“Variable Properties” Area and “Device Configuration” Area

8.2.1.1 “(EIB)KNX Data Types and Data Widths” Area

The “Network Variable List” can be filtered by KNX data width or KNX data type using the tree view in the “(EIB-)KNX Data Types and Data Widths” area. The KNX types represent the available data point types within the ETS. Depending on which data type is marked, only those network variables that correspond to the selected type appear in the “Network Variables List.”

The “(EIB)KNX Data Widths” tree node allows you to filter the network variables by data width and thus independently of the specific data type. This makes to possible to record new data widths that still lack a type.

Only one attribute can be entered as a filter. Multiple selection is not possible in the (EIB) KNX data types window.

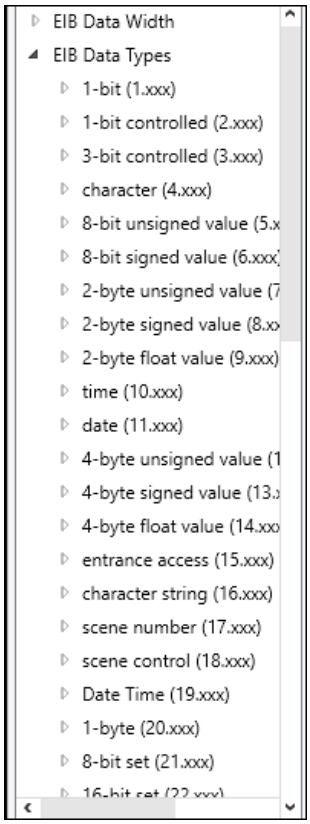


Figure 20: WAGO KNX DCA > “(EIB)KNX File Types and (EIB)KNX Data Widths” Area

A selection in the structure tree can be canceled by clicking on a higher-level node or by clicking in the empty area within the “(EIB)KNX File Types and (EIB)KNX Data Widths” area.

The footer of the “Network Variable List” area shows the number of selected network variables in the “(EIB)KNX File Types and KNX/EIB Data Widths” area.

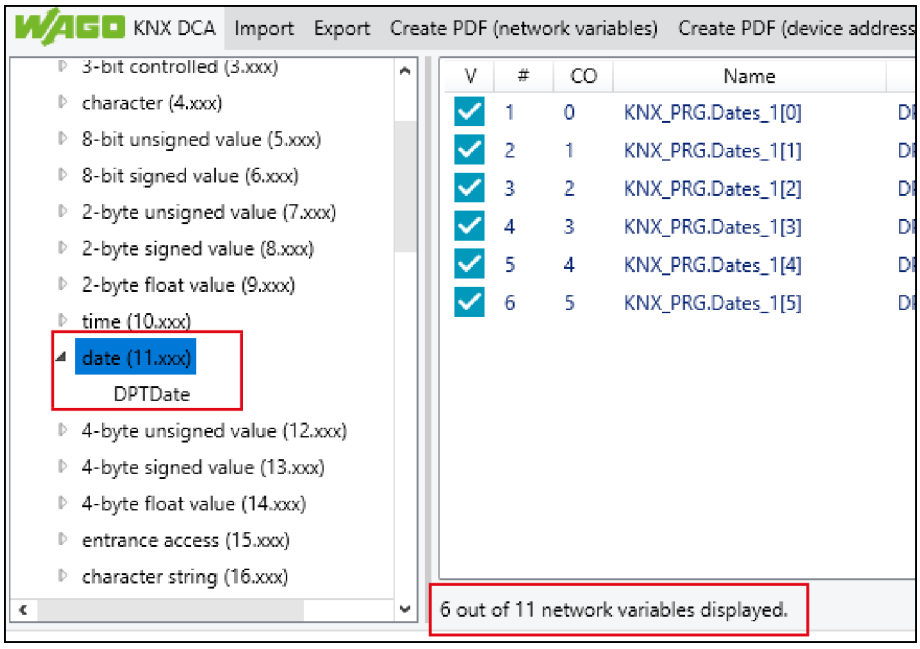
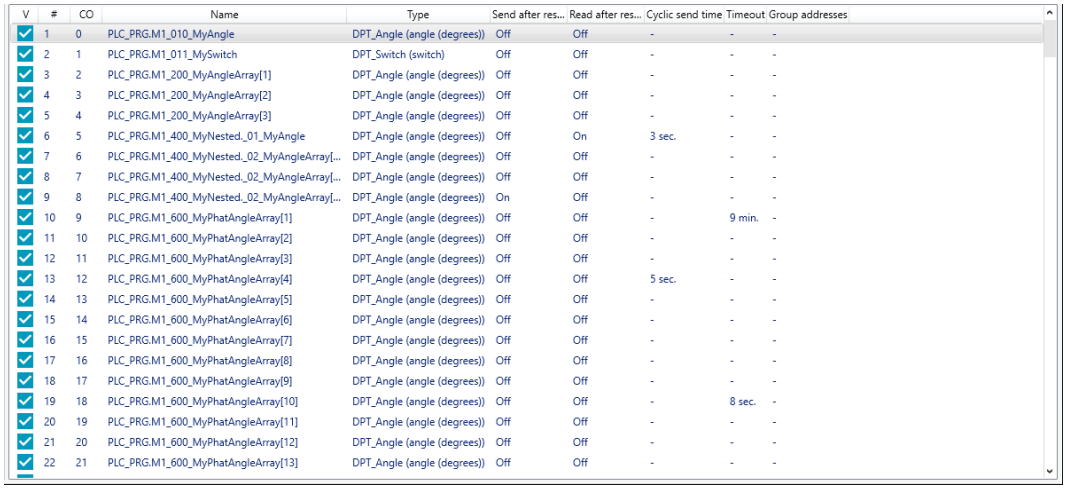


Figure 21: WAGO KNX DCA > Number of Selected Network Variables in the “(EIB)KNX File Types and (EIB)KNX Data Widths” area

8.2.1.2 “Network Variable List” Area

This area displays a list of existing network variables and their properties in the WAGO KNX DCA software. All available network variables that can be associated with group addresses from ETS are listed here. These network variables each have a specific data point type and can be filtered by this data type (see “(EIB)KNX Data Types and Data Widths” Area [▶ 27]).

The checkbox at the beginning of the line for each list entry specifies whether the corresponding network variable in ETS is visible as a communication object and appears in the topology list. Some of the current properties/values of the network variables, e.g., “Read after Reset,” can be edited in the “Variable Properties” area. Multiple variables can be edited simultaneously (see “Variable Properties” Area [▶ 30]).



V	#	CO	Name	Type	Send after res...	Read after res...	Cyclic send time	Timeout	Group addresses
☑	1	0	PLC_PRG.M1_010_MyAngle	DPT_Angle (angle (degrees))	Off	Off	-	-	-
☑	2	1	PLC_PRG.M1_011_MySwitch	DPT_Switch (switch)	Off	Off	-	-	-
☑	3	2	PLC_PRG.M1_200_MyAngleArray[1]	DPT_Angle (angle (degrees))	Off	Off	-	-	-
☑	4	3	PLC_PRG.M1_200_MyAngleArray[2]	DPT_Angle (angle (degrees))	Off	Off	-	-	-
☑	5	4	PLC_PRG.M1_200_MyAngleArray[3]	DPT_Angle (angle (degrees))	Off	Off	-	-	-
☑	6	5	PLC_PRG.M1_400_MyNested._01_MyAngle	DPT_Angle (angle (degrees))	Off	On	3 sec.	-	-
☑	7	6	PLC_PRG.M1_400_MyNested._02_MyAngleArray[...	DPT_Angle (angle (degrees))	Off	Off	-	-	-
☑	8	7	PLC_PRG.M1_400_MyNested._02_MyAngleArray[...	DPT_Angle (angle (degrees))	Off	Off	-	-	-
☑	9	8	PLC_PRG.M1_400_MyNested._02_MyAngleArray[...	DPT_Angle (angle (degrees))	On	Off	-	-	-
☑	10	9	PLC_PRG.M1_600_MyPhatAngleArray[1]	DPT_Angle (angle (degrees))	Off	Off	-	9 min.	-
☑	11	10	PLC_PRG.M1_600_MyPhatAngleArray[2]	DPT_Angle (angle (degrees))	Off	Off	-	-	-
☑	12	11	PLC_PRG.M1_600_MyPhatAngleArray[3]	DPT_Angle (angle (degrees))	Off	Off	-	-	-
☑	13	12	PLC_PRG.M1_600_MyPhatAngleArray[4]	DPT_Angle (angle (degrees))	Off	Off	5 sec.	-	-
☑	14	13	PLC_PRG.M1_600_MyPhatAngleArray[5]	DPT_Angle (angle (degrees))	Off	Off	-	-	-
☑	15	14	PLC_PRG.M1_600_MyPhatAngleArray[6]	DPT_Angle (angle (degrees))	Off	Off	-	-	-
☑	16	15	PLC_PRG.M1_600_MyPhatAngleArray[7]	DPT_Angle (angle (degrees))	Off	Off	-	-	-
☑	17	16	PLC_PRG.M1_600_MyPhatAngleArray[8]	DPT_Angle (angle (degrees))	Off	Off	-	-	-
☑	18	17	PLC_PRG.M1_600_MyPhatAngleArray[9]	DPT_Angle (angle (degrees))	Off	Off	-	-	-
☑	19	18	PLC_PRG.M1_600_MyPhatAngleArray[10]	DPT_Angle (angle (degrees))	Off	Off	-	8 sec.	-
☑	20	19	PLC_PRG.M1_600_MyPhatAngleArray[11]	DPT_Angle (angle (degrees))	Off	Off	-	-	-
☑	21	20	PLC_PRG.M1_600_MyPhatAngleArray[12]	DPT_Angle (angle (degrees))	Off	Off	-	-	-
☑	22	21	PLC_PRG.M1_600_MyPhatAngleArray[13]	DPT_Angle (angle (degrees))	Off	Off	-	-	-

Figure 22: WAGO KNX DCA > “Network Variable List” Area

Designation (Column)	Value	Description
	☑ / ☐	Checkbox for switching visibility in ETS on or off
#	(Table row number)	Sequential numbering of the table rows
CO	(Communication object number)	Communication object number in the ETS topology The communication object number is assigned automatically.
Name	(Network variable name)	The network variable name is taken from CODESYS and prefixed with the “Program Name.” If the corresponding setting is made in the “Variable Properties” area, only the short name appears, and the program name is hidden (see “Variable Properties” Area [▶ 30]).
Type	(Data point type name or, if typeless, size + unit of data width)	Data point type name If the data point has no type, its data width is shown.
Send after reset	On/off	Indicates whether the current value should be sent on the bus automatically if the fieldbus controller is reset. This function can be used to initialize the corresponding group object.
Read after reset	On/off	Indicates whether the current value should be read from the bus automatically if the fieldbus controller is reset. This function can be used to initialize the associated function block.
Timeout	(Amount + unit)	The data point has a watchdog and expects an update within the specified time.

