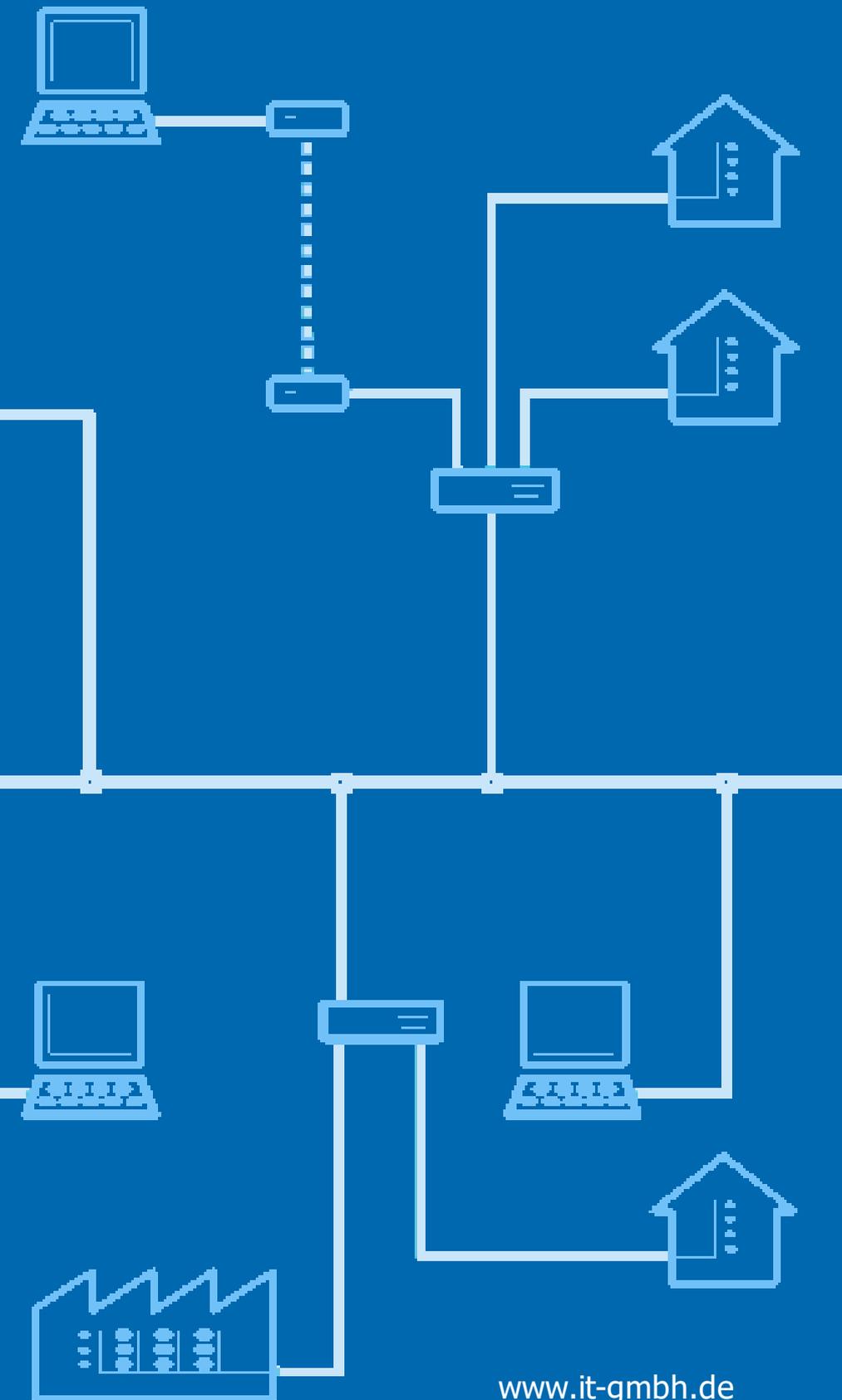




Gesellschaft für  
Informationstechnik mbH



## Manual App Reconstruction

# App Reconstruction

Manual

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**Chapter**



**Welcome**

# 1 Welcome

We congratulate you on your purchase of our app Reconstruction. Thanks for deciding to purchase one of our products.

With the Reconstruction it is possible to regain lost or non up-to-date ETS project data by reading out the plant.

The Reconstruction discovers all the devices connected to the Bus and collects all the data from the relevant storage.

The available functions in Reconstruction may be restricted by the used ETS license. In addition, you will find further details in the online help of the ETS.

Knowledge of Windows and ETS is necessary for an understanding of the contents described.

[Reconstruction Features](#)

## How to ...

- [Reconstruct an EIB/KNX installation](#) (Reverse Engineering)
- [Compare an EIB/KNX installation with an ETS project](#)

## Windows

- [Reconstruction Window](#)

## Symbol bar

- [Buttons](#): Scan Topology, Scan Devices, Read Products, Read Devices, Reconstruct, Compare, File (Load State, Save Current State, Load Keyring), Help

## Additional Information

- [Contact \(Orders, Support\)](#)

## 1.1 Conventions

The following conventions were used for this manual:

- **Bold** print either highlights important terms, denotes a menu command or pressing a button.
- *Italic* print indicates a variable text, e.g. *Project file* indicates that the name of your project file must be inserted here.
- > and >> The symbol > in a brief description denotes an operational sequence. In front of the sequence symbol > there may be a site specification e.g. main menu or context menu.  
Example: Main Menu > Edit > Properties properties-page > General means that in the main menu you should first select the Edit menu command and in it the Properties command, then proceed in the dialog which has opened up to the General properties page.  
If a double mouse click is necessary the sequence symbol will be doubled >>. The terms left/right mouse button refer to the standard Windows setting.

Screen images and operating sequences refer to a Windows XP operating system. If you use another operating system, your display or operation may deviate from the illustrations in this manual.

## 1.2 Features

Reconstruction helps you to reconstruct lost or outdated ETS project data by reading the programmed devices.

Reconstruction discovers all devices present on the bus and reads the relevant memory ranges. Using the product data for the devices, it then tries to create an ETS project that would lead to exactly the read device data.

Compared to the Reconstruction for the ETS3, the reconstruction App for ETS5 has been completely redesigned and offers, particularly regarding performance, significantly improved mechanisms for reconstruction. In the latest version even more intelligent, fast and fault-tolerant capabilities for reading and reconstructing projects from existing plants have been realized.

### Areas of application

- Recovery of lost ETS project data
- Update of outdated ETS project data
- Extension of unknown installations
- Creation of data for visualization (e.g. for  [Elvis](#))

[This data can be reconstructed.](#)

[This data is not programmed into the units and therefore cannot be reconstructed.](#)

### Restrictions

In some cases, reconstruction might fail or finish incomplete:

- Devices that are not supported by the ETS, cannot be reconstructed.
- Devices locked with an unknown BCU password may not be readable. This depends on the specific product. In most cases, readout is possible without any problems, but the device cannot be reprogrammed without knowing the BCU password (there may be exceptions here as well).
- Devices that are programmed with an ETS Plug-in, can only be read and reconstructed if the device manufacturer supports this (by a corresponding Reconstruction Plug-in).
- Some Application Programs contain parameters that are not programmed into the device (e.g. comments on documentation). These functionally ineffectual parameters can therefore not be recovered.
- It is possible that Application Programs exist with complex parameter interdependencies that cannot be resolved by Reconstruction (the message "Reconstruction incomplete" will appear). In this case, please contact our [Support](#). We will then try to find a solution.

## 1.3 System requirements

- You can use this software only together with the EIB/KNX Engineering Tool Software ETS 5.7.2 or higher.  
For ETS2 and ETS3, older Reconstruction versions are available directly from [IT GmbH](#).
- All operating systems on which ETS 5 and ETS 6 can be installed are supported.
- The software uses less than 1 MByte space on the hard disk.

**Chapter**



**Procedures**

## 2 Procedures

### 2.1 Launching Reconstruction

To work with the Reconstruction, you first need an ETS project.

If you do not have any project data for the existing plant, please create a new project in the ETS and open it.

If an ETS project already exists, but is e.g. incomplete or outdated, please open this project

Reconstruction integrates itself as menu command in Apps -> IT GmbH. If you use Reconstruction regularly, you will find it useful to add Reconstruction as a button in the ETS toolbar.

Click on the menu item or toolbar button to open [Reconstruction window](#).

