

## IP Control



**Content**

<b>Content .....</b>	<b>2</b>
<b>1 Product definition.....</b>	<b>4</b>
1.1 Product catalogue.....	4
1.2 Purpose .....	4
<b>2 Assembly, electrical connection and operation .....</b>	<b>5</b>
2.1 Safety instructions .....	5
2.2 Design and layout of the device.....	5
2.3 Assembly and electrical connection.....	6
2.4 Installation.....	6
<b>3 Application .....</b>	<b>12</b>
<b>4 First steps .....</b>	<b>13</b>
4.1 Passwords .....	14
<b>5 Visualisation .....</b>	<b>15</b>
<b>6 Editors .....</b>	<b>16</b>
6.1 Visualisation Editor .....	17
6.2 Job Editor.....	27
6.3 WAP Editor .....	51
<b>7 System.....</b>	<b>52</b>
7.1 Configuration tool.....	52
<b>8 Object Structure .....</b>	<b>61</b>
<b>9 ETS .....</b>	<b>62</b>
9.1 Inserting the IP Control into the ETS .....	62
9.2 Exporting group addresses from ETS3.....	62
9.3 Remote maintenance via the network, EIBlib/IP access .....	62
<b>10 Cameras and IP Control on the Internet.....</b>	<b>63</b>
10.1 Network structure diagram .....	63
10.2 Settings for the camera element in the visualisation.....	64
<b>11 IP addresses on the Internet .....</b>	<b>65</b>
<b>12 Changing the language settings.....</b>	<b>66</b>
<b>13 Applications .....</b>	<b>68</b>
13.1 IP Control – IRTrans .....	68
13.2 Music control with Squeezebox.....	69
13.3 Further Squeezebox applications.....	70
13.4 Calling up web pages from the visualisation .....	71
<b>14 ComponentBuilder .....</b>	<b>72</b>
14.1 Application.....	72
14.2 Program window .....	72
14.3 The File menu .....	73

14.4	Defining a panel .....	73
14.5	Data pool .....	74
14.6	Background & lettering .....	77
14.7	Static element .....	78
14.8	Display element .....	79
14.9	Control element - simple .....	81
14.10	Control element - complex .....	83
14.11	Saving the project .....	84
14.12	Using components .....	85
<b>Appendix 1: Status LED .....</b>		<b>87</b>
<b>Appendix 2: Control characters for values in text messages .....</b>		<b>88</b>
<b>Appendix 3: Technical data .....</b>		<b>89</b>
<b>Appendix 4: WAP service .....</b>		<b>90</b>
<b>Appendix 5: Network and browser settings .....</b>		<b>91</b>
<b>Appendix 6: Camera .....</b>		<b>92</b>
<b>Appendix 7: Certificate .....</b>		<b>93</b>
<b>Appendix 8: xPL requirements .....</b>		<b>94</b>
<b>Appendix 9: E-mail provider .....</b>		<b>96</b>
<b>Appendix 10: URL parameters .....</b>		<b>98</b>
<b>Appendix 11: Expanded clock options .....</b>		<b>99</b>
<b>Appendix 12: EIS 15 Multiplexer .....</b>		<b>100</b>
<b>Appendix 13: EIS types .....</b>		<b>101</b>
<b>Appendix 14: DTP (data point types) .....</b>		<b>102</b>

## 1 Product definition

### 1.1 Product catalogue

Product name:	IP Control
Application:	Visualisation, IP Gateway
Design:	REG (series installation)
Order no.:	7571 00 04

### 1.2 Purpose

IP Control forms the interface between an Ethernet IP LAN (LAN = **L**ocal **A**rea **N**etwork) and the *instabus* KNX/EIB system. Via the Ethernet connection, users with a local PC connected in a LAN or with another suitable LAN device, such as a Tablet PC, can access their *instabus* KNX/EIB system.

IP Control operates as a server and is used as a central control, messaging and control unit. Configuration and operation are performed via the web browser of a PC with JAVA Runtime Engine version 1.5 or higher.

Access is also possible via the Internet. The connection to the Internet can be established via DSL, LAN (RJ45 port) with a router and a directory server.

## 2 Assembly, electrical connection and operation

### 2.1 Safety instructions

Electrical equipment must only be installed and assembled by qualified electrical engineers. Always follow the relevant accident prevention regulations.

Knowledge of the relevant network technology is required for installation.

The reduced bus voltage must not be used as a 10-30 V DC operating voltage.

The PIN of the device can be found on a sticker in these instructions and on the back of the device. Keep the PIN in a safe place. If you lose the PIN you will no longer be able to access the configuration tool. In this case the device will need to be sent in and reset.

If the device is used to establish a connection to the Internet then corresponding safety measures must be implemented to protect the network against unauthorised access.

Failure to comply with these instructions may result in damage to the device, fire or other hazards.

### 2.2 Design and layout of the device

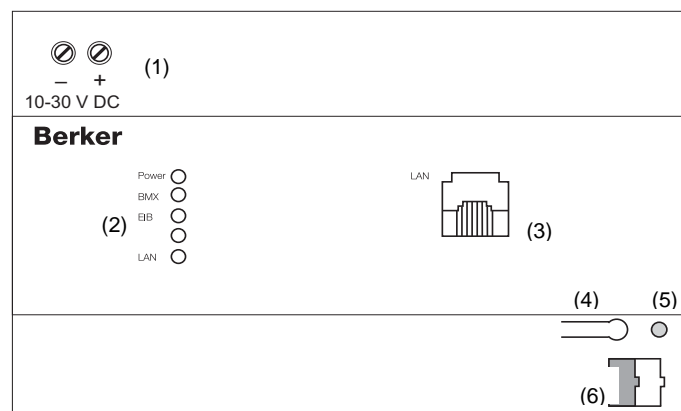


Fig. 1: Overview of the device

- (1) Voltage supply 10-30 V DC
- (2) Signal LED (operation)
- (3) RJ 45 jack for Ethernet LAN
- (4) Programming button KNX/EIB
- (5) Programming LED KNX/EIB
- (6) Bus connection terminal KNX/EIB

## 2.3 Assembly and electrical connection

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**CAUTION!****Risk of destruction of the device.****Fault voltages can occur when working under live voltages.****Before making the electrical connections, de-energise the installation environment.**

---

### Assembly of the device

- Snap the device onto a top hat rail according to DIN EN 60715.
- i** The device will heat up during operation. Observe the maximum operating temperature. Ensure that adequate heat dissipation is provided.

### Connecting the device (Figure 1)

- Connect the bus line to the bus connection terminal (Figure 1, 6).
- Connect the voltage supply according to the markings on the screw terminals (Figure 1, 1).
- i** The non-reduced output of a KNX/EIB voltage supply can be used as the voltage supply.
- Connect the network line (LAN) to the RJ 45 jack (Figure 1, 3).
- i** When using a direct connection to a PC, use a crossover network cable.

## 2.4 Installation

### Getting the system ready for operation

- Switch on the bus voltage.
- i** IP Control requires no ETS application. It is not necessary to program the bus coupling unit.
- Switch on the supply voltage.

During the booting phase, the POWER LED will light up orange for about 30 seconds. At the end of the booting phase all of the LEDs are tested. Once the booting phase has been completed the LED lights up/flashes green. The device is ready for operation.

### Performing the basic configuration

The following steps need to be carried out in order to perform the complete basic configuration.

- Establishing PC access to the IP Control via the network
- Launching the configuration tool
- Selecting the basic settings

### Establishing PC access to the IP Control via the network

The device is ready for operation. A PC is connected.

- Find out and make a note of the current network configuration of the PC.
- Set up the network address of the PC in the range 192.168.1.x., e.g. 192.168.1.25. The standard Subnet Mask for 192.168.x.x is 255.255.255.0.
- i** IP Control has been pre-programmed at the factory with the LAN IP address 192.168.1.10. If another network device/user needs to use this IP address then it should be separated in order to avoid network conflicts.  
If you are not sure whether this IP address is already being used, a direct connection between PC and IP Control via a crossover cable will avoid potential network conflicts.
- Launch the browser of your PC.
- In the address bar, enter the IP address of the IP Control (192.168.1.10).

The home page of the IP Control will open. PC access to the IP Control has been established.

### Launching the configuration tool

PC access to the IP Control has been established. The home page of the IP Control has been opened.

- Click on the menu item **System**.  
The input window for the device PIN opens.
- Enter the device PIN.  
An encrypted connection is set up. The IP Control login window opens up.
- i** The PIN of the device can be found on a sticker in the instructions enclosed with the device and on the back of the device. It is used to identify the IP Control and is unique. It cannot be changed and is requested every time the configuration tool is accessed.
- Enter your user name and password in the login window.  
The following access data have been set at the factory:  
User name: admin  
Password: berker

The configuration tool opens up. The interface for the **Configuration** tab can be seen on the screen (Figure2).

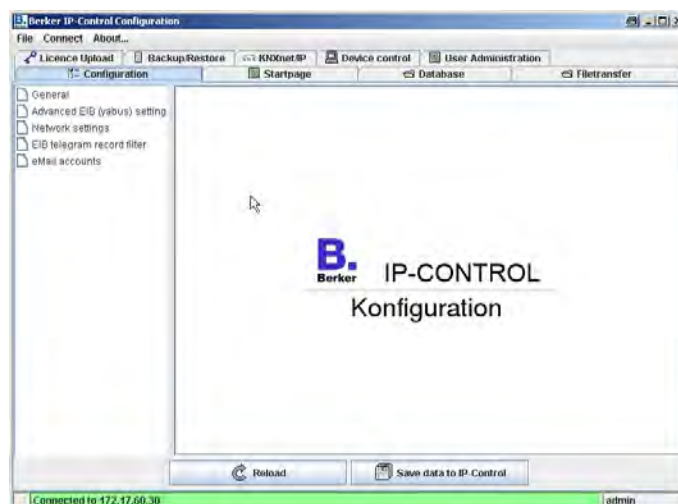


Fig. 2: Configuration tool

- i** The access data for the administrator should be changed in the user administration after establishing the basic configuration in order to prevent unauthorized access.

### Selecting the basic settings

The configuration tool is open. The **Configuration** view is in the foreground.

- Click on the menu option **General** in the left-hand pane.  
The current settings are displayed (Figure 3).

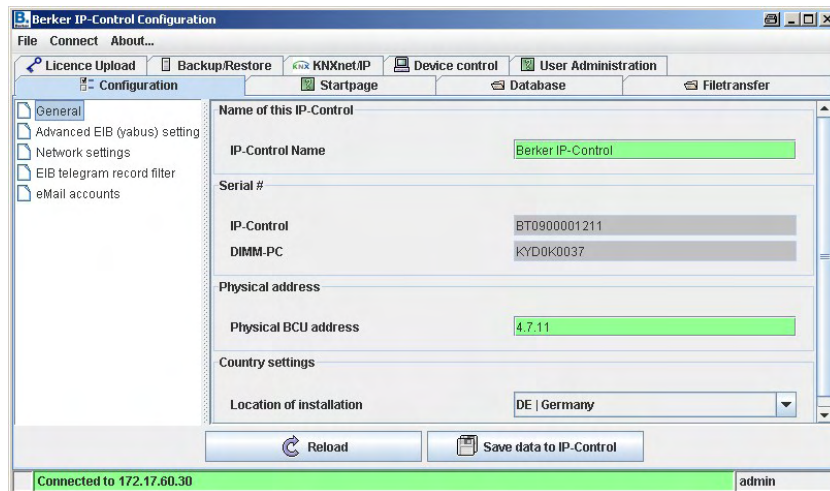


Fig. 3: General information window

- Assign a name in the **IP Control Name** field.
- i** With the aid of this name the device can be identified via a Discovery Tool if there are several IP Controls in the network.
- Enter the physical address of the BCU for the KNX/EIB.
- i** Observe the conventions for assigning physical addresses in KNX/EIB.
- Click on the menu item **Network Settings**.

A window showing the current settings is displayed (Figure 4).

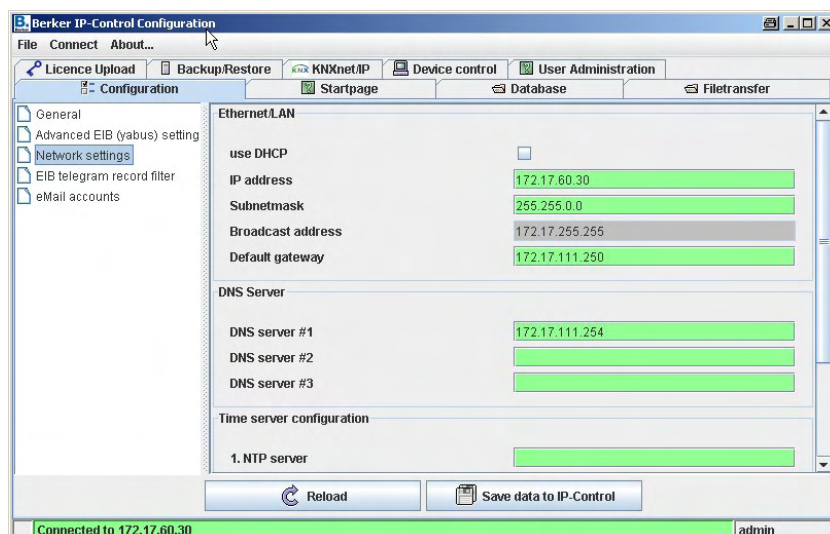


Fig. 4: Network settings window



- Assign an **IP address**.
- ❗ The device can be reached under this IP address in the network. If necessary, select a free IP address from the range of the originally noted network configuration into which the PC was embedded, if this is still to be used.
- Enter the subnet mask.
- ❗ A standard subnet mask for local networks is 255.255.255.0.
- Enter the IP address of the **Standard Gateway**.
- ❗ Here you should enter the external IP address of the router located in the network.
- Enter at least one **DNS Server**.
- ❗ If DNS servers are used to resolve names then the corresponding IP addresses should be entered here.  
Otherwise, the IP address of the Standard Gateway is entered again for **DNS Server No.1** on many routers.
- Click on **Save data** to save the new configuration and close the browser.  
The changes are saved. If the network settings have been changed then the device will automatically restart. The basic settings are now complete.
- If necessary, adapt the network settings of the PC. The IP address must be in the range of the IP address of the IP Control.
- ❗ When the IP Control is next called up you will need to enter the new IP address in the address bar of the browser.

### Adapting the reserved Java memory

Java Runtime Engine version 1.5 or higher is required.

To adapt the reserved memory, a parameter in the Java VM software needs to be changed or added. Proceed as follows:

- In Windows, click on **Start → Settings → Control Panel**
- Double-click on the Java symbol.
- Click on the **Java** tab.
- Click on **Displays** in the **Java Applet Runtime Settings** (Figure 5).



Fig. 5: Java Control Panel - Java

- In order to get more working memory for JAVA under Windows, enter the following parameter: -Xmx128M (Figure 6).

128 MB of working memory is reserved for Java.

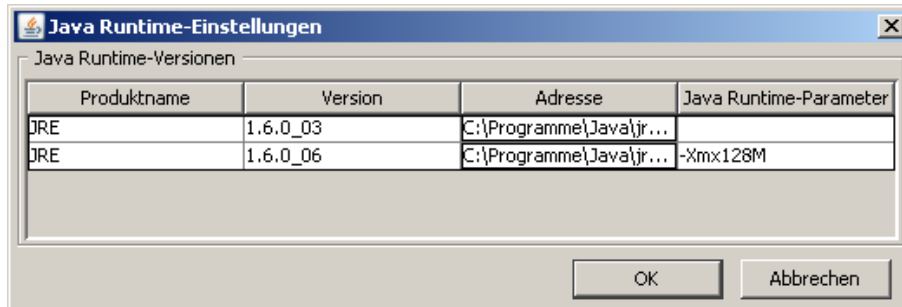


Fig. 6: Java runtime settings

### Adapting the settings for temporary Internet files under Java

Program files and data which are obtained by Java via a network connection are normally stored in a temporary memory location. Java accesses this stored content again if identical program parts and/or identical contents are required in order to shorten loading times and spare network capacities. However, this process gets in the way during installation, parameter setting and modification of the visualisation tool with IP Control. Any changes which have just been made would not be executed immediately because Java uses saved, out-of-date data.

During the initial installation period, it is therefore necessary to prevent the system from saving temporary files so that IP Control always accesses the current status. In principle, you can continue working with these settings, but the saving of temporary files should be reactivated for the visualisation tool during normal operation so that WebStart can be used for accelerated startup of the visualisation.

- In Windows, click on **Start → Settings → Control Panel**
- Double-click on the Java symbol.

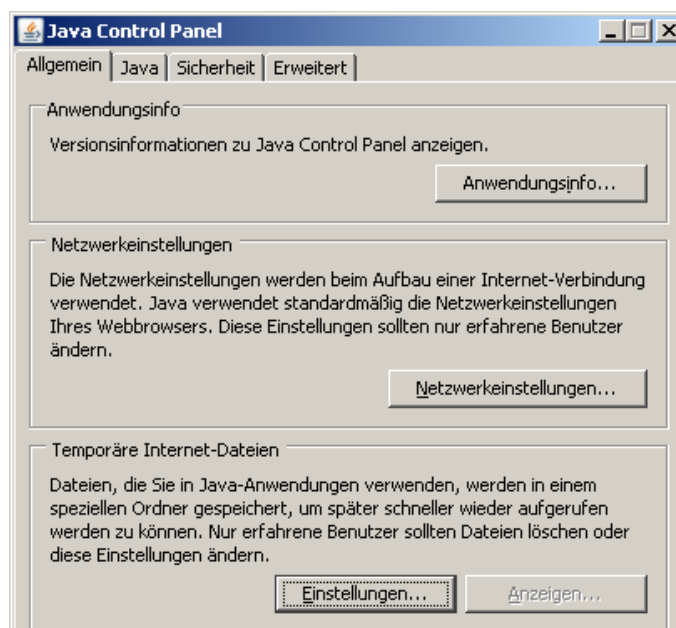


Figure 7: Java Control Panel – general information

- Click on the **General** tab.
- Click on the field **Temporary Internet Files and Settings** (Figure 7).

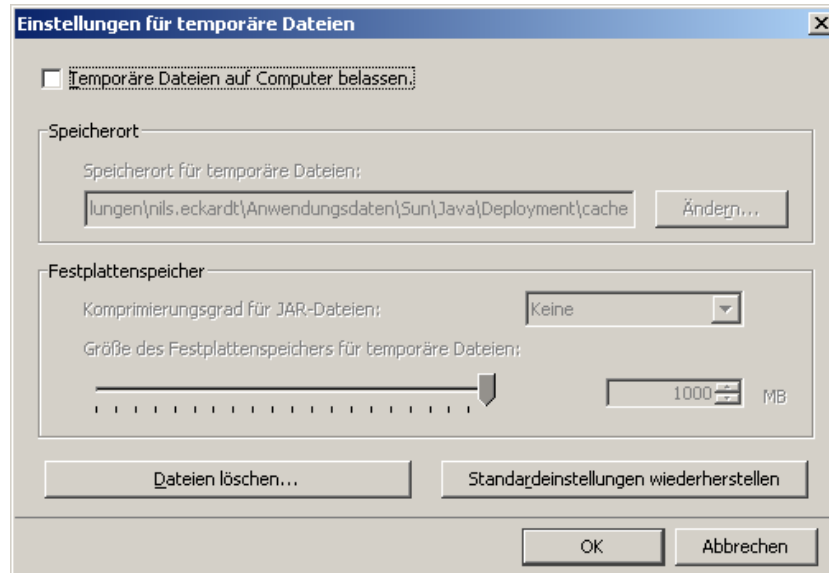


Fig. 8: Temporary file settings

- Uncheck the box marked "Leave temporary files on computer".
- Click on "Delete files...".
- Click on **OK** to confirm.  
You will then return to the Java Control Panel.
- Click on **OK** to exit the Java Control Panel.
- i** You will then need to restart your browser in order to enable the settings.
- i** In order to be able to use the function WebStart after installation to accelerate the visualisation startup procedure, you will need to undo this setting and reactivate the checkbox again.

### 3 Application

No special software is required for the configuration of IP Control. For example, if you establish a connection via a PC with IP Control then IP Control will make all the necessary components required to assign the application data available to a standard Internet browser (Java Runtime Engine version 1.5 or higher). You can configure the following internal functions for services.

#### Internal services

- Visualisation
- Clocks
- Calling up network cameras
- Logic
- WAP communications
- EIBlib/IP and KNXnet/IP
- Data collector
- Light scenes

#### Applications

for automation

- Clocks
- Logic
- Light scenes

for monitoring

- Visualisation
- Communications
- Data collector
- Netcam

for remote switching

- Visualisation

for maintenance

- Communications
- Data collector
- EIBlib/IP and KNXnet/IP

## 4 First steps

IP Control is equipped with a Web Server and incorporates a number of Java Applets. You can edit their services when they are called up via the browser and save them permanently in the IP control.

- Call up an Internet browser on e.g. your PC platform.
- ❏ The following browsers can be used:
  - Internet Explorer from version 5
  - Netscape from version 4.77
  - Konquerer from KDE 3.0
  - Opera
  - Mozilla Firefox
- ❏ Java Runtime Engine version 1.5 or higher must be installed and capable of running on all browsers.
- After installing the IP Control, write the following URL in the address bar:  
<http://192.168.1.10> (default setting).  
Alternatively, you can choose the IP address of the IP Control which you have changed.

The start window with the main menu appears. From here you can access the Visualisation tool, the Editor and the Configuration Tool (system) of the IP Control.



Fig. 9: Start window



### **WARNING!**

**Suitable additional measures must be put in place if there are special requirements or a risk of injury or material damage which must be avoided (functional safety).**

**These measures must have the required level of independence from the operation of the IP Control and must always be available.**

Risk reduction measures can be found e.g. in the tables entitled "Functional Safety" in the "Building Services Engineering Systems Handbook – Fundamentals" from ZVEH/ZVEI.

## 4.1 Passwords

Access to the Visualisation Editor and the **System** is protected with user names and passwords. The passwords can be edited via **System**. The following default passwords are active on delivery:

Area	User name	Password:
Visualisation Editor	admin	berker
System	admin	berker

- i** When you wish to change a password you will be prompted to enter the new password twice. This prompt does not appear when no password is entered.

## 5 Visualisation

Here you can change to the pages of the visualisation interface.

If you have created several projects (e.g. for Apartment 1 and Apartment 2) then a menu will appear which will allow you to select the desired project. If user administration is active you may be prompted to enter a password.

The pane on the left-hand side shows the titles of the pages you have created. You can display/hide this view by clicking on the arrow symbol.

When you use one of the elements in the visualisation interface, a command is transmitted via IP Control on the KNX/EIB. In return, Java ensures that any changes to statuses in the on-site EIB system are immediately reported back and that the corresponding element is updated.

## 6 Editors

This takes you to the editors for the functions of the IP Control.

Access rights to the visualisation pages are assigned under the user management in the Visualization Editor.

