

ARENA / RANGER

User Guide



ARENA / RANGER

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USER GUIDE

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OVERVIEW

ARENA is a Windows® based software package that provides an easy-to-use graphical interface to monitor and operate HVAC applications applying LonWorks technology.

A typical application is, for example:

- A Commercial building using plant controllers for primary plant control such as air handling units, heating circuits or boilers

In ARENA, such a running application is also called "Site".

Via a LON interface, ARENA provides full access to:

- Plant controller data (datapoints, time programs, alarms, application parameters)

Some of the many features available are listed below:

- Monitoring and access of HVAC system (district heating, heating and ventilation plants)
- Viewing temperatures and valve positions
- Enhanced alarming with history files, reports and statistics
- Alarm servicing facilities such as
 - alarm notifications from remote controllers and/or remote ARENAs
 - alarm routing to different destinations (email, printer, other ARENAs) based on time of day and criticality
- Providing global time programs for individual overrides with displaying three months intervals
 - Schedule Input similar to Microsoft Scheduler
- Multi-Site Management with:
 - Support of connections from a supervisor ARENA to remote sites, where those remote sites do not require an ARENA installation
 - Direct connection to up to 4 local sites with up to 4 LON interfaces
 - Remote sites management with iLON 10
 - Remote ARENAs with local site(s) management
 - Remote ARENAs with iLON 10 sites management
 - Operation depending on individual privilege
 - Maximum of 100 sites can be managed
 - Alarming depending on source, condition and target information, alarm filtering
 - Manual Alarm Clearence
 - Trending depending on device, plant and segment
- Log data from your HVAC systems
- Complete Backup and Restore Functions
- Improved Graphic Editor for life graphic with animated pictures and direct operating links

ARENA is designed to be used on a standard PC. The primary purpose of the ARENA program, is to gather a wide variety of data and display it to the user in an easy to understand graphical format for viewing and easy operation.

Should a device be in alarm condition, the ARENA user has only to select the device in question, to be taken to a screen which will provide more detailed information on the alarm condition. An *Alarm list* screen is also available. This screen lists all alarm incidents and enables the ARENA user to identify, in detail, each controller that activated an alarm signal. The list also contains the reason for the alarm signal, the date and time that the alarm condition occurred and also the date and time that the alarm condition was accepted (acknowledged).

Historical data is available from each device, and can be displayed in either text or graphical format. An example for this is the 24-hour temperature log which provides detailed information of controller data. This provides documentary evidence that buildings have been maintained at the correct temperature, and that the BMS system is running economically. The fact that ARENA stores historical data means that it is possible to analyze the reasons for alarm conditions over a period of a day, a week or a month.

ARENA also offers multi-level password protection to restrict access of unauthorized users.

All adjustments to system operating parameters are logged by ARENA, together with users identification. This access restriction provides a very high degree of system protection against accidental or malicious damage.

ARENA can be equipped with individual graphic data and will be able to display selected information in a graphical environment. The tool to be used to create graphic templates and graphic navigations is the ARENA EDITOR.

ARENA / RANGER Versions

This user guide describes all functions of ARENA and RANGER. For both software products, only the name ARENA is used. Available functions depend on the license as described in the Version Overview table below.

Order Number	Standard	Upgrade	Remote Sites	Local Buses	Nodes per Bus	License Features
CLAR2SL10	x	-	-	4	10	ARENAEditor, Max node count: 10
CLAR2SL99	x	-	-	4	120	ARENAEditor, Max node count: 9999
CLAR2UL99	x	CLAR2SL10	-	4	120	Max. node count: 9999
CLAR2SD99	x	-	x	4	120	ARENAEditor, Remote sites, Max node count: 9999
CLAR2ULD99	x	CLAR2SL10	x	4	120	Remote sites, Max node count: 9999
CLRANGER2	All except: ARENA Editor, graphics, global time program	-	via iLON 10 only	-	120 per iLON 10	-

Order Number Description

- CL = CentraLine
- AR2 = ARENA Version 2.0
- RANGER2 = RANGER Version 2.0
- S = Standard version with basic functions including LON driver for local sites and ARENA Editor
- L = CentraLine LON driver
- U = Upgrade to unlimited nodes
- D = Dial-up
- 10, 99 = Max. number of nodes, 99 = unlimited but restricted by LON bus to 120

Example: CLAR10SL = ARENA Standard version with basic functions including Lon driver for local sites, max. 10 nodes

System Architecture

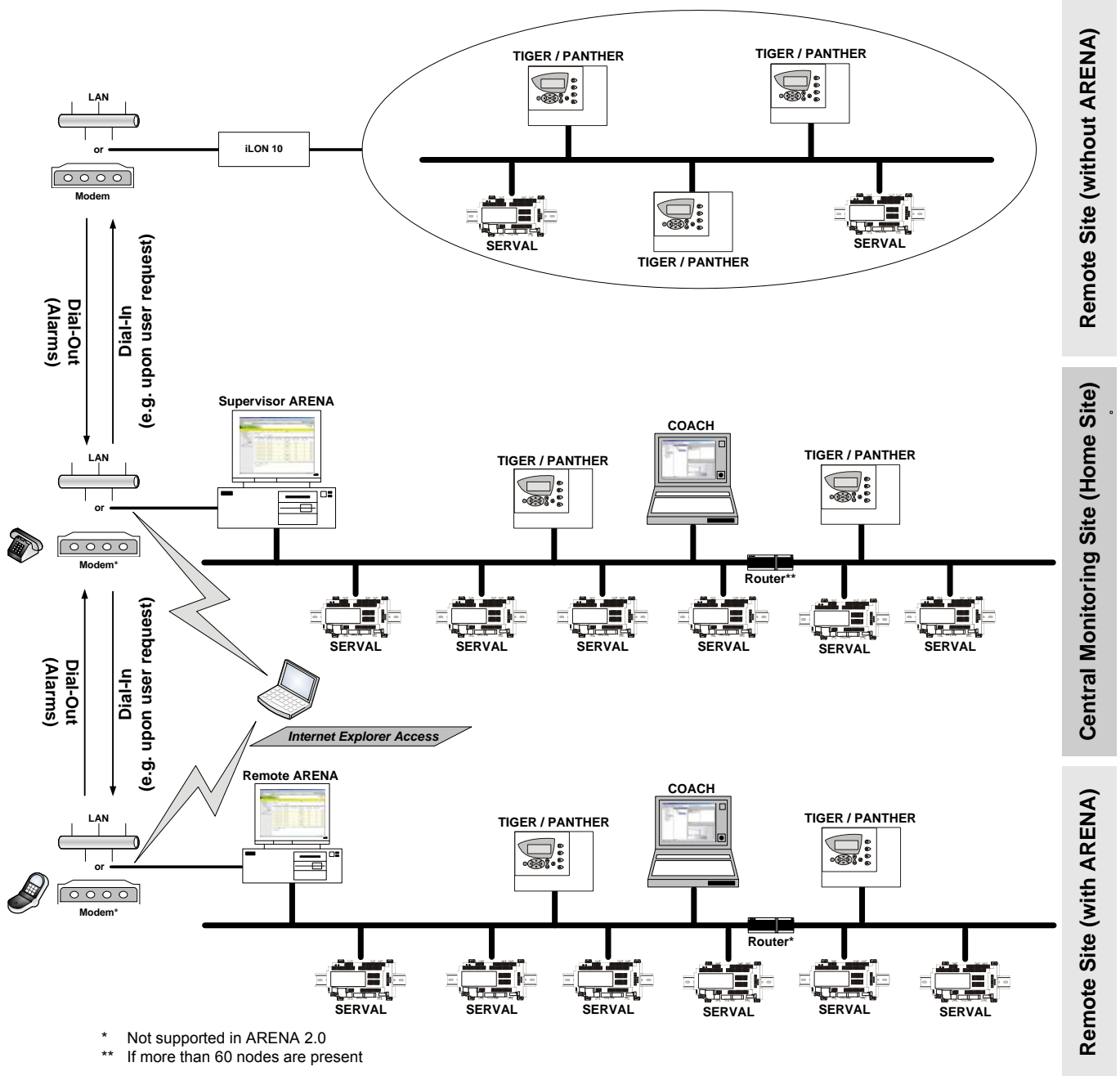


Fig. 1: System Architecture with different scenarios

System Scenarios

The system graphic shows 3 different usage scenarios for ARENA software:

System with Supervisor ARENA (middle)

ARENA acts as central for the local site and as supervisor for the remote site(s)

System with Remote ARENA (bottom)

ARENA acts as gateway between the supervisor ARENA and the local bus. The connection can be established via modem* or any TCP/IP (e.g. ADSL) connection

Stand-alone system without ARENA (top)

No ARENA is available – connection through iLON 10 only

* Not supported in ARENA 2.0

All systems can operate individually and independently or together in a complete system.

Definitions**Site**

A customer installation of communicating controllers. Equals one COACH project.

Local Site

A site which is connected to an ARENA via one of the following LON interfaces:

- PCC10 PC card
- PCLTA-20 PCI (or PCLTA-21 card)
- Loytec NIC709-USB
- Loytec NIC709-IP

Remote Site with iLON 10

A site that can connect to a supervisor ARENA via remote connection

Remote Site with ARENA

A site with ARENA that can connect to a supervisor ARENA via remote connection. The connection is established between the ARENAs.

Remote ARENA

An ARENA that “resides” on a remote PC

Supervisor ARENA

An ARENA that can support multiple connected remote and local sites in parallel.

RANGER

Service tool based on ARENA software for remote iLON 10 sites only.

ARENA User Interface via Internet Explorer

Remote or local control via HTTP connection

ARENA Service

Underlying software application automatically started as Windows service.

Dial-in

Dialing occurs from the supervisor ARENA to the remote site. Dial-in is initiated by the supervisor ARENA.

Dial-out

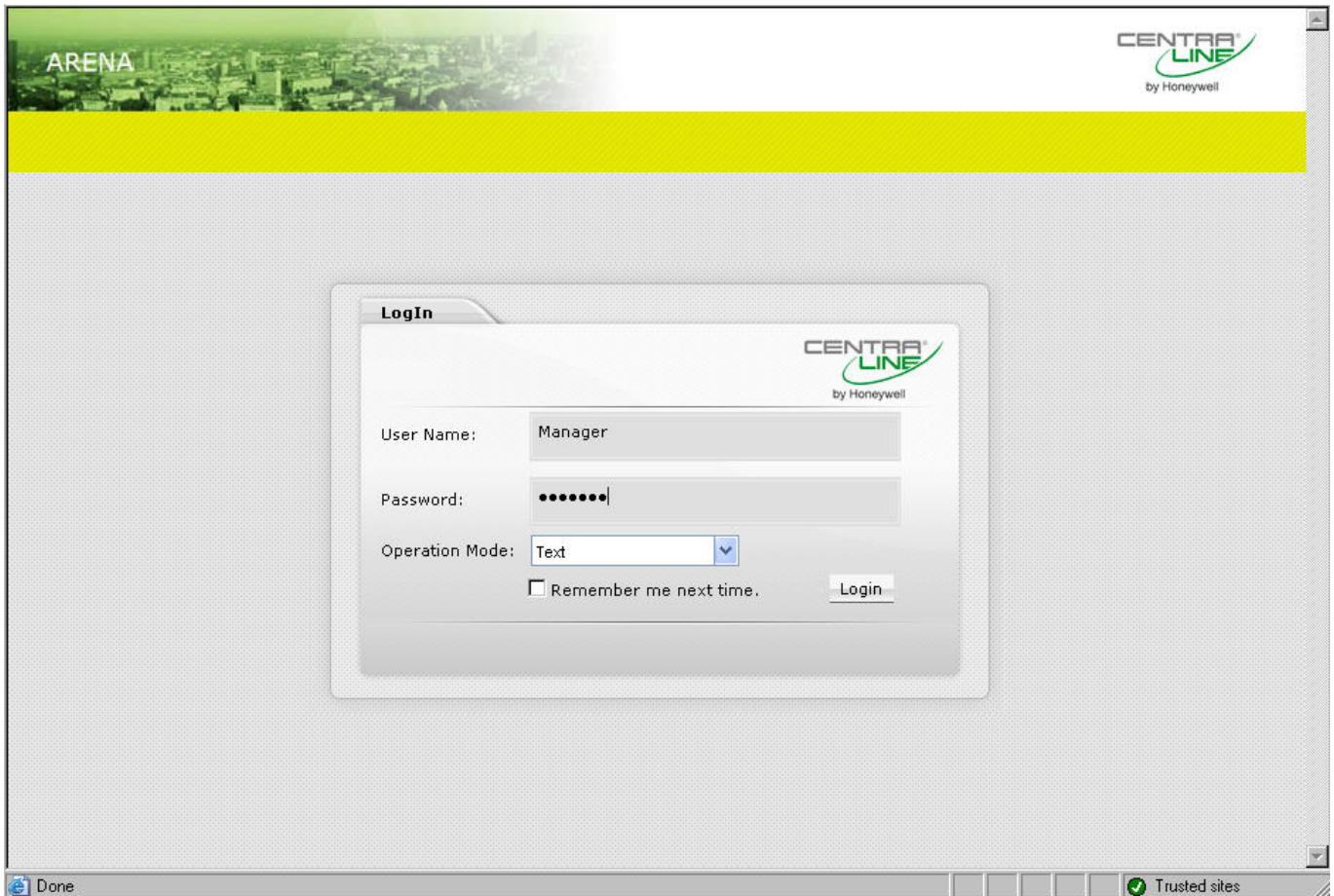
Dialing occurs from the remote site to the supervisor ARENA. Dial-out is initiated by a controller (in case no ARENA is available on the remote site) or by the remote ARENA.

Dial-up

Dial-in or dial-out behavior

START ARENA

1. In Windows **Start** menu, click **Programs**, then click **Centraline** and **ARENA2** or, click the *CL Arena 2.00.00* icon on the desktop.
ARENA is started and the ARENA Login screen is displayed.



2. Enter your **User Name** and your **Password**.
3. In **Operation Mode**, select:
Text, if you want to operate ARENA in the common text-based way (Site tree visible).

In the **Text** operation mode, the default display shows the following:

- Green banner with the CentraLine logo
- Open tree
- Alarm list

Graphic, if you want to operate ARENA by navigation in referencing and animated graphics imported via ARENA Editor.

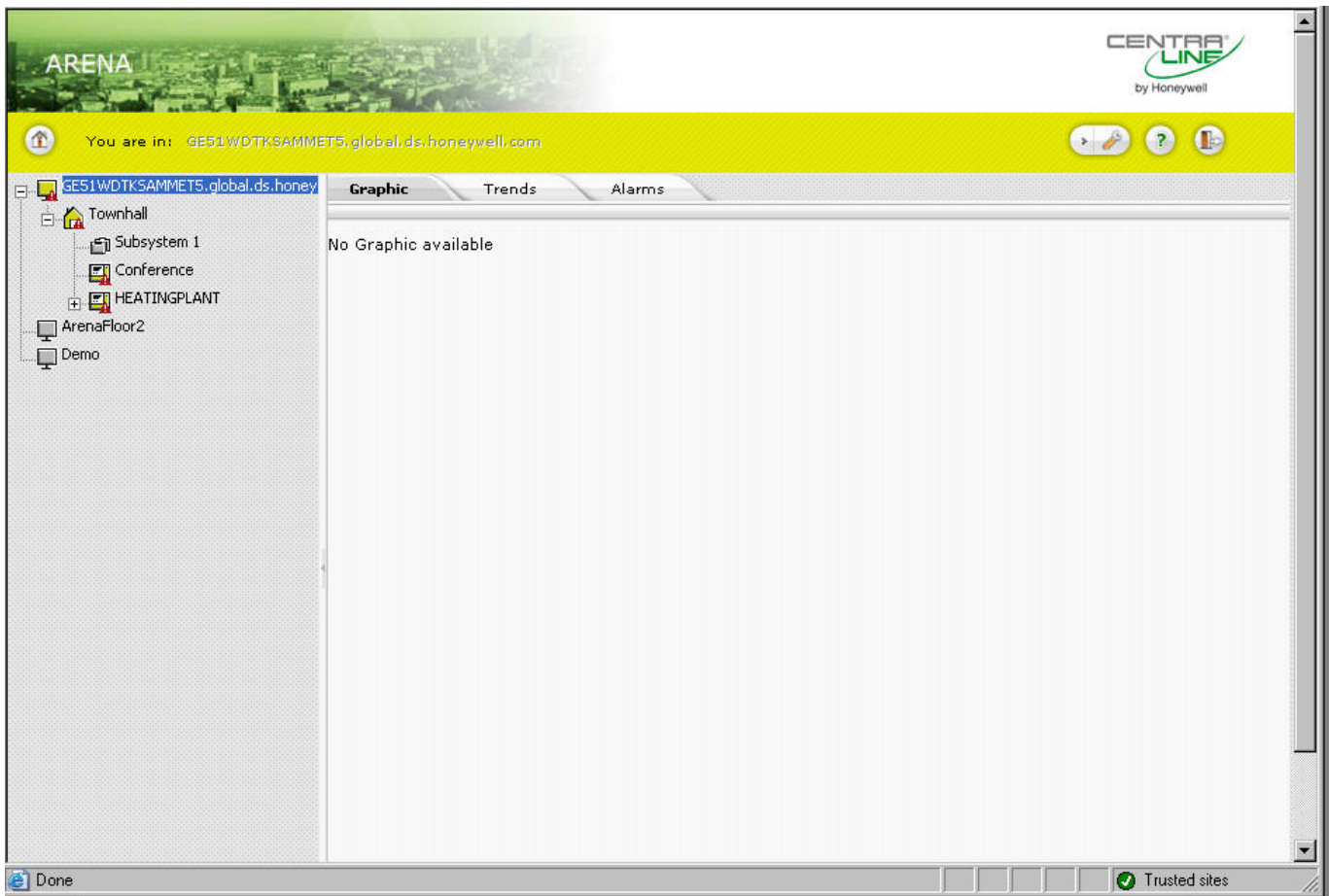
In the **Graphic** operation mode, the default display shows the following:

- Start graphic
- Default tabs: Graphic, Trends, Alarms

The green banner with the CentraLine logo is permanently invisible.

The tree is invisible and can be displayed by clicking the arrow bar on the left-handed separator of the main window.

4. Click **Login** button. ARENA is started and the ARENA main window is displayed.



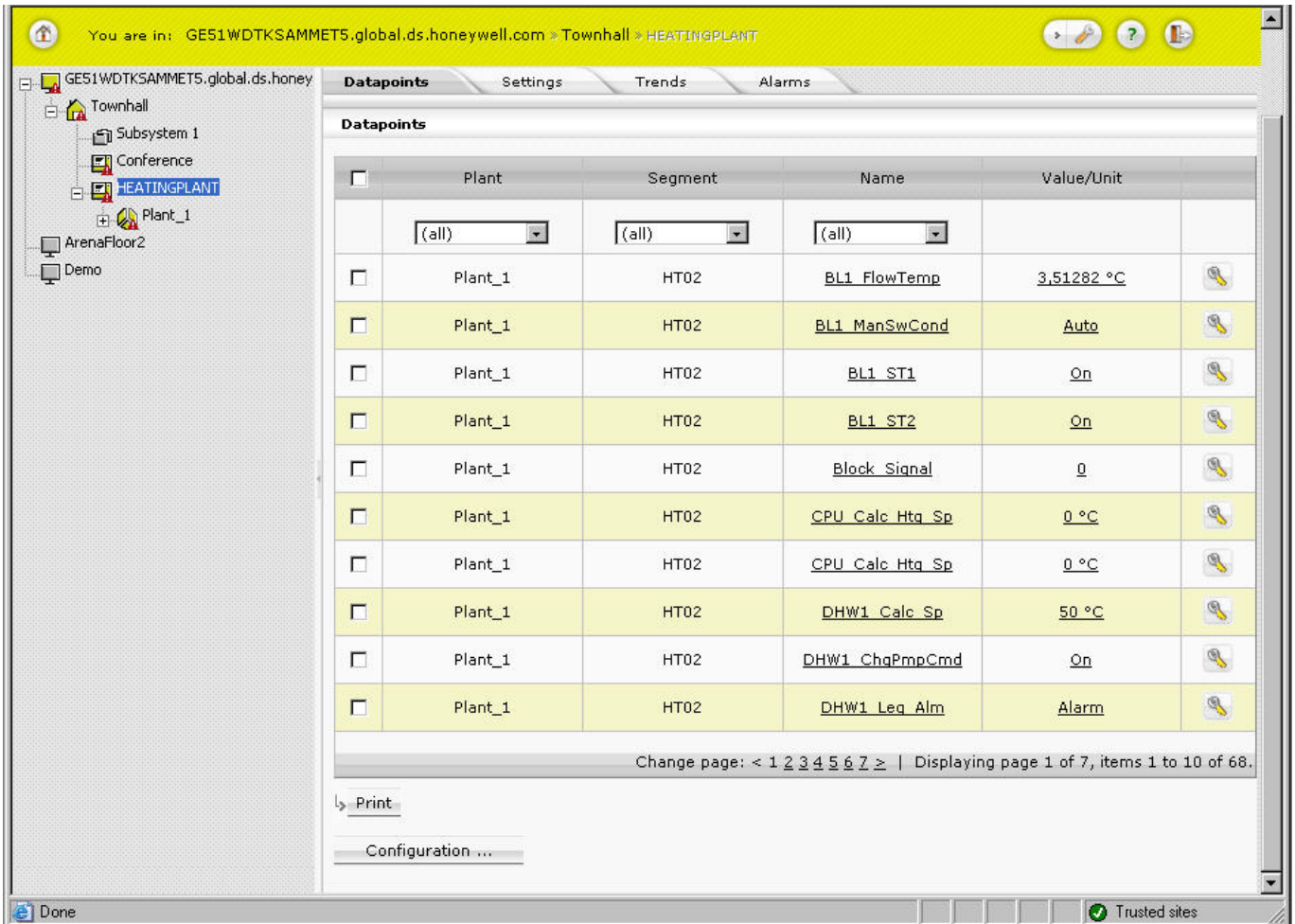
For detailed description of the main window and its functions, please refer to "ARENA Environment" section.

ARENA ENVIRONMENT

Main Screen Description and Basic Functions

Main Screen Description

The *Main* screen provides two basic panes, the site selection pane, in the following simply named site tree, and the Information and Editing pane.



Site Tree

The site tree on the left displays all sites (local or remote) of ARENA in a hierarchical tree structure. The tree structure varies depending on the operating mode (online=connected, offline=disconnected) and on the system architecture that is, on whether you are on a local ARENA connecting to a local site or to a remote site with/without ARENA, and other scenarios.

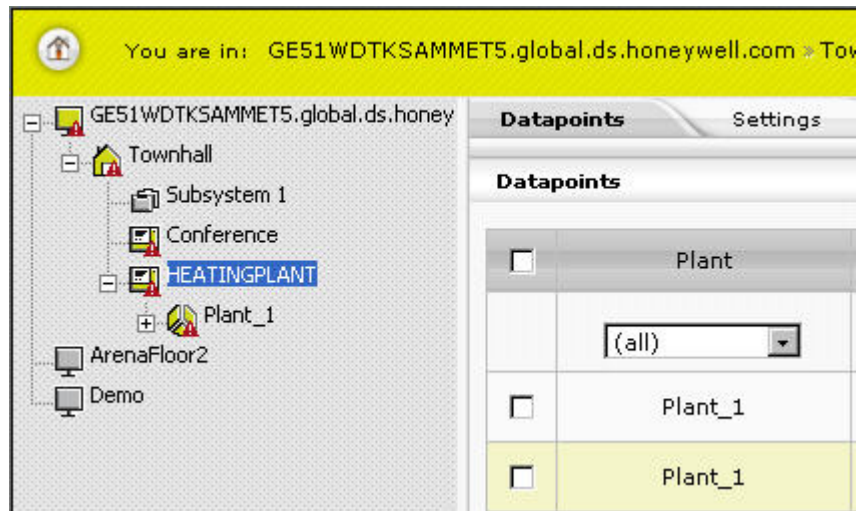
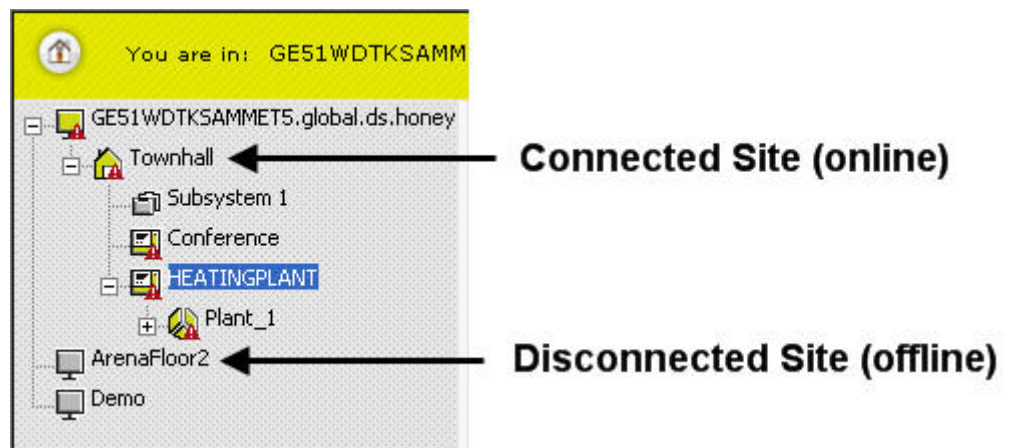



Fig. 2. Site Display Modes in Tree



Depending on the current operating status (online= connected) or (offline= disconnected), the sites are indicated differently. A connected site is displayed in full color; a disconnected site is displayed in transparent color. A red triangle with exclamation mark may appear which indicates an unacknowledged alarm.

Information and Editing Pane

The right pane can show:

- the properties of the selected item in the tree, which may look different depending on the selected item.
- an opened menu, e.g. 'User', selected from the **Configuration** menu .

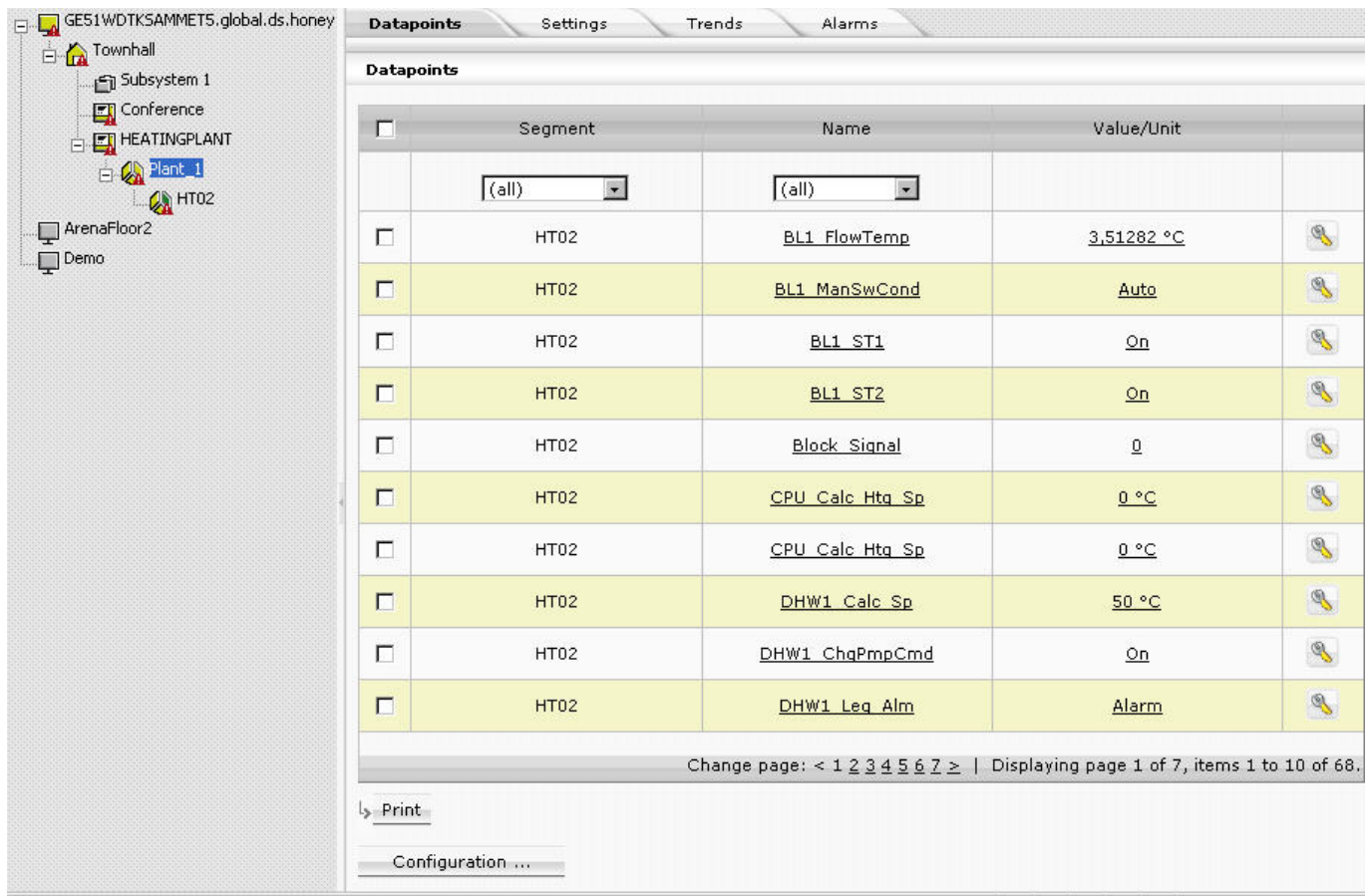


Fig. 3. Example: Tree Item display in the Information and Editing pane



Fig. 4. Example: Menu display in the Information and Editing pane

Sizing the Pane Displays

The size of the pane display can be varied by moving the separator horizontally to the left or right. ARENA will remember the corrected width when coming back or restarting the software.



Collapsing/Expanding the Site Pane

The site pane can be collapsed (hidden) by clicking the arrow bar in the middle of the separator. The hidden site pane can be expanded (made visible) by clicking on the arrow bar on the left-handed separator in the main window.



Tree Navigation

You can navigate through the tree by clicking on tree items, or by clicking the plus-/minus icons at the tree items.

Viewing and Editing Information

To view or edit data and properties of an item, select an item by clicking on the item in the tree, or by selecting the menu in the **Configuration** menu.

In the toolbar, the path of the selected item is displayed

Example:

You are in: GE51WDTKSAMMET.global.ds.honeywell.com » Configuration » User Administration.



On the Information and Editing pane, the corresponding data and properties of the selected item/menu are displayed.

Example: Datapoints display in the Information and Editing pane for a selected (PANTHER) controller.

The screenshot shows a software interface with a tree view on the left and a 'Datapoints' table on the right. The tree view includes 'Townhall', 'Subsystem 1', 'Conference', 'HEATINGPLANT', 'Plant_1', 'HT02', 'ArenaFloor2', and 'Demo'. The 'Datapoints' table has columns for Plant, Segment, Name, and Value/Unit. The table contains 10 rows of datapoints, each with a checkbox and an edit icon.

<input type="checkbox"/>	Plant	Segment	Name	Value/Unit	
<input type="checkbox"/>	(all)	(all)	(all)		
<input type="checkbox"/>	Plant_1	HT02	BL1 FlowTemp	3,410256 °C	
<input type="checkbox"/>	Plant_1	HT02	BL1 ManSwCond	Auto	
<input type="checkbox"/>	Plant_1	HT02	BL1 ST1	On	
<input type="checkbox"/>	Plant_1	HT02	BL1 ST2	On	
<input type="checkbox"/>	Plant_1	HT02	Block_Signal	0	
<input type="checkbox"/>	Plant_1	HT02	CPU_Calc_Htg_Sp	0 °C	
<input type="checkbox"/>	Plant_1	HT02	CPU_Calc_Htg_Sp	0 °C	
<input type="checkbox"/>	Plant_1	HT02	DHW1_Calc_Sp	50 °C	
<input type="checkbox"/>	Plant_1	HT02	DHW1_ChgPmpCmd	On	
<input type="checkbox"/>	Plant_1	HT02	DHW1_Leq_Alm	Alarm	

Change page: < 1 2 3 4 5 6 7 > | Displaying page 1 of 7, items 1 to 10 of 68.

[Print](#)

[Configuration ...](#)

To edit item properties, select tree item, e.g. HEATING PLANT, and then select tab, e.g., *Datapoints*, and click item you want to edit.

Example: Datapoint editing in the Information and Editing pane for a selected datapoint of a PANTHER controller.


Datapoints / BL1_FlowTemp

<input type="checkbox"/>	Name	Value/Unit
<input type="checkbox"/>	Alarm Delay	<u>10 sec</u>
<input type="checkbox"/>	Alarm Hysteresis	<u>1 °C</u>
<input type="checkbox"/>	Alarm Status	Normal
<input type="checkbox"/>	Alarm Text	0
<input type="checkbox"/>	Alarm Type	<u>Critical</u>
<input type="checkbox"/>	Automatic Value	3,410256 °C
<input type="checkbox"/>	Characteristic	NTC (°C)
<input type="checkbox"/>	Engineering Unit	3
<input type="checkbox"/>	High Alarm Limit	<u>145 °C</u>
<input type="checkbox"/>	High Warning Limit	<u>140 °C</u>
<input type="checkbox"/>	Low Alarm Limit	<u>-45 °C</u>
<input type="checkbox"/>	Low Warning Limit	<u>-40 °C</u>
<input type="checkbox"/>	Manual Mode	<u>Auto</u>
<input type="checkbox"/>	Manual Value	<u>3,410256 °C</u>
<input type="checkbox"/>	Point Descriptor	Boiler1
<input type="checkbox"/>	Sensor Offset	<u>0 °C</u>
<input type="checkbox"/>	Suppress Alarm	<u>Generate alarms</u>
<input type="checkbox"/>	Technical Address	1/1/1
<input type="checkbox"/>	Trend Cycle Counter	<u>0</u>


Print Back

Values can be edited by clicking on the corresponding value which opens a dialog for editing the value.

Logout

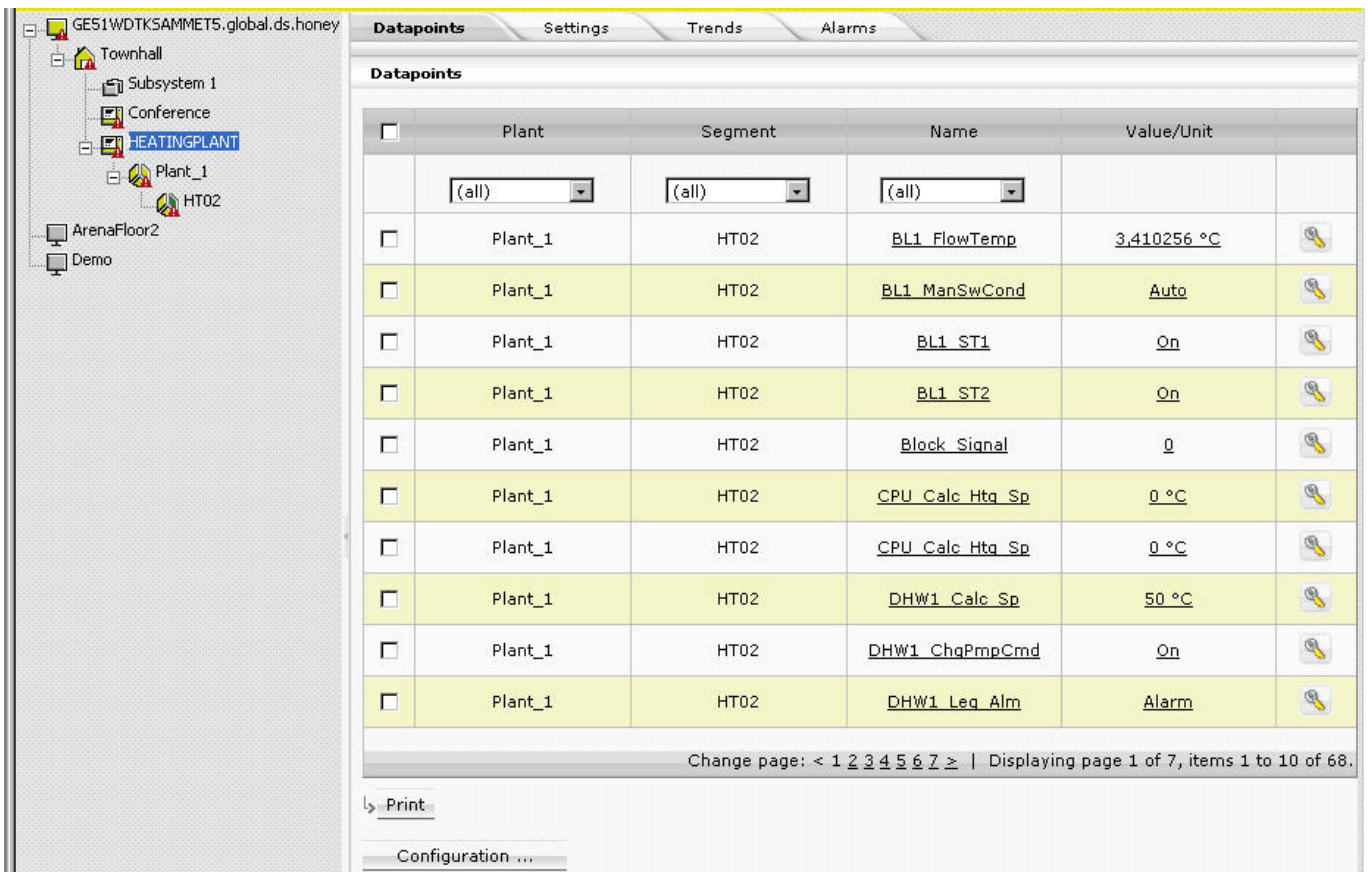
By clicking the *Logout* icon , you can logout.