### 2.2 Reconstruction file

The current state of the Reconstruction (scanned areas, lines and devices, read device data) can be saved in a file at any time and loaded again later. To do this, use the *File -> Save Current State* button.

The Reconstruction files have the file extension ".xml". It is also possible to load reconstruction files with extension ".pj" created by IT reconstruction for ETS3.

After certain steps such as loading, scanning, reading devices, etc., the current state is also automatically stored in the local Temp directory in the IT GmbH\Reconstruction subfolder. The file name consists of the ETS-internal project ID and the name of the project. You can navigate to your local Temp folder by entering %temp% in the Windows search box. Here you will find the latest version of your reconstruction file.

### 2.3 Reconstruct an ETS project

Using Reconstruction, you can create an ETS project from an existing installation. This is useful if no ETS project is available at all. Please add a new project in ETS, open this new project and activate the reconstruction panel.

It is also possible to update an existing ETS project with data from the installation. This is useful if the ETS project exists but is outdated (e.g. an older backup copy). Please open this project and activate the reconstruction panel.

The following pages will guide you through the process of reconstructing a project. You can save the current status to a [reconstruction file](#) at any time during the process and load it again later.

When done, you can post-process the created project in ETS:

- Enter meaningful names for lines, devices and group addresses.
- Create a building structure and assign the devices to rooms.
- Reconstruction tries to assign a suitable product (hardware) to each found Application Program (software). For one Application Program there may exist more than one product in the ETS. You may correct the assignment done by Reconstruction in [Products Page](#) or manually in ETS. Note that a product assignment not reflecting the real product has no adverse effect on functionality.

### 2.3.1 1. Define Topology

Initially, the topology (area/line structure) must be created in the Reconstruction project. Reconstruction offers several ways to define the topology, which can also be combined.

## Scan topology from installation

### How it works

Reconstruction scans the installation for line and backbone couplers and derives the possible areas and lines from this information. For this operation, bus access is required.

### Prerequisites

As for all bus functions, it is important that the individual address of the gateway in ETS is set correctly (suitable to the line connected, no collision with other addresses).



- Option 1: Connect a USB module to a flush-mounted BCU already existing in the installation. Then you automatically have a correct gateway address.
- Option 2: If you connect your own gateway to the installation, first determine the line address (e.g. by pressing the programming button on any other device on the same line and reading the address using ETS > Diagnostics > Individual Addresses > Programming Mode -> result: area.line.device). Then set the gateway address to e.g. area.line.254, scan the line area.line in ETS > Diagnostics > Individual Addresses > Line Scan and finally set the gateway address to a free address.

### Procedure

- Click on the "Scan Topology" button.
- Scanning the topology may take several minutes; you can abort the operation at any time.

### Result

- When scanning Reconstruction searches for area and line couplers for all possible line addresses (0.0 to 15.15). As a result you will get a list of areas and lines for which an area or line coupler was found (so far without devices). Names of areas and lines are not stored in the installation, therefore they cannot be read out or recovered. You can save the result by "File -> Save current State".

## Enter topology manually

It is possible to create areas and lines manually in a reconstruction project (e.g if the topology is known). No bus access is required for this:

- Select the Manually add Area from the context menu (right mouse click in the left area of the reconstruction window). A new area is added; you can edit the automatically assigned area address immediately in [areas property dialog](#) (visible on the right edge).
- Select an area in tree view in the left window and add a new line by the "Manually add Line" command from the context menu. You can edit the automatically assigned line address immediately in [line's property dialog](#).
- If you created an area or line by mistake, you can remove it using the "Delete Line" command from the context menu.

## [Scan single device](#)

### 2.3.1.1 Scan Single Device

If you want to read out and reconstruct just a single device with known address, of course you do not need to scan the entire topology of the installation.

- Select "Scan Single Device" command from the context menu (right mouse click in the left side of the reconstruction window), specify the device address in the dialog box and confirm with OK. An area with a line and a device with the specified address will be inserted - if not already present - and the scanning process starts automatically.
- After the scan the device should be correctly identified with **Application Program ID**. You can now continue working with "[Read products](#)".

### 2.3.2 2. Scan Devices

After the topology has been defined, Reconstruction can search for existing devices on some or all lines. For this function, bus access is required.

#### How it works



Reconstruction scans through all possible device addresses 1-255 in the selected lines. If a device is found at an address, the **mask version** and the **Application Program ID** are read to identify the device.

#### Prerequisite

As with all bus functions, it is important that the individual address of the gateway in ETS is set correctly (matching the line connected, no collision with other addresses).

#### Procedure

- If you are only looking for devices in certain areas or lines, please switch to the option *Selected* in the left window below and mark the areas or lines to be scanned with . This check mark is only taken into account if the *Selected* option is active. If the option *All* is active, the marking is ignored. All areas and lines are scanned for devices.
- Select "Scan devices" button from the reconstruction tool bar.
- Scanning the devices may take several minutes; you can abort the operation at any time.

#### Result

- As result you will get a list of all devices found in the installation including information about individual address of each device, **mask version** and **Application Program ID** (still without group addresses and parameters).
- [Device status](#) should be No product data or not read.  
In case of Not identified please use Scan single device or scan the complete line again.  
You can save the result by "Save current State".



**Hint:** The scanning process creates a considerable bus load on the affected lines. This is increased by the fact that this function by its nature also tries to contact non-existing addresses which leads to corresponding repetitions.

If you experience problems (e.g. with line/backbone couplers), you can limit the bus load by scanning the installation line by line or at least area by area, and connect the PC directly to the line (or main line).



[No devices found?](#)



[Scan single device](#)

### 2.3.3 3. Read Products

After scanning the devices it is known which Application Programs are used in the installation. You can find a corresponding list on the [Product Page](#) in the reconstruction window.

If product data is already available for all devices and all product data are assigned the you can skip this step.

Since ETS5, only the product data that has already been used or referenced in the current project is available.

With the command "Read products" Reconstruction searches the ETS manufacturer catalogues with the imported product data. In addition, all other open projects and, depending on the [configuration setting](#), also the online catalogue are searched for the required product data. These are then referenced in the current project. Depending on the size of the catalogue, this operation may take some time.

The Read Products button in the tool bar offers two options. When you click the left (main) part of the button performs the product search for missing **Application Program IDs** in project. This also applies to the Read products button in the yellow note window, which is only displayed before the first execution of "Read product".

Use the small arrow in the right-hand part of the button, to reach a sub menu with these two entries:

- Read all products: all product data found in the reconstruction file (if option *All* is used) or in marked devices (if option *Selected* is used) are read again regardless of whether these were already found or not.
- Read missing products: functions as above: reads the product data only for those **Application Program IDs** for which the product data were not found yet (options *All* / *Selected* are taken into account).

Of course, the second option will be faster. However, if you have imported new catalogue entries (e.g. with additional order numbers) for devices with already existing product data, please use the option "Read all products".

If you only want to read product data for individual devices, please switch from *All* to *Selected* in the left-hand window below and mark the relevant devices. This marking is only taken into account if the *Marked* option is active. If *All* is selected, the marking is ignored (hidden) and product data for all devices (in reconstruction file) are searched.

When "Read products" has finished you will then be redirected on [Product Page](#). Please check the product list for entries with status "Not found, please import product data". The associated devices with this product data can not be read out or reconstructed, if you do not import a suitable [product](#) database now or open another project which contains product data.

It is necessary to perform "Read products" once more to add the new product data into the current project.

On [Report Page](#) or [Product Page](#), you can export a list of **Application Program IDs** with missing product data.



[Where do I find suitable product data?](#)

For devices with hint "[Please select product](#)" please double-click to open the list of available products and select the desired product. If the list is empty, the product data must be imported.



### [Why does Reconstruction need product data for reading devices?](#)

## 2.3.4 4. Read Devices

In this step, Reconstruction reads the relevant data from all found or selected devices. To find this data in the unit memory, the associated product data is required. Without bus access and product data, no readout is possible!

### Procedure

- If you only want to read out certain devices, please switch to the option *Selected* in the left window below and mark the devices to be read with . This check mark is only taken into account if the *Selected* option is active. If the option *All* is active the marking is ignored (hidden), and all devices are read out.
- Click on the "Read Devices" button from the Reconstruction tool bar.
- Reading the devices may take a very long time; you can abort the operation at any time.
- During the readout, warnings, error messages and other information are logged and displayed on the output page.