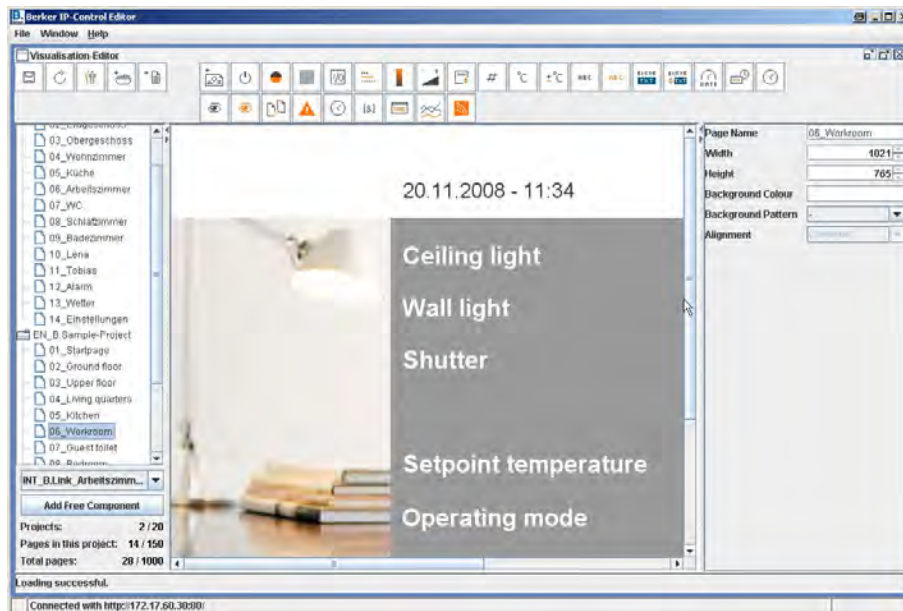


Fig. 10: Editor window

You can close the editor again by clicking on **Close** in the File menu, or go to **Settings** to change the editor settings.

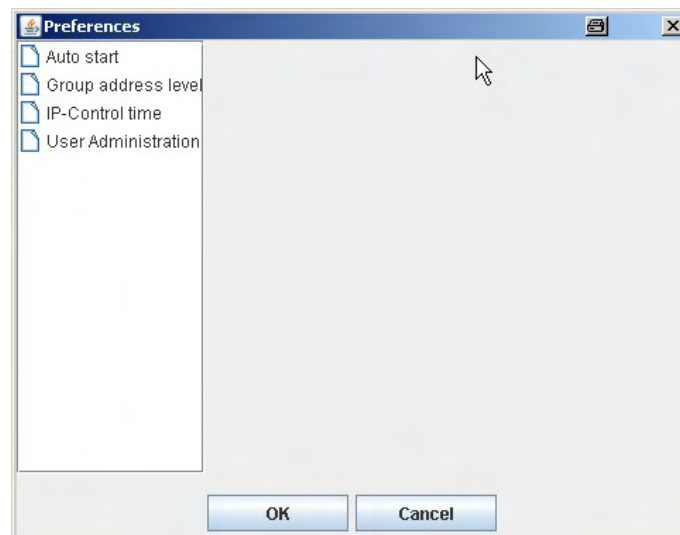


Fig. 11: Editor settings window

The settings include:

- Auto start
- Group address level
- IP Control time
- User Administration



You can change between individual editors under the menu option **Window**. The following editors are available:

**Visualisation Editor**

This is where projects are created and changed. A menu bar with various visualisation elements is available.

**Job Editor**

You can create and parameterize services here. IP Control provides the following services:

- Logic gate, switch on/off delay
- Week time switch, year time switch
- E-mail
- Light scenes
- Stair light time switch
- Hysteresis switch
- System coupling
- Date and time elements
- IP telegrams (UDP and xPL)

**WAP Editor**

Here you can create the pages which are to be received by a WAP-enabled mobile phone when the IP Control is called up. In addition, you can set the parameters here for the KNX/EIB commands which are to be carried out via WAP. The system supports WAP Standard 2.1.

**6.1 Visualisation Editor**

In the Visualisation Editor you can create and modify the visualisation pages.

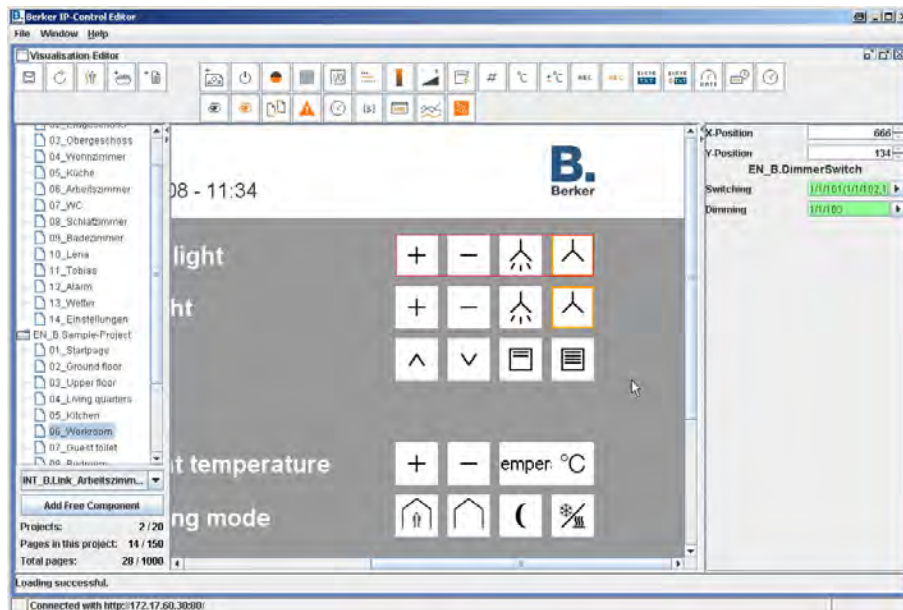


Fig. 12: Visualisation Editor window

By clicking on an icon an element is placed at the top left corner of a page, from where it can be freely repositioned. The properties of the elements are parameterised in the right-hand window. The table below (see page 19) lists all of the available visualisation elements.

In addition, you can also create your own elements quickly and easily. The ComponentBuilder offers numerous possibilities for individualizing your visualisation. Once you have created these

elements yourself and loaded them into the IP Control you can insert them into the visualisation via the selection in the bottom left area.

Detailed information about using and creating control panels with the ComponentBuilder is provided in the section on the ComponentBuilder (see section 14).

### **Project parameters**

You can create multiple projects in the IP Control and assign the following project parameters to them:

**Name**

Name of the project

**Start page**

The selected page is displayed when the visualisation project is launched.

**Display page index?**

If this entry is enabled a page index is displayed at the edge of the page in the visualisation.

**Kiosk mode**

If this entry is enabled the visualisation will launch in full screen format.

**Display connection problems?**

If this entry is enabled any connectivity problems between the client computer and the IP Control are flagged in the visualisation.

Possible causes of connection problems include:

- Failure of the supply voltage of the IP Control, router or other network components
- Physical disconnection of the network connection (i.e. a network cable is not connected)
- Defective routers, switches or other network components

### **Page parameters**

The pages in a project can be freely designed and parameterised. Every page has the following parameters:

**Name**

Name of the page

**Width**

Page width in pixels

**Height**

Page height in pixels

**Background colour**












Background pattern + picture


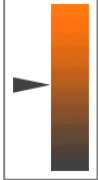










 You can use previously uploaded pictures and graphics as background pictures/wallpaper.






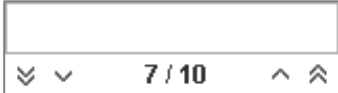


**Orientation**










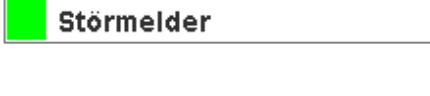




This option determines the orientation of the uploaded picture.




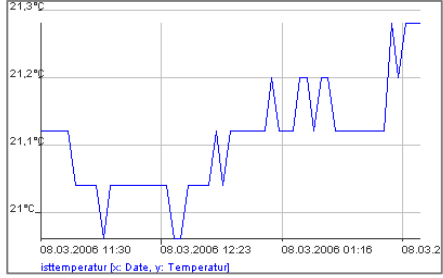

**Overview of visualisation elements**

Element	Description	EIS type *)	Values	Icon	Visualisation
Background picture	JPG images which have been uploaded into the IP Control can be freely positioned on the page; optionally, they can also be controlled via a group address (visible/transparent).				All uploaded images are available in the selection menu. Newly loaded images will not appear in the selection list until the editor is restarted.
Switch	The switch can be assigned to a group address for on/off switching commands. The switch can be displayed transparently.	1	1 bits		
Button	Toggle: ON and OFF are sent alternately every time the button is pressed. ON only: ON is sent every time the button is pressed. OFF only: OFF is sent every time the button is pressed.	1	1 bits		
EIS 14 button	Value transmitter: an EIS 14 value is sent when the button is pressed.	14	1 bytes		
Status lamp	Indicates binary states (1 = ON, 0 = OFF)	1	1 bits		
Bit bar	Indicates the status of the individual bits in a telegram. Every bit position can be displayed or hidden. Colours for different states can be chosen. Every bit can be labelled. The individual bits can also be set. Application: status indication for a controller transmitting a status byte (EIS 14).	14	1 bytes		

Element	Description	EIS type *)	Values	Icon	Visualisation
Dimmer (sliding controller)	Values from 0–100% (0-255) are transmitted according to the position of the controller.	6	1 bytes		
Dimmer (switch)	"Switch mode" The "switch ON" or "switch OFF" command is sent by briefly pressing the switch and letting go again. "Dimmer mode" The "brighter" or "dimmer" command is sent by pressing and holding the switch.	1	1 bits		
		2	4 bits		
Shutter	Raise/lower Lamella adjustment Mode: wind alarm	7	1 bits		
		7	1 bits		
		1	1 bits		
Value display	This can display and transmit your choice of various EIS values. The display can be formatted: ##.##: The required digits are displayed. 00.00: All digits are displayed.	5	2 bytes		
		6	1 bytes		
		11	4 bytes		
Room thermostat value display	Displays the current and target temperature values.	5	2 bytes		
Room thermostat setpoint adjustment	This is used to adjust the target value (setpoint).	5	2 bytes		

Element	Description	EIS type *)	Values	Icon	Visualisation
Text, static	Used for labelling.				Text according to input in Visualisation Editor. Font, colour and size of the text can be adjusted.  The font must be installed on the client computer.
Text, dynamic	Displays the text for ON/OFF according to the object value.	1	1 bits		Depends on the current value of the group address. The font, colour and size of the text can be adjusted in the Visualisation Editor.
EIS 15 text	The "EIS 15 text" element shows the text received at a group address.	15	14 byte text		The text is displayed on a transparent background without frame; the font, size and colour of the text can be freely chosen.
Text display	The text display can be used to display received text messages. It is also possible to send text information which is to be displayed on other text displays or on KNX/EIB displays.	15	14 byte text		
Date/time	Shows the date and time.	3 4	3 bytes 3 bytes		The text is displayed on a transparent background without frame; the font, size and colour of the text can be freely chosen.
Time of last telegram	This display field shows the time stamp (date and time) of the last telegram for a chosen KNX/EIB group address, which can be freely chosen by the user.	3 4	3 bytes 3 bytes		The text is displayed on a transparent background without frame; the font, size and colour of the text can be freely chosen.

Element	Description	EIS type *)	Values	Icon	Visualisation
Analogue clock	Displays the time in the form of an analogue clock. The clock can be put forward or back hourly with the aid of the hours offset function.	3	3 bytes		
Camera	The images from a network camera can be displayed in a separate window or direct in the visualisation after they have been called up.				
Event camera	The current camera image is displayed for 10 seconds by triggering the associated group address.				
Page change	Used to change/jump to a different screen page.				
Fault detector	If the associated group address is triggered then the page on which the corresponding icon is positioned is automatically brought to the foreground. The fault message can be acknowledged via a separate group addresses or by clicking with the mouse on the fault message.	1	1 bits		
Job element link	Link to a clock or a light scene. The linked jobs can be changed by the user in the visualisation.				
Logic panel	Displays the result of a logical operation parameterised in the Job Editor (1 or 0).				

Element	Description	EIS type *)	Values	Icon	Visualisation
KNX/EIB monitor	Opens a window which lists all transmitted and received telegrams.				
Diagram	The Diagram function is used to produce a clear overview of curves of values. Up to 3 curves can be displayed in a diagram. Each of the curves can be individually formatted in terms of line colour, offset and factor. A distinction is made between 2 different types of curve: Standard and Differentiated (see <a href="#">Diagram element</a> on the next page).	5 6 9 10 11 14	1 bytes 2 bytes 4 bytes		
RSS feed	This function is used to integrate the current messages from a definable source into the visualisation.				The visualisation shows the text which is transmitted from the provider of the RSS feed.

\*) see also Appendices 13 and 14, which provide an overview of the EIS types in conjunction with the DTP data types.

## Diagram element

The visualisation element **Diagram** produces a curve of values plotted over time. Examples of applications include temperature curves, counter states, power outputs etc.

The following settings can be made:

### **Fixed y-axis:**

A fixed scale can be assigned to the y-axis. When this function is enabled a maximum and minimum are defined for the y-axis. When the function is disabled the y-axis scaling is applied automatically. Up to 3 curves can be displayed in a diagram, each of which can be individually parameterised. The following parameters can be set for each curve:

### **Curve type**

A distinction is made between two different types of curve.

- **Standard:**  
The value of the object is plotted over time.
- **Differentiated:**  
The difference between two sequential values of an object is plotted over time.

### **Interval**

This setting is only relevant for the diagram type **Differentiated**. The interval determines the time gap in which the difference is formed. The length of the interval is specified in minutes.

### **Address**

This is the group address whose curve is to be displayed.

### **EIS format**

The representation of the following EIS formats is supported: EIS 5, 6, 9, 10, 11, 14. Appendices 13 and 14 offer an overview of the EIS types in conjunction with the DTP data types.

### **Description**

You can enter a description of the group address here. When a group address from the ESF file is used the description is taken from this.

### **Factor and offset**

You can freely format the curves in terms of factor and offset.

### **Colour of the curve**

You can freely choose the curve colour.

## Functions within the visualisation

Within the visualisation, the **Diagram** element offers further functions which can be called up by right-clicking on the diagram:

### **Refresh**

Updates the values of the diagram.

### **Save graphic as...**

Opens the file browser in order to save the diagram as a graphics file (.png).



### **Show properties**

Shows the settings in relation to the displayed values.

- **Time**  
The diagram represents values from or up to a particular point in time, or within a period of time.
- **Order**  
The diagram shows the newest or oldest values from the ring memory of the IP Control. The display can be freely chosen.


## **Notes on the Visualisation Editor**

### **Transparent switches**

The switch elements can be displayed transparently. Here, the elements behind the switch can still be seen. This allows for example switches to be displayed with their own background pictures.

### **Background/background pictures**

Once you have created a new page, you can give it a coloured background (in the Properties window) or load a background image (refer to "File Transfer" in the section entitled "Configuration Tool" on page 54). Avoid using too many background images, as they take up a lot of memory space.

-  Once you have loaded an image you will need to exit and restart the editor before you can select it as a background picture.

### **Page size and resolution**

The page size of a visualisation project can be freely chosen, and the screen resolution of the visualisation client can be adjusted. The current standard size for monitors is 1024 x 768 pixels or more.

### **Project and page names**

Project and page names can be freely chosen. They are sorted alphabetically in a tree structure in the Visualisation Editor.

### **Copy, paste, delete**

Elements and jobs can be copied together with their parameters. Right-click on an element in the Visualisation Editor and select **Copy/paste**. Alternatively, you can also press the key combinations Ctrl+C (copy) and Ctrl+V (paste).

### **Positioning elements with pixel accuracy**

The elements can be positioned with pixel accuracy using the arrow keys on the keyboard. You can also enter pixel values directly via the parameters X-position and Y-position. The pixel specifications refer to the pixel in the top left-hand corner of an element. The origin (X-position 0, Y-position 0) is the top left-hand corner of a page.

### **Assigning group addresses**

Group addresses can be entered directly or inserted from the Addresses table at the click of a mouse. If you have loaded an ESF file (refer to "File Transfer" in the section entitled "Configuration Tool") then all of the available group addresses in the ETS project are listed together with their descriptions in the Addresses table. You can access the Addresses table by clicking on the arrow icon next to the address input field. To select an address, simply double-click on it. Then click on OK to confirm the selection.

- i** If a forward slash symbol (" / ") is required, this can be obtained by pressing the space bar on the keyboard. /

## User administration

With the aid of the user administration you can set up multiple users and define which visualisation pages a particular user is permitted to access. Each user receives his or her own password for this purpose.

### Enabling/disabling user administration

User administration can be enabled/disabled in the editor in the menu File -> Settings -> User Administration. If the user administration is disabled then every user has unrestricted access to the visualisation.

### Creating a new user

- In the Visualisation Editor click on the **User Administration** button (Figure 11).  
The user administration tool will open.



Fig. 13: User Administration button

- Click on **Create New User**.  
A new user account is created.
- Assign a **Name**, along with a **User Name** and a **Password** for logon.
- i** Try to choose a password which is difficult to guess in order to prevent unauthorized access to the visualisation.
- Specify the access rights for the user by checking the relevant boxes next to the pages for which access rights are to be granted.
- i** If you grant access to a project then this automatically includes all of the pages within the project.
- Click on **Accept Data**.
- i** The user data will not be saved until you save the visualisation project in the editor.
- You can then create more users or exit the tool by clicking on **Close**.

## 6.2 Job Editor

The Job Editor provides a number of services which can be set up and parameterised here.

The job categories are shown in a tree structure at the left of the window. Once jobs have been created they are listed in alphabetical order. The representation can be expanded/shrunk by clicking on the key symbol. The menu icons can be used to create new jobs.

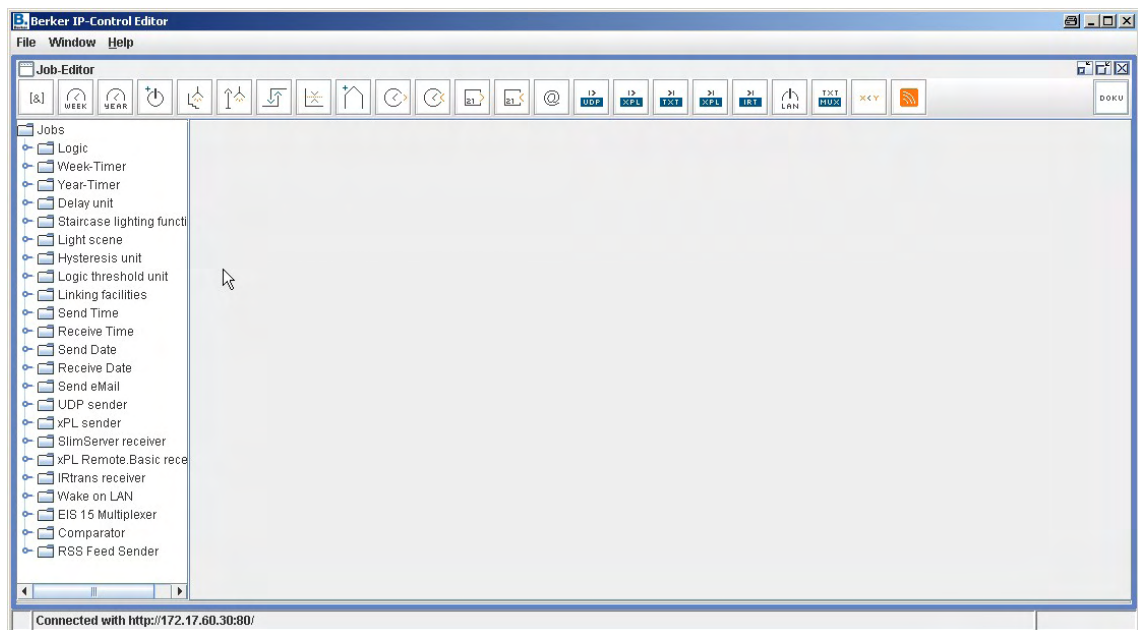


Fig. 14: Job Editor window

### Notes on the Job Editor

#### Copy, paste, delete

Jobs can be copied together with their parameters. To do this, click on the copy symbol in the Job Editor.

A copy of the element is opened. Assign a new job name to the copy.

#### Rename

Projects, pages, elements and jobs can be renamed at any time. The list is automatically sorted alphabetically.

#### Assigning group addresses

Group addresses can be entered directly or inserted from the Addresses table at the click of a mouse.

If you have loaded an ESF file (refer to "File Transfer" in the section entitled "Configuration Tool" on page 54) then all of the available group addresses in the ETS project are listed together with their descriptions in the Addresses table. You can access the Addresses table by clicking on the arrow icon next to the address input field. To select an address, simply double-click on it.

Then click on OK to confirm the selection. Refer also to the section entitled **Object Structure**.

## Logic



All logic gates perform logical operations on EIS 1 values. You can choose whether the output should be transmitted whenever there is a change in the gate result or whenever an input telegram is received.

Type of operation	Description
AND operation	The gate has up to 32 inputs which are logically combined in an "AND" operation to return an output object.
OR operation	The gate has up to 32 inputs which are logically combined in an "OR" operation to return an output object.
XOR operation (EIS 1)	The gate has up to 32 inputs which are logically combined in an "EXCLUSIVE OR" operation to return an output object. The operation returns a 0 whenever all input objects are 1 or they are all 0 (i.e. whenever they are all the same). The output is 1 if one input object is different.
Object	The output has the state of the value last sent to any of the inputs.
NAND, NOR NXOR	The output of the calculation is negated and transmitted.
NObject	The output value is of type EIS 1: 0 for an input value not equal to 0 1 for an input value equal to 0  If there are several input objects then the input at which the most recent telegram was received is relevant.

## Clocks



IP Control incorporates a week/year time switch which is easy to configure.

### Profile:

- You can assign a 24-hour profile to the participants. The system can distinguish between week days and special days. Special days are profiles like vacations, bank holidays or special evening events. You would probably want to choose different switching times for these than on normal week days.
- Click on the time line with the mouse to set the switch-on time. Click twice to set the switch-off time. To clear a point which has been set, click on it three times.

**i** One enabling object can be defined per channel (group address). This can incorporate up to five group addresses.

**i** The switching times defined in the week time switch (daily profile) can be assigned to the year time switch.

### Clock type: [link to week time clock](#):

- Select a mode from the selection menu (week mode, special days 1 - 3) and select the required days on the time line with the mouse.
- To delete day profiles in the year time line, select the mode *disabled* and click on a profile with the mouse.

- If the output of the year time switch is to start the associated week time switch, then the group address of the output of the year time switch should be linked to the enabling of the week time switch.

**i** The year time switch always switches at 0:00, so changes e.g. on a special day do not become effective until the next day.

#### **Clock type: active/inactive:**

This clock type sends a 1-bit telegram (EIS 1) with the status 1 on the selected days.

- Select the status **ON** to highlight switching days.
- Select the status **OFF** to delete switching days.

#### **Switch ON/OFF delay timer (EIS 1)**



Gate with one input and one output. The effect of the input can be delayed separately from the effect of the output.

- Time range from 1 to 65,000 seconds
- Enabling object

#### **Stair light time switch (EIS 1)**



When an ON telegram is received at the input, the OFF command is sent automatically after a configurable length of time.

- Time range from 1 to 65,000 seconds
- Enabling object
- Invert output: An OFF telegram received at the input becomes a delayed ON telegram at the output
- Triggering: when another **ON telegram** is received at the input the delay time is restarted.
- Stopping: this telegram at the output stops the automatic function.

#### **Light scenes (EIS 1, EIS 5, EIS 6)**



Up to 28 KNX/EIB participants can be combined into a group. Here, you can assign to each participant an individual value which is to be transmitted by the participant. The light scene is triggered via a start object. The triggering value (0 or 1) needs to be specified for every group address. This means that 2 different light scenes are available for each group address.

You can disable or enable execution via the enabling object (e.g. timer). The memory object enables external reprogramming of the light scene. Triggering the associated group address with the value 1 has the effect that the old values for all of the actuators participating in the group are overwritten.

## Receiving the time and date



IP Control can receive time telegrams (EIS 3) and date telegrams (EIS 4) in order to set the internal system clock. If the discrepancy between this date/time and the IP Control system clock is too large the system clock is adjusted. You can assign enabling objects.

With time telegrams you can also set the date to be taken into account, while with date telegrams you can also set the time to be taken into account. The discrepancy which should be tolerated before the system clock is corrected is entered in seconds.