Context Sensitive Online Help

Clicking on the *Help* icon  displays the ARENA online help in PDF format.

Basic Functions

The properties of a selected item in the tree, for example, a PANTHER controller, are displayed on tabs on the right pane.



Depending on the user privileges, data can be modified by clicking the appropriate buttons, such as Print, Save, Delete, etc, or by using allocated icons, for example the **Configure** icon  of a datapoint.

An underlined item in a list indicates that this entry links to a further dialog showing more details of the item.

By clicking on the entry, you can edit details of the selected item.

For each toolbar button, a tool tip is provided which will be visible while the cursor remains over the button for a few seconds.

Updating Data (Refresh)

Data updates occur automatically and periodically. You can manually refresh data by using the Internet Explorer Refresh function.

Leaving Configure Menu

To switch back from within a view of the Configure menu to the site tree, click on the HOME button.



Saving Data

Saving and discarding changed data is handled by using the following buttons (dependent on the dialog):

OK
Saves changes done in the current dialog

CLOSE / CANCEL
Discards changes done in the current dialog

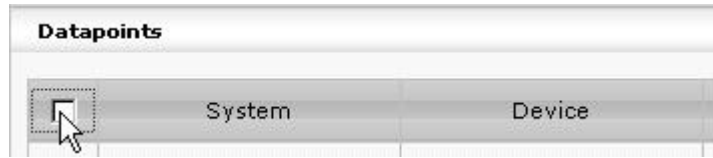
Further Button Functions

NEW / GO / SCAN / DELETE / others

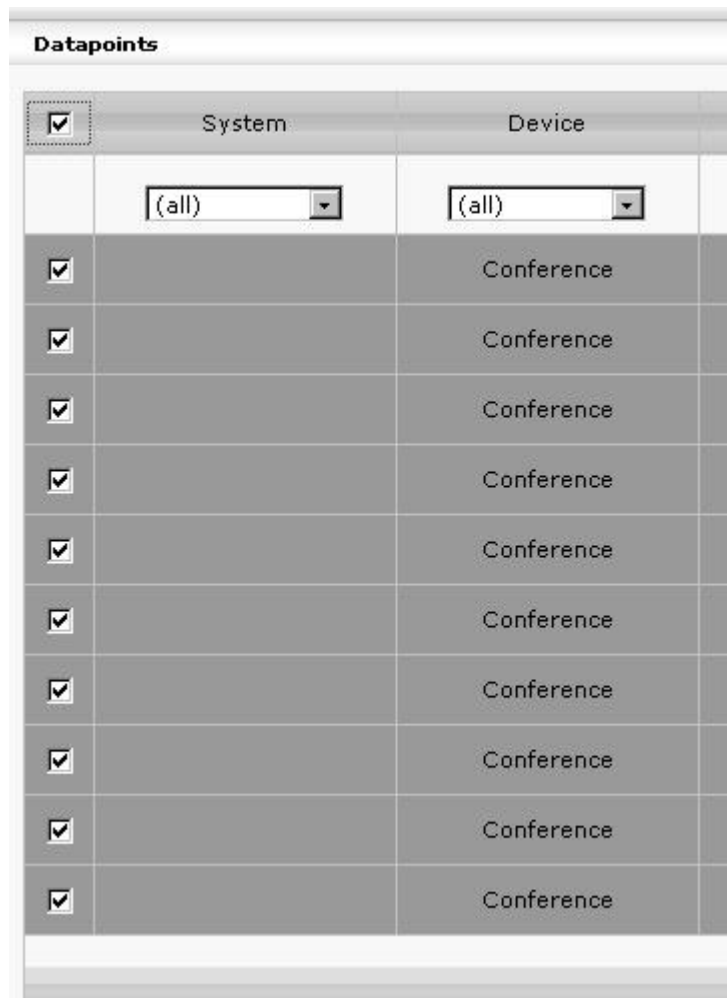
Those kind of specific buttons perform functions as the button name indicates in its functional context.

Multiselection of Items

Clicking the checkbox in the title line of a list,



Simultaneously selects all entries in the list.

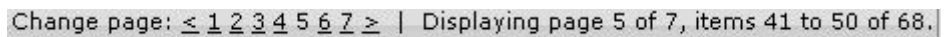


In particular dialogs, multiple items can be selected by using the SHIFT or the CTRL key simultaneously with the mouse clicking.

Page Selection and List Display Configuration

Page selection

At the bottom of each list, the number of pages and number of list items, the currently displayed page and list items are shown.



By clicking on a specific page number you can display a certain page and/or by using the ≤ ≥ icons you can scroll through the page list.

List Display Configuration

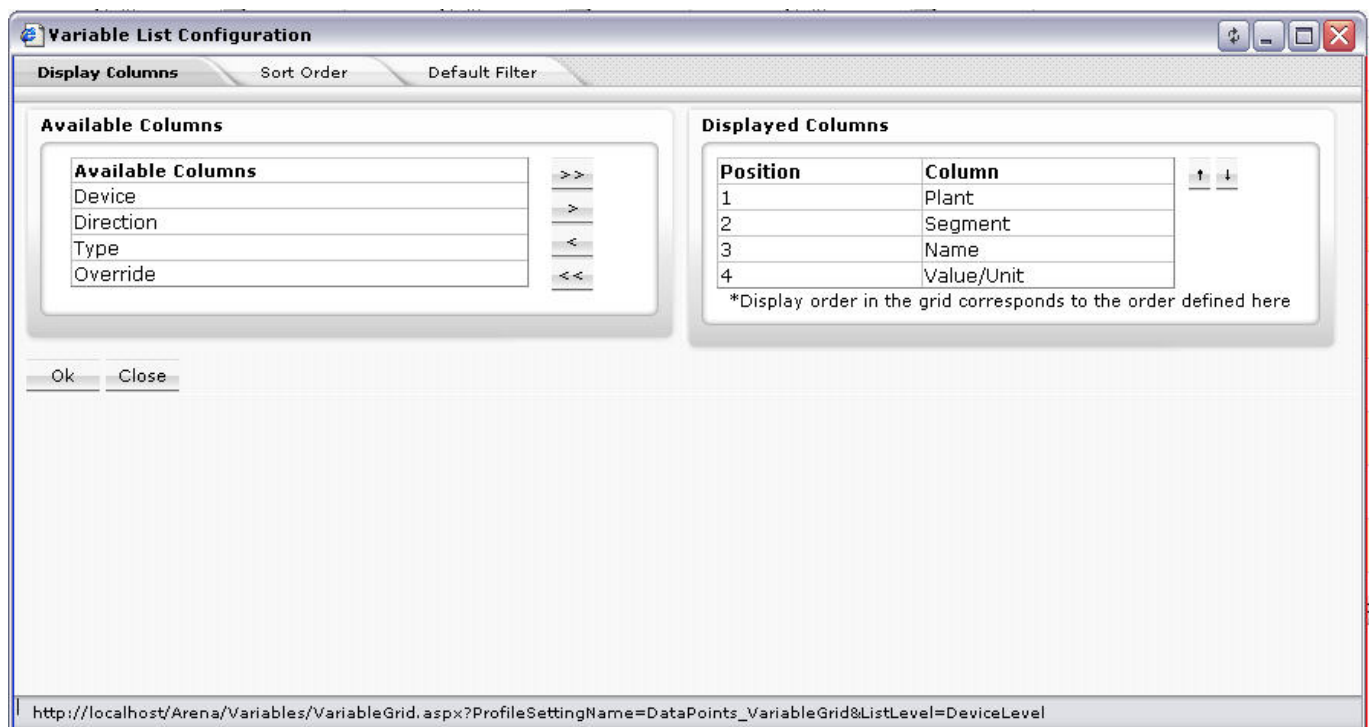
A list configuration, for example of a datapoints list, always applies to all lists of the same kind (in this case all datapoints list) on the same level (site, device, plant, segment). The appearance of a list, for example, a datapoints list, can be defined by configuring the following:

- **Display columns**
Defines, which columns are displayed and in which order the columns are displayed
- **Sort order**
Defines the default sort sequence (ascending or descending) within a column
- **Default filter**
Defines which filter is used by default for the list display

NOTE: The filter definitions apply to all local users of the ARENA.

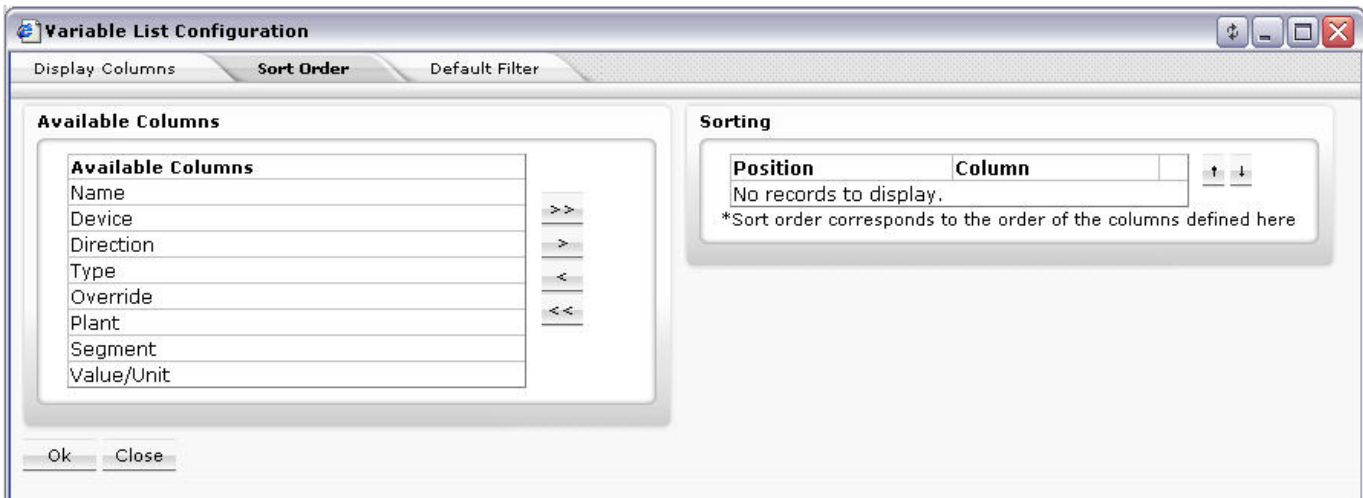
1. At the bottom of the list, click the **Configuration** button.
The *Variable List Configuration* dialog box displays.
2. To configure the columns displayed and their sort sequence, click the *Display Columns* tab.

Under *Available columns*, all columns that can be displayed at maximum are listed. Under *Displayed Columns*, all currently displayed columns are listed. The column display will be configured by moving the columns between the *Available Columns* and *Displayed Columns* tables using the angle brackets under *Available Columns*. The sort sequence of the displayed columns will be configured by using the upward and downward buttons under *Displayed Columns*.



3. To select the columns to be displayed and their sort sequence, move columns between the tables and determine sort sequence by doing one of the following:
 - a. To move single column(s),
In the *Available Columns* list or in the *Displayed Columns* table, highlight the columns to be moved. Multiselection by using the CTRL key is possible.
 - b. Click the single angle bracket button of the desired direction.
Or,
 - c. To move all column(s) in one step,
Click the double angle bracket button of the desired direction.
 - d. To set the sort sequence, that is, the position of the columns within the displayed list, highlight the column in the *Displayed Columns* table.
Multiselection by using the CTRL key is possible.

- e. Click the upward or downward buttons.
4. Click the **OK** button so save settings or continue with:
 - a. Setting the sort order within a column and/or (step 5)
 - b. Setting the default filter display (step 7).
5. To set the sort order within a column, click the *Sort Order* tab.



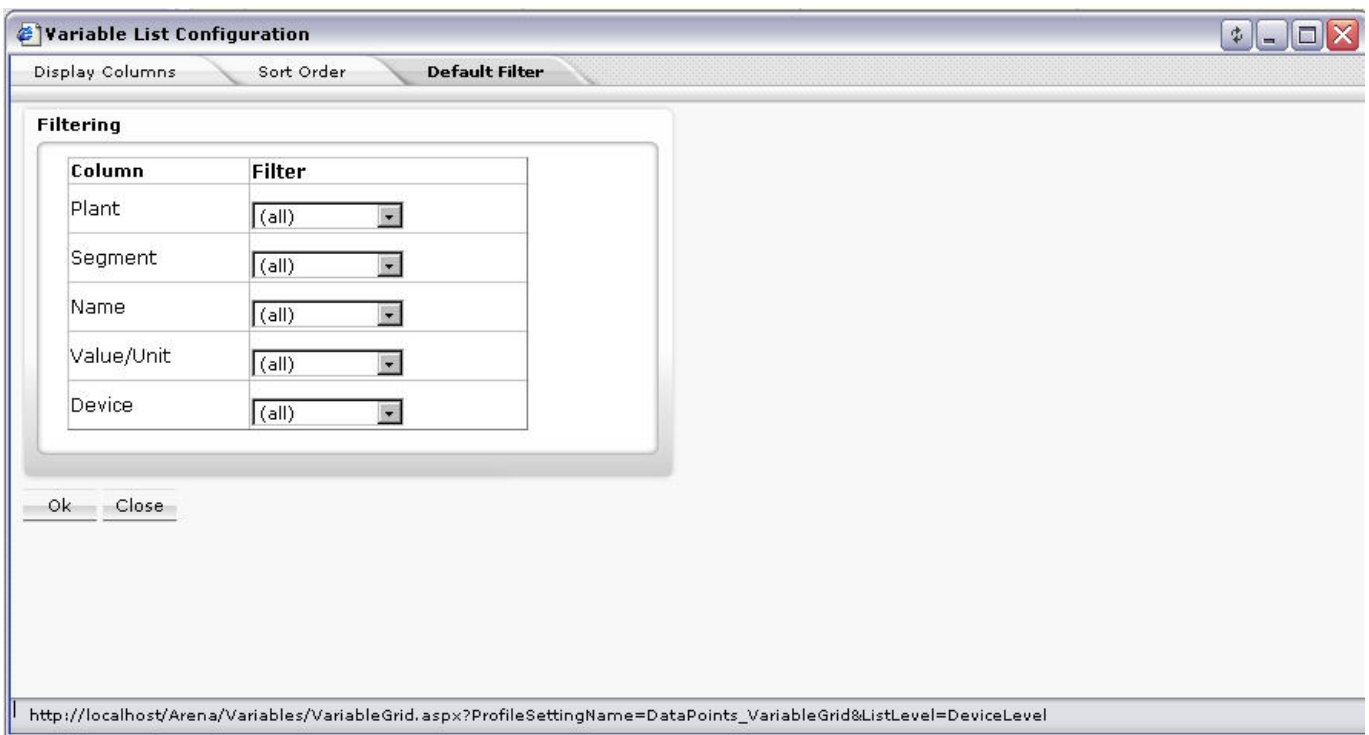
Under *Available columns*, all columns of which sort order can be set, are listed. Under *Sorting*, all columns and their current sort sequence are listed.

NOTE:

By default, all columns are sorted ascending.

The column selection for setting (changing) the sort sequence is done by moving the columns between the *Available Columns* and *Sorting* tables using the angle brackets under *Available Columns*. The sorting priority within the list will be set by using the upward and downward buttons under *Sorting*.

- a. To move single column(s),
In the *Available Columns* list or in the *Sorting* table, highlight the columns to be moved. Multiselection by using the CTRL key is possible.
- b. Click the single angle bracket button of the desired direction.
Or,
- c. To move all column(s) in one step,
Click the double angle bracket button of the desired direction.
- d. To set the sorting priority, highlight the column in the *Sorting* table.
Multiselection by using the CTRL key is possible.
- e. Click the upward or downward buttons.
- f. For each column, select the sort sequence, Ascending or Descending from the drop-down listbox.
6. Click the **OK** button so save settings or continue with:
 - a. Setting the default filter display (step 7).
7. To set the default filter to be used when displaying a list, click the *Default Filter* tab.



Under **Filtering**, all displayed columns of the list and their current filter setting is shown. By default, no particular filter is used (All), that is, all items are displayed. Depending on the column property, e.g. Name or Value/Unit, you can select different particular items which you want to filter for display. You can create a new filter which can be selected here after it has been created elsewhere (see “Create New Filter” section).

- a. In the **Filter** column, select filter from the corresponding drop-down listbox.
8. Click the **OK** button so save settings.

Apply Filter for Display

You can use filters for displaying particular list items of a list.

The filter applied to a list is temporary. The filter setting will sustain until a different pane is selected.

Example:

When applying a filter to a datapoints list, it will remain as long as datapoint panes are opened. After selecting, e.g. ‘Time Programs’, the filter will be deleted.

In a list, for example the datapoints list, by default, no filter is applied to a column which is indicated by the entry ‘(all)’ in the field below the column title.

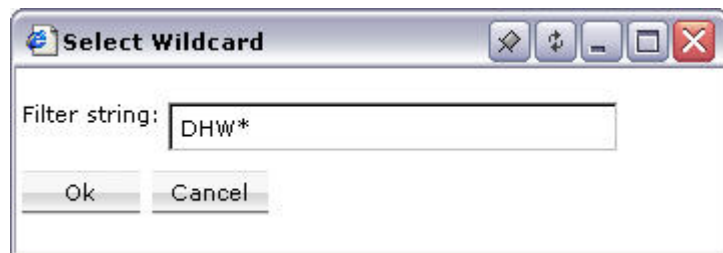
Name
(all) ▾
<u>BL1 FlowTemp</u>
<u>BL1 ManSwCond</u>
<u>BL1 ST1</u>
<u>BL1 ST2</u>
<u>Block Signal</u>
<u>CPU Calc Htg Sp</u>
<u>CPU Calc Htg Sp</u>
<u>DHW1 Calc Sp</u>
<u>DHW1 ChqPmpCmd</u>

1. To apply a filter, click in the field and do one of the following:
 - a. select the filter criterion, for example, 'Digital' in the *Type* column if you want to display digital datapoints only.

Type	Direct
(all)	(all)
(all)	
Analog	
Digital	
PseudoAnalog	
PseudoDigital	
Totalizer	
FlexPoint	
PseudoPulse	
RemoteAnalog	
RemoteDigital	
Analog	Outp
Analog	Outp
Analog	Outp
Analog	Outp
Analog	Outp
Analog	Outp
Analog	Outp

Or,

- b. if no filter criteria are available, click **New Filter**
- c. In the *Select Wildcard* dialog box, enter the Filter string by using the asterisk and click **OK** button.



For example, the filter string 'DHW*' displays only datapoints of which name starts with 'DHW'.

Name
DHW*
DHW1 Calc Sp
DHW1 ChgPmpCmd
DHW1 Leg Alm
DHW1 ManSwCond
DHW1 SST Alm
DHW1 Temp
DHW1occ
DHW1tsp

Usage of Illegal Characters

It is forbidden to use the following characters when working with ARENA:

- Slash character "/" in alias names
- Special characters and Umlauts Ä, Ö, Ü, ä, ö, ü in site names when creating sites. After creation of the site, you can change a site name in the tree using these characters.

Using any of these characters may result in an unexpected behavior of ARENA.


Date and Time Format Display Settings

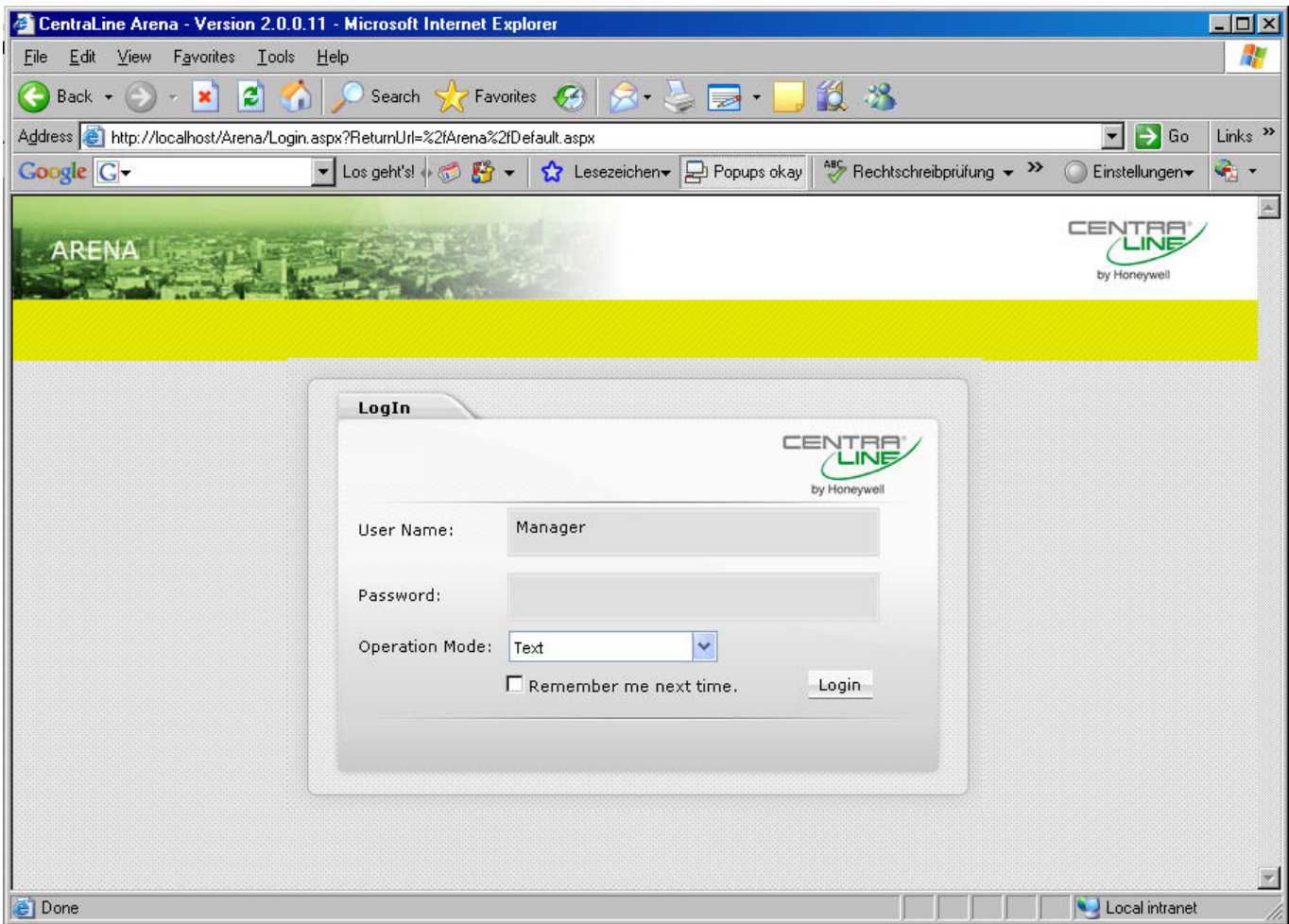
The display of date and time as it used in various lists within ARENA depends on the language settings for the browser. To get the desired format displayed, set the corresponding language to the highest priority as described in the "Internet Explorer/General" section of the ARENA Installation Guide EN1Z-0906GE51.

ARENA APPLICATION


The ARENA application includes the following main software components:

ARENA user interface

The ARENA user interface for viewing and operating ARENA is invoked by clicking the *CL Arena 2.00.00* program icon  on the desktop. This will start the Internet Explorer.



ARENA Service

The underlying software of ARENA is the service, named ARENA service or simply service. This service is accessible in the system tray and is indicated there as square service icon . The actual operating mode of the service is indicated by different colors of the service icon:

- Green = Service is running
- Red = Service has stopped
- Yellow = service being started or stopped

Via right mouse-click on the service icon, the following basic functions, are available:

NOTE: As long as the service is running, all online changes will be stored to the ARENA database (e.g. trend data will be collected) even if the ARENA user interface is not started.

About

Shows the version information of ARENA.

Backup / Restore

Backups / restores the complete ARENA database including all settings and customized configuration

Editor Export

Exports the complete site information into a file that is needed to make assignments for a graphic via the ARENA Editor.

Licensing

Invokes the licensing dialog for registering ARENA. The service is restarted after a license has been changed.

Service

Starts / stops ARENA and shows its status information (Running, Stopped). In addition, an optimize disc space command is available.

Exit

Stops the service and shuts down ARENA.

Show ARENA Version Information

1. In the system tray, right-click on the *Service* icon.
2. In the context menu, click **About**.

RESULT: The *About CentraLine ARENA* information box displays showing the actual used version of ARENA.

3. After you have read the version information, click **OK**.
-

Backup / Restore

Backing up a project copies the ARENA database information in one single file to a backup directory. Restoring the database retrieves a copy of the database to place it in the PC. This procedure is useful if the PC files are corrupt or if changes were made that need to be erased.

Backups and Restores can only be done locally and complete. It is not possible to backup/restore parts of the ARENA database because "large info" as trends and alarms can be deleted from the backup before doing it or after restoring it. Backups contain the graphic pages too. Backup/Restores via Web are not possible.

Data can be restored from a previously back upped database. If a backup is done with a previous ARENA 2.xx version, it will be automatically upgraded.

NOTE: This Backup / Restore function restores ARENA data only but not controller data like time programs and settings.

1. In the system tray, right-click on the *Service* icon.
2. In the context menu, click **Backup / Restore**.
3. For backups, click the *Backup* tab, for restores, click the *Restore* tab.
4. Browse to the folder where you want to save/open the database.
5. For backups, click **Backup** button, for restores, click **Restore** button.
6. In case a message box displays, confirm the message by clicking **OK**.

NOTE: In order to perform an ARENA database backup, it is necessary to be logged onto the PC with administrator privileges.

NOTE: When performing a backup, the ARENA service is stopped (red color of service icon) and restarted (green color of service icon) after finishing the backup. During the backup phase, the ARENA user interface cannot be operated.

Export Data to ARENA Editor

You can export the complete site structure (incl. time programs) from a running ARENA into a file.

Then, the file can be opened in the ARENA Editor to allow picking the information for the data bindings. The names of the items (e.g. sites, controllers, datapoints, NVs, etc.) are displayed in a tree as in ARENA and can be picked. Changing of alias names in ARENA will not be reflected in the graphics and after the renaming in ARENA, the data binding will still work.

1. In the system tray, right-click on the *Service* icon.
2. In the context menu, click **Edit** or **Export**.

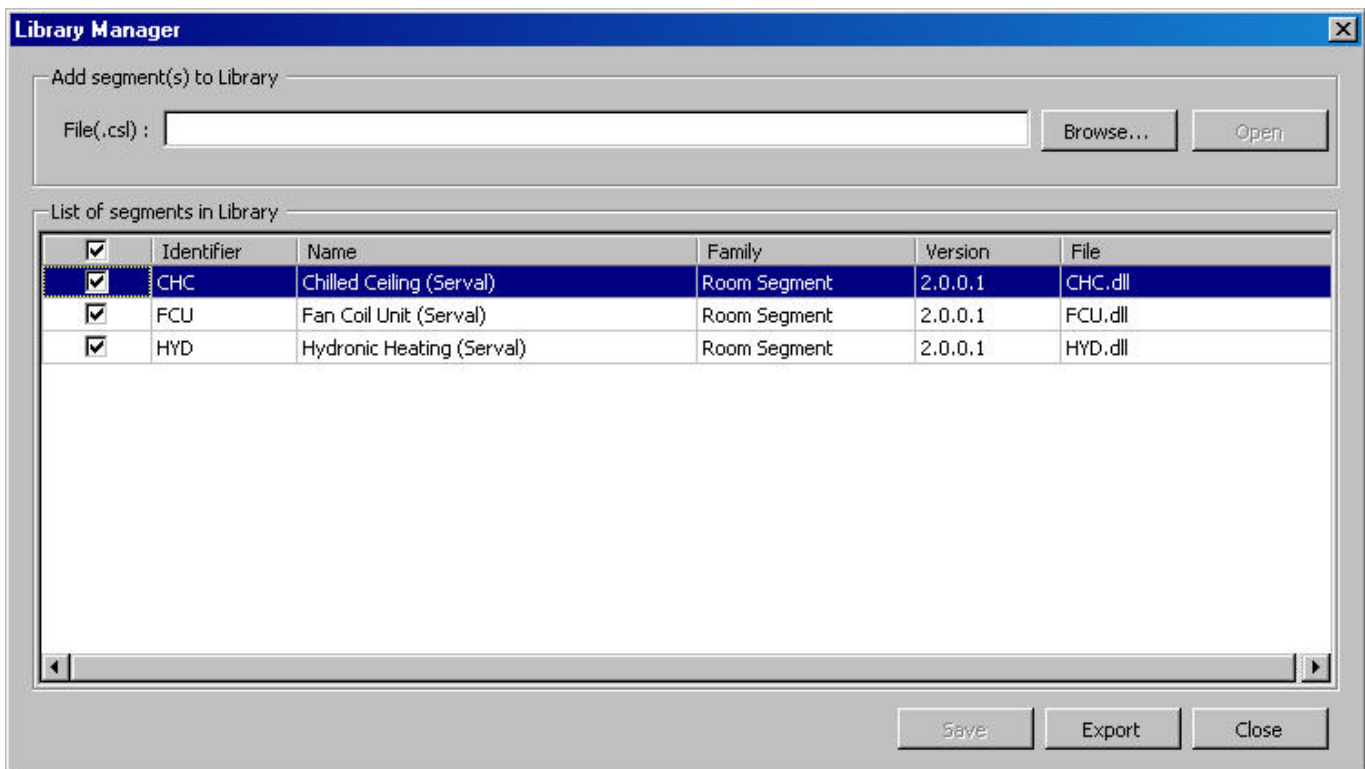
3. Right to the **File** field, browse to the folder where you want to save the export file.
4. Click **Export** button.
5. Click **Close** button.

Manage Library

With this function, you can manage the library content and the view of the library components (configurable standard applications, room controls, segments).

To start and work with the library manager, do the following:

1. In the system tray, right-click on the *Service* icon.
2. In the context menu, click **Manage Library**. The *Library Manager* dialog box displays.



2. Under *List of segments in Library*, for each library component, the following information is displayed:
 - Identifier (for internal use only)
 - Segment Type
Name of the library component as displayed in the library view
 - Family
Family which the component belongs to. The family name determines the folder in which the component is inserted.
 - Version
Version of the library component. In COACH multiple versions of the same library component can be handled simultaneously.
 - File
File name (.DLL).
3. To determine which library component is visible or hidden in the library view, check the checkbox in the first column for a library component you want to shown and uncheck the corresponding checkbox if you want to hide the library component.
4. To import new or other segments via .CSL file, click **Browse** and select the CSL file. Then click **Open**. CSL files are provided by Honeywell Centraline and

can include new library components or segment updates of existing library components.

NOTE: You cannot create CSL files by your own.

After the import is finished all library components, included in the CSL file, are added to the list.

5. Apply step 3. for the imported library components.
6. Click **Save**, and then click **Close**.

Licensing

1. In the system tray, right-click on the *Service* icon.
2. In the context menu, click **Licensing**.

For detailed information on Licensing, please refer to the ARENA installation guide EN1Z-0906GE51.

Start / Stop Service

1. In the system tray, right-click on the *Service* icon.
2. In the context menu, hover over **Service**, then click **Start** if the service has stopped and you want to restart the service, or, click **Stop**, if you want to stop a running service.

The *Service* icon turns to red when the service has been stopped and to green when the service has been started.

3. To view the current operating status, click **Status** in the **Service** menu. The status is displayed in the *Service* dialog box. You can still Stop and Start the service here. Click **Stop** or **Start** button if desired.
4. To optimize disc space, click **Status** in the **Service** menu, then click **Optimize** button in the *Service* dialog box.

NOTE: As long as the service is running, all online changes will be stored to the ARENA database (e.g. trend data will be collected) even if the ARENA user interface is not started.

Exit

1. In the system tray, right-click on the *Service* icon.
2. In the context menu, click **Exit**.

The *Service* icon is no longer available, other when stopping the service. To redisplay the service icon, click **Start>Programs>Autostart>CL Arena Monitor**.

ARENA Configuration Menu

Several functions for basic configuration settings (e.g. user administration, password settings, etc.) are provided in the ARENA configuration menu. The access to the configuration menu depends on the user privileges. The following functions are available:

Site

Provides site management functions such as creating, editing and deleting sites.

User

Provides the user administration for creating, editing, and deleting users.

Alarming


Provides alarm forwarding functions.

Password

Allows the user to change its own password.

Trending

Provides basic pre-setting functions for executing trends.

NOTE: To exit the configuration menu, click the Home button  .

USER ADMINISTRATION

The user administration is used for creating users and assigning particular user privileges (roles) to the users. Administration also includes editing and deleting of users.

Roles and Privileges

A role determines the privileges that the user will have when working with ARENA. A role with its determining privileges is pre-defined and cannot be changed. User privileges of a certain user can be changed by assigning another role. In ARENA, the following role – user privileges combinations are assignable to users:

Role	User Privileges
Manager	Service privileges plus: Creation, edition and deletion of users with lower roles.
Service	Keeper privileges plus: Changes of datapoint attribute, parameters, network variables and time programs. Adjustments for installation and scanning. Alarm acknowledgement. Creation, edition and deletion of users with lower roles
Keeper	Viewer privileges plus: Time program changes (incl. setpoints). Alarm acknowledgement. Creation, edition and deletion of users with lower roles
Viewer	Viewing statistics and reports generation.

As the table shows, the predefined roles are arranged hierarchically and the sequence with descending priority is as follows:

- Manager
- Service
- Keeper
- Viewer

Example:

When assigning the 'Service' role to a user, a user having a role below 'Service', for example 'Keeper', is not able to change datapoint attributes. A user having a role equal to or higher than 'Service', for example 'Manager' is able to change datapoint attributes.

The table shows, that the logged user can create, modify and delete users with a role lower than its own.

User Profile

For each user within a project, a user profile with the following properties will be created:

- User name
- Role (User privilege)
- Password
- Access Restrictions (definable per site local or remote)

A user is identified by its user name.

One of the predefined roles will be appropriately assigned to the user (name). This assignment automatically determines the user privileges, which the user are allowed to execute in the ARENA he is logged in. All users having a role higher than or equal to the assigned role will have this user privilege enabled in ARENA, all others will not.

In addition, a password for each user must be issued for secure operation of ARENA.

Finally, for comfortable remote operation, a user can have an Auto-Logon property assigned that allows logging into the remote site without entering Login name and password again.

Login, Information Access and Password Handling

When entering a site, you must login with user name and password. After logged in, you will see all information that you have access to, based on your role. When you click on items that are unavailable due to your role (e.g. when a service user selects configuration), you are asked for logging in again.

NOTE: Usually, ARENA will not display items/functions that are not available for the current user role. However, in graphics there may be links that require a higher user level (in this case, a login is forced). Also, a login is forced when you enter a direct link to a page in the browser:

You have **not** to login again, even when going to another site (e.g. to an ARENA remote site), as long as on that site a user with the same user name and password exists.

You can change your own password without invoking the User Administration.


IMPORTANT

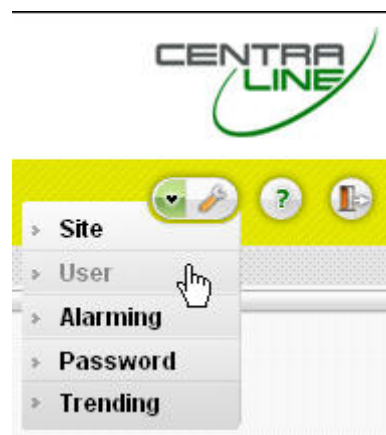
It is strongly recommended to delete default users or change the default password of each role since the password reads the same as the corresponding role.

Invoke User Administration

1. In the tree, select the site, on which you want to administer users, for example to create new users.

NOTE: The user administration can only be invoked from users having privilege level 'service' or higher.

2. Hover the cursor over the Configuration menu icon  and click **User** in the configuration menu.



RESULT: The *Users List* is displayed. Each user is displayed by name, role, and access type. An empty cell in the *Access to* column means that the listed user has access restrictions which can be seen when clicking on the **Edit** button. By default, every default user has no access restrictions as indicated by an asterisk.