Designation (Column)	Value	Description
Cyclic sending	(Amount + unit)	Time interval for repeated cyclic sending
Group addresses	(x/x/x)	Assigned KNX group addresses A data point can be linked to multiple group addresses. Associations between data points and group addresses are established in the ETS Topology window. The maximum number of group addresses can be found here Maximum Possible Number of Product Properties [▶ 15].

See also

- “(EIB)KNX Data Types and Data Widths” Area [▶ 27]
- “Variable Properties” Area [▶ 30]

8.2.1.3 “Variable Properties” Area

The “Variable Properties” area displays the properties of the selected network variables. The properties can be read or written here. The settings made are immediately updated in the “Network Variable List” table.

To change the properties of multiple network variables at the same time, you can mark multiple rows in the “Network Variables List” at the same time. Changes you make in the “Variable Properties” area then apply to all network variables marked in the list. Checkboxes for which the selected network variables differ are highlighted in blue.

The settings in the “Start Behavior” and “Time Response” sections relate to the network variables selected.

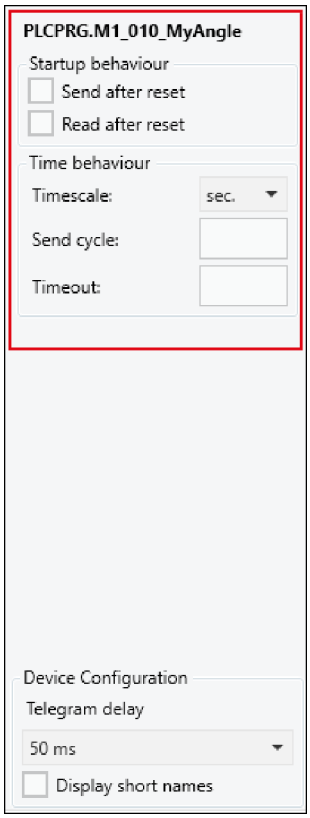


Figure 23: WAGO KNX DCA > “Variable Properties” Area

Designation	Value	Description	Read/ Write
Name	(Dialog title)	If a network variable is selected: Name of the selected network variable	R
		If multiple network variables are selected: Number of selected variables	
Start Behavior			
Send after reset	☑	Values are updated after a device reset. Values are updated in the event of a power reset, node reset from ETS and IEC application software reset.	R/W
	☐	Values are not updated after a device reset.	
Read after reset	☑	The device reads the current value from the bus automatically after a device reset.	R/W
	☐	The device does not automatically read the current value from the bus after a device reset.	
Time Response			
Time Base	**Sec.**	Change of the time base to seconds. Only enabled if the **Send Cyclically** box or **Timeout** box is checked.	R + R/W
	Min.	Change of the time base to minutes. Only enabled if the **Send Cyclically** box or **Timeout** box is checked.	
Send Cyclically	**x**	The device sends its value to the bus at the interval set here.	R + R/W
Timeout	**x**	After a period of time without a telegram update, the device indicates a timeout on the corresponding FbDPT module in the PLC. The data point has a watchdog and expects a program update within the specified time.	R + R/W

8.2.1.4 “Device Configuration” Area

The settings in the “Device Configuration” section relate to the entire device.

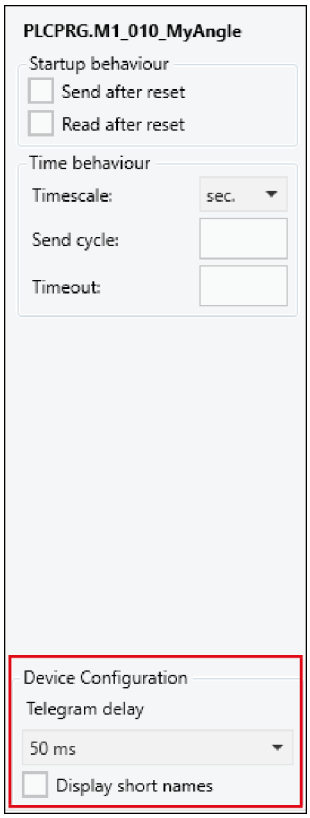
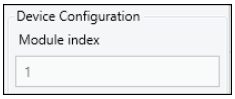


Figure 24: WAGO KNX DCA > “Device Configuration” Area

Designation	Value	Description	Read/ Write
Device Configuration			
Module Index	**x**	Selection of the KNX module number  	R + R/W
		Note: This field does not appear during controller selection.	
		Note: The selected module index affects the network variable names (see **Network Variable Name Syntax [▶ 12]**).	
		Note: If you operate a KNX module as the second I/O module of this type on a Controller KNX IP (Item No. 750-889), it functions as an I/O module in device mode. In contrast, the first KNX module works automatically in router mode. Although no access to the first KNX module via an IEC application is possible, the following second KNX module is addressed via index 2 (see also the manual of the Controller KNX IP, item number 750-889).	
Telegram Delay	**0 ms**	Selection of the minimum time delay that must be observed between successive telegrams. Default value: 0 ms	R + R/W
	50 ms		
	100 ms		
	250 ms		
	500 ms		
	1000 ms		
	1250 ms		
	1500 ms		
	1750 ms		
	2000 ms		

Designation	Value	Description	Read/ Write
Show Short Names	☑	The network variable names are displayed in short form, e.g., “Fb-DPT_Switch” instead of “PLC_PRG.M2_001_FbDPT_Switch.” You can find further information in **Syntax for Short Name [▶ 13]**.	R + R/W
	☐	The network variable names are displayed in complete form.	R + R/W

8.2.2 “Import” Button

The “Import” button can be used to import a Sym XML, backup or CSV file.

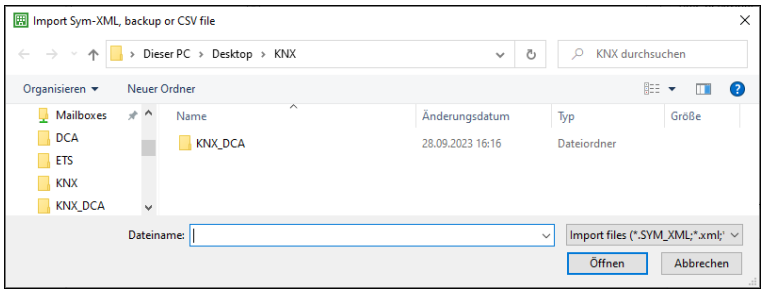


Figure 25: “Import” Button

Clicking the “Import” button opens a standard Windows dialog, “Import Sym XML, Backup or CSV File,” for selecting the file to be imported.

If network variables already exist in a project before an import, a prompt appears asking whether the existing variables should be merged with the newly imported ones or whether the new network variables should overwrite the existing ones in the project.

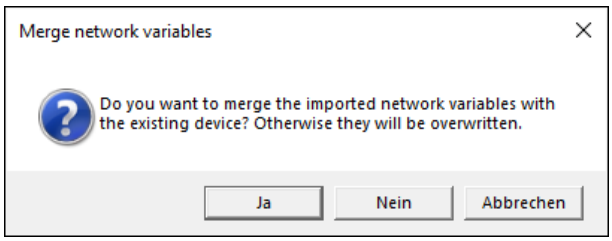


Figure 26: Note: “Merge Network Variables”

8.2.3 “Export” Button

The “Export” button can be used to export a backup or CSV file.

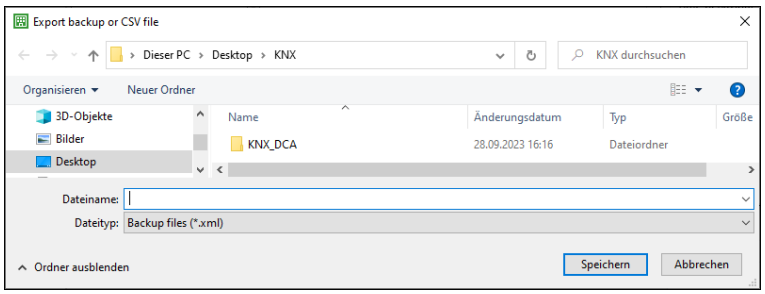


Figure 27: “Export” Button

Clicking the “Export” button opens a standard Windows dialog, “Export Backup or CSV File,” for selecting the file to export.

8.2.4 “Create PDF (by Network Variables)” Button

The “Create PDF (by Network Variables)” button can be used to create PDF documents.