## Transmitting the time and date



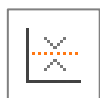
IP Control can send time telegrams (EIS 3) and date telegrams (EIS 4). You can assign enabling objects. The time between the transmission of two telegrams (telegram pause) is entered in seconds.

## Service (clocks, light scenes)

Normally, clocks and light scenes can only be edited in the Job Editor. In order to enable the end customer to also make changes himself to clocks and light scenes in the visualisation, it is possible to position the **Link Job Editor** element in the visualisation editor.

Under **Destination** you can choose the clocks and light scenes that you wish to enable and choose names you should agree with the customer. The clocks and scenes positioned in the Visualisation Editor can also be changed subsequently in the visualisation.

## Threshold switch



As can be seen in the graphic below, there are two important switching events for the threshold switch:

### First switching event: value exceeds switching point 1

In this case the upper threshold is exceeded. When the upper threshold is exceeded the **Dead time** timer starts. If, once this timer has elapsed, the input condition **Value above switching point 1** is still satisfied then the output value parameterised in the column **Upper threshold** is transmitted on the KNX/EIB. The associated KNX/EIB group address is entered in the Output Parameters window. The output value can be EIS 1, 5 or 6. The aim of this dead time is to prevent the threshold switch from constantly transmitting the output value on the KNX/EIB if the input value fluctuates around the upper (lower) threshold.

After the output value has been transmitted on the KNX/EIB, the **Repeat time** timer starts. If, after the Repeat time has elapsed, the input condition **Value above switching point 1** is still satisfied, then the output value is transmitted on the KNX/EIB again. The system keeps running through this program loop until the input condition **Value above switching point 1** is no longer satisfied. In our example this is the case after switching point 1.1.

If the input value is between the upper and lower threshold then the threshold switch transmits nothing on the KNX/EIB.

### Second switching event: value below switching point 2

When the value drops below the lower threshold the **Dead time** timer starts. If, once this timer has elapsed, the input condition **Value below switching point 2** is still satisfied then the output value parameterised in the column **Lower threshold** is transmitted on the KNX/EIB. The output value can be EIS 1, 5 or 6.

After the output value has been transmitted on the KNX/EIB, the **Repeat time** timer starts. If, after the Repeat time has elapsed, the input condition **Value below switching point 2** is still satisfied, then the output value is transmitted on the KNX/EIB again. The system keeps running through this program loop until the input condition **Value below switching point 2** is no longer satisfied.

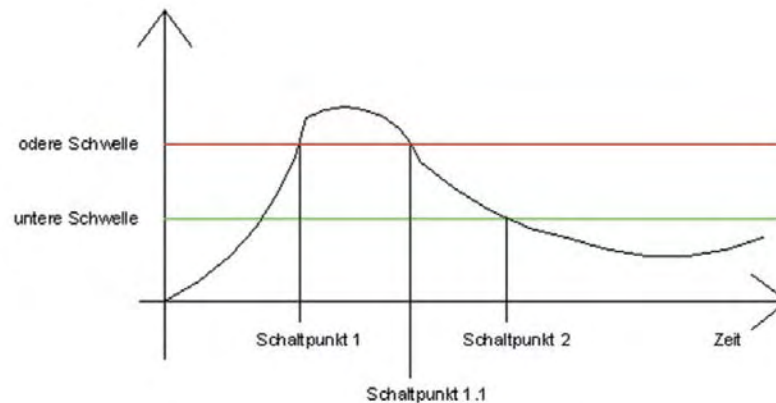


Fig. 15: Switching points for the threshold switch

### Hysteresis switch



The hysteresis element is a comparator with two thresholds. The two thresholds are labelled as the upper threshold and the lower threshold. When a value is received at the input it is compared to the thresholds. A binary value ("0" or "1") according to EIS 1 is determined as the result. Depending on the last calculated status, the new status is calculated according to the following definition:

- If the last result was a "0" then the output status changes to "1" if the received input value exceeds the higher threshold.
- If the last result was a "1" then the output status changes to "0" if the received input value is below the lower threshold.

**i** The input value can only be received via the input object. The upper and lower thresholds can be described via a constant or via an object.

The calculation of the hysteresis switch is started when the input object is received or when a telegram is received at an object for the thresholds. The parameterised KNX/EIB type defines how the hysteresis switch calculates the value.

EIS type	Application	Memory format
EIS 1	Switching	1bit
EIS 2	Dimming	1bit, 4bit, 8bit
EIS 3	Time	3byte
EIS 4	Date	3byte
EIS 5	Floating point value - 671088.64	2byte
EIS 6	Relative value 0–255	1byte
EIS 7	Drive control	1bit
EIS 9	Floating point value (IEEE)	4byte
EIS 11	Counter value	4byte
None	-	-



Appendices 13 and 14 offer an overview of EIS types in conjunction with DTP data types.

If the EIS type **None** is entered then the value of the **Constant** is taken as the object value.

For the EIS type 5 or EIS type 9 the object value results from the respective KNX/EIB definition.

If the EIS type 1, 2, 3, 4, 6, 8, 10 or 11 is parameterised then the object value is determined via the factor and offset, i.e. the object value received by the KNX/EIB is multiplied by the factor. Afterwards the offset value is added to this. This calculation yields the object value, which is used to calculate the hysteresis switch. Provided it does not have the EIS type **None**, the object value determined in this way is forced into a valid range for the threshold switch after calculation via the Min. value and the Max. value. This means that the Min. value or Max. value forms a limitation for the variable threshold values which are transmitted via the associated object value.

In the event that the object value is below the value of the Min. value, the Min. value is taken as the object value. If the object value is above the value of the Max. value then the Max. value is taken as the object value. No plausibility test is performed during the gate calculation.

The case would be e.g. conceivable where the Min. value is above the Max. value. However, thanks to the defined calculation sequence a valid result is obtained. With the values obtained in this way for the input and the upper and lower thresholds the current output status is then calculated. Two cases are distinguished during the calculation:

– Output status "0"

If the status "0" was the output status before the triggering telegram was received then the input value must lie above the upper threshold in order to obtain a "1" as the new output value.

– Output status "1"

If the status "1" was the output status then the input status must lie below the lower threshold in order to obtain a "0" as the new output value. If the calculation of the hysteresis switch results in a change in status at the output then a telegram is transmitted. If the calculation does not yield a change in status then a telegram is sent only if the parameter **Transmit change only** is not set.

If the parameter **Transmit change only** is set then a telegram is only transmitted at the output if the new calculation yields a change in status at the output. If this flag is not set then a telegram is sent at the output after every new calculation.

## Sending e-mails



The IP Control can send out e-mails in response to events in the KNX/EIB. An e-mail can be sent out to multiple recipients simultaneously.

### Input object

This object launches the job, i.e. the dispatch of an e-mail. The exact details, e.g. the ON edge, are defined under the "Conditions for sending".

### Value object

The value of this object can be displayed in the body of the e-mail text with the aid of a control character

. Detailed information about use of the control character can be found in Appendix 2: Control characters. The value can be calibrated with the aid of a factor and an offset.



**Conditions for sending**

The sending of an e-mail can be instigated under different conditions. The following choice is available: **edge change**, **OFF**, **edge OFF**, **ON**, **edge ON**, **ON of OFF** and **edge ON of OFF**.

**E-mail provider**

Here you should choose the entry for the e-mail provider via which the e-mails should be sent out. The entry is directly linked to the e-mail providers created in the configuration tool (see Appendix 9).

**Type**

Here the type of e-mail is specified for the corresponding recipient. If the entry "Inactive" is chosen then this recipient is no longer taken into account.

**Name/e-mail address**

The name and e-mail address should be entered here. If no name and no e-mail address are specified for the sender then the IP Control uses the address from the configuration.

**Subject**

This text will appear in the **Subject** line at the recipient.

**Text**

This field is where the actual body of the e-mail text is entered. You can have values entered via value objects (see also Appendix 2: Control characters).

**Settings in the configuration tool**

In order to make proper use of the job e-mail dispatch function, you will need to create an e-mail provider in the configuration tool. You can do this in the configuration tool under Configuration > E-mail.

- Click on the **Add** button to add one or more e-mail providers.
- After entering the name, you will need to select the settings for the SMTP server and the TLS encryption.
- ❗ The settings depend on the particular provider. The address entered in the configuration tool or the name of the sender is the default setting for the job. These settings are used if no sender address or name is given for the job e-mail dispatch function. E-mail provider settings which are no longer required can also be deleted again by clicking on the **Delete** button.
- In addition, you will also need to enter the IP address of the DNS server of your e-mail provider. This setting can be found in the configuration tool under the "Network settings" (see Appendix 5: Network settings).

## UDP sender



This job sends UDP datagrams to LAN participants as a function of the input object. One application in this context is the sending of IR commands to any infrared devices (refer to the section entitled **Applications**).

### Input object

The group address is entered here which should trigger the transmission of the UDP datagrams. The value of the input object determines which of the maximum of 8 UDP datagrams is transmitted upon receipt. The EIS types EIS 1 (1 bit) and EIS 14 (8 bits) are automatically interpreted – see **Input/trigger value**.

### Host name/IP address

This is where the IP address of the recipient is set, e.g. the IP address of the IRTrans.

### Port number

The port used by the recipient should be entered in this field. Check the port settings for the recipient. In the case of IRTrans, you can do this via the web interface of the device.

- i** You can access the web interface by entering the IP address in your Internet Browser. There, you will also be able to change all other settings for the IRTrans.

### Command mode

Here you can choose the command type. The IRTrans uses ASCII commands to send IR commands from the database of the IRTrans (refer to "Transmission data" for information about syntax).

- i** If the entry **Disabled** is selected then the corresponding line is not processed.
- i** In the command mode **Hex** the transmission data must be specified in hexadecimal.

### Wildcard

If this entry is active then the IP Control transmits this UDP datagram every time the input object is received.

### Input/trigger value

This value specifies whether this UDP datagram is sent on receipt of the input object.

Example:

If the input object of type EIS 14 with the value 147 is received, the IP Control transmits the UDP datagrams with the **input/trigger value** 147. The value range of the input/trigger value is 0–255 (EIS 14).

### Transmission data

The sent data/commands are entered in this field. The syntax of the ASCII string for the IR Trans is:

**snd <remote>,<command>,<ledselect>**

- **remote** - name of the device or remote control; this is specified during the process of learning the commands (e.g. dvdplayer)
- **command** – name of the command; this is specified during the process of learning the commands (e.g. play)
- **ledselect** – selection of the internal or external transmission LED (I = internal, E = external, B = both)

Example: **snd dvdplayer,play**

- i** The parameter **ledselect** is optional and does not necessarily need to be used. If it is not specified then the LED selection in the Device Settings is used.
- i** In the command mode **Hex** the transmission data need to be entered in hexadecimal.  
Example: 0A 39 F2 21 46 DE C4

## SB Control



With SB Control it is possible to use several MP3 streaming clients to set up a multi-room solution that can be controlled via KNX operating units.

SB Control is a job for remote control of Logitech Squeezebox devices and of the centralised music server software SqueezeCenter. Operation is via a KNX push-button, room control units, KNX panels or the IP Control visualisation. With SB Control it is possible to use KNX operating units to switch a Squeezebox on or off, to mute it, to make it louder or softer, to navigate among the titles in the playlists, or to select playlists. Titles of songs, playlists, status information such as volume or muting can be displayed, for example via the text display of the B.IQ RTR room control unit or via display elements in a MasterControl or in the IP Control visualisation.

### Requirements for the operation of Squeezebox via IP Control:

- a functioning SqueezeCenter on a PC or a network hard drive (NAS)
- an installed and running ExPL plugin under the SqueezeCenter (from the IP Control CD or from the Berker download area)
- a running xPL hub on the SqueezeCenter PC or the network hard drive (NAS)
- one or more Squeezeboxes connected with the SqueezeCenter with instance names that differentiate them (e.g. room designations)
- a Gateway address entered under the network settings in IP Control (configuration tool). If no gateway is present, an unused dummy address must be entered e.g. 192.168.1.254)
- Compiled playlists in the SqueezeCenter

- i** Before setting up the SC Control job, read the documentation for the SqueezeCenter software and the Squeezebox devices.
- i** Before continuing commissioning of the Squeezebox control, make sure that at least one playlist is defined in the SqueezeCenter.

### Installing the ExPL plugin:

- Copy ExPL directories from the CD or from the download area to the SqueezeCenter folder Plugins

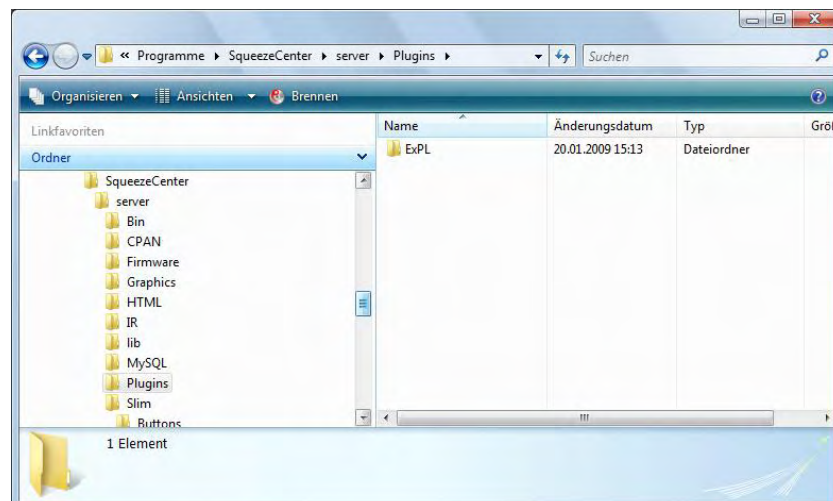


Fig. 16: Plugins folder for SqueezeCenter

- Restart SqueezeCenter (restart PC) and check under SqueezeCenter – Settings – Plugins if the ExPL Plugin has started.

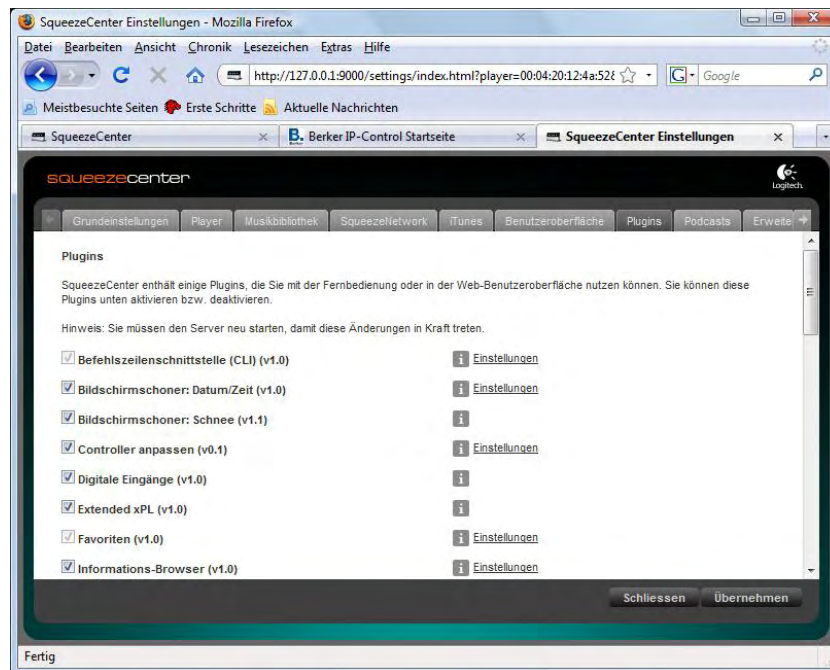


Fig. 17: SqueezeCenter settings

### Install xPL Hub

SqueezeCenter is runs on a Windows System

- Download Freeware Hub f.e. from [www.xplmonkey.com](http://www.xplmonkey.com) and install it as a Windows Service.
- i** More Hubs for different systems (f.E. Linux by using a network attached storage (NAS)) will be found at [http://wiki.xplproject.org.uk/index.php/Core\\_Software](http://wiki.xplproject.org.uk/index.php/Core_Software).

## Creating the SB Control job

An SB Control job is defined for each Squeezebox that is to be controlled via KNX.

### Parameters for SB Control

<i>Element Name</i>	Name of the job in IP Control (e.g. "SC living room").
<i>Enable Object</i>	The enable object can be used to block or activate the execution of the job.
<i>SB Name</i>	Instance name of the Squeezebox that is to be controlled using this job.
<i>Max. Volume</i>	Absolute limit for the maximum volume of this Squeezebox (in %).
<i>Max. Vol. Input</i>	Object for defining the maximum volume via the bus, e.g. via telegrams from a visualisation (0% – 100%, 1 byte, EIS 6, DPT 5.001).
<i>Min. Volume</i>	Absolute limit for the minimum volume of this Squeezebox (in %).
<i>Min. Vol. Input</i>	Object for defining the minimum volume via the bus, e.g. via telegrams from a visualisation (0% – 100%, 1 byte, EIS 6, DPT 5.001).
<i>Vol. Dimming</i>	Object for controlling the volume via relative dimming telegrams (dimming, 4 bits, EIS 2, DPT3.007).
<i>Dimming Spd. per s</i>	When the volume is dimmed up/down, the volume is dimmed each second by the set amount (in %).
<i>Vol. In Steps</i>	Object for increasing or decreasing the volume in steps by pressing a button briefly when there is a button with a dimming function; via switching telegrams (louder = on) (switching, 1 bit, EIS 1, DPT 1.001).
<i>Vol. Step Size</i>	Size of steps for changing volume in steps (in %).
<i>Output Volume</i>	Object for outputting the current volume as an EIS6 telegram (0% – 100%, 1 byte, EIS 6, DPT 5.001) .
<i>Set Volume</i>	Object for setting an absolute volume with a telegram. Is limited by the max. and min. volume (0% – 100%, 1 byte, EIS 6, DPT 5.001).
<i>Zone On/Off</i>	Object for switching the Squeezebox on/off (switching, 1 bit, EIS 1, DPT 1.001).
<i>Pause/Play</i>	Object for switching the pause function on/off (Pause = on) (switching, 1 bit, EIS 1, DPT 1.001).
<i>Title Forward/Back</i>	Object for navigating in the track list (Forward = on) (switching, 1 bit, EIS 1, DPT 1.001).
<i>Forward/Reverse</i>	Object for controlling the search function within the track (Forward = brighter) (dimming, 4 bits, EIS 2, DPT3.007).
<i>Forward/Rev. Spd.</i>	Parameter for setting the size of jumps for the search function within the track. The unit of measurement depends on the end device.
<i>Playlist Forward/Back</i>	Object for selecting the next or previous playlist (Forward = on) (switching, 1 bit, EIS 1, DPT 1.001).
<i>Text Display Output</i>	Object for transmitting the text information to a single-line text display (ASCII text, 14 bytes, EIS 15, DPT 16.000).
<i>Text Input Infotext</i>	Object for showing additional texts from an external source from the bus, e.g. fault messages (ASCII text, 14 bytes, EIS 15, DPT 16.000).

<i>Reset Text Display</i>	Object for resetting the alarm text line of the B.IQ display. The alarm text line can be used for the text information of this Squeezebox control. If the Squeezebox is switched off, the alarm function of the B.IQ display is reset and the normal display contents are shown again. Alternatively the B.IQ display can also be configured right away with a text line, or a different KNX display with a text function can be used, in which case this object is superfluous (switching, 1 bit, EIS 1, DPT 1.001).
<i>Reverse Reset</i>	This flag can be used to invert the output of the Reset Display object (similarly to the settings for B.IQ).
<i>Reset when Zone Off</i>	Selects whether the display is reset when the Squeezebox is switched off.
<i>Reset when Mute</i>	Selects whether the display is reset when the mute function is switched on.
<i>Display "no playlist"</i>	Controls whether "no playlist" is displayed when no playlist is available for selection.
<i>Display "no title"</i>	Controls whether "no title" is displayed when no title is available for selection.
<i>Time Playlist Visib.</i>	Time (in s) after which the text display of the selected playlist name returns to the standard display (as a rule the title of the song being played at that moment). All other text displays to which none of the other timeout rules apply also come under this parameter.
<i>Time Mute, On/Off</i>	Time after which the text display of the on/off and mute status returns to the standard display.
<i>Time Volume</i>	Time after which the text display of the volume status returns to the standard display.

The following job parameters define the interface to a high-performance visualisation interface that is capable of depicting up to four text displays on a single screen. Here SB Control depicts an extract of all of the available playlists. "Page PL Fwd/Back" can be used to display the next four or previous four playlist names. Transmitting a value from 0 to 3 selects the corresponding line and plays the selected playlist.

<i>Current Playlist</i>	Object for text output of the current playlist name (ASCII text, 14 bytes, EIS 15, DPT 16.000).
<i>Select PL Line 1</i>	Object for text output of the first item in the playlist selection (ASCII Text, 14 Bytes, EIS 15, DPT 16.000).
<i>Select PL Line 2</i>	Object for text output of the second item in the playlist selection (ASCII text, 14 bytes, EIS 15, DPT 16.000).
<i>Select PL Line 3</i>	Object for text output of the third item in the playlist selection (ASCII text, 14 bytes, EIS 15, DPT 16.000).
<i>Select PL Line 4</i>	Object for text output of the fourth item in the playlist selection (ASCII text, 14 bytes, EIS 15, DPT 16.000).
<i>Current Title</i>	Object for text output of the current title (ASCII text, 14 bytes, EIS 15, DPT 16.000).
<i>Current Album</i>	Object for text output of the current album (ASCII text, 14 bytes, EIS 15, DPT 16.000).
<i>Current Artist</i>	Object for text output of the current artist (ASCII text, 14 bytes, EIS 15, DPT 16.000).



<i>Page PL Fwd/Back</i>	Object for going to the previous or next page in the playlist selection (the next or previous 4 playlist names) (Forward = on) (switching, 1 bit, EIS 1, DPT 1.001).
<i>Select PL</i>	Object for selecting a playlist from the playlist selection. (Values 0-3 for selecting lines 1-4) (0 - 3, 1 byte, EIS 14, DPT 5.010)
<i>Command Input</i>	Object for accepting control commands (1 - 67, 1 byte, EIS 14, DPT 5.010). 2 – Update playlists. If the playlists in the SqueezeCenter have been modified, this command can be used to apply the changes in IP Control. 21 – Next playlist 22 – Previous playlist 23 – Next title 24 – Previous title 25 – Lower volume using dimming speed, stop with 27 26 – Raise volume using dimming speed, stop with 27 27 – Stop volume changing 28 – Lower volume by one step 29 – Raise volume by one step 30 – Zone off 31 – Zone on 32 – Play (Mute Off) 33 – Pause (Mute On) 34 – Transmit display contents again 35 – Start forward until stop with 37 36 – Start reverse until stop with 37 37 – Stop forward/reverse 38 – (B.IQ) Reset display 39 – Forward by one step 40 – Reverse by one step 62 – Display the current title 63 – Display the current playlist 64 – Display the current volume 65 – Display the switching state of the zone 66 – Display the play/pause state 67 – Display information: SB Control version, ExPL plugin version, current playlist source, current volume, minimum volume, maximum volume, zone status, mute status

### xPL sender



The IP Control can send xPL datagrams as a function of the KNX/EIB telegrams. These datagrams can be heard and processed by other xPL participants in the LAN. One application in this context is the control of music playback via a SlimServer (refer to the section entitled Applications). The SB Control job is a job which is optimised for the control of the Squeezebox, and which performs the functions of the xPL transmitter (see SB Control job and the chapter "Applications").

### Input object

The input object determines which of a maximum of 16 commands are executed. The EIS types EIS 1 (1 bit) and EIS 14 (8 bits) are automatically interpreted – see **Input/trigger value**. On receipt of the input object the list of commands is worked through in full from the top to the bottom.

### Service type

The service type defines the type of xPL datagram we are dealing with. There are three different types to choose from:

- Command
- Status message
- Event message

The entry **Command** nearly always makes sense, as most xPL commands originating from the IP Control are intended to be executed. If the status **Disabled** is selected the command is ignored during execution.