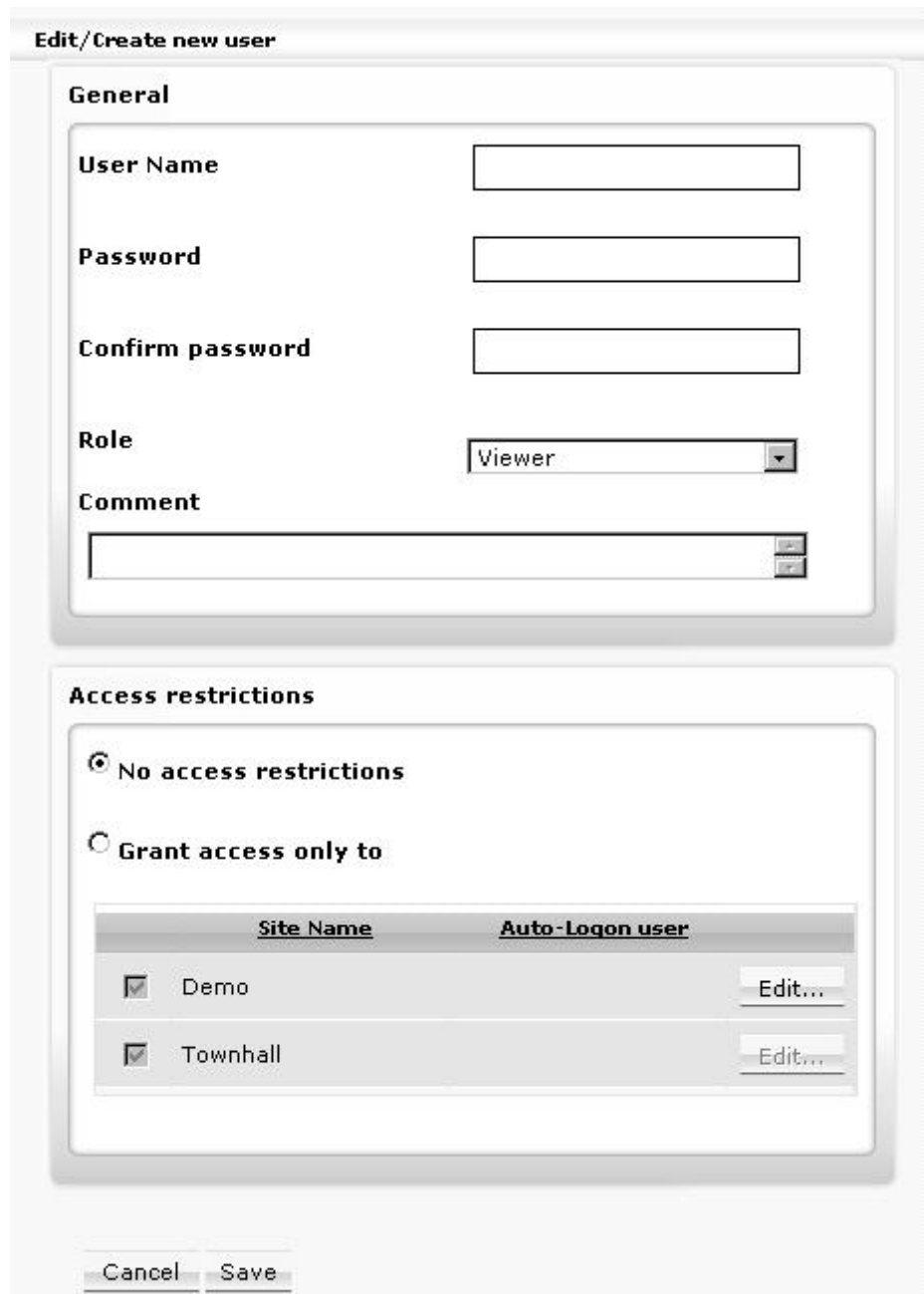
You can create new users and edit and delete users.



Create New User

1. Click Create new user button.

RESULT: The *Edit/Create new user* dialog is displayed.



2. In **User Name**, enter the user name.
3. In **Password**, enter the password.
4. In **Password**, confirm the password by entering the same password.

NOTE: When creating sites that use incoming connections, It is strongly recommended to change the password of default user names such as manager, keeper, etc. which by default reads the same as the user name.

5. In **Role**, select the role for the user.
6. In **Comment**, enter a comment if desired.
7. Under **Access Restrictions**, select from:

No access restrictions

The user has access to all sites on which he already exists and which are displayed in the site tree including remote ARENAs. When a new site is created, the user will automatically have access to it.

Grant access only to

The user has restricted access, that is, the user can access only particular sites.

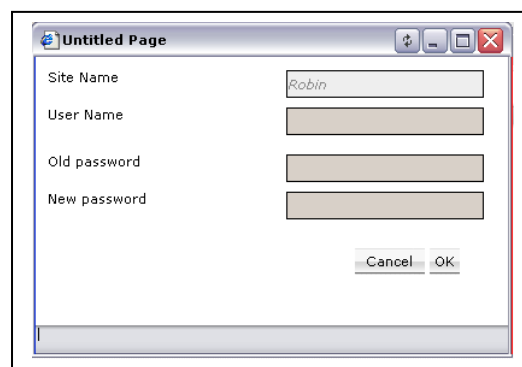
In the list below, all sites are displayed that are known on the site selected in the tree. These sites can be:

- Local sites
- Remote sites via iLON 10
- Remote ARENAs

Sites to which the user has no access are disabled (gray). When the user administration is invoked for a remote ARENA selected in the tree, the users will be administered for that site. Then the sites of the remote ARENA are listed here.

8. In the list below, select the site(s) which the user should have access to by clicking the corresponding checkbox(es).
9. To allow the user (with or without restrictions) entering a remote site without entering user name and password again (Auto-Logon User), click the **Edit** button.
10. In the password dialog, enter the user name and password for the user. If a password has been issued once, enter it in **Old password**. In **New password**, enter a new password.

NOTES: Auto-Logon users can be created only for connections to remote ARENA sites. The user must exist on the remote site and user name and password must match the entries you enter here.



11. In the password dialog, click **OK** button. The user is created and displayed as Auto-Logon user in the column of the same name.

Edit/Create new user

General

User Name

Password

Confirm password

Role

Comment

Access restrictions

No access restrictions

Grant access only to

<input type="checkbox"/>	<u>Site Name</u>	<u>Auto-Logon user</u>	<input type="button" value="Edit..."/>
<input checked="" type="checkbox"/>	Demo		<input type="button" value="Edit..."/>
<input checked="" type="checkbox"/>	Townhall		<input type="button" value="Edit..."/>

12. Click **Save** button.

RESULT: The created user is displayed in the Users list.

Edit User

1. In the Users list, click on the user name you want to edit, then click the **Edit** button in the corresponding line.

RESULT: The *Edit/Create new user* dialog is displayed.

Edit/Create new user

General

User Name

Password

Confirm password

Role

Comment

Access restrictions

No access restrictions

Grant access only to

	Site Name	Auto-Logon user
<input type="checkbox"/>	Demo	<input type="button" value="Edit..."/>
<input type="checkbox"/>	Townhall	<input type="button" value="Edit..."/>

2. Edit desired properties. For description of the properties, please refer to the "Create New User" section.
3. Click **Save** button.


Delete User

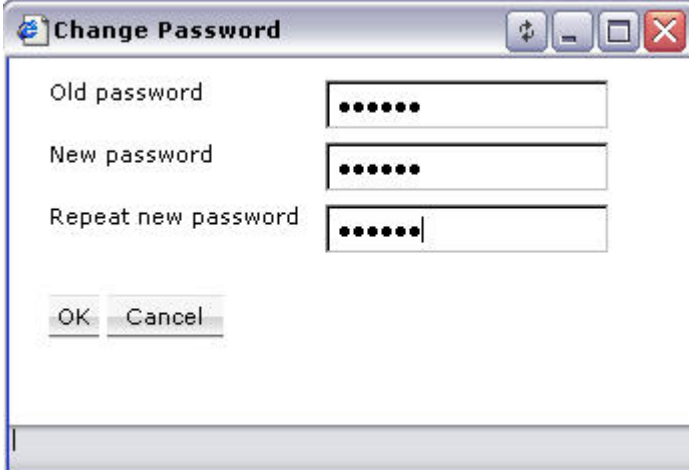
1. In the Users list, click on the user name you want to delete, then click the **Delete** button in the corresponding line.
RESULT: The user is deleted and removed from the list.

Change Password

IMPORTANT

It is strongly recommended to delete default users or change the default password of each role since the password reads the same as the corresponding role.

1. Hover the cursor over the Configuration icon  and click **Password** in the menu.



The image shows a 'Change Password' dialog box with a title bar containing a globe icon, the text 'Change Password', and standard window control buttons (minimize, maximize, close). The dialog contains three text input fields: 'Old password', 'New password', and 'Repeat new password'. Each field is filled with seven black dots. Below the fields are two buttons: 'OK' and 'Cancel'.

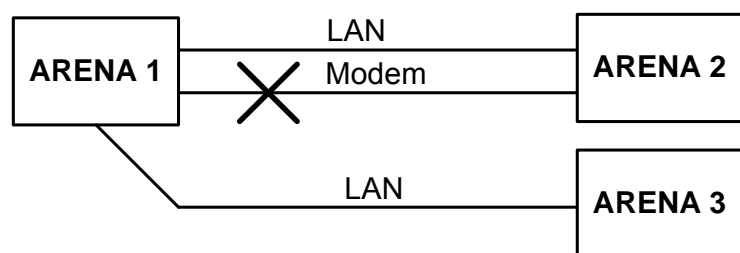
2. In **Old password**, enter the current password.
 3. In **New Password**, enter the new password.
 4. In **Repeat new password**, enter the new password.
 5. Click **OK** button. The password is changed.
- NOTE: You can only change your own password.

SITE MANAGEMENT

Local Site Support	ARENA supports the connection to up to 4 local sites.
Remote Site Support	ARENA supports remote sites, which are connected through iLON 10 or through another remote ARENA. That ARENA is called Supervisor ARENA. Ranger supports remote sites, which are connected through iLON 10 only.
iLON 10 Sites via LAN	ARENA supports remote sites, which are connected through iLON 10. Only one ARENA can be connected at the same time to one iLON 10. If a connection between an ARENA and an iLON is established, a second ARENA cannot connect to the iLON 10. This is indicated by a message.
ARENA / ARENA via Modem*	Connection is only possible if an incoming connection is defined beforehand manually in Windows. <u>Example:</u> ARENA A -> ARENA B connection via modem On ARENA A, configure a remote ARENA B. On ARENA B do nothing. Expectation is that the user does not need to configure on Arena B explicitly an incoming connection.
Connection Types	Arena can establish a remote connection either via modem dialing or LAN connection. ARENA differentiates between these two connection types. Depending on the infrastructure, ARENA supports opened connections in parallel. <ul style="list-style-type: none"> • Modem connection After ARENA restart, ARENA will not automatically establish a connection to a remote site. • LAN connection After ARENA restart, ARENA will automatically establish a connection to all reachable remote sites

⚠ CAUTION

Two ARENAs are only allowed to be connected via one connection type, LAN or modem. That is, it is not allowed to connect two ARENAs to each other in multiple ways, for example, via LAN and modem.



Connect Sites	You can manually connect to a site. The manual connection can be established via right-click on the site in the site tree.
Disconnect Sites	You can manually disconnect ARENA from a local or remote site and disconnect all local or remote connections.
	Automatic Disconnection of Modem Sites ARENA supports an automatic disconnect mechanism for sites connect via modem: After a definable time, ARENA pops up a dialog that asks you if you want to remain connected. You can decide whether to “remain connected for another X minutes” or to disconnect. X is the predefined connection time, which is changeable in the popup dialog. If you do not react for a defined reaction time (e.g. 60 s), the

* Not supported in ARENA 2.0

connection is automatically terminated. Automatic disconnection prevents “forgetting to close a connection”. It is used for modem connections only.

NOTE: If a remote site is disconnected, the supervisor ARENA has a time out of up to 2 minutes before the tree gets refreshed to indicate offline state.

Site Combinations

The max. of 100 sites can be arranged in one supervisor ARENA system. In the following several major site combinations are described briefly:

• **ARENA → iLON 10 (via Modem)**

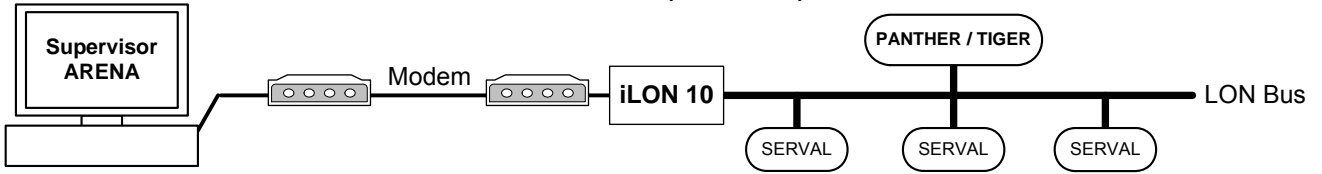


Fig. 5. Site Combination ARENA → iLON 10 (via Modem)

- Remote maintenance and alerting (alarms)
- Dial-up always occurs manually. Dialing will be automatically interrupted after 20 min.
- In case of iLON 10 dial-up, dialing will be automatically interrupted after the alarms has been sent
- During connection, live trend is possible
- PANTHER / TIGER alarms cause the iLON 10 to dial-up
- SERVVAL alarms are generated and displayed by ARENA during connection.
- If there is a connection to the remote site, alarms will be forwarded

• **ARENA → iLON 10 (via LAN)**

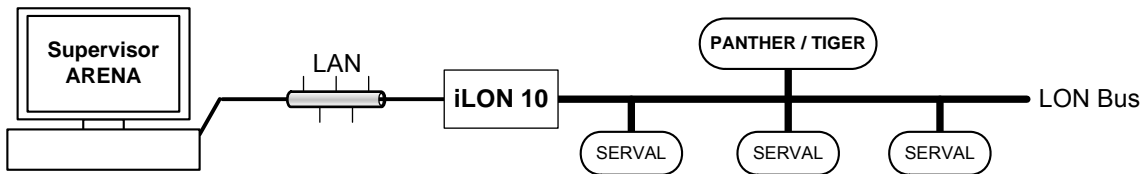


Fig. 6. Site Combination ARENA → iLON 10 (via LAN)

- Remote maintenance and alerting (alarms)
- After ARENA is started, a connection to all participants will be established which can be reached via LAN, and then the alarms will be sent.
- Historical trend und live trend is possible
- Automatic re-connection after LAN disconnection

• **Supervisor ARENA → ARENA (via LAN, local bus only)**

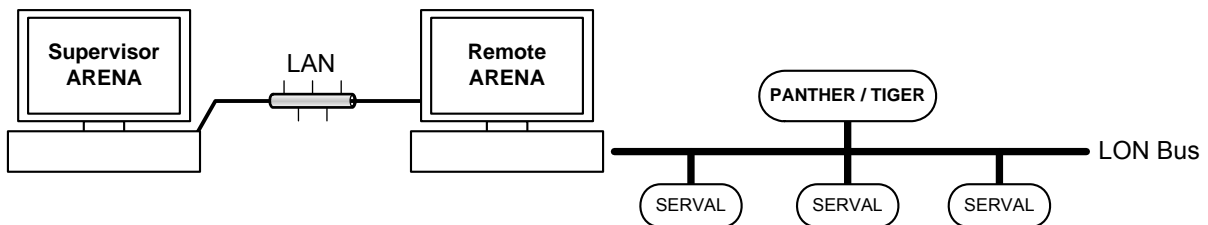


Fig. 7. Site Combination ARENA → ARENA (via LAN)

- Example for a supervisor ARENA which centrally connects data of one or multiple remote ARENAs.
- Remote maintenance
- Connection via modem oder LAN
- Alarming

- Settings such as graphic, alias, etc. done in the supervisor ARENA apply only to the supervisor ARENA itself and are independent of settings done in a local ARENA
- Online value changes through Remote control: last wins
- Trending

• **Supervisor ARENA → ARENA (remote iLON 10 via Modem)***

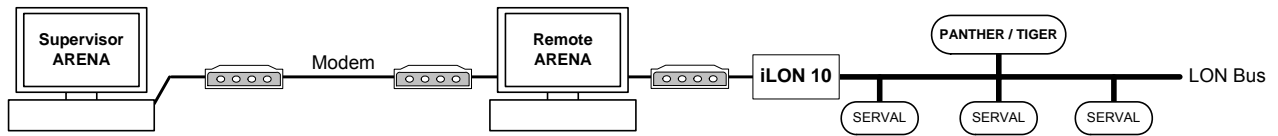


Fig. 8. Site Combination ARENA → ARENA (remote iLON 10 via Modem)

- Example for a supervisor ARENA which centrally connects data of one or multiple remote ARENAS
- Remote maintenance
- Connection via modem oder LAN
- Alarming
- Settings such as graphic, alias, etc. done in the supervisor ARENA apply only to the supervisor ARENA itself and are independent of settings done in a local ARENA
- Online value changes through Remote control: last wins
- Trending

• **Supervisor ARENA → ARENA (remote iLON 10 vial LAN)**

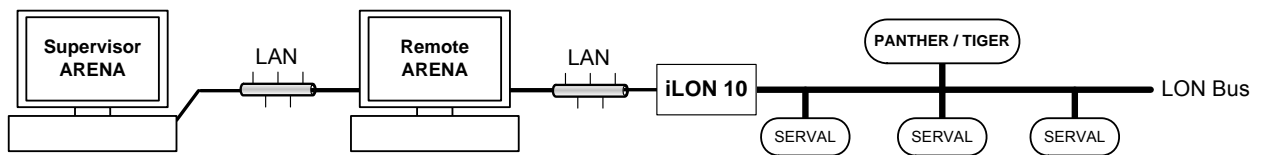


Fig. 9. Site Combination ARENA → ARENA (remote iLON 10 via LAN)

- Example for a supervisor ARENA which centrally connects data of one or multiple remote ARENAS
- Remote maintenance
- Connection via modem oder LAN
- Alarming
- Settings such as graphic, alias, etc. done in the supervisor ARENA apply only to the supervisor ARENA itself and are independent of settings done in a local ARENA
- Online value changes through Remote control: last wins
- Trending

Switching between Sites

You can switch between sites using the site tree presenting all configured sites. You can switch to a remote site either with or without connecting to the site (Offline). When connecting to a site without physically connecting to it, only historical trend and alarm data will be available. This means that a supervisor ARENA will be able to store alarms and trend from other sites. When switching to a local site, you will be automatically connected.

System Limitation

One ARENA per local plus one iLON 10
At the same time, only one ARENA can access an iLON 10 (no parallel access possible).

Remote Site with ARENA

ARENA, that is, an ARENA that resides on a remote site, allows incoming connections either via modem dial-in or via any other TCP/IP connection supported

* ARENA-ARENA connection via Modem not supported in ARENA 2.0

by Windows. Setting up a remote access connection is done via the Windows Creating New Network Connection procedure.

Remote ARENA via serial modem*

For modem dial-up the Westermo TD33 is supported. The modem connection is only supported for dial into a remote iLON 10.

⚠ CAUTION

Do not switch off or disconnect a modem when operating a modem-connected site. This causes a malfunction and as a result the need to reboot the PC.

TIP:

Connect PC and modem to the same power supply. In case of a general power failure, PC and modem will be restarted simultaneously.

User Authentication and Access on Remote ARENA

The user is identified by its user name and password. According to the users' role, the user can have defined access to particular functions (viewing, editing, etc.).

Connection to Remote ARENA through Stand-alone Browser or Supervisor ARENA

A connection to a remote ARENA is possible:

- through a browser: Internet Explorer 6.0 or higher
- through another ARENA, i.e. Supervisor ARENA

A supervisor ARENA can connect to remote ARENAs via

- TCP/IP
- ARENA-ARENA Dial-up*
- VPN

Display remote ARENA within Supervisor ARENA

When connecting from a Supervisor ARENA, the Supervisor ARENA shows the Web-front end of the remote ARENA in the same way as if it was locally connected. The site name is displayed on top of each page, so that you know on which site you are currently working.



Remote Site Configuration via Browser

Remote sites can be configured in the same way as local sites, that is, e.g. it is possible to:

- Change trend settings
- Import description files

For detailed information on Internet Explorer settings when using ARENA as client, please refer to "How to operate ARENA / RANGER from a Client PC" in the ARENA / IRANGER Installation Guide, EN1Z906GE51.

Concurrency of Connections

A remote ARENA can send out an alarm while a supervisor ARENA has dialed in. This requires the connection of 2 modems.

Trigger a remote connection to Supervisor ARENA

A remote ARENA is able to trigger a connection via LAN to a Supervisor ARENA in order to send out an alarm.

Timeout after Disconnection

If the remote site of an ARENA-ARENA via LAN site combination is disconnected, the supervisor ARENA has a time out of up to 2 minutes before the tree gets refreshed to indicate offline state.

Remote Site with iLON 10

Remote sites with iLON 10 allow incoming connections for a Supervisor ARENA. Connection through a stand-alone browser is not possible.

User Authentication and Access on Remote Site

The user is identified by its user name and password for the modem or LAN connection.

Initial Setup of the Remote Site's Communication Settings

The configuration of the iLON 10 needs to be done via the Supervisor ARENA. In order to save the iLON 10 configuration in ARENA it is necessary to be connected to it. It is sufficient to do one of the following:

- send the initial setup to the remote site upon the first dial-in or via a web browser interface which is accessible on the Supervisor ARENA
- configure the iLON 10 gateway device in the office prior to installation using a software tool

Remote Site Display

Connecting the Supervisor ARENA via iLON 10 shows the Web front-end of the remote site in the same way as if the ARENA is locally connected. The site name is displayed on top of each page, so that you know on which site you are currently working.

Dial out from a remote site via iLON 10 to a Central Supervisor ARENA

The remote site dials out to a Supervisor ARENA in one of the following events:

- a critical alarm has occurred
- a uncritical alarm has occurred
- a new critical alarm has occurred before elapsed lockout time

After a dial-out, a lockout time elapses (24 h) to prevent high telephone costs through frequent dial-outs. New dial-outs can only occur after the lockout time has expired, except if a new critical alarm has occurred.

For each event, the logout time is reset. The lockout-time is synchronized between controllers.

Dialing iLON 10 Destinations

iLON 10 only dials-out to one Central Supervisor ARENA

Alarm Forwarding

The supervisor ARENA provides an option to forward alarms to different destinations at different times. Configuration for alarm forwarding, see the "Alarm Forwarding" section.

Supervisor ARENA

Monitoring Remote Sites**Authentication of remote sites on supervisor ARENA**

When remote sites dial out to a supervisor station, they must provide user name and password. Connection is only successful if the remote site can be authenticated by the supervisor ARENA. This is secured for dial out of an ARENA or iLON 10.

Handling of incoming Calls by the Supervisor PC

The supervisor station accepts incoming connections from at least one remote site in parallel to the locally connected sites and in parallel to an established dial-in connection to a remote plant. This means that at least 2 modems can be connected. This secures, that even if a remote site is dialed-up or connected by LAN, the Supervisor station is still able to receive alarms from other sites.

NOTE: Only Microsoft XP limits the number of installed modems.

Access to trend / alarm buffer information

When monitoring remote sites, trend and alarm buffer information can be accessed by all users. For remote sites with iLON 10 the following information can be accessed:

- Alarm buffer
- Trending can be done only while online (live trend)

Trend data upload from sites of a remote ARENA

Trend data stored on the remote site can be uploaded and merged into the Supervisor ARENA's trend database for remote sites with ARENA. Upload occurs

when trend data are requested for display from the remote site and this data is not already available in the Supervisor ARENA's trend database.


Alarm data upload from sites of a remote ARENA

Alarm data stored on the remote site is unloadable and can be merged into the Supervisor ARENA's alarm database upon any user request (manual upload).

Timeout after Disconnection

If the remote site of an ARENA-ARENA via LAN site combination is disconnected, the supervisor ARENA has a time out of up to 2 minutes before the tree gets refreshed to indicate offline state.

Show Sites Overview

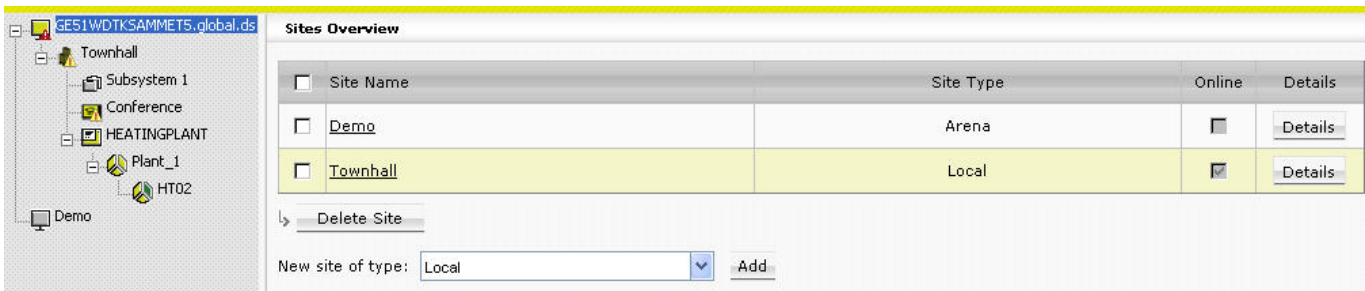
1. Hover the cursor over the Configuration menu icon  and click **Site** in the configuration menu.

The **Sites Overview** displays. Sites are listed by

- Site Name
- Site Type
Local site or remote site with ARENA or iLON 10
- Online (Offline) status
A site which is online is checked in the **Online** column. A site which is offline is not checked.

2. Here you can do the following:

- Create a new site (see "Create New Site" section)
- Edit a site's Details (see "Edit Site Details" section)
- Delete a site (see "Delete Site" section)



Create New Site

1. In the tree, click on the site level where you want to create a new site. The selected level determines the selectable LON interface(s) and site types that can be created on that level (see description in step 2).
2. In **New site of type** on the *Sites Overview* page, select site type from:
 - Local
Creates a local site with ARENA. Site will be connected via the internal or external LON interface. ARENA can operate max. 4 installed LON interfaces in one local PC.

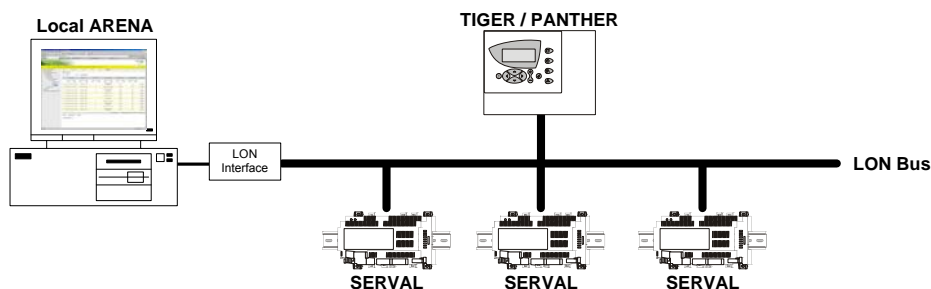


Fig. 10. "Local" Site Type

- Remote through iLON 10
Creates a remote site without ARENA. Site connection is established via modem or TCP/IP. This site type must be selected if you want to connect to a site without ARENA.

NOTE: iLON 10 must be accessible for configuration in order to save the created site.

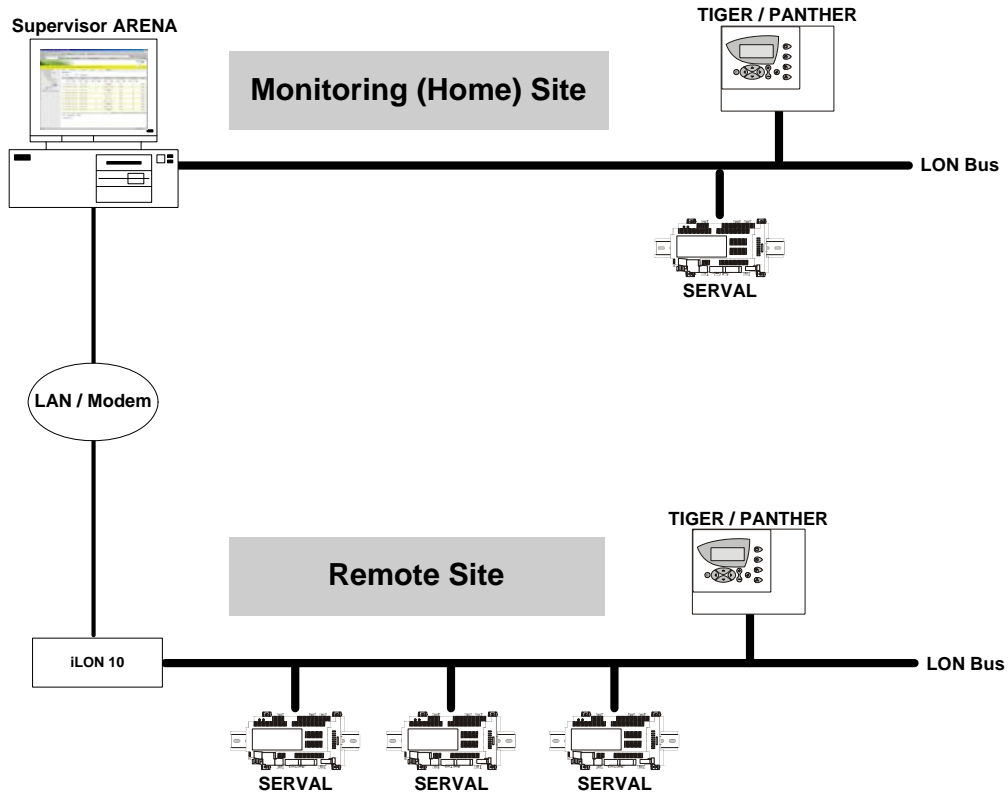
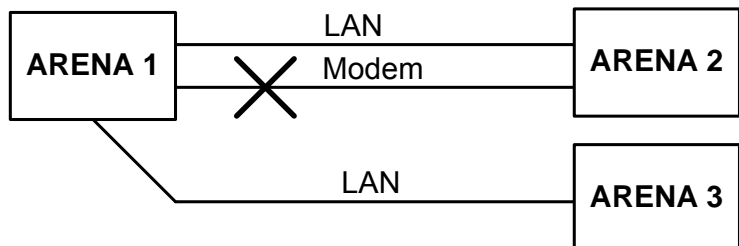


Fig. 11. "Remote Through iLON 10" Site Type

- Remote through ARENA
Creates a remote site to an ARENA. Site connection is established via modem*, TCP/IP, or VPN (virtual private network). This site type must be selected to connect an ARENA to a Supervisor ARENA.

⚠ CAUTION

Two ARENAs are only allowed to be connected via one connection type, TCP/IP, modem, or VPN. That is, it is not allowed to connect two ARENAs to each other in multiple ways, for example, via TCP/IP and modem.



* Not supported in ARENA 2.0

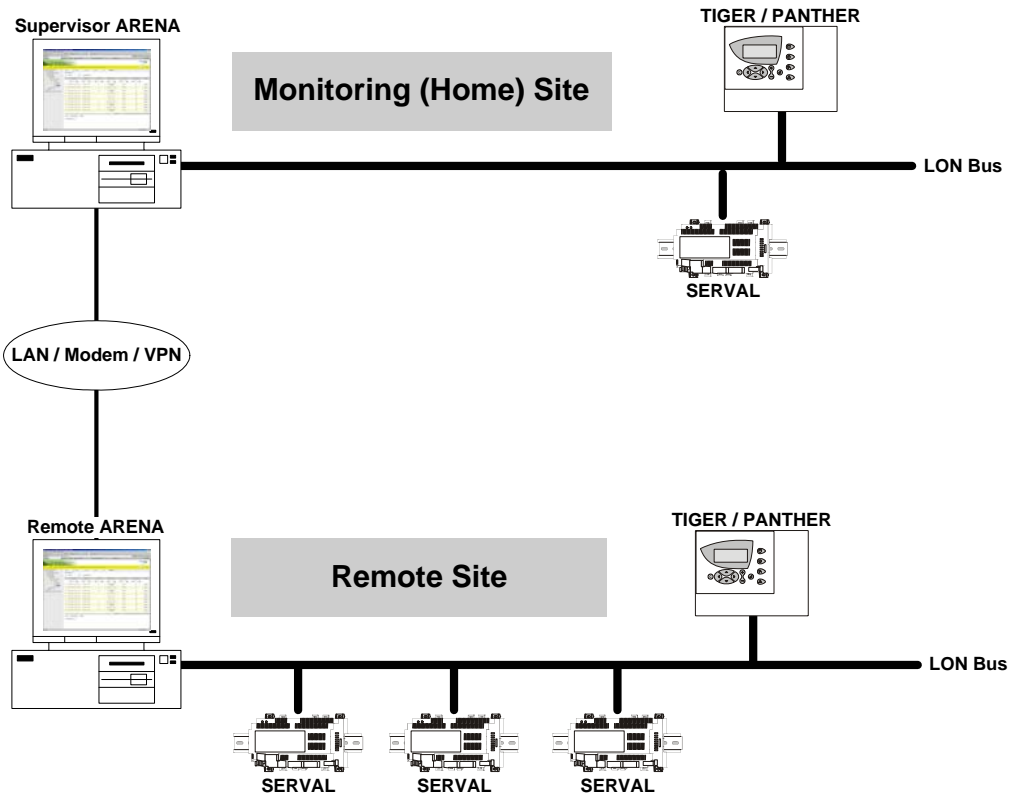


Fig. 12. "Remote Through ARENA" Site Type

3. Click the **Add** button.
 Depending on the selected site type, individual dialog pages display for setting up the site.
 When creating a local site, continue with "Create Local Site" section.
 When creating a remote site through iLON 10, continue with "Create Remote Site through iLON 10" section.
 When creating a remote site through ARENA, continue with "Create Remote Site through ARENA" section.

Creating Local Site

1. If not already done, select 'Local' in **New site of type** on the *Sites Overview* pane, and then click the **Add** button.

Site:

<p>General</p> <p>Site Name: <input type="text" value="Townhall"/></p> <p>Site Details: <input style="width: 100%; height: 40px;" type="text"/></p>	<p>Local Connection</p> <p>Connect through: <input type="text" value="LON1"/> ▼</p>
--	---

2. Under **General**, do the following:
 - a. In **Site Name**, enter a name for the site.

NOTE:

It is forbidden to use any of the Umlauts Ä, Ö, Ü, ä, ö, ü in site names because this may result in an unexpected behavior of ARENA.

- b. In **Site Details**, enter optional additional description, e.g. customer name, address, etc.
3. Under **Local Connection**, do the following:
 - a. In **Connect through**, select the LON interface to be used to establish the connection. One LON interface card is required per local site and ARENA supports max. 4 LON interface cards at maximum. If no LON interface is selectable, then all interfaces are in use, or drivers are missing.

NOTE:

If the Arena PC has multiple ethernet adapters installed and iLON 10 via LAN is not connected to the default adapter (typically the one on the board), there is now way in ARENA to define which LAN adapter ARENA should use for the iLON 10.

Workaround:

Open the "\Service\Runtime.Service.exe.config" file.

In the line `<add key="IlonLANInterfaceName" value=""/>`

put the name of the LAN interface into the quotations of 'value' as it is displayed in the *Windows Network Connections* dialog.

Example:

```
<add key="IlonLANInterfaceName" value="Local Area
Connection 2">
```

This will make ARENA use the 'Local Area Connection 2' for connections to the iLON 10.



The entry can stay as it is installed as long as the ARENA PC has only 1 LAN interface card or as long as there are no problems with iLON 10 LAN connections.

4. Click **Save** button.

Create Remote Site through iLON 10

1. If not already done, select 'Remote Site through iLON 10' in **New site of type** on the *Sites Overview* pane, and then click the **Add** button.

Site:

<p>General</p> <p>Site Name: <input type="text"/></p> <p>Site Details: <input type="text"/></p> <p>Connect Through: <input type="text" value="TCP/IP"/></p>	<p>Incoming connection from remote site</p> <p><input checked="" type="checkbox"/> Enable</p>
<p>Outgoing connection to remote site</p> <p><input checked="" type="checkbox"/> Enable</p> <p>Address: <input checked="" type="radio"/> Static IP <input type="radio"/> URL (Use this if iLON is configured for DHCP)</p> <p>Remote Site URL or IP Address: <input type="text"/></p> <p>Subnet Mask: <input type="text" value="255.255.225. 0"/></p> <p>Gateway Address: <input type="text" value="0. 0. 0. 0"/></p>	<p>iLON Settings</p> <p>User Name: <input type="text"/></p> <p>Password: <input type="text"/></p> <p> </p>

2. Under **General**, do the following:
 - a. In **Site Name**, enter a name for the site.

NOTE:
It is forbidden to use any of the Umlauts Ä, Ö, Ü, ä, ö, ü in site names because this may result in an unexpected behavior of ARENA.
 - b. In **Site Details**, enter optional additional description, e.g. customer name, address, etc.
 - c. In **Connect Through**, select connection type from:
 - TCP/IP
ARENA connects to the iLON 10 via TCP/IP (LAN)
 - Modem
ARENA connects to the iLON 10 via modem
 - d. If TCP/IP has been selected, continue with step 3. If Modem has been selected, continue with step 9.
3. **Create Remote Site through iLON 10 via TCP/IP**

The following descriptions refer to an Example of a typical scenario of a Supervisor ARENA – iLON 10 configuration via LAN as shown in the graphic below.