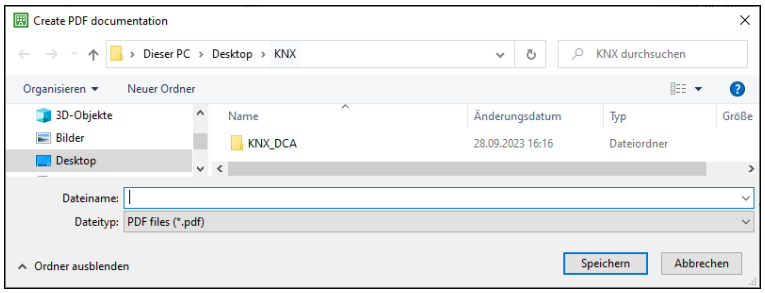


Figure 28: “Create PDF” Button

Clicking the “Create PDF (by Network Variables)” button opens a standard Windows dialog, “Create PDF Documentation,” for selecting the storage location for the PDF document to create.

8.2.5 “Create PDF (by Device Addresses)” Button

The “Create PDF (by Device Addresses)” button can be used to create PDF documents.

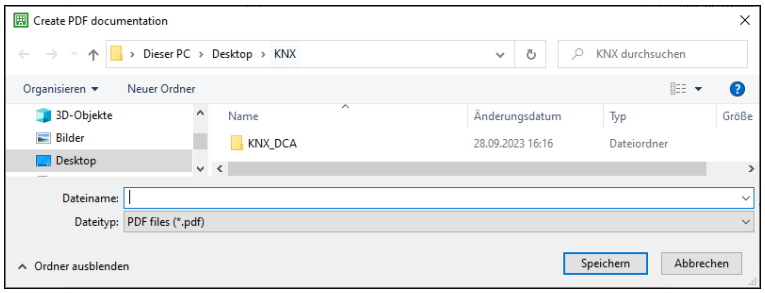


Figure 29: “Create PDF” Button

Clicking the “Create PDF (by Device Address)” button opens a standard Windows dialog, “Create PDF Documentation,” for selecting the storage location for the PDF document to create.

8.2.6 “About...” Button

The “About...” button can be used to access general information about the software, supported KNX modules, the manufacturer and support contact details.

8.3 “Parameters” Tab (ETS6)

ⓘ Note

Function depends on the KNX module used

The “KNXnet/IP Router” function can only be used with the KNX module 753-646.

On the “Parameters” tab, you can set up a KNXnet/IP router and adapt its IP parameters to the network.

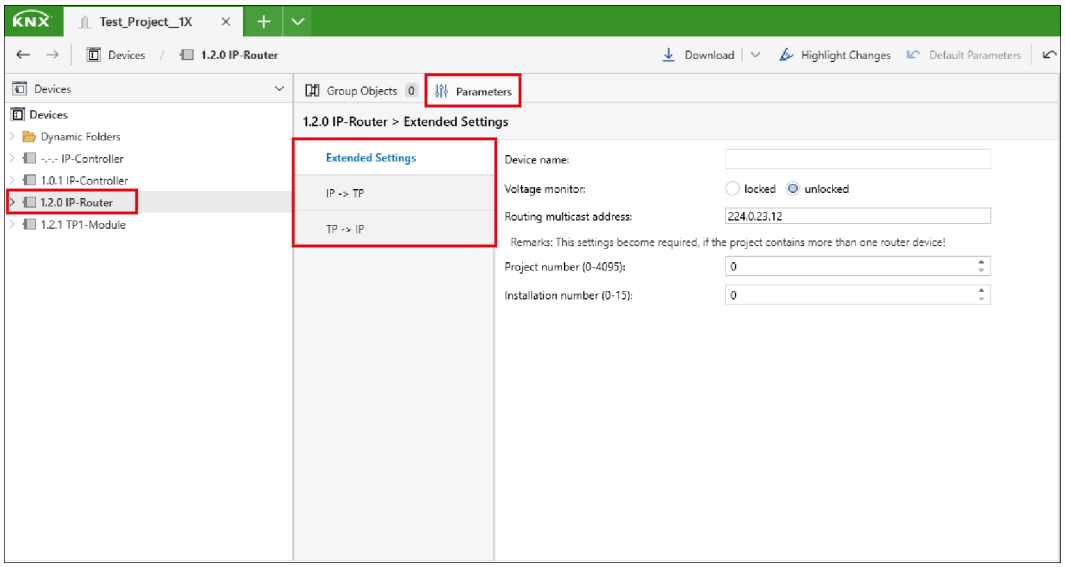


Figure 30: “Parameters“ Tab

8.3.1 “Advanced Settings” Sub-Item

Under the “Advanced Settings” sub-item, you can view and set general data such as the device name, project number and installation number.

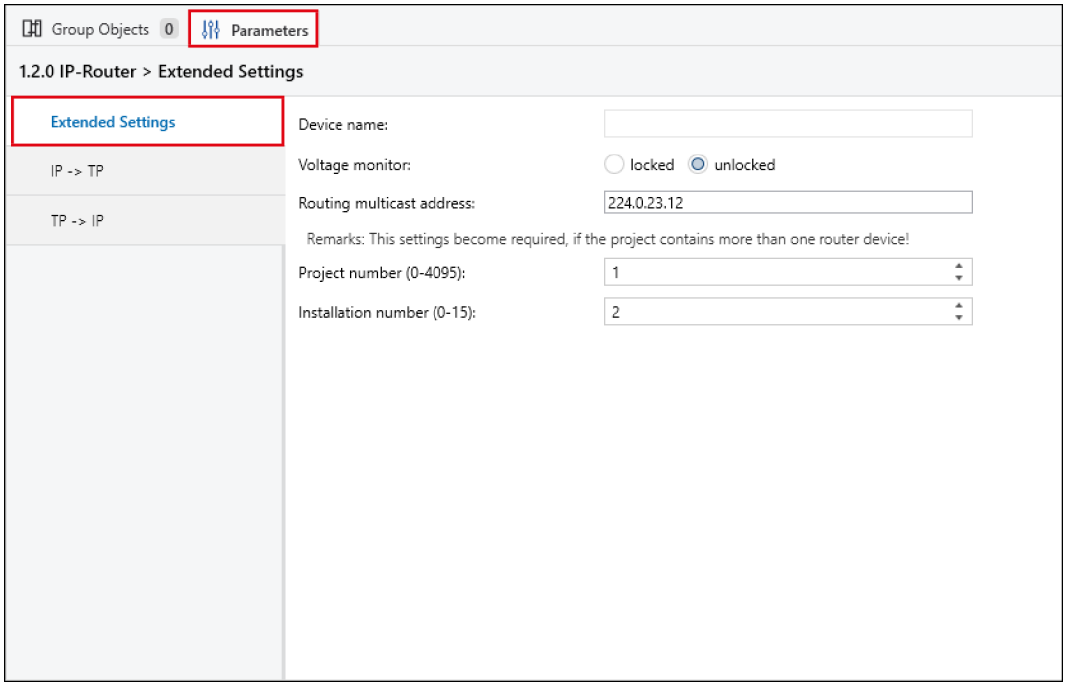


Figure 31: “Parameters” Tab > “Advanced Settings” Sub-Item

Parameters	Description	
Device Name	Freely selectable device name of at most 30 characters to identify the device in ETS	
Bus Power Failure	Behavior of the device in the event of bus power failure	
	Disabled	Power failure and power recovery are not reported.
	Enabled	Failure and recovery of the power on the bus line are reported by KNXnet/ IP (default).

Parameters	Description
Routing Multicast Address	IP address for KNXnet/IP routing: • Address reserved for KNXnet/IP: 224.0.23.12 • General address: 239.0.0.0 ... 239.255.255.255 • Valid address range: 224.0.0.0.0 ... 239.255.255.255
Project Number*	Project number setting
	Value range: 0 ... 4096
Installation Number*	Installation number setting
	Value range: 0 ... 15

* These settings are only required if the project contains more than one router!

8.3.2 “IP -> TP” Sub-Item

In the “IP -> TP” sub-item, you can set parameters for filtering and telegram confirmation that are sent from the IP medium to twisted pair (TP).