### Wildcard

If this entry is active then the IP Control transmits this command every time the input object is received.

### Input/trigger value

This value specifies whether this command is sent on receipt of the input object. To do this, either an EIS 1 or EIS 14 value must be received at the input.

Example:

If the input object of type EIS 14 with the value 147 is received, the IP Control transmits the command with the **input/trigger value** 147. The value range of the **input/trigger value** is 0–255.

### xPL broadcast

If this entry is active then this command is transmitted to all xPL devices in the LAN. For example, this can be used to simultaneously stop or start multiple SlimServers in the LAN.



### xPL manufacturer/device/instance

These settings are used for clear and unique addressing of a device for which the xPL datagram is intended. The address is made up of the **xPL manufacture**, the **xPL device** and the **xPL instance**.

The syntax is: **[manufacturer]-[device].[instance]**

For the SlimServer, this yields the following address: **slimdev-slimserv.instance**.

These values can be found in the xPL Hal Manager under xPL device. The instance corresponds to the name of the Squeezebox, e.g. LIVING\_ROOM. The names of the Squeezeboxes can be assigned via the SlimServer (Settings > Player).

**i** When assigning a name to the Squeezebox, please note that it must not exceed a length of 15 characters.

The IP control always transmits under the following address: **berker-ip-control.[serial number]**

### xPL scheme

The xPL scheme describes the device type/class and defines the associated commands. In some cases, a device may support multiple schemes. As well as the scheme **Audio.Slimserv** for audio control, the SlimServer also supports the schemes **Remote. Basic** and **OSD.Basic**. With the scheme **OSD.Basic** it is possible to control the display of a connected Squeezebox.

### xPL command

This is where the actual **command** is specified which is to be transmitted. The commands are linked to the selected scheme. Most of the commands do not require any further parameters, in which case there is no need to input the **additional data**.

### Additional data

This field is intended for the input of additional text parameters which are required for some xPL commands. This is, for example, the case with the scheme/command **Audio.Slimserv/play list**. The name of the **playlist** which is to be started is entered here.

Some of the commands are marked with **(VALUE)**. These can display the value of a value object in the command with the aid of a control character (%f). Detailed information about use of the control character can be found in Appendix 2.

If **OSD.Basic** is chosen as the xPL scheme and **write** as the xPL command then the text entered here is output on the display of the Squeezebox.

### SlimServer receiver



This job translates the title information transmitted by the SlimServer onto the KNX/EIB. This information is then displayed in the visualisation or on KNX/EIB displays. The title information is sent by the SlimServer as xPL datagrams into the network. The SB Control job is a job optimised for integration of the Squeezebox, and which performs the functions of displaying the title information on KNX displays (see SB Control job and the chapter "Applications").

IP Control receives these datagrams and then broadcasts them as an EIS 15 value on the KNX/EIB. For this job, the services described in Appendix 8: (xPL requirements) must be installed and running.

## Settings

The name and enabling object have the same meaning as for the other jobs.

### xPL broadcast?

If this setting is active then the xPL datagrams are evaluated by all of the Squeezeboxes in the network. In this case, the xPL instance does not need to be set.

### xPL instance

The xPL instance defines which Squeezebox is used as the source. This differentiation makes it possible to evaluate the title information of just one Squeezebox even if there are multiple Squeezeboxes in the network. This value can be found in the xPL Hal Manager under **xPL device**.

The instance corresponds to the name of the Squeezebox, e.g. LIVING ROOM. When assigning a name to the Squeezebox, please note that it must not exceed a length of 15 characters. The names of the Squeezeboxes can be assigned via the SlimServer (Settings > Player).

### Outputs

Here you choose the group address to which one of the pieces of information (artist, album, song) is to be sent. The value of the object has the type EIS 15.

### Mode/display

The text can be displayed in different ways. You can choose between the following display variants:

- Left-aligned
- Right-aligned

The following display variants are still being implemented:

- From **start** character
- From **start** character (maximised)
- From **start** word
- From **start** word (maximised)
- Rolling to the left (by character)
- Rolling to the right (by character)
- Rolling to the left (by word)
- Rolling to the right (by word)
- Rolling to the left and right (by character)
- Rolling to the left and right (by word)

### Speed

This setting allows you to set the rolling speed. A distinction is made between the following speeds:

- Stationary (no rolling)
- Very fast
- Fast
- Normal
- Slow
- Very slow

### "Start" character/word

In planning.

## xPL Remote. Basic receiver



Not only can the IP Control send xPL datagrams to control other xPL devices and applications, but it can also receive them. This job then translates them onto the KNX/EIB. In this way, switching processes can be also instigated on the KNX/EIB by other xPL devices and applications. The requirement for this is that the scheme Remote. Basic is supported.

### Element name and enabling object

The element name and enabling object have the same meaning as for the other jobs.

### xPL broadcast?

When this entry is enabled the xPL datagrams from all xPL devices and applications are processed. If only the datagrams from one particular device should be processed, then this entry must be disabled and the full name (xPL manufacturer/device/instance) specified.

### xPL manufacturer/device/instance

These values are used for clear and unique addressing of the xPL devices, and they can be taken from the xPL Hal Manager under **xPL Device**. (Appendix 8: xPL requirements).

### Zone "broadcast"?

When this entry is enabled all xPL datagrams from all zones are processed. If the entry is disabled then attention is only paid to the xPL datagrams from the zone whose name is specified.

### Zone name

The zone name is either fixed or can be freely changed depending on the device or application. The zone for the SlimServers is called **slimserver**.

### Zone "broadcast"?

When this entry is enabled all xPL datagrams from all terminal devices located in the LAN are processed. If the entry is disabled then attention is only paid to the xPL datagrams from the terminal device whose name is specified.

### Terminal device name

For most devices, the terminal device name can be freely chosen. The choice of names that can be assigned and the specifics of how they need to be set up depend on the device and the manufacturer. Please refer to the operating manual supplied by the manufacturer. In the case of the Squeezebox, the terminal device name is the same as the xPL instance.

### xPL settings:

It is easiest to access the xPL settings via the monitor of the xPL Hal Manager. There you will be able to see all of the xPL datagrams in the network and derive the individual parameters (see Appendix 8: xPL requirements).

### Power status

Here you can define what the status of the device should be for the xPL datagram to be further processed.

ON The xPL datagram is only processed if the device is switched on.

OFF The xPL datagram is only processed if the device is switched off. When switched off, the Squeezebox will only send the key code **dead** when any of the buttons on the remote control are pressed.

ANY The xPL datagram is processed regardless of the status.

**Entry no.**

With the send mode EIS 14, the entry no. is sent as a value to the corresponding group address. For example, this might be done in order to call up a particular light scene.

**Outputs**

The entered group address is transmitted when the corresponding command is received.

**Send mode**

The send mode determines what is sent to the selected group address. The following send modes are available:

EIS 1      Switch over

EIS 1      ON

EIS 1      OFF

EIS 14     Entry no. equal to value

EIS 15     The key code is sent to the group address. If the key code "+" is entered then all received key codes are sent to the group address.

**Key code**

The key code which should be entered here depends on the xPL device. You can look it up in the documentation or manual for the xPL device, or you can use the monitor of the xPL Hal manager for observation. There you will be able to see the individual xPL datagrams in plain text.

The key code can also be made visible on the bus monitor or on displays. To do this, select the send mode EIS 15 and enter "RE:." as the key code. Then all received key codes will be sent as text to the selected group address and can be made visible on the bus monitor or on displays.

**IRTrans receiver**

This job makes it possible to trigger events in the KNX/EIB in conjunction with the IRTrans with any IR remote control. To do this, the IP Control receives the UDP datagrams transmitted by the IRTrans and then broadcasts KNX/EIB telegrams according to its configuration. The IRTrans with Ethernet connection and database is required for this application.

**i** The processes of setting up remote controls and learning the IR commands are performed with the aid of the IRTrans software. In the process, names are assigned to the remote controls and commands. These need to be known during the configuration of this job.

**Element name and enabling object**

The element name and enabling object have the same meaning as for the other jobs.

**Port number**

Only the UDP datagrams received via this port are processed. Use of port 21001 is preferred for IRTrans. Check the IRTrans settings in the web interface of IRTrans.

**IRTrans "Broadcast"**

When this entry is enabled all UDP datagrams from all IRTrans modules located in the LAN are processed.

If the entry is disabled then attention is only paid to the UDP datagrams from the IRTrans module whose name is specified.

**IRTrans name**

The name of the IRTrans which is to be listened to is entered here. If the entry IRTrans Broadcast is enabled then the name is ignored and all IRTrans modules are listened to. The name of the devices is assigned with the IRTrans software.

**i** Only use alphanumeric characters for the names.

**"RC" broadcast**

Multiple remote controls can be set up in one IRTrans. This entry must be enabled if all of the remote controls are to be processed by this job. Otherwise only the remote control whose name is entered will be used.

**"RC" name**

The name of the remote control which is to be listened to exclusively. If the entry RC Broadcast is enabled then the name is ignored and all remote controls are responded to.

**Entry no.**

With the send mode EIS 14, the entry no. is sent as a value to the corresponding group address. For example, this might be done in order to call up a particular light scene.

**Outputs**

The entered group address is transmitted when the corresponding command is received.

**Send mode**

The send mode determines what is sent to the selected group address. The following send modes are available:

EIS 1    Switch over  
          ON  
          OFF

EIS 14    Entry no. equal to value

EIS 15    The key code is sent to the group address. If the key code "+" is entered then all received key codes are sent to the group address.

**Key code**

The name for the learned command assigned with the IRTrans software is entered here.

**i** **Important!** The processes of setting up remote controls and learning commands for the IRTrans are performed via the IRTrans software. Changes are not implemented until the database is loaded (flashed) into the IRTrans.

Check the port settings for the recipient. In the case of IRTrans, you can do this via the web interface of the device.

**i** You can access the web interface by entering the IP address in your Internet Browser. There, you will also be able to change all other settings for the IRTrans.

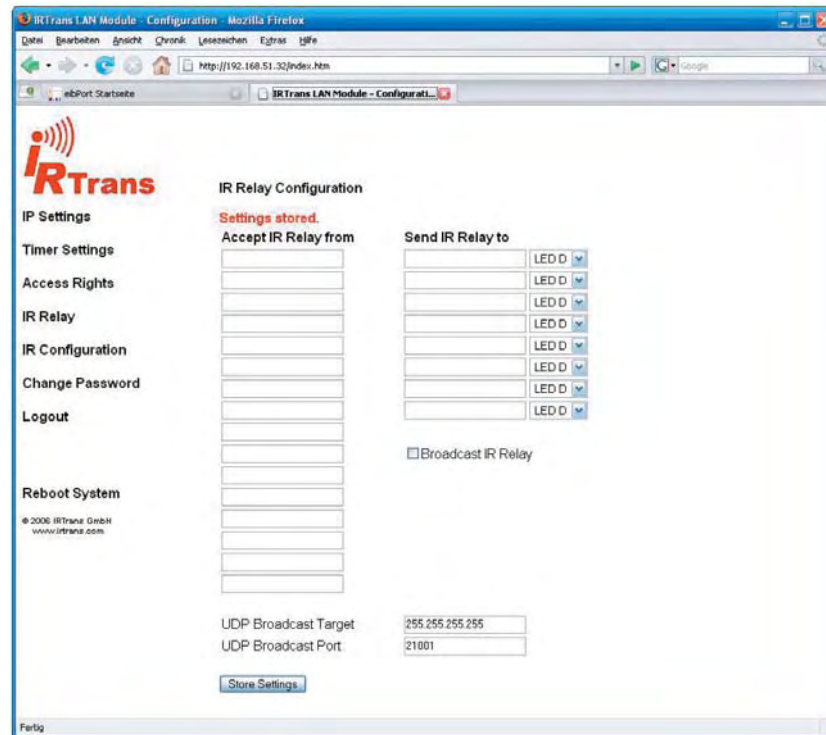


Fig. 18: Web interface IRTrans

Check the settings **IR Relay Configuration**. Enter the following parameters there:

- UDP port = 21001
- Broadcast address = 255.255.255.255
- Enable UDP relaying

**i** In order to avoid any mix-ups and improve flexibility, when using several IRTrans modules we recommend loading them all with the same database (flashing). This has the major advantage that all set up remote controls with commands are available in every IRTrans. This also means that the process of learning the commands, which can be lengthy, only needs to be done once. Changes to the assignment can be made quickly and easily in the Job Editor.

### UDP receiver

The IRTrans receiver job is a job which receives UDP telegrams and then sends out KNX/EIB telegrams on the basis of this. Thees UDP telegrams do not necessarily have to be sent from an IRTrans module, but can instead also come from other devices (e.g. from a PC in the network). In this way switching processes can also be triggered in the KNX/EIB by other devices Auf by means of UDP telegrams.

### UDP datagram

In order for the IP Control to be able to process the UDP datagrams, they need to comply with a particular syntax:

**<Name or remote control>,<Name of command> 0d 0a**

The two placeholders (<Name of the remote control> and <Name of the command>) stand for a freely chosen device PIN. The hexadecimal values **0d** and **0a** stand for **return** and **line-feed**.

Example:

living, light 0d 0a – This example telegram must be sent to the IP address of the IP control on the selected port.

### Job Parameters

The following parameters and values should be entered in the window of the IRTrans receiver job:

#### **Port number**

Enter the number of the port here to which the UDP datagram is to be sent. Enable IRTrans broadcast.

#### **"RC" name**

Enter the name of the remote control here (see UDP datagram).

#### **Key code**

Enter the name of the command here (see UDP datagram).

The remaining settings and parameters should be used in the same way as for a standard IRTrans receiver.

### Comparator



This job compares the value of a group address with that of another group address, or it compares it to a fixed value. Different values can be sent depending on whether the comparison condition is "true" or "untrue".

#### **Input 1 and 2**

Both of these inputs are compared to each other in the comparison operation, and depending on the result one of the two outputs is transmitted.

Both inputs have the following parameters:

#### **Group address**

The value of this group address is used at input 1/2.

#### **EIS format**

The EIS type of the group address is selected here. The following EIS types are supported by the comparator:

- EIS 1 (switching, 1 bit)
- EIS 2 (dimming, 1, 4, 8 bits)
- EIS 3 (time, 3 bytes)
- EIS 4 (date, 3 bytes)
- EIS 5 (floating point, 16 bits)
- EIS 6 (percentage, 0–100%)
- EIS 8 (priority, 2 bits)
- EIS 9 (floating point, 32 bits)
- EIS 10 (counter, 16 bits)
- EIS 11 (counter, 32 bits)
- EIS 14 (counter, 8 bits)
- EIS 15 (text, 14 bytes)

#### **Static**

If this entry is enabled then the value from the adjacent field is used for the comparison instead of the group address.

**Factor and offset**

With the aid of these two parameters you can format the value of the group address.

**Comparison operations**

The following comparison operations are available:

- = equal to
- <> not equal to
- > greater than
- < less than
- >= greater than or equal to
- <= less than or equal to

The comparison operation is performed again by one of the two input group addresses after every receipt.

**Output "untrue"**

If the selected comparison operation is not satisfied then this output is used.

**Output "true"**

If the selected comparison operation is satisfied then this output is used.

Both outputs have the following parameters:

**Group address**

This group address is assigned to the corresponding output. If the corresponding output is active then the group address is sent with the parameterised settings.

**EIS format**

The output value is of the selected EIS type.

**Static**

The value entered in the adjacent field is sent as the output value.

**Dynamic output**

The output does not have a fixed value. One of the following values is used as the output value:

- triggering telegram (input 1 or 2)
- last telegram from input 1
- last telegram from input 2

**Non-overwritable**

The value of the group address is not overwritten by telegrams from an external source (directly from the KNX/EIB).

**Changes only**

The output is only broadcast on the bus if the output value is changed. If this entry is disabled then the output value is sent again after every new operation. The changes only relate to the value of the relevant output object. If the output object is static then there is no change in the output value.

 This setting is only meaningful in conjunction with a dynamic output.



## Wake on LAN



With the aid of the job **Wake on LAN** it is possible to "wake up" up to 8 PCs or other clients via the network, i.e. to switch them into operating mode.

### Parameters

#### **Active**

Selection of the active or enabled entries

#### **Wildcard**

If this flag is set then the WOL packets are transmitted for every input value.

#### **MAC address**

MAC address of the device which is to be woken up

#### **Transfer type**

Standard setting: UDP broadcast.

It is possible to switch over to UDP unicast in order to reach devices which are behind a router.

#### **Broadcast IP**

IP address of the device which is to be woken up

Standard: 255.255.255.255

#### **UDP port**

The port can be changed to allow the packets to pass a router.

Standard: 40.000

## RSS Feed Sender



The RSS Feed Sender sends item headings of RSS feeds in the form of 14-character ASCII texts to the bus, whereby the text runs through letter-by-letter or in block steps of up to 14 characters. A maximum of 8 different RSS feeds can be worked through in sequence, whereby a navigation and control can be implemented with EIS 14 telegrams.

### Enabling object

Optional control object for activation [1] and deactivation [0] of the service.

### Command

Optional control object for control and navigation. Control commands [EIS 14 values]:

- [100] New retrieving of all entries RSS from the Internet
- [101] Jump to next entered feed
- [102] Jump back to previously entered feed
- [103] Jump to next item heading within the current feed
- [104] Jump back to previous item heading within the feed
- [107] Accelerate the text display
- [108] Slow down the text display
- [109] Stop and continue the text display
- [110] Switch to the character-by-character running text display
- [111] Switch to the block-by-block display

**1. Output**

Object for outputting the RSS feed texts onto the bus.

**Update**

[15 .. 120 .. 3825] *minutes*

The feeds are updated from the Internet after the specified time.

**Speed**

[1 .. 2 .. 255] [s]

The time in seconds until the next text fragment is displayed.

**Pause**

[1 .. 4 .. 255] [s]

The time in seconds during a changeover until a further feed in the RSS feed list

**Jump width**

[1 .. 14] [characters]

The length of the string of characters which is skipped during the display of the next text fragment.

**RSS Feed 0 .. 7****URL**

The URL for the desired feed (e.g. <http://www.tagesschau.de/xml/rss2> ).

**Quantity**

[1 .. 100]

The maximum quantity of displayed item headings per feed.

**Max. age**

[600 .. 35.791.394] [minutes]

The maximum age of a feed in minutes since the last update from the Internet. If the feed cannot be updated in this time then it is no longer displayed until the update.

**Fault displays**

Displays fault messages instead of the feed if it was not possible to retrieve the feed from the Internet.

**Announcements**

Displays the name of the feed before the display of the corresponding item headings.

### 6.3 WAP Editor

A connection to the IP Control can be established via WAP. The mobile phone parameters can be found in Appendix 4.

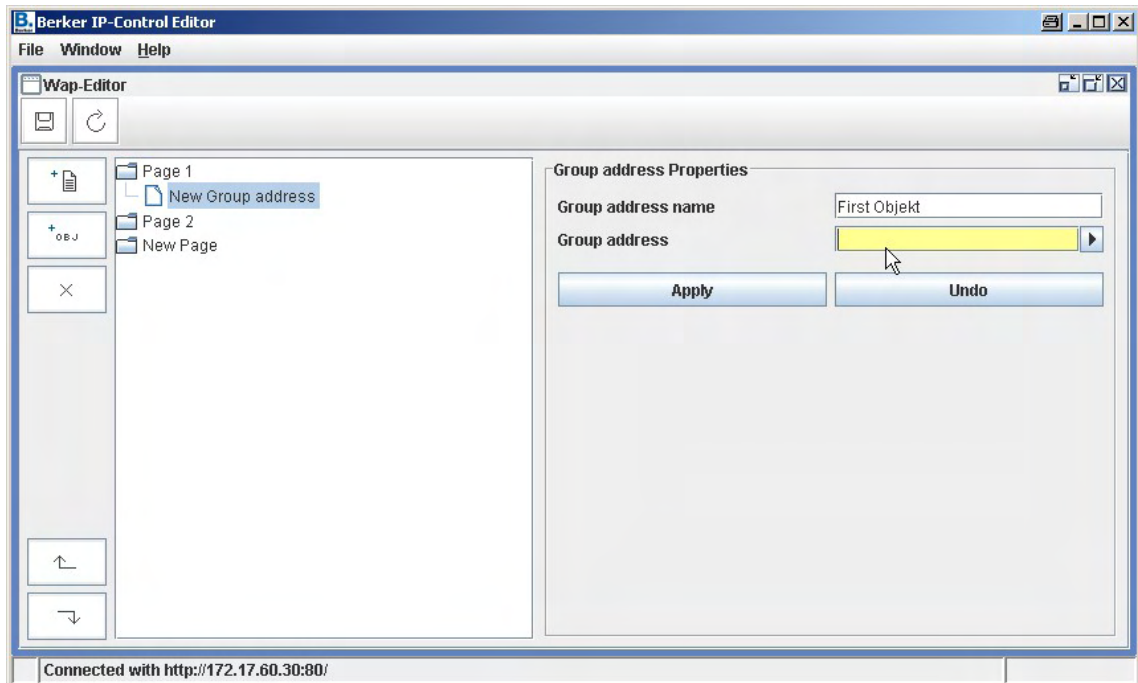


Fig. 19: WAP Editor window

The buttons on the left-hand side can be used to create or remove pages and objects. For every object, only the text appearing on the display of the mobile phone and the group address (EIS 1) which is to be connected need to be entered.

- i** The WAP settings are described in Appendix 4. The required settings for a WAP-capable mobile phone depend on the manufacturer and the handset – please refer to the operating manual supplied with your mobile phone.

## 7 System

With the aid of this menu item you can access the configuration tool. There you can select/change the basic parameters and various settings for the integration of IP Control in network routing, password administration etc. The chapter "Initial installation" covers these settings in detail.

### Device PIN

Before you can access the configuration tool you will be asked to enter a device PIN. The PIN of the device can be found on a sticker in these instructions and on the back of the device. It is used to identify the IP Control and is unique.

- i** The device PIN cannot be changed and is requested every time the configuration tool is accessed. The device PIN is used to protect the IP Control settings against misuse. Please note that the device PIN input is case sensitive.

### Passwords

In addition to the device PIN, access to the configuration tool is also protected with user names and passwords. The passwords can be changed in the System area.

The following default passwords are active on delivery:

Area:	User name:	Password:
Visualisation Editor	admin	berker
System	admin	berker

- i** To change a password the new password needs to be entered twice. This prompt does not appear when no password is entered. Access rights to the visualisation pages are assigned under the user management in the Visualization Editor.

## 7.1 Configuration tool

Adjustments of settings and parameters for the IP Control are performed independently of the ETS via the configuration tool. All settings are implemented here: uploading images and files, setting up users, creating backups, ...

### Configuration

The parameter categories are contained in the panel on the left. Click on a category to have the parameters displayed in the right-hand panel. The number of displayed parameters depends on the user rights. The Online help function will assist you with parameter setting.

To display the Online help function, click on a parameter name with the mouse. In this chapter you will find more in-depth information about the following categories:

#### General

This is where fundamental settings like names, physical addresses and assembly/installation locations are defined.

#### Expanded KNX/EIB (bx) settings

Further settings are selected here. These include for example the port selection for communications.