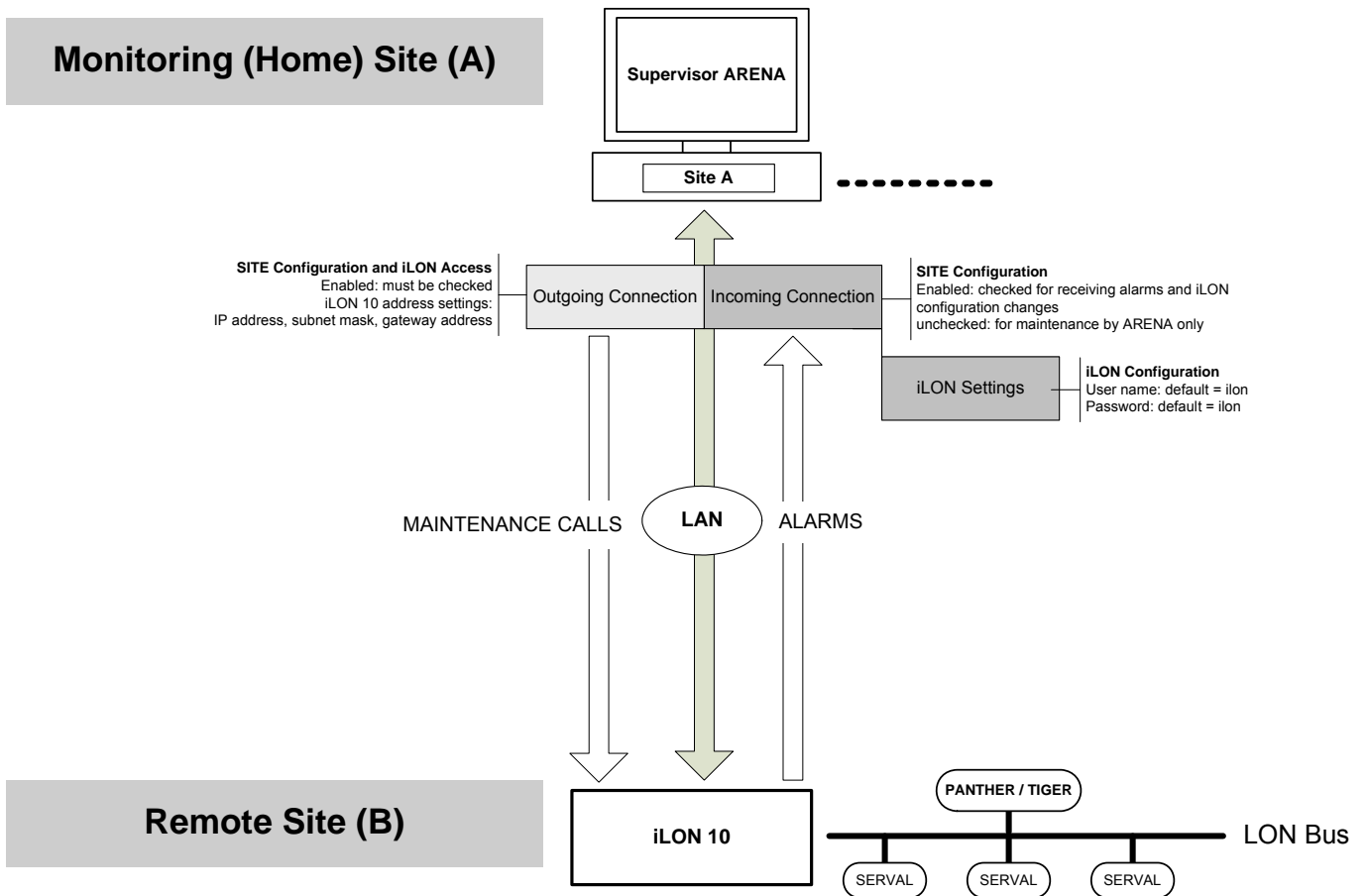
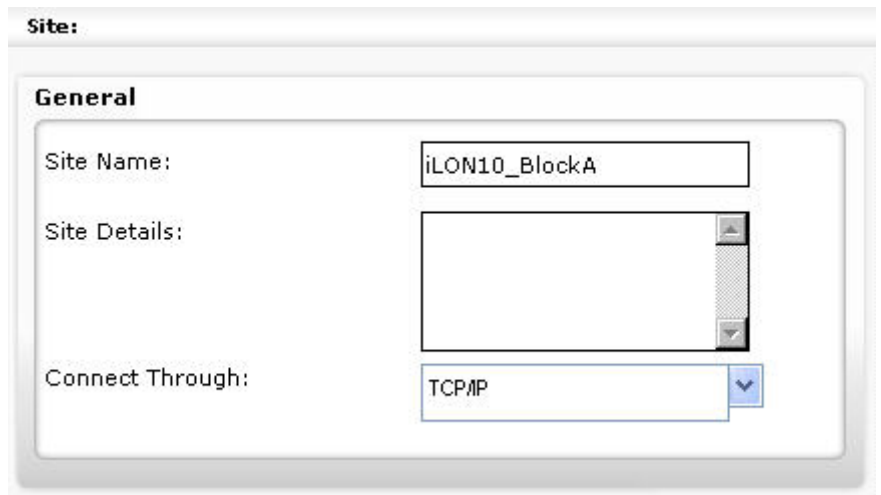


Fig. 13. System Diagram: Remote Through iLON 10 via TCP/IP

4. If not already done, select TCP/IP in **Connect Through** under **General**.



Outgoing connection to remote site

Enable

Address: Static IP
 URL (Use this if iLON is configured for DHCP)

Remote Site URL or IP Address:

Subnet Mask: . . .

Gateway Address: . . .

5. Under **Outgoing Connection to Remote Site** do the following:
 - a. Check **Enable** if you want to use ARENA for dialing-in to a remote site.
 - b. Uncheck **Enable** if ARENA is only used for receiving alarms.

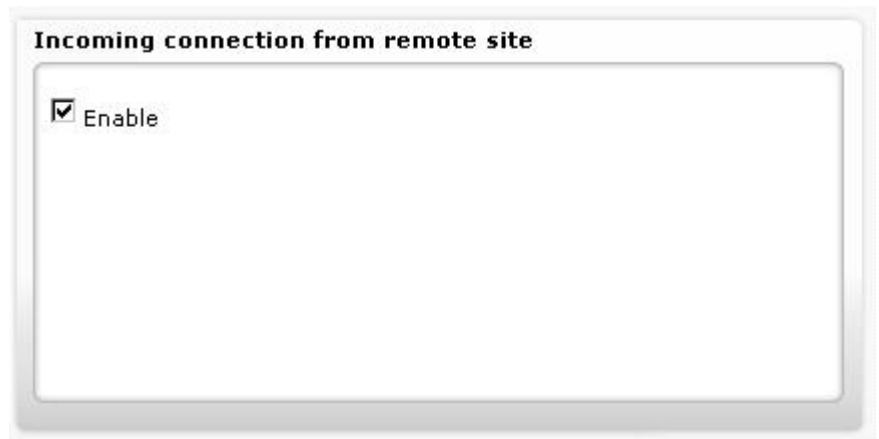
Example:

If you have a scenario where one ARENA runs in the office to receive alarms while another ARENA runs on your notebook which you use only for dialing-in, choose the following setup:

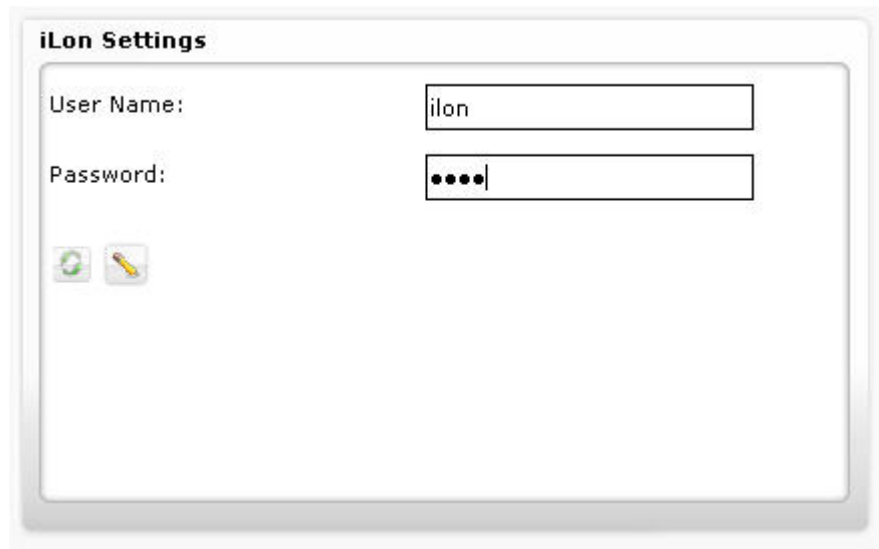
Uncheck **Enable** in the ARENA running in the office, because this is the one used as alarm recipient. Check **Enable** in the ARENA, running on your notebook, because this is the one used only for dialing-in to the remote site. iLON 10 and incoming connection settings will become read-only in this case.



NOTES:

- Only one ARENA can be connected to an iLON 10 on the same site.
 - You must configure the iLON 10 in the ARENA that is used as alarm recipient.
 - When restarting the ARENA Service (see “ARENA Application” section), all iLON 10 will be automatically connected, independent of the **Enable** setting.
- c. Select **Static IP** if the connection is established using static IP addressing.
 - d. Select **URL (Use this if iLON 10 is configured for DHCP)** if dynamic IP addressing is used by the iLON 10.
 - e. If **Static IP** has been selected, enter the IP address in **Remote Site URL or IP Address**, the subnet mask in **Subnet Mask** and the gateway address in **Gateway Address**. Make sure that this is a valid IP address which can be reached from the supervisor ARENA. The default IP address is 192.168.1.222. If you do not know which IP address to use, contact the I.T. administrator of the remote site (see also **Incoming Connection from Remote Site** settings). The subnet mask is used to define the subnet in which the iLON 10 resides. In the iLON 10 configuration (section "General"), this setting will be stored as subnet mask. The gateway address is the IP address of the gateway which iLON 10 uses to contact the supervisor ARENA. Used in LAN scenarios to resolve addressing if iLON 10 and the supervisor PC are in different subnets. Contact the I.T. administrator to get the gateway's IP address.
 - f. If **URL (Use this if iLON 10 is configured for DHCP)** has been selected, enter the URL or the IP address in Remote Site URL or IP Address.
6. Under **Incoming Connection from Remote Site**, do the following:



- a. Check **Enable** if you want the supervisor ARENA enable to receive alarms via the iLON 10 on the remote site.
 - b. Uncheck **Enable** if you not want the supervisor ARENA to receive alarms. Checking **Enable** is necessary if you want to customize the iLON 10 by overwriting the default configuration with the settings entered in **Outgoing connection to Remote Site**. Unchecking **Enable** is recommended if you want to view the site without the necessity of changing the iLON 10 configuration.
7. Under **iLon 10 Settings**, you can configure the iLON 10 by doing one of the following:



- a. In **User Name** enter the user name which the iLON 10 uses to allow HTTP access. This information is needed to allow ARENA making configuration changes to the iLON 10. In the iLON 10 configuration (section "Security"), this setting will be stored as user name for HTTP access.
- b. In **Password** enter the password which the iLON 10 uses to allow HTTP access. This information is needed to allow ARENA making configuration changes to the iLON 10. In the iLON 10 configuration (section "Security"), this setting will be stored as password for HTTP access.
- c. To set the iLON 10 to factory default, click **Factory default** icon  .
- d. To configure the iLON 10, click **Advanced** icon  which shows the iLON 10 configuration pages.

NOTE:

Do not change configuration settings here, unless absolutely necessary. Refer to the "Cross Reference of iLON 10 Settings and ARENA Settings" section. The settings have to match, otherwise, the supervisor ARENA cannot contact the iLON 10.

- 8. Click **OK** button.
The iLON 10 configuration data are sent to the iLON 10. Note that only if the

iLON 10 has been reached and configured successfully, ARENA saves the site configuration.

9. Create Remote Site through iLON 10 via Modem

The following descriptions refer to an Example of a typical scenario of a Supervisor ARENA – iLON 10 configuration via modem as shown in the graphic below.

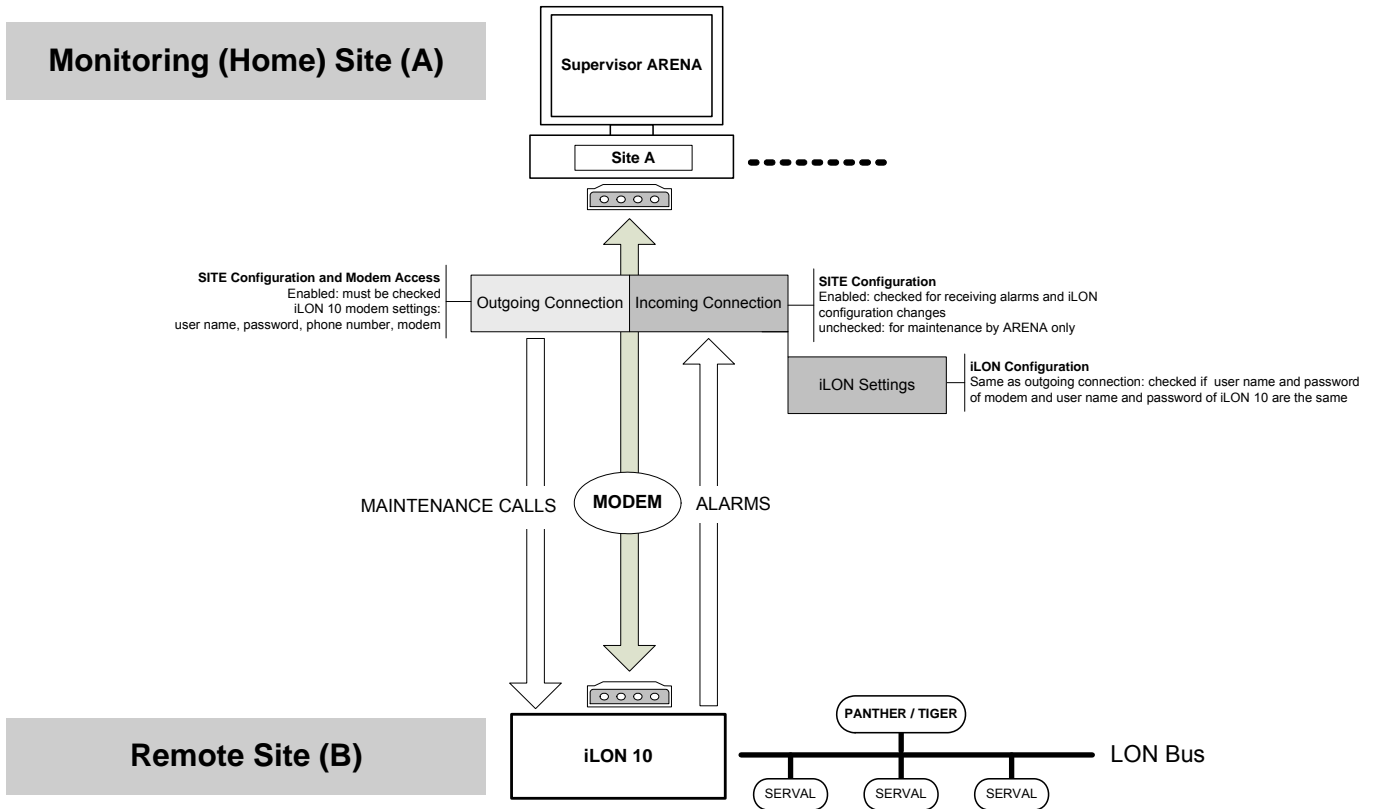


Fig. 14. System Diagram: Remote Through iLON 10 via Modem

CAUTION

Do not switch off or disconnect a modem when operating a modem-connected site. This causes a malfunction and as a result the need to reboot the PC.

TIP:

Connect PC and modem to the same power supply. In case of a general power failure, PC and modem will be restarted simultaneously.

10. If not already done, select 'Modem' in **Connect Through** under **General**.

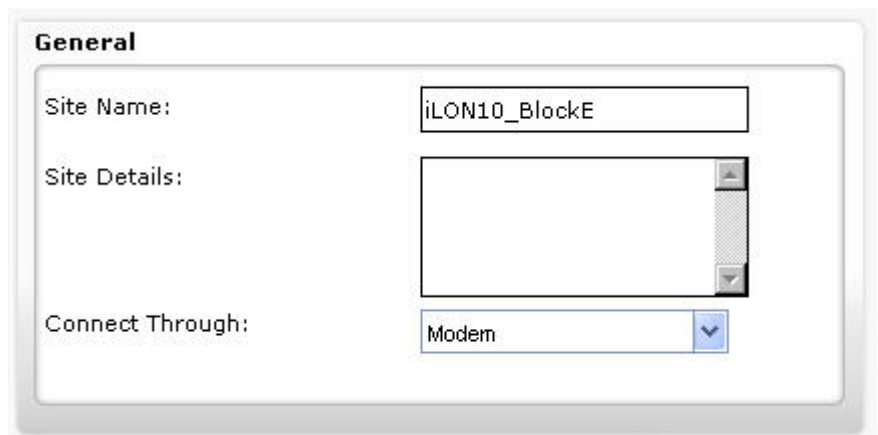
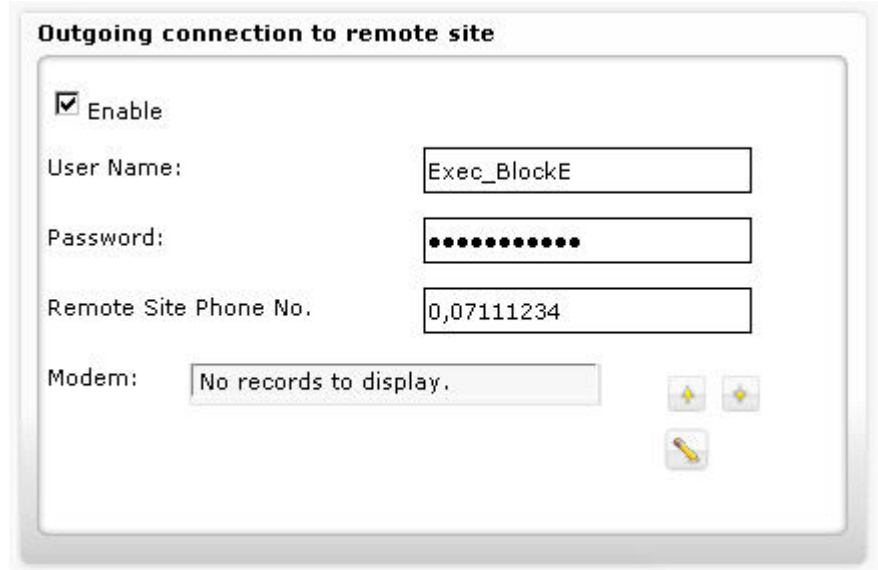


Fig. 15. Site Example: Connect through iLON 10 via Modem (General Settings)




11. Under **Outgoing Connection to Remote Site** do the following:



- a. Check **Enable** in order to access the remote iLON 10 site. When unchecking this option you cannot access the site.

NOTE:

When restarting the ARENA Service (see "ARENA Application" section), all iLON 10 will be automatically connected, independent of the **Enable** setting. Automatic connection also occurs if a graphic contains a datapoint of the remote site.

- b. In **User Name**, enter the user name which is used by iLON 10 to authenticate connections from the supervisor PC, i.e. ARENA. In the Windows Dial-Out connection to the site, this user name will be used to contact the site. In the iLON 10 configuration (section "Security"), this setting will be stored as user name for incoming PPP connections (see also **Incoming Connection from Remote Site** settings)
- c. In **Password**, enter the password which is used by iLON 10 to authenticate connections from the supervisor PC, i.e. ARENA. In the Windows Dial-Out connection, this password will be used to contact the site. In the iLON 10 configuration (section "Security"), this setting will be stored as password for incoming PPP connections (see also **Incoming Connection from Remote Site** settings)
- d. In **Remote Site Phone No.**, enter phone number of the remote site. A "comma" can be used as a pause-indicator. Example: To dial to an outside line where a leading "0" is needed, then a pause, and then the "real phone number" (e.g. 0711/520 4), use the following: "0, 07115204".
- e. In **Modem**   a list of modems currently installed in the PC is shown. Select the modem which you want to use for connecting to the site. Multiple modems can be selected. In this case, the topmost modem is tried first. If busy, the next modem is tried.
- f. Click **Advanced** icon  if you want to change specific modem settings. Allows setting advanced modem settings as follows:
 - Initialization String**
Enter string of modem commands which is sent to the modem each time the PC dials out to the site. Can be used to enable modem specific functionality.
 - Wait for dial tone before calling**
If you want to switch off waiting for dial tone, which is necessary for some telephone plants, deselect this checkbox.


12. Under **Incoming connection from remote site**, do the following:

Incoming connection from remote site

Enable

User Name:

Password:

Local Phone No. 

- a. Check **Enable** if you want the supervisor ARENA enable to receive alarms via the iLON 10 on the remote site.
- b. Uncheck **Enable** if you want the supervisor ARENA not to receive alarms.
- c. Checking **Enable** is necessary if you want to customize the iLON 10 by overwriting the default configuration with the settings entered in **Outgoing connection to Remote Site**. Unchecking **Enable** is recommended if you want to view the site without the necessity of changing the iLON 10 configuration.
- d. In **User Name** enter the user name which the PC uses to authenticate a call from the remote site. This user will be automatically generated inside an "incoming connection" in Windows, which accepts calls from the remote site. In the iLON 10 configuration (section "PPP"), this setting will be stored as user name for outgoing PPP connections.

NOTE:

The user name can be different from the user name issued in **Outgoing Connection to Remote site** but must comply to the Windows network requirements. If necessary, please contact the I.T. administrator for detailed information.

- e. In **Password** enter the password which the PC uses to authenticate a call from the remote site. This password will be used inside an "incoming connection" in Windows, which accepts calls from the remote site. In the iLON 10 configuration (section "PPP"), this setting will be stored as password for outgoing PPP connections.


NOTE:

The password can be different from the password issued in **Outgoing Connection to Remote site** but must comply to the Windows network requirements. If necessary, please contact the I.T. administrator for detailed information.

- f. In **Local Phone No.**, enter the phone number of the PC modem which is used to accept incoming calls from the remote site. This is the phone number which the remote site uses to contact the PC on which ARENA is running. In the iLON 10 configuration (section "PPP"), this setting will be stored as phone number for outgoing PPP connections.

NOTE:

Enter this phone number exactly the way it has to be dialed by the remote site. If the iLON 10 on the remote site connects to the public phone network through a switchboard, you may need to add a leading "0" to get to the public line.

- g. Click **Advanced** icon , if you want change specific modem settings as follows:

Initialization String

Enter string of modem commands which is sent to the modem each time the remote site (iLON 10) dials to the supervisor PC. Can be used to enable modem specific functionality.

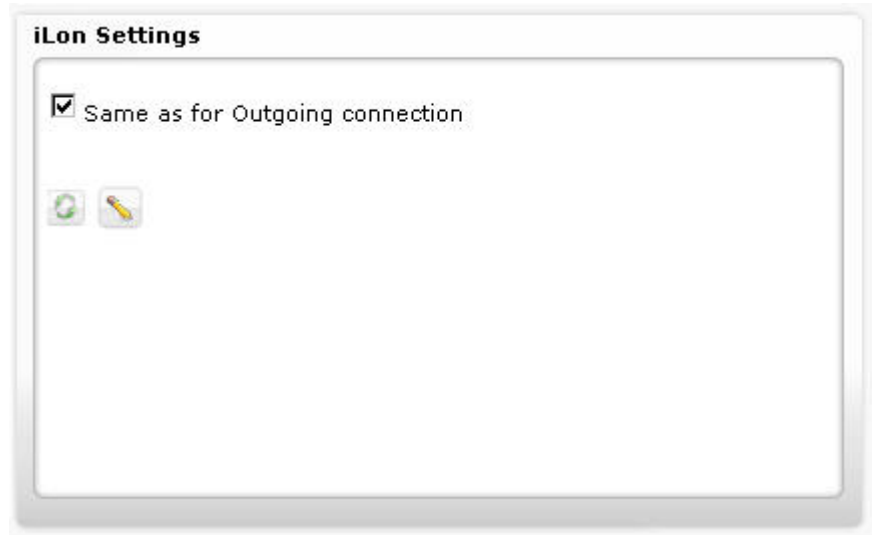
In the iLON 10 configuration (section "PPP"), this setting will be stored as "Modem Init String". The default is `E0Q0V1S0=0&C1M1&W`. This setting works for the supported modems.


Wait for dial tone before calling

If enabled, the modem connected to the iLON 10 will wait for the dial tone. Default = yes. If no connection can be established, the telephone installation might not provide a correct dial tone. In this case, disable the option.

This information is appended to the Init string in the iLON 10: Do not wait for dial tone: X0 Do wait for dial tone: <nothing>.

13. Under **iLon 10 Settings**, you can configure the iLon 10 by doing one of the following:



- a. Check **Same as for outgoing connection** if user name and password are the same as under outgoing connections.
- b. Uncheck **Same as for outgoing connection** if you want to configure the iLON 10 using another user name and password.
 - In **User Name**, enter the user name which the iLON 10 uses to allow HTTP access. This information is needed to allow ARENA making configuration changes to the iLON 10. In the iLON 10 configuration (section "Security"), this setting will be stored as user name for HTTP access.
 - In **Password**, enter the password which the iLON 10 uses to allow HTTP access. This information is needed to allow ARENA making configuration changes to the iLON 10. In the iLON 10 configuration (section "Security"), this setting will be stored as password for HTTP access.
- c. To set the iLON 10 to factory default, click **Factory default** icon  .

To configure the iLON 10, click **Advanced** icon  which shows the iLON 10 configuration pages.

NOTE:

Do not change configuration settings here, unless absolutely necessary. Refer to the "Cross Reference of iLON 10 Settings and ARENA Settings" section. The settings have to match, otherwise, the supervisor ARENA cannot contact the iLON 10.

14. Click **OK** button. The iLON 10 configuration data are sent to the iLON 10. Note that only if the iLON 10 has been reached and configured successfully, ARENA saves the site configuration.

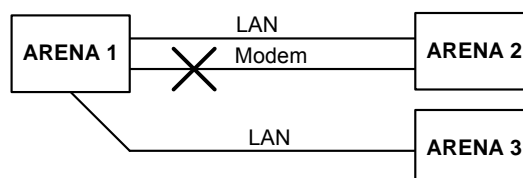
Create Remote Site through ARENA

1. If not already done, select “Remote Site through ARENA” in **New site of type** on the *Sites Overview* pane, and then click the **Add** button.

2. Under **General**, do the following:
 - a. In **Site Name**, enter a name for the site.
 NOTE:
 It is forbidden to use any of the Umlauts Ä, Ö, Ü, ä, ö, ü in site names because this may result in an unexpected behavior of ARENA.
 - b. In **Site Details**, enter optional additional description, e.g. customer name, address, etc.
3. Under **Outgoing connection to remote site**, select connection type In **Connect Through** from the following:
 - None
No connection is possible
 - TCP/IP
ARENA connects to the remote site via TCP/IP.
 - Modem
ARENA connects to the remote site via modem
 - VPN
ARENA connects to the remote site via virtual private network.

⚠ CAUTION

Two ARENAs are only allowed to be connected via one connection type, TCP/IP, modem, or VPN. That is, it is not allowed to connect two ARENAs to each other in multiple ways, for example, via TCP/IP and modem.



If TCP/IP has been selected, continue with step 4.

If Modem has been selected, continue with step 6.

If VPN has been selected, continue with step 8.

NOTE: Only Microsoft VPN connections are supported.

4. Create Remote Site through ARENA via TCP/IP

The following descriptions refer to an Example of a typical scenario of a Supervisor ARENA – Remote ARENA configuration via LAN as shown in the graphic below.

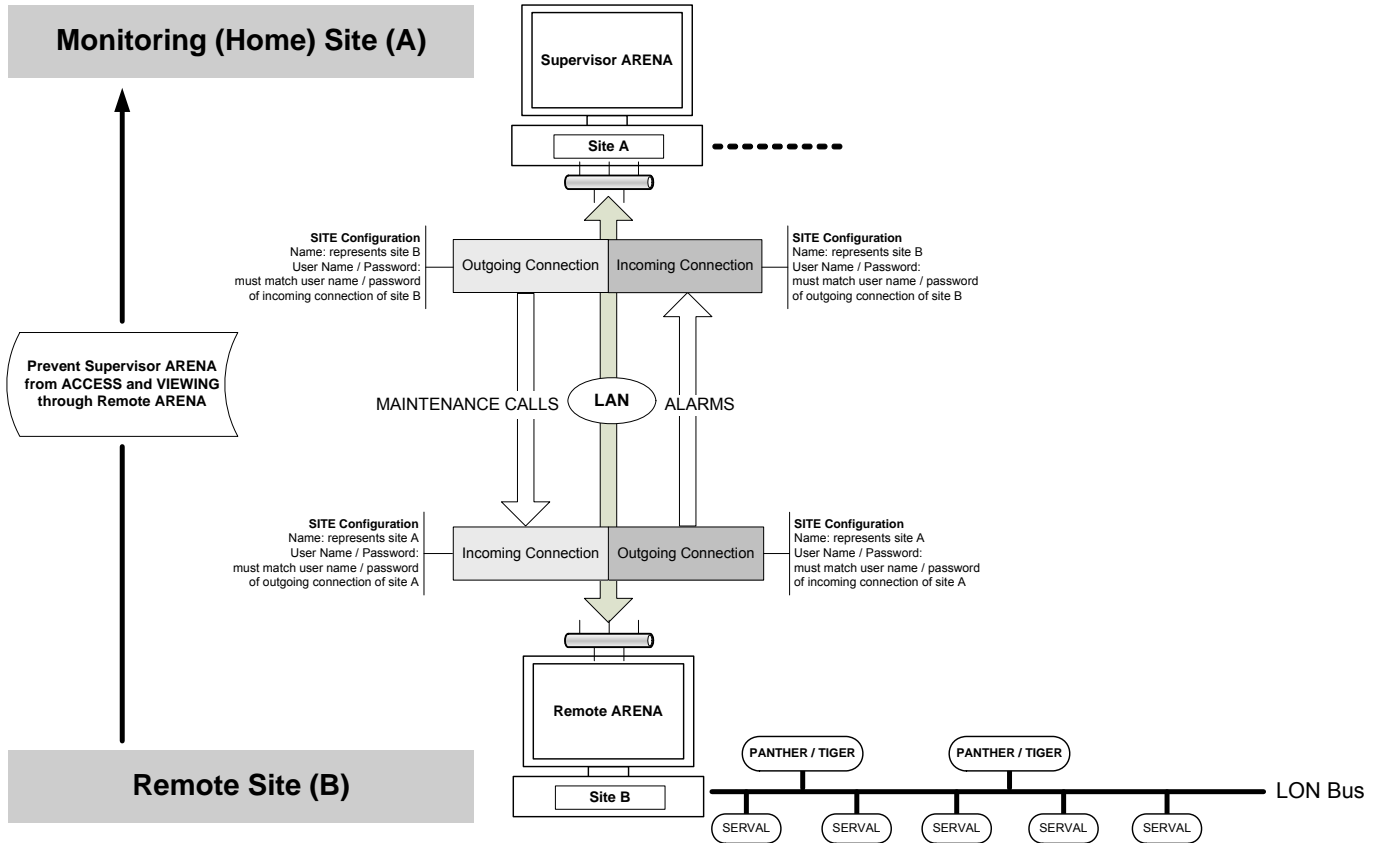


Fig. 16. System Diagram: Remote Through ARENA via TCP/IP

5. If not already done, select 'TCP/IP' in **Connect Through** under **Outgoing connection to remote site** and do the following:




- a. In **User Name**, enter the user name.
- b. In **Password**, enter the password for the user.

NOTES:

- User name and password of the supervisor ARENA must match the user name and password under Incoming connection from remote site on the remote ARENA.
- On both ARENAs, user name and password must comply with the Windows network requirements. If necessary, please contact the I.T. administrator for detailed information.
- This user has not to exist in the user administration of both, Supervisor ARENA and remote ARENA.

c. In **Remote Site Address or IP Address**, enter the URL or the IP Address of the remote ARENA PC.

d. Under **Connect**, select **Directly** if you want to connect to the remote ARENA without an ISP (Internet Service Provider). Select **Dial to ISP first** using if you want to connect via ISP (dial-up). From the list, select the ISP. If desired

add or remove ISP connections using the   buttons. To edit ISP properties, click  button and change properties in the *Connection Settings* dialog box.

Dial-up connections are typically used to connect to an ISP (internet service provider) when the mail server is not reachable via LAN.

NOTES:

- Yahoo cannot be used as ISP because there are issues on the provider side concerning external email access. Use an alternative ISP.
- ARENA shows all dial-up connections on your PC here, except the ones used to connect to remote sites. ARENA will also allow creating new Dial-up connections to ISPs, which is the recommended way for alarm forwarding. You can choose an existing dial-up connection to an ISP.

ATTENTION!

When selecting an existing dial-up connection, make sure that the modem connection is set up in a way that it does not attempt to retry after the phone line drops, because this conflicts with the retry attempts of ARENA. You can check this by selecting Connect to / Show all connections from the Windows Start menu. Then open the properties of the connection.

e. Continue with step 10.

6. Create Remote Site through ARENA via Modem *

The following descriptions refer to an Example of a typical scenario of a Supervisor ARENA – Remote ARENA configuration via Modem as shown in the graphic above.

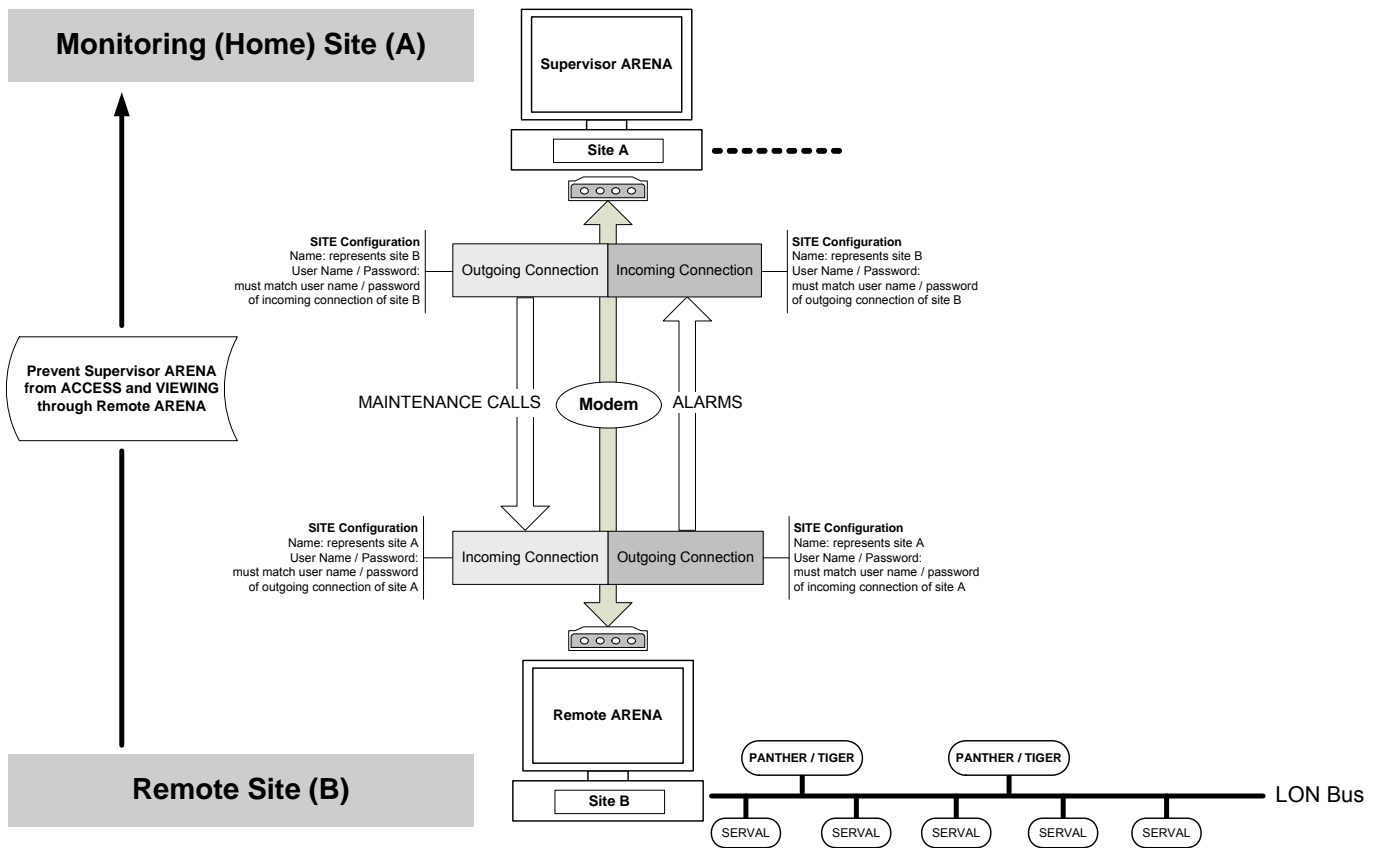


Fig. 17. System Diagram: Remote Through ARENA via Modem

CAUTION

Do not switch off or disconnect a modem when operating a modem-connected site. This causes a malfunction and as a result the need to reboot the PC.




