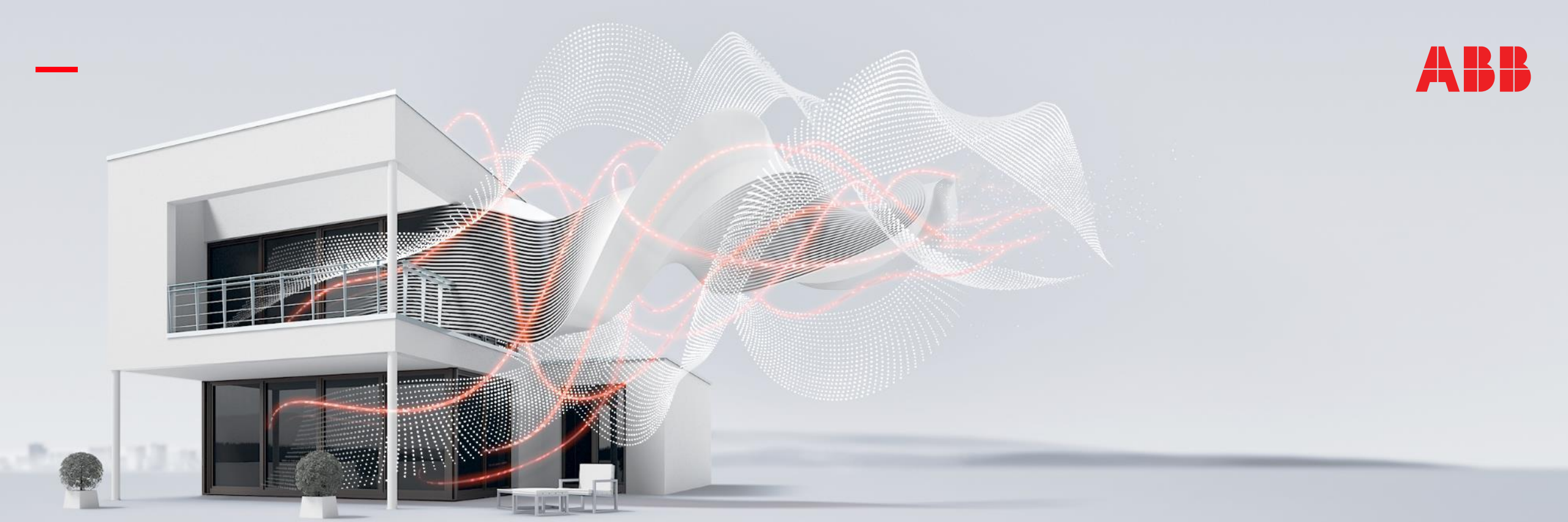

FEBRUARY 2019

Webinar “Various software tools for KNX”

Competence Center Europe – Smart Buildings

Thorsten Reibel, Jürgen Schilder, Stefan Grosse, Martin Wichary & Ilija Zivadinovic

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Agenda

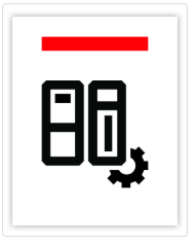
Firmware update of KNX devices

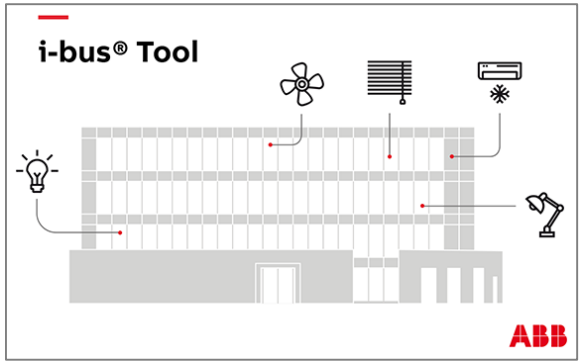
ABB ETS Apps (Update, Copy/Convert,…)

ETS “DCA” concept

ABB i-bus® Tool

Analyzing of KNXnet/IP telegrams on IP level





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Firmware update of KNX devices

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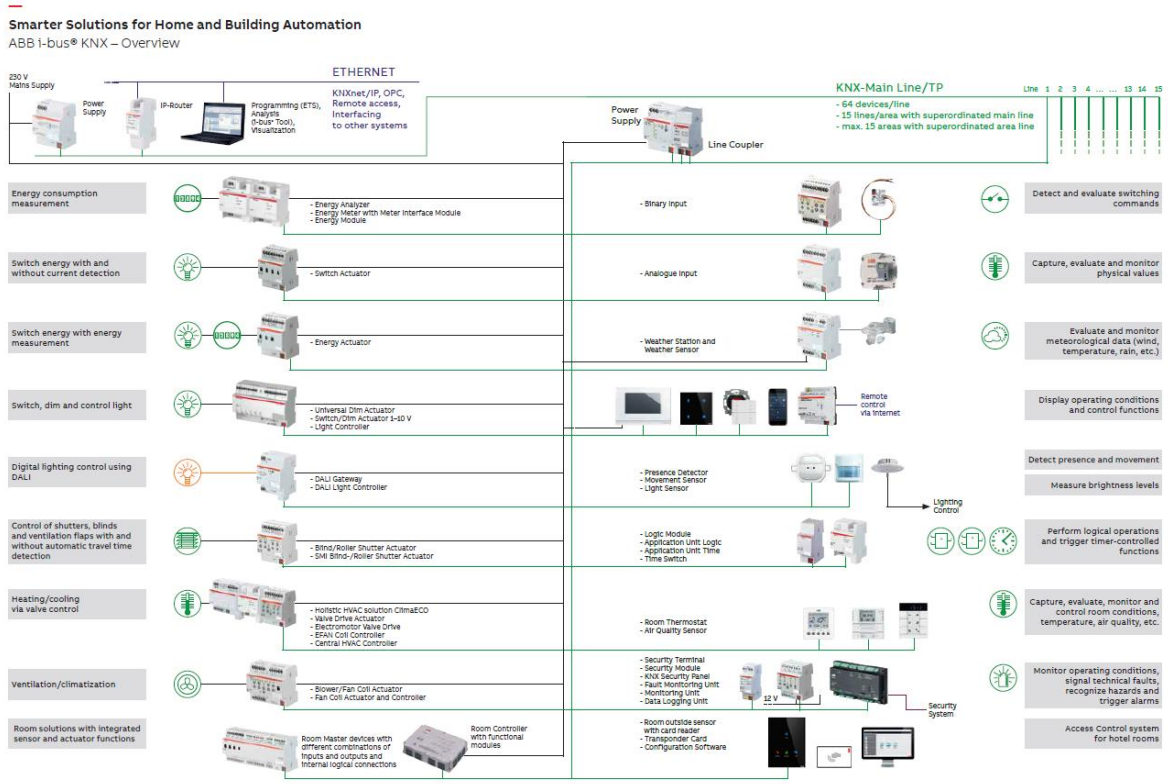
Firmware update of KNX devices

Firmware is an essential part of a product, beside application software and hardware

Components are getting more comprehensive and powerful, resulting in powerful firmware

New firmware versions might appear, due to necessary adaptions or new features

As a KNX system is not online, firmware updates have to be initiated by the user, system integrator or installer



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Firmware update

ABB i-busTool

- IP Router IPR/S 3.1.1
- IP Interfaces IPS/S 3.1.1
- Logic Controller ABA/S 1.2.1

ETS App “KNX Bus Update”

- DALI Gateways DG/S x.64.1.1
- Busch-Presence detector 6131/x
- Universal Dim Actuators
- ClimaECO devices
- …

WebUI

- Security Panel GM/A
- Energy Analyzer QA/S
- Application Controller AC/S 1.x.1

Important:

- IP Router IPR/S 3.1.1: Firmware
- IP Interfaces IPS/S 3.1.1: Firmware
- Security Panel GM/A: Firmware and ETS application
- Logic Controller ABA/S 1.2.1: Firmware
- DALI Gateway DG/S x.64.1.1: Firmware and ETS application

Please note:

Following products have to be updated now (Status Feb. 2019):

- Only the latest firmware updates ensure an optimal operational performance and the long-term stability of the application
- Devices must be updated at the earliest possible opportunity
- IP Interface IPS/S 3.1.1, IP Router IPR/S 3.1.1, Security Panel GM/A 8.1, Logic Controller ABA/S 1.2.1

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ETS Apps

Webinar “Various software tools for KNX”

ETS Apps

In principle, the ETS Professional is sufficient for users wishing to install and configure KNX systems

An ETS App is a functionality extension

- It adds functionality to ETS
- It adds functionality to a product in addition to parameters (DCA – Device Configuration App)

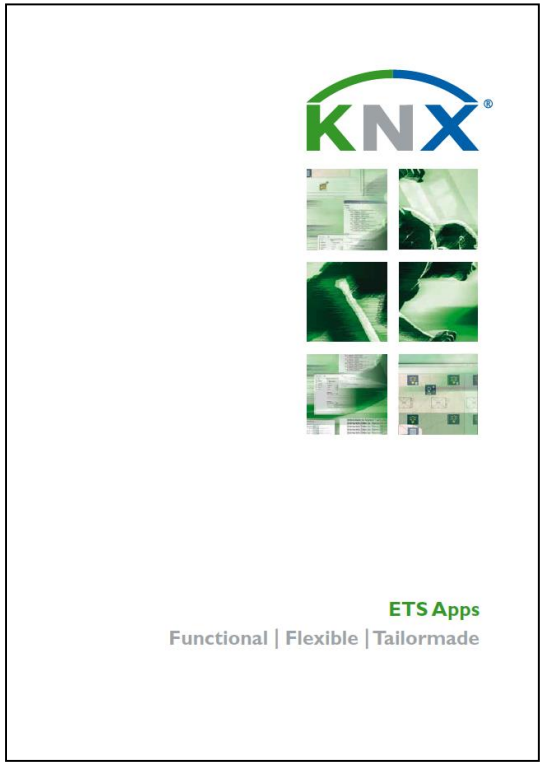
All ETS Apps (“*.etsapp”) must be downloaded and installed

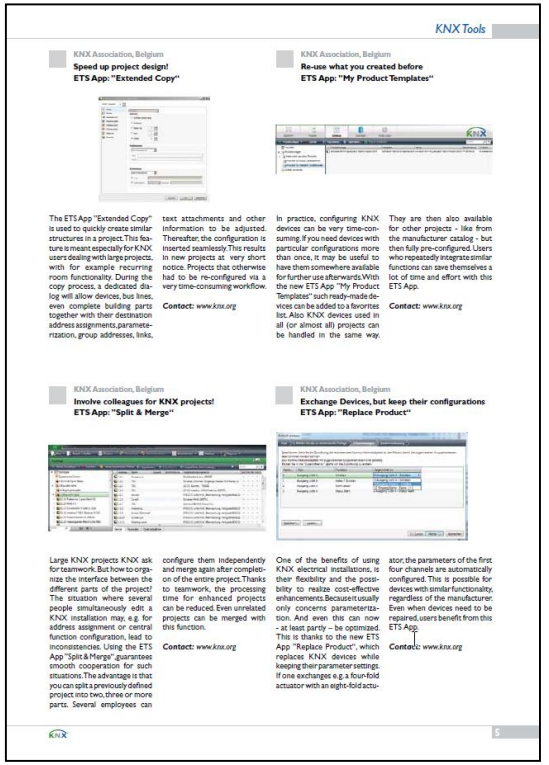
Non DCA Apps (“*.etsapp”) must be additionally purchased and licensed

The apps are only available in the “My.KNX”, Device Configuration App’s (DCA) also from the manufacturer

Apps of the manufacturers are mostly free of charge

Usable in ETS5, partly also in ETS4, DCA only in ETS5





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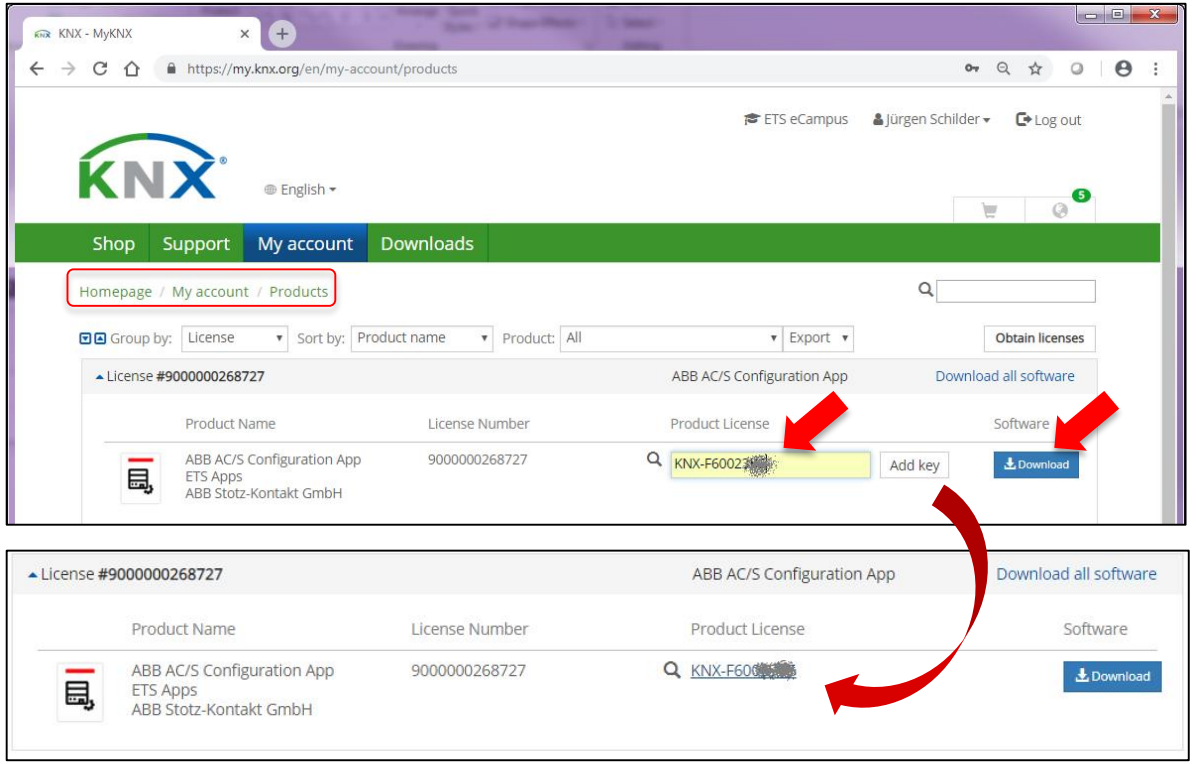
ETS Apps

How to get an app and license file?

- Visit MyKNX: https://my.knx.org
- Sign in with your KNX partner account
- Go to “Shop” → “ETS Apps”, order your desired ETS App and follow the steps
- The app appears in “My account” → “Products”
- Download the app file (*.etsapp)
- Enter the license ID of your ETS dongle and press “Add key”
- Download the product license file



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ETS Apps

How to install an app and license file?

- Start your ETS5
- Click on the item “Apps” to open the app list window
  - Then click the “+” icon on top to install the “*.etsapp” file
  - Locate the app file, select it and then press “Open” button
  - Your ETS App is now installed
  - You will see the new entry appearing in the list of available Apps
- Click on the item “License ETS” to open the license list window
  - Then click the “+” icon on top add a license
  - Locate the license file, select it and then press “Open” button
  - Your ETS App is now installed and licensed
- Check regularly if there are updates available
  → The ETS does not check automatically!!!

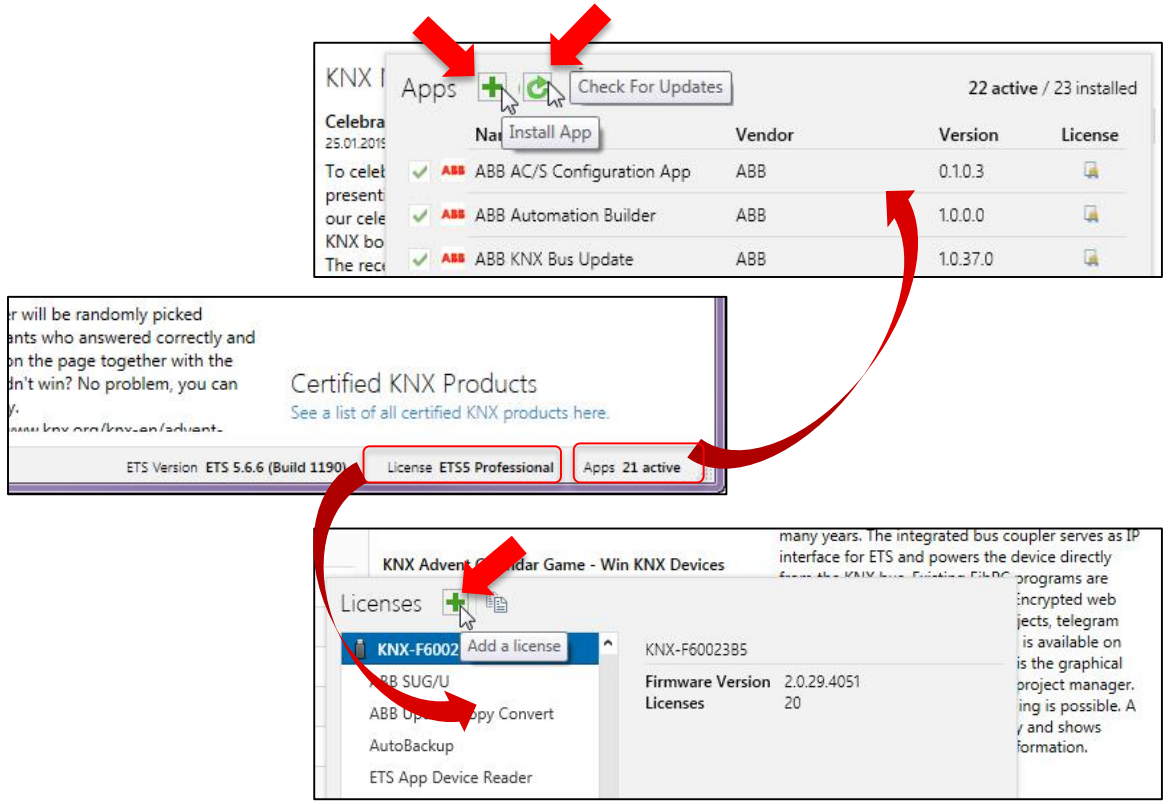

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ABB ETS Apps

Overview

- SUG/U 1.1 Configuration (Split Unit Gateway)
- KNX Bus Update
- Update Copy Convert
- MOOVnGROUP by ABB France
- Export for IP-Project (ComfortPanel)
- DCA: AC/S Configuration (Application Controller)
- DCA: Automation Builder (Building Automation Controller)

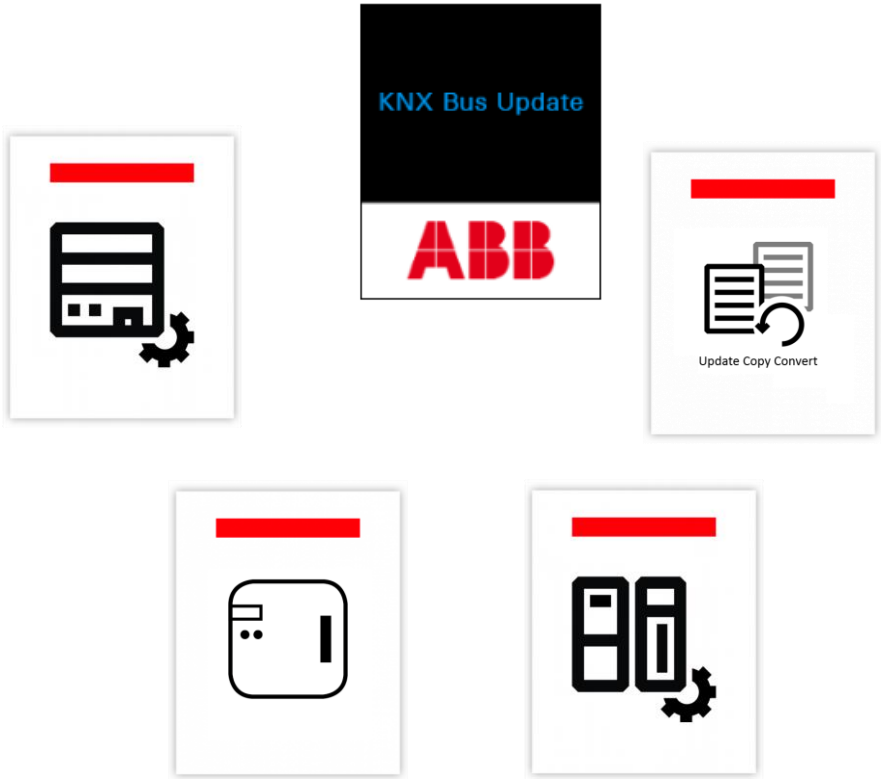

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ABB ETS App: “SUG/U 1.1 Configuration”

- This App is needed for configuration of the ABB SUG/U 1.1 Split Unit Gateway
- The manufacturer of the split unit and the remote type are stored in a database to be loaded into the ETS application
- The download into the device is done by normal ETS download
- Price €0.- (licensing is required)
- Commissioning
  - Add the Split Unit Gateway to the building or topology view
  - Click on the Gateway and start the app (menu Apps” → “ABB“ → “ABB SUG/U Configuration”)
  - Click the Gateway in the window of the “ABB SUG/U Configuration” app and select the remote control manufacturer and type in the “Properties” window
  - The settings are transferred to the ETS parameters

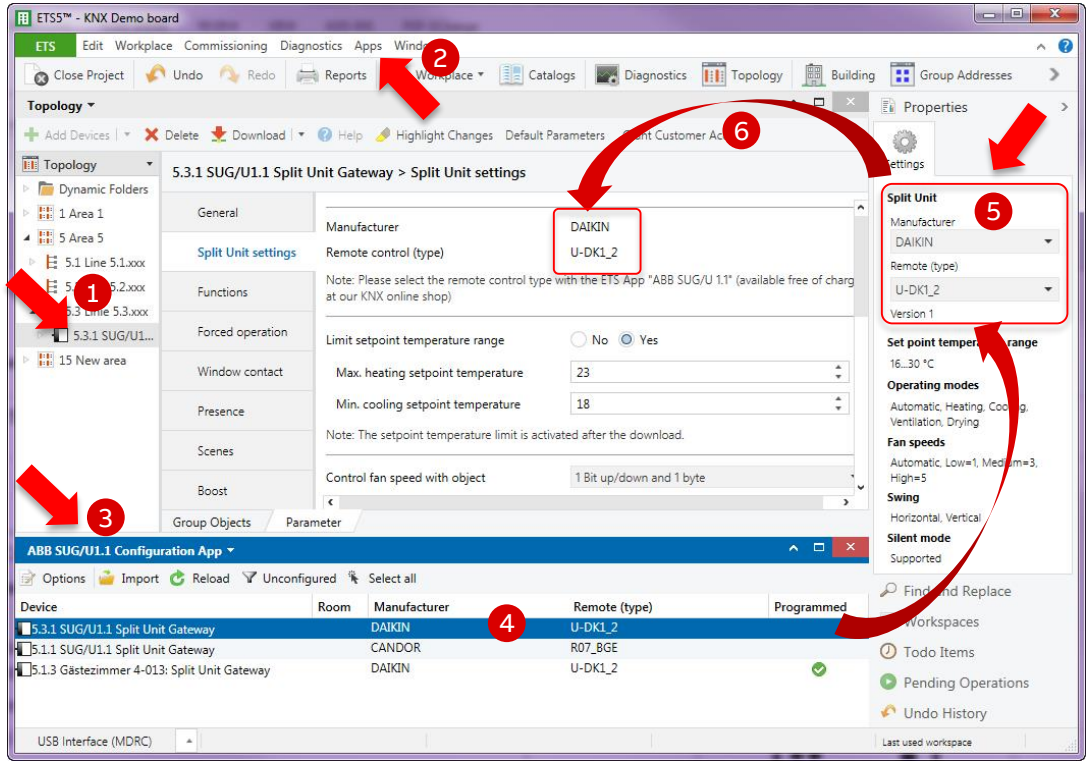

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ABB ETS App: “KNX Bus Update”