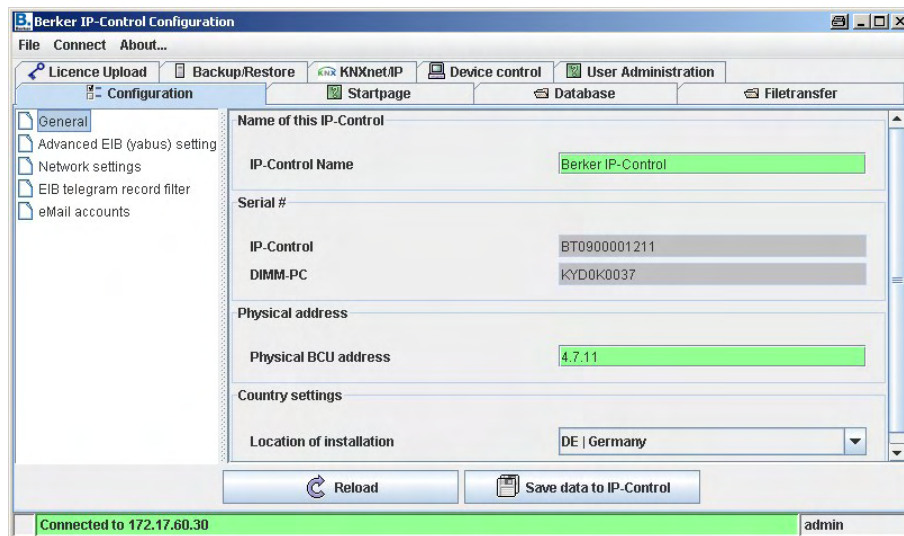


Fig. 20: Configuration tool window

## Network settings

### Use DHCP

If **Use DHCP** is enabled then the following four parameters (IP address, subnet mask, ...) are not taken into account. The IP Control does not receive these parameters from the DHCP server in the network. The IP Control will reboot after these settings are changed. This process will take a moment.

### DNS server

If you are using a DNS server to resolve the names then you can enter its IP address here.

### Time server

The IP Control can be used as an KNX/EIB clock. It gets the current time from an NTP server (Network Time Protocol) and adjusts its own internal clock accordingly. This time can then be sent via a time transmitter to other KNX/EIB participants. For this function, enter the IP address or the name of one (or preferably two or even three) NTP time servers.

Public NTP servers:

- Physikalische Technische Bundesanstalt      **ptbtime2.ptb.de**
- Technical University of Berlin              **ntp1-0.cs.tu-berlin.de**
- University of Erlangen                         **ntp0.fau.de**

Please note that the IP Control must establish a connection to the Internet before you can use this function. Make allowance for this in the network administration. The IP Control will attempt once a day to reach a time server in order to match its time. If the attempt at reaching a registered NTP server fails repeatedly then the IP Control will attempt this process again at particular intervals.

### KNX/EIB group address filter

The IP Control saves the last 10,000 telegrams in its ring memory. Rules can be defined here as to which group addresses are stored in the memory. In this way, individual group addresses can be selectively acquired or entire middle groups/main groups can be acquired in this way.

## E-mail

In order to send out e-mails, additional settings need to be selected as well as configuring the e-mail job. The necessary providers need to be set up via whom the e-mails are sent out. Instructions on how to set up e-mail providers can be found in Appendix 9.

## File transfer

Pictures and graphics, IP Control components and ESF files can be loaded into the IP Control here.

### Loading pictures

Pictures and graphics for the visualisation are loaded here. The following formats are supported: JPEG, BMP, TIFF and PNG.

- Click on **Choose File** and select an image file.
- Enter a description in the **Description** field and click on **Start Upload**.  
Progress is indicated on the bottom edge of the window. The overview window shows a list of loaded pictures and graphics.
- Click on **Refresh list** to update the list.

### Loading IP Control components

Here files are loaded from freely definable switches. Freely definable switches are created and saved with the separate ComponentBuilder.

- Click on **Choose File** and select a file.
- Enter a description in the **Description** field and click on **Start Upload**.  
Progress is indicated on the bottom edge of the window. The overview window shows a list of loaded pictures and graphics.
- Click on **Refresh list** to update the list.

### Login an ESF file

Data can be loaded from ETS projects in order to facilitate the assignment of group addresses in the different editors. The address table then shows the available group addresses in the ETS project together with a description. Please refer to the help files provided with the ETS for more information on how to export data from ETS into an ESF file.

- Click on **Choose File** and select a file.
- Click on **Start Upload**.  
The ESF file is loaded into the IP Control.

## Save/Restore

The configuration files as well as all jobs, visualisation files and pictures can be saved and subsequently restored.

### Performing a save

The save file can contain the following information:

#### Configuration files data:

Saving of the configuration files

#### All files:

Saving of configuration files, jobs, visualisation data and pictures/graphics

- Click on **Save**.
- Enter a clear and unique name and click on **Save**.

The save is performed.

### Restoring saved data

- Click on **File** and select a saved file.
- Click on **Restore**.

The saved data are restored.

- **i** IP Control will reboot after restoring a project. This process will take a short time (around 1 – 2 minutes). During the boot process IP Control cannot be reached and changes are not adopted.

## Control of IP Control

Cold start: Complete restart (corresponds to disconnecting the power supply)

Warm start: Restart of the KNX/EIB kernel

LED test: Test of the Signal LEDs

BCU reset: Restart of the BCU

## User administration

The user administration in the configuration tool is independent of the user administration in the Visualisation Editor. In the Visualisation Editor the user rights are defined for access to visualisation data. In the configuration tool the user rights are defined for access to the configuration tool functions.

### Creating a new user

- Click on **Add User** and enter a user name.

If the option "Visible" is selected then the user name is displayed in the selection list during user logon.

### Assigning user rights

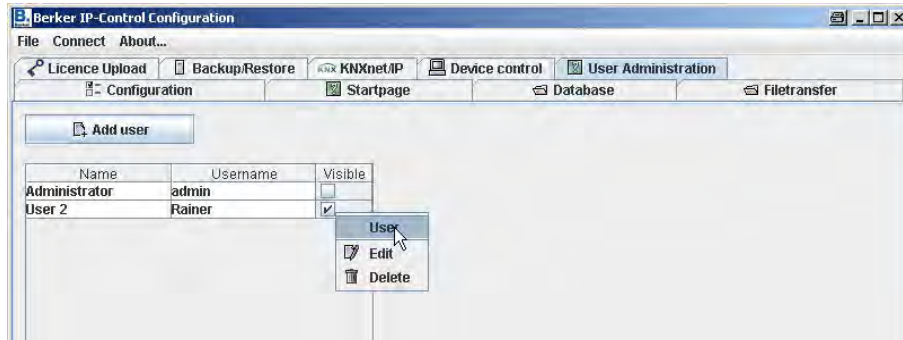


Fig. 21: User administration view

- Right-click on a user name and select **Edit** from the context menu.

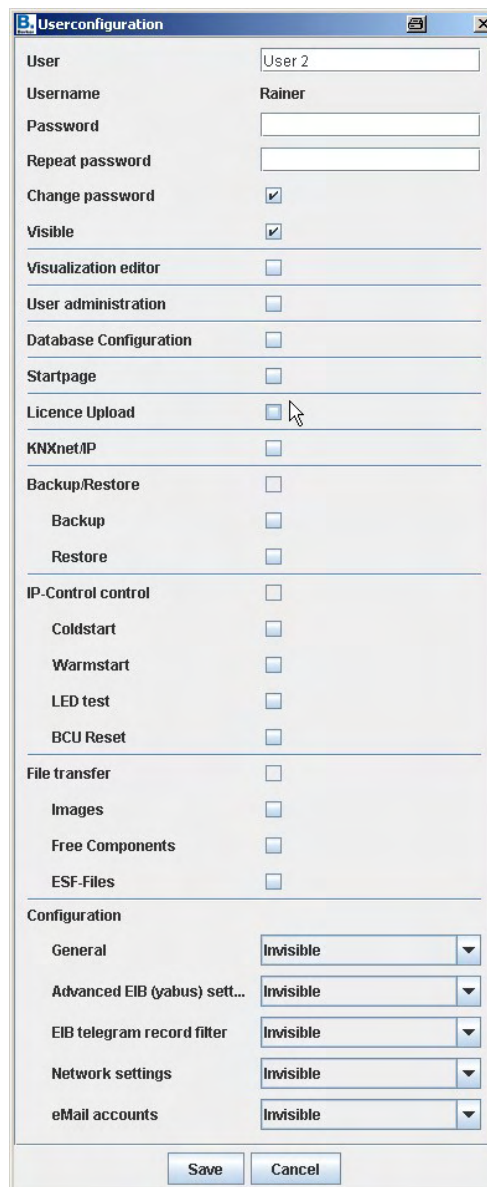


Fig. 22: User settings



**User**

The name of the user.

**User name**

The user name used to log on (this is defined when a new user is created).

**Password/Repeat password**

User logon password and repeat input of the password for verification.

**Change password**

If this is set then you will be prompted to define a new password during every user logon.

**Visible**

If this is set then the user name is displayed in the selection list during logon.

**Visualisation Editor**

The user will only be granted access to the Visualisation Editor if this option is selected. The user name and password are then requested when the user accesses the Visualisation Editor.

**User administration**

If this option is set then the user is granted access to the user administration of the configuration tool. The following parameters define whether the user is to have access to the different areas of the configuration tool.

- Check the boxes for the areas for which the user is to be granted access.  
Areas for which access has not been granted will be hidden in the configuration tool.

**Save/Restore**

Access to the Save/Restore data area.

**Control of IP Control**

Access to the IP Control restart functions.


**Data transfer**

Access to the functions for loading pictures, own switches created with the ComponentBuilder and ESF files.

**Configuration**

In the Configuration area you can assign the following user levels to the individual parameter categories.

User level	Effect/function
Not visible	The parameter category is hidden.
Level 1	Initial start-up; only the parameters required for initial start-up are displayed.
Level 2	Standard
Level 3	Expanded access
Level 4	Full access to all parameters

-  The MouseOver help function shows which parameters can be edited at the respective levels.

**Delete user**

- Right-click on a user name and select **Delete** from the context menu.

## Database

The IP Control can establish a connection to a database and write numerous types of information to that database. As well as telegrams and the current status, log information can also be recorded in the database.

### Establishing a database connection

- Right-click in the left-hand field.  
A popup menu will appear for creating a new database connection.

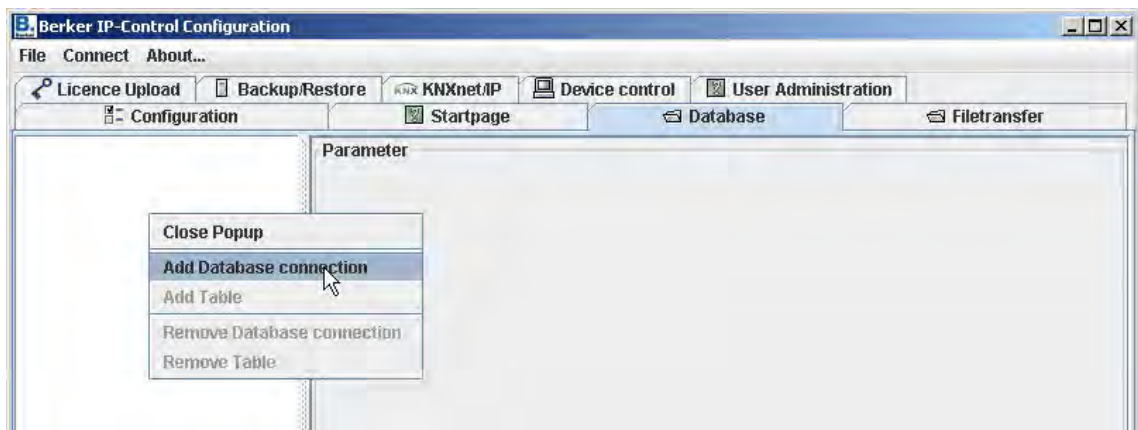


Fig. 23: Database connection window

- Enter the following parameters in the window:

Description	This is the name used to set up the database connection in IP Control.
Enable	This checkmark is used to enable and disable the database connection.
Database type	At present, IP Control only supports MySQL databases.
Host	The IP address of the computer on which the database is stored.
Port	The port for the database communications; the default port is 3306.
Database	The name of the database.
User name	User names The user must be given the rights INSERT, DELETE and UPDATE in the administration of the MySQL server.
Password	Database password

- Save the parameters by clicking on the **Save** button.  
The information is saved in a table in the database.

The following table types are available (they only differ in terms of the information written to them by the IP Control):

**Status table**

Table showing the current states in the KNX/EIB.

**Telegram table**

All telegrams are collected in this table.

**Log table**

Numerous types of log information are collected in this table.

**Adding a table to the database connections**

- Add the table by right-clicking on the database connection.

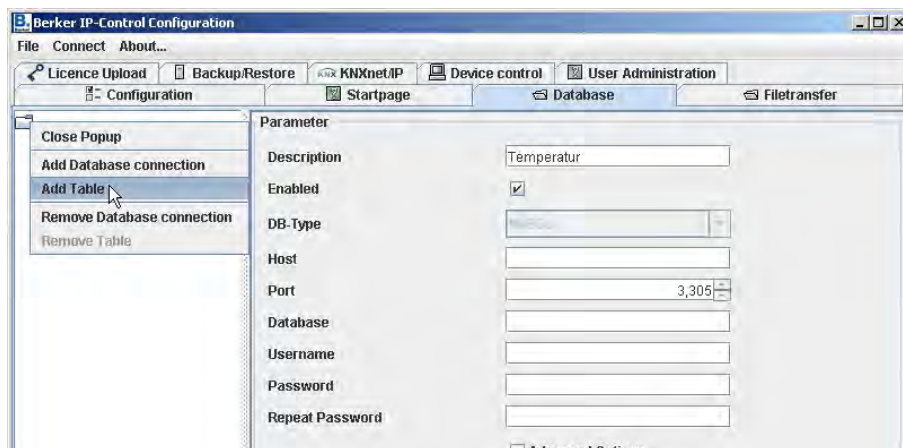


Fig. 24: Database connection configuration tool

- Next please enter the following parameters:

Parameter

Description:

Enabled:

Type: **Telegrams** (dropdown)

Name:

Description	Enabled
System ID	<input checked="" type="checkbox"/>
SerialNumber	<input checked="" type="checkbox"/>
Group Address	<input checked="" type="checkbox"/>
Data	<input checked="" type="checkbox"/>
Telegram ID	<input checked="" type="checkbox"/>
Process ID	<input checked="" type="checkbox"/>
IP-Control time	<input checked="" type="checkbox"/>
Last time	<input checked="" type="checkbox"/>
Source Type	<input checked="" type="checkbox"/>
Source Address	<input checked="" type="checkbox"/>

**Generate SQL statement**

Fig. 25: Database connection parameters

Description	This is the name used to set up the database connection in IP Control.
Enable	This checkmark is used to enable and disable the database connection.
Type	Table type
Name	Name of the table

In the table underneath you can define which types of information are to be written to the database table. With the aid of the **Generate SQL Statements** button you can generate the SQL commands with which the corresponding database is created on the server.

- i** **Important!** The information can only be written to the database if it is possible to establish a connection to the database. Physical interruptions (disconnected mains plug, failure of a router or other network components) will result in the loss of information.

### Start page

The start page of the IP Control can be loaded with various options or with your own picture or graphic. The following options are available:

#### ***Display standard page***

The familiar start page with the buttons **Visualisation**, **Editor** and **System** is displayed.

#### ***Open visualisation in a separate window***

The visualisation is launched directly in a new window.

#### ***Opening visualisation in a browser window***

The visualisation is launched directly in a browser window.

#### ***User-defined start page***

The background image uploaded here is used as the background image.

- i** Regardless of the settings chosen here, the standard page can be reached directly under the following URL:  
<http://<IP-Control>/bmxJava2/default.php> (see also Appendix 10: URL parameters)

### KNXnet/IP

To couple the IP Control to KNXnet/IP gateways, activate KNXnet/IP. As a result, all KNX/EIB telegrams are broadcast to all KNXnet/IP gateways, and all KNX/EIB telegrams are received by all gateways.

Filter rules can be defined by clicking on **Advanced**. This means that only entered group addresses are transmitted or received.

## 8 Object Structure

IP Control replicates the structure of the communication objects of the KNX/EIB. This means that up to 5 group addresses can be assigned to each object. This allows the assignment of the group address of e.g. an actuator channel to be directly replicated. This keeps IP Control informed at all times about the actual status of the actuator (not the group address), thus negating the need for complex working with return messages. This approach simplifies the task of creating logical links, as up to 5 group addresses can be assigned to each input object of the gates.

IP Control supports 32 main groups (with 2 or 3-digit syntax). These are divided up as follows:

### IP Control address space

0–15      Real KNX/EIB address space

**i** The real KNX/EIB address space is sent by the IP Control to the KNX/EIB.

16–31      Virtual KNX/EIB address space

**i** The virtual KNX/EIB address space is used by the IP Control in the network and internally in the IP Control.

On the basis of this division of addresses the real KNX/EIB bus load can be reduced. A centralised visualisation which is connected to the network can e.g. selectively activate/deactivate timers in the IP Control without placing a strain on the KNX/EIB.

### General syntax

After the first group address, the remaining addresses should be placed in parentheses and separated with commas.

Example: 2/12(2/13,2/14,2/15,2/16)

## 9 ETS

### 9.1 Inserting the IP Control into the ETS

There is no ETS application for the IP control, and this means that it cannot be inserted directly into the ETS project.

A dummy device should be inserted into the project to ensure that the physical address is reserved in the project and so that, if necessary, filter tables can be correctly generated.

### 9.2 Exporting group addresses from ETS3

In order to transfer the group addresses from the project which is to be visualised to the IP Control, the group addresses are exported into an esf file with the OPC Export function of the ETS3. In the process, all of the group addresses which are linked in the project are written to the esf file.

In the ETS3, the export of the group addresses is selected via the "File" menu and the "File Exchange (e.g. OPC)..." menu option. Here, the esf file with the used group addresses is generated in the "Export to OPC Server" area via the "Export" button. This is then loaded into the IP Control in the configuration tool (system) of the IP Control under "File Transfer".

### 9.3 Remote maintenance via the network, EIBlib/IP access

IP Control is equipped with an integral EIBlib/IP access. The counterpart is the ETS3 bus connection of type IP(EIBlib/IP). EIBlib/IP enables ETS access via the network to the connected TP bus segment.

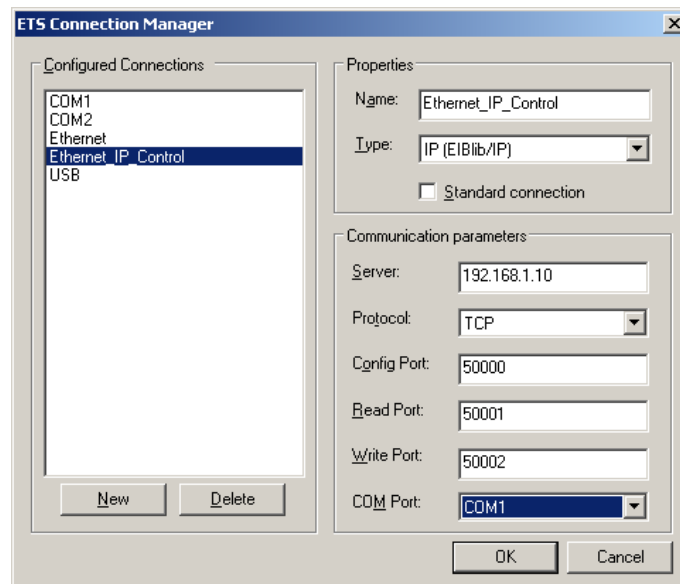


Fig. 26: ETS Connection Manager

**i** Please note that no jobs are listed while working with the EIBlib/IP access, and that no KNX/EIB telegrams can be received either during this time.

**i** **Important!**

Exit the ETS to ensure that the EIBlib/IP access in the IP Control is properly shut down.

## 10 Cameras and IP Control on the Internet

This chapter describes the settings required to reach IP Control and cameras on the Intranet and Internet. The IP addresses mentioned here are examples and may need to be modified.

### 10.1 Network structure diagram

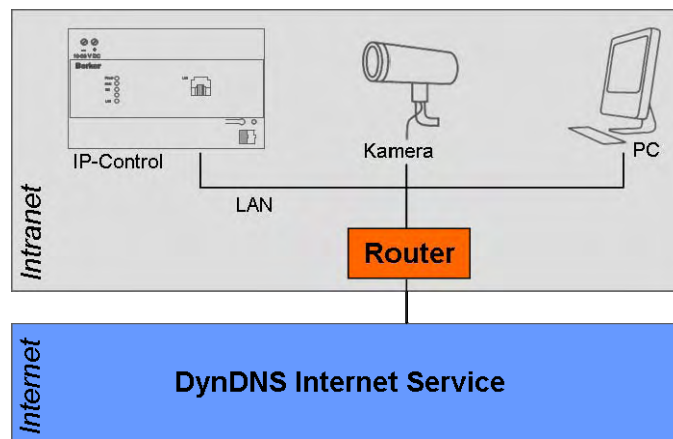


Fig. 27: Network structure

#### IP Control settings

IP address: 192.168.1.10  
Standard gateway address: 192.168.1.200  
Ports: 80, 1735, 50 000 - 50 002

#### Camera settings

IP address: 192.168.1.2  
Standard gateway address: 192.168.1.200  
Port: 81

#### PC settings

IP address: 192.168.1.3  
Standard gateway address: 192.168.1.200

#### Router settings

IP address: 192.168.1.200

In the network, a distinction is made between internal and external IP addresses:

- The internal IP addresses are fixed IP addresses and are assigned to the devices in the Intranet (IP Control, camera, PC, router).
- The Intranet can be reached from the Internet via the external dynamic IP address. The Internet service DynDNS.org manages these external IP addresses. The router translates the external IP addresses into internal IP addresses.

**i** **Important!** A routing table needs to be set up in the router. Depending on the model, the corresponding function can be found in different locations in the menu of the router. Look for menu items like **DMZ** or **Port Forwarding**.

The function for the DynDns.org service needs to be enabled and set up in the router. Entry of the routing rules is different for every router, but follows the following layout:

**[Port Number] -> [Internal IP Address]:[Port Number]**

The IP control and the camera are distinguished via the port number. In the example, the IP control can be reached via port 80 (standard) and the camera via port 81.

The inner IP address is the address which has been assigned to the IP Control or the camera. With the IP Control, port 80 is for the visualisation and port 1735 is for the Java applets. For the camera, you will need to specify the port assigned to the camera in the routing rule.

Example of a routing table with DynDNS service:

80	→	192.168.10.1:80 (visualisation)
1735	→	192.168.10.1:1735 (Java applets)
81	→	192.168.1.2:81 (camera)

## 10.2 Settings for the camera element in the visualisation

The URL address for the demonstrations is:

**<http://www.berkerbeispiel.dyndns.org:81>**

**i** So that the camera can also be reached from the Intranet, the router must support internal enquiries to external IP addresses. Please refer to the operating manual for the router. If the router does not support this function then you will need to insert a further camera element. This will need to have the internal IP address of the camera:

Example: **<http://192.168.1.2:81>**



## 11 IP addresses on the Internet

Usually the IP control is connected via a router to the Internet. In order to be able to reach the gateway, the gateway must be given its own IP address:

### Static IP address

A static IP address always remains unchanged. An IP Control with a static IP address can be reached under this IP address via the Internet. You can request a fixed IP address from your provider.

### Dynamic IP address

Every device which dials itself into the Internet (and does not have a fixed IP address) is automatically given a dynamic IP address by the Internet Service Provider. The address will change every time the connection is established. This is why the IP Control cannot be reached under a dynamic IP address.

Even if the IP Control remains constantly connected to the Internet via a router it is not certain that the current IP address will remain valid. Some ISPs automatically disconnect the connection every 24 hours.

**i** Free services are available on the Internet (e.g. berkerexample.dyndns.org:81), which link dynamic IP addresses to a domain. Here you are given your own domain address (e.g. berkerexample.dyndns.org), under which you can always reach your IP Control. In order to take advantage of this service you will need a router which is capable of autonomously dialing into the Internet and connecting to the DNS service. Please refer to the operating manual which was supplied with your router.