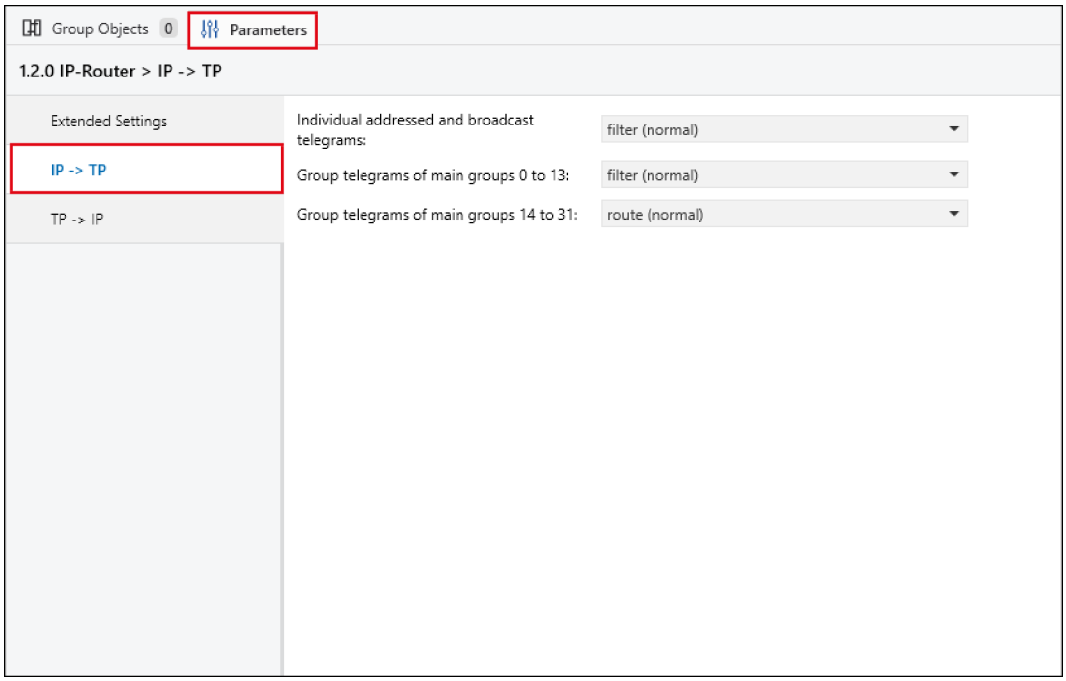


Figure 32: “Parameters” Tab > “IP -> TP” Sub-Item

Parameters	Adjustable Parameters		Description
Individually Addressed and Broadcast Telegrams	**Forward**	All telegrams are forwarded.	Using this selection box, you can specify how the physically addressed telegrams and broadcast telegrams should be filtered.
	Lock	No telegram is forwarded.	
	Filter (Normal)	Filtering is performed on the basis of the filter table.	
Group Telegrams of Main Groups 0 to 13	**Forward**	All telegrams are forwarded.	Using this selection box, you can specify how the telegrams of main groups 0 to 13 should be filtered.
	Lock	No telegram is forwarded.	
	Filter (Normal)	Filtering is performed on the basis of the filter table.	
Group Telegrams of Main Groups 14 to 31	**Forward**	All telegrams are forwarded.	Using this selection box, you can specify how the telegrams of main groups 14 to 31 should be filtered.

Parameters	Adjustable Parameters		Description
	Lock	No telegram is forwarded.	
	Filter (Normal)	Filtering is performed on the basis of the filter table.	

8.3.3 “TP -> IP” Sub-Item

In the “TP -> IP” sub-item, you can set parameters for filtering and telegram confirmation that are sent from the medium twisted pair (TP) to IP.

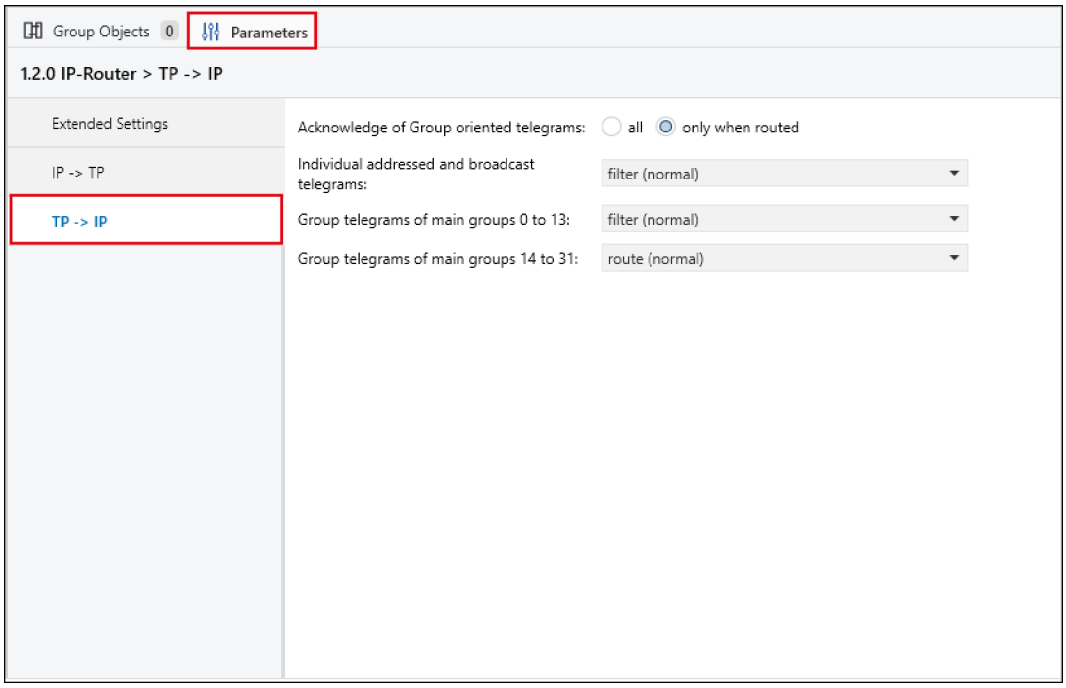


Figure 33: “Parameters” Tab > “TP -> IP” Sub-Item

Parameters	Adjustable Parameters		Description
Telegram Confirmation of Group-Oriented Telegrams	**Always**	All telegrams are confirmed.	Using this selection field, you can specify how telegram confirmation should be performed for group-oriented telegrams.
	Only When Forwarding	All forwarded telegrams are confirmed.	
Physically Addressed and Broadcast Telegrams	**Forward**	All telegrams are forwarded.	Using this selection box, you can specify how the physically addressed telegrams and broadcast telegrams should be filtered.
	Lock	No telegrams are forwarded.	
	Filter (Normal)	Filtering is performed on the basis of the filter table.	
Group Telegrams of Main Groups 0 to 13	**Forward**	All telegrams are forwarded.	Using this selection box, you can specify how the telegrams of main groups 0 to 13 should be filtered.
	Lock	No telegrams are forwarded.	
	Filter (Normal)	Filtering is performed on the basis of the filter table.	
Group Telegrams of Main Groups 14 to 31	**Forward**	All telegrams are forwarded.	Using this selection box, you can specify how the telegrams of main groups 14 to 31 should be filtered.
	Lock	No telegrams are forwarded.	

Parameters	Adjustable Parameters		Description
	Filter (Normal)	Filtering is performed on the basis of the filter table.	

9 Operation

Note

Autosave!

The ETS6 software saves projects automatically. This includes the configuration in the DCA. Manual saving is not possible in the WAGO KNX DCA software.

9.1 Import Configuration

Operation of a KNX bus module and a Controller KNX IP requires specific configurations. These are generated with CODESYS and exported to a symbol file. Under CODESYS V2.3, these symbol files are saved in “*.SYM_XML” format. In CODESYS V3, these files are saved in “*.XML” format.

✓ The WAGO KNX DCA software is installed.

✓ An ETS project is opened.

✓ A Version 1.1 device or higher is created in the project.

✓ There is an exported configuration file.

✓ The module index is correct for the device to be exported.

1. Select the corresponding device in the “Devices” area of the ETS – TP1 module (753-646) or KNX TP Secure Interface (753-1646).

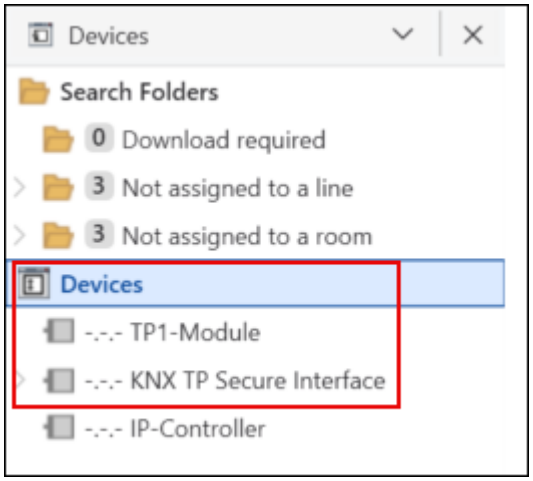


Figure 34: ETS > “Devices” Area

⇨ The contents and setting options of the device appear in the workspace.

⇨ When a device is initially configured, a link to import a configuration file (SYM_XML or xml file) appears in the workspace instead of the device settings. If this is the case, you can import the file via the direct link and ignore the further steps.

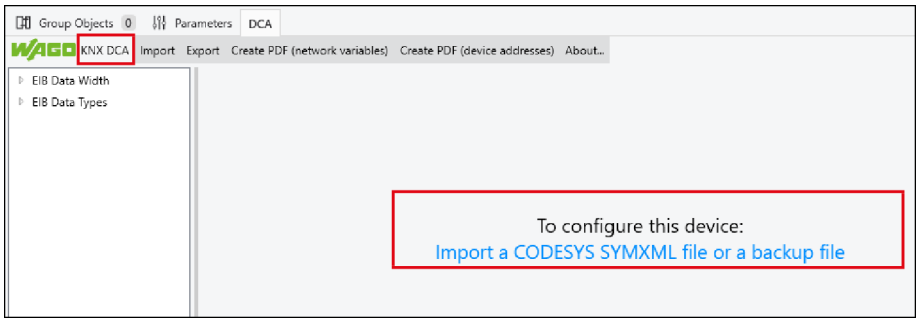


Figure 35: Direct Link to Import a Configuration File during Initial Device Configuration

2. In the workspace, select the “DCA” tab in the top row of tabs.

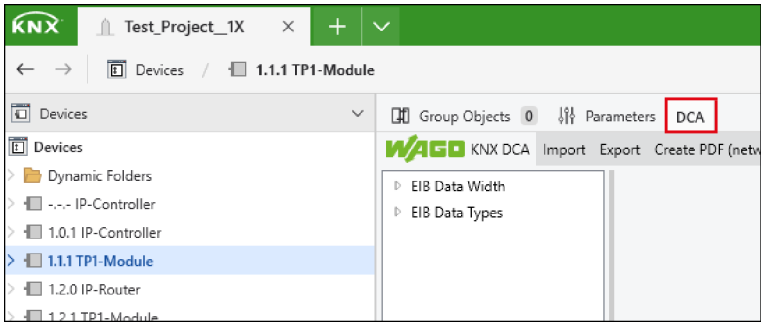


Figure 36: ETS > “DCA” Tab

⇨ The settings options for the WAGO KNX DCA software appear in the workspace.

3. Select the “Import” button in the lower tab row.

⇨ Before starting the import, check whether the module index for the device is set correctly (see **“Device Configuration” Area [▶ 31]**).