- The ETS app “KNX Bus Update” serves for the firmware update of various ABB KNX devices via the ETS
- The current firmware files can be downloaded automatically or via import file “*.fwupd” from the ABB product page
  - ECU12G18: Collection file contains only firmware of DALI Gateways, ClimeECO devices, …
    In addition, an update of the ETS application is required!
    Via ETS App „Update Copy Convert“ an existing parametrization can be adopted
  - 61xx/xx…: Single file per device incl. firmware & ETS application, e.g. Busch-Presence detector
- Target is to update future devices only in this app

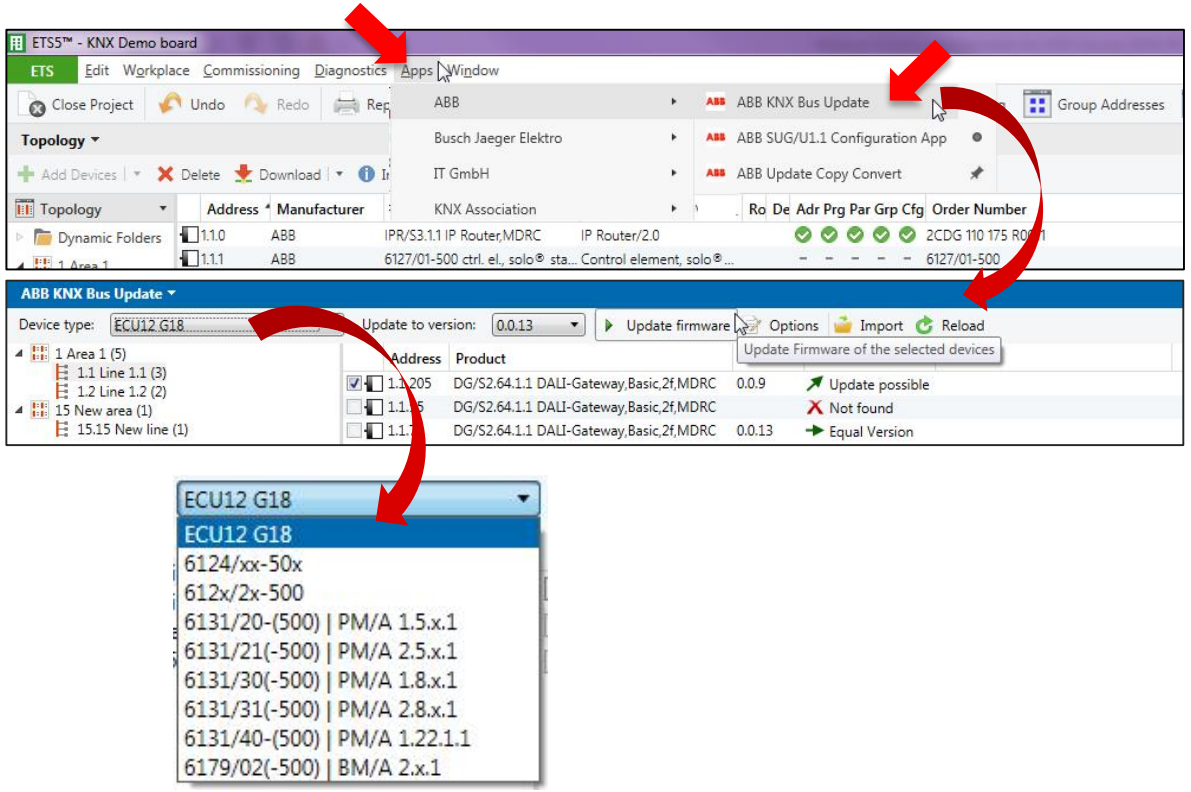

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ABB ETS App: “KNX Bus Update”

- The app shows automatically all possible devices that are used in the currently open project and compares it with the installation
- Select the corresponding devices and press „Update firmware”
- During the update process there is a high amount of telegrams → The KNX interface should be physically in the same KNX line as the updated device. It is not recommend to update across lines (e.g. via line coupler)
- Price €0.- (licensing is required)
- To perform the update process, a technical bulletin is available for the DALI Gateways DG/S x.64.1.1 (ABB product page)

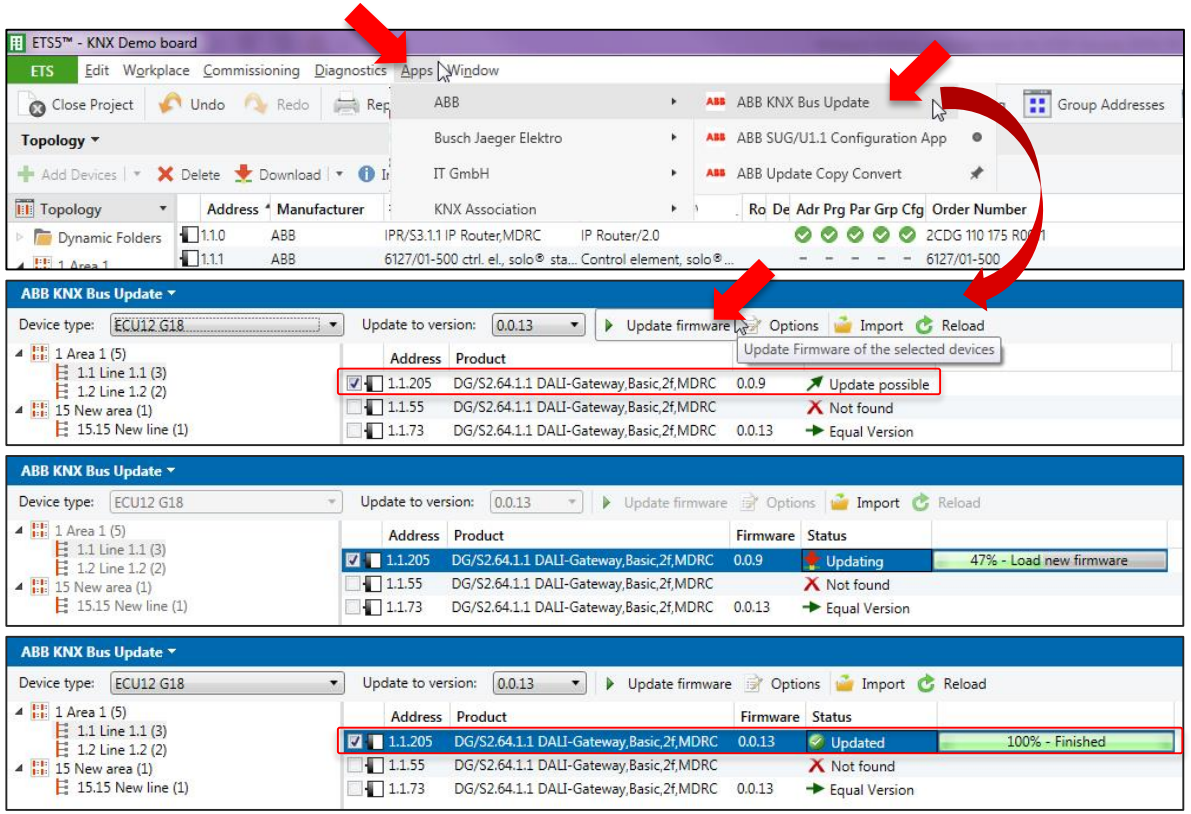

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ABB ETS App: “Update Copy Convert”

- This app provides a series of useful functions for device configuration (parameters and group addresses) in an ETS project
  - Update: Changes the application program to a later or earlier version while retaining current configurations
  - Convert: Transfers/adopts a configuration from an identical or compatible source device
  - Copy Channels: Copies a channel configuration to other channels on a multichannel device
  - Exchange Channels : Exchanges configurations between two channels on a multichannel device
  - Import/Export: Saves and reads device configurations as external XML files
- Price €0.- (licensing is required)
- This is the former ETS plug-in “Copy, Convert/Exchange” (plug-ins are no longer allowed)

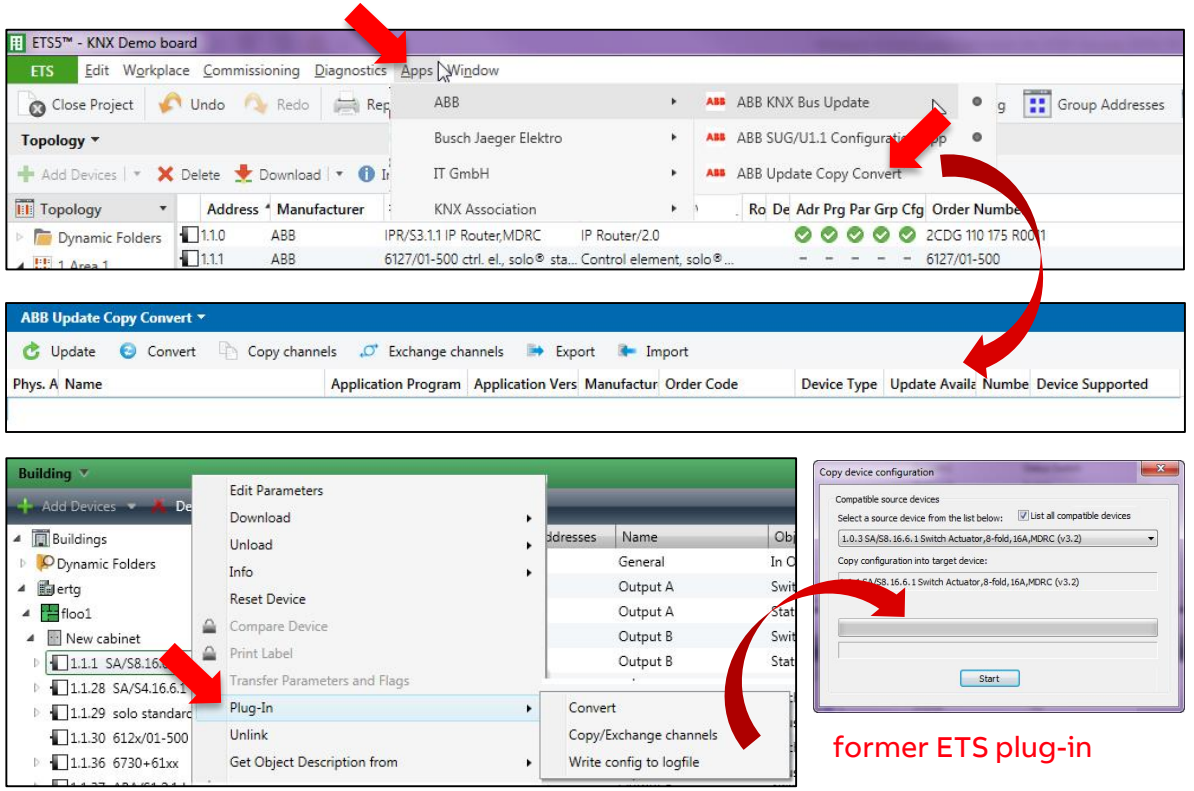

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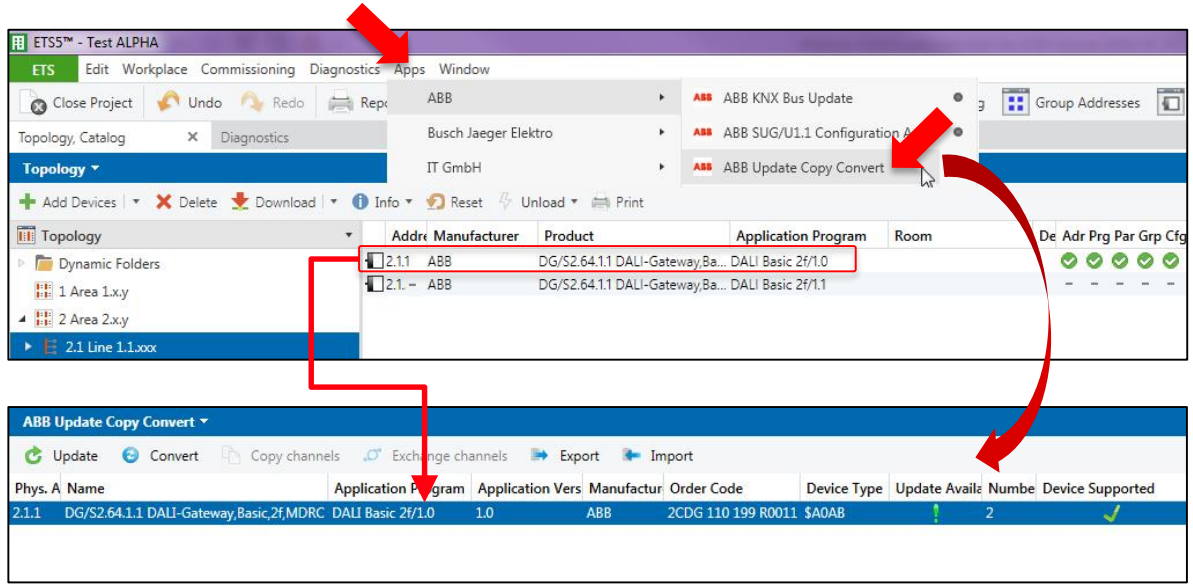
ABB ETS App: “Update Copy Convert” – Update

Change the application program to a later or earlier version while retaining current configurations

- The parameterization and the linked group addresses were retained during the update
- Open the project that contains the DALI gateways (e.g. 2.1.1 with application program V1.0)
- Import the new application in the product catalog (available on ABB product page)
- Insert a new DALI gateway with the new application as a reference product into the project (e.g. 2.1.- with V1.1)
- Based on this new product the app is able to reference all gateways within the project
- Start the „ABB Update Copy Convert” app via the menu bar „Apps”
- Select the DALI gateway that should be updated
- The selected DALI gateway will be displayed in the app view …



DG/S: Ind. address 2.1.1 and application program V1.0

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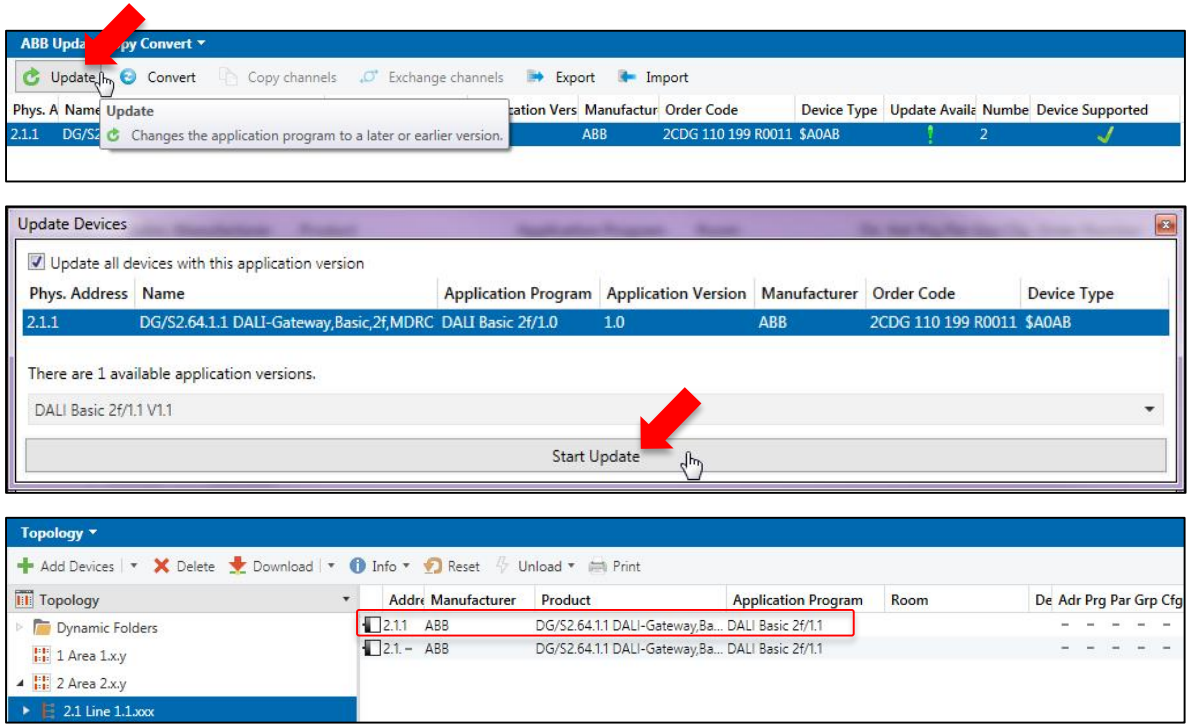
ABB ETS App: “Update Copy Convert” – Update

- Activate the update process
- By setting the checkbox „Update all devices with this application version” all existing devices within the project will be displayed
- The lower part of the window is showing the available versions of the application
- The process starts with the „Start Update” button
- The change of the application or full download to the corresponding device can last several minutes
- Therefore, the download of the new application should be done within the same line → It is not recommend to update across lines (e.g. via line coupler)
- If interfaces are used which supports „long-frames” (e.g. IPS/S 3.1.1) the process can be shortened



DG/S: Ind. address 2.1.1 was updated to application program V1.1

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ABB ETS App: “Update Copy Convert” – Convert

Transferring the parameterization and linked group addresses from a source device to an identical or compatible destination device

Example: Convert SA/S 4-fold to SA/S 8-fold

- Add and select a destination device in the project e.g. Switch Actuator SA/S 8.16.6.1 with individual address 2.4.7
- Start the „ABB Update Copy Convert” app via the menu bar „Apps” and press the button “Convert”
- By setting the checkbox „Show compatible devices” all existing identical or compatible source devices within the project will be displayed
- Select the source device that should be converted, e.g. 2.4.1
- Set the behavior of copying the group addresses in the destination device and deleting the source device …

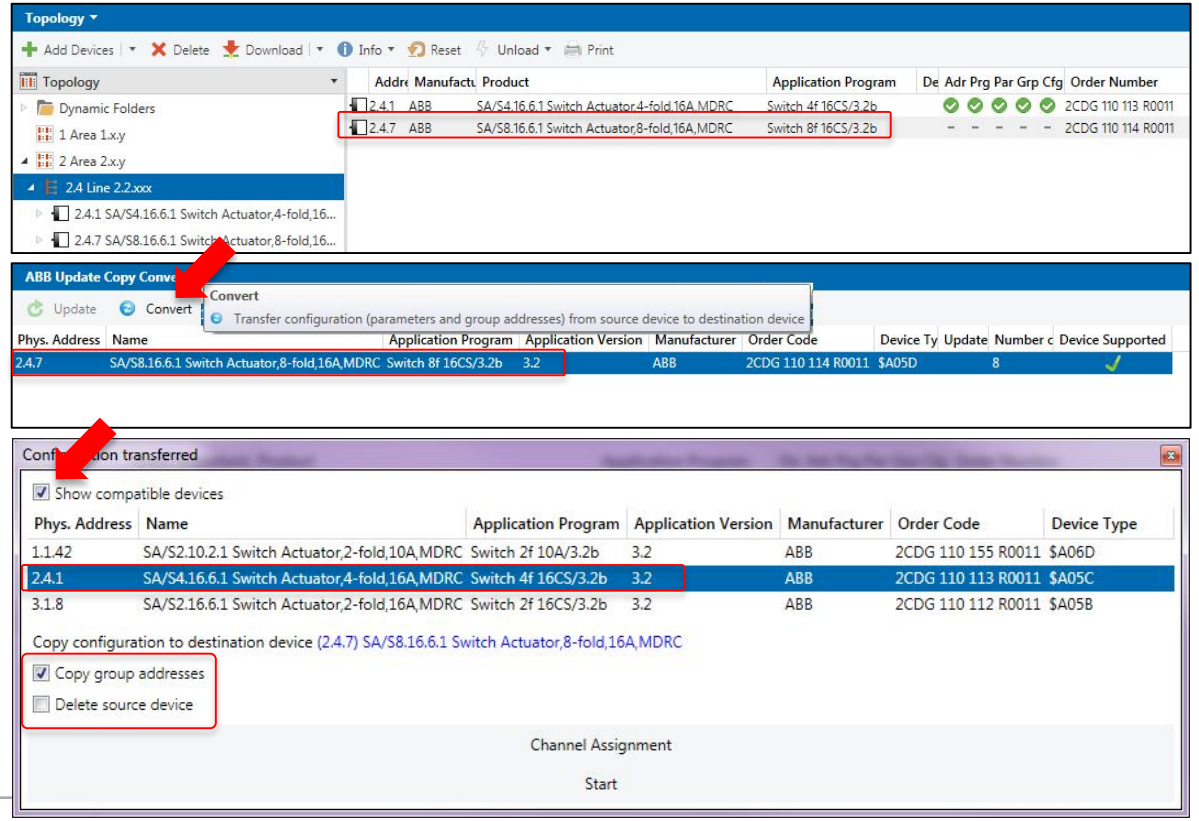

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ABB ETS App: “Update Copy Convert” – Convert

- The channels are assigned directly
  - Source device “Output A” to destination device “Output A”
  - …
- If necessary, adjust channel assignment, e.g.
  - Source device “Output A” to destination device “Output F”
  - …
- Press the „Start” button
- The parameterization and linked group addresses are transferred from a source device to the destination device
- Download the converted application to the destination device

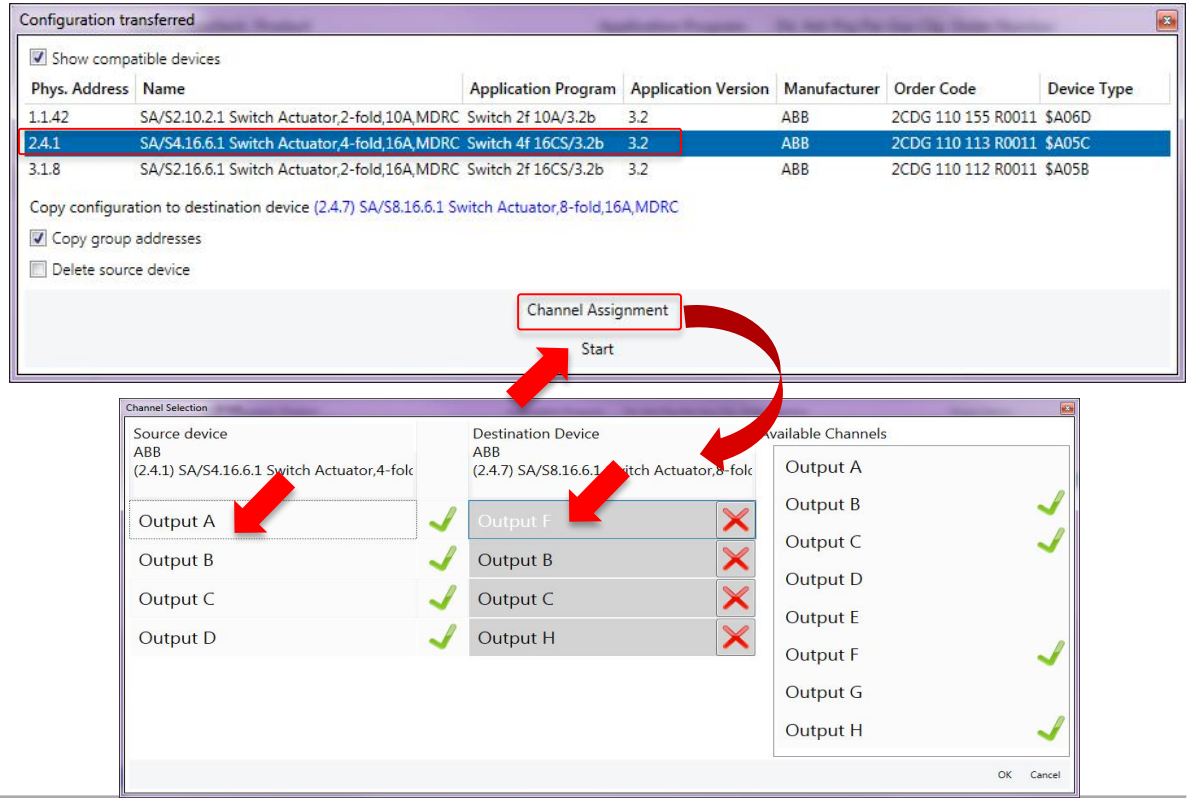

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ABB ETS App: “Update Copy Convert” – Copy channels