## 12 Changing the language settings

To switch over the language in the IP Control visualisation, a parameter in the Java VM software needs to be changed or added. Proceed as follows:

- In Windows, click on Start -> Settings -> Control Panel.
- Double-click on the Java symbol.
- Click on the **Java** tab.

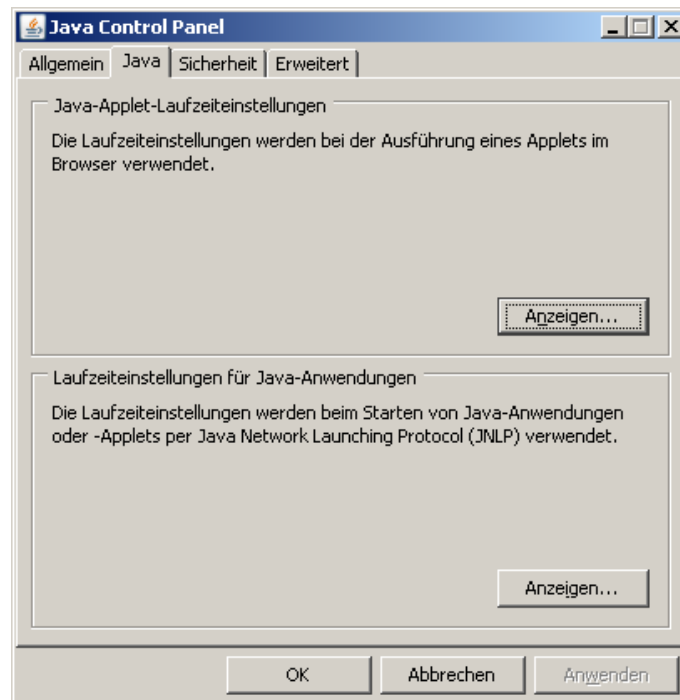


Fig. 28: Java Control Panel

- Click on **Displays** in the **Java Applet Runtime Settings** field.  
The Java Runtime Settings window will open.

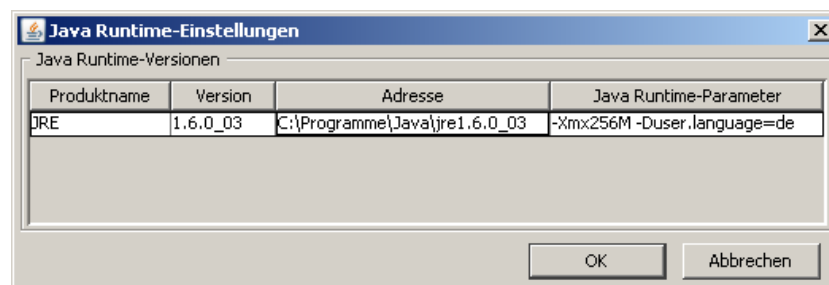


Fig. 29: Java runtime settings

- Enter the required language in the column **Java Runtime Parameters**:  
German-Duser.language=de  
English-Duser.language=en  
Swedish-Duser.language=se  
French-Duser.language=fr  
Spanish-Duser.language=es  
Dutch-Duser.language=nl  
Italian-Duser.language=it

- i** If you have installed several different versions of Java over time, make sure that the parameter is entered on all versions.
- Click on OK to close the Java Control Panel.
  - Close the browser and all other programs which use Java.
- The chosen language is displayed after restarting the browser and calling up IP Control.

## 13 Applications

With the numerous available jobs, a wealth of applications can be realised quickly and easily. A number of ideas are described in more detail below.

### 13.1 IP Control – IRTrans

Together with the IRTrans, the IP Control can transmit infrared signals via the IRTrans as a function of group addresses. This means that all devices which can be controlled via an IR remote control can also be operated via the KNX/EIB and the visualisation. The IP Control makes the job UDP transmitter available for this purpose. For this application the IR Trans Ethernet with database is required.

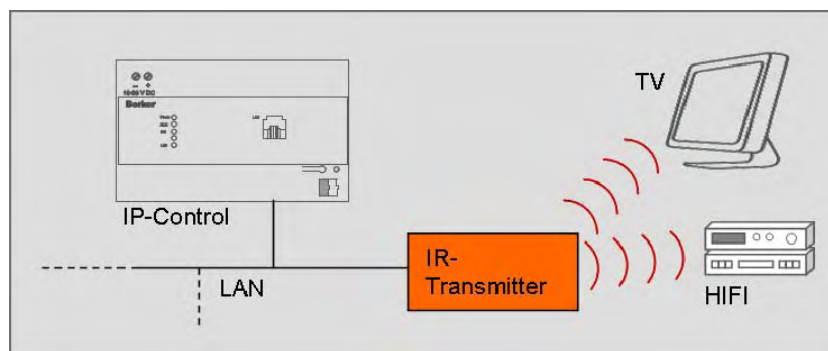


Fig. 30: IR control layout

#### IRTrans Ethernet with DB

IRTrans can be seen as a learning-capable IR remote control with a network connection. IRTrans interprets the UDP datagrams received via the LAN with the aid of its database. The previously learned commands are located in the database of the IRTrans. The process of learning the commands and loading them into the memory of the IRTrans is performed via an IRTrans PC software tool.

- i** Newly learned commands will not become active until the database of the IRTrans is **flushed**.
- i** Information, operating instructions and software for IRTrans can be found on the Internet at [www.irtrans.de](http://www.irtrans.de).

Check the port settings for the recipient, in particular the ports and broadcast settings. In the case of IRTrans, you can do this via the web interface of the device.

- i** You can access the web interface by entering the IP address in your Internet Browser. There, you will also be able to change all other settings for the IRTrans.

### Setting up an IR remote control for the control of several rooms

Proceed as follows if you want to use a remote control in several rooms but you want the system to be set up so that the buttons you press only affect the room you are currently in:

- Create the remote control with commands via the IRTrans software and then load (flash) the database into all of the IRTrans modules.
- Set up an IRTrans receiver job for every room in which an IRTrans is installed. Here, disable the entry IRTrans Broadcast and enter the name of the IRTrans belonging to the room to establish the link between the room and the IRTrans.
- **i** The settings for the port (21001) can be left unchanged provided the settings of the IRTrans module have not been changed.
- If you have set up multiple remote controls to work in a room then you need to enable the option RC Broadcast.
- Select the assignment of IR command and group address. Here, several EIS types are available (refer to the section "IRTrans receiver").
- Afterwards enter the names of the commands which were assigned when the IR commands were "learned".
- Save the settings.

The IR remote control is now fully set up.

It goes without saying that any other concept of your choice can also be realised. For example, you could use the enabling object to selectively enable or block the use of individual IR remote controls.

### 13.2 Music control with Squeezebox

With IP Control you have the option of controlling music via the KNX/EIB. The job **xPL Sender** is available for this purpose. After receiving a group address, this job sends a command such as play, stop, skip, back ... in the form of an xPL datagram to SlimServer, which in turn controls the Squeezebox. In this way, volume and playback can be controlled via KNX/EIB buttons or via the visualisation.

Another function of the music control is to display information about the music currently playing, such as the name of the artist, song titles etc. These can be displayed in the visualisation or on KNX/EIB displays. This function is also implemented via the SB Control job.

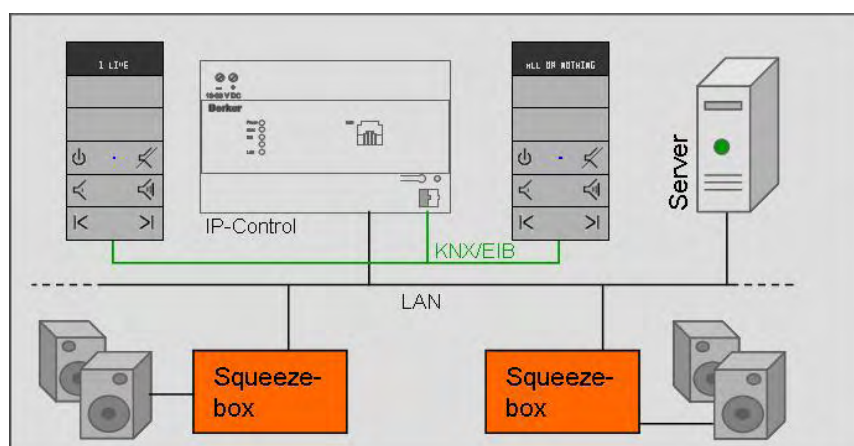


Fig. 31: Music control setup

**Server**

The server contains SlimServer, a free server program. With the aid of SlimServer you can manage the MP3 files and playlists saved on the server.

**Squeezebox**

The Squeezebox is a network player which plays back MP3 files saved on the server. It can be controlled via SlimServer. Integration into the network is performed either via cables or W-LAN.

**PC playback device**

MP3 files can also be played back on a PC. Softsqueeze, a free software version of Squeezebox, is available for this purpose.

- i** The xPL setting must be enabled for SlimServer. This can be enabled via the web browser. Go to <http://localhost:9000/> to access SlimServer. The xPL settings can be found under Server Settings > Network.  
To use this function, you will need to have installed the xPL Hub service both on the server and on all involved PCs (see also Appendix xxx: xPL requirements). The xPL Hub service must be launched before SlimServer.

**13.3 Further Squeezebox applications**

**Controlling lights with the Squeezebox remote control**

With the Squeezebox, you can send IR commands from the Squeezebox remote control as xPL datagrams into the network. The IP Control then translates this xPL datagram to a group address. To do this, all you need to do is set up and parameterise the job xPL Remote.Basic Receiver. Notes on the xPL settings can be found in Appendix xxx: xPL requirements.

**Squeezebox as a display device**

As well as displaying track information, the display of the Squeezebox can also be used to display text messages.

Example: door bell

When the door bell rings, the display of the Squeezebox shows the text message "Front door".

This application is also realised with the xPL Sender job. The configuration of this job is performed in the same way as for the music playback controls (see xPL Sender), except that a different scheme needs to be chosen.

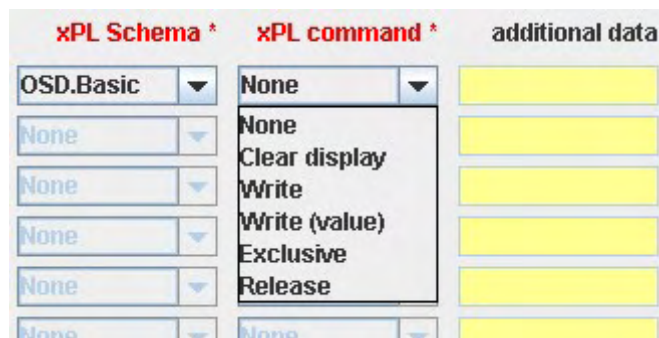


Fig. 32: xPL scheme, shown here for the "Door bell" example

The OSD.Basic scheme provides commands for controlling the Squeezebox display. Values can also be output for the value object. This is done with the aid of the control character (see Appendix 2).

### 13.4 Calling up web pages from the visualisation

In order to be able to call up specific Internet pages from the visualisation you will just need to insert the **Camera** element into the visualisation. As the URL you should enter the corresponding Internet address of the website you would like to call up from the visualisation. In this way, with a single click you can view e.g. the latest weather forecast information from the Internet on the visualisation.

- i You need to enable the option **As Icon**, and your browser settings must allow popups from this source (IP Control).

## 14 ComponentBuilder

The ComponentBuilder is an additional piece of software which can be found on the CD enclosed with the device under ...\Deutsch\Software\Berker\_ComponentBuilder.jar.

### 14.1 Application

With the aid of the ComponentBuilder you can create control panels with freely definable, static display and control elements. The control panels can be inserted as visualization elements in the IP Control and linked to group addresses. In this way you will obtain a personalised visualisation with your own chosen elements to suit your requirements.

- i** It takes time to get used to working with the ComponentBuilder software. It is expressly not intended for novice users. Please follow the instructions carefully and pay attention to all additional notes and information.

### 14.2 Program window

The program window is split into 3 areas:

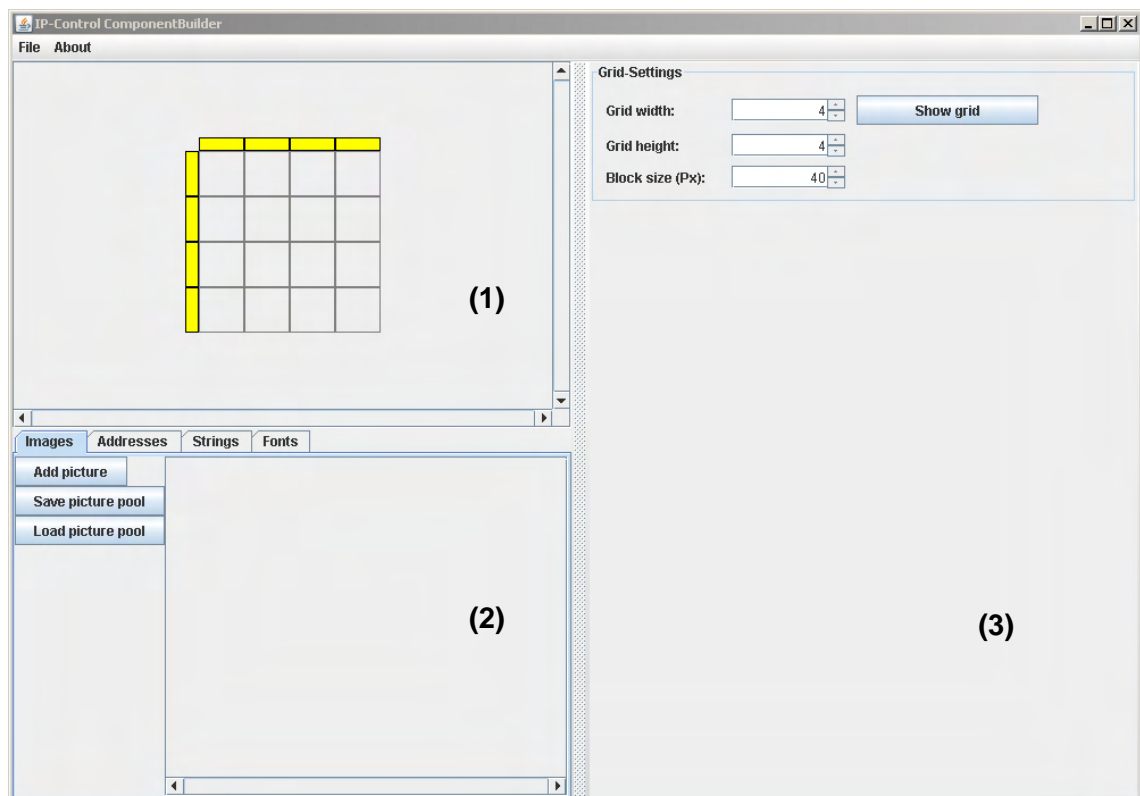


Fig. 33: Program window

#### Switch preview (1)

In this part of the program window you can see the individual segments of the panel. These can be selected for configuration.

#### Configuration (2)

The size of the segments can be adjusted in the configuration. If a segment is selected then detailed configuration options for this segment will appear.



### Data pools (3)

All of the required data for the current panel are created and managed in the data pools. These include pictures, addresses, character strings and fonts.

## 14.3 The File menu

<b>Open</b>	Opens a panel with the suffix.btn
<b>Save</b>	Saves a panel with the suffix.btn
<b>Close</b>	Exits the program

## 14.4 Defining a panel

A panel comprises between 1 (minimum) and 100 (10 x 10) (maximum) individual buttons and is represented by a grid. Each box represents a segment and can be defined as one of the four element types.

Grid-Settings	
Grid width:	<input type="text" value="4"/>
Grid height:	<input type="text" value="4"/>
Block size (Px):	<input type="text" value="40"/>

Information	
Width	40px
Height	40px

Fig. 34: Definition of the grid

### Grid settings

<b>Grid width</b>	No. of columns (max.: 10)
<b>Grid height</b>	No. of rows (max.: 10)
<b>Block size (Px)</b>	Height/width of a segment, 200 pixels max. Does not apply if the cell height or column width has been changed.
<b>Display grid</b>	Displays/hides the grid net
<b>Information</b>	Width and height of the selected cell

### Change column width

- Click on the yellow bar above a column.
- Select the width in the input field.

### Change cell height

- Click on the yellow bar to the left of a cell.
- Select the height in the input field.

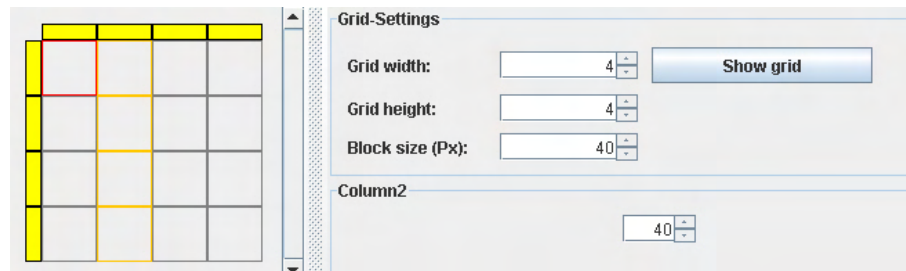


Fig. 35: Grid settings

## Connecting segments

Multiple segments can be connected.

- To do this, press and hold the Control key whilst selecting the corresponding segments with the mouse.
  - Right-clicking on the selected segments will open up a popup menu with the option **Connect**. You can also restore previously joined segments to their original separate status by clicking on the menu operation Separate.
- i** You can only connect segments which are adjacent to each other and form a rectangle together.

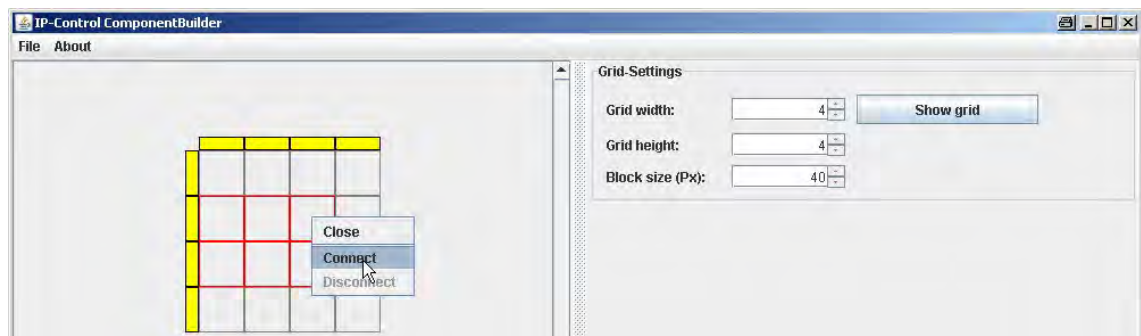


Fig. 36: Segment handling

## 14.5 Data pool

The data pool is used to manage all the data required for the current switch. These data include graphics, addresses, character strings and fonts. The data first need to be created in the individual tools before they can be used to generate the panels.

### Images

Pictures and images for a panel can be individually loaded into the pool. They are then available in the graphics selection and can be used as the background for the segments. All of the images can be grouped together and saved in an Images pool. This file has the suffix.pool and can subsequently be loaded for other switches as well.

The following image file formats are supported:

- .jpeg
- .jpg
- .gif
- .png

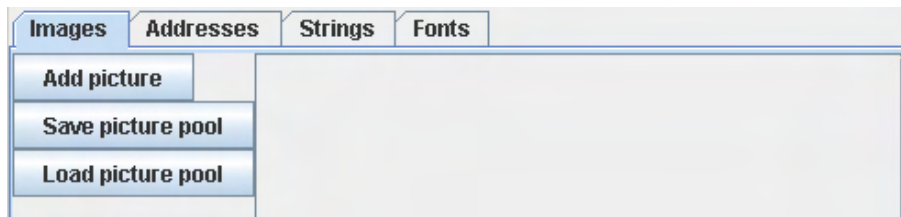


Fig. 37: Managing the images/pictures pool

**i** Images can be deleted again from the Images pool by right-clicking on them.

## Addresses

In the Addresses pool, address descriptions are assigned which are then replaced by the real group addresses in the Visualisation Editor. An address is defined by the EIS type, factor and offset.

The following EIS types are supported:

- EIS 1: 1 bit, switching
- EIS 3: 3 bytes, time (factor: 1, offset: 0)
- EIS 4: 3 bytes, date (factor: 1, offset: 0)
- EIS 5: 2 bytes, floating point
- EIS 6: 1 byte, 0–100 %
- EIS 9: 4 bytes, floating point
- EIS 10: 2 bytes integer
- EIS 11: 4 bytes integer
- EIS 14: 1 byte, 0–255

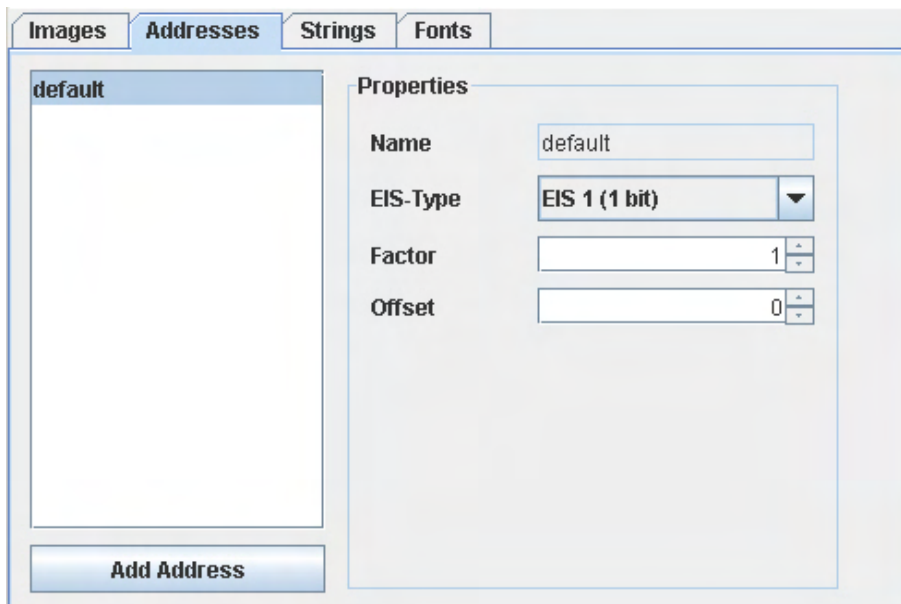


Fig. 38: Address assignment, EIS type

The character strings can also represent values from address objects. To do this, the address is selected and the number of digits before and after the decimal point is defined. Afterwards, the **Insert value into string** is used to insert the text at the cursor position.

- i** The specified text can still be changed later on in the Visualisation Editor, for example it can be translated into a different language.

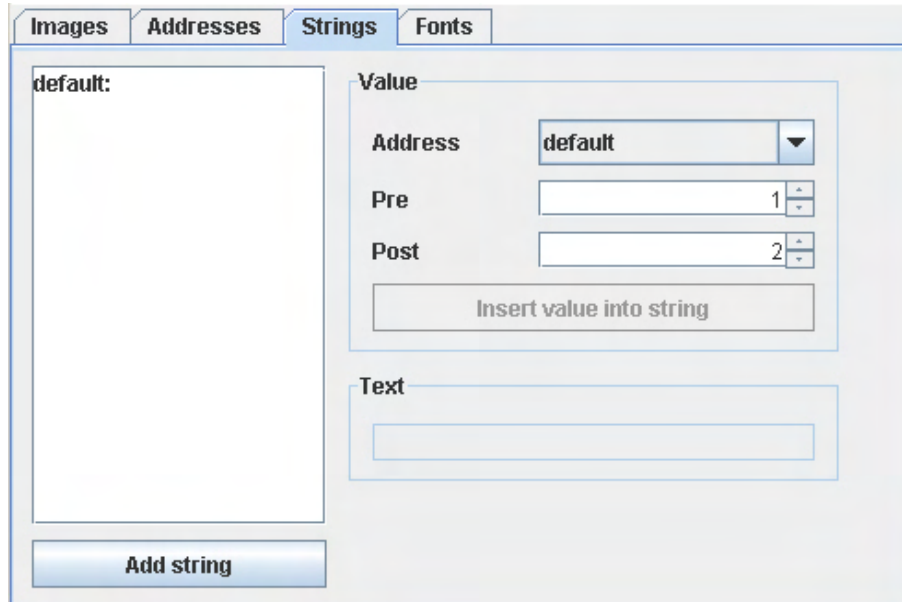


Fig. 39: String assignment

## Fonts

Here you can set up various fonts for the texts and character strings.