### Result

- As a result, you receive the associated group addresses (only the address, no names or texts), flags and priority of the communication objects as well as the (undecoded) content of the memory area for the parameters (according to product data) for each read device from the list.
- [Device Status](#) is "Read".  
You can save the result by "Save current State".



### [Why can't devices be read out?](#)

## 2.3.5 5. Update project

This is the last step in recovering an ETS project. For this operation, no bus access is required.

Choose this method if the ETS project data do not exist or are outdated.

You may also use this method to reconstruct a project in several iterations by reading only a part of the installation and then incrementally update it for more parts step by step.

**Note** that update overwrites the original data. Consider making a backup copy first.

During the project update names, comments and other data are preserved. All new discovered areas, lines, devices and group addresses are added, and parameters and group address assignments are updated.

Areas, lines, devices and group addresses exist in the ETS project, but not in the read-out data, are not deleted.

### Procedure

To update the project, click on the "Reconstruct" button in the upper part of the reconstruction window.

### Output of reconstruction

During the scanning, reading and reconstruction steps, all the warnings, error messages and other information are logged and listed on the [Output Page](#).

## Result

- In the current ETS project devices and group addresses are added or updated.  
Note: names or descriptions are not stored in the device's memory, so they cannot be recovered.
- The [Device Status](#) should be "Reconstruction OK". If status is "Reconstruction incomplete", see "[Incomplete Reconstruction](#)".  
You may save the result by "Save current State".

## 2.4 Compare

You can use Reconstruction to compare an EIB/KNX installation with an existing ETS project. This is useful to

- verify the conformity of project planning and installation (e.g. for acceptance)
- analyze problems which are otherwise difficult to find

Execute steps 1 to 4 as described for [reconstructing a project](#) or load a previous [reconstruction file](#).

Click on the "Compare" button from reconstruction tool bar. Access to the bus is not required during compare.

Compare will always work against the current ETS project. The comparison can take a very long time for large projects and complex devices; you can abort the operation at any time.

Reconstruction tries to find a matching parameter configuration based on the read data that has the same memory image as read. If such a configuration is found, the parameters can be compared individually, the result can be found in the reconstruction info in the [Device Detail dialog](#).

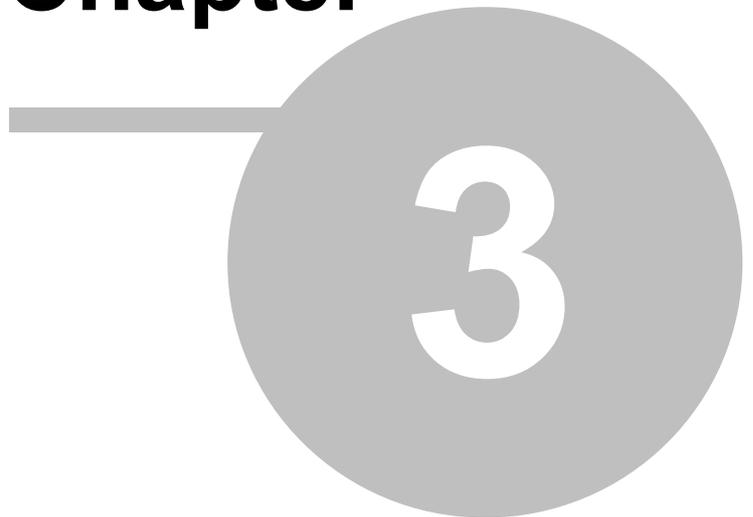
If no matching parameter configuration was found, but the current parameter configuration in the ETS device provides a different memory image than the one read out, the parameter setting is surely different in device and ETS project, but no detailed result for parameters can be determined.

If you only want to compare certain devices, please switch from *All* to *Marked* in the left-hand window below and mark the relevant devices with . This marking is only taken into account if the *Marked* option is active. With *All*, the marking is ignored (hidden) and all devices will be compared.

Devices which are present in the ETS project but not in the read-out data ([reconstruction file](#)) are listed in the log output on "Output" page and can be conveniently found in the ETS project via the navigate to project element button (small black triangle).

This comparison is always carried out- regardless of whether only some or all devices from the reconstruction project were selected for comparison.

**Chapter**



**Reference**

## 3 Reference

### 3.1 User Interface

#### 3.1.1 Reconstruction Window

To be able to work with the reconstruction, you first need an ETS project. If you do not have any project data, please create a new project in the ETS via New project and open it. If an ETS project already exists, but is e.g. incomplete or outdated, please open this project.

The reconstruction window contains a [Toolbar](#) with the operation steps necessary for the reconstruction and displays information on the following pages:

- [Project](#): Displays the topology with devices and associated group addresses. With the options *All* and *Selected* in the left window below you can switch between two different modes: in mode *Selected* you can mark individual areas, lines or devices via a check box. The reconstruction operations then only refer to these marked elements. In the mode *All*, all contained elements are always processed. More on the objects can be found for selected entries in the [Properties dialog](#) in the right-hand side area of the ETS.
- [Products](#): Overview of product data for the read **Application Program IDs**
- [Reports](#): Outputs prepared as a report for missing product data and for devices for which problems occurred during readout or reconstruction
- [Output](#): Log file for reading and reconstruction or comparison operation

Below the [Toolbar](#), settings can be changed in the expandable configuration area. E.g. the maximum number of iteration steps in the reconstruction (=> [incomplete reconstruction](#)) or various options for finding the product data can be [configured](#): e.g. the file path of the product finder catalogue file or whether the online catalogue should also be searched when reading products.

#### 3.1.2 Tool Bar

The Tool Bar offers the tools to work with the Reconstruction.

 File	This menu contains file operations:
Load State	Opens and loads an existing Reconstruction state from a xml or prj file.
Save current State	Saves the current state of the Reconstruction into a xml file.
Load Keyring	Loads an ETS keyring export, see <a href="#">KNX Data Security</a> .
 Scan Topology	Scans the topology structure of the installation and adds the found areas and lines on the <a href="#">Project Page</a> .
 Scan Devices	Scans for all devices in the lines listed on the <a href="#">Project Page</a> , reads out their physical addresses, <b>mask versions</b> and <b>Application Program IDs</b> and displays the devices on the <a href="#">Project Page</a> .
 Read Products	Searches in ETS manufacturer catalog items, all opened projects and - depending on the <a href="#">settings</a> - also in the online catalog for product data and adds them into the current project, switches to the <a href="#">Product Page</a> and displays a list of all used products and <b>Application Program ID</b> with information if the <a href="#">product data</a> are already available in ETS and for which product data still has to be imported.

Using the small arrow on the right part of the split button, two sub-menu entries are available, which only differ in the extent of the search area: Read all products performs the same operation as Read products: it looks for all product data in the manufacturer's catalog items which matches the **Application Program ID** - regardless whether the product data are already known or not. This can be useful after importing additional catalog entries with different order numbers to an existing Application Program.

Read missing products, on the other hand, only takes into account the application identifiers without product data.

 Read Devices

Reads the relevant memory data from all devices - as far as possible.

 Reconstruct

Inserts group addresses, areas, lines and devices into the ETS project on the basis of the read-out data, if not already present. Then, for each device, a parameter configuration is calculated that matches the respective read-out memory area. After that the parameter values in the ETS are altered accordingly and the flags of the communication objects are set and links to the group addresses are created.

 Compare

Compares the read data with the current ETS project (same mechanism as for reconstruct but without update, only logging the differences).

 Configuration

Opens the configuration dialog, in which project specific configuration can be set.

 Help

Opens this help file.

### 3.1.3 Project Page

This tab page displays all areas, lines and devices found in the installation.

#### Areas and Lines (left pane)

On the left, the bus topology is displayed. For area and line addresses, the number of contained devices is displayed in [] brackets.

The topology definition is always the first step when using Reconstruction. Reconstruction may [scan the topology](#) from the installation or you may create/edit the topology [manually](#).

The buttons *All* and *Selected* indicate which elements are effected by an action. If *All* clicked, then all elements in the topology will be affected by any action, in case *Selected* is clicked the action will only refer to the marked areas, lines and devices in the topology. Note that check mark is only taken into account if the *Selected* option is active. If *All* is selected, the selection is ignored - all areas, lines and devices are processed.