TIP:

Connect PC and modem to the same power supply. In case of a general power failure, PC and modem will be restarted simultaneously.

7. If not already done, select 'Modem' in **Connect Through** under **Outgoing connection to remote site** and do the following:

- a. In **User Name**, enter the user name.
- b. In **Password**, enter the password for the user.

NOTES:

- User name and password of the supervisor ARENA must match the user name and password under **Incoming connection from remote site** on the remote ARENA.
 - On both ARENAs, user name and password must comply with the Windows network requirements. If necessary, please contact the I.T. administrator for detailed information.
 - This user has **not** to exist in the user administration of both, Supervisor ARENA and remote ARENA.
- c. In **Remote Site Phone No**, enter phone number of the remote site. A "comma" can be used as a pause-indicator. Example: To dial to an outside line where a leading "0" is needed, then a pause, and then the "real phone number" (e.g. 0711/520 4), use the following: "0, 07115204".
 - d. In **Modem**, select the modem which you want to use for connecting to the site  . Multiple modems can be selected. In this case, the topmost modem is tried first. If busy, the next modem is tried.
 - e. Use **Advanced**  button for setting advanced modem settings:

Initialization String
Enter string of modem commands which is sent to the modem each time the PC dials out to the site. Can be used to enable modem specific functionality.

Wait for dial tone before calling
If you want to switch off waiting for dial tone, which is necessary for some telephone plants, deselect this checkbox.
 - f. Continue with step 10.

8. Create Remote Site through ARENA via VPN

9. If not already done, select 'VPN' in **Connect Through** under **Outgoing connection to remote site** and do the following:

ARENA Connection

- a. In **User Name**, enter the user name.
- b. In **Password**, enter the password for the user.

NOTES:

- User name and password of the supervisor ARENA must match the user name and password under **Incoming connection from remote site** on the remote ARENA.
 - On both ARENAs, user name and password must comply with the Windows network requirements. If necessary, please contact the I.T. administrator for detailed information.
 - This user has **not** to exist in the user administration of both, Supervisor ARENA and remote ARENA.
- c. In **Remote Site Address or IP Address**, enter the URL or the IP Address of the remote ARENA PC.

VPN Connection

- a. In **User Name**, enter the user name.
- b. In **Password**, enter the password for the user.

NOTES:

- User name and password of the supervisor ARENA must match the user name and password under **Incoming connection from remote site** on the remote ARENA.
- On both ARENAs, user name and password must comply with the Windows network requirements. If necessary, please contact the I.T. administrator for detailed information.
- This user has **not** to exist in the user administration of both, Supervisor ARENA and remote ARENA.

- c. In **Remote Site Address or IP Address**, enter the URL or the IP Address of the remote ARENA PC.

Under **Connect**, select **Directly** if you want to connect to the remote ARENA without an ISP (Internet Service Provider, see NOTES below). Select **Dial to ISP first using** if you want to connect via ISP (dial-up). From the list, select

the ISP. If desired add or remove ISP connections using the  

buttons. To edit ISP properties, click  button and change properties in the *Connection Settings* dialog box.

Dial-up connections are typically used to connect to an ISP (internet service provider) when the mail server is not reachable via LAN.

NOTES:

- Yahoo cannot be used as ISP because there are issues on the provider side concerning external email access. Use an alternative ISP.
- ARENA shows all dial-up connections on your PC here, except the ones used to connect to remote sites. ARENA will also allow creating new Dial-up connections to ISPs, which is the recommended way for alarm forwarding. You can choose an existing dial-up connection to an ISP.

ATTENTION!

When selecting an existing dial-up connection, make sure that the modem connection is set up in a way that it does not attempt to retry after the phone line drops, because this conflicts with the retry attempts of ARENA. You can check this by selecting Connect to / Show all connections from the Windows Start menu. Then open the properties of the connection.

- d. Continue with step 10.

10. Incoming connection from remote site

- a. In **Connect Through**, select connection type from:

- None
No alarms can be received
- TCP/IP
ARENA connects to the remote site via TCP/IP.
- Modem
ARENA connects to the remote site via modem.
- VPN
ARENA connects to the remote site via virtual private network.

- b. In **User Name**, enter the user name.

- c. In **Password**, enter the password for the user.

NOTES:

- User name and password of the supervisor ARENA must match the user name and password under **Outgoing connection to remote site** on the remote ARENA.
- On both ARENAs, user name and password must comply with the Windows network requirements. If necessary, please contact the I.T. administrator for detailed information.
- This user has **not** to exist in the user administration of both, Supervisor ARENA and remote ARENA.

11. Click **OK** button.

Cross Reference of iLON 10 Settings and ARENA Settings

ARENA configures the iLON 10 when creating the site (see in "Create Site" section). If the iLON 10 configuration, e.g. user name or password, was changed manually afterwards, the ARENA settings must be changed accordingly. If ARENA settings and the iLON 10 settings are out of sync it may happen that the iLON 10 cannot be contacted anymore. For the accommodation of settings, use the following table.

General Settings page of iLON 10		
iLON 10 Setting	ARENA Setting	Comment
IP Address	Outgoing connection: Remote Site IP Address	Used in LAN scenarios to contact the iLON 10. User needs Administrator privilege
Subnet Mask	Outgoing connection: Subnet Mask	Used in LAN scenarios to define the subnet to which the iLON 10 is connected. User needs Administrator privilege
Gateway Address	Outgoing connection: Gateway Address	Used in LAN scenarios to resolve addressing if the iLON 10 and the supervisor PC are in different subnets. Contact the I.T. administrator to get the gateway's IP address.
Explicit message -> Message with Code From / To	-	Used to send an alarm from the controller to the iLON 10. This has to be set "from 76 to 76" and the setting has to be enabled. Otherwise no alarms will be sent out via the iLON 10.
PPP Settings page of iLON 10		
iLON 10 Setting	ARENA Setting	Comment
Serial Port Baud Rate	-	Should be set to 57600
Local IP Address for incoming calls	-	IP Address for PPP connections via modem. This is automatically generated by the ARENA site administration for Dial-Up scenarios.
Use Static IP Address-> IP Address	-	IP Address for PPP connections via modem. This is automatically generated by ARENA site administration for Dial-Up scenarios.
Profile 1 -> User Name	Incoming Connection->User Name	User Name which the supervisor PC uses to authenticate an incoming call from the iLON 10.
Profile 1 -> Password	Incoming Connection->Password	Password which the supervisor PC uses to authenticate an incoming call from the iLON 10.
Profile 1-> Phone Number	Incoming Connection -> Local Phone Number	Phone number under which the supervisor PC can be reached for Dial-Up scenarios.
Profile 1 -> Disconnect if idle for	-	This time out applies if no LON connection can be made to the alarm receiver (ARENA). This should never happen. A good default would be 120 sec.
Profile 1 -> Modem Init String	Incoming Connection -> Advanced settings -> Initialization string	Init string which the iLON 10 uses each time it triggers a dial-out via modem. Via the init strings, special modem configurations can be made. Typical examples are: X0: Do not wait for dial tone M0 instead M1 to switch off the modem speaker. A good default string for many modems is E0Q0V1S0=0&C1M1 If you need special settings, consult your modem manual and a description of the

Security Settings page of iLON 10		Hayes AT command set.
iLON 10 Setting	ARENA Setting	Comment
Allow HTTP Access	-	Has to be enabled to allow configuration changes.
HTTP Access -> User Name	iLON 10 Settings -> User Name	Used to authenticate ARENA when it tries to do configuration changes on the iLON 10.
HTTP Access -> Password	iLON 10 Settings -> Password	Used to authenticate ARENA when it tries to do configuration changes on the iLON 10.
Enable Ethernet Connections	-	Has to be enabled for LAN connections and disabled for Dial-up connections.
Use PPP as dial backup when Ethernet link fails	-	Has to be enabled in case of Dial-Up. If this setting is unchecked, a dial-out is never initiated from iLON 10.
Enable Outbound PPP Calls	-	Has to be enabled in case of Dial-Up. If this setting is unchecked, a dial-out is never initiated from iLON 10.
Number of retries for outbound PPP connections	-	This is the number of Dial-Out attempts the iLON 10 makes in case of an alarm when the ARENA cannot be reached. The controller will initiate redialing after 5 minutes waiting time. Usually set to 0, because the PANTHER controller does the alarm repeat.
Use PAP (after CHAP fails)	-	Authentication mechanism to be used when connecting to a PC via a modem. Must be enabled.
Allow and authenticate incoming PPP connections	-	Must be enabled in case of Dial-Up. Otherwise, the supervisor PC (ARENA) cannot contact the iLON 10.
User Name (for incoming PPP connections)	Outgoing Connection -> User Name	Used to authenticate supervisor PC (ARENA) when it tries to contact the iLON 10 for configuration purpose.
Password (for incoming PPP connections)	Outgoing Connection -> Password	Used to authenticate supervisor PC (ARENA) when it tries to contact the iLON 10 for access to controller data
Answer phone after X rings	-	Number of rings the iLON 10 modem waits until it takes a call from the outside. ARENA sets this value to 1 for fastest connect time.

Edit Site Details

1. Show **Sites Overview** as described in the "Show Sites Overview" section.
2. For the site you want to edit, click **Details** button or click on site name in the **Site Name** column. The Site <name of the site> displays showing the site's details.

Site: Townhall

General

Site Name:

Site Details:

Local Connection

Connect through:

3. Edit desired site details. For detailed description of the site properties, click relevant subsection in the "Create New Site" section.

NOTE: It is forbidden to use any of the Umlauts Ä, Ö, Ü, ä, ö, ü in site names because this may result in an unexpected behavior of ARENA.

Delete Site

1. Show **Sites Overview** as described in the "Show Sites Overview" section.
2. Click on site you want to delete.

Sites Overview

<input type="checkbox"/> Site Name	Site Type	Online	Details
<input checked="" type="checkbox"/> <u>Townhall</u>	Local	<input type="checkbox"/>	<input type="button" value="Details"/>

New site of type:

3. Click **Delete Site** button.

Connect / Disconnect Site

In the tree, connected sites (subsystem, controller, etc.) are displayed in light green color. Disconnected sites with its items (subsystem, controller, etc.) are displayed in light gray color.

1. In the tree, right-click the site, you want to connect to /disconnect from.

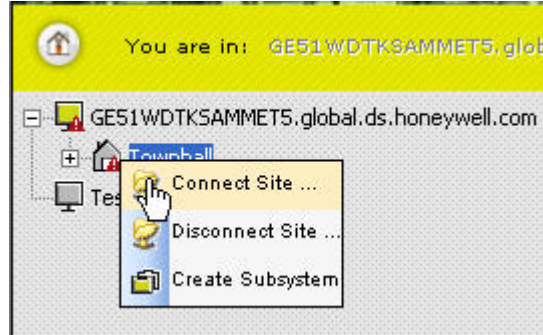


Fig. 18. Example: Connecting to Site

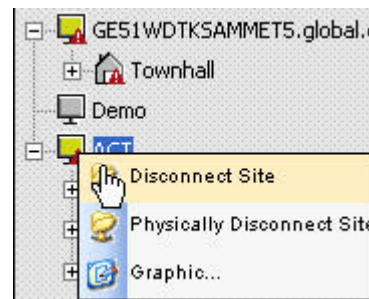
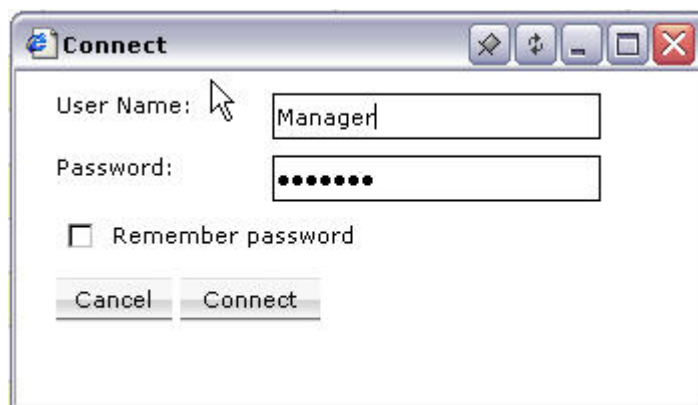


Fig. 19. Example: Disconnecting from Site

2. If you want to connect to a site, click *Connect Site* icon.
 If you connect to a local site, you are connected to the site without asking for the user name and login.
 If you connect to a remote site, you are asked for the user name and the password except you are an auto-logout user on your PC.
 For details on user and password handling, please refer to the “User Administration” section.
3. When connecting to a remote site, enter user name and password in the *Connect* dialog box, if you are asked for.



4. Click **Connect** button.
 When successfully connected, click the **Close** button.

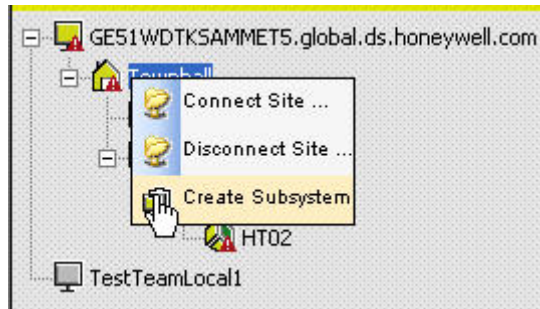
5. If you want to disconnect from a site, click *Disconnect Site* icon.
6. If you want to disconnect all local or remote connections, click *Physically Disconnect Sites* icon.

Timeout after Disconnection

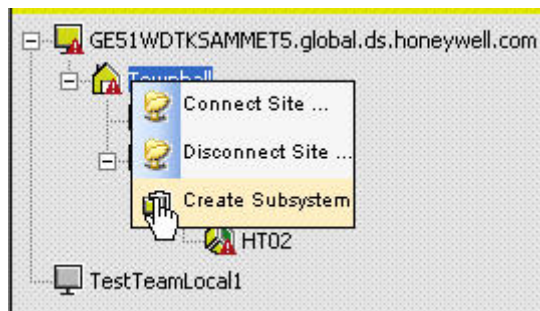
If the remote site of an ARENA-ARENA via LAN site combination is disconnected, the supervisor ARENA has a time out of up to 2 minutes before the tree gets refreshed to indicate offline state.

Create Subsystem

1. In the tree, right-click the site, you want to create a subsystem for



2. Click **Create Subsystem** icon.

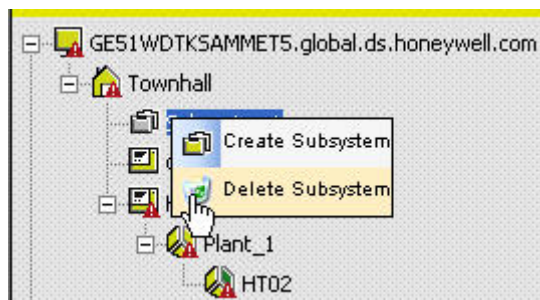


The subsystem is created.

3. Click on the subsystem name and enter a more descriptive text.

Delete Subsystem

1. In the tree, right-click the subsystem, you want to delete.



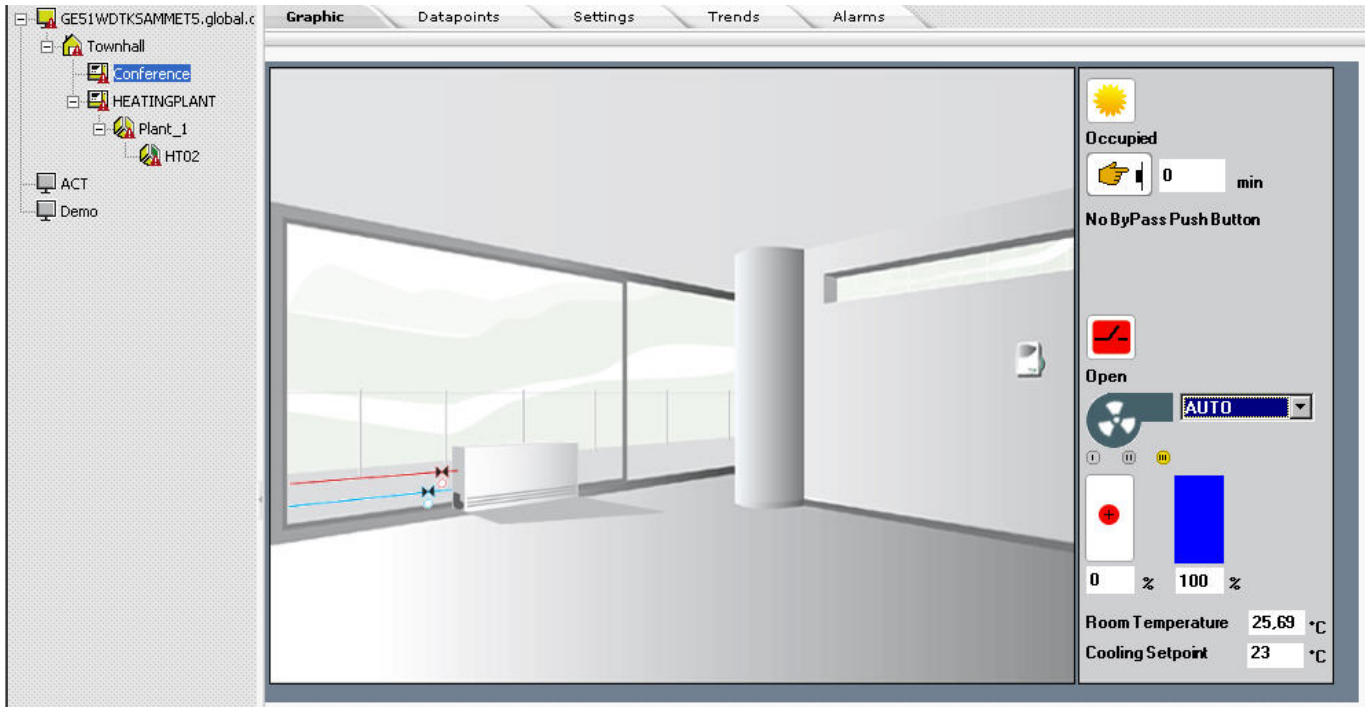
2. Click Delete Subsystem icon.

The subsystem is deleted.

GRAPHICS

View/Edit SERVAL Graphics

By default, ARENA displays a SERVAL graphic when clicking on the corresponding SERVAL controller in the tree. The graphic is shown on the *Graphic* tab. Modifications can be done for the fan switch by selecting the value from the drop-down listbox.



View/Edit Standard Segments

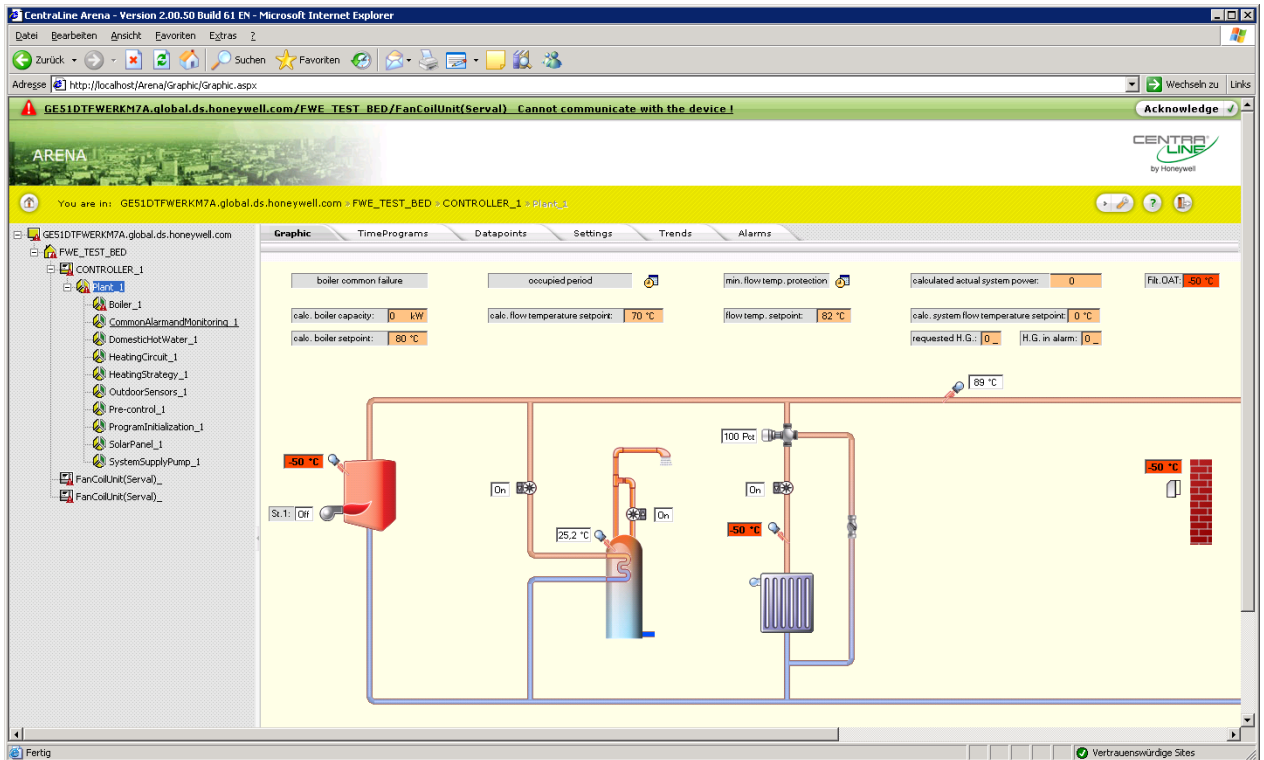
To view/edit a standard segment, do the following:

1. Expand the tree, and then double-click the controller's plant that contains the segments. In the tree, all standard segments of the plant are shown.
2. In the tree, click the standard segment, you want to view/edit. On the *Graphic* tab on the right, the standard segment is displayed graphically.

The following screenshots show typical examples of standard segments.

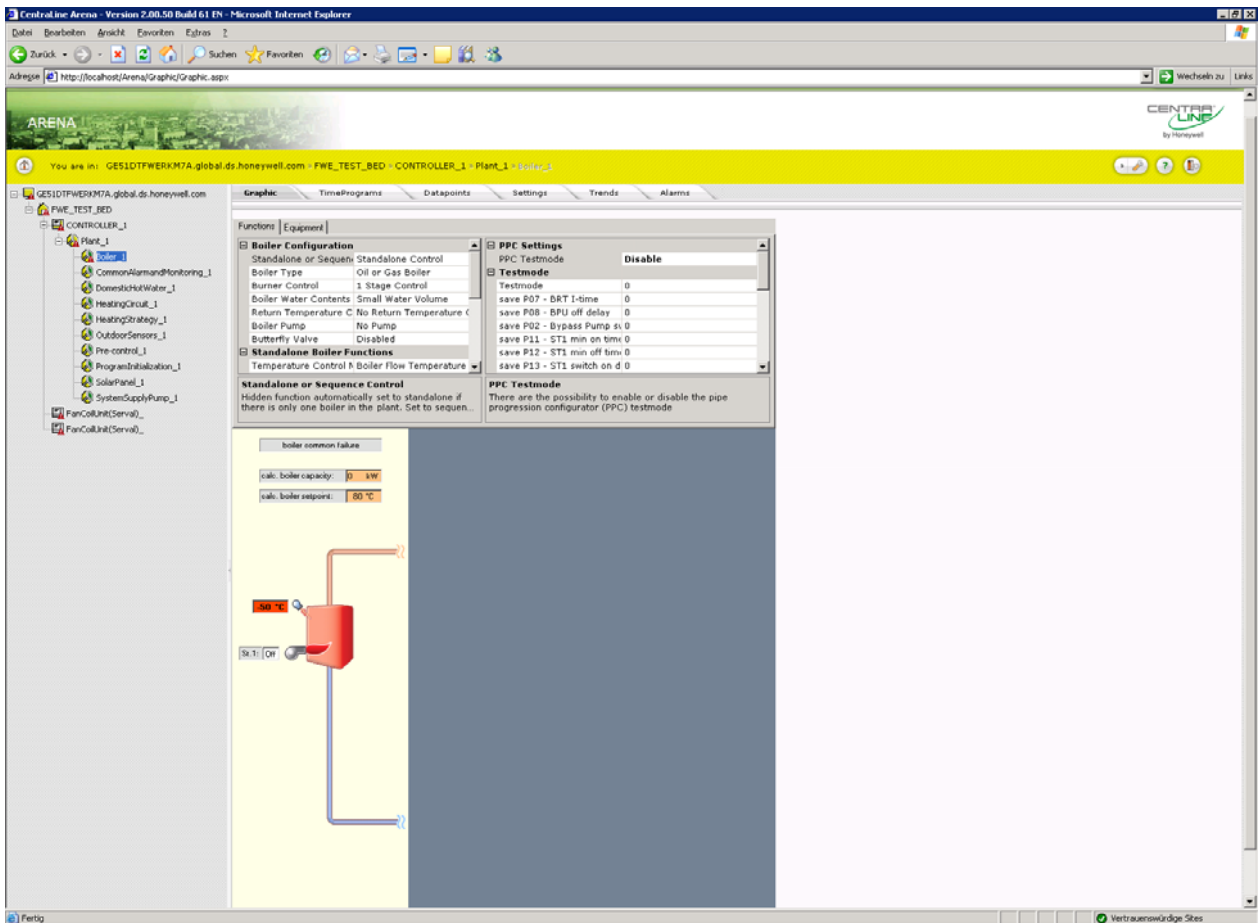
Example 1: Common Alarm and Monitoring 1

This function shows the monitoring result of the segment. When you are online, values displayed in the small boxes within and outside the schematic, can be changed. It shows alarm values in red highlighted boxes that are below or above the allowed limit values.



Example 2: Boiler 1

This function allows configuring the boiler segment by entering/changing values according to your needs on the *Functions* and *Equipment* tabs.



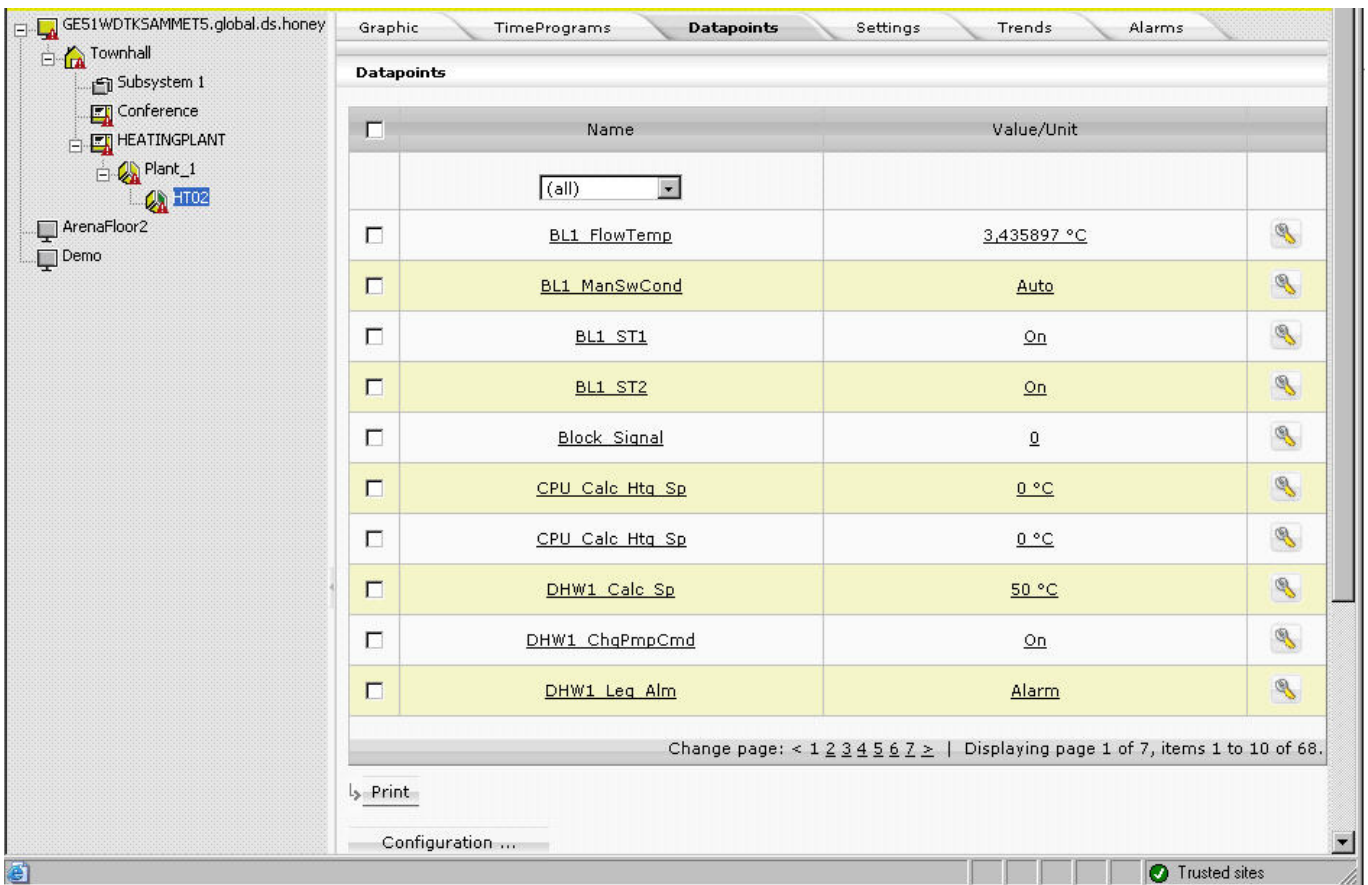
DATAPPOINTS

Overview

Datapoints are available on Site, System, Controller, Plant, and Segment level. Depending on the level, the datapoint list display differs in the number and kind of columns (datapoint properties). Depending on the selected level, a datapoint can feature maximum the following properties displayed as columns in the list:

- Site
Site name
- System
System name
- Device
Controller name
- Plant
Plant name
- Segment
Segment name
- Name
Datapoint name
- Value/Unit
Current datapoint value with unit. An underlined entry can be clicked to open a dialog box for overriding the value.
- Manual
Shows datapoints in manual override depending on the filter setting.
- Type
Datapoint type, for example, Digital or Analog, etc.
- Direction
Shows datapoint direction, either Input or Output.

NOTE: The max. number of properties displayed depends on the level selected in the tree and also on the list display configuration.



In the datapoints list, you can do the following:

- Display certain datapoints by applying a filter as described under “Apply Filter for Display” in the “Basic Functions” section.
- Enter an alias name for a datapoint.
Please refer to the “Enter Alias Name for Datapoint” section.
- Override the current datapoint value.
Please refer to the “Override Datapoint Value” section.
- View and change datapoints properties.
Please refer to the “View/Change Datapoint Properties” section.
- Show datapoints in manual override, see “Show Datapoints in Manual Override” section.
- Print datapoints list.
Please refer to the “Print Datapoints List” section.
- Configure the list display per level (system, controller, plant, and segment).
Please refer to “List Display Configuration” in the “Basic Functions” section.

Show Datapoints List


1. In the tree, click the level (site, system, etc.) for which you want to display datapoints.
2. On the right pane, click *Datapoints* tab.
The datapoints list is displayed. For description of the properties, please refer to the “Overview” section.

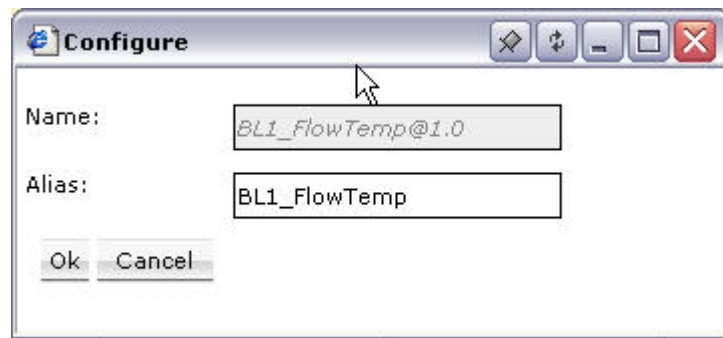
Datapoints / BL1_FlowTemp (Analog)	
<input type="checkbox"/> Name	Value/Unit
<input checked="" type="checkbox"/> Alarm Delay	10 sec
<input type="checkbox"/> Alarm Hysteresis	1 °C
<input type="checkbox"/> Alarm Status	Normal
<input type="checkbox"/> Alarm Text	
<input type="checkbox"/> Alarm Type	Critical
<input type="checkbox"/> Automatic Value	3,6 °C
<input type="checkbox"/> Characteristic	NTC (°C)
<input type="checkbox"/> High Alarm Limit	145 °C
<input type="checkbox"/> High Warning Limit	140 °C
<input type="checkbox"/> Low Alarm Limit	-45 °C
<input type="checkbox"/> Low Warning Limit	-40 °C
<input type="checkbox"/> Manual Mode	Auto
<input type="checkbox"/> Manual Value	3,6 °C
<input type="checkbox"/> Point Descriptor	Boiler1
<input type="checkbox"/> Sensor Offset	0 °C
<input type="checkbox"/> Suppress Alarm	Generate alarms
<input type="checkbox"/> Technical Address	1/1/1
<input type="checkbox"/> Trend Cycle Counter	0

- To display certain datapoints, apply a filter as described under “Apply Filter for Display” in the “Basic Functions” section.
- To enter an alias name for a datapoint, please refer to the “Enter Alias Name for Datapoint” section.
- To override the current datapoint value, please refer to the “Override Datapoint Value” section.
- To view and change datapoints properties, please refer to the “View/Change Datapoint Properties” section.
- To print datapoints list, please refer to the “Print Datapoints List” section.
- To configure the list display, please refer to “List Display Configuration” in the “Basic Functions” section.

Enter Alias Name for Datapoint

NOTE: It is forbidden to use the slash character “/” in alias names because this may result in an unexpected behavior of ARENA.

- At the end of datapoint row, click the Configure icon .
- In the *Configure* dialog box, enter the alias name in the **Alias** field.



3. Click **OK**.
The new name is reflected in the **Name** column.

View/Change Datapoint Properties

1. In the **Name** column, click the datapoint's name.
The Datapoint Properties page displays. Under **Name**, the properties and under **Value/Unit** the corresponding values are shown. Values out of range are grayed.


Datapoints / BL1_FlowTemp (Analog)		
<input type="checkbox"/>	Name	Value/Unit
<input checked="" type="checkbox"/>	Alarm Delay	10 sec
<input type="checkbox"/>	Alarm Hysteresis	1 °C
<input type="checkbox"/>	Alarm Status	Normal
<input type="checkbox"/>	Alarm Text	
<input type="checkbox"/>	Alarm Type	Critical
<input type="checkbox"/>	Automatic Value	3,6 °C
<input type="checkbox"/>	Characteristic	NTC (°C)
<input type="checkbox"/>	High Alarm Limit	145 °C
<input type="checkbox"/>	High Warning Limit	140 °C
<input type="checkbox"/>	Low Alarm Limit	-45 °C
<input type="checkbox"/>	Low Warning Limit	-40 °C
<input type="checkbox"/>	Manual Mode	Auto
<input type="checkbox"/>	Manual Value	3,6 °C
<input type="checkbox"/>	Point Descriptor	Boiler1
<input type="checkbox"/>	Sensor Offset	0 °C
<input type="checkbox"/>	Suppress Alarm	Generate alarms
<input type="checkbox"/>	Technical Address	1/1/1
<input type="checkbox"/>	Trend Cycle Counter	0

Print

Back

In this dialog, you can do the following:

- Change a value of a property
- Enter an alias name for a property name
- Print properties with their values.

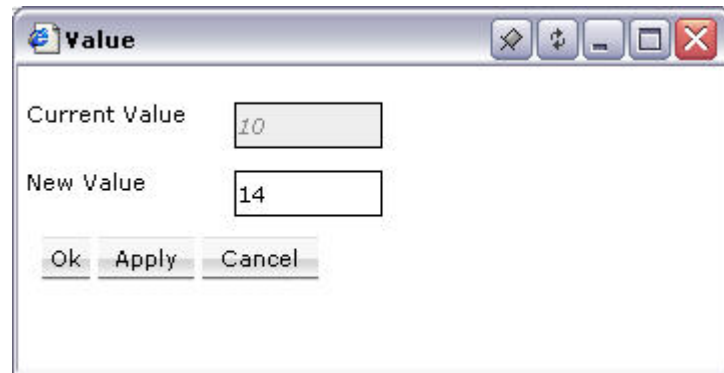
2. To change a value, click on the value in the **Value/Unit** column. In the *Value* dialog box, enter new value in the **New Value** field. Click **Apply** button, then click **OK** button.
3. To enter an alias name for a property name, click the *Configure* icon  at the end of the row. In the *Configure* dialog box, enter the alias name in the **Alias** field. Click **OK**.