Copy a channel parameterization and linked group addresses to other channels on a multichannel device

Example Switch Actuator SA/S: Copy channel A to channel C-F

- Configure a channel of a device as a template, e.g. channel A
- Select the device in the project
  e.g. Switch Actuator SA/S 8.16.6.1 with individual address 2.3.1
- Start the „ABB Update Copy Convert” app via the menu bar „Apps” and press the button “Copy channels” …

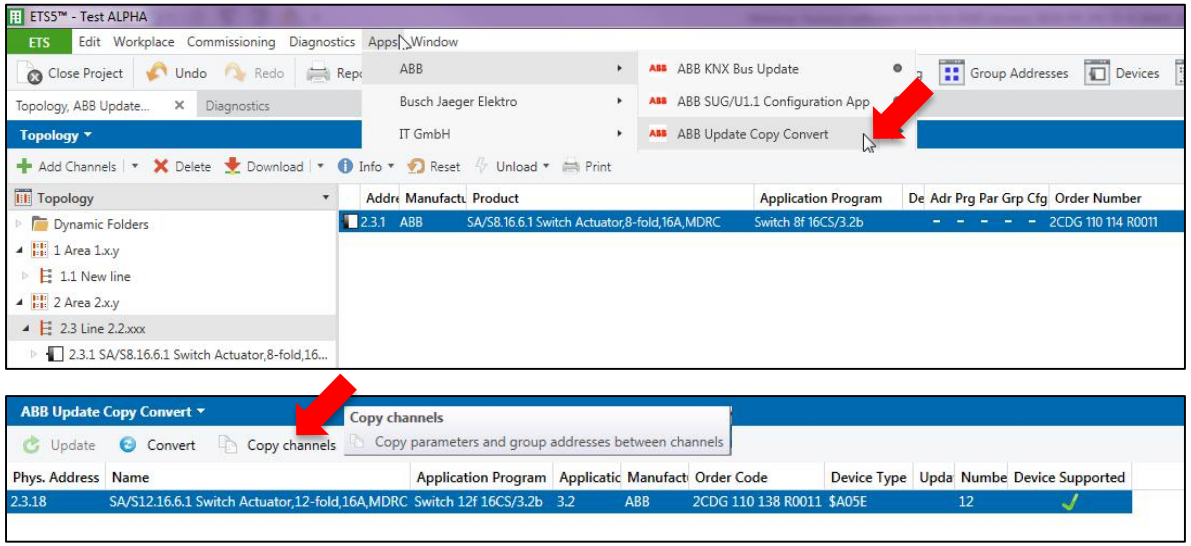

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ABB ETS App: “Update Copy Convert” – Copy channels

- Select the source channel, e.g. channel A
- Select the destination channel(s), e.g. channel C-F
- Set the behavior of the group addresses in the destination channel(s)
  - Retain
  - Copy
  - Delete
- Press the „Copy channels” button
- The configuration (parameterization and group addresses) are transferred from a source channel to the destination channel(s)

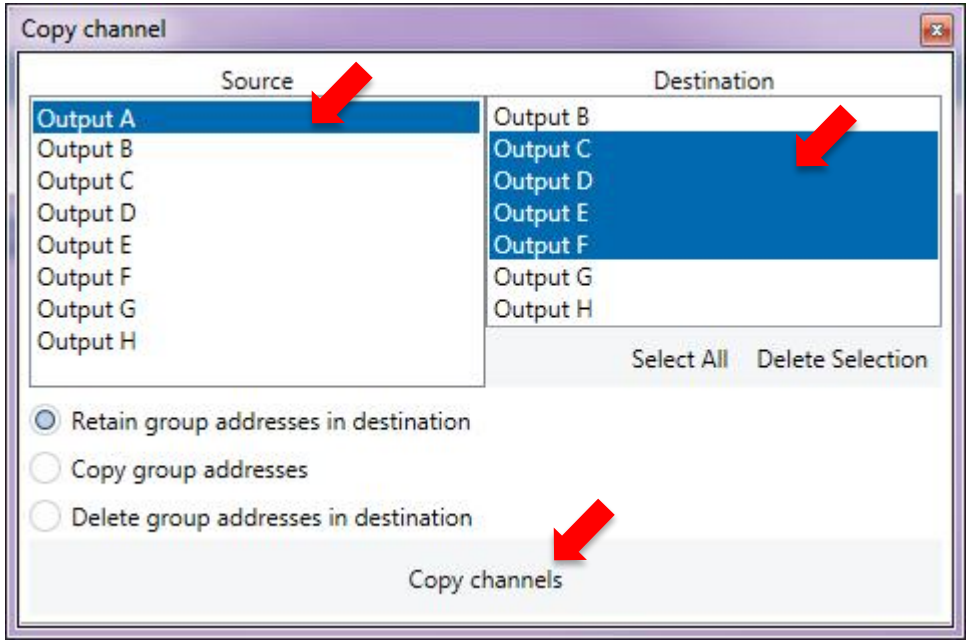

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ABB ETS App: “Update Copy Convert” – Exchange

Exchange of the channel parameterization and linked group addresses between two channels on a multichannel device

Example Binary Input BE/S: Exchange channel C and channel H

- Configure the channels of a device, e.g. channel C and H
- Select the device in the project
  e.g. Binary Input BE/S 230.2.1 with individual address 2.5.7
- Start the „ABB Update Copy Convert” app via the menu bar „Apps” and press the button “Exchange channels” …

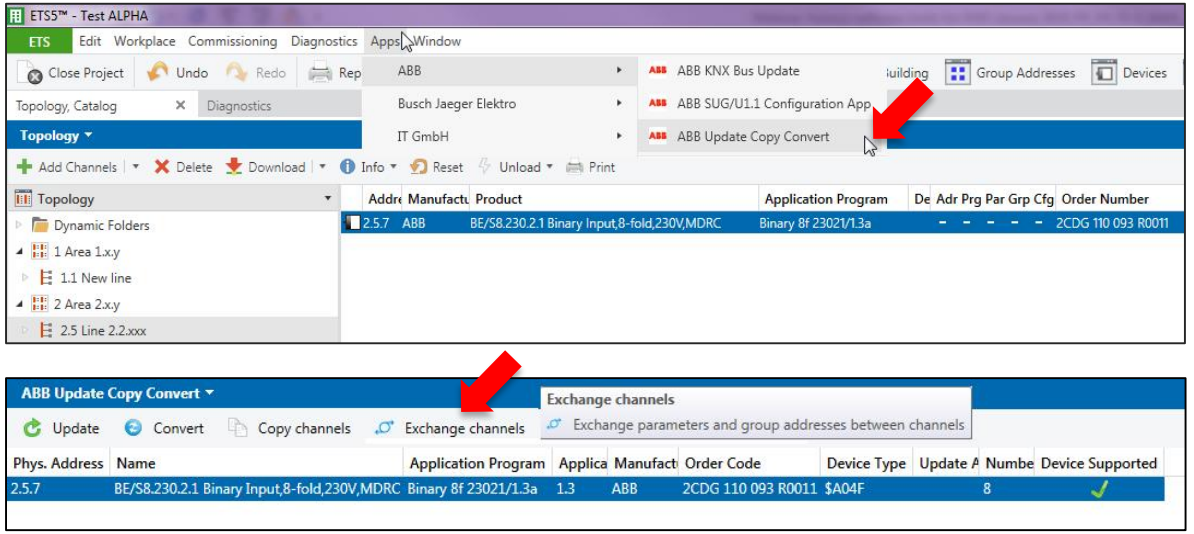

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ABB ETS App: “Update Copy Convert” – Exchange

- Select both channels, e.g. channel C and F
- Set the behavior of the group addresses in the channels
  - Retain
  - Copy
  - Delete
- Press the „Exchange channels” button
- The configuration (parameterization and group addresses) are exchanged between two channels on a multichannel device

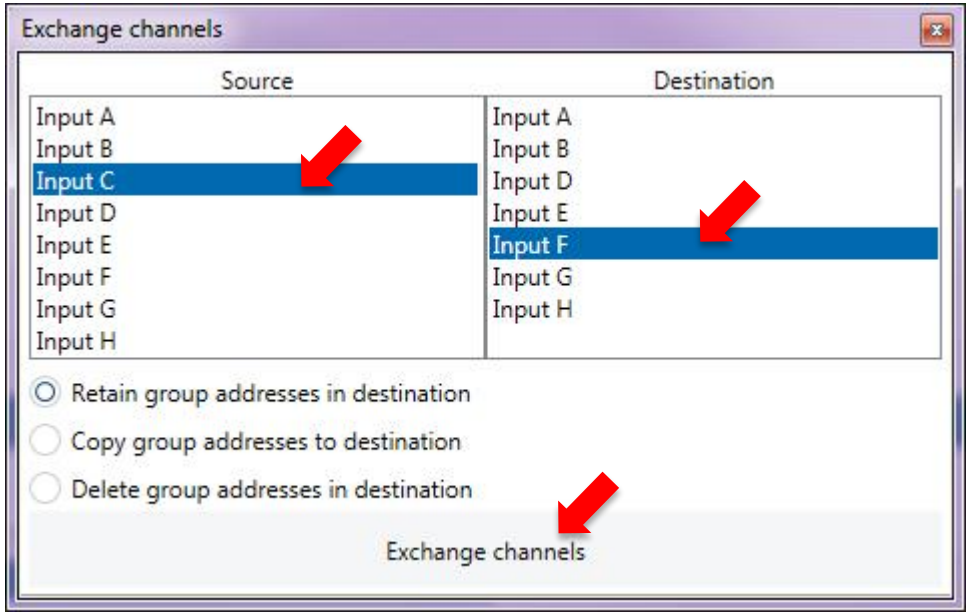

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ABB ETS App: Export for IP-Project

- This ETS App is intended to exchange Group Address information of ComfortPanel between ETS and IPP (IPProject)
- The ETS App provides
  - IPP data with recent changes in ETS
  - vice versa ETS the data from IPP
- By pressing the import button you can import into ETS XML files that were created by IPP
- Using the export button you can generate an XML file for import into IPP
- Price €0.- (licensing is required)

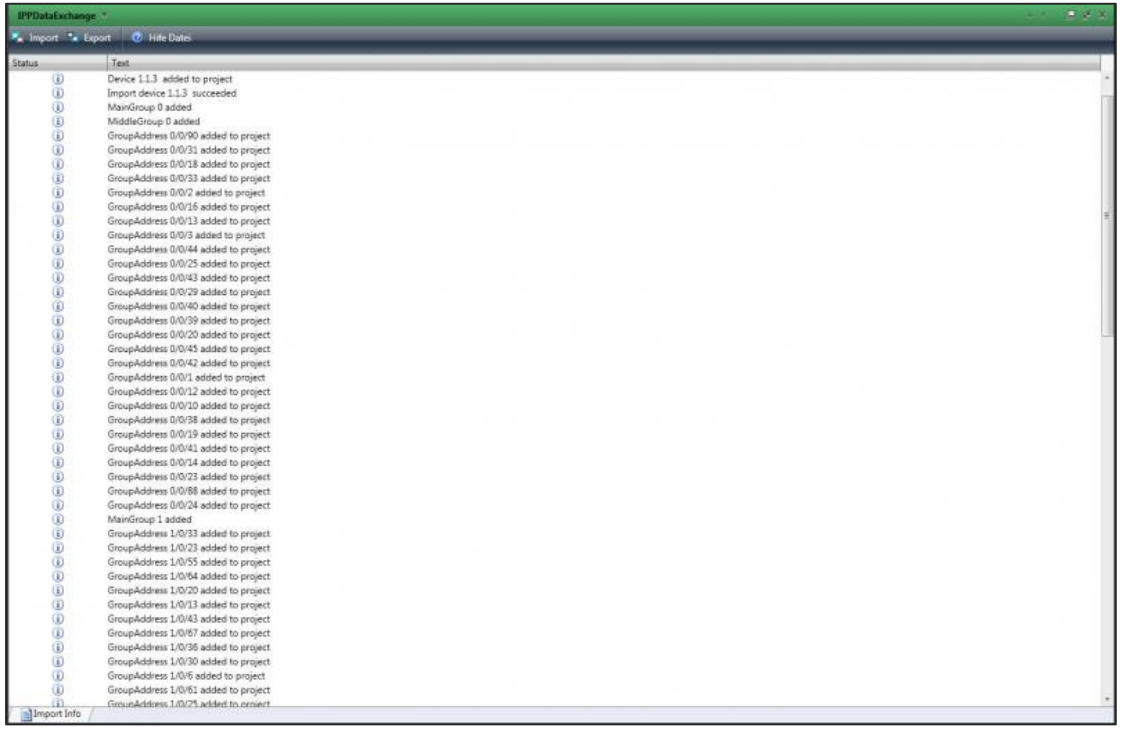

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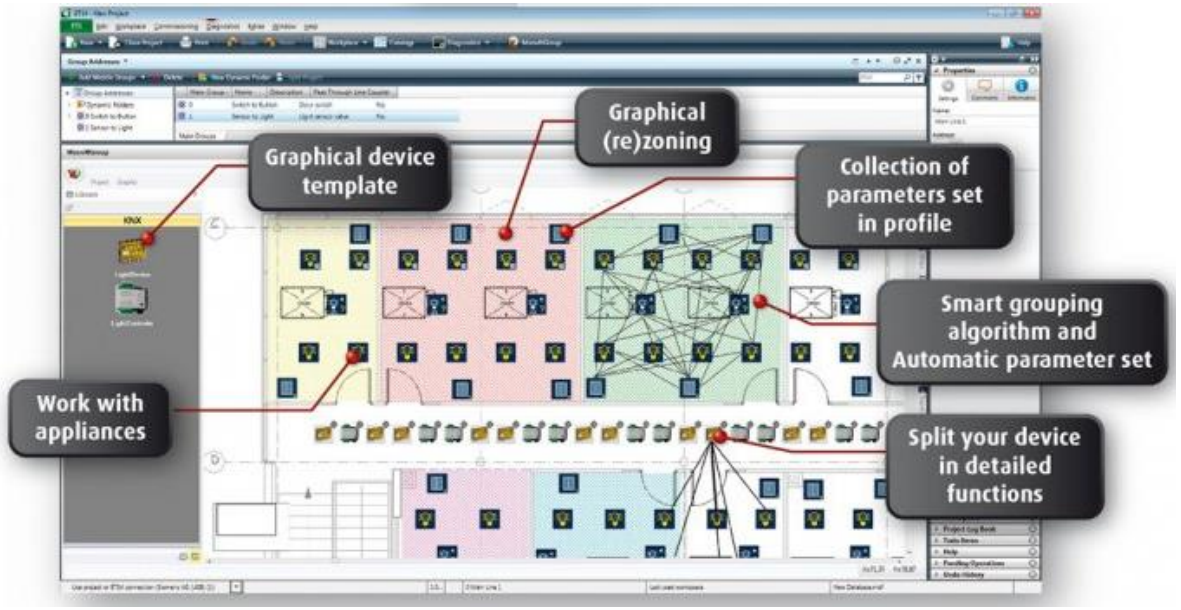
ABB ETS App: MOOVnGROUP by ABB France

- Graphical studio for KNX integration, offering a graphical, flexible and user-friendly interface based on building layouts
- Ideally suited for commercial building, hospitals, hotel automation and any flexible room automation
- With MOOVnGROUP it is possible to template devices of other manufacturer
- A device is turned into a collection of objects (lamps, switches …)
- The objects are graphically linked to each other functionally, whereby group addresses are automatically generated and connected
- The objects are gathered under a zone (e.g. office, hotel room) which applies group addresses templates (with group objects)
- All the templates created can be exported and reused
- Price: In-App purchases



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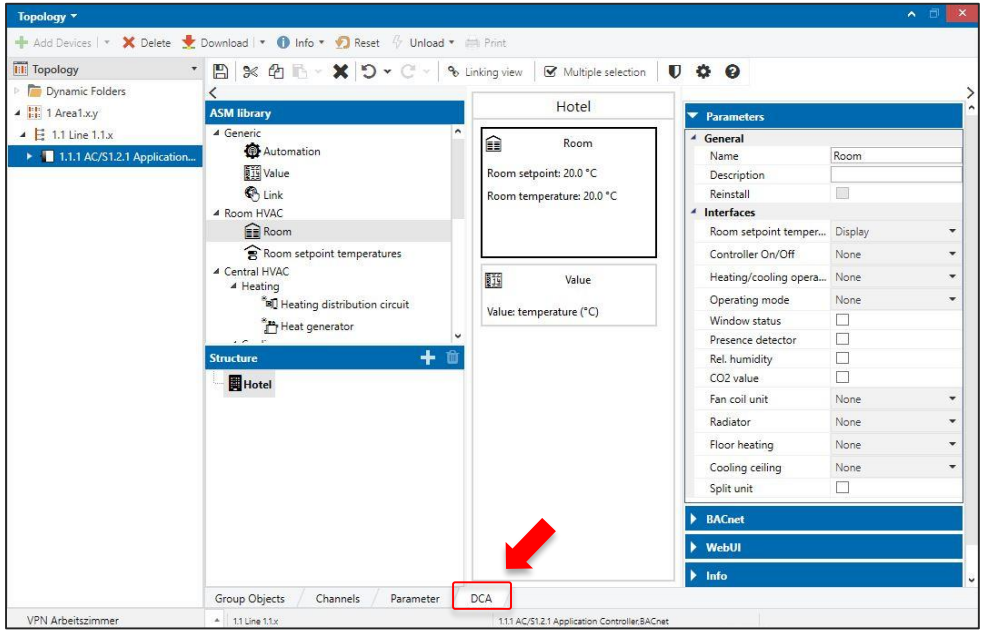
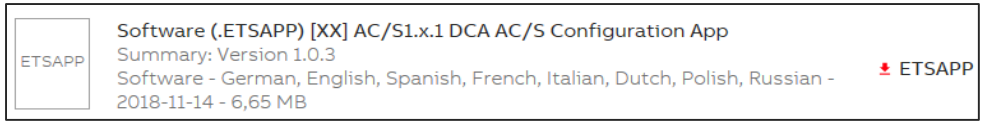
DCA ETS5 Apps

A DCA (Device Configuration App) adds functionality to a KNX product in the ETS beside the parameters

Different from the other App’s it …

- … can be downloaded also from ABB’s homepage at the product
- … needs no license
- … works only with ETS5





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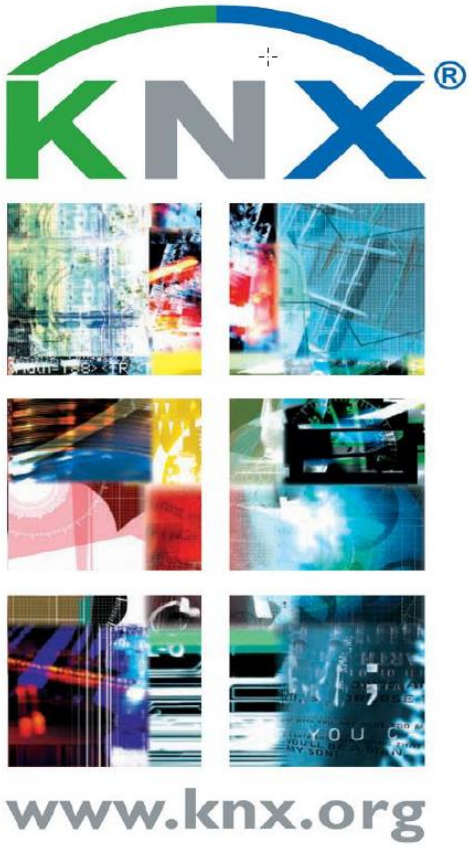
DCA ETS5 Apps: Concept KNX Organization

DCA (Device Configuration App) is the implementation of software options for devices in the ETS5

Replacement of different Plug-In’s (UI Plug-In‘s, Data handler Plug-In‘s, Download Plug-In‘s) provided in the past from many manufacturers for their products

Advantages:

- Better maintenance in case of ETS updates, even with updates of the operating system Windows
- Easier handling for the users and manufacturer
- DCA for products only if needed, focus still on native ETS parameters



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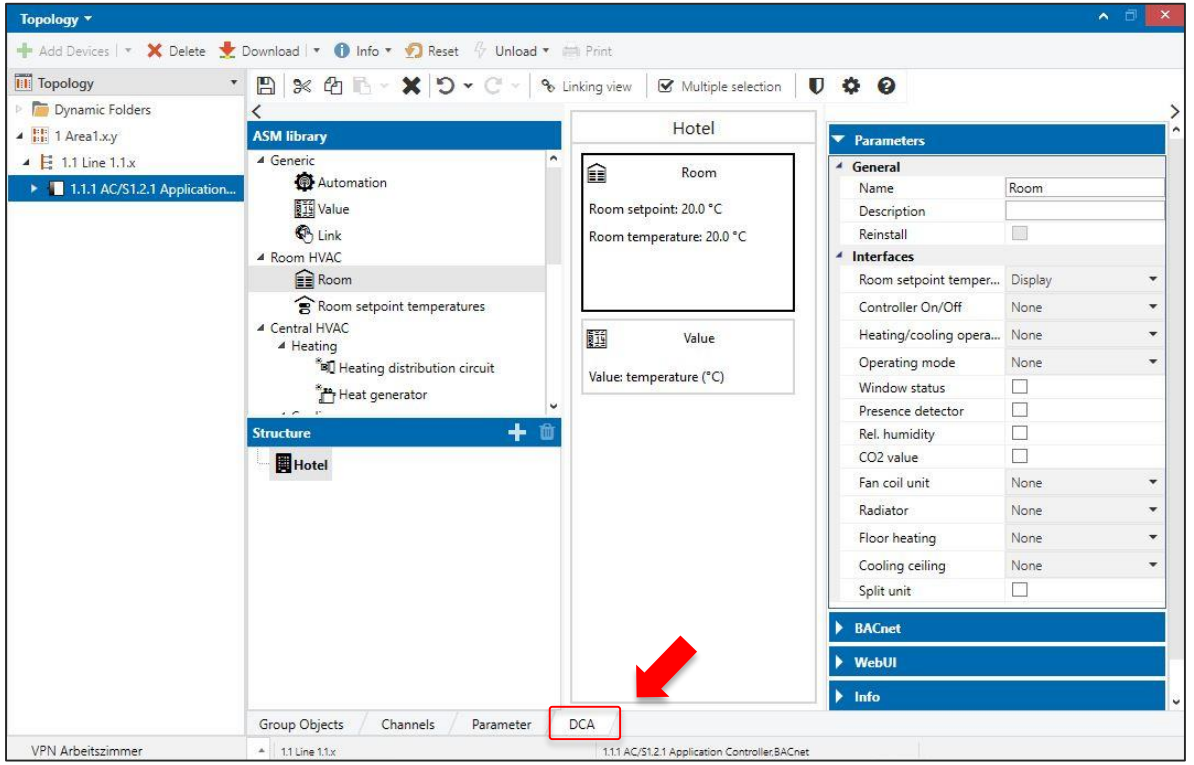
DCA ETS5 App: AC/S Configuration

- This app is used to configure the Application Controller AC/S 1.x.1
- The graphical user interface of this app allows an intuitive parameterization of all functions like application-specific automation modules (ASM), WebUI, BACnet-interface and freely configurable functions
- Group address assignment and download is executed as usually in the standard environment of ETS5
- The app can be downloaded from the “My.KNX” and ABB product page
- There is no licensing required
- Price €0.-