#### Devices (right pane)

All participants found on the line selected on the left are listed on the right side. The individual columns are:

Address	Individual address (device address)
Status	<b>Status</b> for device data
Mask Version	<b>Mask version</b> of the device

Manufacturer	Manufacturer of the Application Program. If a number is displayed instead of the name, the manufacturer is not (yet) known in the current ETS project. In the ETS, the manufacturer's name is updated by " <a href="#">Read products</a> ". A list of manufacturer codes is available from our <a href="#">Web page</a> . If the field is empty, the manufacturer code could not be read from the device (which is quite usual for <a href="#">Couplers</a> ).
Application Program	<b>Application Program ID</b> of the device; if the corresponding product data is available in the ETS, the name of the Application Program is displayed.
Product	Order ID and Name of the Product (catalog entry) for the device. For some application programs more than one product may be available. In this case the assignment can be made by opening the drop down menu and selecting an entry (=> <a href="#">Change product</a> ). Another option is to drag a product from the catalog or a device from a project on the row. This change only affects the current device.
GroupAddresses	assigned Group Addresses

### 3.1.4 Products Page

On this tab page the Applicationprograms - found in the installation - are displayed.

The meaning of the column entries are:

Manufacturer	Manufacturer of the application program. If a number is displayed instead of the name, the manufacturer is eventually not (yet) known in the current ETS project. The manufacturer's name is updated by " <a href="#">Read products</a> ".  Exceptions are line couplers whose manufacturer code has not been stored in the unit. If a number > 0 is still displayed as the manufacturer, you will find a list of manufacturer codes on our <a href="#">homepage</a> .
Application Program	<b>Application Program ID</b> of the device and name of the application if found in the ETS database / current ETS project
Product	Order ID and name of the product For some application programs more than one product assignment is possible. In this case the assignment can be made by opening the drop down menu and selecting an entry (see also: <a href="#">Change product</a> ). Another option is to drag a product from the catalog or a device from a project onto the row. This change only affects the current device.
Devices	Number of devices in current project, using the same product.

If you select an entry on the "Products" page, [this information](#) - depending on the configuration - is displayed in the ETS sidebar.

If there are lines without an application program or without a product, you should first execute the "Read products" command before continuing (if you have not already done so).

If product data is still missing after this, please import the current product databases of the manufacturers concerned (=> "[Where do I find suitable product data](#)") or open another project and then execute the command "Read products" again.

Reconstruction can only be complete if an Application program is entered and at least one product is assigned to each Application Program.

With the button "Export ApplIds without product data" right below you can create a text file with all **Application Program IDs**, which have currently no corresponding product in ETS database/current ETS project and for which an import of product data is required.

### 3.1.5 Reports Page

On this tab page the reports of the current state of reconstruction will be shown.

The Output is shown in a split window. In the left area of the window the available reports are listed and selectable. The content of a chosen report will be displayed within the right area of the report page. Here you have the possibility to print the report, to save a marked part of the report or to zoom into or out of the report by clicking on the icons shown above.

The box on the lower part of the report page gives the possibility to search for text within the report. Enter the text you want to search for. If you click on the right arrow or press enter, the report is searched downwards. To search upwards click on the left arrow.

In addition different search options are supported. By clicking on the black down arrow the search can be restricted.

#### 3.1.5.1 Missing Products

In this report all missing products are listed with their manufacturer number and their **Application Program ID** if the device is installed in the topology but does not exist in the ETS project.

#### 3.1.5.2 Problem Device

When errors appear while reading, reconstructing or comparing a device, the device will be listed in this report. The device address and the problem will be shown in the report problem device.

#### 3.1.5.3 Report All Devices

List of all device data in the Reconstruction panel.

### 3.1.6 Output Page

This tab lists all warnings, information and error messages that occurred during the scanning, reading, reconstruct, or compare operations.

In contrast to the Properties dialog which displays only the information about the currently selected device, on output page all devices in the overview will appear.

Using the button "save log file" right below you can save the log output to a text file.

### 3.1.7 Details

This dialog displays all data regarding the marked row. Depending on what you have marked - an area, a line or a device on [ProjectPage](#) or a product on [ProductPage](#) - the dialog will appear with different information.

If several entries have been selected, only the information that is the same for all selected entries is

displayed.

The following dialogues are available:

for the ProjectPage:

- [Area Details](#)
- [Line Details](#)
- [Device Details](#)

for the ProductPage:

- [Product Details](#)

### 3.1.7.1 Area Details

The window shows detailed information for the area:

Address	Address of the area. If no device is listed for the area it is possible to change the address
---------	-----------------------------------------------------------------------------------------------

### 3.1.7.2 Line Details

You can change the following Line Details in case no device exists in the line

Address	Address of the current line
Medium Type	Medium type of the current line

### 3.1.7.3 Device Details

The Device Details list a higher amount of parameters than area or line details. Therefore it is divided into four parts:

- General
- Communication Part Info
- Parameter Info and
- Reconstruction Info

## Common

The general information is listed to get a more comfortable overview.

Area.Line	Addresses of area and line
Address	Address of the device, can be modified if the device has not yet been identified
State	<a href="#">State of Reconstruction</a> for the current device
Mask Version	<b>Mask version</b> of the device
Manufacturer	Manufacturer of the device
Appl Key	<b>Application Program ID</b> of the device
Appl Program	Name of Application Program for the current device
Program Style	Information about Product data (internal)
Product	Product description (Catalog entry) for the device
Order ID	Order number for the device (unique per manufacturer)
Group Addresses	Group addresses connected to this device
Additional Addresses	Additional individual addresses, if found (hidden for devices without additional addresses)
Plugin CLSID	ClassID of the plug-in, if used (hidden for devices without plug-in)

## Communication Part Info

This table lists all group objects of the device. Flags, priority, length in bits and the corresponding group addresses are displayed for each object.

### Parameter Info

The raw image segment with parameters for the device are shown. To see the complete list use the Tool Tip.

### Reconstruction Info

Before the reconstruction had been started, the information of the device is shown here, if Reconstruction info is not invisible.

### Copy to clipboard

The texts in this window can be copied to the clipboard via the context menu.

In addition, the command "Copy to clipboard" copies the entire content of the property page to the clipboard.

#### 3.1.7.4 Product Details

This information is available (only read access).

Manufacturer	Manufacturer's name
Appl Key	<b>Applicationprogram ID</b> or name of application program
Product	Product description (Catalog entry)
Devices	Addresses of all devices assigned to the product entry
Product data available in these file(s)	<b>Projects:</b> If you select "Search in ETS project store" in the configuration, the required product data is searched in the local ETS project memory and a list of project names is displayed. To include the product data into the current project, just open any of the projects in ETS and perform 'Read Products' again.  <b>Product finder Catalog file:</b> If you select 'Search in ProductFinder catalog file' in the configuration, a list of all products or project files will be displayed here as result of a query of looking for product data with current Application Program ID in the Product finder catalog file.
	Note: In case of an error a yellow warning sign or red error sign will be displayed, by hovering the mouse over the sign, error message will be displayed.
	Note: these product data files cannot be imported automatically by Reconstruction, you must do this manually by following methods: <ul style="list-style-type: none"> <li>○ In ETS5: Using the context menu, you can copy the file path and insert it into the ETS import dialog.</li> <li>○ In ETS6: By clicking on any of the links, product data import will start.</li> </ul>
	<b>Online:</b> If you select 'Search on online service from IT GmbH' (with valid access key), a list of required product data links will be shown.
	Note: A green OK status symbol will be displayed if server can be reached. However, in case of an error a yellow warning sign or red error sign will be displayed, by hovering the mouse over the sign, error message will be displayed.

Note: these product data files cannot be imported automatically by Reconstruction, you must do this manually by following methods:

- In ETS5: By clicking on any of the links to download the product data file, then manually import it by using ETS catalog import dialog.
- In ETS6: By clicking on any of the links, the product data import will start.

Note: After importing the product data, perform the "Read Products" step again, to update the Reconstruction project.

### 3.1.8 Configuration Dialog

The project-specific configuration is stored in the ETS import file (knxproj), so it is **available after ETS import**.

The project-specific configuration will be found in the [App Window](#) at the top of the toolbar at configuration.

You may change the following options:

#### Product data Searching:

- Search in ETS project store: If checked, then the required product will be searched in the local projects available in the ETS project store.
- Search on online service from IT GmbH: IT GmbH provides a (chargeable) [Online-Service](#) that gives you the access to thousands of current and older product data.

Note: When selecting this option, following status symbols will be displayed, and hovering the mouse over the symbol will display status message.

- Yellow warning sign: If key is not configured, or service is temporary down.
- Red error sign: If not a valid key, or any other error.
- Green OK sign: If Key is valid, and server can be reachable.