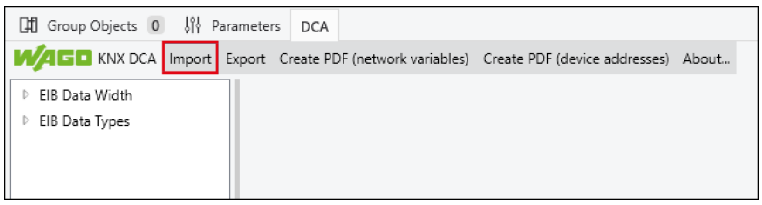


Figure 37: Software WAGO KNX DCA > “Import” Button

⇨ A standard Windows dialog appears: “Import Sym_XML, Backup or CSV File.”

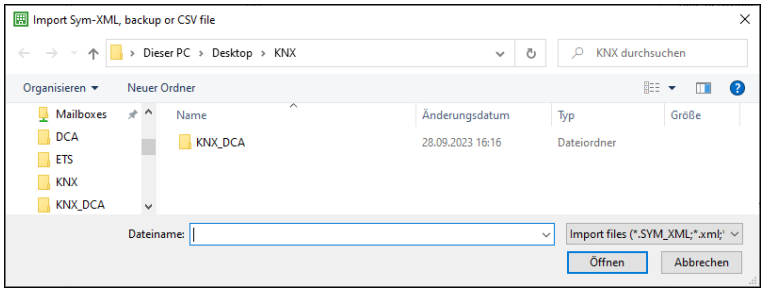


Figure 38: Standard Windows Dialog: “Import Sym XML, Backup or CSV File” > File Selection

4. Select the file to import.
5. Start the import by clicking **[Open]**.

⇨ If network variables already exist in the project, a prompt asks whether they should be merged with the newly imported network variables or whether the network variables that already exist in the project should be overwritten.

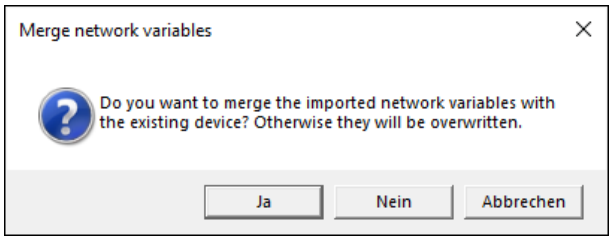


Figure 39: Note: “Merge Network Variables”

➡ The configuration is imported.

9.2 Export Configuration

✓ The WAGO KNX DCA software is installed.

✓ An ETS project is opened.

✓ A Version 1.1 device or higher is created in the project.

1. Select the corresponding device in the “Devices” area of the ETS – TP1 module (753-646) or KNX TP Secure Interface (753-1646).

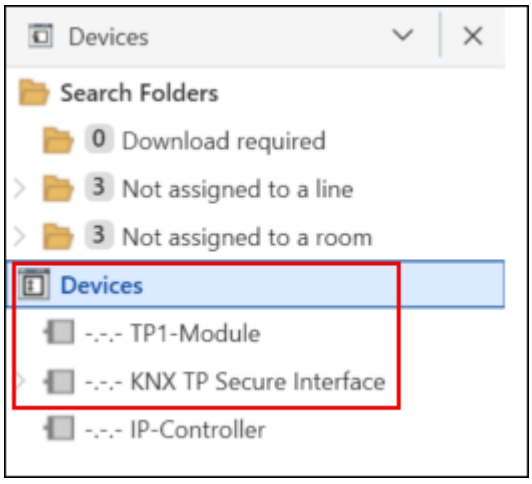


Figure 40: ETS > “Devices” Area

⇨ The contents and setting options of the device appear in the workspace.

2. In the workspace, select the “DCA” tab in the top row of tabs.

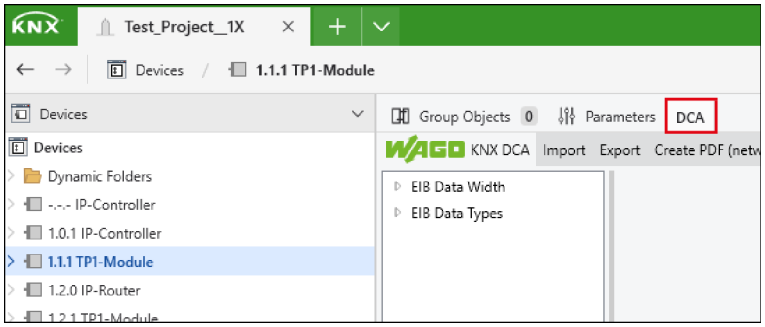


Figure 41: ETS > “DCA” Tab

⇨ The settings options for the WAGO KNX DCA software appear in the workspace.

3. Select the “Export” tab in the lower tab line.

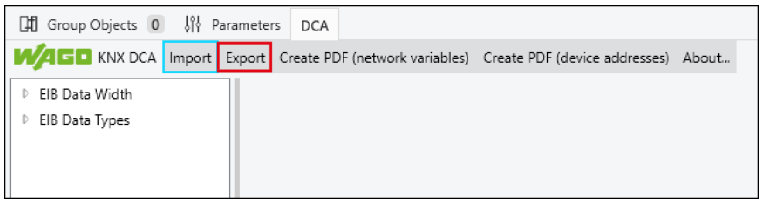


Figure 42: The WAGO KNX DCA software > “Export” Tab

⇨ A standard Windows dialog appears: “Export Backup or CSV File.”

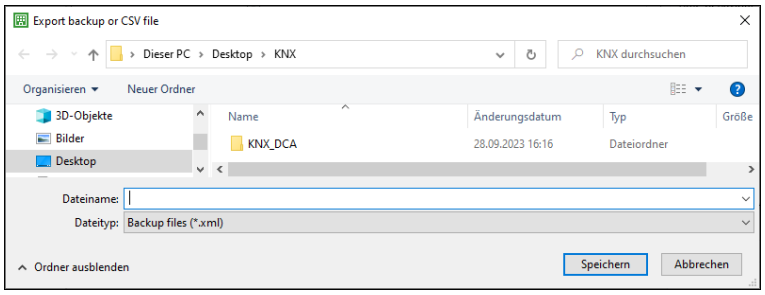


Figure 43: Standard Windows Dialog: “Export Backup or CSV File” > Name Entry

4. Enter a name for the file to export.
5. Start the export by clicking **[Save]**.

➡ The configuration is exported.

9.3 Associate Network Variables and Group Addresses

The basic task of the ETS software is to visualize the associations between network variables of the KNX module or Controller KNX IP and the group addresses in ETS and to allow them to be edited.

9.3.1 Creating an Association

Create an Association by Dragging and Dropping

Associations between communication objects and group addresses are created by dragging and dropping in ETS.

✓ An ETS project is opened.

✓ A Version 1.1 device or higher is created in the project.

✓ A configuration with network variables and group addresses has been created/imported.

1. In ETS6, open the “Topology” view.
2. In ETS6, also open the “Group Addresses” view.
3. Holding the right mouse button down, drag the network variable of your choice from the “Topology” view to the group address of your choice in the “Group Addresses” view.

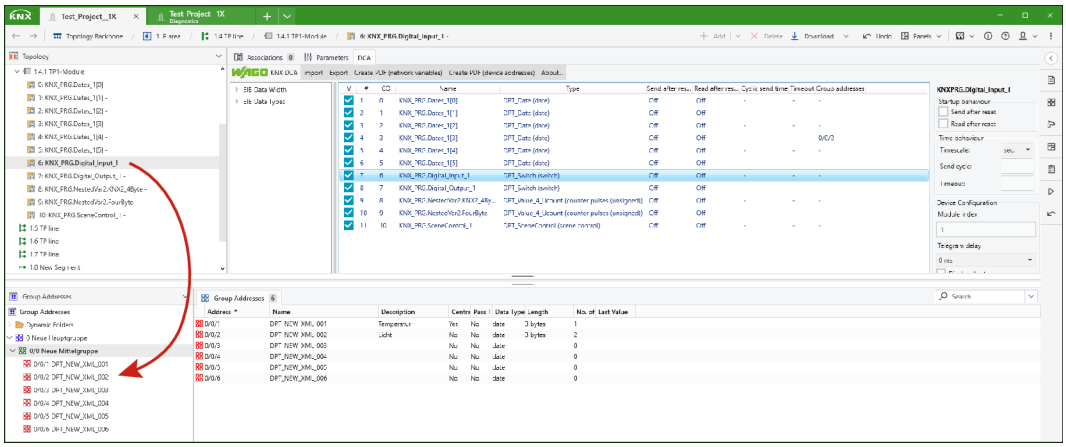


Figure 44: Create an Association by Dragging and Dropping

⇨ **Note:** Invalid association attempts are detected and indicated.

⇨ **Note:** If a group address is associated with a network variable, further network variables must be of the same type for association with this group address.

➡ The association has been created.

Create an Association via the Context Menu

As an alternative to the drag-and-drop method, you can also create the association from the context menu of the relevant communication object.

✓ An ETS project is opened.

✓ A Version 1.1 device or higher is created in the project.

✓ A configuration with network variables and group addresses has been created/imported.

1. Right-click on a communication object in the “Topology” view.

   ⇨ A context menu appears.