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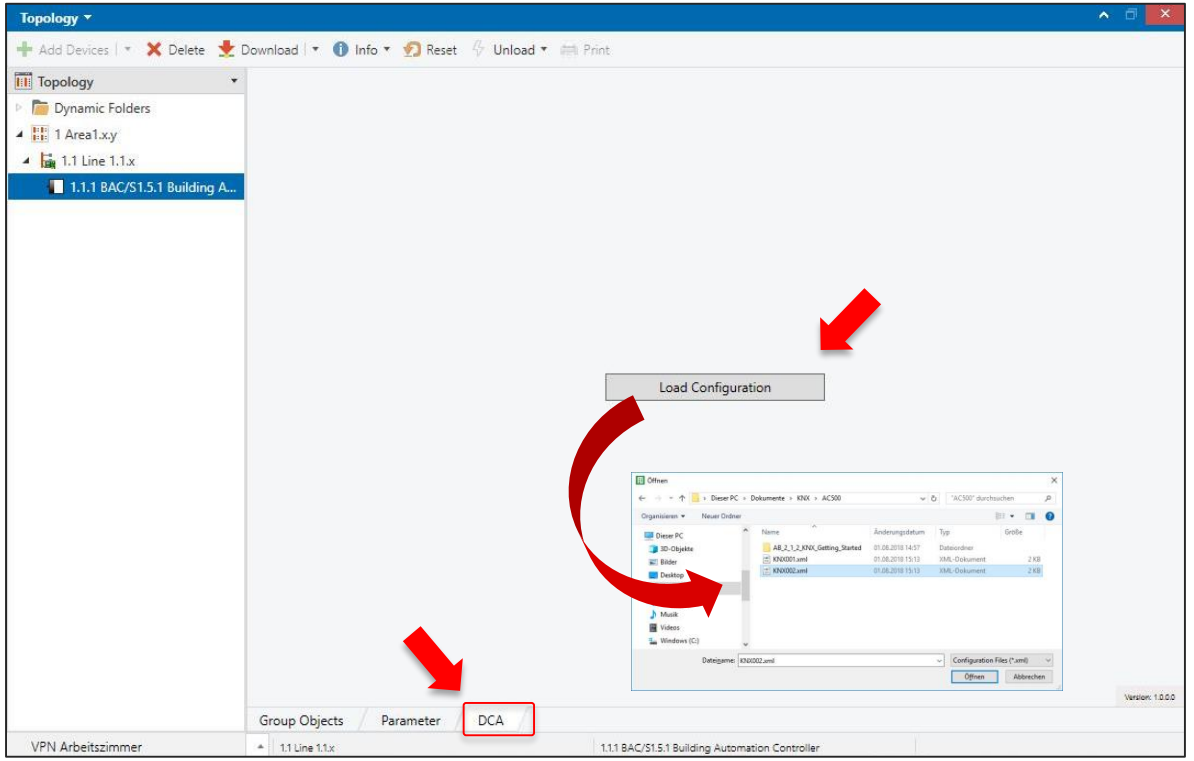
DCA ETS5 App: Automation Builder for BAC/S 1.5.1

- This app integrates the software suite “ABB Automation Builder” into ETS5
- The Automation Builder is used to create the automation programs for the BAC/S Building Automation Controllers and the ABB AC500 Programmable Logic Controllers (PLC)
- With this app, the data exchange of the KNX Group Objects defined in the automation program takes place with the ETS5
- This app transfers the KNX Group Objects used in the automation programs to the ETS (export file *.XML)
- It supports the BAC/S1.x.1 Building Automation Controllers as well as the ABB AC500 Programmable Logic Controllers (PLC) with activated KNX runtime license (PS5604-KNX)
- The app can be downloaded from “My.KNX” and ABB product page
- Group address assignment and download is executed as usually in the standard environment of ETS5
- There is no licensing required, Price €0.-



Webinar “Various software tools for KNX”

ABB i-bus® Tool

Webinar “Various software tools for KNX”

ABB i-bus® Tool

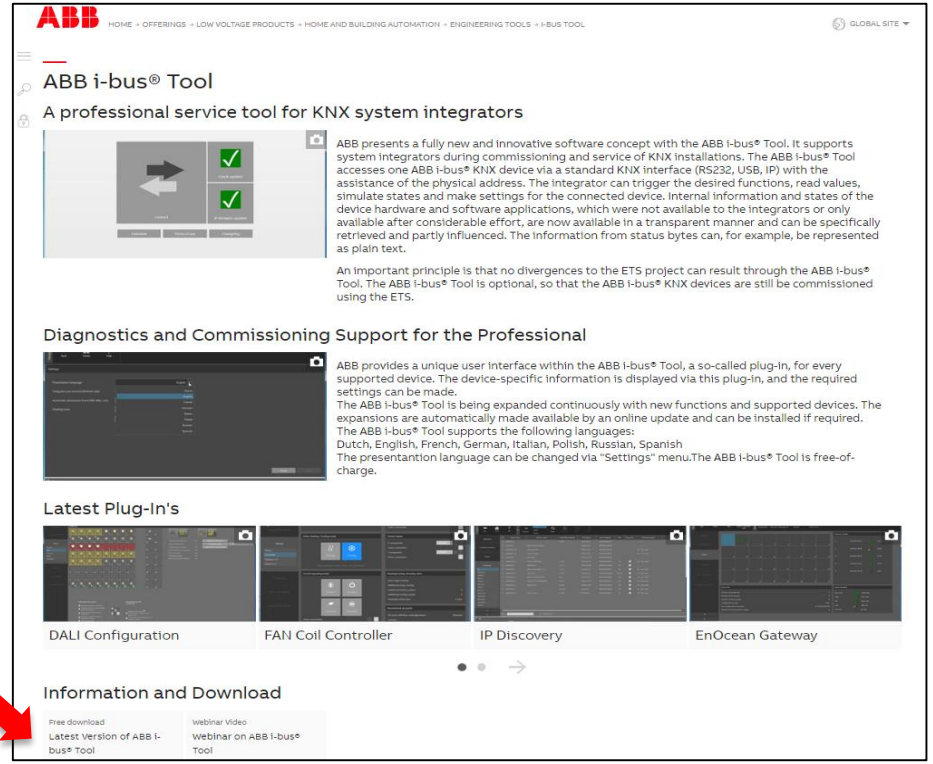
The ABB i-bus® Tool can be downloaded free of charge at

www.abb.com/knx

→ Services & Tools

→ Engineering Tools

- Benefits at a glance
- Latest Plug-In's
- Download
- Link to webinar recording and presentation
- …



Webinar “Various software tools for KNX”

ABB i-bus® Tool – Webinars

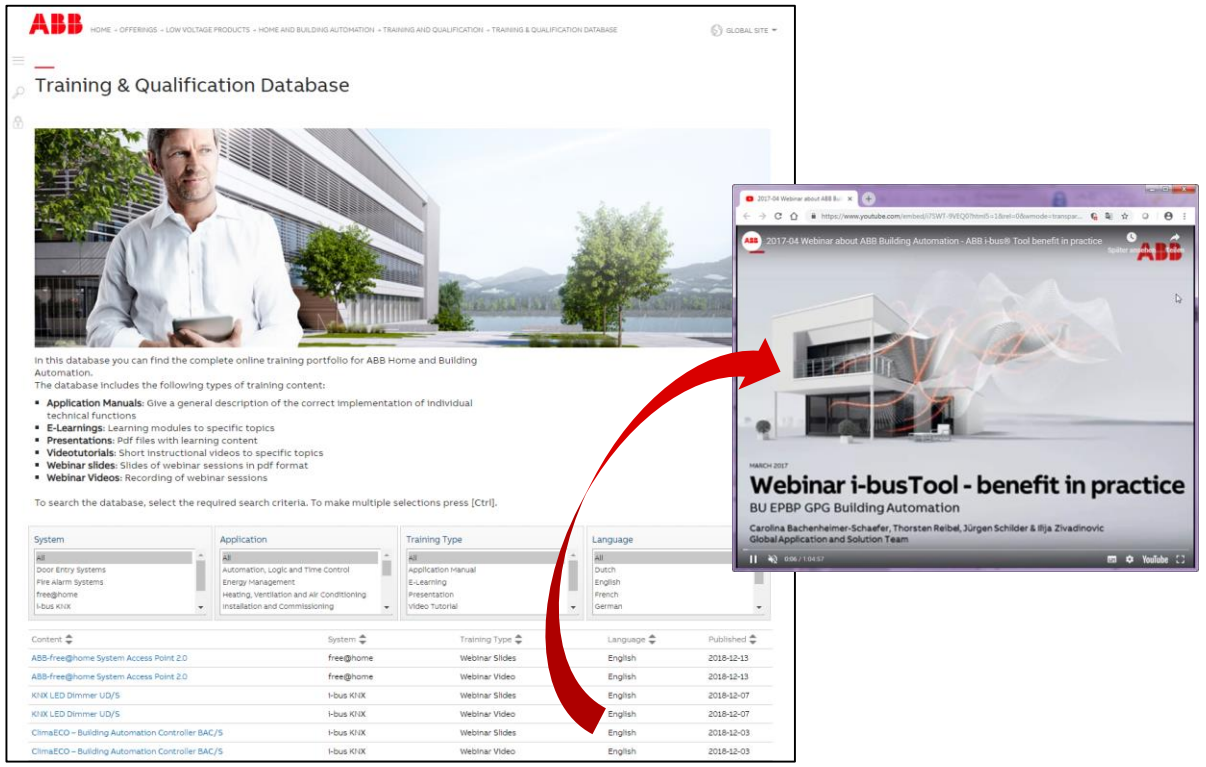
Webinars from March 2014 and March 2017

- Innovative software concept
- Software features
- Discovery of IP devices
- Connection to a device
- Addressing of a DALI device
- Practical demonstration with various devices
- Options for testing and diagnostic
- …

Videos and slides are available on “Training & Qualification Database”

www.abb.com/knx or https://go.abb/ba-training

→ Training and Qualification → Training Database



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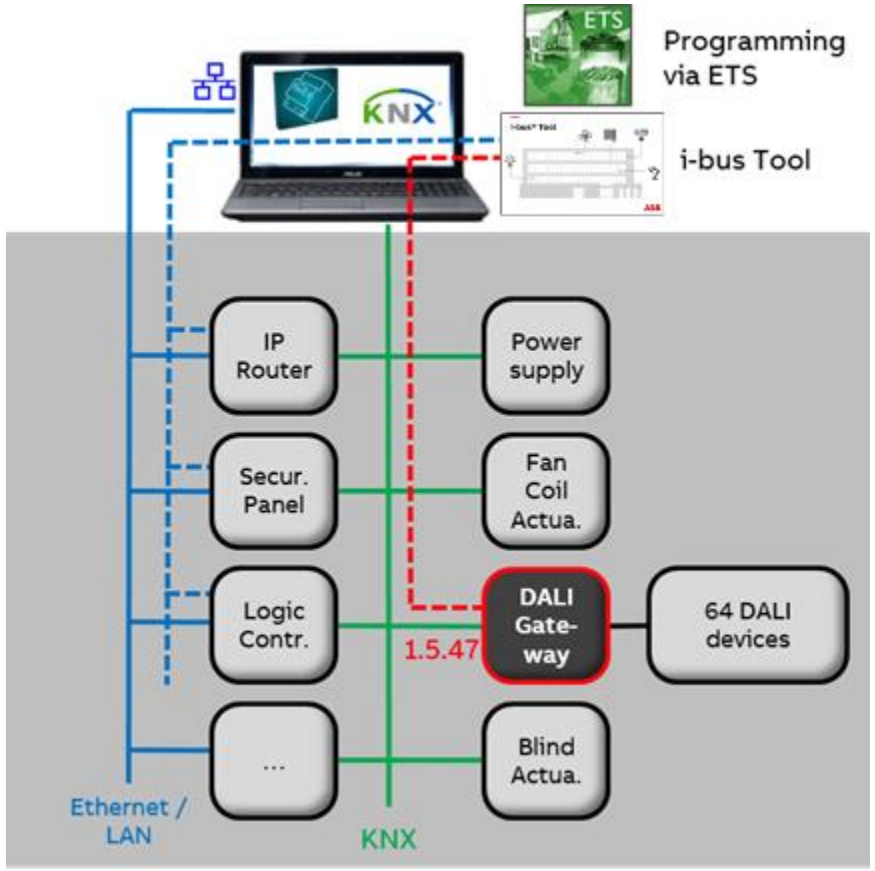
Webinar “Various software tools for KNX”

ABB i-bus® Tool – Overview

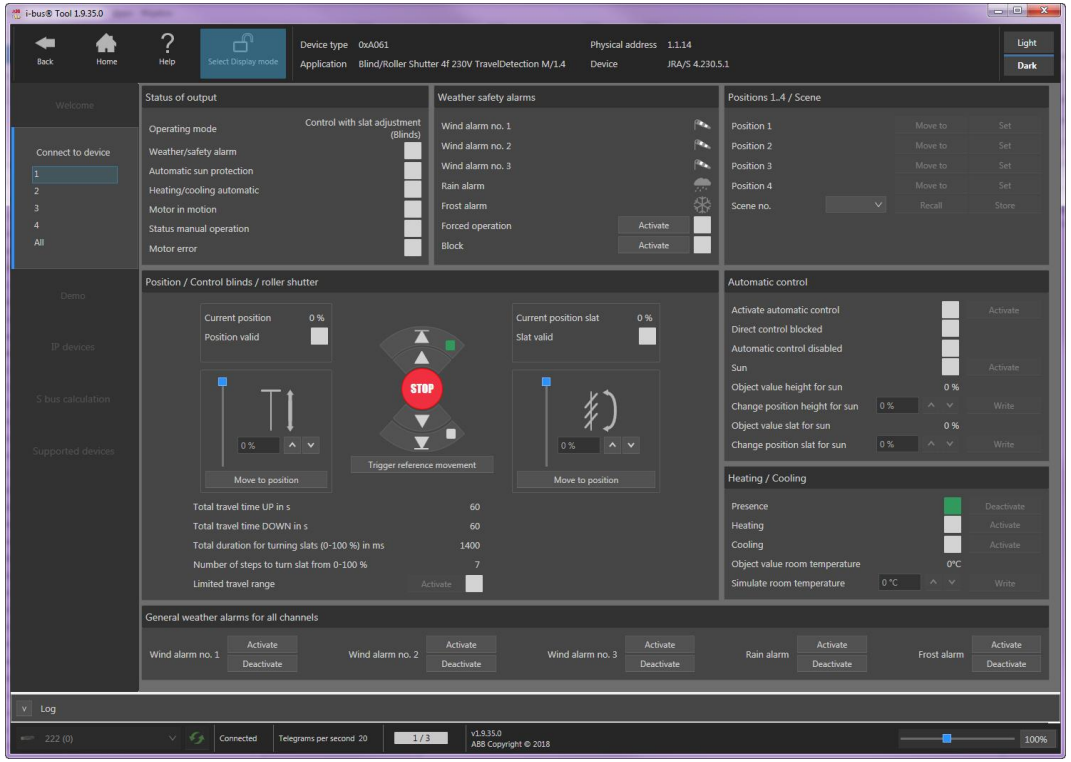
- It supports system integrators during commissioning and service
- Internal information and states of the device hardware and software applications are now available in a transparent manner
- The i-bus® Tool is optional, i.e. the ABB i-bus® KNX devices must still be commissioned using just the ETS
- An important principle is that no divergences to the ETS project can result through the i-bus® Tool
- Performing of firmware updates



Webinar “Various software tools for KNX”

ABB i-bus® Tool – Overview

- The i-bus® Tool accesses an ABB i-bus® KNX device via a standard KNX interface (USB, IP) with the assistance of the individual address
- When the i-bus Tool is connected to a KNX device, the device-specific plug-in displays the functions that are possible for this device type
- The system integrator can trigger the desired functions, read values, simulate states, make settings for the connected device (e.g. scenes) and update the IP firmware
- Functions are only available if they have been enabled in the ETS
- Disabled functions are greyed out or not visible
- Help function



Webinar “Various software tools for KNX”

ABB i-bus® Tool – Check ETS parameter settings

- KNX devices provide numerous options of parameter settings
- After parametrization and downloading, the behavior of the devices have to be checked and tested
- Send group telegrams with the group monitor (cumbersome)
- Use the i-bus Tool !!!
- For example Blind/Shutter Actuator JRA/S
- Wind: Shutter UP
- Rain: Shutter DOWN
- Frost: Shutter height 20%
- Forced Operation: Shutter height 50%
- ? Order of priority
  → Wind, rain, frost and forced operation at the same time

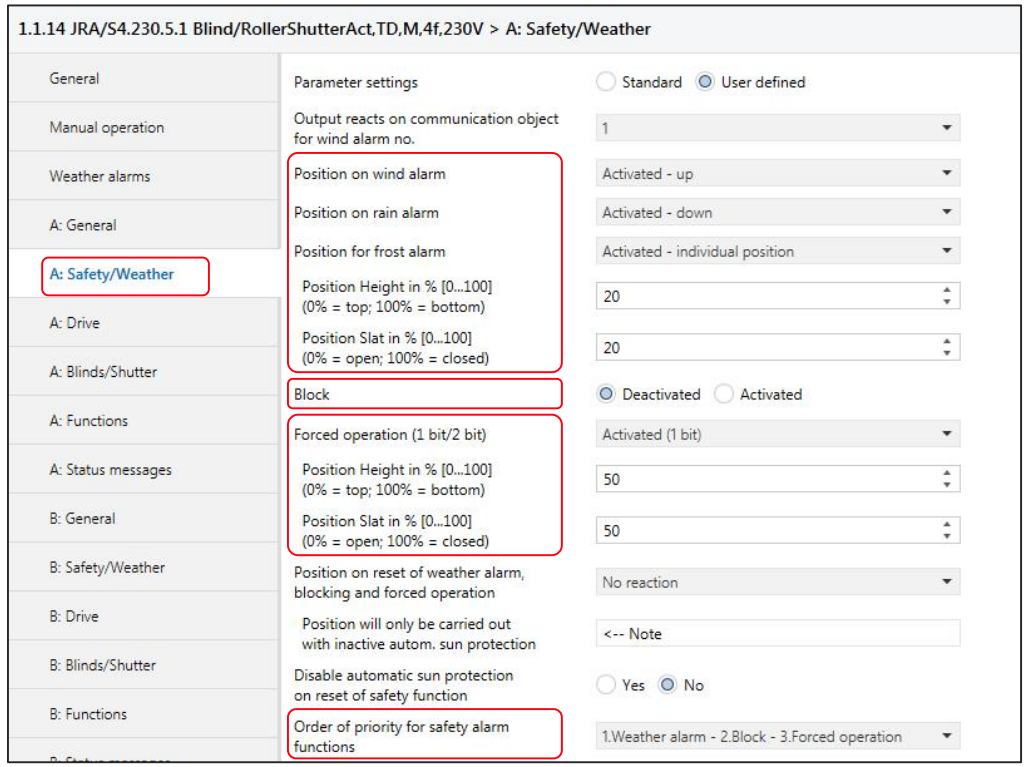


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ABB i-bus® Tool – Supported devices V1.9.35.0

- Analogue Actuators AA/x and Analogue Inputs AE/S
- DALI Gateways DG/S, DGN/S, DLR/x
- Energy Module EM/S and Energy Actuator SE/S
- EnOcean Gateway EG/A
- Fan Coil Actuators FCA/S and Fan Coil Controllers FCC/S
- Heating/Cooling Circuit Controller HCC/S
- Blind/Roller Shutter Actuator JRA/S
- Line Coupler LK/S
- Light Controller LR/S
- Split Unit Gateway SUG/U
- Power Supplies SV/S
- Universal Dim Actuator UD/S x.x.2.1
- Valve Drive Controller VC/S
- Weather Station WS/S
- Weather Unit WZ/S

… and new devices are added continuously

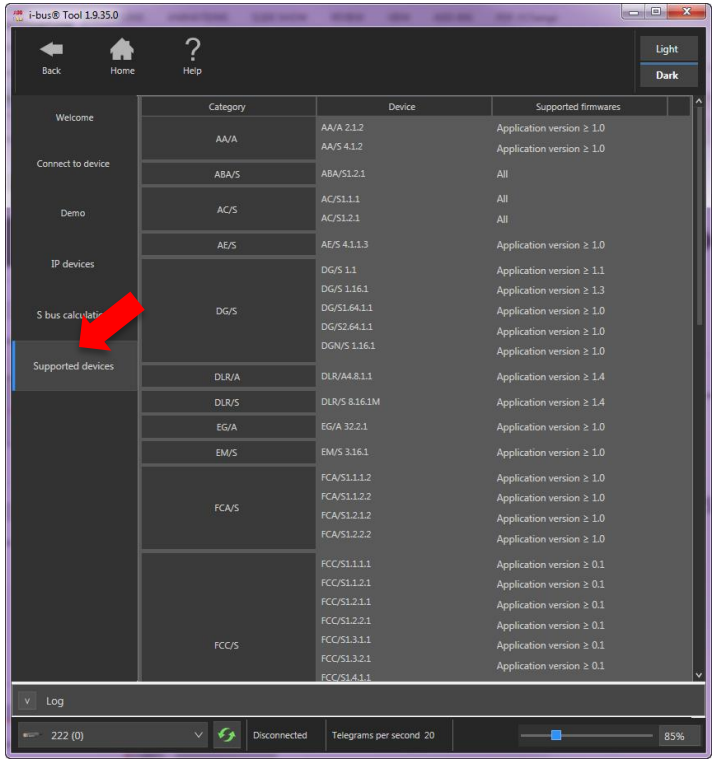

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ABB i-bus® Tool – DALI-Software-Tool inside

The DALI Tool is mandatory for setting up the KNX DALI devices

- Addressing DALI devices, e.g. ballasts, dimmers
- Assignment of the DALI devices into DALI groups
- Display of all lamp and ballast faults
- Commissioning of constant light control (DALI Light Controller)
- …

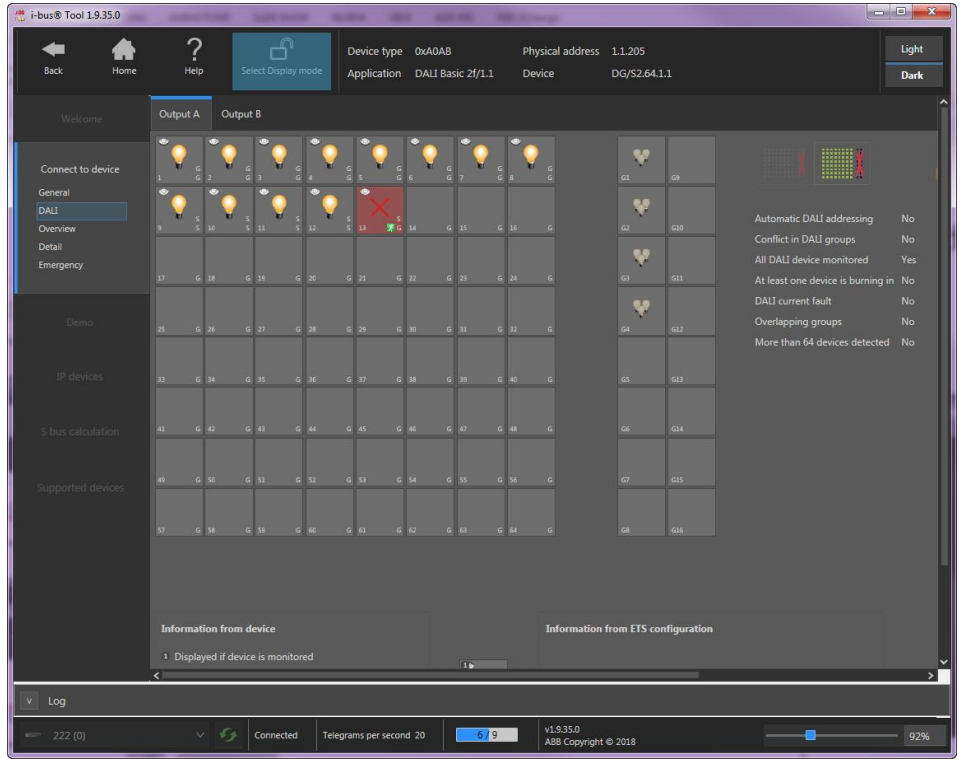

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ABB i-bus® Tool – Demo mode

- The demo mode is intended to demonstrate the possible functions without a connection to the KNX bus
- All the available devices are displayed
- The desired device must be selected and the user interface is opened via Demo mode
- The display is intended solely for demonstration purposes
- No functions are available and there is no connection to the bus