➤ **Access Key** : To use online service, a personalized access key is required, which can be obtained from IT GmbH. After obtaining the access key, can be configured in this dialog.

Note: access key configured here will not be stored in project-specific configuration, rather it will be stored in app's configuration. So, it will be available for each project

- Search in Productfinder catalog file: here you can save the catalog file generated by the ProductFinder tool, which contains the information, in which file (on your computer) which Application Program is contained.

Note: When selecting this option, following status signs will be displayed.

- Yellow warning sign: If catalog file is not configured
- Red error sign: If not a valid catalog file, missing catalog file, or any other error.

Note: ProductFinder catalog file configured here will not be stored in project-specific configuration, rather it will be stored in app's configuration. So, it will be available for each project

Go to the [Products Page](#) and select a product entry. You will get a complete list of all product and project files that contain product data for the current application program ID (selected product entry). The selection is displayed in the ETS sidebar. ETS5, using the context menu, you can copy the file

path and insert it into the ETS import catalog dialog. However, in ETS6 you can directly import it by clicking on the link.

- Search coupler products for specific manufacturer: If this option is selected together with a manufacturer from the list, coupler products of this manufacturer will be considered preferentially when reading products if the reconstruction could not determine the coupler product.

### Identifying / reading

- Show warning for devices identified or read out with a previous version of Reconstruction.

### Reconstruction

- Overwrite existing device: You can choose among the options "Always", "Never" and "Prompt". For "Always" devices already existing in ETS project are overwritten with the reconstructed parameters and group address data, for "Never" they will be skipped, and for "Prompt" you will be asked for each device before reconstruction starts with the possibility to confirm, skip, change to "Always" or cancel the procedure.
- Iterations limit for undetermined parameter values: You can choose among the options "Fast", "Medium" and "Maximum". Some products contain many virtual parameters, which the Reconstruction cannot determine in one step because of too many possible combinations. The default iteration limit is set to Fast so that the Reconstruction does not take the long time to calculate parameter values. However, after reconstruction, if the status of any device shows "Reconstruction Incomplete", then increase the iteration limit from Fast to Medium or Maximum.

Note: Increasing the Iteration limit from default value (Fast) to Medium for Maximum may cause the Reconstruction to take long time, so it is recommended to use the default value (Fast). Only change the value in case of [Incomplete reconstruction](#).

## 3.2 Special Considerations

### 3.2.1 KNX Data Security

Reconstructing devices protected by KNX data security is possible **only if the tool key of the device is known**.

This does not apply to devices which do support KNX data security, but do not have it activated.

When scanning or reading devices, Reconstruction tries to use the tool key from the following sources:

- the configured tool key of the corresponding device in the project (identified by its individual address)
- ETS also remembers the tool key used for the last download (which might differ from the configured tool key if the device security was changed after the last download)
- the Reconstruction data (i.e. the XML file which can be saved or loaded) may also contain a tool key. This can be seen in the side bar when the device is selected in Reconstruction. See [below](#) on how to enter this data.

If no tool key is available, the status text of the device will display "Secure device cannot be read without key".

If a key is available, but has not yet been tried, this changes to "Secure device with possible key, please re-read".

### Load keyring backup

It is possible to export a keyring backup file from ETS. This contains, among other things, the required device keys.

Use the File > Load Keyring command from the toolbar to select the file.

As the keys in the file are encrypted, you must enter the correct password - as specified when exporting from ETS. Note that there is no way for Reconstruction to verify that the password is correct. A wrong password is accepted, but the decrypted keys will be useless.

## Reconstruction Result

If the correct key is available, secured devices can be reconstructed the same way as plain devices. For **secured devices** the following applies:

- the security status of the device in the created project corresponds to the status of the read device.
- the key is stored in the ETS project as "last known key" so that ETS can communicate with the device
- ETS will however create a new tool key for the device which will be written to the device on the next download

For **secured IP devices** the following applies in addition:

- ETS will create new passwords and authentication codes; these will be written to the device on next download.
- for a secured IP backbone, ETS will create a new key. If you load one IP device or KNX/IP Router, you have to download also all others, so that the IP backbone communication continues to work (then with the new key).

For **secured group addresses**, the following applies:

- ETS will create new keys. If you load one device linked to a secure group address, you have to download also all others linked to the group address, so that the group communication continues to work (then with the new key).

### 3.2.2 Couplers

The product data identification for couplers (line couplers, media couplers, KNX/IP Routers) is unfortunately not standardized. Reconstruction uses some heuristic rules but these will not work in all cases.

So please check after scanning Topology or Devices and best before reading devices that the couplers have been correctly recognized.

If the product has not been recognized at all (displays the Mask version in the column "Application program") or incorrectly, drag the correct product from the catalog or (as device) from an ETS project window onto the row in the [Project Page](#) (affects only this device) or the [Products Page](#) (affects all devices of the same kind).

**Chapter**



**Questions and  
Answers**

## 4 Questions and Answers

### 4.1 Result of reconstruction

As a result Reconstruction provides an updated ETS project with devices and group addresses used in the current installation (see: Procedures > [Reconstruct an ETS project](#)). Parameter settings of devices and group object associations are set corresponding to the installation.

This applies under the condition that all devices in the installation can be read out completely, that all product data are available in the current ETS project and can be used and that a suitable parameter combination could be calculated based on the product data and the data in the parameter image of the devices. For not fully reconstructed devices, see [Reconstruction Incomplete](#).

The building structure as well as names and descriptions etc. of areas, lines, devices and group addresses are not stored in the installation, so they cannot be recovered ([Which data can't be recovered?](#)). When Reconstruction inserts a new area, line, main or middle group or group address into the current ETS project, these devices will get the name "Added by Reconstruction". It is recommended to replace this name by appropriate labels in the context of the post processing of the project.

If you choose the command "Compare" instead of "Reconstruct", the status of the devices in the reconstruction window informs you whether differences on the project were found or not. Reconstruction will compare only based on the data in the current installation. That means that devices that are present in the project but not in the plant are disregarded.

### 4.2 Does reconstruction work also for old projects?

Reconstruction also works for old projects which were created with a previous ETS version (since ETS1).

The only important criterion is that the product data which had been used for programming are now present in the current ETS version - exactly with the same **Application programme ID** as used for programming.

Product data should exist at least in ETS2 format, so that they can be imported into the current ETS. The exact format does not matter (vdx... vd5 or knxprod), even a project file is sufficient (prx... pr5 or knxproj).

However, a few old products are no longer supported in ETS4/ETS5/ETS6 - in the ETS product catalog or device overview it will be marked by "Re-import required". These devices cannot be inserted into an ETS project with ETS4/5/6, so they cannot be reconstructed.

### 4.3 How much time does reconstruction take?

There is no universal answer for this question. Time needed for reading and reconstructing depends on the size of the installation, the kinds of integrated devices, bus traffic, gateway etc..

A reconstruction includes the scanning of the topology, the scanning and reading of the individual devices (each with bus access) as well as the actual reconstruction (offline), where devices and group addresses are inserted into the current ETS project from the read-out data.

If topology of installation is already known, scan of topology can be skipped by editing the areas and lines manually.

Scanning and reading will be faster if the local gateway is mounted in each line (note: adapt address of gateway to current line). This way and so the devices in the installation will be read line by line.

The real reconstruction process (adding device into the ETS project, parameter settings, connections with group addresses) can be done in less than a minute, but can also take one or more hours. This depends on product data (parameter structure). Normally, older devices (e.g. with BCU1) can be read and reconstructed faster than devices with other masks.

#### 4.4 Why does scan topology only find area 0 and area 15?

##### Possible causes:

---

- ➔ The individual address of the data interface as configured in ETS has not been set or does not match the line where the interface is connected (e.g. local address 15.15.255 on line 1.1).
- ➔ The line address can be determined e.g. by putting a device on the same line into programming mode and read its address with the ETS function Diagnostics/Individual Addresses.
- ➔ **What to do:** configure a correct address for the data interface (in ETS5 > Bus > Connections > Interfaces). In ETS6 interfaces are related with the project, so can be found in the project on the top right dropdown menu and then the grey-gear icon.