2. Select the **[Associate with ...]** menu item in the communication object’s context menu.

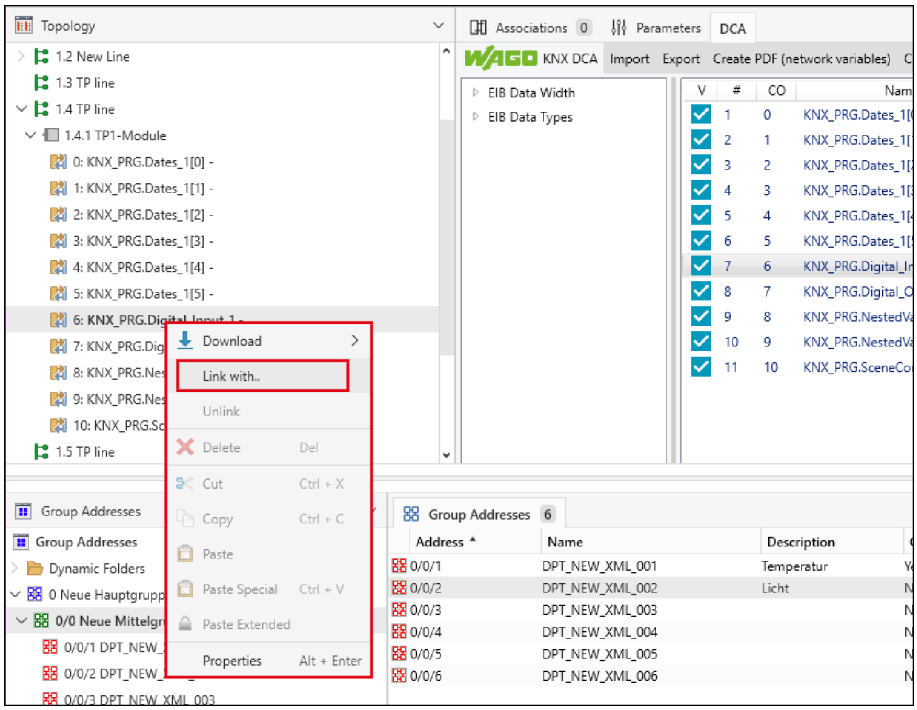


Figure 45: “Topology” View > Context Menu for Communication Object

⇨ The “Associate with Group Address” dialog appears.

3. To select an existing group address, use the list.

⇨ Within the list, you can search for group addresses using the “Search” field.

⇨ The selected group address appears in the dialog at the bottom of the “Group Address” area.

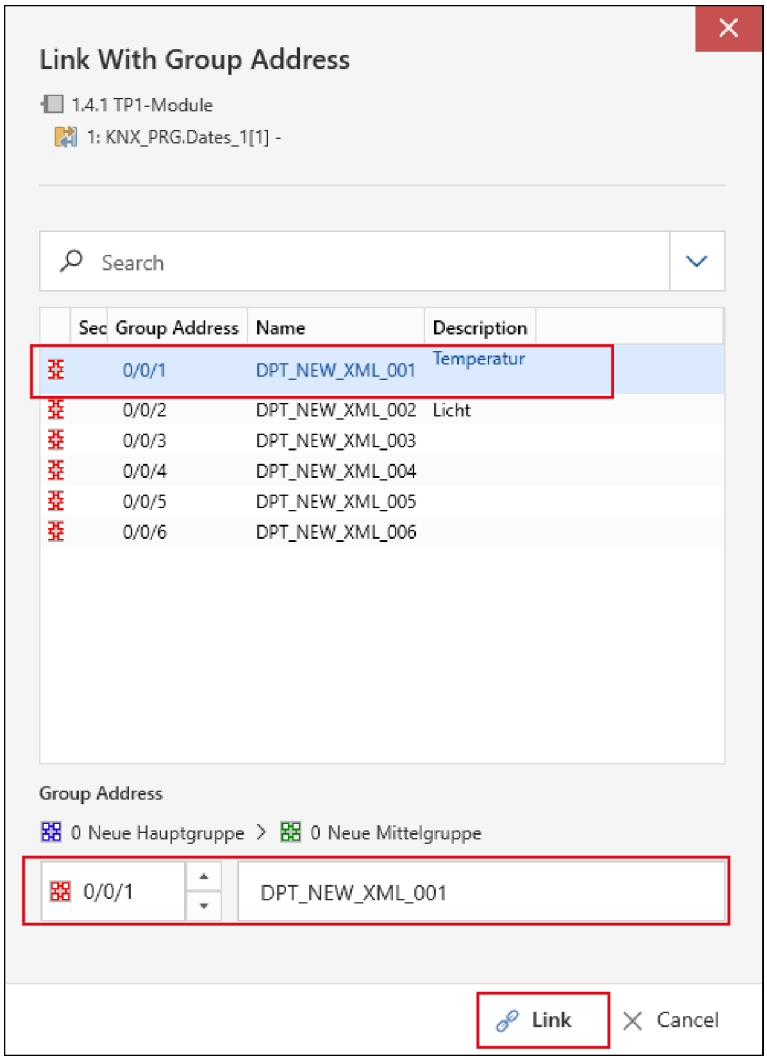


Figure 46: “Associate with Group Address” Dialog > Selecting Existing Group Address from List

4. Alternatively, you can create a new group address in the dialog at the bottom of the “Group Address” area; this address is then associated with the network variable immediately.

   ⇨ To create a new group address, enter the new group address to create and a name in the two fields below.

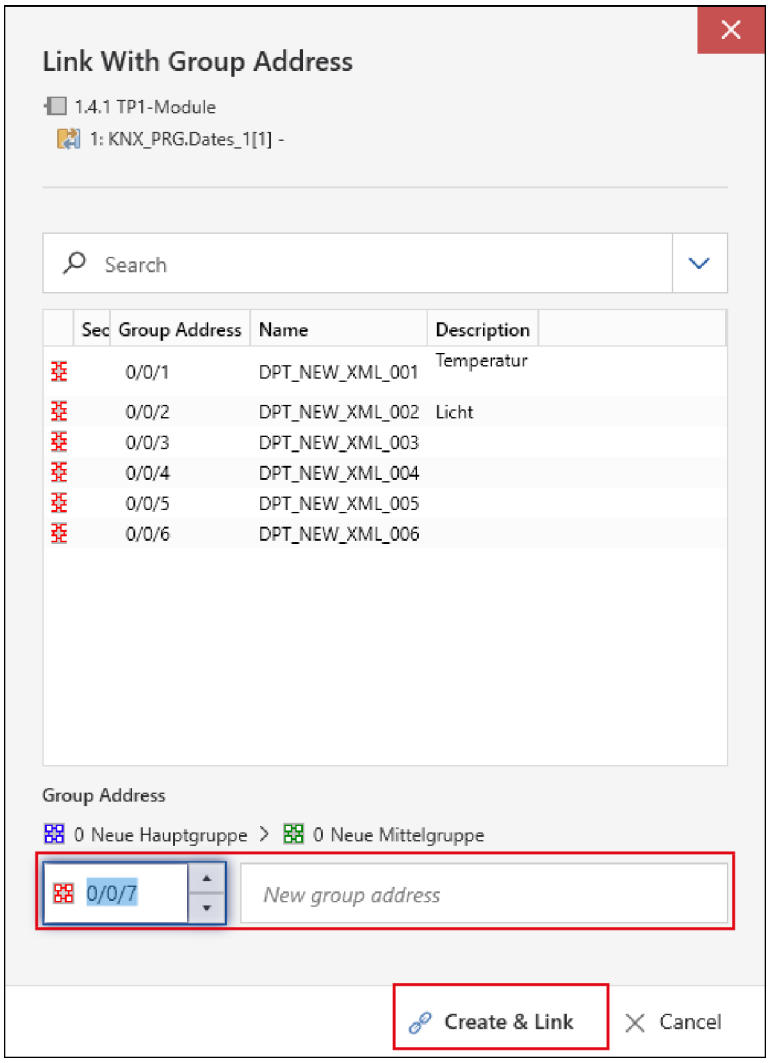


Figure 47: “Associate with Group Address” Dialog > Create a New Group Address

⇨ **Note:** The syntax of the group address is checked when entered. If the entry is invalid, the input field is outlined in red; no [Create & Associate] button appears.

⇨ If you have entered a correct group address (x/x/x) and a name (free text), the **[Create & Associate]** button appears.

5. Click the **[Connect]** button if you have selected an existing group address, or the **[Create & Connect]** button if you have entered a new group address.

➡ The association has been created.

9.3.2 Deleting an Association

✓ An ETS project is opened.

✓ A Version 1.1 device or higher is created in the project.

✓ Associations exist between network variables and group addresses.

1. Right-click on an object in the Group Addresses view.

   ⇨ A context menu appears.

2. Click the **[Disconnect]** menu item to remove the association between the relevant communication object and the group address.

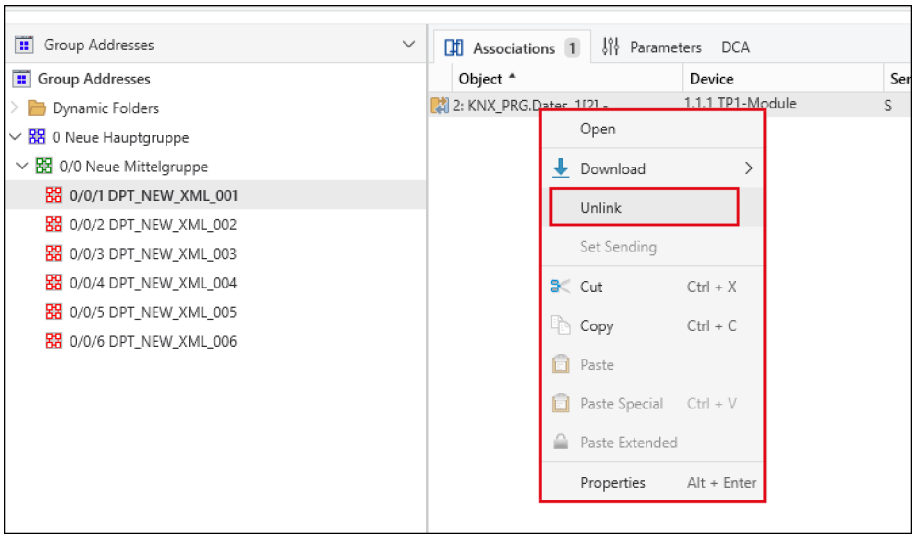


Figure 48: Delete an Association

➡ The association is deleted.