NOTE: It is forbidden to use the slash character "/" in alias names because this may result in an unexpected behavior of ARENA.

4. To print a datapoint properties list, check all properties (Multi-selection using CTRL key is possible), you want to add to the printed list.
5. Click **Print**.
The list is built up in a new dialog.
6. Click **Print**.
7. In the *Print* dialog box, select the printer and desired options and click **Print**.

Override Datapoint Value

1. In the **Value/Unit** column, click the value of the datapoint you want to override.
2. In the *Value* dialog box, enter the new value in the **New Value** field.



3. Click **Apply**.
4. Click **OK**.
The datapoint value is updated as displayed in the list. If the **Manual** column is available, the datapoint is checked as Manual (overridden).

NOTE: Online changes will be stored in the controller RAM only.

Show Datapoints in Manual Override

This function allows getting an overview of any datapoints that are currently in manual mode.

1. If not already done, display the **Manual** column in the datapoints list. To configure the list display, please refer to "List Display Configuration" in the "Basic Functions" section.

- In the filter field, select **(all)** or **Yes**.
All datapoints in Manual override are indicated by a checkmark. All others (if all are displayed) are not checked.

Print Datapoints List

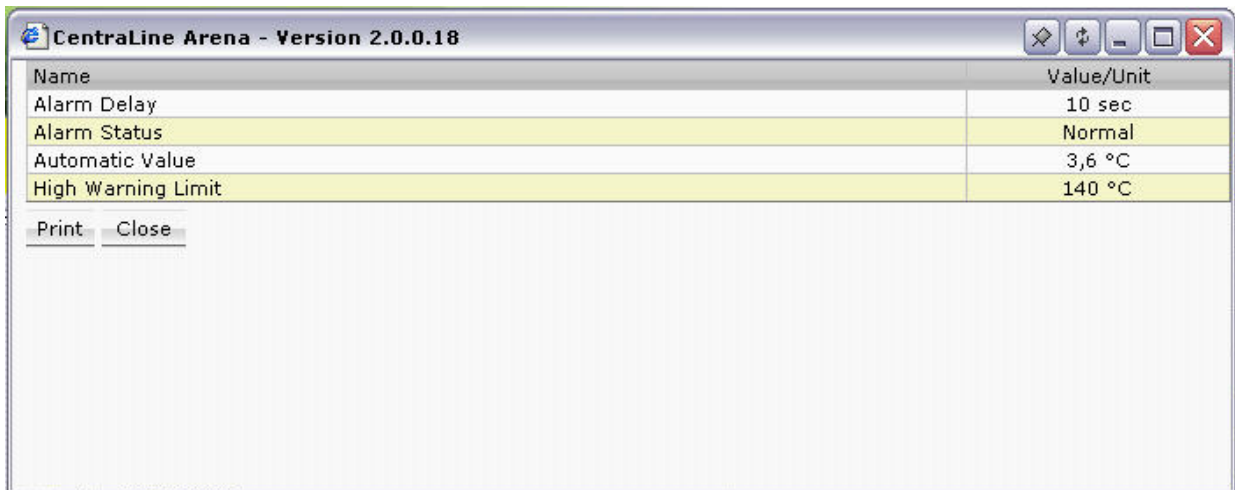
- Select all datapoints in the datapoints list (Multi-selection using CTRL key is possible), you want to add to the printed list.

Datapoints / BL1_FlowTemp (Analog)

<input type="checkbox"/>	Name	Value/Unit
<input checked="" type="checkbox"/>	Alarm Delay	10 sec
<input type="checkbox"/>	Alarm Hysteresis	1 °C
<input checked="" type="checkbox"/>	Alarm Status	Normal
<input type="checkbox"/>	Alarm Text	
<input type="checkbox"/>	Alarm Type	Critical
<input checked="" type="checkbox"/>	Automatic Value	3,6 °C
<input type="checkbox"/>	Characteristic	NTC (°C)
<input type="checkbox"/>	High Alarm Limit	145 °C
<input checked="" type="checkbox"/>	High Warning Limit	140 °C
<input type="checkbox"/>	Low Alarm Limit	-45 °C
<input type="checkbox"/>	Low Warning Limit	-40 °C
<input type="checkbox"/>	Manual Mode	Auto
<input type="checkbox"/>	Manual Value	3,6 °C
<input type="checkbox"/>	Point Descriptor	Boiler1
<input type="checkbox"/>	Sensor Offset	0 °C
<input type="checkbox"/>	Suppress Alarm	Generate alarms
<input type="checkbox"/>	Technical Address	1/1/1
<input type="checkbox"/>	Trend Cycle Counter	0

↳ [Print](#)

- Click **Print**.
The list is built up in a new dialog.
- Click **Print**.



- In the *Print* dialog box, select the printer and desired options and click **Print**.

ALARMS

Overview

Multi Site Alarming Support

On a supervisor ARENA, alarms can be collected centrally from all sites.

Manual Alarm Clearing

The user can “artificially” create a going alarm for a selected coming alarm. If the user knows for sure that an alarm is gone, he can clear it.

Determine Alarm Reason

You can navigate directly to the alarm source.

Link to the Alarm Destination

Support of different dialling destinations

It is sufficient that a remote site without ARENA dials to one destination central, a so-called “relay central”.

Support of alarm routing for application and system alarms (=point alarms)

The remote site routes system alarms and application alarms to different destinations. The selection of application alarms is done based on the datapoint name (=user address). This feature is supported indirectly through a relay ARENA using the alarm forwarding feature of ARENA. This means: A remote site always dials out to the same ARENA, regardless of the alarm cause. This ARENA acts as relay for further alarm segregation.

Alarm Display

Alarms can be seen on any level (Site, System, Plant, etc.). Depending on the level, the alarm list display differs in the number and kind of columns (alarm properties). Depending on the selected level, an alarm can feature at maximum the following properties displayed as columns in the list:

Global Alarm List									
View Summary Configuration									
<input type="checkbox"/>	TimeStamp	Device	Datapoint	Item Value	Alarm Rea...	Alarm Sev...	Acknowled...	Cleared	Details
	(all)	(all)	(all)	(all)	(all)	(all)	(all)	(all)	
<input type="checkbox"/>	26.02.2007 02:30:07	HEATINGP...	DHW1 Leg Alm	Alarm	Alarm	Critical	<input type="checkbox"/>	<input type="checkbox"/>	Detail
<input type="checkbox"/>	26.02.2007 02:00:06	HEATINGP...	DHW1 Leg Alm	Normal	Return to normal	Critical	<input type="checkbox"/>	<input type="checkbox"/>	Detail
<input type="checkbox"/>	25.02.2007 02:30:05	HEATINGP...	DHW1 Leg Alm	Alarm	Alarm	Critical	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Detail
<input type="checkbox"/>	25.02.2007 02:00:04	HEATINGP...	DHW1 Leg Alm	Normal	Return to normal	Critical	<input type="checkbox"/>	<input type="checkbox"/>	Detail
<input type="checkbox"/>	24.02.2007 02:30:06	HEATINGP...	DHW1 Leg Alm	Alarm	Alarm	Critical	<input type="checkbox"/>	<input type="checkbox"/>	Detail
<input type="checkbox"/>	24.02.2007 02:00:05	HEATINGP...	DHW1 Leg Alm	Normal	Return to normal	Critical	<input type="checkbox"/>	<input type="checkbox"/>	Detail
<input type="checkbox"/>	23.02.2007 02:30:06	HEATINGP...	DHW1 Leg Alm	Alarm	Alarm	Critical	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Detail
<input type="checkbox"/>	23.02.2007 02:00:05	HEATINGP...	DHW1 Leg Alm	Normal	Return to normal	Critical	<input type="checkbox"/>	<input type="checkbox"/>	Detail
<input type="checkbox"/>	22.02.2007 02:30:06	HEATINGP...	DHW1 Leg Alm	Alarm	Alarm	Critical	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Detail
<input type="checkbox"/>	22.02.2007 02:00:05	HEATINGP...	DHW1 Leg Alm	Normal	Return to normal	Critical	<input type="checkbox"/>	<input type="checkbox"/>	Detail

Change page: < 1 2 > | Displaying page 1 of 2, items 1 to 10 of 15.

[Print](#) [Acknowledge](#) [Delete](#)

- **Site**
Site name where the controller is located that has raised the alarm. Comes from the controller file (Panther / Tiger Controller)
- **Device**
Controller name
- **Alarm Reason**
Shows the alarm reason, for example, 'min alarm'
- **Time stamp**
Time when the alarm was raised
- **Cleared at**
Timestamp when the alarm reason went away, for example, last 24 hours. In the global alarm list, this is shown as grayed checkbox. If the alarm is cleared, the checkbox is checked, otherwise unchecked. The timestamp is also displayed in the details.
- **Cleared**
Shows whether the alarm is cleared (Yes) or not (No)
- **Acknowledged at**
Timestamp of user acknowledgement, for example, last hour. In the global alarm list, this is shown as grayed checkbox. If the alarm is acknowledged, the checkbox is checked, otherwise unchecked. The timestamp of the acknowledgement is also displayed in the details.
- **Acknowledged by**
User that acknowledged the alarm. In the details, the user names or email addresses of the users who have acknowledged the alarm, are displayed. If an acknowledgement has been received by email, this field shows the sender's

Email address.

- Acknowledged by station
ARENA that acknowledged the alarm
- Item Name
Alarm source (datapoint) that has caused the alarm.
 - Shows 'System' when the alarm is a system alarm
 - Shows the datapoint name for point alarms
- Item Value: value/status of the datapoint when the alarm has occurred.
 - Shows N/A when the alarm is a system alarm that does not provide an item value.
 - Shows the value and engineering unit of the datapoint when the alarm was raised for analog points
 - Show the status text of the datapoint when the alarm was raised for digital points
- Alarm severity
Critical or Uncritical. For system alarms, this is always 'critical'
- Alarm class
System or Application (for point related alarms)
- Datapoint
Datapoint that caused the alarm
- Acknowledged
- Shows whether the alarm is acknowledged (Yes) or not (No)
- Alarm Direction
Shows whether the alarm was coming (occurred) or going (cleared).
- Plant
Name of plant where the alarm occurred.
- Segment
Name of segment where the alarm occurred.
- Station
Name of station where the alarm occurred.
- System
Name of system where the alarm occurred.

Alarm Indication in Tree

Any new alarm, regardless from which site it comes, is indicated by a red triangle at the tree item (site, controller, plant) that causes the alarm.

In the global alarm list, alarms can be:

- filtered
- printed
- deleted
- acknowledged
- uploaded

Alarm List Views

Alarms can be displayed in 2 different ways:

- Detailed View
Coming and going alarms are displayed separately and can be acknowledged individually. The content of the list and the sort order of the list content can be configured.
- Summary View
Coming and going alarms are displayed in one line. An alarm is regarded as acknowledged, if both, coming and going alarm, have been acknowledged. If an alarm is acknowledged, both alarms (coming and going) are acknowledged. The sort order of the list content can be configured.

NOTE: Both views can be configured separately.

Alarm Handling

When the controller is connected to ARENA, alarms are received automatically as soon as ARENA is installed or the remote site has been configured correctly using ARENA's site configuration.

NOTES: Dial-up sites will automatically connect to the supervisor PC in case of a critical alarm. Alarms from LAN sites can only be received if the LAN site is connected explicitly. Make sure you connect to a LAN site once it has been successfully created. After exiting and restarting ARENA, previously connected LAN sites will be automatically reconnected.

The PANTHER / TIGER controller will always send out critical alarms as soon as they occur. After alarms have been sent, a "blocking time" of 24 hours becomes active for uncritical alarms. During the blocking time, no uncritical alarms are sent out. However, if there's a danger of losing alarms (because the controller's alarm buffer is 80 % full), the uncritical alarm will be sent. Also, if a connection is established during the blocking time (e.g. as a result of a critical alarm), the pending uncritical alarms are sent.

PANTHER / TIGER controllers try to send a critical alarm to ARENA directly after it occurred. If ARENA does not respond, the controller repeats the connection attempt each 5 minutes for ½ hour. After that, it repeats the attempt to reach ARENA each 4 hours, for 3 days. If ARENA does not respond for 3 days, the controller stops its attempt to reach ARENA. It will restart the attempt only after ARENA successfully dials into the site.

Acknowledging Alarms

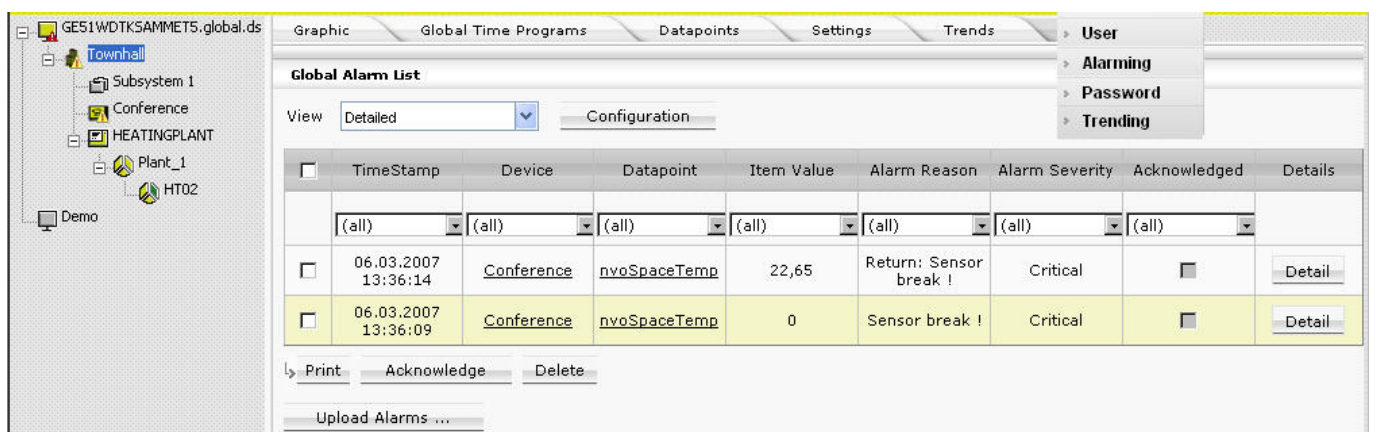
ARENA allows the operator to document that he has seen an alarm. This is called "acknowledgement". Acknowledgements can be made by Email (responding to a forwarded Email), or manually. The person who has made the acknowledgement is stored with the alarm and displayed in the alarm history. In case of Email acknowledgements, the sender's Email address is an indication for the person who has made the acknowledgement.

To acknowledge an alarm that has been forwarded by Email, just reply to the alarm Email (i.e. send it back to ARENA). ARENA will receive the Email via POP3, and will show the replier's Email address in the **acknowledged by** field. If an acknowledgement has successfully been processed by ARENA, it will be deleted from the mailbox.

To acknowledge alarms manually, click the alarm(s) in the alarm list and click the **Acknowledge** button on the *Global Alarm List* pane.

Show Global Alarm List

1. In the tree, click the level (site, system, etc.) for which you want to display alarms.
2. On the right pane, click *Alarms* tab.
3. The Global Alarm List is displayed. For description of the properties, please refer to the "Overview" section.



4. In the Global Alarm List, you can do the following:

- View alarm details of a single alarm
Please refer to the “View Alarm Details of Single Alarm” section.
- Print an alarm list
Please refer to the “Print Alarm List” section
- Acknowledge alarms
Please refer to the “Acknowledge Alarms” section
- Delete alarms
please refer to the “Delete Alarms” section
- Upload alarms
please refer to the “Upload Alarms” section

In addition, you can apply general procedures such as:

- Filter alarms
Please refer to “Apply Filter for Display” in the “Basic Functions” section
- Configure alarm list display
Please refer to “List Display Configuration” in the “Basic Functions” section

View Alarm Details of Single Alarm

1. Select the alarm in the global datapoints list.
2. Click **Details** button at the end of the row. The *Alarm Details* dialog box displays showing the most important alarm properties, such as timestamp, alarm value, etc. Here you can do the following:
 - View alarm history and Info
 - Print the alarm details
 - Acknowledge the alarm
 - Delete the alarm

Alarm Details

<p>General</p> <p>Time Occured: <input type="text" value="06.03.2007 13:36:09"/></p> <p>From Site / Device / Variable: <input type="text" value="Townhall / Conference / nvoSpaceTemp"/></p> <p>Alarm class: <input type="text" value="Application"/></p>	<p>Alarm Reason</p> <p>Alarm Value: <input type="text" value="0"/></p> <p>Alarm Text: <input type="text" value="Sensor break !"/></p> <p>Alarm Severity: <input type="text" value="Critical"/></p>
--	---

Alarm Status
Acknowledged / at: <input type="text" value="No"/> / <input type="text" value=""/> <input type="button" value="History"/>
Acknowledged by: <input type="text" value=""/>
Cleared / at: <input type="text" value="Yes"/> / <input type="text" value="06.03.2007 13:36:14"/> <input type="button" value="Info"/>

3. To view all acknowledgements of the selected alarm, click the **History** button. The history is displayed in a separate list. After viewing the history, click the **Close** button in this list.
4. To open the detail view of the corresponding going alarm or other event that has cleared the alarm, click the **Info** button.
5. To print the alarm details, click **Print** button. The list is built up in a new dialog. Click **Print**. In the *Print* dialog box, select the printer and desired options and click **Print**.
6. To acknowledge the alarm, click the **Acknowledge** button. For further description, please refer to step 2 in the “Acknowledge Alarms” section.

- To delete the alarm, click the **Delete** button. This flags the alarm in the database as 'deleted'.

Print Alarm List

- Select all alarms in the global datapoints list (Multi-selection using CTRL key is possible), you want to add to the printed list.
- Click **Print**.
The list is built up in a new dialog.
- Click **Print**.
- In the *Print* dialog box, select the printer and desired options and click **Print**.

Acknowledge Alarms

- In the **Global Alarm List**, click the alarm(s), you want to acknowledge.
- Click the **Acknowledge** button. The *Acknowledging* dialog box displays. Here you can acknowledge one single or multiple alarms depending on how many alarms you have selected. If you have clicked the **Acknowledge** button in the *Alarm Details* dialog box, you will come to this dialog box too for acknowledging this single alarm.

Acknowledging

Time Occured: 13.03.2007 02:00:06

From Site / Device / Variable: Townhall / HEATINGPLANT / DHW1_Leg_Alm

Alarm Text: Return to normal

User Name: Manager

Station Name: GE51WDTKSAMMET5.global.

Manager has seen the alarm

Acknowledge Cancel

http://localhost/Arena/Alarming/Acknowledging.aspx?AlarmIds=e2c

- View the alarm details, such as **Time occurred** etc. before definitely acknowledging the alarm.
- In the middle, enter a comment if desired. This comment is saved in the alarm history. If multiple alarms have been selected and you want to add the same comment to each acknowledged alarm, check the **Same Comment for all checkbox**.
- Click the Acknowledge button. If the *Acknowledged* column is displayed in the global alarm list, the alarm is indicated as acknowledged by a checkmark.

Delete Alarms

1. Show **Global Alarm List** as described in the “Show Global Alarm List” section.
2. Click on alarm you want to delete (Multiselection using CTRL key is possible).
3. Click **Delete** button. This flags the selected alarms in the database as ‘deleted’.

Upload Alarms

Alarms can be uploaded from different source sites and for a definable time range.

1. Show **Global Alarm List** as described in the “Show Global Alarm List” section.
2. Click **Upload Alarms** button. The **Alarm Data Upload** wizard displays.

NOTE: Uploading alarms multiple times results in duplication of the alarms in the ARENA database.

The screenshot shows a web-based wizard window titled "Alarm Data Upload". The window has a standard Windows-style title bar with minimize, maximize, and close buttons. The main content area contains the following elements:

- Source Site:** A dropdown menu currently showing "Townhall (Local)".
- From Date:** A text input field containing "06.03.2007" with a small calendar icon to its right.
- To Date:** A text input field containing "07.03.2007" with a small calendar icon to its right.
- Time Range:** Two text input fields, one for the start time "11:27" and one for the end time "11:27", positioned to the right of the date fields.
- Next >>:** A button with a right-pointing arrow and the text "Next >>".
- URL:** A status bar at the bottom of the window displaying the URL "http://localhost/Arena/Alarming/AlarmUpload.aspx".

3. In **Source Site**, select the site from which you want to upload the alarms.
4. In **From Date** and **To Date**, enter the date range. Use the calendar icons right to the fields if desired. Right to the calendar icons, enter the time range.
5. Click **Next>>** button and follow the instructions of the wizard until finishing the alarm data upload.

ALARM FORWARDING

Alarm forwarding is possible to printers, eMail or mobile phone (via eMail), or service ARENAS. Alarm segregation allows forwarding alarms to different destinations based on definable criteria such as:

- Trigger (information of the alarm itself), such as: Critical / Non-Critical, site on which the alarm occurred, datapoint names, e.g. all points that start with "Heat", and many more.
- Day of week
- Time of day

Example:

A local authority supervises schools and kindergartens using an ARENA 2.0 in the town hall. Usually, a supervisor employed by the city handles alarms from all connected sites. However, if the supervisor does not acknowledge alarms within 30 minutes, they are being forwarded to external maintenance facilities according to the following rules:

- Only critical alarms are forwarded.
- All school alarms go to dedicated service centrals for schools. Based on weekday and time, different service centrals are used as destination. In the picture, this forwarding path is represented by gray arrows. In this example, 2 destination centrals are available for schools: one Mo-Fr, 08:00-18:00 and the other for the rest of the week.
- All kindergarten alarms go to dedicated service centrals for kindergartens. Based on weekday and time, different service centrals are used as destination. In the picture, this forwarding path is represented by black arrows. In this example, 2 destination centrals are available for kindergartens: one Mo-Fr, 07:00-17:00 and the other for the rest of the week.
- If a forwarded alarm is not acknowledged by the user for longer than 10 minutes on any of the service centrals, it will be sent to mobile phones via eMail. Different target phones can be contacted based on the time / day.

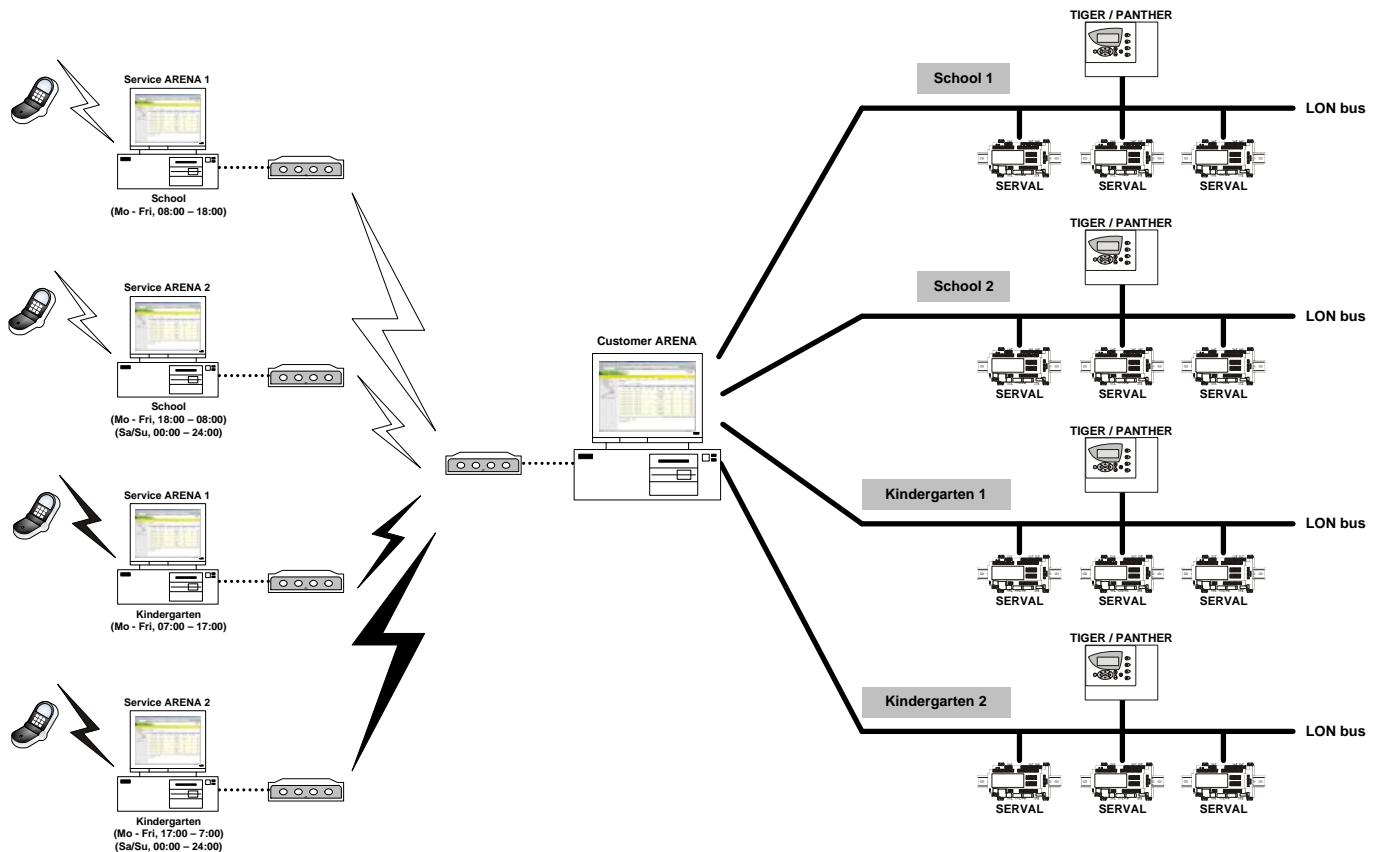


Fig. 20. Alarm Forwarding Scenario

Create Alarm Forwarding

An alarm forwarding will be created with the following major steps:

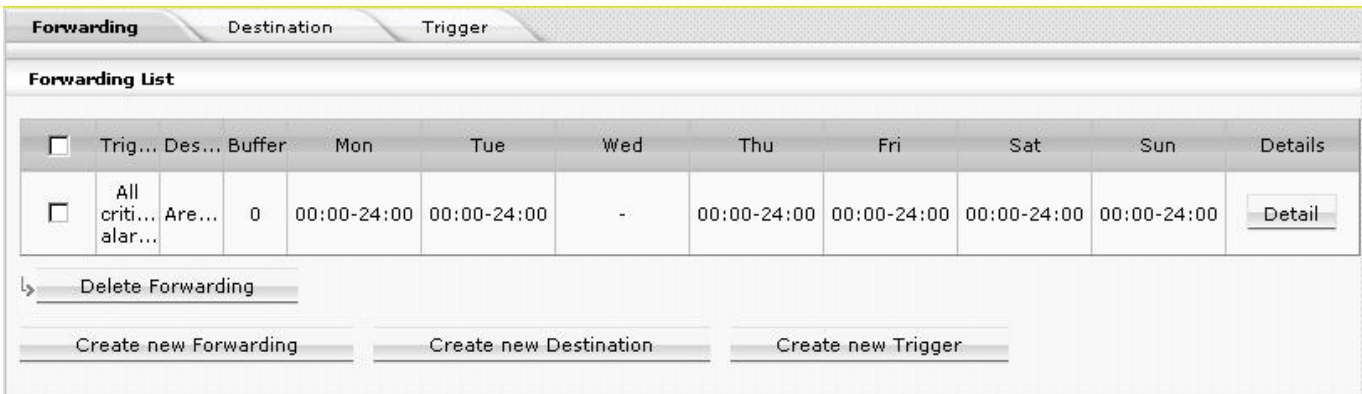
1. **Create Destination** (see “Create Destination” section)
 - a. Define destination for sending and receiving alarms
 - b. Define alarm message
 - c. Define acknowledgement message
 - d. Define ‘Advanced’ options
2. **Create Trigger** (see “Create Trigger” section)
 - a. Define Condition that initiates the alarm forwarding
3. **Create Forwarding** (see “Create Forwarding” section)
 - a. Define schedule for the alarm forwarding

NOTE: You must create a destination and a trigger before you can create the alarm forwarding. By default, the triggers ‘All critical alarms’ and ‘All uncritical alarms’ are already available.

Create Destination

1. Hover the cursor over the **Configuration** menu icon  and click **Alarming** in the configuration menu.

The **Forwarding** pane displays. On the *Forwarding* tab, the forwardings are shown in a **Forwarding List**. A Forwarding consists of one or multiple **Destinations** where the forwarding is directed to and a **Trigger** which defines the events after which the forwarding is started, for example, after a critical alarm has occurred, or when an alarm has not been acknowledged within a certain time range. The forwarding can be enabled for a definable number of days (**Mon**, **Tue**, through **Sun**) with a time **Buffer** (delayed or not delayed) and many more criteria such as lifetime and update intervals, etc. A forwarding can also be disabled if you do not want to forward alarms to given destinations.



The screenshot shows the 'Forwarding List' interface with three tabs: 'Forwarding', 'Destination', and 'Trigger'. The 'Forwarding' tab is active. Below the tabs is a table with the following columns: a checkbox, 'Trig...', 'Des...', 'Buffer', 'Mon', 'Tue', 'Wed', 'Thu', 'Fri', 'Sat', 'Sun', and 'Details'. The first row in the table has the following values: a checked checkbox, 'All criti... alar...', 'Are...', '0', '00:00-24:00', '00:00-24:00', '-', '00:00-24:00', '00:00-24:00', '00:00-24:00', '00:00-24:00', and a 'Detail' button. Below the table are three buttons: 'Delete Forwarding', 'Create new Forwarding', 'Create new Destination', and 'Create new Trigger'.

2. Select the *Forwarding* tab and click **Create new Destination** button, or select the *Destination* tab and click **Create Destination** button. The *Details Destination* dialog box displays. Here you choose the destination (Email, Arena, or printer) and enter corresponding properties. Then you can test the destination and must save it.

3. On the *General* tab, select the destination In **Destination Type** under:
 - Email
 - Printer
 - Arena

Depending on the selected destination type, individual dialog pages display for setting up the destination.

When creating an email destination, continue with step 4 under “Email Destination Type”.

When creating a printer destination, continue with step 11 under “Printer Destination Type”.

When creating an ARENA destination, continue with step 15 under “Arena Destination Type”.

Email Destination Type

4. If **Email** has been selected as destination, do the following on the *General* tab:

General Tab Destination

Forwarding **Destination** Trigger

Details Destination

General | Alarm Message | Acknowledgment Message | Advanced

Destination Type Email

Destination

Destination name: web_de

From: arenabuilds@web.de

To: klaus.sammnet@honeywell.cc

Cc:

- In **Destination Name**, enter descriptive text for your email destination.
- In **From**, enter the E-mail address for ARENA. This is the sender's mailbox address. Note that each ARENA installation must have its own mailbox.
- In **To**, enter the E-mail address(es) for the recipients of the alarm. Multiple addresses can be separated by semicolon.
- In **Cc**, specify the E-mail address(es) for the recipients to which the alarm information should be copied. Multiple addresses can be separated by semicolon.

Internet Connection

Internet Connection:

Connect Directly

Dial to ISP first using arcor_internet

+ - ✎

- In **Connect Directly**, select this option when the mail server is reachable via LAN
- In **Dial to ISP first using**, select the Dial-Up option to reach your mail server. Dial-up connections are typically used to connect to an ISP (internet service provider) when the mail server is not reachable via LAN.

NOTES:

- Yahoo cannot be used as ISP because there are issues on the provider side concerning external email access. Use an alternative ISP.
- ARENA shows all dial-up connections on your PC here, except the ones used to connect to remote sites. ARENA will also allow creating new Dial-up connections to ISPs, which is the recommended way for alarm forwarding. You can choose an existing dial-up connection to an ISP.

ATTENTION!

When selecting an existing dial-up connection, make sure that the modem connection is set up in a way that it does not attempt to retry after the phone line drops, because this conflicts with the retry attempts of ARENA. You can

check this by selecting **Connect to / Show all connections** from the Windows Start menu. Then open the properties of the connection.

Sending Alarms (SMTP)

NOTES:

- The SMTP (Simple Mail Transfer Protocol) is preferentially used for sending/forwarding emails.
- To get information about the SMTP settings, go to the web site of the local ISP, invoke the Help function and search for the required information. The search and location where the information can be found, may differ from ISP to ISP. If no information can be found in the Help, contact the ISP directly.

- a. In **Server Name or IP**, enter the address of the SMTP server (name or IP address) you want to use to forward alarms e.g. "smtp.web.de".
- b. In **Port**, you must change the port used to send/forward emails via SMTP if your ISP uses another port than the default port 25. Change it accordingly, if necessary.

NOTE:

It may happen, that an anti-virus software may block the port 25 which is necessary for sending emails. In this case, you must change the configuration settings of the anti-virus software in order to allow ARENA forwarding alarms (see **Anti-Virus Software Tools and Ports** in the "Security" chapter of the ARENA / RANGER Installation Guide, EN1Z-0906GE51).

- c. Check **Server requires authentication** and enter **User and Password**, if the Email-Server requires authentication.
- d. Uncheck **Server requires authentication** if the Email-Server does not require **authentication**
- e. Required **Authentication** protects mailboxes by user name and password.
- f. Check **SSL**, if the SMTP server uses the SSL (Secure Sockets Layer) standard for the data transmission.

Receiving Responses (POP3)

POP3 (Post Office Protocol) is a client/server protocol for the communication between an email program on an individual user PC and a mail server in the internet hosting the mailbox of the user by an ISP (internet service provider). Via POP3, emails will be sent from ISP mailbox to the user PC.

NOTE:

To get information about the POP3 settings, go to the web site of the local ISP, invoke the Help function and search for the required information. The search and location where the information can be found may differ from ISP to ISP. If no information can be found in the Help, contact the ISP directly.

Receiving Responses (POP3)

Server name or IP:	<input type="text" value="pop3.web.de"/>
Port:	<input type="text" value="110"/>
Server requires authentication:	<input checked="" type="checkbox"/>
Use same as for sending:	<input checked="" type="checkbox"/>
User:	<input type="text" value="rangerbuilds@web.de"/>
Password:	<input type="password" value="....."/>
SSL:	<input type="checkbox"/>

- a. In **Server Name or IP**, enter the address of the POP3 server (name or IP address) you want to use to receive emails, e.g. pop3.web.de".
- b. In **Port**, you must change the port used to receive emails via POP3 if your ISP uses another port than the default port 110. Change it accordingly, if necessary.

NOTE:

It may happen, that an anti-virus software may block the port 110 which is necessary for receiving emails. In this case, you must change the configuration settings of the anti-virus software in order to allow ARENA forwarding alarms (see **Anti-Virus Software Tools and Ports** in the "Security" chapter of the ARENA / RANGER Installation Guide, EN1Z-0906GE51).

- c. Check **Server requires authentication** and enter **User and Password**, if the Email-Server requires authentication.
- d. Uncheck **Server requires authentication** if the Email-Server does not require **authentication**.
- e. Required **Authentication** protects mailboxes by user name and password.
- f. Check **Use same as for sending** if user name and password is the same as for sending emails via SMTP server.
- g. Check **SSL**, if the SMTP server uses the SSL (Secure Sockets Layer) standard for the data transmission.

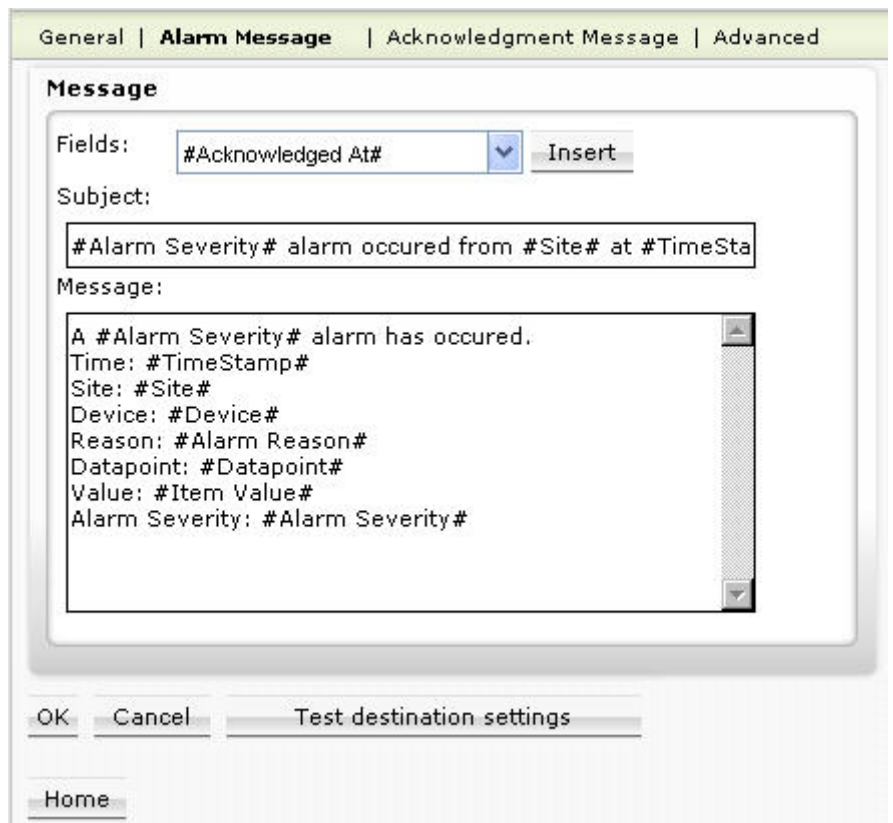
ATTENTION!