#### 4.5 Why are no/not devices found?

##### Possible causes:

---

- ➔ The individual address of the data interface as configured in ETS does not match the line where the interface is connected (e.g. local address 1.1.250 on line 1.7).
  - ➔ The line address can be determined e.g. by putting a device on the same line into programming mode and read its address with the ETS function Diagnostics/Individual Addresses.
  - ➔ **What to do:** configure a correct address for the data interface.
- 

- ➔ A device in the installation has the same individual address as the data interface.
  - ➔ You can check this in ETS5 - Bus - Connections - Interfaces and in ETS6-In Project-top right dropdown menu grey gear icon.
  - ➔ **What to do:** configure a correct address for the data interface.
- 

- ➔ A line coupler is configured incorrectly.
  - ➔ **What to do:** Scan line by line.
- 

- ➔ There are special devices for the purpose of preventing all programming and readout operations on the bus.

➔ Try to read a device with the ETS function Device Info (you can determine the address as described above via programming mode). If that does not work, such a device might be the cause.

➔ **What to do:** you have to locate (that's the difficult part) and remove the interfering device.

---

➔ The installation contains only one physical line (no line couplers) but the devices have addresses with different line parts (e.g.: 1.1.3, 1.2.5, 1.4.200).

➔ Such an installation does not conform to the KNX/EIB topology; Reconstruction therefore cannot determine the topology.

➔ **What to do:** Enter the topology manually in the Reconstruction (Edit > Add area/line)  
 - or -  
 Change the local address for each of the "lines" e.g. for 1.1.3 to 1.1.x, for 1.2.5 to 1.2.x etc.  
 - or -  
 Correct the device addresses using ETS before using Reconstruction.

---

➔ Battery-powered KNX RF devices

➔ These activate their receivers only when needed and therefore cannot be found on line scan and cannot be read without further action

➔ **What to do:** Activate programming mode on the device

## 4.6 Why a device can not be read out?

### Possible causes:

---

➔ You are using an older version of Reconstruction.

➔ **What to do:** Please check in the ETS in the App Overview or in the KNX online shop whether a newer version of Reconstruction is available and install it. Updates are free of charge.)

---

➔ No product data found.

➔ **What to do:** Import product data and perform "Read products". (=> What means "[No Productdata](#)"?)

---

➔ The Device is locked with a BCU password.

➔ Usually, the device can still be read and reconstructed even if protected with a BCU password. Depending on the actual product implementation, it might however not be possible to later download a modified configuration into the device if the BCU password is not known.

➔ **What to do:** As different products behave very differently regarding BCU password, please consult product documentation or ask the device manufacturer if there is a way to reset the BCU password. Ask the unit manufacturer if there is a way to delete the BCU password.

- 
- ➔ The Device is protected with KNX data security.
  - ➔ There is no way to read out secured devices unless the tool key is known.
  - ➔ **What to do:** If there is a (perhaps older) version of the project, try to read the device with reconstruction within this project. If the project contains the key of the device, this will succeed. If there is a keyring backup, it can be loaded as described in [KNX Data Security](#)
- 
- ➔ The Device uses a PlugIn software (supplementary software).
  - ➔ Such devices can only be read out and reconstructed, if the device manufacturer supports this (with an appropriate Reconstruction PlugIn).
  - ➔ **What to do:** If the device uses a product-specific parameters dialog (see "parameters" in the ETS) please take a look there for a product-specific reconstruction. If the device is not already in ETS project, please mark it in the Reconstruction window and perform "Reconstruct", so it will be inserted into the ets project. Alternatively, you can also add it manually from The Product Catalog. Please insert the correct read out individual address.  
See also: [Reconstruction and Plug-ins](#)
- 
- ➔ The Application program is unloaded. To check, read the device via the ETS device info and check the loaded state
  - ➔ **What to do:** If the Application Program is unloaded the device memory may not contain consistent data. Using the option "Identify Unloaded Devices" in [Configuration](#) you may also read devices with unloaded Application Programs. However, the result is usually no meaningful data, which cannot be reconstructed at all, only incompletely or even incorrectly.
- 
- ➔ ETS tries to use long frames. This will considerably speed up reading the devices if supported by the device, the interface and any couplers in between. If these devices do not support long frame, the device may not be able to be read.
  - ➔ **What to do:** disable "use long frames if supported" in [Configuration](#) and try reading the device once more.

If the device still cannot be read out, please contact our [Support](#), we will then try to find a solution.  
See also: [Data required for support](#)

## 4.7 Which data can't be reconstructed?

- ➔ Building and function structure
- ➔ Names and descriptions of areas, lines, devices and group addresses
- ➔ Some application programs contain parameters, which are not programmed into the device (e.g. comments on the documentation). These functionally insignificant parameter values can

therefore not be reconstructed.

## 4.8 Which data can be reconstructed?

- ➔ Topology (areas and lines)
- ➔ Devices
  - ➔ Individual address
  - ➔ Used application program
  - ➔ Parameter settings
  - ➔ Communication object flags and priority
  - ➔ Assigned group addresses
- ➔ Group addresses

## 4.9 What does "No Productdata" mean?

Reconstruction cannot find any product data in an ETS5/6 database or in the current ETS project which matches for the read Application Program ID .

For reading and reconstruction product data will be needed with actually the same application program (manufacturer, device type and version number) as was used for programming the device. A former or newer version of the application program won't help you.

Please perform "[Read products](#)" first to look for product data in ETS manufacturers' catalog as well as in the Online Catalog (if selected in configuration). Then add them into the current ETS project. If you want to get product data used in another project please open this project and perform "[Read products](#)" once more.

If nevertheless no product data are found, please import the missing product data (=> [Where do I find suitable product data?](#)) and perform "Read products" once more.

## 4.10 Where do I find suitable product data?

- ➔ Import the current product databases of the listed manufacturers.  
When all import ist done, please perform "[Read products](#)" in the current Reconstruction project.
- ➔ If that does not help: Ask the product manufacturer; with the help of the **Application Program ID**. they may be able to provide you with the missing data.  
For reading and reconstruction product data will be needed with actually the same Application Program (manufacturer, device type and version number) as was used for programming the device. A former or newer version of the application program won't help you. Product data format (ETS2, ETS3 or ETS4/5 product data or even an ETS2, ETS3 or ETS4/5 project file) is not relevant.
- ➔ For couplers the **Mask version** is used instead of **Application Program ID**. Since no manufacturer code is read out, product data for a coupler programme with the matching mask version of any manufacturer is sufficient to read out the device.  
For couplers often no application identifier can be read out. In this case the reconstruction shows the mask version (e.g. 0912) instead. In this case it is best to look up directly in the distribution which coupler product is installed, import the corresponding product data and assign the product.
- ➔ For some (only a few) products a re-import of product data is required. Please contact the product manufacturer.

- ➔ Reconstruction can also work with product data that were inserted into ETS by project import - even if they are not available in the ETS catalog. If there is any (older) ETS project file (prx, pr1, ..., pr5 and knxproj) with a device using the required product, please import it into ETS.  
**In ETS5/6:** Please also open this project and perform "[Read products](#)" in the current reconstruction project.
- ➔ For the customers of our Reconstruction there is a special tool ProductFinder available which helps to get an overview of all **Application Program IDs** stored on your computer in product data files (vdx, vd1, ..., vd5 and knxprod) or ETS project files (prx, pr1, ..., pr5 and knxproj). It provides searching for a special Application Program in these files.  
ProductFinder is available at the IT GmbH.  
Only for users of ProductFinder: starting with version 4.0.431 of reconstruction You may add a product finder catalog file (xml) in the configuration settings of Reconstruction.
- ➔ Users of the IT GmbH [online service](#) select the appropriate option in the configuration settings of the Reconstruction.

To view the search result, select the product entry in the list shown on [Product page](#). A list of product data or project files, containing the required Application Program (if found), will be shown in the ETS sidebar. In ETS5, using the context menu, you can copy the file path and insert it into the ETS import catalog dialog. In ETS6 however you can directly import it by clicking on the link.

#### **Attention!**

When all import is done, please perform "[Read products](#)" in the current Reconstruction project. If product data from another project should be used, please open this project before "Read products".

## **4.11 Why is the product data needed?**

In Contrast to former versions of Reconstruction (e.g. 1.x and 2.x) the current version of Reconstruction needs the complete product data for all types of devices before reading:

- ➔ Devices with external processor can in general not be read completely without product data, even if they report mask version \$001x, because they normally contain additional memory ranges.
- ➔ Devices with ETS Plug-ins can in general only be read with the help of special Reconstruction Plug-ins, because they possibly have different memory layout.
- ➔ BCU2 and BIM M112 based devices can be read much faster with product data, because the relevant memory ranges can be accessed selectively.