9.4 Create PDF Documentation

✓ The WAGO KNX DCA software is installed.

✓ An ETS project is opened.

✓ A Version 1.1 device or higher is created in the project.

1. Select the corresponding device in the “Devices” area of the ETS – TP1 module (753-646) or KNX TP Secure Interface (753-1646).

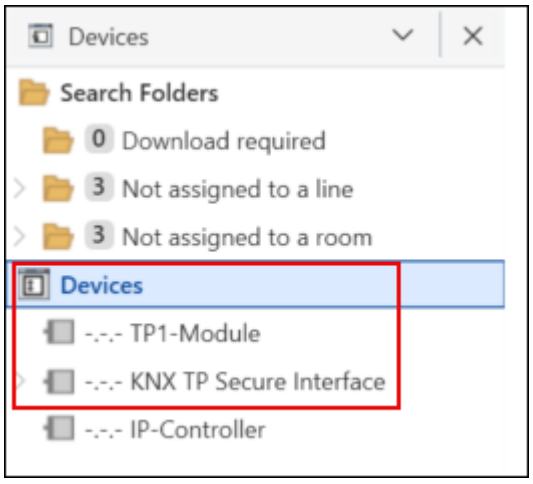


Figure 49: ETS > “Devices” Area

⇨ The contents and setting options of the device appear in the workspace.

2. In the workspace, select the “DCA” tab in the top row of tabs.

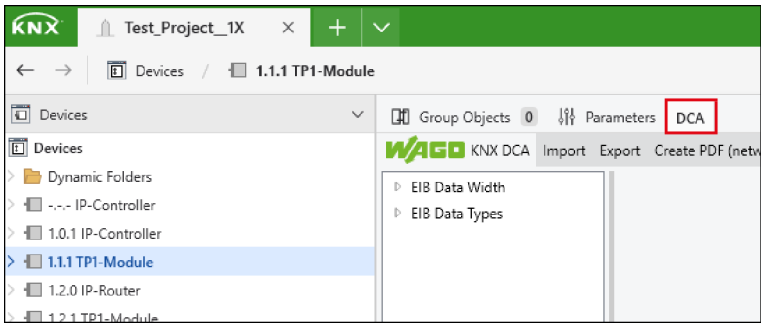


Figure 50: ETS > “DCA” Tab

⇨ The settings options for the WAGO KNX DCA software appear in the workspace.

3. Select one of the two tabs “Create PDF (by Network Variables)” or “Create PDF (by Device Addresses)” in the lower tab row.

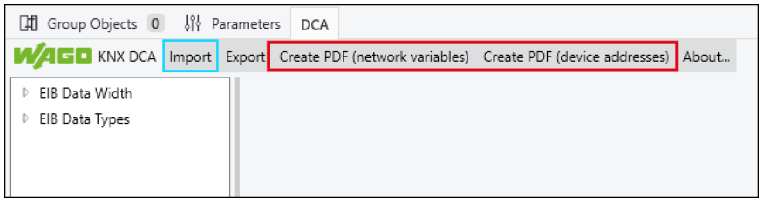


Figure 51: The WAGO KNX DCA software > “Create PDF (by Network Variables)” Tab and “Create PDF (by Network Variables)” Tab

⇨ A standard Windows dialog appears: “Create PDF Documentation.”

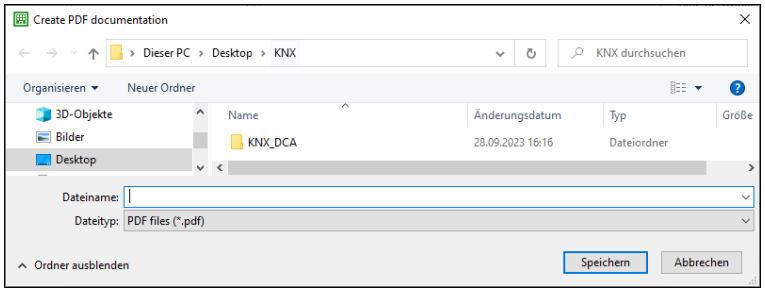


Figure 52: Standard Windows Dialog: “Create PDF Documentation”

4. Enter a name for the PDF documentation you want to create.
5. Start the process by clicking **[Save]**.

➡ The documentation is created.

9.5 Parameterize the KNXnet/IP Router in ETS6

ⓘ Note

Function depends on the KNX module used

The “KNXnet/IP Router” function can only be used with the KNX module 753-646.

In this step, you can parameterize a KNXnet/IP router in ETS6.

The following steps are performed in the course of this action. The illustrations and descriptions of the individual dialogs for the action can be found in **Graphical User Interface [▶ 26]**.

✓ The project already contains a KNXnet/IP router.

1. Select the IP router in the ETS Topology area.

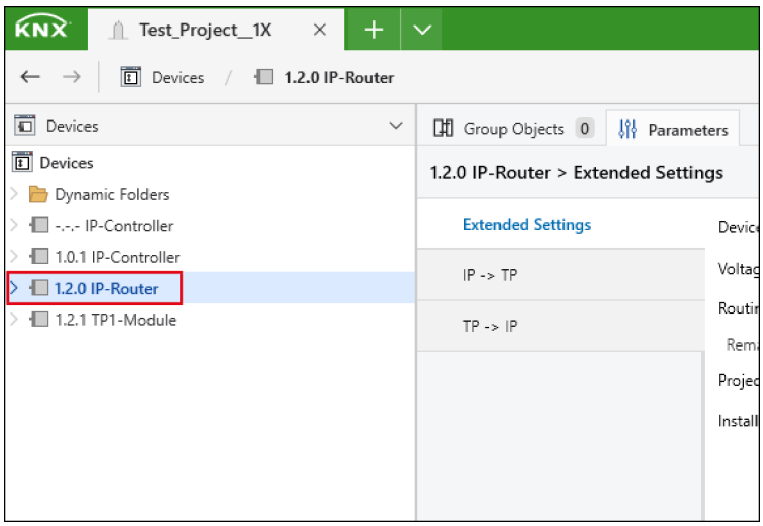


Figure 53: Structure Tree > Devices > Select Router

2. If necessary, switch from the “Communication Objects” tab to the “Parameters” tab to display the device settings.

   ⇨ The following sub-items are visible: “Advanced Settings,” “IP -> TP” and “TP -> IP.”

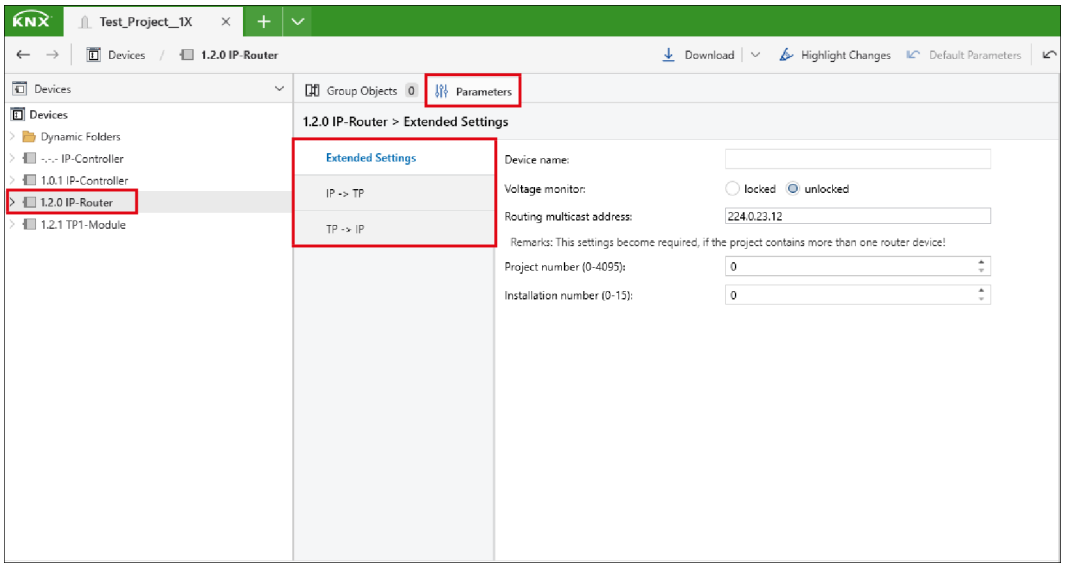


Figure 54: KNXnet/IP Router: “Parameters” Tab

3. Make the settings you want in the sub-items.

   ⇨ Detailed information on the settings options is available in **“Parameters” Tab (ETS6) [▶ 34]**.

➡ The KNXnet/IP router is configured.

10 Uninstall

10.1 Uninstall WAGO KNX DCA

✓ The WAGO KNX DCA software is installed.