The preview shows the currently selected font in the specified font size and style (bold or italic). We recommend mostly using standard fonts, as this will ensure that the visualisation looks the same on different operating systems.

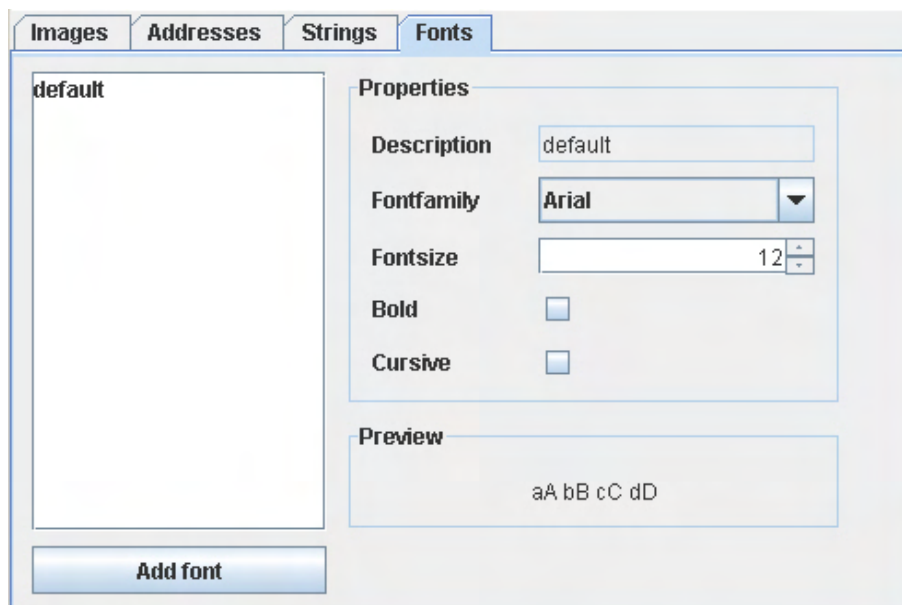


Fig. 40: Font properties

## 14.6 Background & lettering

The way in which the elements are represented with regard to the background and the lettering can be defined for all element types.

### Background

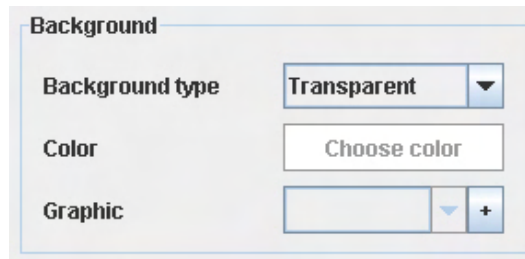


Fig. 41: Background definition

### Background type

#### *Transparent*

The button is shown transparent. This means that any elements underneath the panel in the visualisation or the page background can still be seen.

#### *Colour*

You can choose a background colour from the colour charts.

#### *Graphic*

You can use a graphic (JPG or GIF) as the background.

### Colour

- Click on the button **Choose Colour** and select a colour.

**i** This function is only available if **Colour** is chosen as the background type.

### Graphic

- Click on the arrow and select an image from the menu.

or

- Click on the plus symbol and insert an image from the hard disk.

**i** The menu contains all of the graphics from the data pool. This function is only available if **Graphic** is chosen as the background type.

### Text selection

Here you can select the text and font for a label/lettering. The different character strings and fonts can be defined in the data pool.

### Text

- Click on the arrow and select an existing text previously created in Data pool / Character strings.

## Font

- Click on the arrow and select a previously defined font from Data pool / Fonts.

## Text colour

- Click on the button and select a text colour.

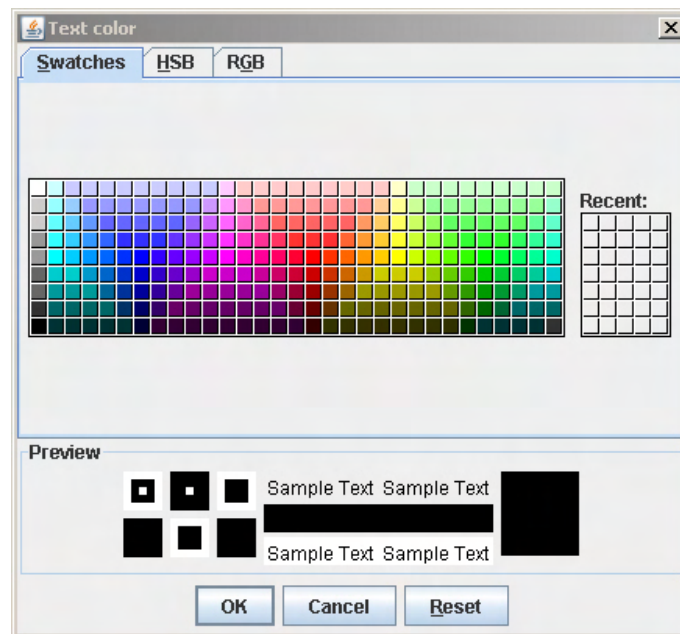


Fig. 42: Selecting the text colour

## 14.7 Static element

On the one hand, static elements are used for the graphic design of control panels. For example, e.g. very narrow static elements can form a frame around a switch element or serve as a visual separating bar between different active elements.

With the background type **Transparent**, the elements behind the control panels or the background of the visualisation page are made visible.

You can also insert graphics and images. On the other hand, static elements can also be used as labelling fields.

### Defining a static element

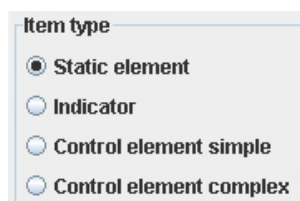


Fig. 43: Element types

- Click in a segment and activate the element type **Static Element**.  
The parameters **Background** and **Text Selection** can be defined.
- i** For more information, read the section entitled **Background & lettering**.

- i** After making any changes during configuration, click on the **Accept** button at the bottom edge of the window, as otherwise the changes will be discarded.

## 14.8 Display element

Display elements are used to signal states and display text and values (e.g. temperatures). States can be signalled by means of colours, graphics and text with values. The way in which a display element is displayed is governed by rules, whereby you can define rules for specific states (e.g. ON) and threshold values (e.g. greater than 20).

### Defining a display element

- Click on a segment and activate the element type **Display Element**.

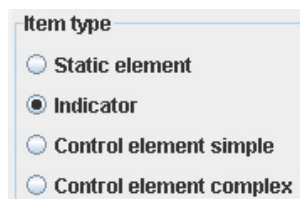


Fig. 44: Element types

- i** After making any changes during configuration, click on the **Accept** button at the bottom edge of the window, as otherwise the changes will be discarded.

### Configuring rules

Rules are used to define which display of the segment applies at which values. With every rule a display/representation is saved for the relevant segment. If a rule is satisfied then the segment adopts this display/representation. In this way, rules can be created for particular values (1; 2; 10; 2.25), threshold values (<20; >2.5) and value ranges.

**Default rule:** This rule applies when no other rule is satisfied, and in this case it defines the display/representation of the element. This rule can be configured but not deleted.

#### **Edit**

By clicking on a rule in the **Editing** column the Parameters window will open up, allowing you to edit the parameters for the rule.

#### **Delete**

Clicking on a rule in the **Delete** column deletes the rule.

#### **Edit as New**

Clicking on a rule in the column **Edit as New** will create a new rule on the basis of the existing rule.

#### **New Rule**

You can create new or additional rules via the button **New Rule**.

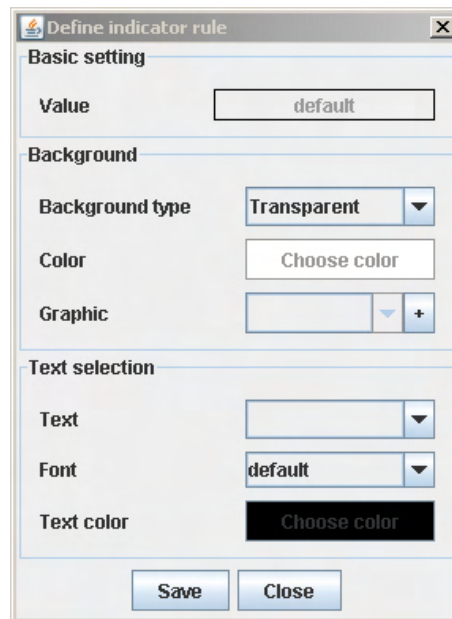


Fig. 45: Element types

### Selecting a rule

- Click on the field **Value** to access the rule selection
- i** In the rule selection you will have access to a comprehensive selection of conditions. The rule definition in the lower part of the window will change to match the chosen rule format.
- To define a rule you first need to select an address. Click on the arrow to display the selection of available addresses (all of the addresses contained in the data pool).

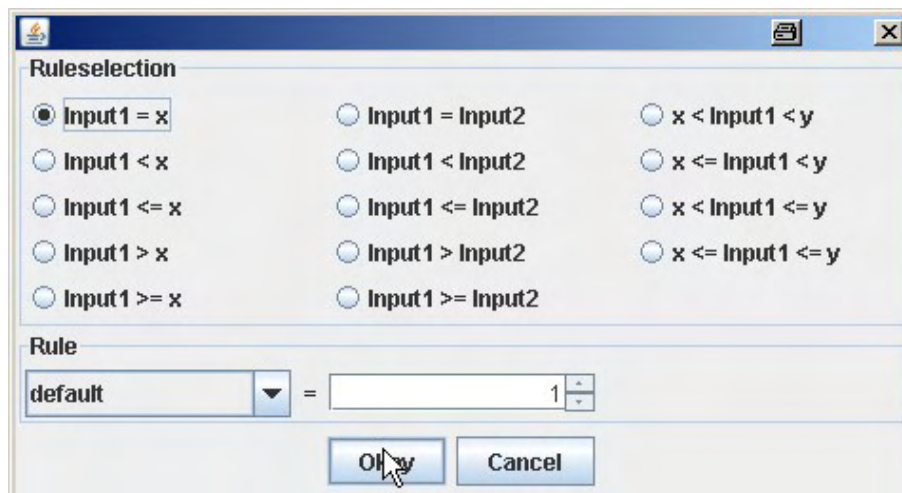


Fig. 46: Rule selection window

- In the field on the right you can enter the values for the rule.
- Click on **OK** to use this rule.
- i** The settings for the background and the test selection are described in the section entitled **Background & lettering**.
- To create the new rule click on the Save button.



## Displaying a rule

All of the defined rules are listed in the **Display rule** menu under the Rule Editor. The display of the selected rule is shown in the editor. This makes it possible to check the different displays/representations of the switching states of elements.

- i** After making any changes during configuration, click on the **Accept** button at the bottom edge of the window, as otherwise the changes will be discarded.

## Order of priority

If several rules are satisfied at the same time then the rule with the highest priority takes effect. Priorities are defined as follows:

1. Fixed comparisons (input1 = x)
2. Value ranges (x < input1 > y)
3. Greater/less than (input1 < x)

If the priority is identical then the rules are weighted via a ranking system:

- In the case of a value range, the rule which defines a narrower value range has a higher ranking.
- In the case of "greater/less than" ranges the rule with the smaller difference to the value at Input1 takes priority.

If the ranking of different rules is also identical then the rule which comes first in the list takes priority.

## 14.9 Control element - simple

The **Control element - simple** option is used to create switches and buttons. One status can be transmitted when an element is pressed and released. The representation of a simple control element can be defined for the following states:

- Standard
- Mouseover (i.e. when the mouse pointer is pointing at the element) and
- Mouse pressed (i.e. when the user clicks on the element)

### Defining a simple control element

- Click on an element and enable the element type **Control element - simple**.

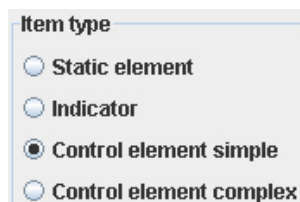


Fig. 47: Element types

- i** After making any changes during configuration, click on the **Accept** button at the bottom edge of the window, as otherwise the changes will be discarded.

## Basic configuration

Fig. 48: Rule selection example

### Upon pressing

Here you specify the value which is to be sent when the button is pressed. This could be a fixed value or a calculated value.

- Click on the field **Upon pressing** to display a selection of options.  
The lower part shows the selection of available addresses (all in the data pool).

Fig. 49: Rule selection

In the example shown above (Fig. x), a "1" is sent to the address "output" whenever the control element is pressed.

However, it is also possible to send the differences or the sum of an address and a fixed value x via the output.

### ***Upon release***

The settings for the value which is to be sent when the button is released are selected in the same way as for when the button is pressed.

By combining these two functions, it is for example possible to configure a switch which transmits a "1" when it is pressed and a "0" as soon as it is released.

### **Appearance**

Here you can define the displays for the three states described below. The Enable option must be selected before the display/representation can be changed.

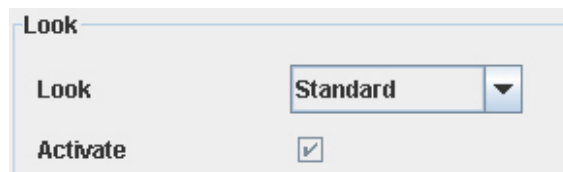


Fig. 50: Rule selection example

### ***Standard***

These settings for the background and text selection apply under normal conditions.

### ***Mouseover***

This display/representation becomes visible in the visualisation when the mouse pointer rolls over the control element. For example, the current value/status can be displayed in the form a character string.

### ***Mouse pressed***

This display/representation applies when the element is actuated.

For information about parameterisation of the background and the text selection please refer to the section entitled **Background & lettering**.

- i** After making any changes during configuration, click on the **Accept** button at the bottom edge of the window, as otherwise the changes will be discarded.

## **14.10 Control element - complex**

This element is used to realize complex control elements. This control element is a combination of a display element and a simple control element. It is an input-dependent control element. It can be used for example to create a shutter switch which deactivates its function if a wind alarm is issued.

Rules are used to define which values are sent when the element is operated. These rules also determine how the element is displayed/represented.

### **Defining a complex control element**

- Click on an element and enable the element type **Control element - complex**.
- i** After making any changes during configuration, click on the **Accept** button at the bottom edge of the window, as otherwise the changes will be discarded.

## Configuration

In order to make it as easy as possible to understand handling this element, setting options were taken over from the other element types. The configuration and process for creating rules are the same as for the display element - refer to the chapter entitled **Display element**.

For details on configuration of the control functions refer to the section entitled **Control element - simple**.

## Additional information for the complex control element

The complex control element has an additional parameter.

### *Keep value*

When this parameter is set, the current rule also applies if the input value changes between when the mouse button is pressed and when it is released.

## 14.11 Saving the project

After configuration the project is saved.

- Under the File menu select the option **Save** and give the panel a name.

## 14.12 Using components

In order to use self-created buttons and displays in the visualisation you will first need to have saved them and loaded them into the IP Control.

### Uploading

The saved components can be loaded into the IP Control via the configuration tool.

- To do this, go to the area **System, File Transfer**.

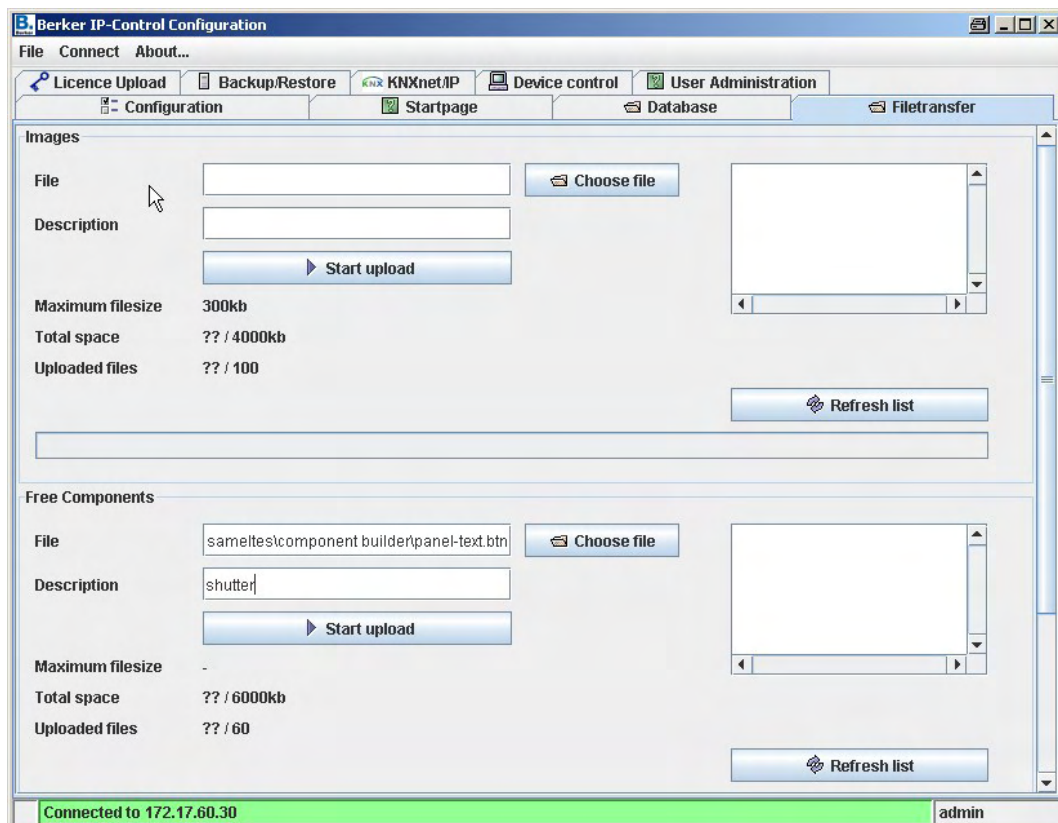


Fig. 51: Configuration tool window

The saved files can be uploaded in the middle part of the **Free Components** window. By clicking on the **Update** button you can see the components which have already been loaded into the IP Control.

Select the corresponding file path via the **File** button and then click on the **Upload** button to load it into the IP Control.

The individual components can be deleted by right-clicking on them.

- i** The components are limited to a maximum of 20 components or 5000 kB.

### Inserting into the visualisation

With the aid of your self-created buttons and displays you can personalise the individual pages in the visualisation.

The selection of all uploaded components can be seen in the lower left-hand area of the visualization editor.

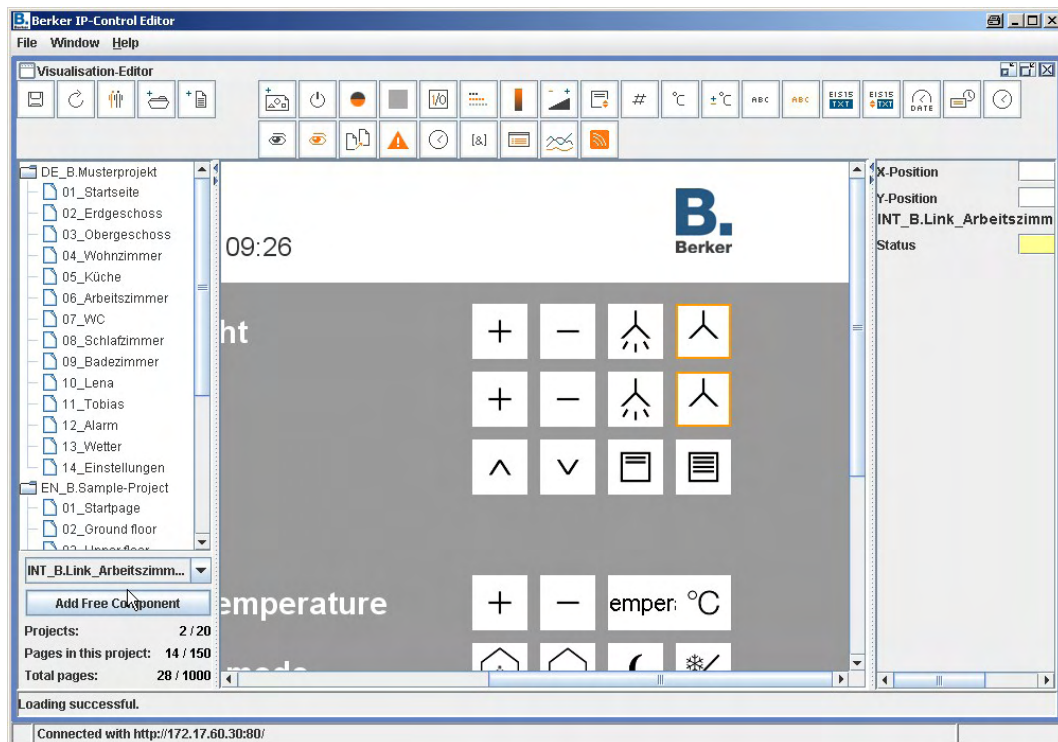


Fig. 52: Visualisation Editor window

The button at the bottom left is used to insert the selected component in the currently open page. Positioning is performed in the same way as for the remaining objects.

The parameter settings appear on the right-hand side of the screen, just like for the other objects. Their meaning depends on the settings specified in the Component Builder.

We therefore recommend choosing meaningful names for the input and output addresses, and to choose names which indicate the EIS types used.

- i** If switches/displays are subsequently edited in the Component Builder, they will need to be newly uploaded into the IP Control and newly parameterised.

## Appendix 1: Status LED

### Description of the LED functionality

The current operating status of the IP Control is signalled by means of an LED which is positioned on the front panel of the device.

- i** During the boot-up phase the POWER LED lights up orange for approx. 30 seconds. The end of the boot-up phase is indicated by a test of all LEDs. After the end of the boot-up phase the POWER LED lights up green.

The LEDs also indicate the following states:

#### POWER LED

OFF	The device is ready for operation. There is no operating voltage present.
GREEN	The device is ready for operation.
ORANGE	The IP Control is still in the boot-up phase (approx. 30 seconds).
Flashing every 1 second	The BCU is not yet configured, or it is incorrectly configured with the ETS.
Flashing every 2 seconds	The BCU has been configured with illogical data (implausible IP parameters, MSN, password).

#### BMX LED

OFF	No data exchange with the IP Control program kernel
RED	Device in ETS mode
RED, flashing	ETS traffic
GREEN	Data exchange with the IP Control program kernel
ORANGE	Fallback from ETS mode to BMX mode

#### KNX/EIB LED

OFF	The IP Control has no connection to the KNX/EIB.
RED, flashing	The IP Control is attempting to establish contact to the KNX/EIB.
GREEN	The IP Control has contact to the KNX/EIB.
ORANGE	The IP Control is exchanging data with the KNX/EIB.

#### LAN LED

OFF	The IP Control has no connection to the LAN.
GREEN	The IP control has a physical connection to the LAN.
ORANGE	The IP Control is exchanging data with the LAN.

## Appendix 2: Control characters for values in text messages

IP Control can send out values. To do this, control characters need to be inserted into the body of the text according to the relevant EIS value. First of all the corresponding EIS type needs to be parameterised.

Values are displayed by placeholder characters % (always without quotation marks) within the text. The following format is used for all numerical values:

%[No. of digits before decimal point. No. of decimal places after decimal point]f

These placeholder characters can be inserted anywhere in the body of the text.

### Examples:

A floating point number with five digits and two decimal places is to be displayed. The following is entered in the text:

"... Text %5.2f Text ..."