## **4.12 What does "Please select product" mean?**

Reconstruction cannot find a unique assignment between **Application Program ID** read from the device and the product data in the ETS project. Possible reasons:

- product data contains only contains Application Program but no products. If you double-click on the project or product page to open the list of available products, it is empty.  
Please import product data and perform "[Read Products](#)".
- product data contains more than one product entry with different order numbers.  
Please double click in the column Product (project page or product page) and select one entry (=> "[Change product settings](#)").

In particular this applies for coupler devices which are not yet read. Here is only the mask version known and the list of available products contains all coupler products from all manufacturers.

- product data in ETS project does not contain the combination of order number (stored in the [reconstruction file](#)) and Application Program.  
Please open the list of available products and select another one (=> "[Change product settings](#)") or import new product data and perform "[Read Products](#)".

## 4.13 Change product settings

There may be more than one product entry for an application program.

You can set the assignment either for several devices at once or for individual ones:

On the [product page](#) double click on an entry in the column Product. A list with all product entries currently available in the ETS database for the appropriate application program appears. If necessary, please correct the taken mappings after reading. This mapping applies to all devices with the previous selected product.

If different devices with the same **Application Program ID** should use different product entries please make changes on the [project page](#) for each device. Double-click on an entry in the Product column. A list of all available entries for the corresponding application programs appears. This assignment is only valid for the respective device.



Note: **Application Program ID** can not and must not be modified manually in Reconstruction. Application Program ID is unique within all product data and identifies exactly the Application Program used for programming the device. If changed reconstruction would try to access invalid device memory.

## 4.14 Product data for Couplers

Until now, no manufacturer or application identifier has been stored in coupler units.

Reconstruction can therefore not determine from which manufacturer the device originates

You can use all coupler product data corresponding to the mask version read out for reading out the coupler device.

The coupler mask versions Coupler 0900, Coupler 0910 and Coupler 0911 are compatible.

During [Reading products](#) Reconstruction searches for all matching coupler product data. You can then select the matching coupler via the product selection dialog.

After [reading devices](#), the product assignment for the coupler should **no longer be changed**.

If you have accidentally assigned the wrong product to a coupler, you can still change the product assignment afterwards. A corresponding entry is then written in the log text.

In most cases, Reconstruction will work even if the product data for the coupler has been changed after the readout.

If errors still occur, you should read out the coupler again with the correct product data:

Delete the device entry for the coupler in the [project window](#) of Reconstruction, scan the coupler device again via the menu command [Scan Single Device](#), then assign the correct product data and read coupler device.

Please ensure that the matching product data is available in the project (available in the local ETS catalog and "Read products" has been executed). As a workaround, you have to manually import the desired product data from the online catalog into the local ETS catalog.

## 4.15 Info for device status

Depending on the progress of the read or reconstruction result for devices, there are different values for device status:

Not identified	<p>The Device identification is not completed, e.g. <b>Application Program ID</b> or <b>mask version</b> is missing.</p> <p>That may happen in case of an error during scanning or when the device was added manually but the address could not be found in the installation.</p> <p>It is also possible that the application program is not loaded. In this case, the device memory most likely does not contain any consistent data.</p>
Local	<p>Device is a local gateway. . It is neither identified nor read out or reconstructed.</p>
No product data	<p>No product data was found for the <b>Application Program ID</b> read out. Please perform "<a href="#">Read products</a>" first. If no data was found, please import the appropriate product data and run "Read products" again..</p> <p>For reconstruction product data with the same Application Program ID are required. (= &gt; <a href="#">What does "No Productdata" mean?</a>)</p>
Secure device cannot be read	<p>KNX Secure device can only be read out and reconstructed if it's keyring file is available or an old project file is available (which was used while programming the device) or Secure option was not used at all (when the device was programmed).</p>
Re-import product data	<p>Identifier from ETS product data.</p> <p>After reconstruction process these devices are marked in ETS with a yellow symbol  , please also see ETS help on the device symbols. According to the ETS help, a yellow symbol in the ETS device window means that, from a project point of view, the device information is incomplete.</p> <p>The device can be edited and programmed, therefore it can be completely reconstructed.</p> <p>(Exception: some products with ETS2 plug-ins, which cannot be inserted into the ETS5/ETS6 project because of using an ETS2 plug-in and therefore cannot be reconstructed.)</p> <p>To add the possibly missing device information in the ETS, it helps to re-import the product data and use the current product data.</p> <p>Unfortunately, this option does not usually help with the Reconstruction, since exactly the version of the product data is required with which the device was programmed.</p> <p>For further questions, please contact the manufacturer of the device or the KNX Association.</p>
Unloaded	<p>The load status of the Application Program in the device is marked as not loaded. The device memory may contain meaningless data which cannot be reconstructed at all, or only incompletely or incorrectly.</p> <p>Devices with unloaded Application Programs are therefore skipped during identification. As described under "Not identified", unloaded devices can also be identified, read out and reconstructed.</p>
Not read	<p>Device was not yet read</p>
Read	<p>Device was read without errors</p>

Read incomplete	Device data read are incomplete, e.g. parameter image or group communication tables are missing or incomplete (=> please try read again)  As product data up to the version number exactly the same application program is needed as read out. (=> Why does "No product data available" appear?)
Not reconstructed	Device was read, but not yet reconstructed or compared. If this entry is marked with a red flag, further information may be available as a tooltip or on the right-hand side of the property page under Reconstruction Info. See also <a href="#">Device cannot be reconstructed</a> .
Not supported Not reconstructable Not comparable	Current version of Reconstruction does not support reconstruction or comparison of this device (different reason possible: plug-in or special product format etc.)
Reconstruction OK	Last reconstruction was successful, the ETS device's download image is identical to the read image
Reconstruction incomplete	Last reconstruction was not successful, e.g. the ETS device's download image is different from the read image, or assigning group addresses with group objects failed because of inactive group objects or mismatch of length. You may increase the iteration frequency for undetermined parameter values, as described in <a href="#">Incomplete reconstruction</a> .
Identical	Last compare did not find any differences, the ETS device's download image is identical to the read image.
Differences found	Last compare found differences
Not in ETS Project	Device was not found in the ETS project.

## 4.16 Incomplete reconstruction

Although most devices can be reconstructed easily and completely, there are individual exceptions. Please see Reconstruction info on property page for details.

- Please check in the ETS in the app overview or in the KNX online shop whether a newer version of Reconstruction is available and install it. Updates are free of charge.
- Devices with Plug-In software can use its own reconstruction methods. If the device uses a product-specific parameters dialog (see "parameters" in ETS) please take a look there for a product-specific reconstruction. See also [Reconstruction and plug-ins](#).
- There are some application programs with complex parameter interdependencies that cannot be resolved by Reconstruction in some combinations.

In these cases, the reconstruction mechanism performs an iteration through various combinations with the aim of finding a parameter configuration which would produce the same download image as the data read. Because the creation of the virtual device image is a very memory-intensive operation, the Reconstruction stops after 100 iterations. If not all possible combinations have been tried, a corresponding message is displayed in the Reconstruction info in the device's Properties dialog.

In these cases, it can be useful to increase the iteration limit for undetermined parameter values from Fast to Medium or Maximum. Please open configuration settings just on the tool bar of

Reconstruction and increase the iteration limit for undetermined parameter values. Now re-start reconstruction only for the incomplete reconstructed device by using the option *selected*. Note that reconstruction may take a long time.

- Reconstruction will also fail when there are group addresses which cannot be linked with group objects.

Maybe reconstructed parameters did not activate the mentioned group object. If there is a hint in Reconstruction info that not all parameter combinations are tested, please increase the iteration limit for undetermined parameter values as described above.

Or maybe the group address is already connected to another group object with different length. In this case of inconsistent data Reconstruction will fail until the invalid association is removed.

- In ETS5/6 group addresses without a connection can also get a datapoint type. If this datapoint type does not match the connections the Reconstruction wants to create, please delete the group address in the ETS first Reconstruction will then insert it.

If the device is still not reconstructed completely, please contact our [Support](#), we will then try to find a solution.

See also: [Data required for support](#)

## 4.17 Reconstruction and plug-ins

Devices which use plug-ins normally can not be reconstructed without some additional information. So Reconstruction provides an interface for a special reconstruction plug-in which can be implemented by the product manufacturer and distributed by product data.

This special reconstruction plug-in will be automatically executed during device reconstruction and can either implement its own reconstruction mechanism for parameter and group objects or handover this task to standard mechanism of Reconstruction.