1. On the ETS Start view, click **[Settings]**.

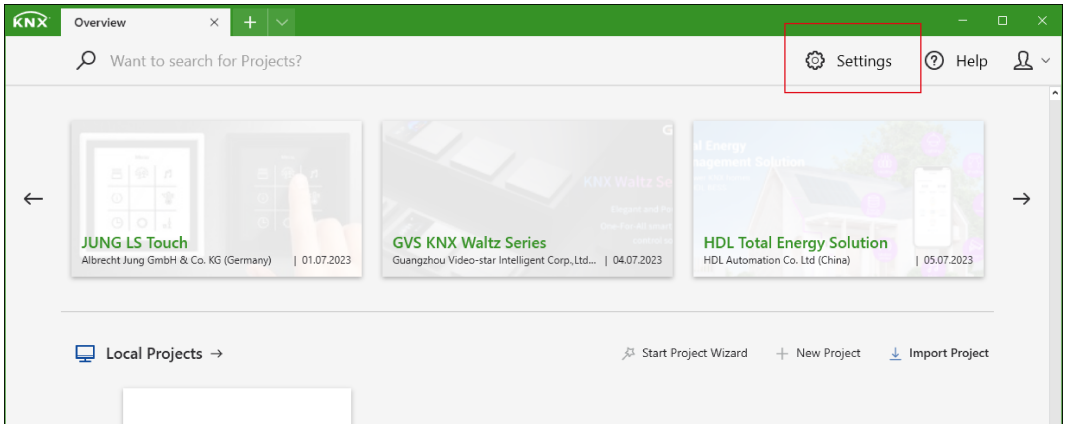


Figure 55: ETS6 Start View > “Settings” Button

⇨ The “Settings” dialog opens.

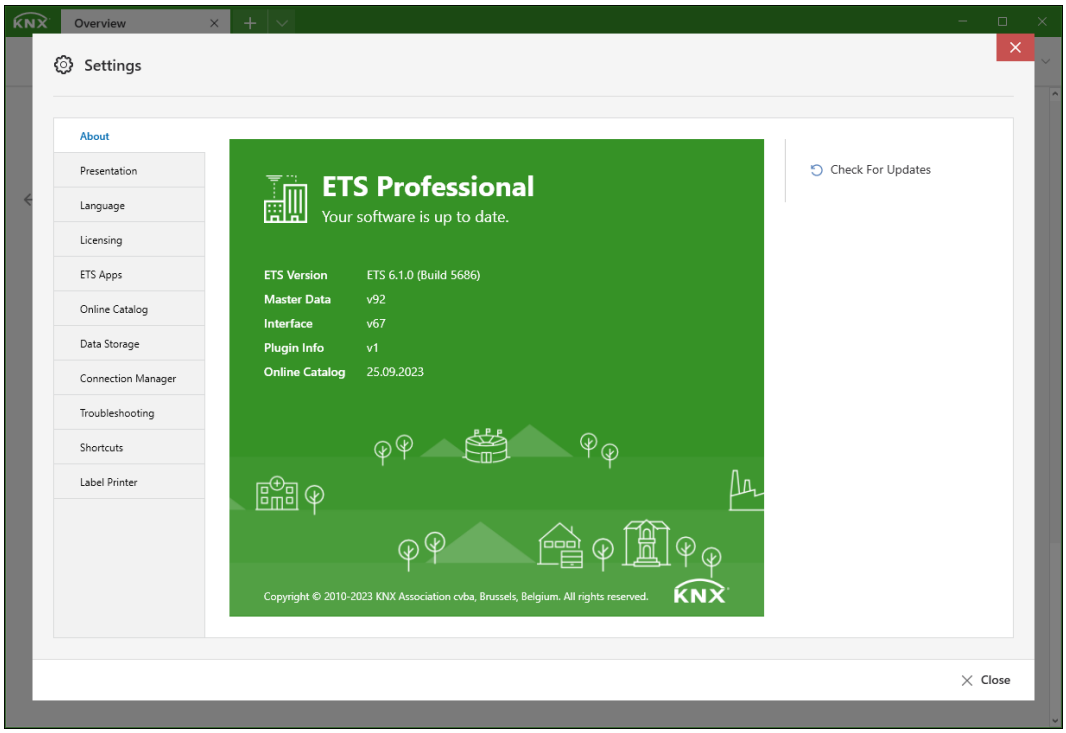


Figure 56: ETS6 > “Settings” Dialog

2. Click the **[ETS Apps]** item within the sub-items of the Settings dialog.

⇨ An overview of the apps installed in ETS appears.

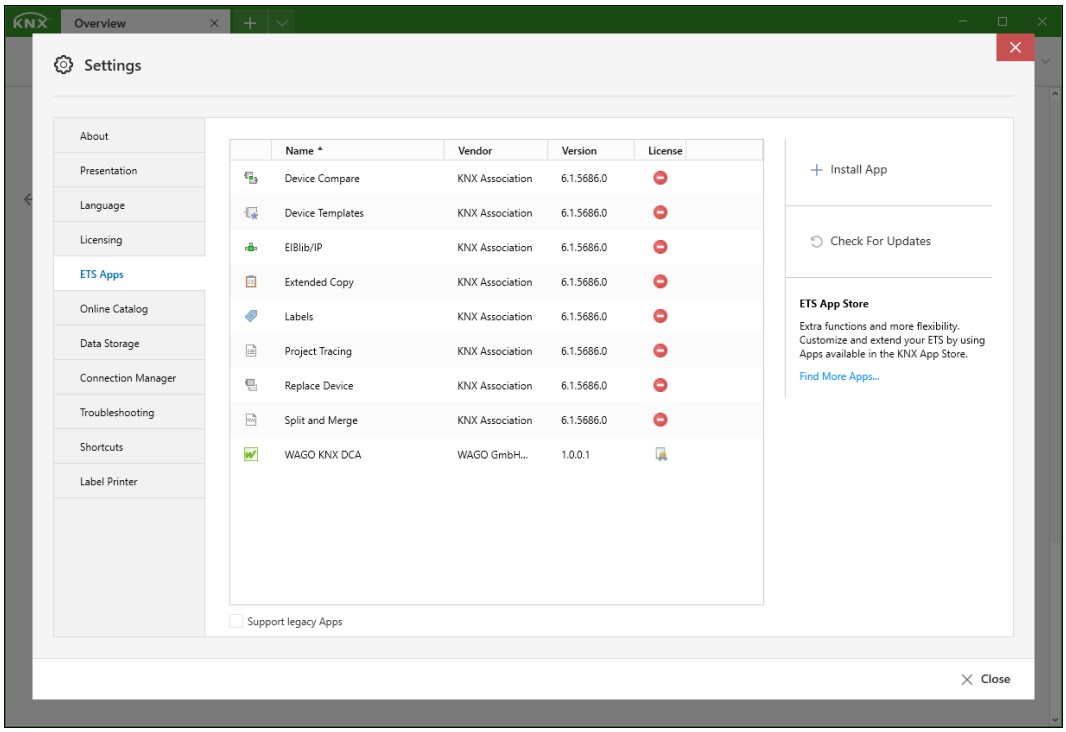


Figure 57: ETS6 > Settings > ETS Apps (WAGO KNX DCA Installed)

3. Select the WAGO KNX DCA software to use.

   ⇨ The **[Uninstall]** button appears.

4. Click **[Uninstall]**.

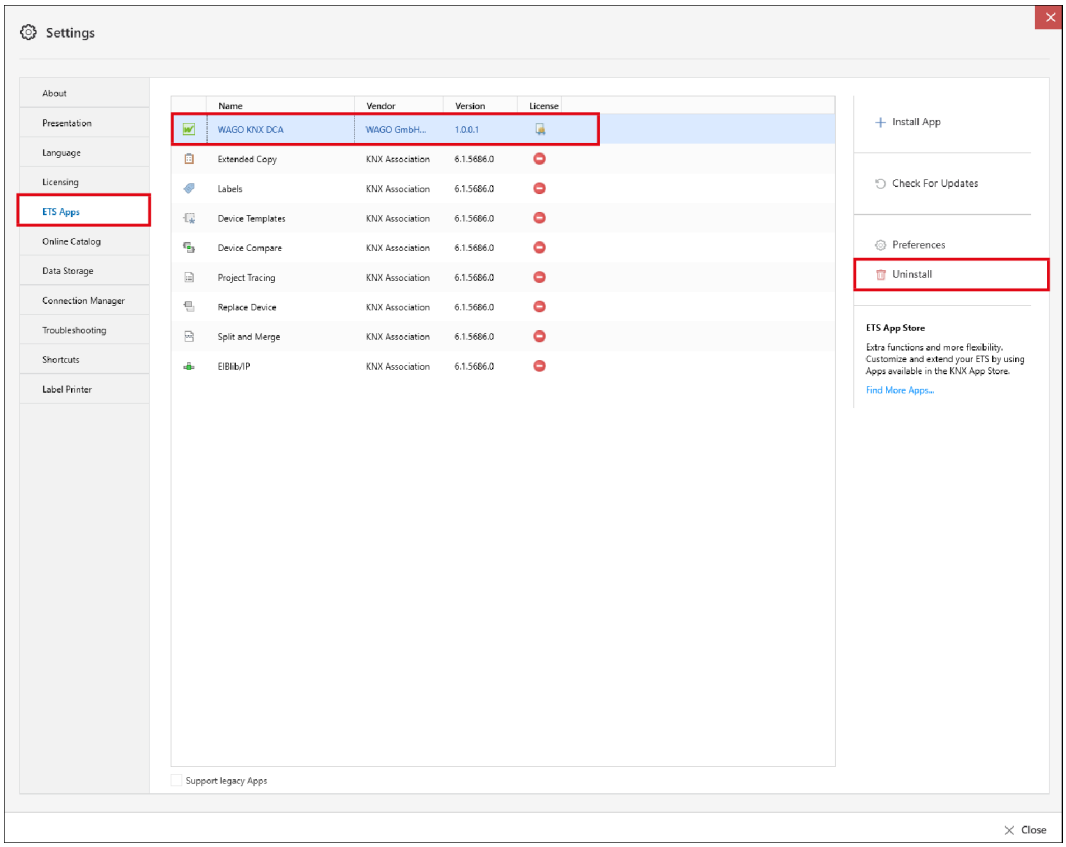


Figure 58: ETS6 > Settings > ETS Apps > Uninstall the WAGO KNX DCA Software

⇨ A note confirms that the software has been uninstalled.

➡ The WAGO KNX DCA software is uninstalled.

11 Appendix

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