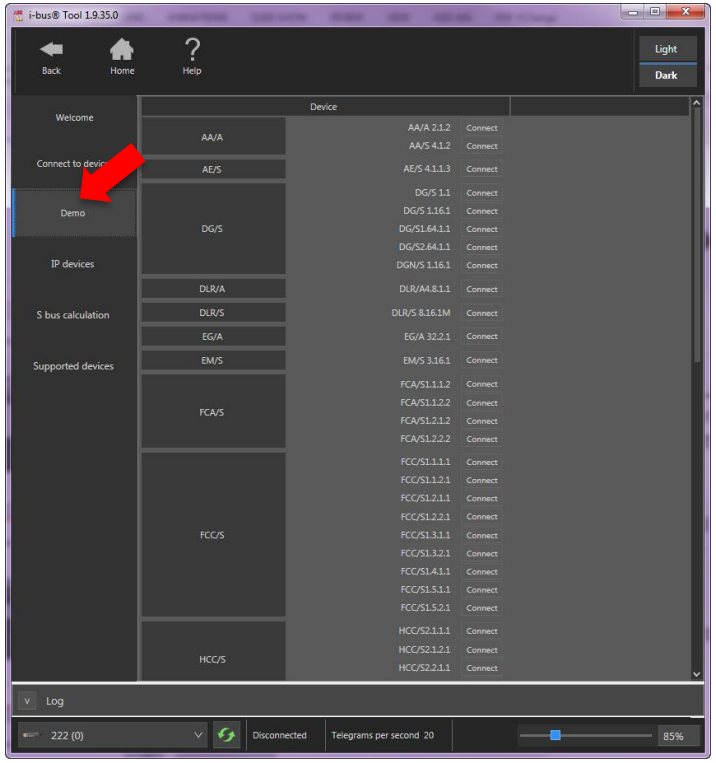

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ABB i-bus® Tool – Connections

Configuration of a KNX interface

- USB interface (not parallel with ETS)
- KNXnet/IP Tunneling
- KNXnet/IP Routing

Previously configured interfaces are displayed

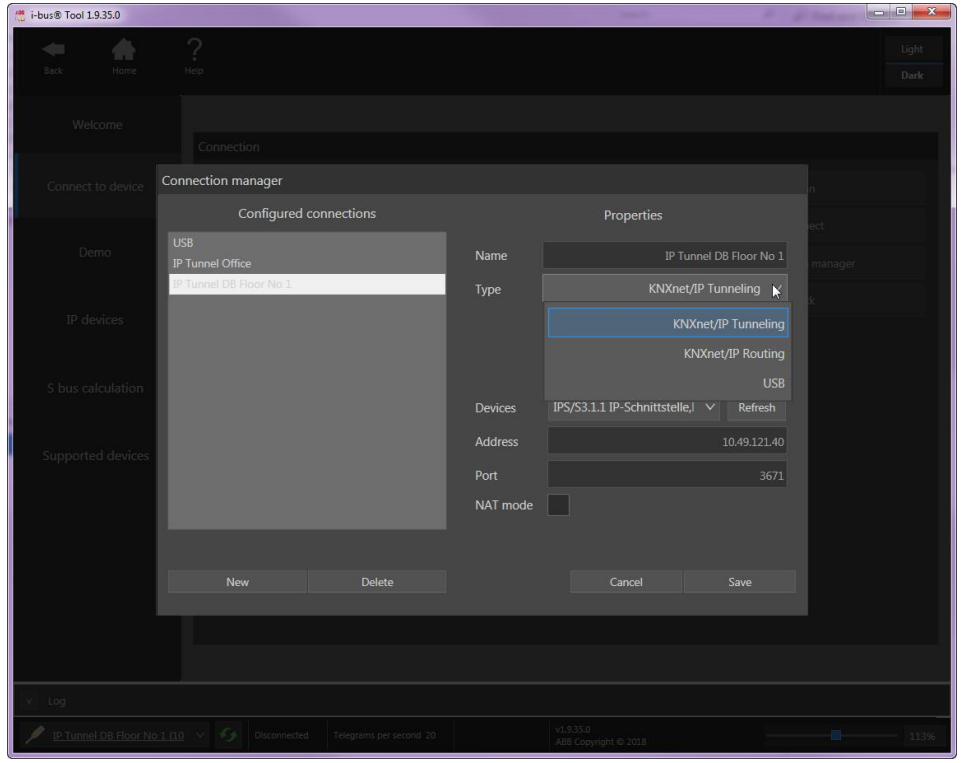

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ABB i-bus® Tool – Connection to a device (twisted pair)

Recently connected physical addresses are displayed

The required physical address can be read out directly using the “Search” button

For this purpose, the programming button of the KNX device must be pressed

Alternatively, the individual address can also be entered directly

“Connect” sets up the connection to the device

Important: When the connection with a device has been established, Display mode is active

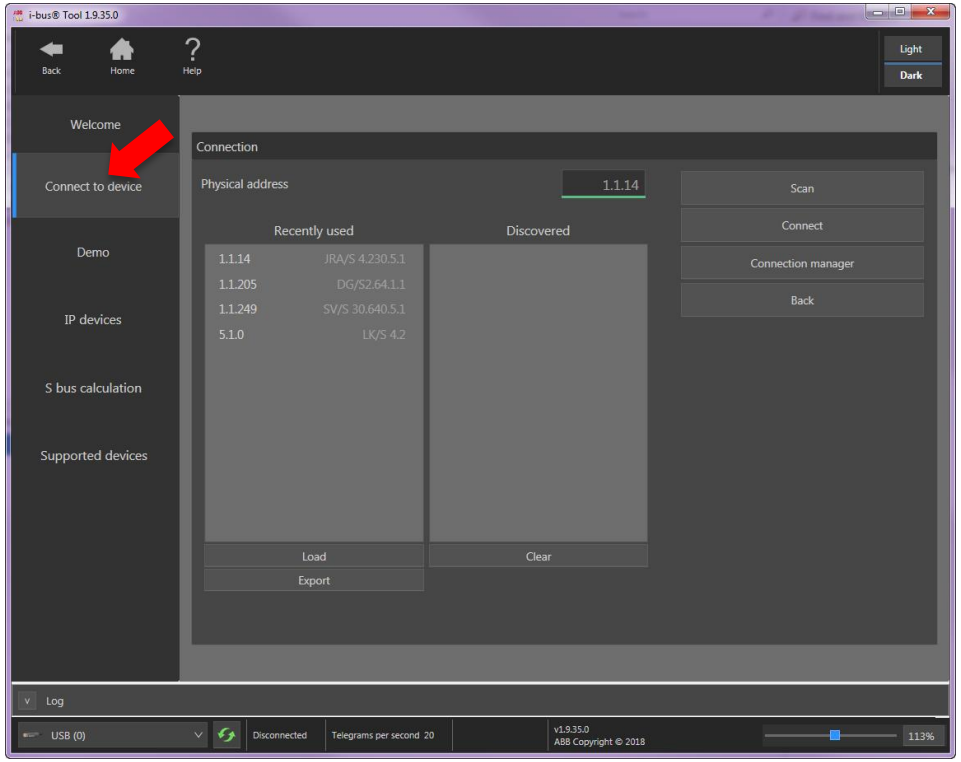

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ABB i-bus® Tool – IP devices: Discovery

The list displays all supported IP devices

If individual devices or all of them are highlighted (set checkmarks), then actions can be performed using the buttons in the upper toolbar:

- Open web browser: If the selected device has a web server, it is opened. Only a device may be selected for this
- Flash LED: The LED of the selected device flashes for 5 seconds
- Restart device: The selected devices restart
- Firmware update
- The Checkbox “Detailed data” shows more details about the selected device

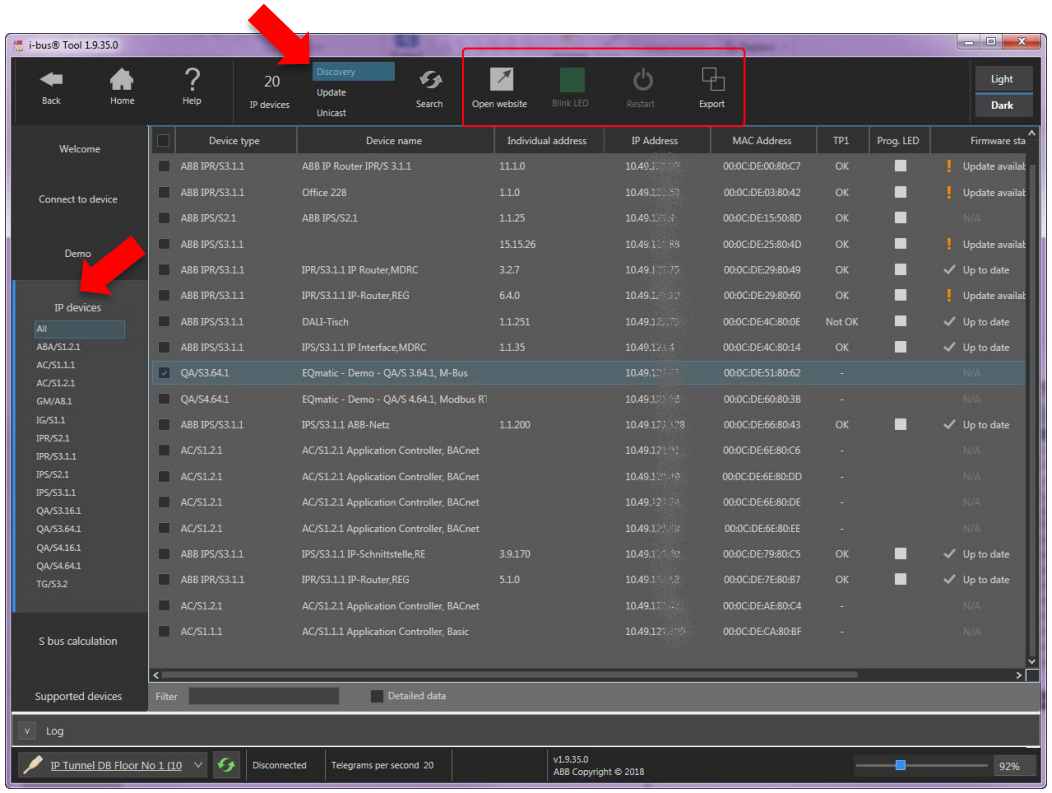

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ABB i-bus® Tool – IP devices: Supported IP devices

These devices are supported and displayed

- IP Router IPR/S
- IP Interfaces IPS/S
- Telephone Gateway TG/S
- IP Gateway IG/S
- Security Panel GM/A
- Logic Controller ABA/S
- Application Controller AC/S
- Energy Analyzer QA/S

… and new devices are added continuously

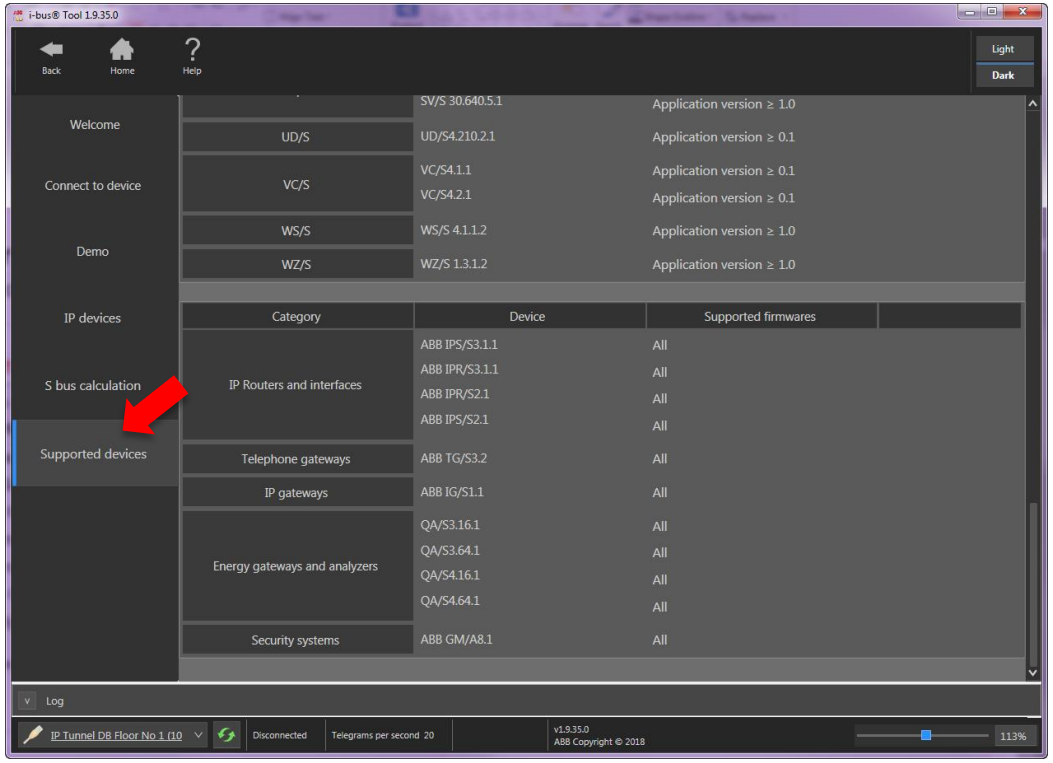

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ABB i-bus® Tool – IP devices: Firmware update

Look at the page “IP firmware updates” to check whether a new firmware version for a device is available

The firmware file is then loaded from the server when the checkbox is placed in front of the appropriate file and the “Download" button is clicked (an Internet connection is required)

The firmware files are stored in the “i-bus Tool” folder “…\binaries\firmware\…”

The firmware of the following devices can be updated (Status Feb. 2019):

- IP Router IPR/S 3.1.1 (V2.0.493.enc)
- IP Interfaces IPS/S 3.1.1 (V1.0.494.enc)
- Logic Controller ABA/S 1.2.1 (V1.0.5185.0.enc)

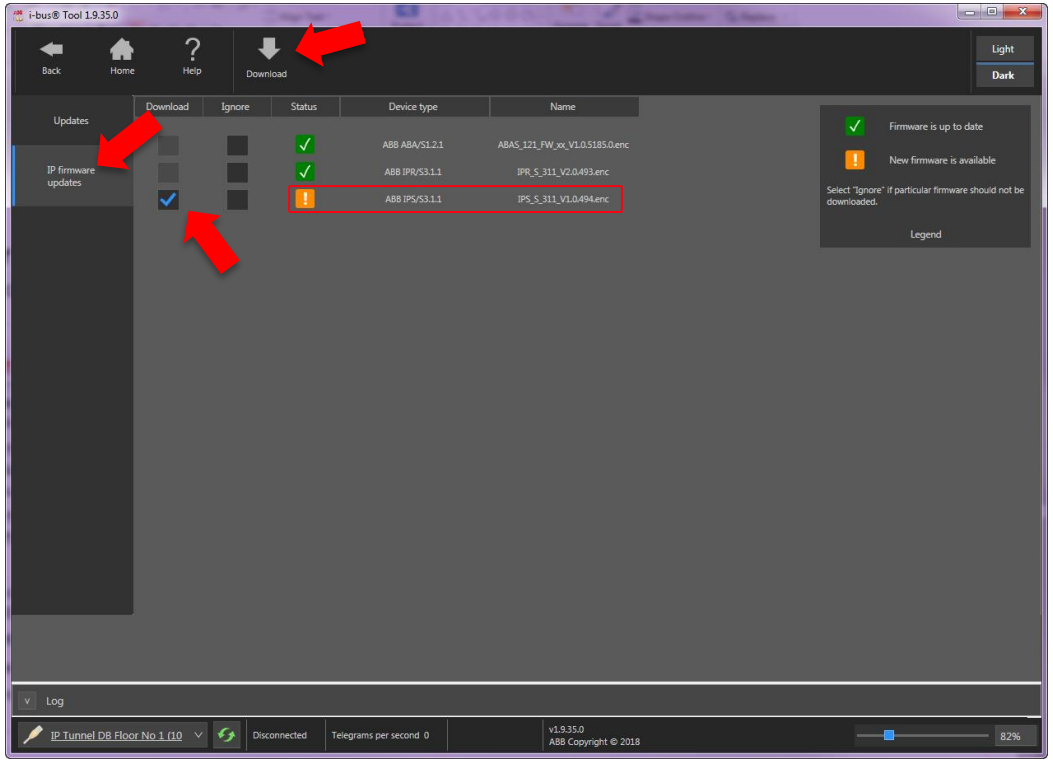

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ABB i-bus® Tool – IP devices: Firmware update

- In the "Firmware Status" column, you can check now whether a firmware update for a listed device is available
- Starting an update:
  - The devices to be updated can be selected by adding a checkmark
  - Click the green arrow "Start update“
  - A window opens, in which the firmware can be selected
  - Pressing the "Start" button starts the update process

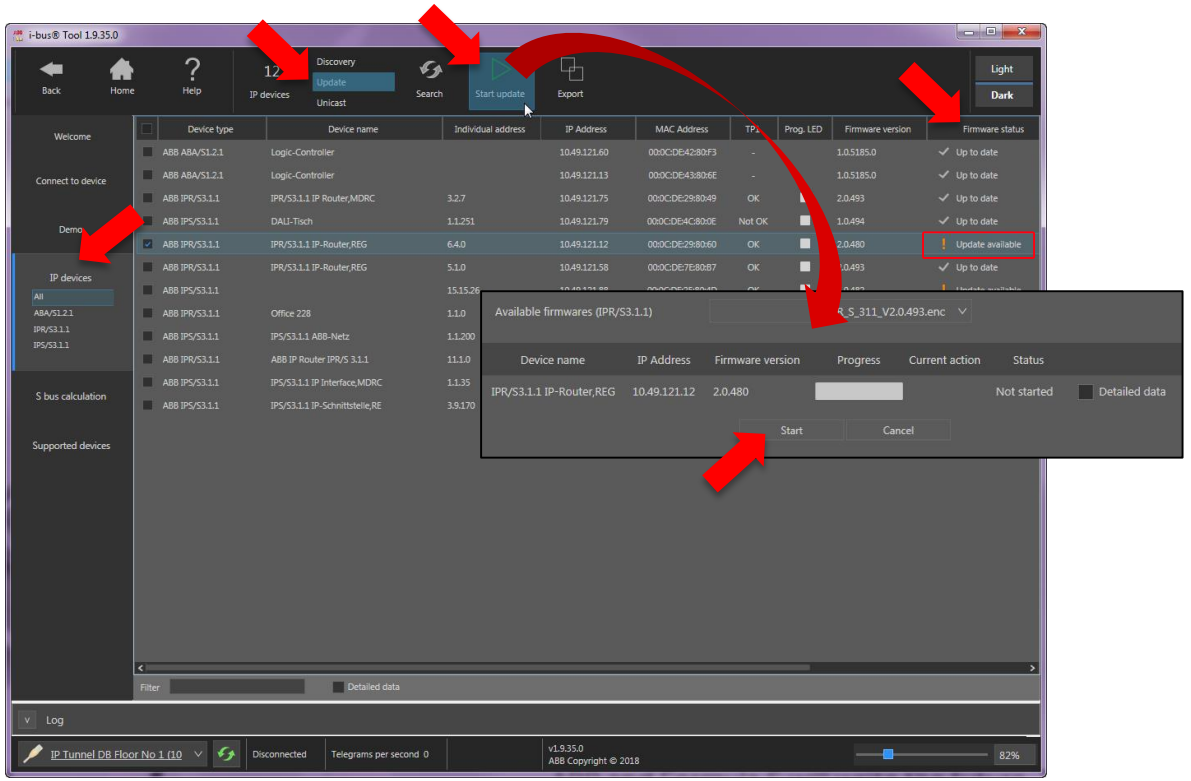

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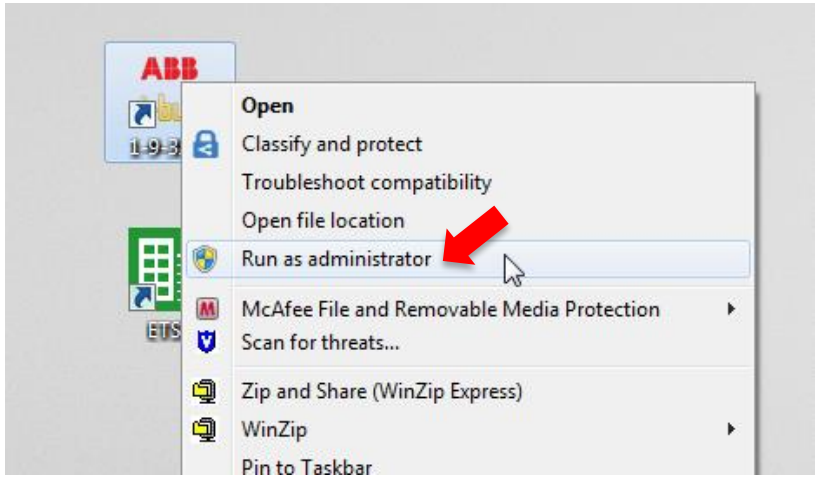
ABB i-bus® Tool – IP devices: Firmware update

Important:

- Depending on the user rights, the program must be started as an administrator (right mouse click)
- The configuration of the devices (ETS) is backed up during the update and then reloaded in the device
- If, during the update, there is a power failure (auxiliary voltage or TP), then this backup may be lost. In this case, the device must be reprogrammed with the ETS.
- All the selected devices are updated in parallel (entire installation), i.e. with a larger number of devices, the update process does not last significantly longer than for one device



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Webinar “Various software tools for KNX”

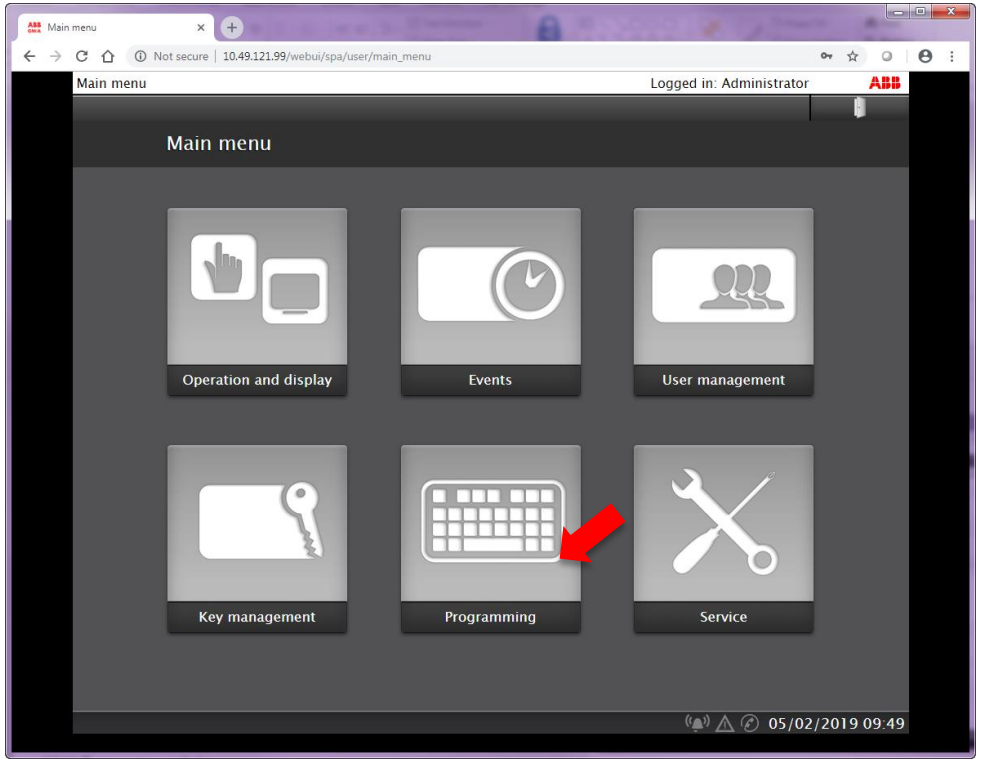
Firmware Update KNX Security Panel GM/A 8.1