Each installation of ARENA requires its own mailbox, when it is used for forwarding alarms. Ideally, you give the mailbox a name that allows you to determine which ARENA sent the alarm to you. The mailbox must usually reside on the POP3 server.

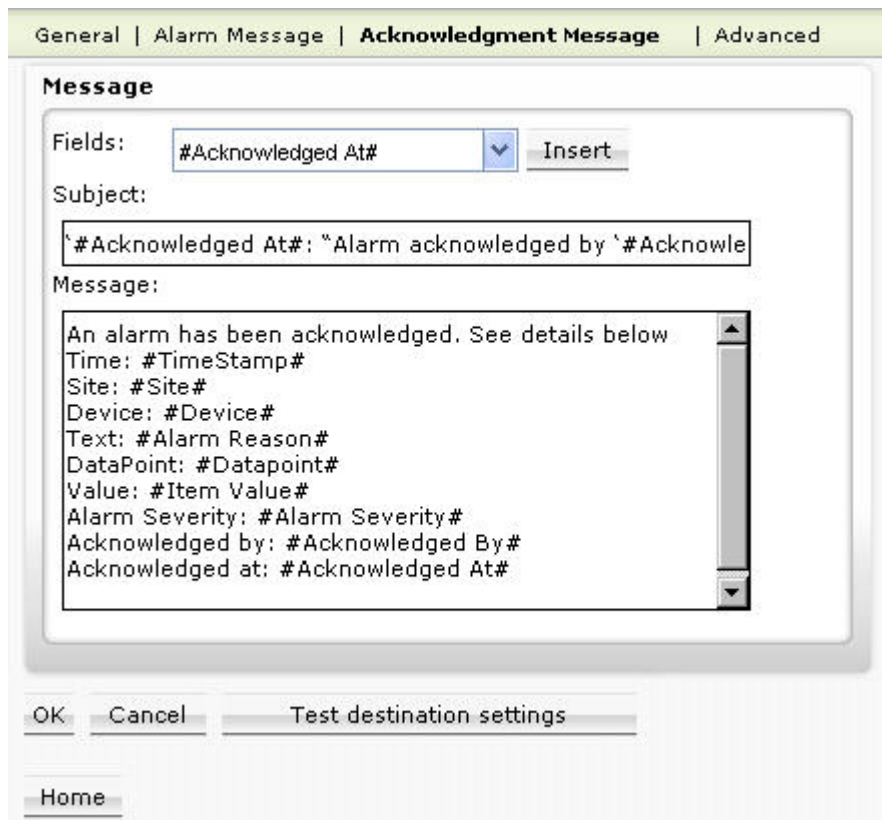
5. Select the *Alarm Message* tab.

Alarm Message Tab

Here you define the alarm text you want to be sent via email. The alarm text will be composed by entering free text and combining this text with various pre-defined text components (placeholders). By default, a pre-defined alarm text set is displayed in the **Message** list. You can use, change or extend this according to your needs as follows:



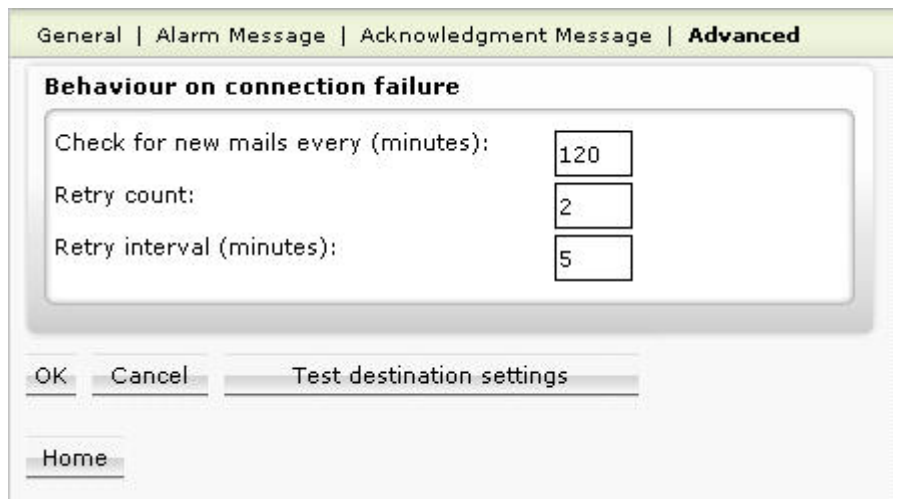
- a. Click in the **Message** list and change, edit or delete text at the desired position.
 - b. In the Message list, click at the position where you want to insert a pre-defined text component (placeholder)
 - c. Select the corresponding field in the **Fields** drop-down listbox and then click the **Insert** button.
The placeholder, indicated by two pound characters #, is inserted at the cursor position.
6. Select the *Acknowledgement Message* tab.
- Acknowledgement Message Tab**
- Here you define the text you want to be sent via email as acknowledgement of the alarm. The acknowledgement text will be composed in the same way as the alarm text (see previous *Alarm Message* tab description).



7. Select the *Advanced* tab.

Advanced Tab

Behaviour on Connection Failure



- a. In **Check for new mails every ... (minutes)**, enter minutes after which the server should check for new email acknowledgements.
This function requires a POP3 server to be setup.
 - b. In **Retry count**, enter the number of attempts ARENA should make to reach the Email server. When ARENA still cannot reach the Email server after retrying, it stops any further attempt until a new alarm comes in.
 - c. In **Retry interval (minutes)**, enter interval in minutes the ARENA waits between the retry attempts.
8. Click the **Save Destination** button.
9. Click the **Test Destination Settings** button in order to check if sending Emails works correctly. Check your Email account for a received test message. If there are error messages, correct the settings and test again.

NOTE: In order to avoid spamming, some Email providers restrict sending e-mails in short intervals. This time interval can be, for example, up to 15 minutes. This restricting interval may result in the loss of sent alarm emails. Please check if your Email provider demands on such restrictions. It is recommended to choose an Email provider that has such restrictions. Otherwise alarm emails may not reach the recipient. These restrictions also pertain to alarm showers.

10. Continue with creating the trigger conditions as described in the “Create Trigger” section.

Printer Destination Type

When using a printer as destination, the following printer categories can be used:

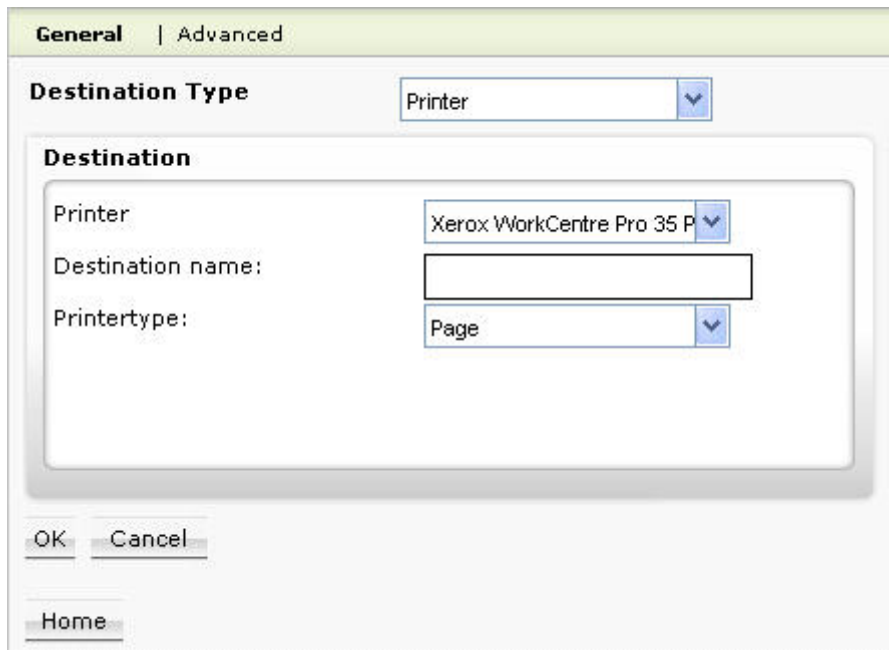
- Local printers
 - Driver must be installed
 - Test page can be printed
- Network printers
 - Driver must be installed
 - Test page can be printed
 - Access without password input is possible

NOTE: For sending a FAX message, a FAX driver such as FAX machine can be installed.

11. If Printer has been selected as destination, do the following on the *General* tab:

General Tab

Destination

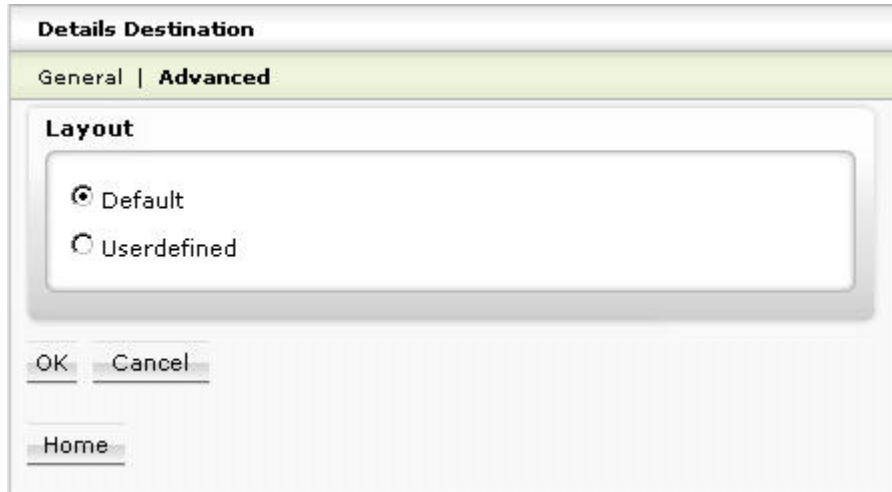


- a. In **Printer**, select one of the installed printers.
- b. In **Destination Name**, enter descriptive text for the destination printer.
- c. In **Printertype**, select type, page (laser) or line printer (matrix). On page printers, ARENA calculates how many alarms fit on one page. Only if the page is full, the alarms are printed. This is done to avoid waste of paper which would occur if each alarm were to be printed on an individual page. On line printers (which are typically used as protocol printers) the alarm is printed immediately. Typically, continuous paper is used for this purpose.

12. Click *Advanced* tab.

Advanced Tab

Layout



- a. **Default**, if you want the alarm columns to be distributed across the available space on the paper.
 - b. Select **Userdefined**, if you want the columns to be distributed across the available space on the paper according to a default layout grid which is displayed below. Clicking the **Load from Alarm Detail View Columns** button loads the current detailed view column configuration of the top level entry in the site tree and replaces the default grid below. To change the loaded column configuration, select the top level entry in the site tree, click *Alarms* tab on the right, and then select 'Detailed' from the **View** drop-down listbox. Click **Configuration** button and define settings in the *Alarm List Configuration* dialog box. You can resize the columns using the mouse.
13. Click the **OK** button.
14. Continue with creating the trigger conditions as described in the "Create Trigger" section.

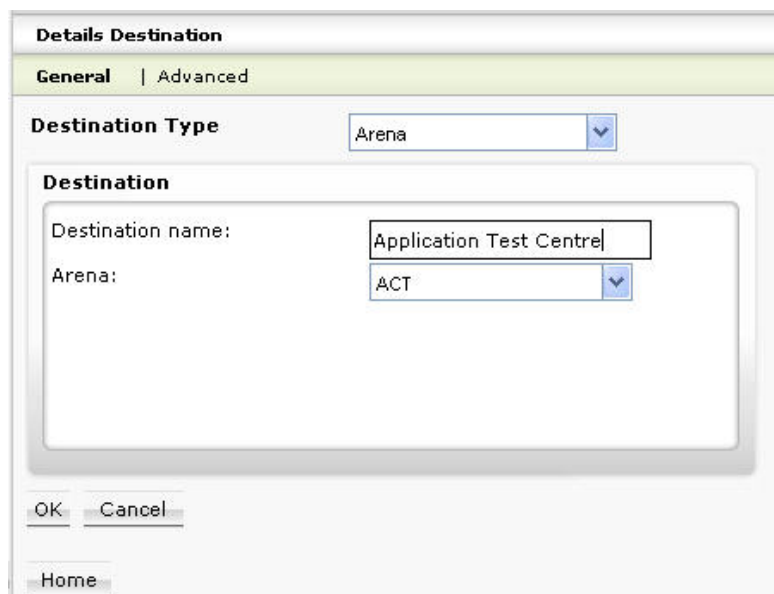
Arena Destination Type

This destination type allows alarm forwarding via an ARENA.

- 15. If ARENA has been selected as destination, do the following on the *General* tab:

General Tab

Destination



- a. In **Arena**, select the remote ARENA you want to forward the alarms.
 - b. In **Destination name**, enter a descriptive text for the ARENA.
16. Click *Advanced* tab.

Advanced Tab

Behavior on Connection Failure

The screenshot shows a dialog box titled "Details Destination" with two tabs: "General" and "Advanced". The "Advanced" tab is selected. Under the heading "Behaviour on connection failure", there are two input fields: "Retry count" with the value "2" and "Retry interval (minutes)" with the value "5". At the bottom of the dialog, there are three buttons: "OK", "Cancel", and "Home".


- a. In **Retry count**, enter the number of attempts ARENA should make to reach the remote ARENA. When ARENA still cannot reach the remote ARENA after retrying, it stops any further attempt until a new alarm comes in.
 - b. In **Retry interval (minutes)**, enter interval in minutes the ARENA waits between the retry attempts.
17. Click the **OK** button.
18. Continue with creating the trigger conditions as described in the "Create Trigger" section.

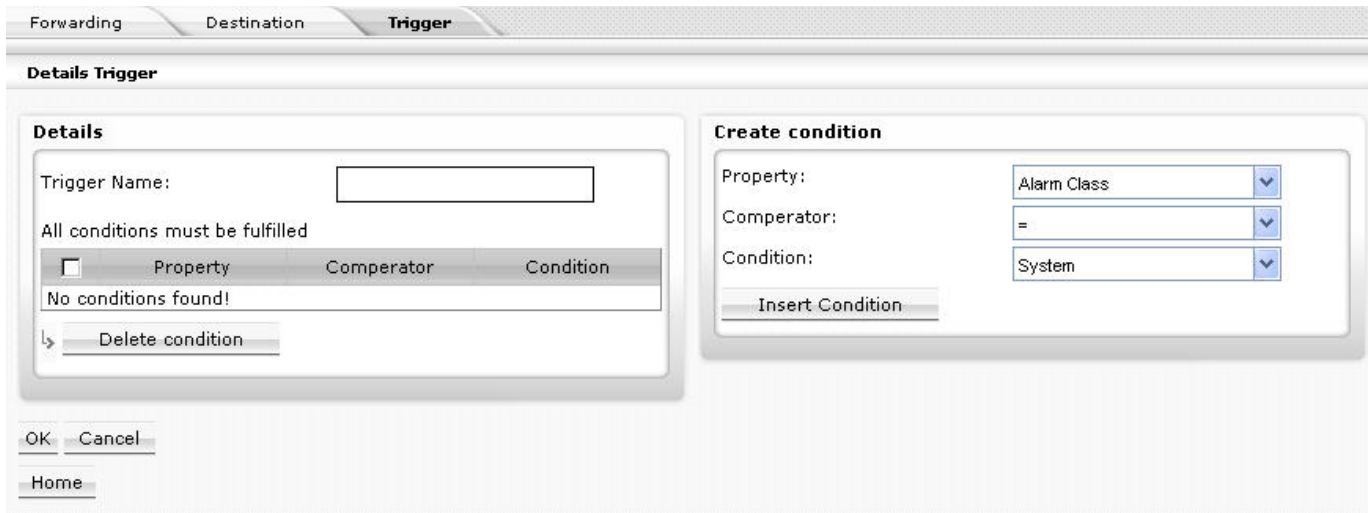
Create Trigger

A trigger is the condition (event) that causes ARENA to forward an alarm if the condition becomes true.

Example:

If the alarm severity (property) is critical (condition), any critical alarms will be forwarded.

1. Hover the cursor over the **Configuration** menu icon  and click **Alarming** in the configuration menu.
2. Select the *Forwarding* tab and click **Create new Trigger** button, or select the *Trigger* tab and click **Create Trigger** button. The *Trigger* tab displays. Here you create the conditions for triggering the alarm forwarding by doing the following:

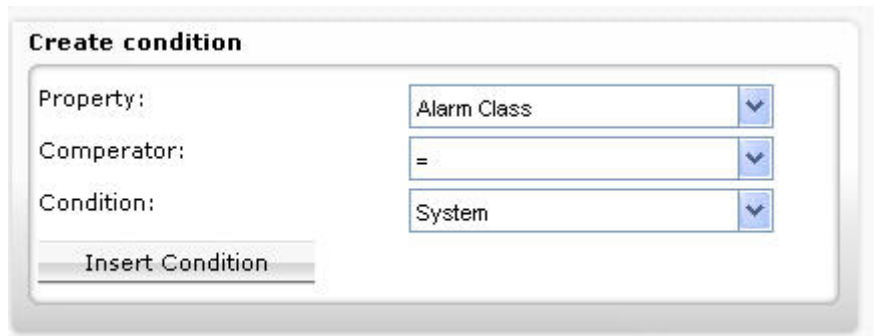


Create condition

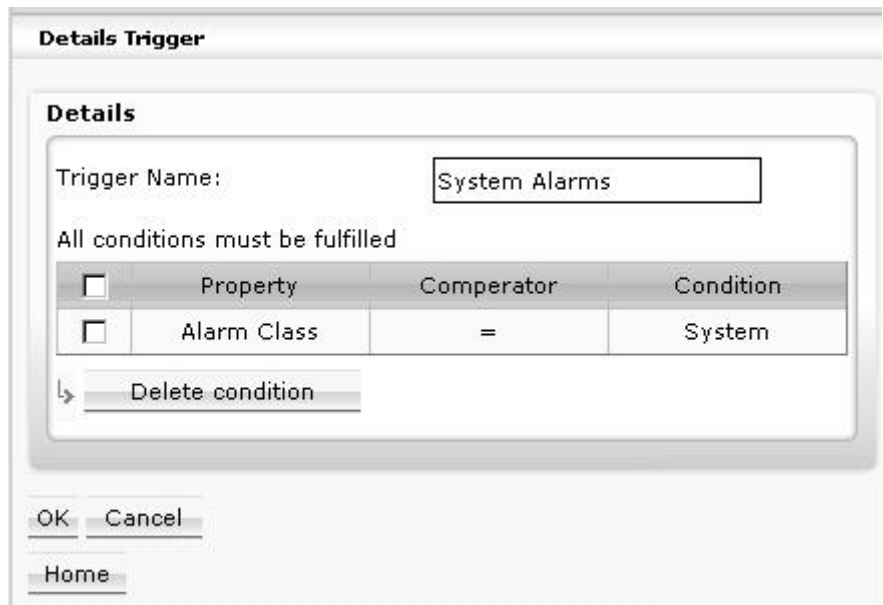
- a. In **Property**, select the property, for example 'alarm class'
- b. In **Comperator**, select the comparator, for example '='
- c. In **Condition**, select the condition for example 'System Alarms'.

This condition results in the following:

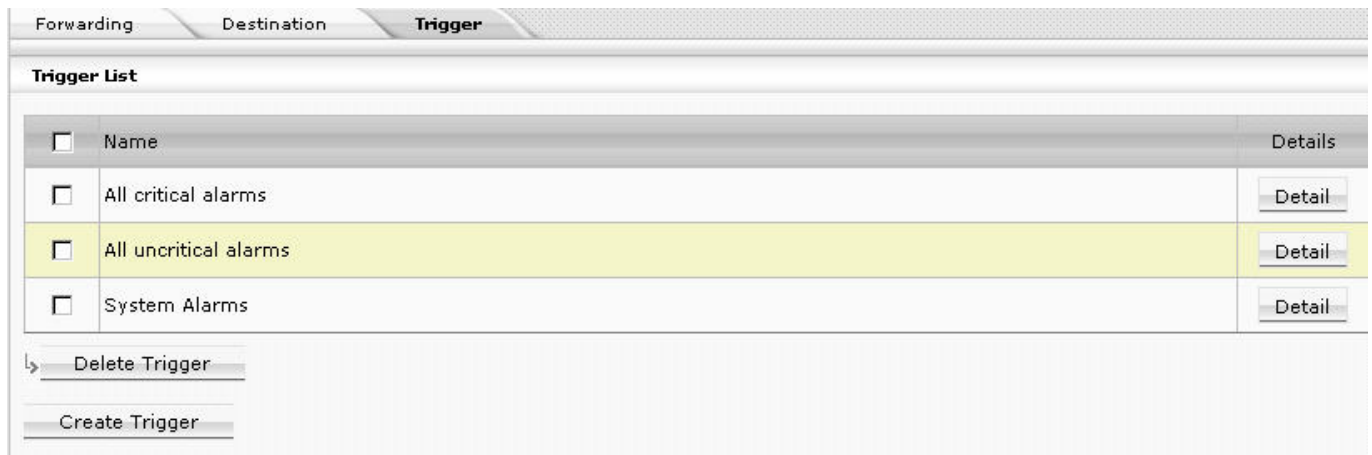
All system alarms will be forwarded. By default, the triggers 'All critical alarms' and 'All uncritical alarms' are already available in the triggers list.



- d. Click the **Insert Condition** button. The condition is added to the table under **Details** on the left.




- e. In **Trigger Name**, enter a name for the trigger, for example, 'System Alarms'.
- f. Click **OK** button. The trigger is displayed in the **Trigger List**.



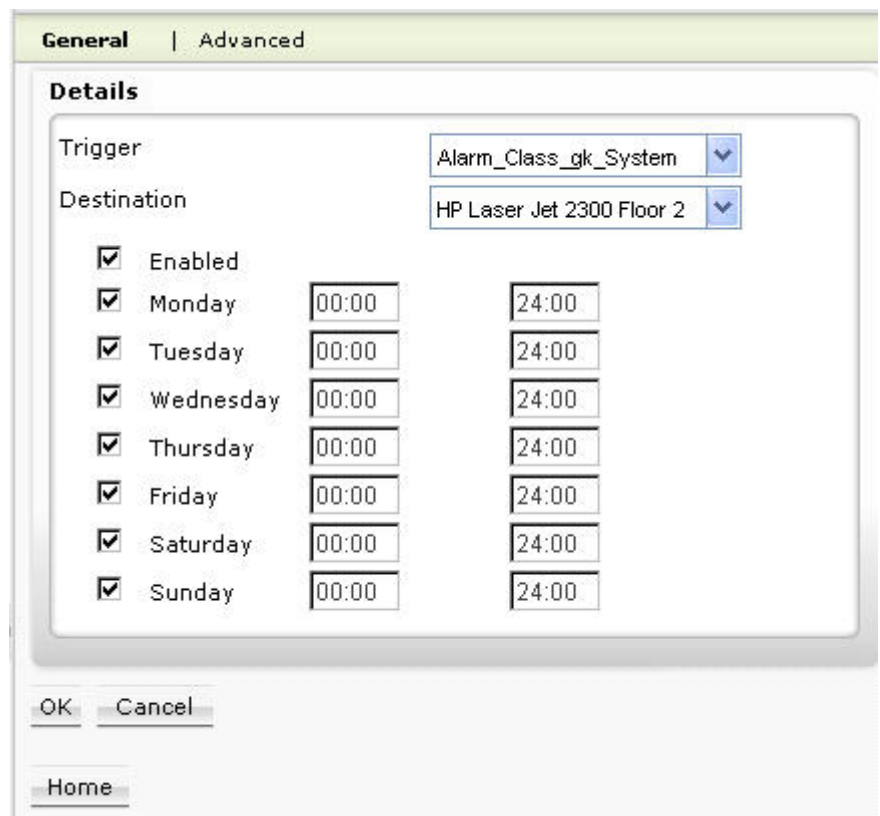
- g. Continue with finally creating the forwarding as described in the "Create Forwarding" section.

Create Forwarding

1. Hover the cursor over the **Configuration** menu icon  and click **Alarming** in the configuration menu.
2. To create a forwarding, click the *Forwarding* tab, and then click the **Create new Forwarding** button. The *Details Forwarding* pane displays.
3. On the *General* tab, do the following:

General Tab

Details

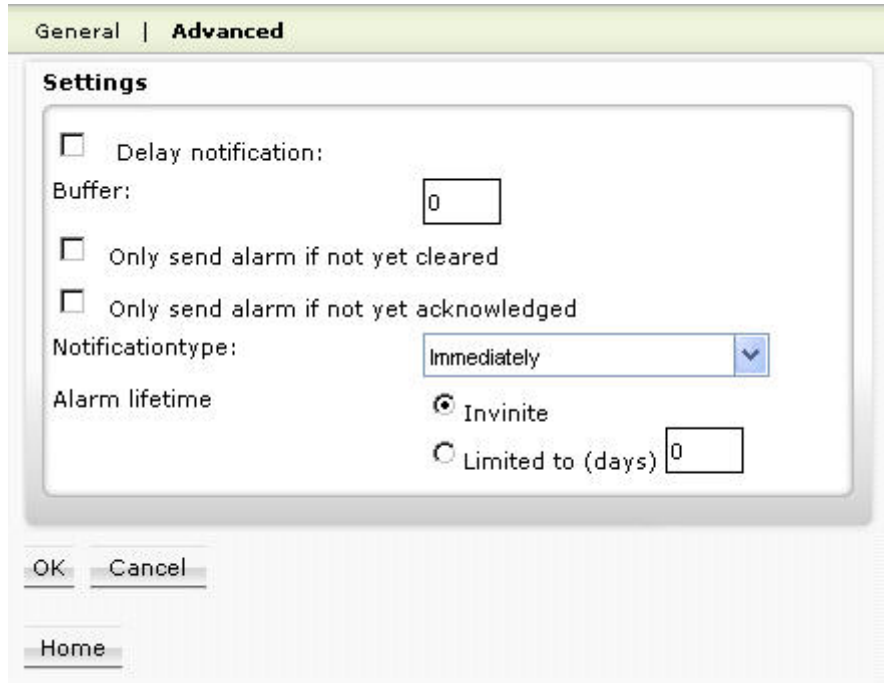


- a. In **Trigger**, select the trigger.

- b. In **Destination**, select the destination to which the alarms should be forwarded.
 - c. Check **Enabled** if the forwarding should be active and check the days on which the triggered alarms should be forwarded to the selected destination.
 - d. Enter the time range for each day.
4. Click the *Advanced* tab.

Advanced Tab

Settings



- a. Check **Delay notification** if the alarms should be forwarded when the alarm buffer has reached the number of alarms entered in **Buffer**.
 - b. In **Buffer**, enter the number of alarms after which the alarms should be sent.
 - c. Check **Only send alarm if not yet cleared** if the alarm should only be forwarded if it is not cleared. .
Uncheck **Only send alarm if not yet cleared** if a cleared alarm should also be sent.
 - d. Check **Only send alarm if not yet acknowledged** if the alarm should only be forwarded if it is not cleared.
Uncheck **Only send alarm if not yet acknowledged** if an acknowledged alarm should also be sent.
 - e. In **Notification type**, select the point when the alarms are sent after the alarm buffer is full:
 - Immediately
 - Never
 - Next connection
 - f. Select **Infinite** if ARENA should attempt to forward the alarm forever until forwarding is successful.
 - g. Select **Limited to ... days** if ARENA should stop forwarding the alarm after the number of days entered.
5. Click **OK** button.

SETTINGS

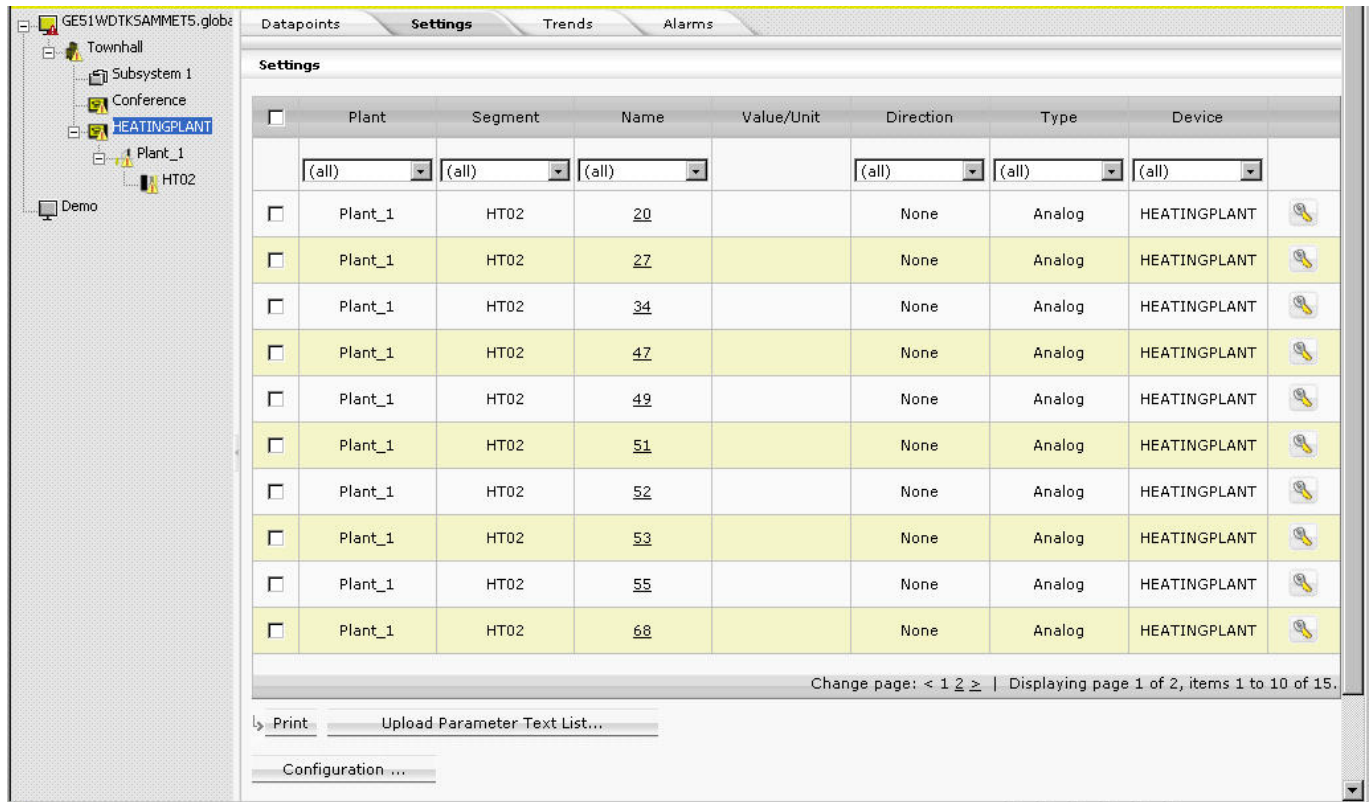
Overview

Settings, also called parameters, are available on project, plant, and controller level. Settings can be uploaded from the PANTER / TIGER controller. From the SERVAL controller settings upload is not possible. Settings can be modified by value and name (alias) and a list for multiple settings can be printed.

Depending on the level, the settings list display differs in the number and kind of columns (settings properties). Depending on the selected level, a setting can feature maximum the following properties displayed as columns in the list:

- Plant
Plant name
- Segment
Segment name
- Device
Controller name
- Name
Settings name, i.e. number in text file
- Value/Unit
Current settings value with unit.
- Type
Settings type, for example, analog, digital, etc.
- Direction
Shows datapoint direction, either Input or Output, which the setting belongs to.

NOTE: The max. number of properties displayed depends on the level selected in the tree and also on the list display configuration.



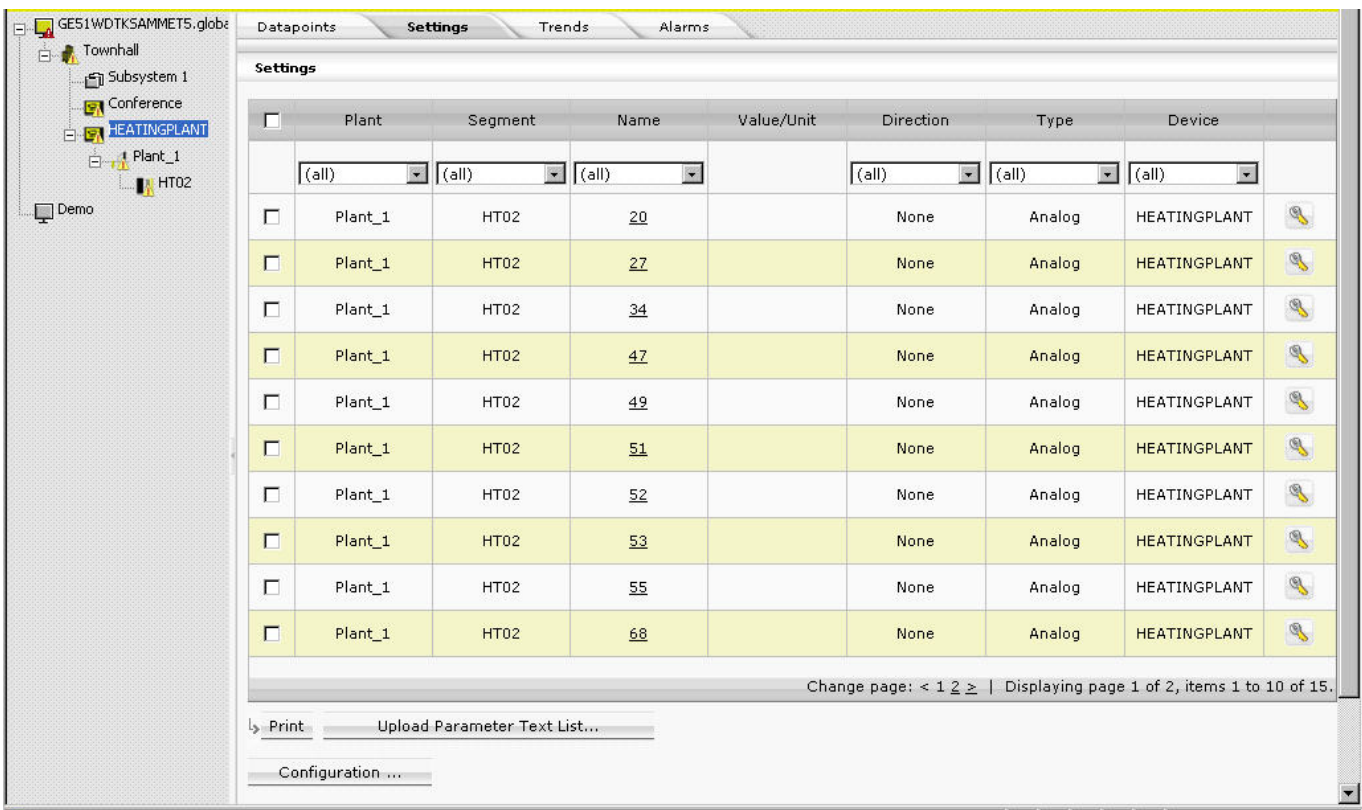
In the settings list, you can do the following:

- Enter an alias name for a setting.
Please refer to the “Enter Alias Name for Setting” section.
- Modify the current setting value.
Please refer to the “Modify Setting Value” section.
- Upload Parameter Text List...
Please refer to the “Upload Parameter Text List” section.
- View and change Setting properties.
Please refer to the “View/Change Settings Properties” section.
- Print Settings list.
Please refer to the “Print Settings List” section.
- Display particular settings by applying a filter as described under “Apply Filter for Display” section.
- Configure the list display.
Please refer to “List Display Configuration” in the “Basic Functions” section.

Show Settings List

1. In the tree, click the level (site, plant, controller, etc.) for which you want to display settings.
2. On the right pane, click *Settings* tab.

The **Settings** list is displayed. For description of the properties displayed as columns, please refer to the “Overview” section.



3. To display certain settings, apply a filter as described under “Apply Filter for Display” in the “Basic Functions” section.
4. To enter an alias name for a setting group or a single setting, please refer to the “Enter Alias Name for Settings Group/Single Setting” section.
5. To modify the current setting value, please refer to the “Modify Setting Value” section.
6. To upload a parameter text list, please refer to the “Upload Parameter Text List” section.
7. To view and change settings properties, please refer to the “View/Change Settings Properties” section.
8. To print a settings list, please refer to the “Print Settings List” section.