If the sign is also to be displayed in the text then the entry must appear as follows. The following is entered in the text:

"... Text -5.2f Text..."

If exactly the matching number of digits is to be displayed in the text then the entry must appear as follows. The following is entered in the text:

"... Text %.1f Text..."

If the percentage symbol is to be displayed within the text then the text must be entered as follows: %%. Example of a text entry:

"The tank is %.1f%% full."

The following text would then be displayed in the text (e.g. e-mail):

"The tank is 82.3% full."

If a value of type EIS3 (time) or EIS4 (date) is selected then the following character combination needs to be placed in the text: %s.



### Appendix 3: Technical data

Operating voltage:	10-30 V
Power draw:	<= 5 VA
Bus voltage:	via KNX/EIB

**i** The **IP Control** is equipped with a gold cap condenser for data buffering. This guarantees buffering of the internal clock for an operating voltage failure of approximately 30 minutes. The data remain permanently saved in the flash memory.

Climate resistant:	acc. to EN 50090-2-2
Ambient temperature:	0 - 35°C
Storage temperature:	-20 - +70
Rel. humidity (non-condensing)	5% - 80%

#### Mechanical data

Dimensions:	DIN rail mounted device; (8 modular widths @ 18 mm)
Housing:	Plastic
Weight:	approx. 0.4 kg
Mounting:	Top hat rail (acc. to EN 50022)
Protection system:	IP20 (acc. to EN 60529)

#### Other features of the device:

Operating system	Embedded Linux Java version 1.5 or higher required
Processor	586DX, AMD Elan
Interfaces	KNX/EIB, Ethernet
Software	Integrated browser visualisation; Integrated startup software; WAP gateway EIBlib/IP and KNXnet/IP
Memory	64 Mbyte RAM
KNX/EIB data points	Administration of all KNX/EIB group addresses
KNX/EIB memory	History memory (20,000 telegrams)

## **Appendix 4: WAP service**

IP Control can communicate with a WAP mobile phone. Please contact the manufacturer of your mobile phone or consult the operating instructions for details about your mobile phone and its possible settings (e.g. bookmarks, entering an URL, reloading, hanging up etc.).

WAP page address: `http://[IP-Control]/index.wml`  
E.g.: `http://berkerexample.dyndns.org/index.wml`

Login: wap

Password: berker

The password is fixed and cannot be changed.

## Appendix 5: Network and browser settings

The IP Control supports Internet browsers in conjunction with a run capable Java Virtual Machine (VM) version 1.5 or higher.

### Fast network installation

The connection between the PC and IP Control is normally established via Port 80 (HTTP) and Port 1735 (Java Applet data traffic). Access to these ports must be provided at all times, for example when you have integrated a router or firewall between the Client Browser and the IP Control.

In the event of any connection problems, we strongly recommend first setting up an installation with a crossover cable connected directly between the PC and the IP Control.

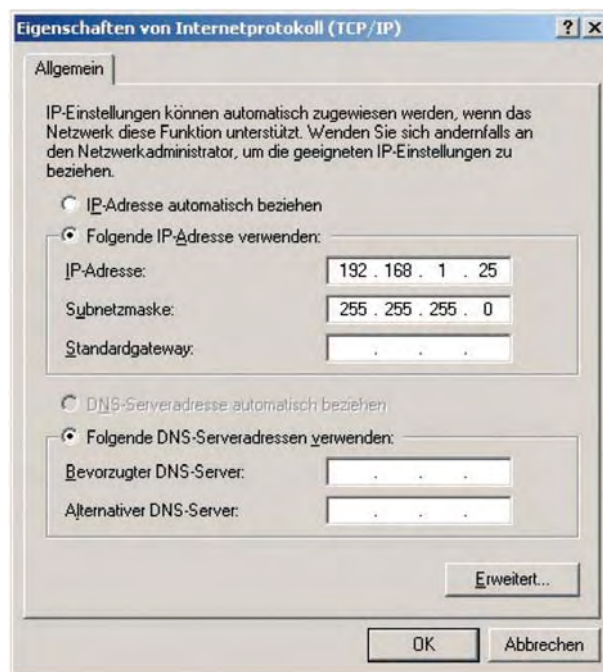


Fig. 53: TCP/IP properties

An IP address in the same subnetwork is assigned to the PC (this means that only the last digit in the IP address is different between the PC and the IP Control – based on the use of a subnet mask of 255.255.255.0).

The default IP address of the IP Control is 192.168.1.10. Assign an IP address of e.g. 192.168.1.25 to the network card of your (under Network Settings -> TCP-IP Properties).

**i Important!** In our example, it is vital that the first three segments of the IP address are the same and that the last segment is different.

IP-Control	192.168.1.10
PC	192.168.1.25
Subnet mask	255.255.255.0

For more information about network configurations please refer to the handbook for your firewall and/or router, or ask your system administrator.

**i Important!** A connection must be provided between the Browser Client and the IP Control via Port 80 and Port 1735 (default setting).

## Appendix 6: Camera

With IP Control you can have images from network cameras displayed directly in the visualisation or in a dedicated window. With the Event Camera function, the system automatically switches to the visualisation page with the camera image or places the window with the camera image on top whenever triggered by the corresponding group address.

### Integrating a camera

Every network capable camera can be integrated in the visualisation.

#### Displaying a camera feed in a dedicated window

- Insert a new camera element and enable the option "As icon".
- In the URL field, enter the full network path to the camera, preceded by HTTP:// (e.g. HTTP://192.168.1.2).

#### Displaying a camera image as an image in the visualisation

- Insert a new camera element. The option **As icon** must not be enabled.
- In the URL field, enter the full network path to the image memory of the camera, preceded by HTTP:// (e.g. HTTP://192.168.1.2/record/current.jpg).

#### MJPEG camera

- In order to embed an MJPEG stream in the visualisation, select the MJPEG camera option and enter the network path for the camera.

#### Event camera

In order to automatically display the camera image in a separate window when triggered by the corresponding group address, enable the option "As icon".

- In the URL field, enter the full network path to the camera, preceded by HTTP:// (e.g. HTTP://192.168.1.2).

In order to automatically change to the page with the camera when triggered by the corresponding group address, the option **As icon** must not be enabled.

- In the URL field, enter the full network path to the image memory of the camera, preceded by HTTP:// (e.g. HTTP://192.168.1.2/record/current.jpg).

**i** For the image-in-image function the camera will need to have an intermediate memory in which the images are saved as JPEG files. The image memory path depends on the manufacturer. Please refer to the manual supplied with your camera.

## Appendix 7: Certificate

In order to ensure that the IP Control visualisation works, a Java Applet needs to be transmitted from the IP Control to the PC. This Java Applet is signed by Berker. When you open the editor or the visualisation for the first time after launching the Internet browser the following security warning will be displayed.

- Confirm the warning by clicking on **Run**.
- i** If you would prefer not to see the warning every time, check the option **Always trust content from this originator**.

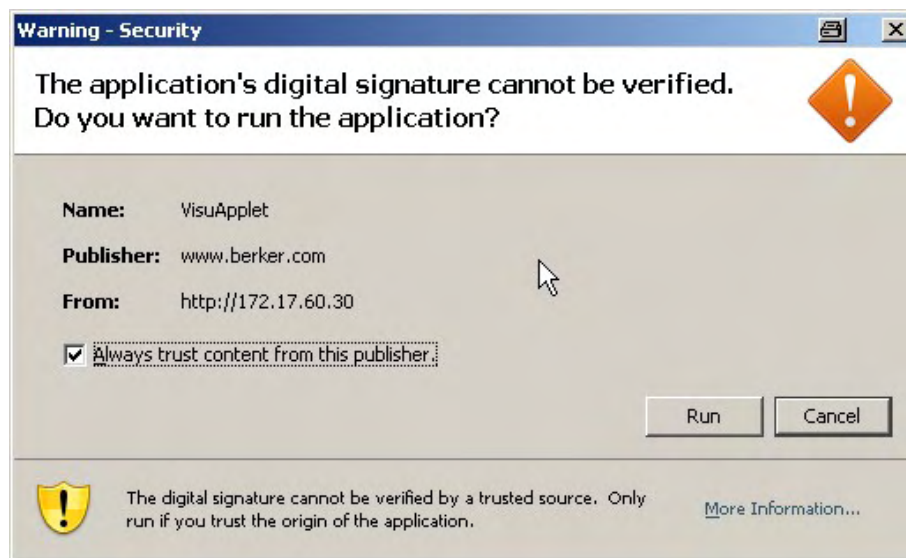


Fig. 54: Security warning

## Appendix 8: xPL requirements

In order to be able to utilise the functions of the xPL sender and receiver, the xPL Hub service needs to be installed.

### xPL Hub

The xPL Hub is part of the Windows xPL installation and required for any type of xPL application. This service listens to the xPL telegrams from the network and passes them on to the xPL program. The hub can support several xPL programs at the same time.

**i** **Important!** The xPL Hub uses the Port 3865, which must be enabled in the firewall.

### xPL Hal Manager

The xPL Manager allows you to see all of the xPL participants in the network. In the xPL Hal Manager you can also find the values for xPL Manufacturer, xPL Device and xPL Instance under xPL Devices. The manager also provides a monitor and a send function in order to test the settings. The xPL Hal Manager is not absolutely essential for the SlimServer function, as it only makes it easier to adjust and test the settings.

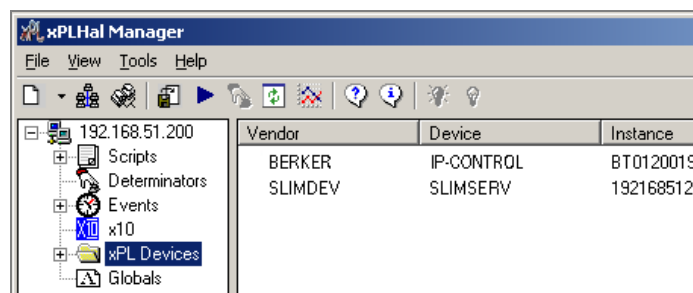


Fig. 55: xPL Hal Manager window

Further information about installation and settings, as well as links for downloading the xPL Hub and the xPL Hal Manager, can be found on the Internet under [www.xplhal.org](http://www.xplhal.org).

### Addressing the xPL devices

The address of the xPL devices looks like this:  
[manufacturer]-[device].[instance]

For the SlimServer, this corresponds to the following address:  
slimdev-slimserv.instance

The IP Control always transmits under the address  
berker-IP-Control.[serial number]

These values can be found in the xPL Hal Manager under xPL device. The instance corresponds to the name of the Squeezebox, e.g. LIVING ROOM. When assigning a name to the Squeezebox, please note that it must not exceed a length of 15 characters. The names of the Squeezeboxes can be assigned via the SlimServer (Settings > Player).

**i** If a Squeezebox has not yet been given a name then the xPL Hub will take the numerical sequence from the IP address as its name. Subsequent changes to the IP address will not be carried over by the xPL Hub, so it is important to give each Squeezebox a clear and unique name. This is done with the aid of the SlimServer under Settings -> Player.

### xPL settings

It is easiest to access the xPL settings via the monitor of xPL Hal Manager. There you can see all of the xPL datagrams in the network and derive the individual parameters. The screenshot below shows part of the monitor. All of the required information is contained in the lower part of the window.

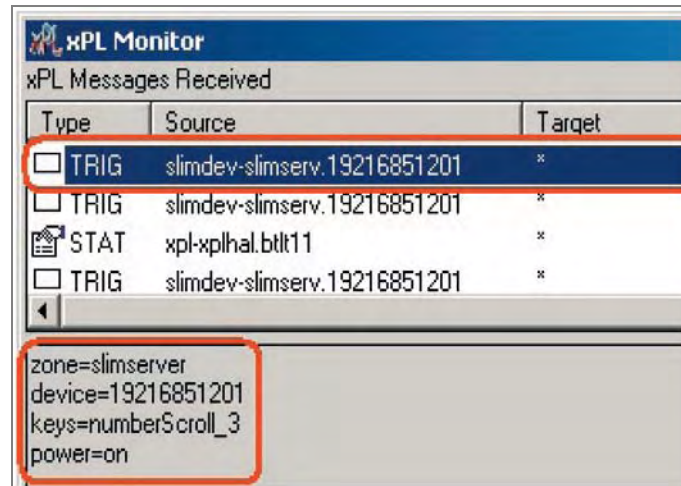


Fig. 56: xPL Monitor

## Appendix 9: E-mail provider

As well as setting up the configuration, you also need to set up an e-mail provider before you can send e-mails. The set-up is performed in the configuration tool, along with the associated settings.

- Click on the **Configuration** tab.
- In the left-hand column, click on **E-mail**.
- The window for managing and setting up e-mail providers (Figure 35) will open.

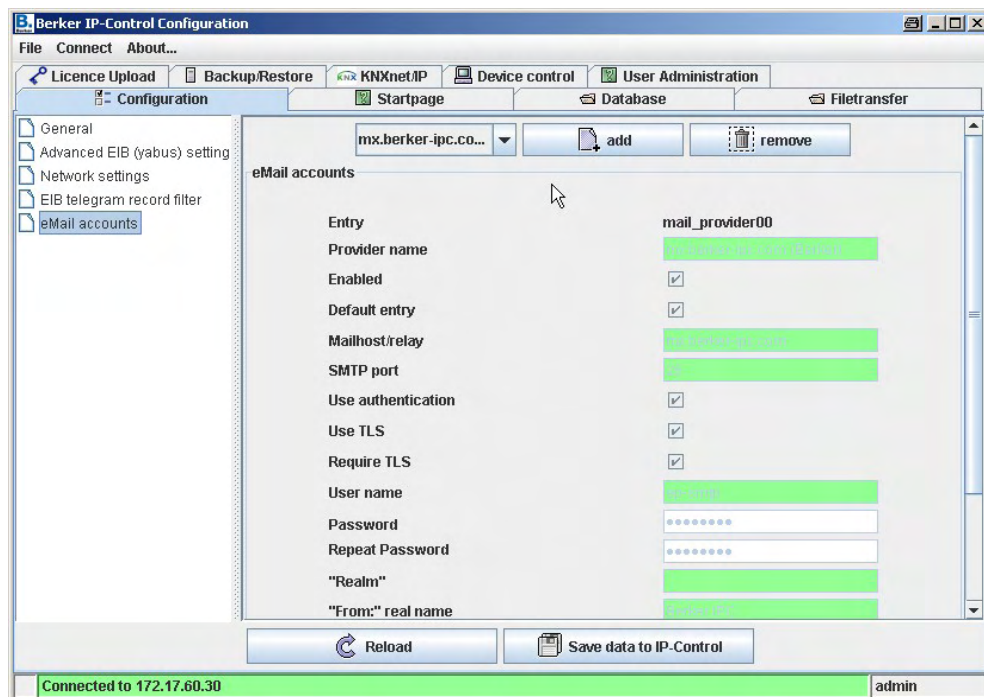


Fig. 57: E-mail configuration

- Click on the **Add** button.  
The IP Control will create a new blank form in which the following parameters need to be entered.

**i** The settings chosen here will depend on your e-mail provider/e-mail server.

- Use the following settings to create an e-mail provider:

### **Entry**

This entry contains the created e-mail provider in the IP Control. This entry needs to be specified when configuring the e-mail job.

### **Provider name**

This is the name under which the provider will be displayed and managed in the configuration tool.

### **Active**

This entry is used to enable or disable individual providers.

### **Default entry**

Select this to use the current provider as the default provider.



**SMTP server**

The name of the SMTP server (outgoing mail server) should be entered here, e.g.: mail.gmx.de

**SMTP port**

Enter the name of the port here which is used by the SMPT server.

**User authentication**

Depending on the SMTP server, authentication may be required. This entry must be enabled if this is the case.

**Use TLS**

This entry should be enabled if you would like the connection to the SMTP server to be encrypted.

**Requires TLS**

This entry should be enabled if the SMTP server requires an encrypted connection. This also depends on your provider and the server settings.

**SMTP server user name**

This is the user name (e-mail account name) which is used by the IP Control to log on to the SMTP (outgoing mail server).

**SMTP server password**

Enter the password which belongs to the e-mail account here. You will be asked to enter it a second time for verification.

**"Realm"**

Enter the realm to be used for the authentication here. This entry is not required for every provider or outgoing mail server in order to send out e-mails. Ask your provider or the administrator of the outgoing mail server.

**"From:" Actual name**

This is the name under which the e-mail is dispatched if no name was specified during the configuration of the e-mail job.

**"From:" Address**

The e-mail is dispatched via this e-mail address if no address was specified during the configuration of the e-mail job.

**Company and signature**

These are both optional pieces of information which are inserted into the e-mail.

- i** You can send test e-mails via the already created providers in order to test the network side of the installation. If you are unsure about the settings for an e-mail provider, the easiest thing to do is to test them with one of the commonly used e-mail programs (Outlook, Thunderbird).  
To do this, simply create an account with the same settings. Please note that the settings in the IP Control only affect the outgoing mail server, as it only sends out e-mails but cannot receive e-mails. With the network settings, enter a DNS server for your Internet provider.

## Appendix 10: URL parameters

When connecting to the IP Control, it is possible to transmit login parameters directly in the URL. The following URL will take you directly to the visualisation:

<IP-Control>/bmxJava2/visuPlain.php

The familiar default page can be reached via the following URL:

<IP-Control>bmxJava2/default.php

<IP-Control> = IP address/name of the IP Control

The start page options can be configured in the configuration tool (refer to **Start page** in the section entitled **Configuration tool**).

### Login parameters

The following syntax needs to be followed when attaching parameters to the URL. Here, the parameters are separated from each other by the ampersand symbol (&) and from the URL with a question mark (?).

Example:

IP-Control = 192.168.1.10

Username: username = xxx

Password: password = yyy

Login autologin = true / false

Example URL:

192.168.1:10/bmxJava2/visuPlain?username=xxx&password=yyy&autologin=true

The autologin parameter is an optional parameter. Its default value is "true".

- If autologin = true then the user is logged in without any further queries.
- If autologin = false then the fields in the login dialog are filled in with the specified user name/password. These need to be confirmed to log in.

**i** In some cases it is possible to log in under a different name.

## Appendix 11: Expanded clock options

The jobs **Week time switch** and **Year time switch** can be used to switch group addresses at certain times (e.g. for automatic lighting).

### ***Monitoring time jumps***

If the switching time is skipped (e.g. due to a new clock time from an NTP server) then the group addresses are not switched. You can prevent this by enabling the **Monitor time jumps** option in the Job Editor.

Once this is done group addresses will still be switched if their switching time is in a period of time which has been skipped.

### ***Local operation***

If this checkbox is activated then local operation is not possible. The telegram value of the output address is only defined by the clock.

### ***Initialise clock***

When this checkbox is activated the clock sends the current telegram value after an initialisation phase (restart of the IP Control, changes to the clock parameters). If this function is not enabled then the telegram value is only transmitted at the defined switching points.

## Appendix 12: EIS 15 Multiplexer

The job **EIS 15 Multiplexer** can be used to send pre-defined texts on the basis of EIS 14 values.

### ***Input object***

Triggering object of the service. Format: EIS 14

### ***Active***

Enables or disables the relevant command.

### ***Wildcard***

When this checkbox is selected the command is sent for every input value.

### ***Trigger***

The command is sent when the entered value is received.

### ***Overwrite***

When this checkbox is selected the output object can be overwritten with the text.

### ***Text***

This EIS 15 text is transmitted.

### ***EIS 15 output***

The text is transmitted to this group address.

## Appendix 13: EIS types

Item	EIS type	Description	Resolution	Data type	Value range
1	EIS 1	Switching	1 bits	DPT 1.001	[0 .. 1]
2	EIS 2	Switching	1 bits	DPT 1.001	[0 .. 1]
3	EIS 2	Dimming (relative)	4 bits	DPT 3.007	[Brighter .. darker .. stop]
4	EIS 2	Dimming value (absolute)	1 bytes	DPT 5.001	[0% .. 100%] (increment size 0.4%)
5	EIS 3	Time	3 bytes	DPT 10.001	
6	EIS 4	Date	3 bytes	DPT 11.001	
7	EIS 5	Floating point number	2 bytes	DPT 9.xxx	[-671088.64 .. 670760.96]
8	EIS 6	Scaling	1 bytes	DPT 5.xxx	[0x .. 255x] (increment size x)
9	EIS 6	Percentage	1 bytes	DPT 5.001	[0% .. 100%] (increment size 0.4%)
10	EIS 6	Angle	1 bytes	DPT 5.003	[0° .. 360°] (increment size 1.41°)
11	EIS 7	Drive control, moving (direction)	1 bits	DTP 1.008	[Up (0) .. Down (1)]
12	EIS 7	Drive control, step (direction) / stop	1 bits	DTP 1.007	[Up (0) .. Down (1)]
13	EIS 9	Floating point number (high accuracy)	4 bytes	DPT 14.xxx	[- 3.4028*10 <sup>38</sup> .. 3.4028*10 <sup>38</sup> ]
14	EIS 10	Integer without sign	2 bytes	DPT 7.001	[0 .. 65536]
15	EIS 10	Integer with sign	2 bytes	DPT 8.001	[-32768 .. 32767]
16	EIS 11	Integer without sign (large value range)	4 bytes	DPT 12.001	[0 .. 4294967296]
17	EIS 11	Integer with sign (large value range)	4 bytes	DPT 13.001	[-2147483648 .. 2147483647]
18	EIS 14	Integer without sign (small value range)	1 bytes	DPT 5.010	[0 .. 255]
19	EIS 14	Integer with sign (small value range)	1 bytes	DPT 6.001	[-128 .. 127]
20	EIS 15	Character string (14 ASCII characters)	14 bytes	DPT 16.000	

**Appendix 14: DTP (data point types)**

Item	Data type	Description	Resolution	EIS type	Value range
1	DPT 1.001	Switching	1 bits	EIS 1	[0 .. 1]
2	DPT 1.001	Switching	1 bits	EIS 2	[0 .. 1]
3	DTP 1.007	Drive control, step (direction) / stop	1 bits	EIS 7	[Up (0) .. Down (1)]
4	DTP 1.008	Drive control, moving (direction)	1 bits	EIS 7	[Up (0) .. Down (1)]
5	DPT 3.007	Dimming (relative)	4 bits	EIS 2	[Brighter .. darker .. stop]
6	DPT 5.xxx	Scaling	1 bytes	EIS 6	[0x .. 255x] (increment size x) [0% .. 100%]
7	DPT 5.001	Dimming value (absolute)	1 bytes	EIS 2	(increment size 0.4%) [0% .. 100%]
8	DPT 5.001	Percentage	1 bytes	EIS 6	(increment size 0.4%) [0° .. 360°]
9	DPT 5.003	Angle	1 bytes	EIS 6	(increment size 1.41°)
10	DPT 5.010	Integer without sign (small value range)	1 bytes	EIS 14	[0 .. 255]
11	DPT 6.001	Integer with sign (small value range)	1 bytes	EIS 14	[-128 .. 127]
12	DPT 7.001	Integer without sign	2 bytes	EIS 10	[0 .. 65536]
13	DPT 8.001	Integer with sign	2 bytes	EIS 10	[-32768 .. 32767]
14	DPT 9.xxx	Floating point number	2 bytes	EIS 5	[-671088.64 .. 670760.96]
15	DPT 10.001	Time	3 bytes	EIS 3	
16	DPT 11.001	Date	3 bytes	EIS 4	
17	DPT 12.001	Integer without sign (large value range)	4 bytes	EIS 11	[0 .. 4294967296]
18	DPT 13.001	Integer with sign (large value range)	4 bytes	EIS 11	[-2147483648 .. 2147483647]
19	DPT 14.xxx	Floating point number (high accuracy)	4 bytes	EIS 9	[- 3.4028*10 <sup>38</sup> .. 3.4028*10 <sup>38</sup> ]
20	DPT 16.000	Character string (14 ASCII characters)	14 bytes	EIS 15	