Webinar “Various software tools for KNX”

Firmware Update KNX Security Panel GM/A 8.1

– The firmware of the
  - Security Panel and
  - KNX Bus Couple Unit

  is updated in the web user interface of the GM/A
– For this the user rights “Programming” are required
– Download the following files from the product page www.abb.com/knx → KNX Security Panel GM/A 8.1
  - “GMA_81_FIW_XX.bin” (firmware panel)
  - “GMA_81-KNX-Firmware_FW_XX.eup” (firmware KNX BCU)
  - “GMA_81_FI_en_XX.pdf “ firmware information incl. instruction for firmware update



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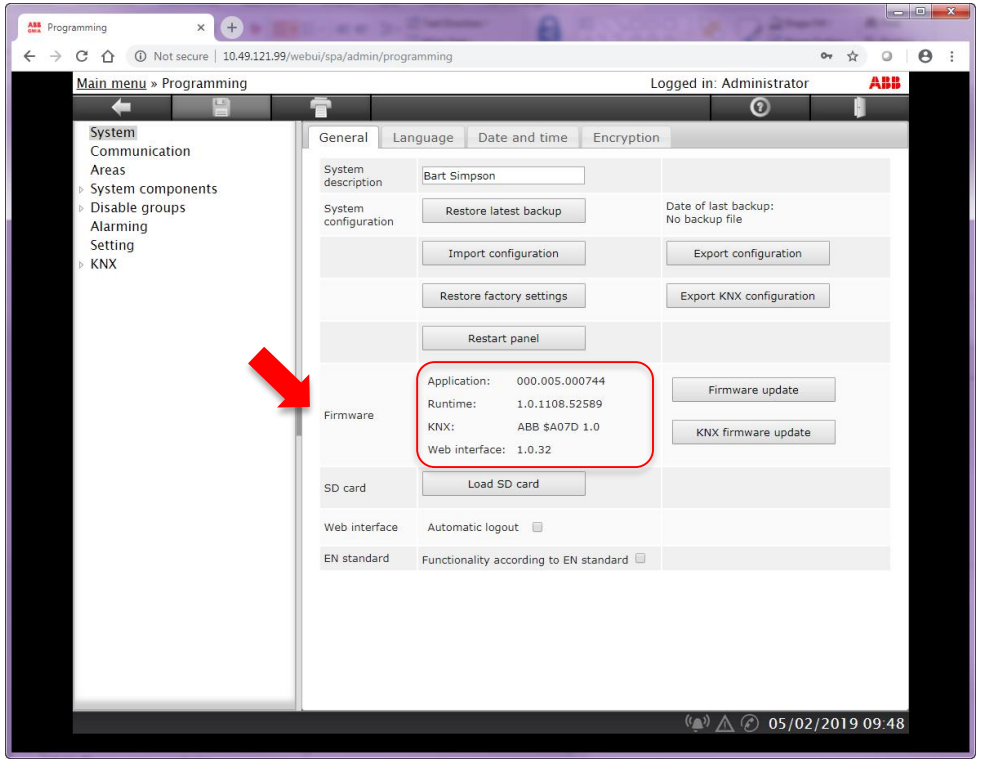
Firmware Update KNX Security Panel GM/A 8.1

Firmware (Status Feb. 2019):

- Actual firmware version 1.6
- Application: 000.005.000758
- Runtime: 1.1.105.118358
- KNX firmware: 1.0c
- Web interface: 1.3.6
- Language package: Version 1.4

It is always the latest firmware version provided to use. Any defects from an earlier version can not be claimed.



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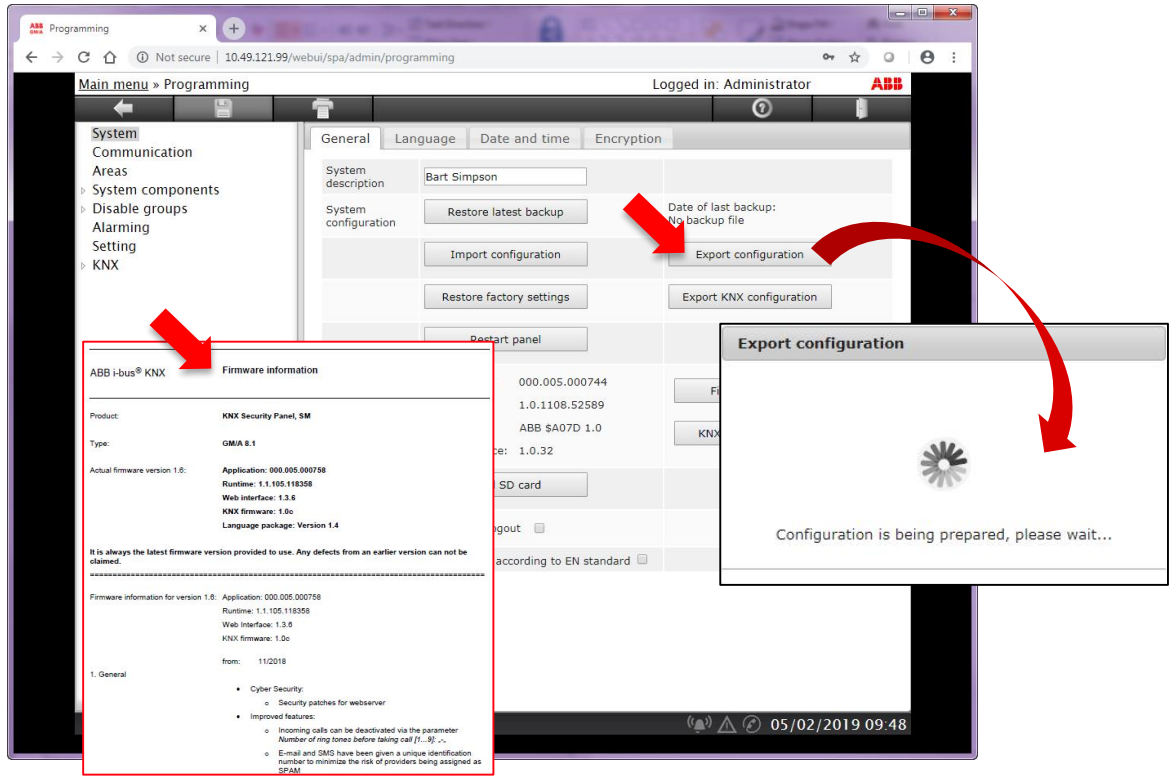
Firmware Update KNX Security Panel GM/A 8.1

Instruction for firmware update

- Follow the instructions in the firmware information file (GMA_81_FI_en_XX.pdf) for updating
- After a successful login to the Web Interface, the firmware update can be imported via the menu item “Programming” → “System – General”
- The programming is retained
- Export of existing configuration for backup
  - Push “Export configuration” button
  - An export file is created (*.bak)
  - Safe the configuration file



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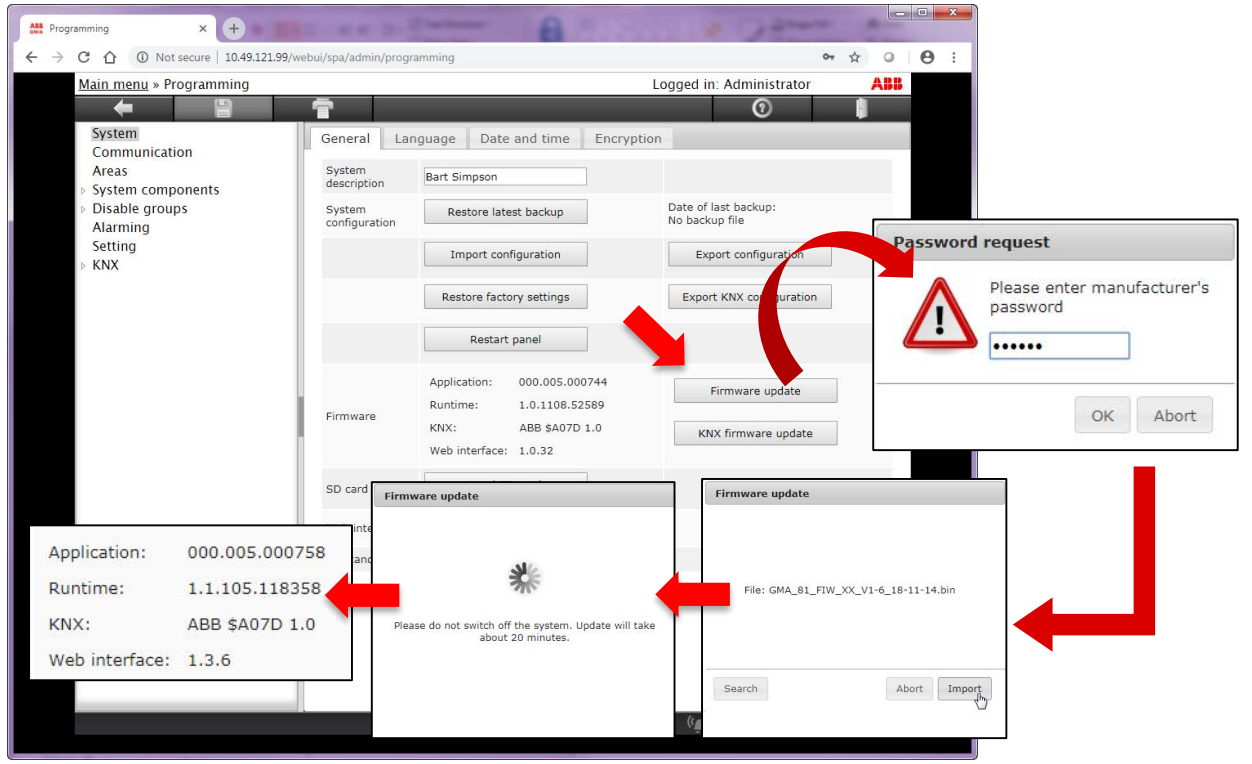
Firmware Update KNX Security Panel GM/A 8.1

Instruction for firmware update “Security Panel”

- Push “Firmware update” button
- Enter “Manufacturer password” (see : firmware information file)
- Push “Search” button, choose update file (GMA_81_FIW_XX_.bin) and push “Import” button
- Update will take about 20 minutes
- Do not switch off the system
- Restart of panel will be automatically done
- Check firmware version
- Verify existing configuration



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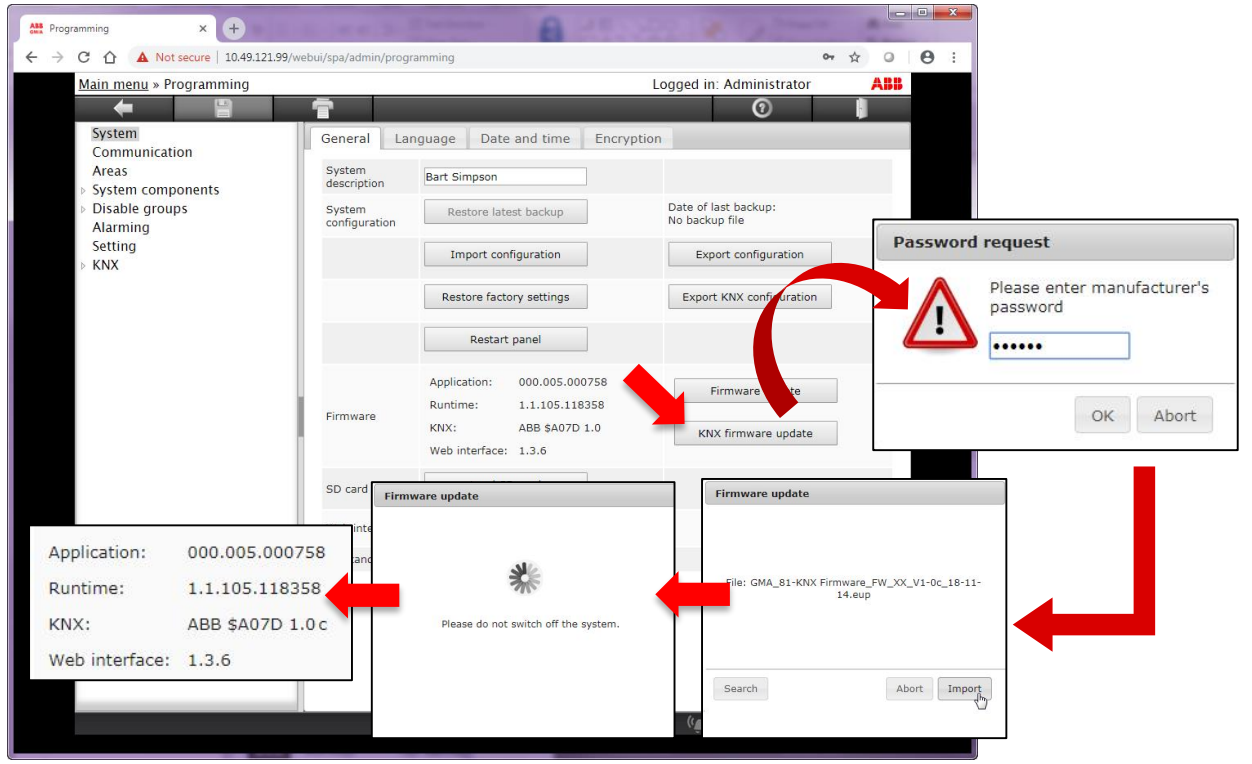
Firmware Update KNX Security Panel GM/A 8.1

Instruction for firmware update “KNX Bus Couple Unit ”

- The Security Panel must be connected to KNX
- Push “KNX Firmware update” button
- Enter “Manufacturer password” (see : firmware information file)
- Push “Search” button, choose update file (GMA_81-KNX-Firmware_FW_XX.eup) and push “Import” button
- Update will take some minutes
- Do not switch off the system
- Check KNX BCU firmware version
- Verify existing configuration



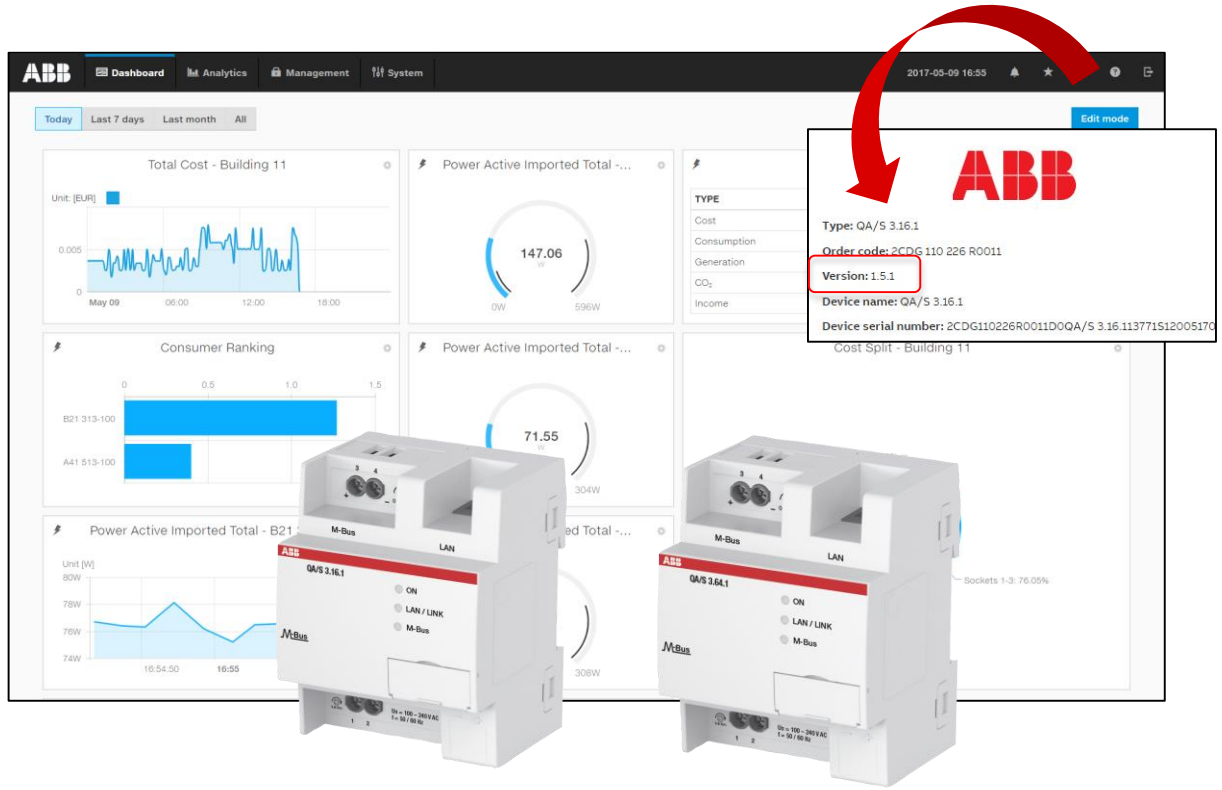
Webinar “Various software tools for KNX”

Firmware Update EQmatic Energy Analyzer QA/S

Webinar “Various software tools for KNX”

Firmware Update EQmatic Energy Analyzer QA/S

- The firmware of the EQmatic Energy Analyzer QA/S is updated in the web user interface
- For this the user role “Admin” is required
- The data and configuration in the device are retained during an update
- The current version and other device-specific information can be retrieved via the menu item “Device information” in the main menu
- Download the following files from the product page www.abb.com/knx → QA/S x.yy.1 Energy Analyzer
  - “QAS_yxx1_SOW_xx.txz” (firmware)
  - “QAS_3xx1_SI_EN_XX.pdf“ software information
- Alternatively, an automatic update can be activated



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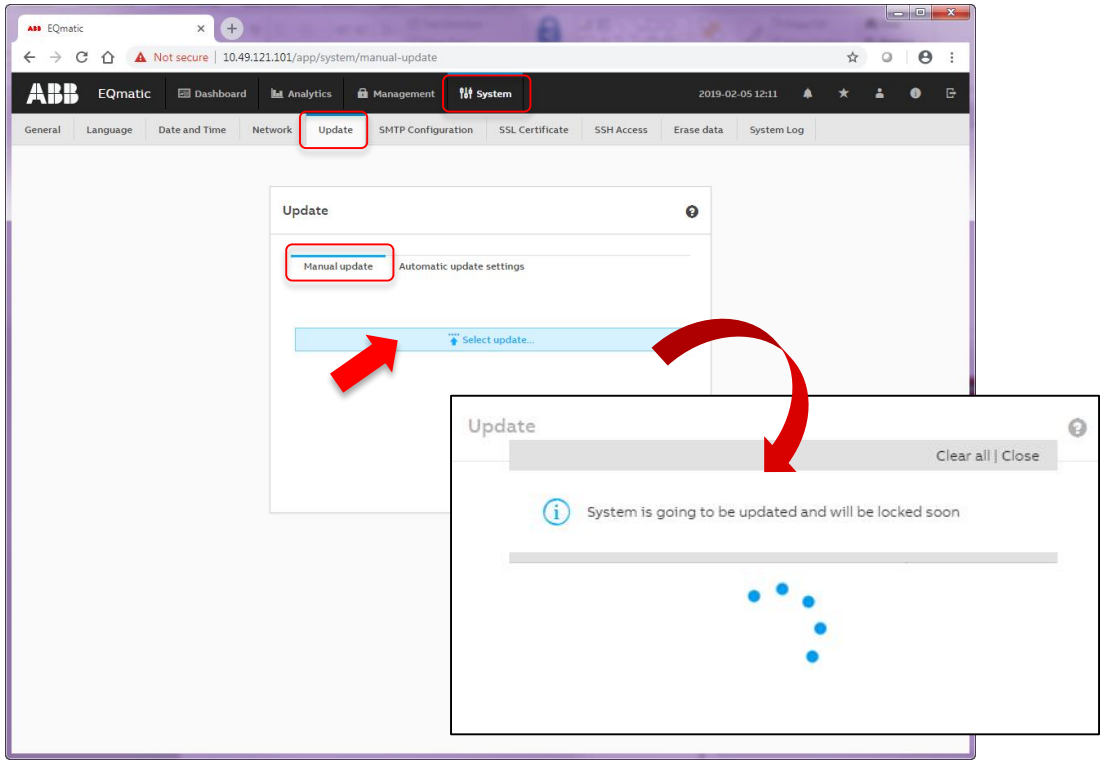
Firmware Update EQmatic Energy Analyzer QA/S

Instruction for firmware update – Manual

- Go to the menu: “System” → “Update” → “Manual update”
- Push “Select update” button
- Load update file (QAS_yxx1_SOW_xx.txz) and push “Install” button
- Update will take some minutes
- Do not switch off the system
- The device will be rebooted after the update and you will have to log in again
- Check firmware version
- Verify existing configuration



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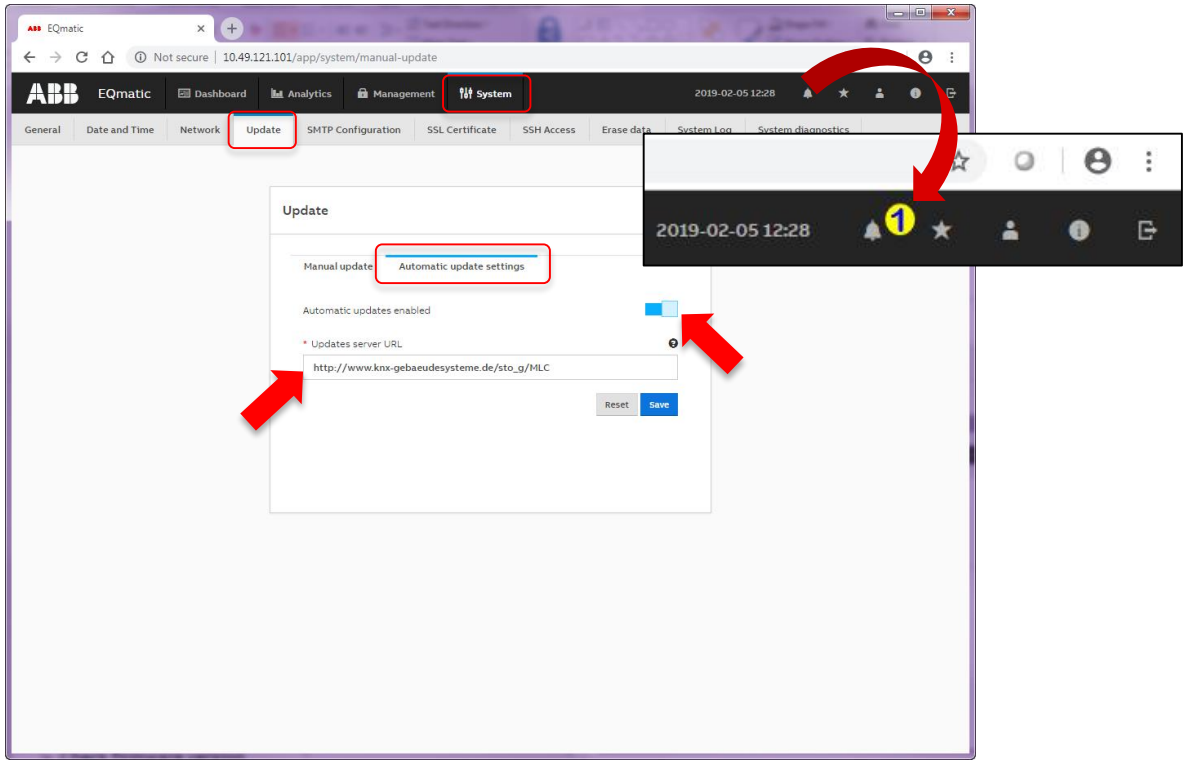
Firmware Update EQmatic Energy Analyzer QA/S