If a special reconstruction plug-in is used you will find a hint like "External association compare for Plugin .." or "External association update for Plugin .." in the Reconstruction info.

For reading or reconstructing a device which uses plug-in ETS has to run in compatibility mode (In ETS5: Apps overview in ETS, Compatibility Mode App from KNX Association has to be enabled. In ETS6: Setting > Presentation > Compitibility mode (check box) has to be enabled).

Plug-in devices without this reconstruction interface cannot be reconstructed by Reconstruction, but some of them can be (partially) read at least.

Some plug-in devices provide an own reconstruction option in the product-specific parameter dialog: If the device is not yet part of the ETS project, please add it with the correct individual address, then select "parameter" and open the product specific parameter dialog.

## 4.18 Data required for support

To analyze a readout or reconstruction problem we need the following data:

- If **product data are missing**:
  - the XML-file generated by the Reconstruction (in the reconstruction window "File > Save Current State")
  - report "Missing Products" created from Reconstruction app

- If there is a problem with **scan topology, scan or read devices**:
  - ETS log file (can be packed into a zip file in ETS5/6 via Settings > Troubleshooting > Start Tool Diagnostics)
  - result of ETS Device Info with "Read group communication part" (in ETS5/6 in project Diagnostics > Device Info)
  - the XML-file generated by the Reconstruction (in Reconstruction window "File > Save Current State")
  - ETS project exported as knxproj file
- If there is a problem with **reconstruction of devices**:
  - the XML-file generated by the Reconstruction (in Reconstruction window "File > Save Current State")
  - ETS project exported as knxproj file

Please send the data together with an error description to:

[support@it-gmbh.de](mailto:support@it-gmbh.de)

If data require more than 50 MB storage space, please contact us.

## 4.19 Device cannot be reconstructed

- Please check in the ETS in the app overview or in the KNX online shop, whether a newer version of Reconstruction is available and install it. Updates are free of charge.
- If the status of the device does not change after executing the Reconstruct command and no progress bar with the reconstruction progress appears, please check whether a device with the specified address already exists in the project and the option "Overwrite existing device" is set to "Never" in the Reconstruct [configuration](#). With this setting, existing devices are skipped during reconstruction.
- Devices with plugins cannot be reconstructed if the plugin manufacturer does not support the reconstruction interface.  
If the plugin supports reconstruction, ETS has to run in compatibility mode. See also: [Reconstruction and Plugins](#).
- Devices that are protected by Secure but for which no key is available (via a keyring file or an older project state) cannot be read or reconstructed with the current version of %PRODUCTNAME%>.
- Inconsistent product data (rare): for a few devices, the product data is incorrect or does not match the device in all cases. For example, according to the group communication tables read out, an association is programmed via a group object with a certain length, but there is no matching group object with this number and this length defined in the product data.  
These devices cannot be reconstructed. Please contact the device's manufacturer for further information.  
It is possible to completely reconstruct other devices with this product data, as long as no associations are programmed via the non-matching group objects.
- If ETS is running in compatibility mode (Compatibility Mode App is selected in Apps overview in ETS5 or Compatibility mode is enabled in Settings in ETS6), memory problems may occur during an extremely elaborate reconstruction process. You will then find an entry such as "An exception of the

type "System.OutOfMemoryException" was thrown" in the tooltip for the device status in the device overview or in the properties dialog under Reconstruction Info. If you do not want to reconstruct a plug-in device at the moment, please deactivate the compatibility mode of the ETS and restart the Reconstruction. After the reconstruction, you can reactivate the Compatibility Mode.

- Further information on why the reconstruction process is aborted or does not produce the desired result can be found in the properties dialog under Reconstruction Info or as a tooltip in the status field in the device overview and also here: [Incomplete reconstruction](#)

## 4.20 What is the "Online-Service"?

IT GmbH provides from version 5.0.1516 a (chargeable) online service that gives you access to thousands of current and older product data. Data from over 15,000 application programs is currently available there.

Products that do not yet exist in the project are automatically searched for via the online service and can be downloaded directly from within the Reconstruction app (ETS5) or even imported directly (ETS6).

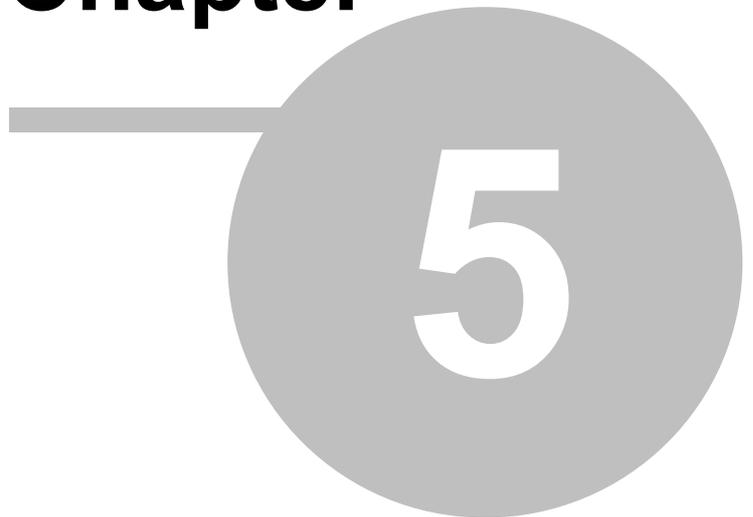
To access, you need a personalized key, which you can purchase from [sales@it-gmbh.de](mailto:sales@it-gmbh.de). Enter this key in the [Configuration Dialog](#).

We put a lot of effort into the maintenance of this database and therefore ask for your understanding that the personalized key is only intended for the acquirer and may not be passed on to third parties!

## 4.21 How is the Product finder catalog file generated?

Product finder catalog file is generated by using the ProductFinder tool.

**Chapter**



**Imprint**

## 5 Imprint

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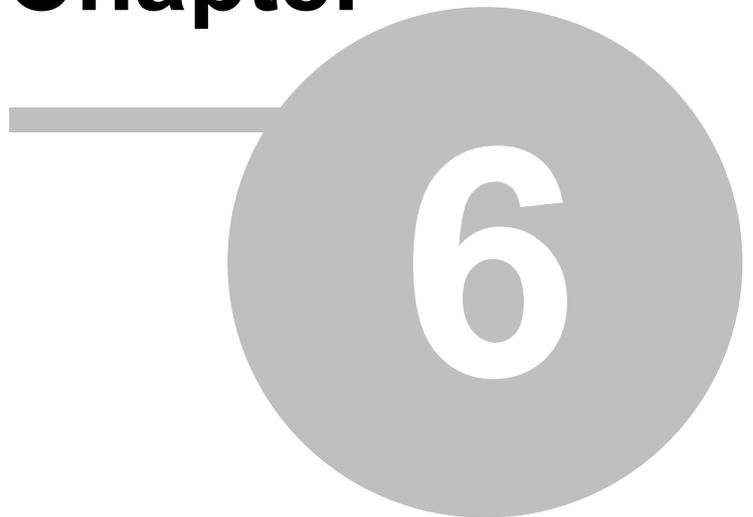
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ETS is a registered trademark of KNX Association c.v.b.a.

**Chapter**



**Contact**

## 6 Contact

### Orders

ETS App Reconstruction is available only at KNX Onlineshop.

For information and orders please contact our sales office:

Phone: +49 (0) 911 518349-0 (Mo-Fr 9 a.m. to 4 p.m.)

Email: [vertrieb@it-gmbh.de](mailto:vertrieb@it-gmbh.de)

### Support Service

If you have questions or problems, you may contact our support:

Phone: +49 (0) 911 518349-10 (Mo-Fr 9 a.m. to 4 p.m.)

Email: [support@it-gmbh.de](mailto:support@it-gmbh.de)

WEB: [problem report](#)

### Newsletter

We would like to inform you about useful additional products and news. If you wish, please register for our newsletter. Click on the link below to access our newsletter registration page. You can cancel your registration at any time without giving any reasons.

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**Chapter**



**Feedback**

## 7 Feedback

Please help us to improve Reconstruction. Your feedback may influence further development so that in subsequent Reconstruction versions and manual editions your wishes and requirements may be taken into consideration. We look forward to receiving your comments and wishes on the content, representation of associations as well as comprehensibility regarding Reconstruction program parts or documentation. Please also let us know if you have any improvement suggestions with regard to support, training or sales.

[Feedback via IT Website](#)

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