Instruction for firmware update – Automatic

- Go to the menu: “System” → “Update” → “Automatic update settings”
- Enable “Automatic updates”
- Use default link to an update server or enter an alternative URL
- Push “Save” button
- The “Notifications” icon in the menu bar will inform you when a new update becomes available
- Click on the notification and follow the instructions
- The device will be rebooted after the update, and you will have to log in again
- Verify existing configuration



Webinar “Various software tools for KNX”

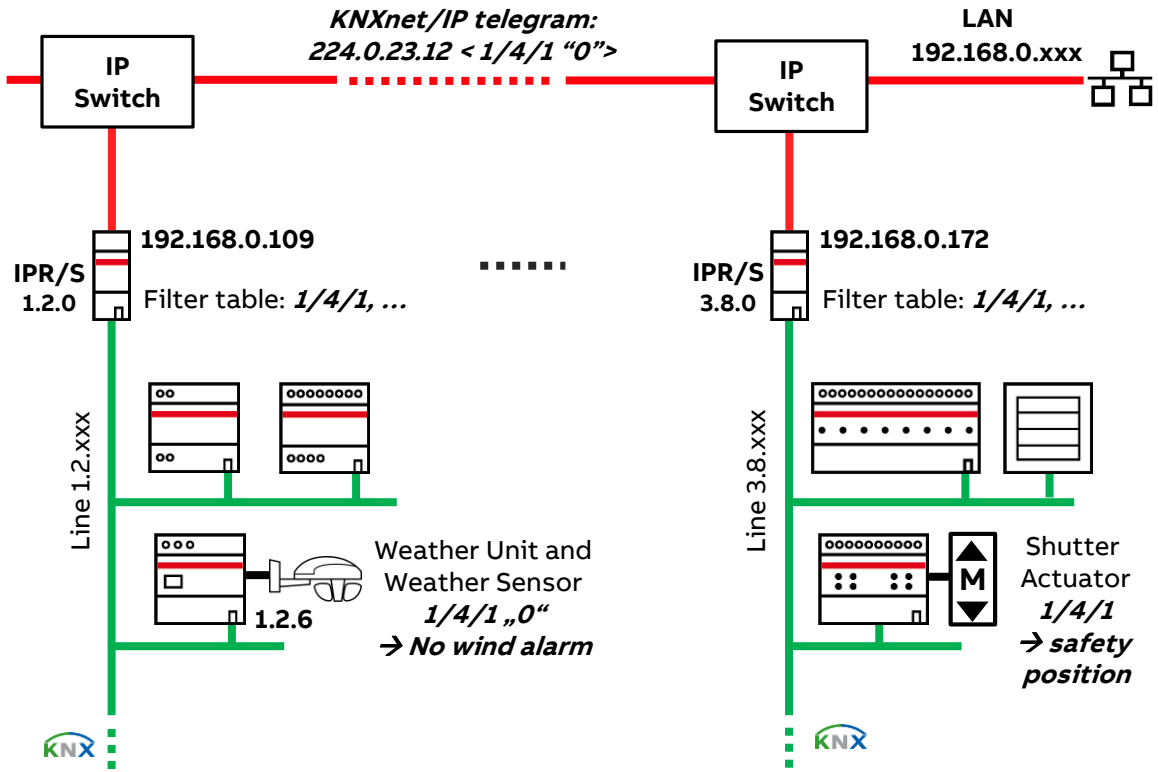
Analyzing of KNXnet/IP telegrams on IP level

Webinar “Various software tools for KNX”

Analyzing of KNXnet/IP telegrams on IP level

Situation: Weather Unit and Shutter Actuator

- The weather unit cyclically sends the telegram "No wind alarm" to the bus
- The shutter actuators in the building are listening to this telegram
- If the shutter actuators no longer receive the telegram cyclically, they move to the safety position
- How can the communication between the weather unit and the actuators in the building be checked?



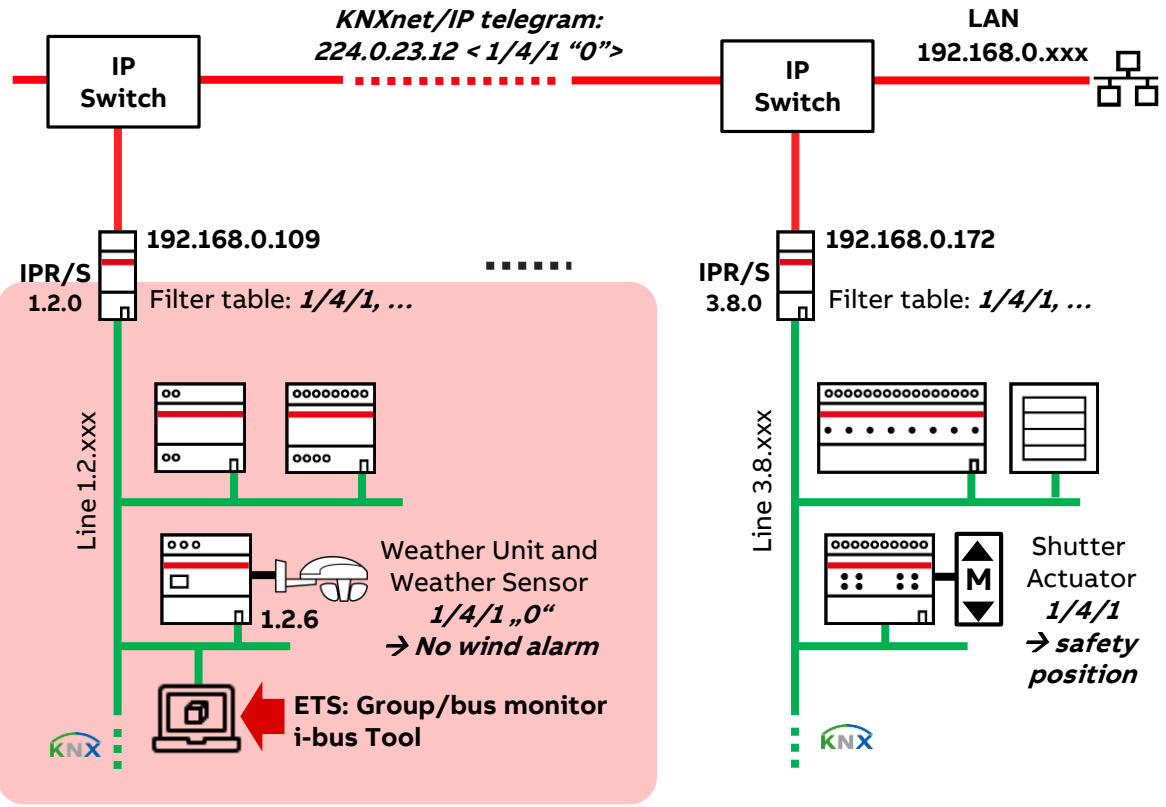
Webinar “Various software tools for KNX”

Analyzing of KNXnet/IP telegrams on IP level

How can the communication between the weather unit and the shutter actuators in the building be checked?

– In the line of the weather unit

- ETS diagnostics: Read out “Device Info with group communication” of the weather unit
- ETS group/monitor: Record and analyze telegrams
- i-bus® Tool: Simulate wind alarm and read out parameter settings of the weather unit



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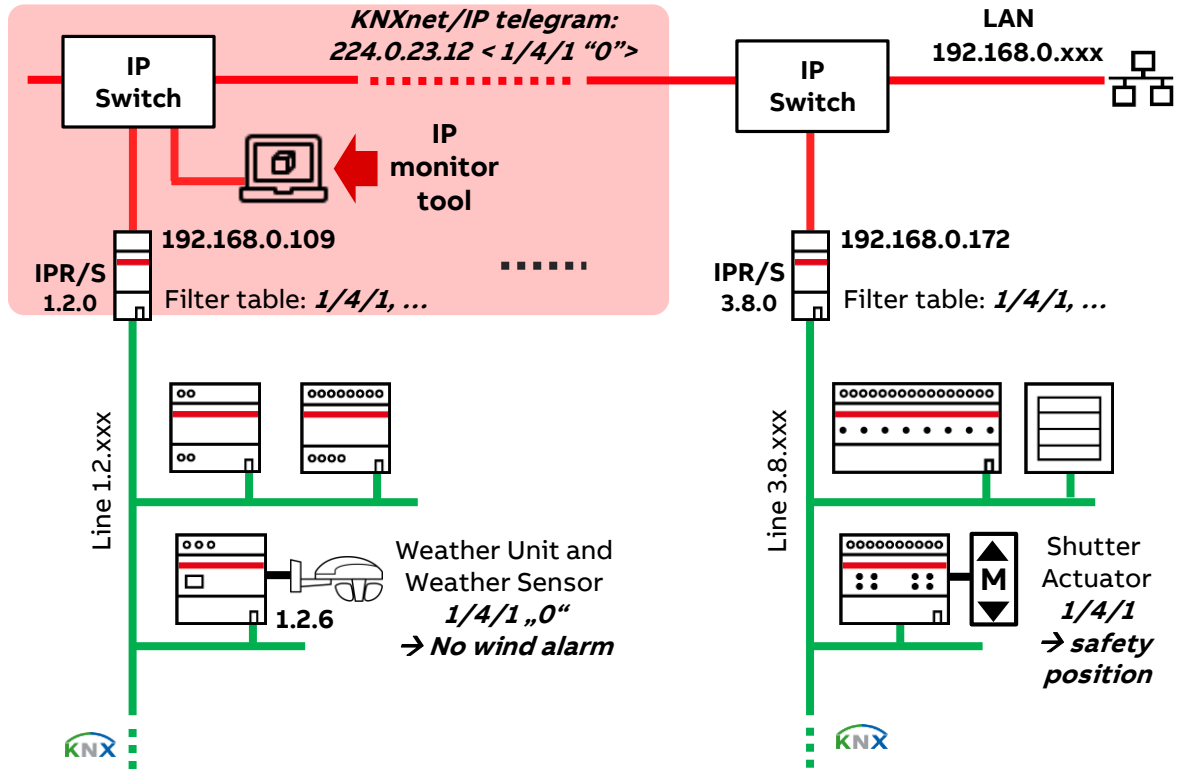
Analyzing of KNXnet/IP telegrams on IP level

How can the communication between the weather unit and the shutter actuators in the building be checked?

– On the IP network directly at the IP Router (line of weather unit)

- Record and analyze KNXnet/IP telegrams with special software (IP monitor tool, e.g. Wireshark)
- Check if the KNX IP Router IPR/S forwards the KNX telegram to the IP network
- KNX Multicast address: 224.0.23.12
- KNX telegram incl. group address is embedded into an IP telegram (useful data)



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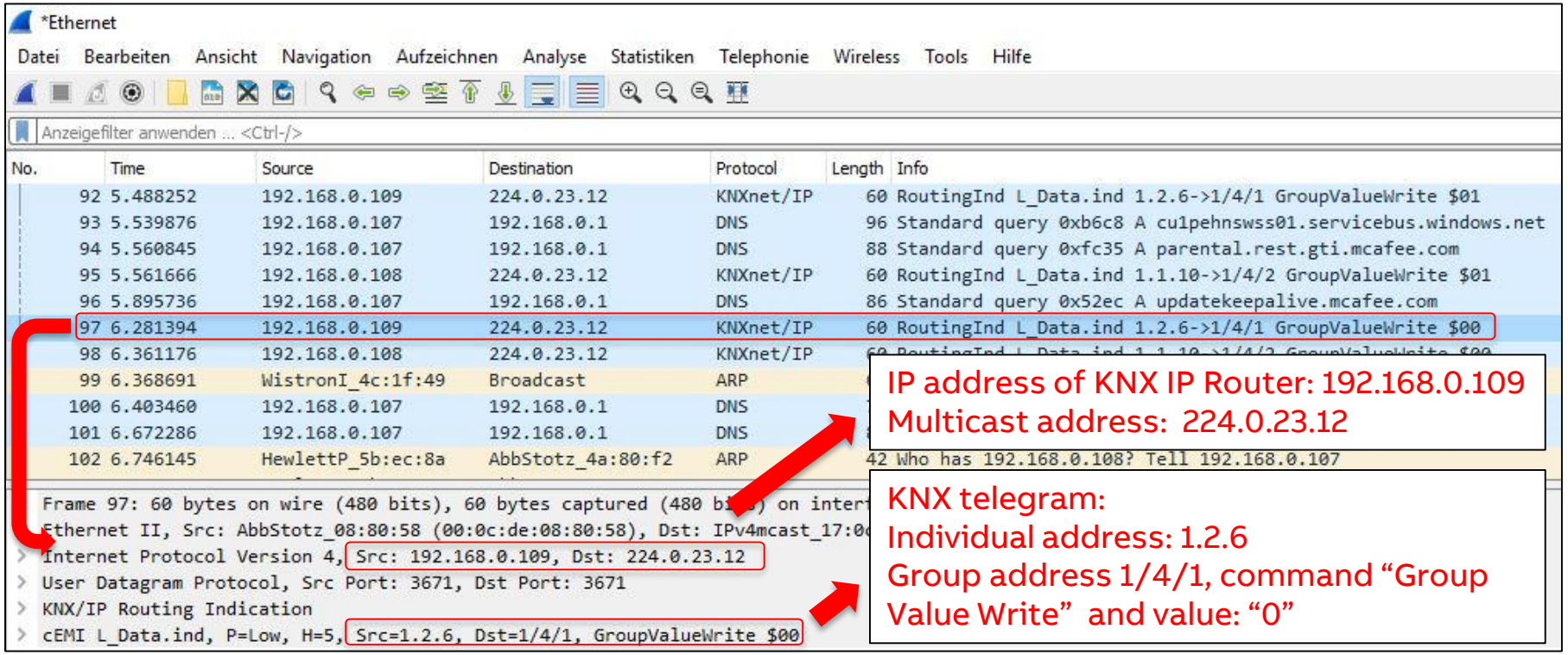
Record and analyze KNXnet/IP telegrams with special software (IP monitor tool, e.g. Wireshark)

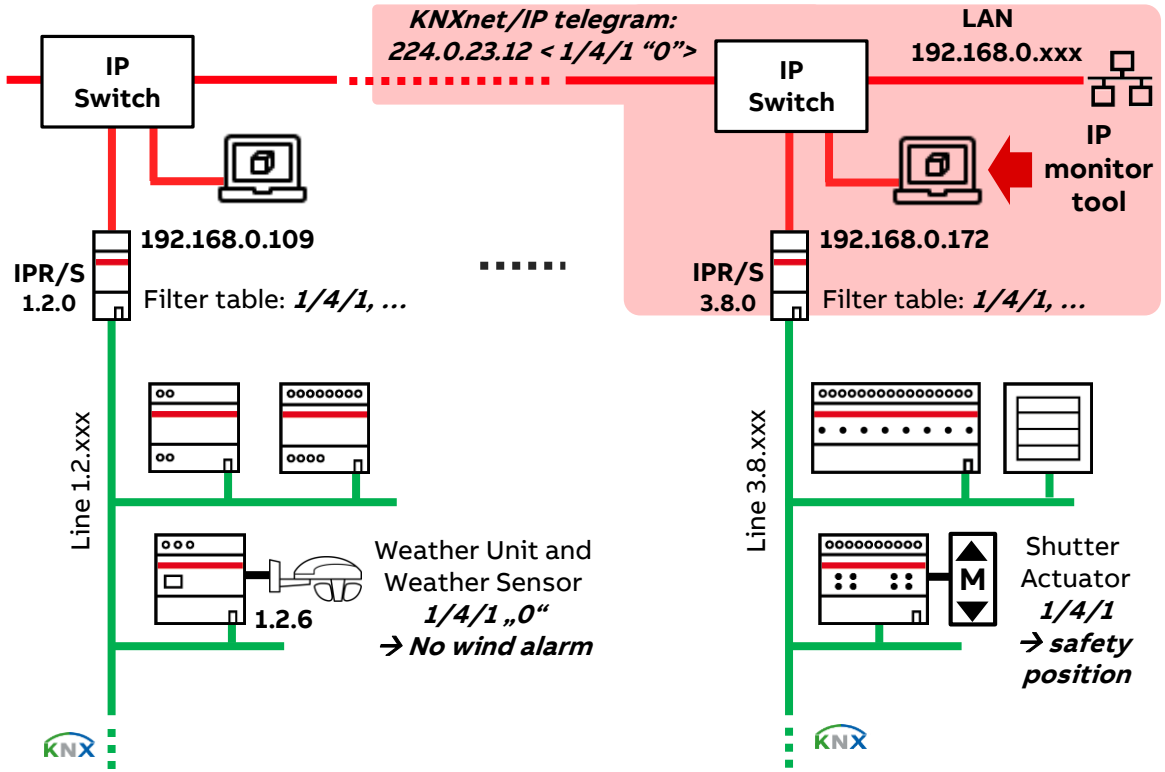


Webinar “Various software tools for KNX”

Analyzing of KNXnet/IP telegrams on IP level

How can the communication between the weather unit and the shutter actuators in the building be checked?

– On the IP network directly at the IP Router (line of shutter actuator)
  - Record and analyze KNXnet/IP telegrams with special software (IP monitor tool, e.g. Wireshark)
  - Check if IP switches and routers forward the KNXnet/IP telegram to the KNX IP Router IPR/S
  - KNX Multicast address: 224.0.23.12
  - Useful data of IP telegram (embedded KNX telegram incl. group address)



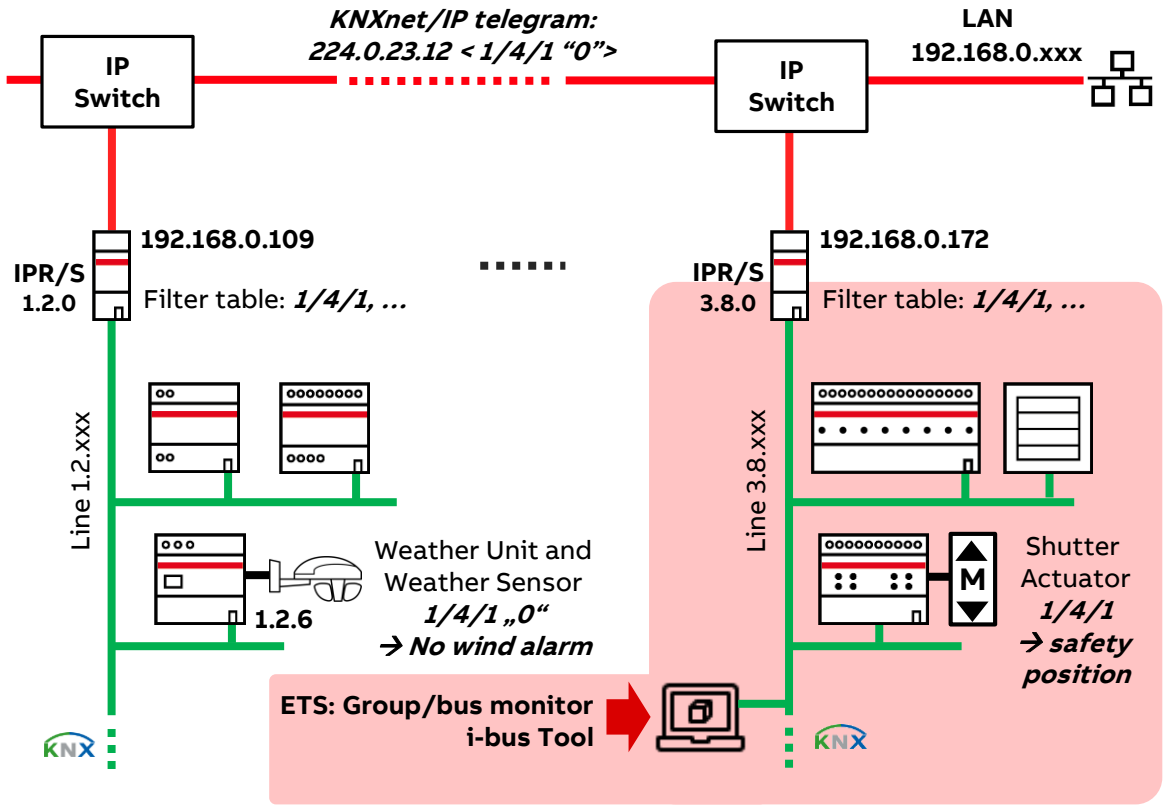
Webinar “Various software tools for KNX”

Analyzing of KNXnet/IP telegrams on IP level

How can the communication between the weather unit and the shutter actuators in the building be checked?

– In the line of the shutter actuator

- Check if the KNX IP Router IPR/S forwards the KNXnet/IP telegram to the KNX line
- ETS group/monitor: Record and analyze telegrams
- ETS diagnostics: Read out “Device Info with group communication” of the shutter actuator
- i-bus® Tool: Simulate wind alarm and read out parameter settings of the shutter actuator

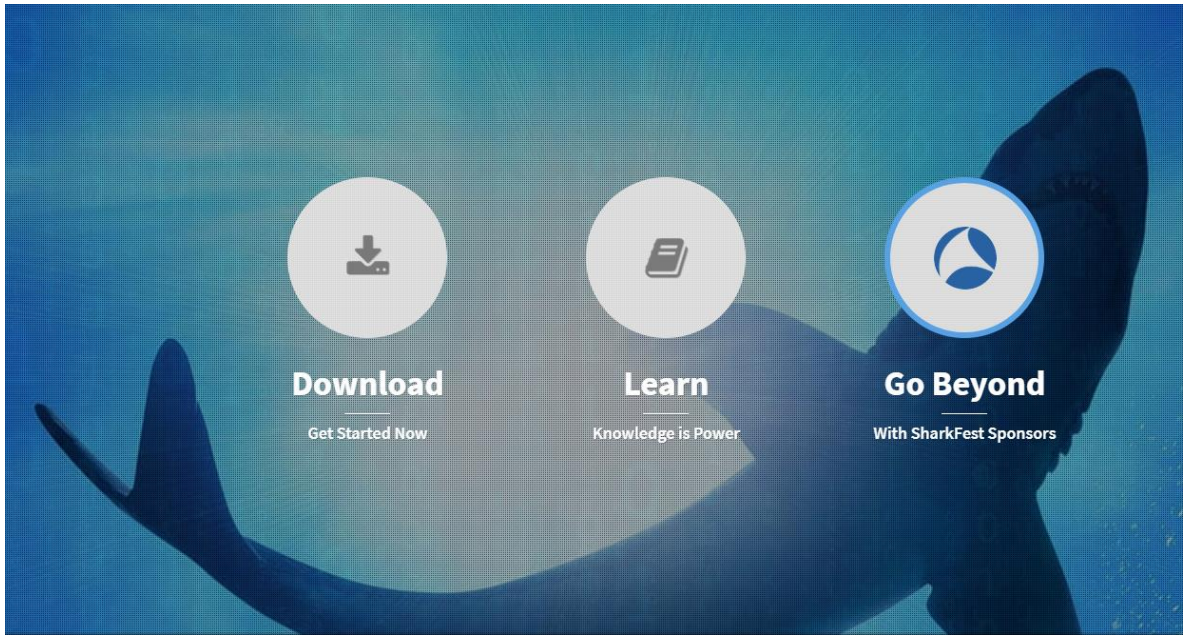


Webinar “Various software tools for KNX”

Analyzing of KNXnet/IP telegrams on IP level

IP monitor tool, e.g. Wireshark

- Wireshark is the monitoring tool for developers, IT specialists, but also integrators, who would like to observe the bus traffic and analyze the telegrams in an installation
- It is the world’s most widely-used network protocol analyzer
- Wireshark is available free of charge
- It lets you see what is happening on your network at a microscopic level and is used by many commercial and non-profit enterprises, government agencies, and educational institutions
- In the world of KNX, monitoring is essential to read each bit of an IP frame, containing a KNX telegram
- Please note: Contact your network administrator whether it is allowed to install



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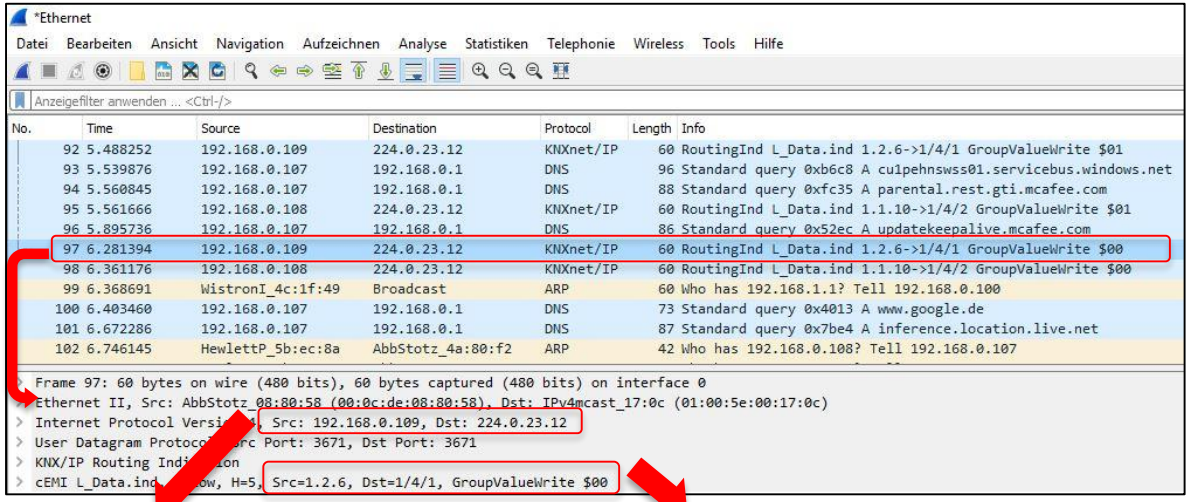
Webinar “Various software tools for KNX”

Analyzing of KNXnet/IP telegrams on IP level

IP monitor tool, e.g. Wireshark

- Thanks to the ongoing mission of KNX to make the technology more available to the world, KNX Association created a dissector for Wireshark
- The dissector now allows everybody to use Wireshark in order to understand not only the IP frame, but also the
  - Containing KNX telegram
  - Starting from its source and target address
  - Going all the way to the telegram’s useful information, such as values, functions, etc.



IP address of KNX IP Router:
192.168.0.109
Multicast address: 224.0.23.12

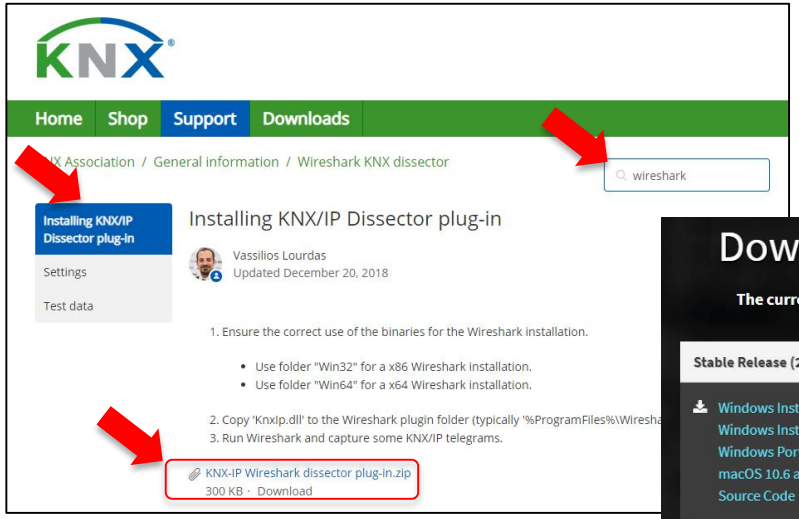
KNX telegram:
Individual address: 1.2.6
Group address 1/4/1,
command “Group Value Write” and value: “0”

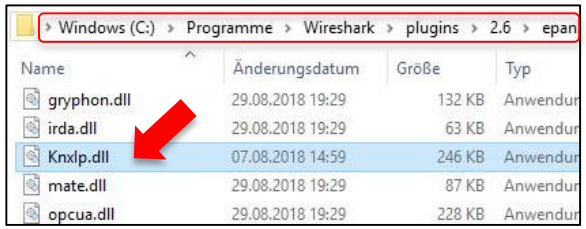
Webinar “Various software tools for KNX”

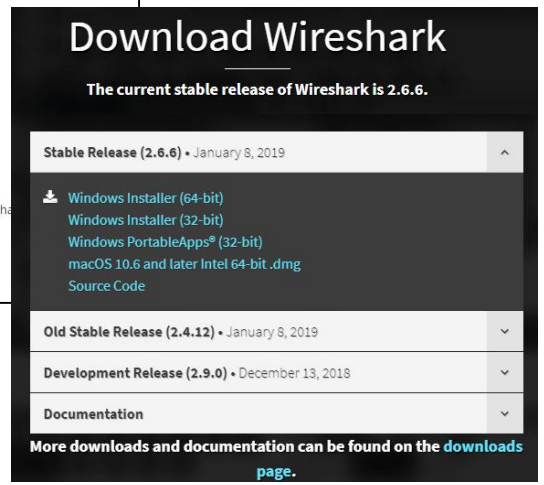
Analyzing of KNXnet/IP telegrams on IP level

Getting started and where to download Wireshark and the KNX dissector?

- Wireshark (WIN32/WIN64, macOS, …) can be downloaded free of charge at www.wireshark.org
- After a quick, installation, you can start analyzing telegrams
- The KNX dissector (*KNX-IP Wireshark dissector plug-in.zip*) is available in the KNX Help Centre https://support.knx.org
- Copy the dissector file “KnxIp.dll” to the Wireshark plugin folder, typically “C:\ProgramFiles\Wireshark\plugins\2.6\epan\”
- Run Wireshark and capture KNXnet/IP telegrams
- Decrypting KNXnet/IP Secure data
  - Decryption keys must be imported from a “Keyring file“ (*.knxkeys) exported from ETS
  - Go to Wireshark: Menu → Edit → Preferences → Protocols → KNXnet/IP







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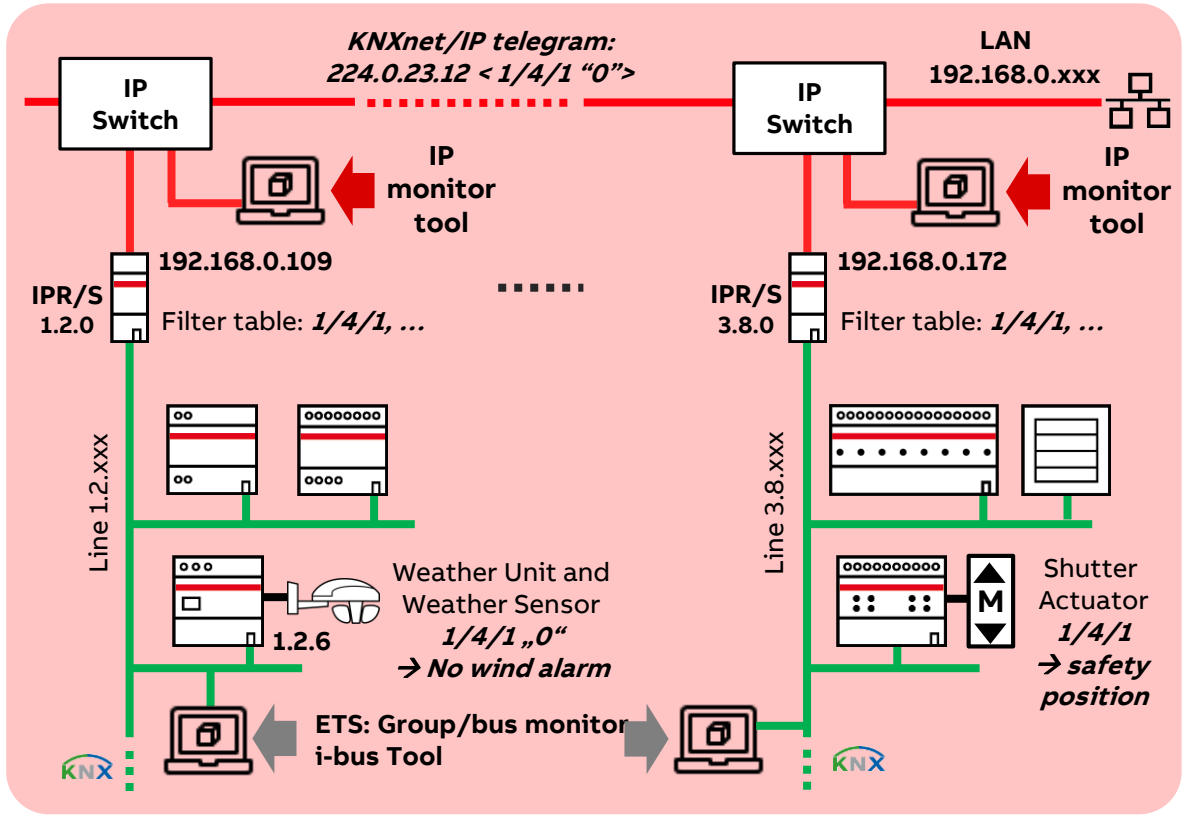
Webinar “Various software tools for KNX”

Analyzing of KNXnet/IP telegrams on IP level

IP monitor tool, e.g. Wireshark

– Analyzing KNX telegrams is interesting for diagnostic, fault detection and more
  - Multicast Address
  - Source address of TP and IP device
  - Group address
  - Command
  - Value

– In combination with ABB i-bus® Tool, the feature “bus monitor” in ETS, which is used for a full analysis of the KNX telegram in the installation, users have a full insight on both, the IP telegram and the KNX telegram



Webinar “Various software tools for KNX”

Webinar “Various software tools for KNX”

Webinars of the KNX Association

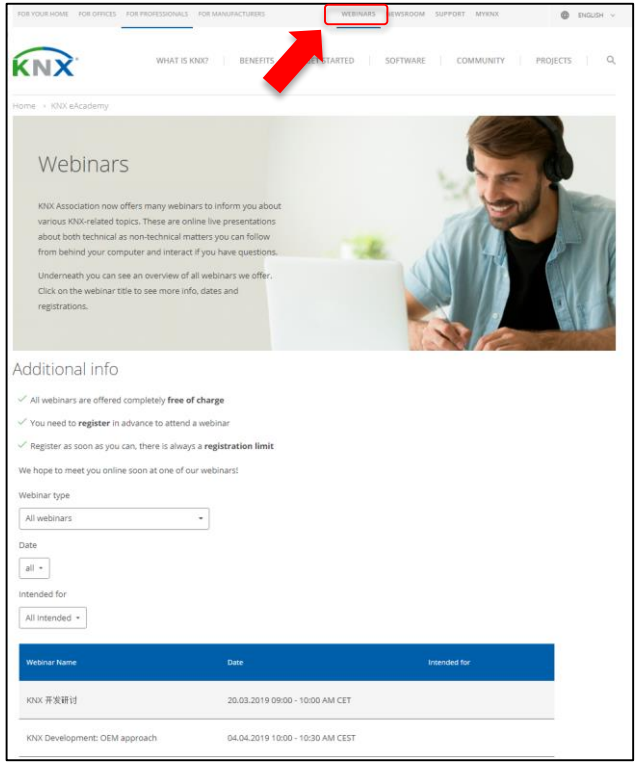
KNX Association offers many webinars to inform you about various KNX-related topics

These are online live presentations about both technical as non-technical matters you can follow from behind your computer and interact if you have questions

Click on the webinar title to see more info, dates and registrations

→ www.knx.org

→ Webinars

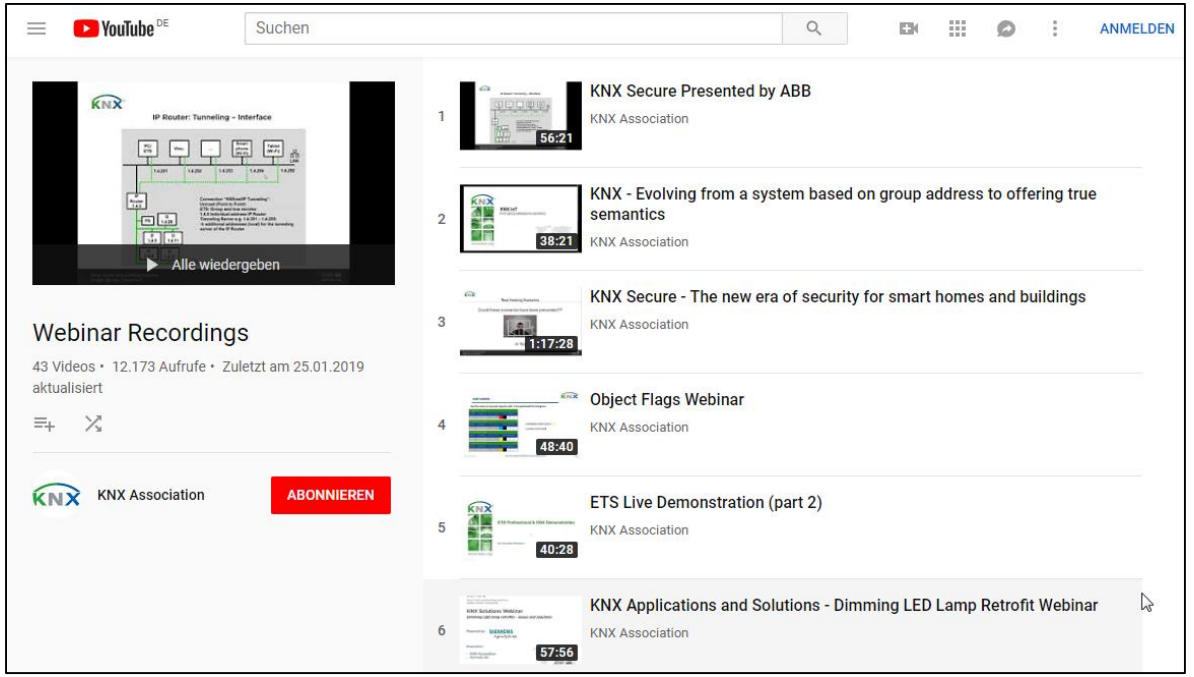


Webinar “Various software tools for KNX”

Webinars of the KNX Association

Webinar Recordings

- Viewing recorded webinars: https://www.youtube.com/playlist?list=PL9NWvz0cOjNPtGJwou3H80-GFrRQwYOUV
- YouTube Channel: https://www.youtube.com/user/knxAssociation



Webinar “Various software tools for KNX”

Training & Qualification – Database

In In this database you can find the complete online training portfolio for ABB Home and Building Automation

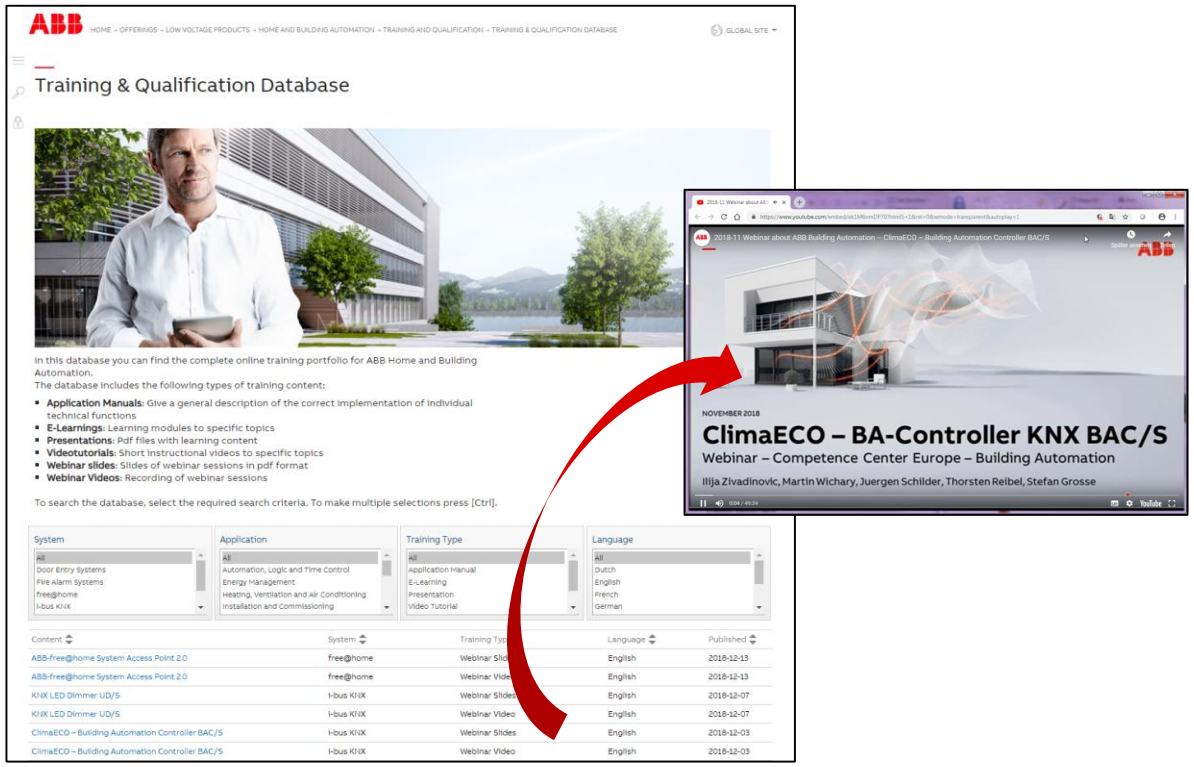
The database includes the following types of training content:

- Application Manuals
- E-Learnings
- Presentations
- Video tutorials
- Webinar slides and videos

www.abb.com/knx or https://go.abb/ba-training

→ Training and Qualification

→ Training Database



Webinar “Various software tools for KNX”

Training & Qualification – Calendar 2019

In addition to the online modules and the traditional training programs offered by your local ABB sales team, we offer a variety of on-site trainings conducted by our specialists at different ABB training facilities

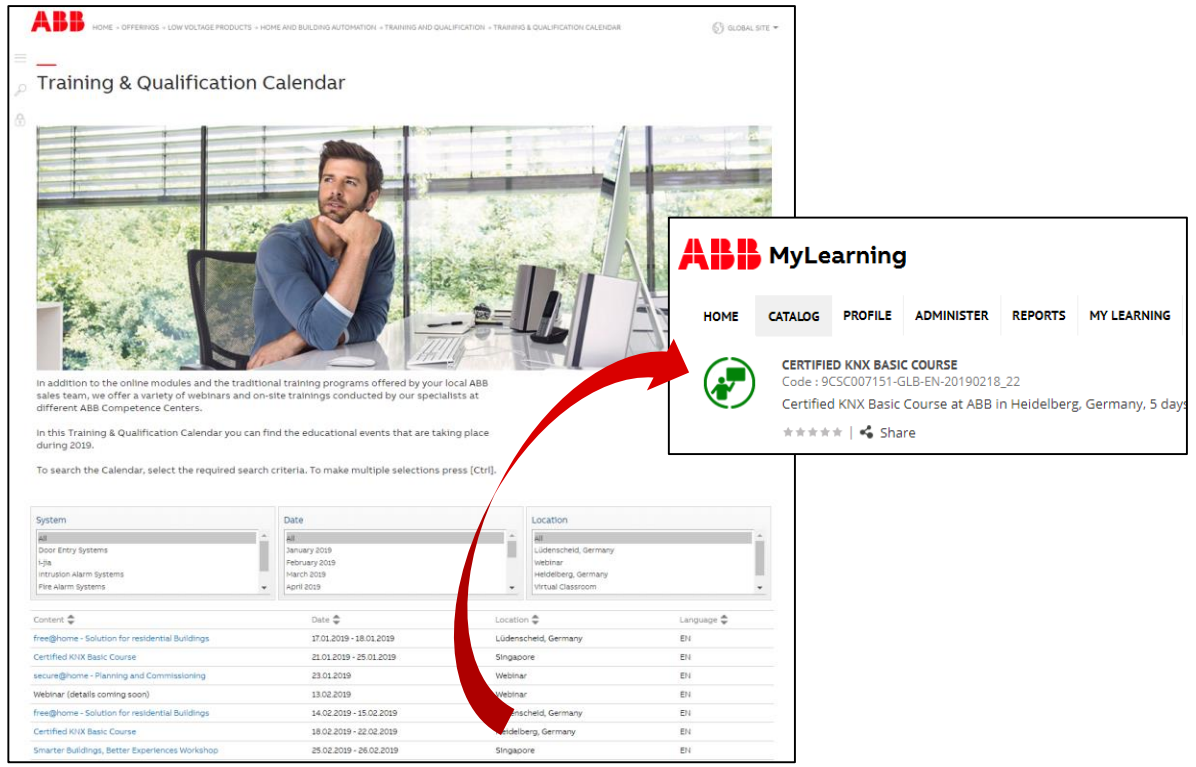
In this Training & Qualification Calendar you can find the educational events that are taking place during 2019

If you are interested in a training please click the training und you will be forwarded to register in “ABB myLearning”

www.abb.com/knx or https://go.abb/ba-training

→ Training and Qualification

→ Training Calendar



Webinar “Various software tools for KNX”

KNX Certified Training 2019

Certified KNX Courses in Heidelberg

- Basic Course : 18th to 22nd Feb.
- Advanced Course: 22nd to 26th Jul.
- Tutor Course: 09th to 13th Sep.
- Basic Course : 21st to 25th Oct.
- Followed by two day application training

And many more training courses in the calendar “International Training Dates 2019”

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Next Webinar

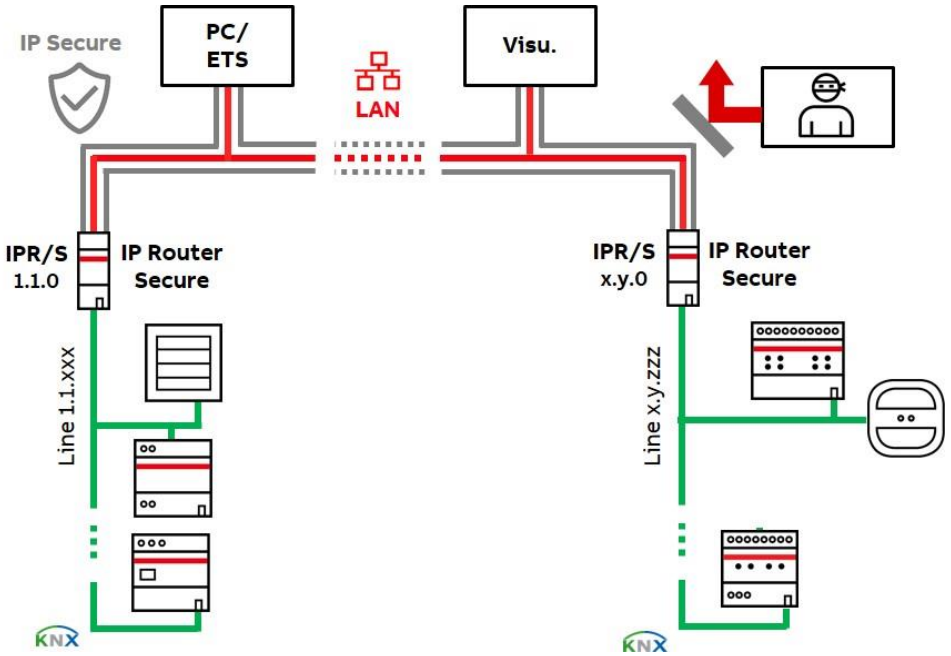
KNX Secure and ABB IP Router Secure IPR/S 3.5.1

- Overview IP Router
- Situation and Threat scenarios
- KNX Secure (KNX IP Secure and KNX Data Secure)
- IP Router Secure IPR/S 3.5.1
- Commissioning of IP Router Secure
- Attack over the IP network

Wednesday 20th March 2019

- Morning 09:00 am Europe Time (Berlin, UTC + 1h)
- Afternoon 03:00 pm Europe Time (Berlin, UTC + 1h)

IP Router Secure IPR/S 3.5.1



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