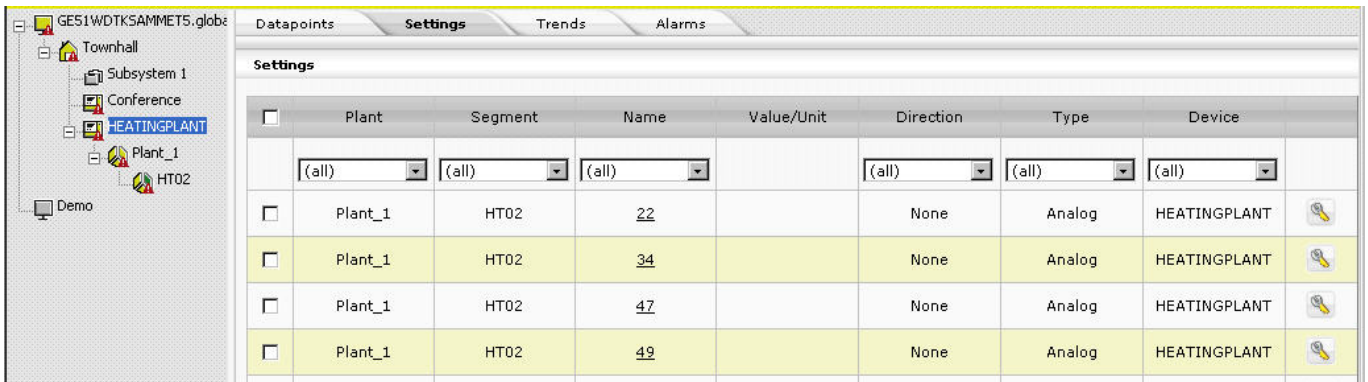
- To configure the list display, please refer to “List Display Configuration” in the “Basic Functions” section.


Enter Alias Name for Setting Group/ Single Setting

NOTE: It is forbidden to use the slash character “/” in alias names because this may result in an unexpected behavior of ARENA.

You can manually change each number of a setting group or a single setting with a more descriptive name. You can also replace all numbers in one step by uploading a parameter text file (see “Upload Parameter Text List” section).









- In the tree, click the application, for example, HT02.
- On the right pane, click the *Settings* tab. The setting groups are displayed. In this view you do not see the values of the settings.



- At the end of setting row, click the Configure icon .
- In the *Configure* dialog box, enter the alias name in the **Alias** field.




- Click **OK**.
The new name is reflected in the **Name** column.
- To enter an alias name for a single setting of a settings group, click the number of the group in the *Name* column. The settings of the settings group are displayed as numbers.

Datapoints Settings Trends Alarms			
Settings / 51			
<input type="checkbox"/>	Name	Value/Unit	
<input type="checkbox"/>	#001	992471	
<input type="checkbox"/>	#002	4	
<input type="checkbox"/>	#003	0	
<input type="checkbox"/>	#004	1200	
<input type="checkbox"/>	#005	30	
<input type="checkbox"/>	#006	501	
<input type="checkbox"/>	#007	901	
<input type="checkbox"/>	#008	0	

Print

Back

7. At the end of setting row, click the Configure icon  .

Configure

Name:

Alias:

Ok Cancel

8. In the *Configure* dialog box, enter the alias name in the **Alias** field.
9. Click **OK**.
The new name is reflected in the **Name** column.

Modify Setting Value

1. In the tree, click the application, for example, HT02.
2. On the right pane, click the *Settings* tab. The setting groups are displayed. In this view you do not see the values of the settings.

<input type="checkbox"/>	Plant	Segment	Name	Value/Unit	Direction	Type	Device
<input type="checkbox"/>	(all)	(all)	(all)		(all)	(all)	(all)
<input type="checkbox"/>	Plant_1	HT02	22		None	Analog	HEATINGPLANT
<input type="checkbox"/>	Plant_1	HT02	34		None	Analog	HEATINGPLANT
<input type="checkbox"/>	Plant_1	HT02	47		None	Analog	HEATINGPLANT
<input type="checkbox"/>	Plant_1	HT02	49		None	Analog	HEATINGPLANT

3. Click the number of the group in the *Name* column.

<input type="checkbox"/>	Name	Value/Unit
<input type="checkbox"/>	#001	992471
<input type="checkbox"/>	#002	4
<input type="checkbox"/>	#003	0
<input type="checkbox"/>	#004	1200
<input type="checkbox"/>	#005	30
<input type="checkbox"/>	#006	501
<input type="checkbox"/>	#007	901
<input type="checkbox"/>	#008	0

Print

Back

- In the **Value/Unit** column, click the value of the setting you want to change
- In the *Value* dialog box, enter the new value in the **New Value** field.

Value

Current Value

New Value

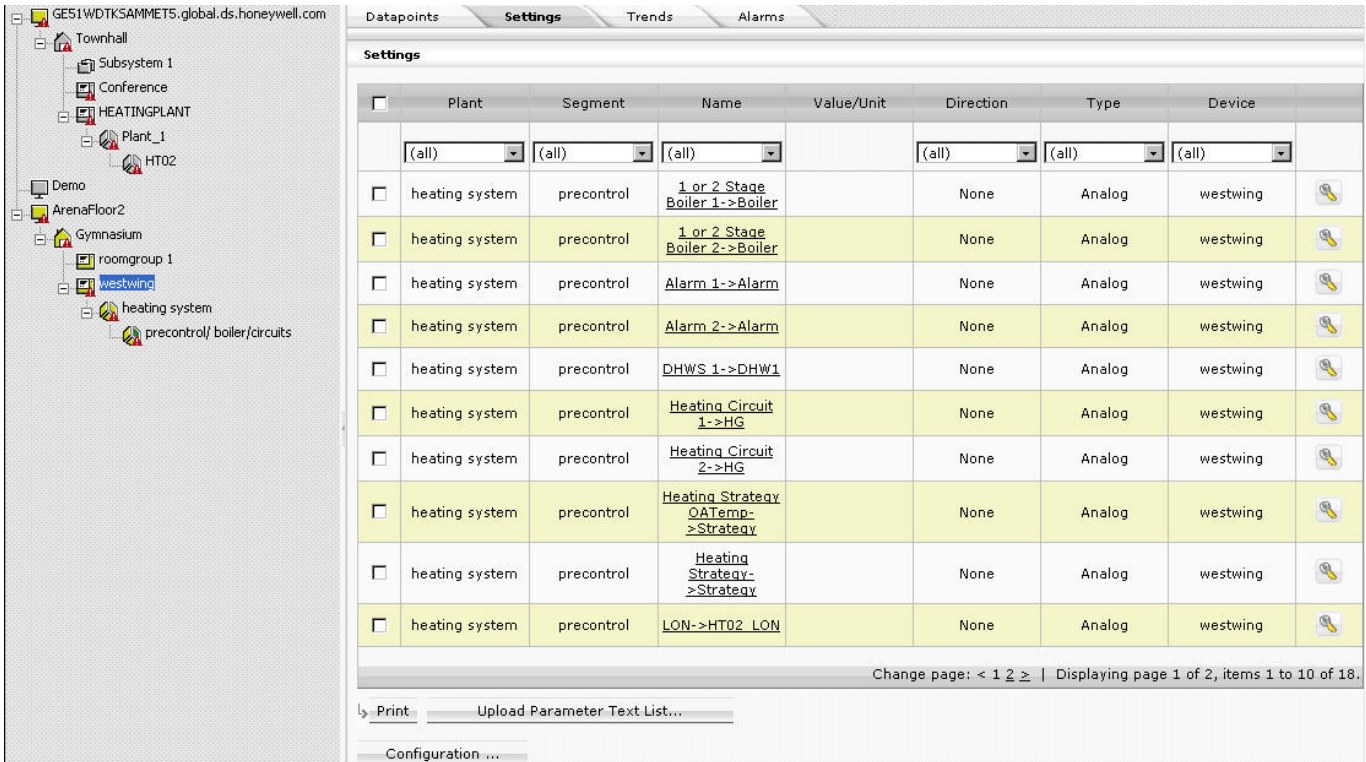
Ok Apply Cancel

- Click **Apply**.
- Click **OK**.
The setting value is updated as displayed in the list.

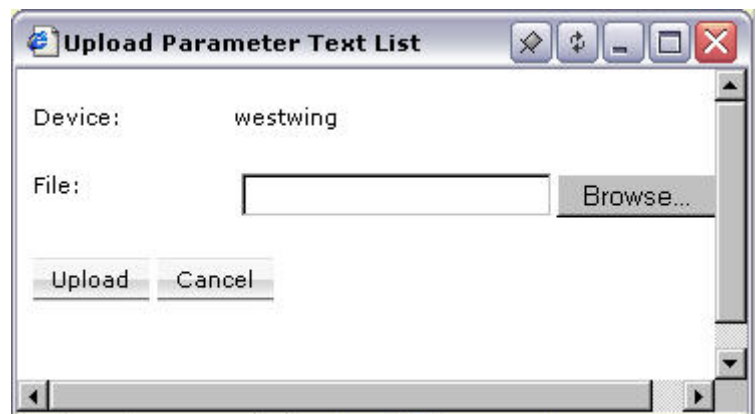
Upload Parameter Text List

When uploading a parameter text list, the setting groups and the single settings described by numbers are replaced with the more descriptive names. For example, the number 32 is replaced with Alarm 1 → Alarm.

1. In the tree, click on the controller.
2. On the right pane, click on the *Settings* tab.



3. Below the list, click on the **Upload Parameter Text List** button.



4. Browse to the location where the parameter text file resides by clicking the **Browse** button.
5. Select the *.txt* file.
6. Click the **Upload** button. The file will be uploaded and the settings will be replaced.

Print Settings List

1. Select setting groups in the **Settings** list (to show the settings list, see “Show Settings List” section) or select settings of a settings group (to show single

settings of a setting group, see “Modify Setting Value” section), you want to add to the printed list.

2. Click **Print**.
The list is built up in a new dialog.
3. Click **Print**.
4. In the *Print* dialog box, select the printer and desired options and click **Print**.

Time Programs

Overview Time programs are for setting time sequences for controller operation. For example, setting HVAC start and stop times.

Time programs implement these command schedules. A PANTHER / TIGER controller can have a maximum of 20 time programs.

Each time program specifies a list of points to command and a *weekly schedule*. This weekly schedule defines the normal daily activity of the system by specifying which daily schedule a controller should use for each day of the week (Sunday through Saturday). The weekly schedule applies for each week of the year. There is only one weekly schedule per time program.

Daily schedules list points and point actions and times for the controller to implement. Operators assign daily schedules to weekly schedules or as global override to provide for automatic operations on scheduled dates.

Yearly schedules define time periods with special daily schedules (global). Yearly schedules are suited to consider specific local conditions, for example, regional vacation and public /religious festivals.

Example:

```
PANTHER 1
  Heating Circuit 1
    Point Assignments
      HG1 tsp
      DHW1 tsp
      DHW1 occ
```

<i>Weekly Schedule</i>	<i>Daily Schedule Name</i>
Monday	Workday
Tuesday	Workday
Wednesday	Workday
Thursday	Workday
Friday	Workday
Saturday	Weekend
Sunday	Weekend

Where the **Workday** daily schedule includes the following items (time, datapoint name, command):

06:00	HG1 tsp	20 °C
18:00	HG1 tsp	15 °C

And the **Weekend** daily schedule includes the following items (time, user address, command):

12:01	HG1 tsp	20 °C
23:59	HG1 tsp	15 °C

Global Time Programs

Global time programs are individual daily time schedules which allow the simultaneous override of multiple time schedules (room controls) in a definable monthly-based time range. A time schedule to be overridden can be any of the following default schedules of the standard weekly time schedule:

- Workday
- Weekend
- Day A
- Day B
- Day C
- Global
- User-defined daily schedule

Setting Global Time Programs

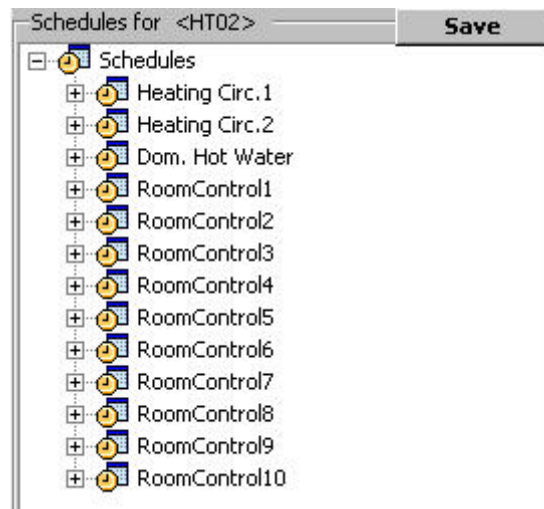
The global time program consists of 'Global' daily schedules which can be set in the same way than any other daily schedule (workday, weekend). An individual global daily schedule can be set for any time program type, for example, room control 1..10 or Heating Circ. 1. etc. Each global daily schedule is simply named "Global".

Date Overrides You can assign temporary schedules using the global schedule to replace daily schedules when holidays or other events occur that require different times and commands.

Time Program Names Through application engineering, a PANTHER / TIGER controller can have at max. 13 time programs. By default, they are denoted as follows:

- Heating Circ. 1
- Heating Circ. 2
- Dom. Hot Water
- RoomControl1
- RoomControl2
- ...
- Room Control10

In ARENA, the denotation of a time program can be changed.



Access Time Programs

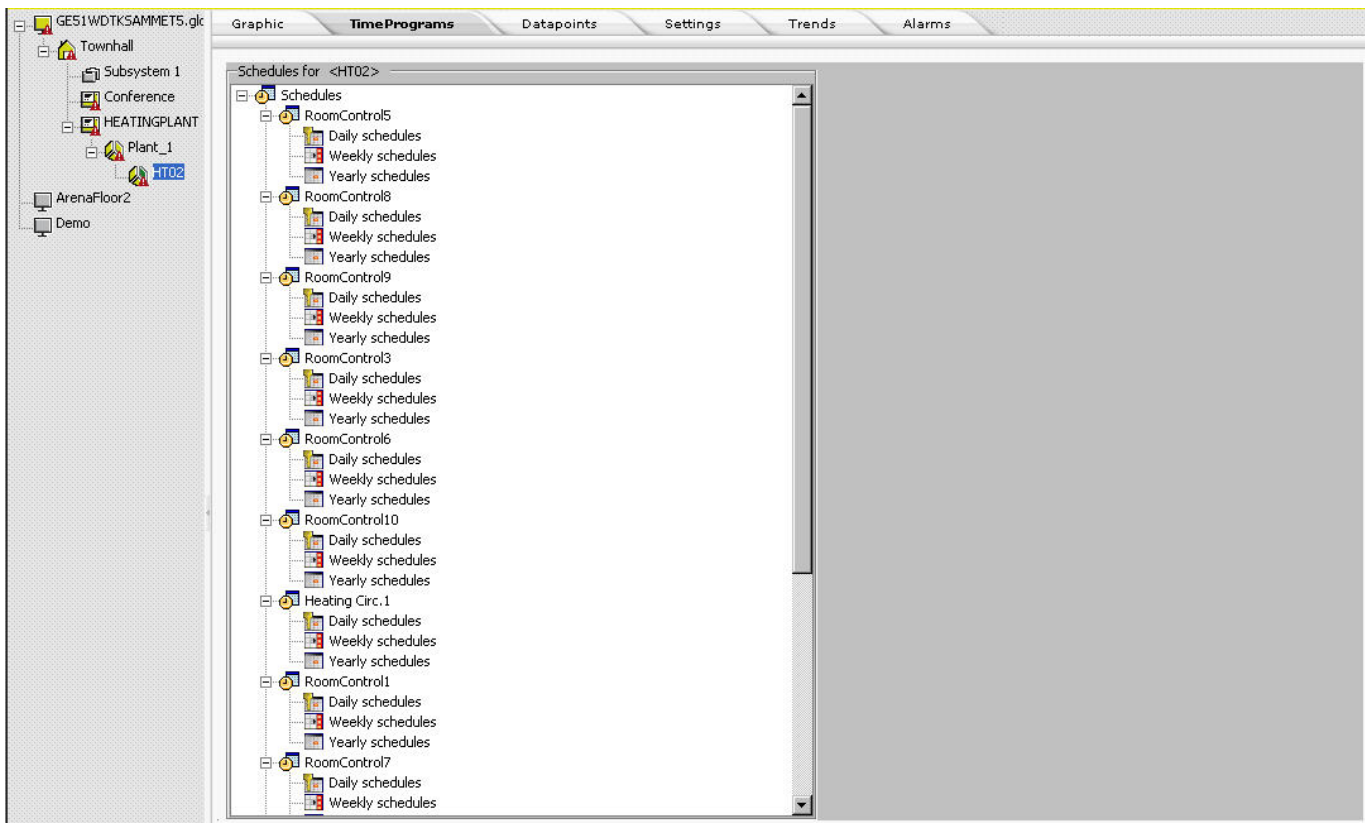
1. In the tree, click the application, for example HT02.
2. On the right pane, click the *Time Programs* tab. All time programs such as room control, heating circuit, domestic hot water, etc. of the PANTHER / TIGER controller are displayed in a tree. Each time program includes:
 - Daily schedules
 - Weekly schedules
 - Yearly schedules

Each time program can be individually changed by:

- creating daily schedules with individual switchpoints
- assigning daily schedules to particular weekdays in the weekly schedules
- Customizing yearly schedules by defining individual periods with special daily schedules

IMPORTANT

Settings and changes made in daily schedules, weekly schedules and yearly schedules do only apply to the allocated time program, not any other time program(s).

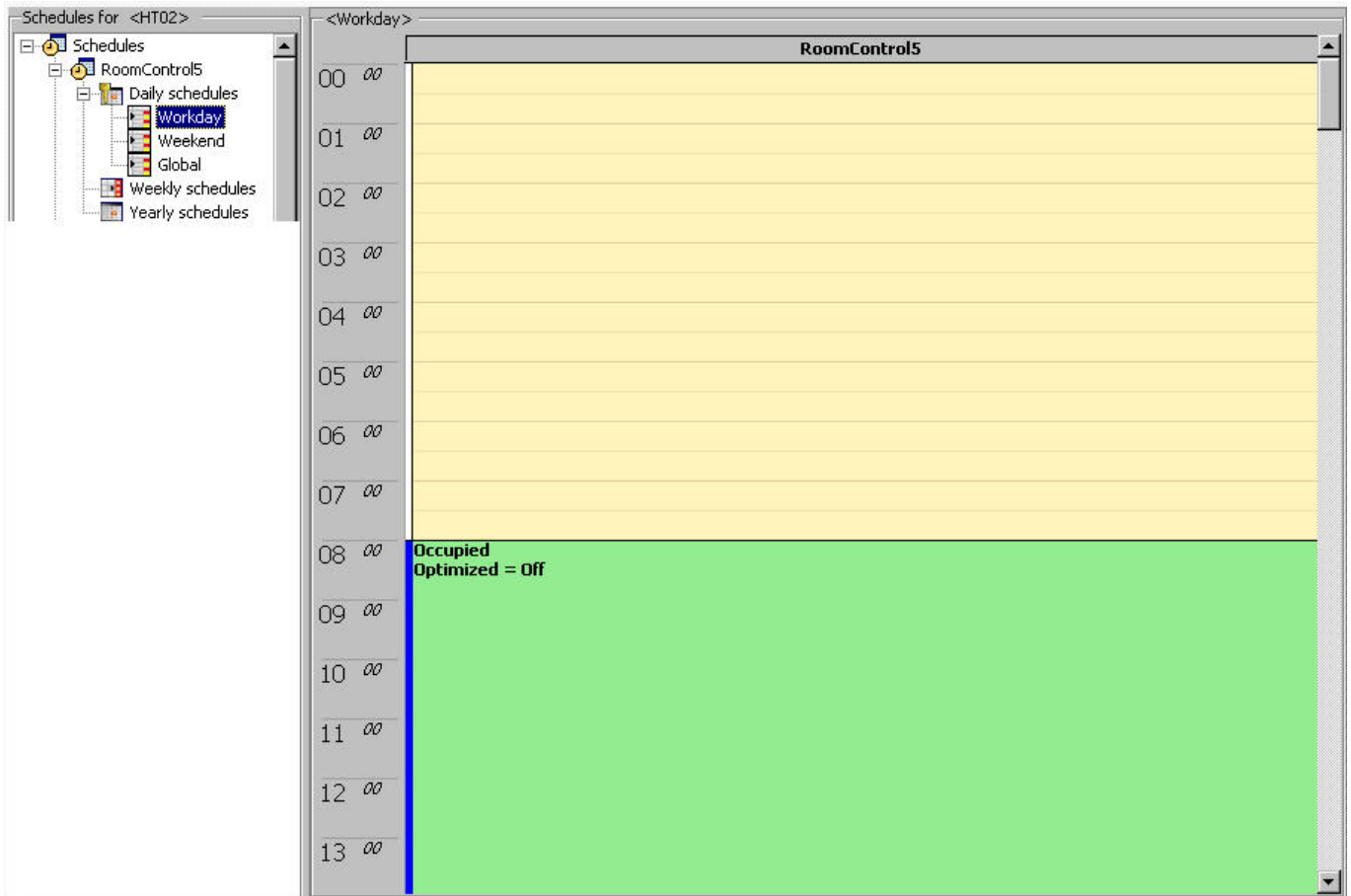


Daily schedules

Each daily schedule consists of several daily schedule types. For example, the RoomControl time programs include:

- Weekday
- Weekend
- Global

When selecting a daily schedule type, the settings are displayed on the right and can be edited.



Weekly schedules

A weekly schedule contains the daily programs for each day of the week:

- Workday
- Weekend

By default, Monday through Friday have the daily schedule 'Workday' assigned, Saturday and Sunday have the daily schedule 'Weekend' assigned.

When selecting the *Weekly schedules* folder in the tree, the whole week is shown in table format (summary view). Each weekday's settings can be edited by assigning the daily program to the weekday and setting the switchpoints per day.

Schedules for <HT02>

Hide Datapoints Suppress Unoccupied Switchpoints Value Optimization

RoomControl5 Start time 16:24:18 End time 16:24:18

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
00 00	Workday	Workday	Workday	Workday	Workday	Weekend	Weekend
01 00							
02 00							
03 00							
04 00							
05 00							
06 00							
07 00							
08 00	RoomControl 5 = Occupied Optimized = Off	RoomControl 5 = Occupied Optimized = Off	RoomControl 5 = Occupied Optimized = Off	RoomControl 5 = Occupied Optimized = Off	RoomControl 5 = Occupied Optimized = Off	RoomControl 5 = Occupied Optimized = Off	RoomControl 5 = Occupied Optimized = Off
09 00							
10 00							
11 00							

When selecting the weekday in the tree, the daily program settings of the weekday are displayed on the right (detailed view).

Schedules for <HT02>

<Workday>

RoomControl5

00 00 Occupied Optimized = Off

01 00

02 00

03 00

04 00

05 00

06 00

07 00

08 00 Occupied Optimized = Off

09 00

10 00

11 00

12 00

13 00

Yearly schedules

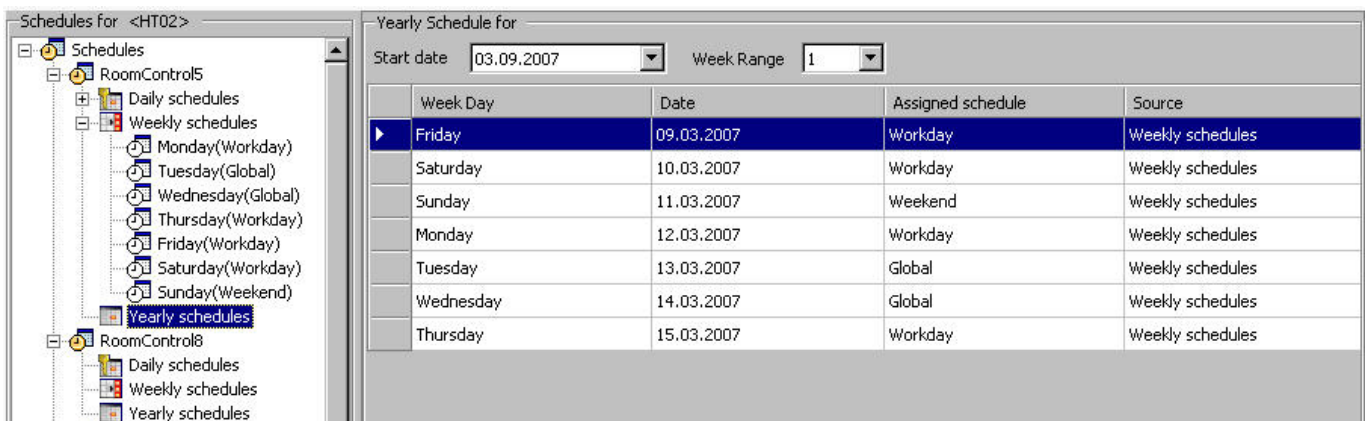
Daily schedules are assigned to each day of the week in the weekly schedule. The weekly schedule is automatically repeated every week and creates the normal yearly schedule.

The yearly schedules can be changed for a specific period by assigning different daily schedules to particular weekdays of the desired period.

Example:

The yearly schedule consists of the weekly schedules 'workday' and 'weekend'. Only during the holiday period every day is assigned to the 'Weekend' daily schedule.

- From 01.01.2007 to 15.07.2007 'Workday' schedule (Mo – Fr)
'Weekend' schedule (Sa-Su)
- From 15.07.2007 to 30.08.2007 'Weekend' daily schedule (Mo – Su)
- From 30.08.2007 to 31.12.2007 'Workday' schedule (Mo – Fr)



When selecting the yearly schedule folder in the tree, the yearly program settings are displayed for a defined time range. The weekdays show their assigned daily schedules and their source. Source shows the time schedules where the assigned daily schedule is originally created, that is, either the weekly schedule or when assigning another daily schedule to a weekday here, the yearly schedule (override).

Daily Schedules

IMPORTANT

Settings and changes made in daily schedules, weekly schedules and yearly schedules do only apply to the allocated time program, not any other time program(s).

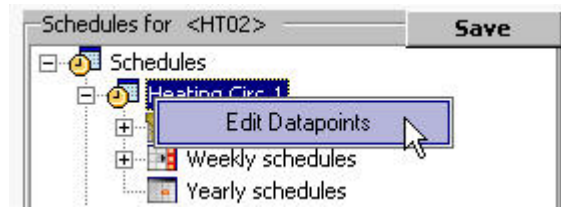
Each daily schedule consists of several daily schedule types, each defined by assigned switchpoints and their action (value), and the optional optimization behavior. For example, the RoomControl time programs include:

- Weekday
- Weekend
- Global

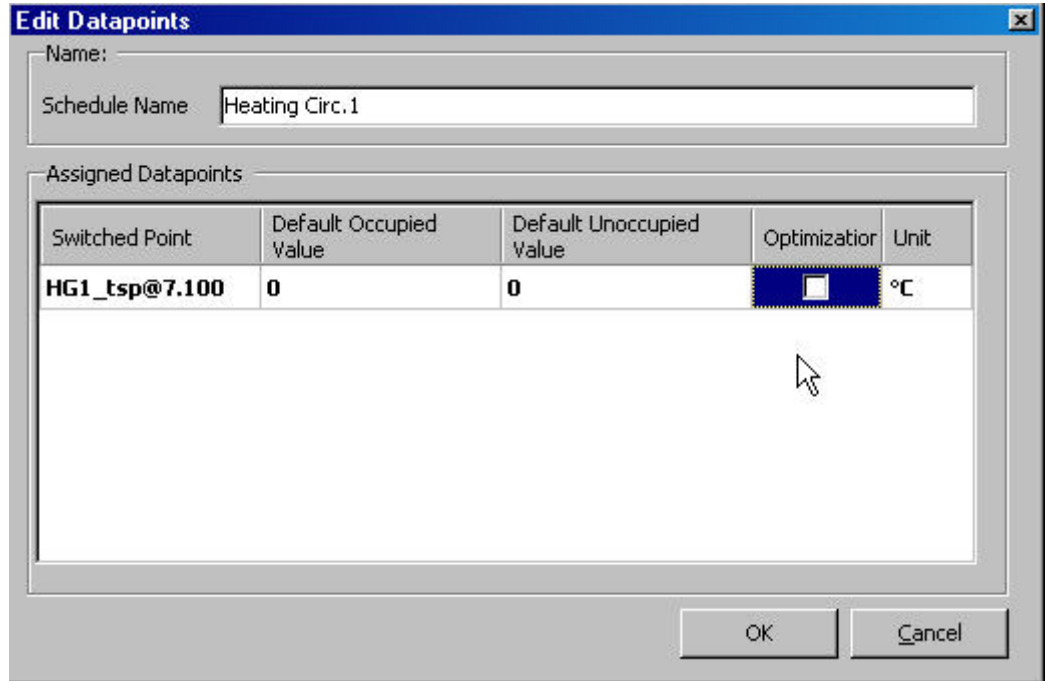
Edit Datapoints

This function defines the default settings of a switchpoint value for the occupied and unoccupied states and the optimization of daily schedules. When creating a new switchpoint, software proposes these value settings.

1. In the *Schedules* tree, right-click on the time program, for example, 'Heating Circ. 1'.



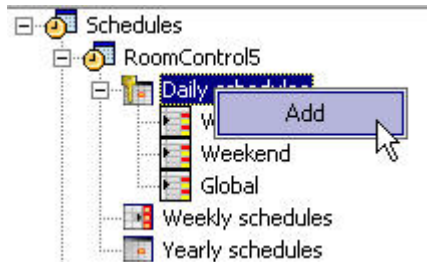
2. Click **Edit Datapoints**. The *Edit Datapoints* dialog box displays.



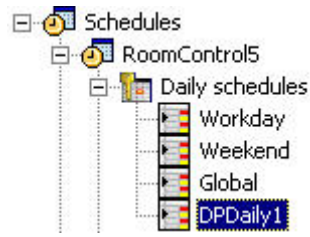
3. In **Default Occupied Value**, enter the value in degrees Celsius for the occupied state.
4. In **Default Unoccupied Value**, enter the value in degrees Celsius for the unoccupied state.
5. Check **Optimization** checkbox, if you want to apply optimization. For detailed description of Optimization, please refer to step 3 in the “Create Daily Schedule” section.
6. Click **OK** button. From now on these settings will be the default settings when creating a new switchpoint for a daily schedule.

Create Daily Schedule

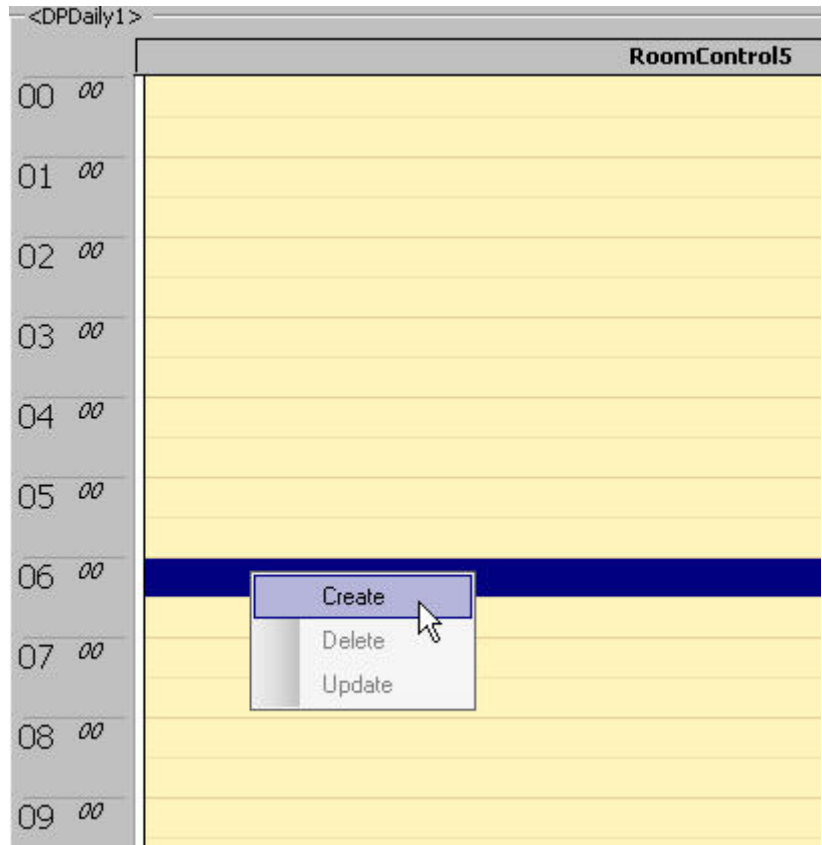
1. In the *Schedules* tree, right-click on the *Daily schedules* folder of the room control, you want to create a new daily schedule for.



2. Click **Add**. A new daily schedule, called 'DPDaily1' ('DPDaily2', etc.) is created in the tree. The daily schedule is blank, i.e. it has no switchpoints yet.



3. Add switchpoints to the blank daily schedule by doing one of the following (steps a and i) :
 - a. On the right, click in the time table row (time), where you want to make the switchpoint start, then right-click and click **Create**.



The **Edit Value** dialog box displays.



Fig. 21. Edit Value dialog box example for Heating Circ. time program

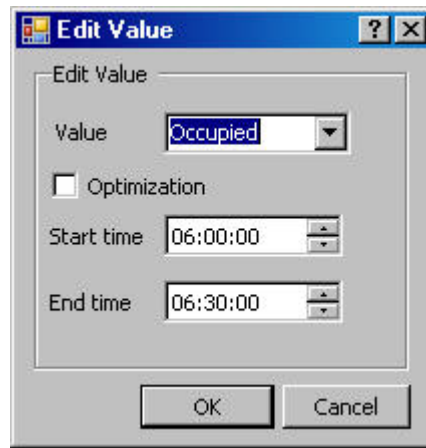


Fig. 22. Edit Value dialog box example for Room Control time program

- b. In **Value**, do the following:
- c. For Heating Circuit time programs, keep the default value as defined in **Edit Datapoints** or modify the value.
- d. For RoomControl time programs, select the value under
 - Occupied
The controller operates according to the “occupied” heating and cooling setpoints.
This is the normal operating condition for a room or zone when it is occupied. The controller can be switched into this mode by a network command, by the room occupancy sensor, or by a bypass button on the wall module. In the occupied mode, the fan is controlled by the setting of the fan speed switch on the wall module or by the control algorithm when the switch is set to “auto.” The fan can be configured to remain on or turn off during the zero energy band
 - Unoccupied
The controller operates according to the “unoccupied” heating and cooling setpoints.
This mode is used for longer unoccupied periods, such as at night or during weekends and holidays.
 - Standby
The controller operates according to the “standby” heating and cooling setpoints.
The standby mode saves energy by reducing heating or cooling demand during periods where the room is temporarily unoccupied. In this mode the fan is switched off during the zero energy band.

Check **Optimization** if you want to apply optimization.

The optimization function causes optimization of a switching point. It has two states, ON (checked) and OFF (unchecked). The optimization compensates the time an environment needs to reach a wanted condition (temperature, humidity, etc.) by bringing forward the switching point of the corresponding device.

NOTE:

The optimization can only be set to ON if the user address of the device is suitable for optimization.

Example:

If the optimization is ON, a heating plant is switched on early in order to have your home at the required setpoint level by a particular time.

Programmed switching point: 6:00 to 20 °C

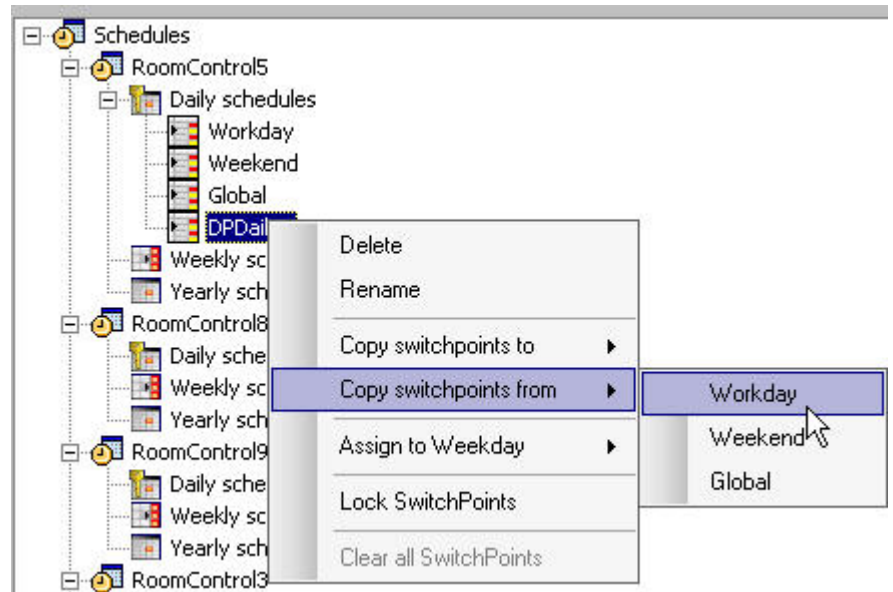
Real switching point: 4:52 to heating ON.

The difference between the programmed and real switching point is the estimated time a room needs to warm up under the current conditions.

- e. In **Start time**, enter the start time for the switchpoint.
- f. In **End time**, enter the end time for the switchpoint.
- g. Click **OK** button.

Or,

- h. Copy switchpoints from another daily schedule to the new daily schedule as follows:
 - i. Right-click on the new daily schedule.
 - j. Select **Copy switchpoints from**, then click on daily schedule from which you want to copy the switchpoint settings, for example, **Workday**.



The copied settings are reflected on the daily schedule time table on the right.

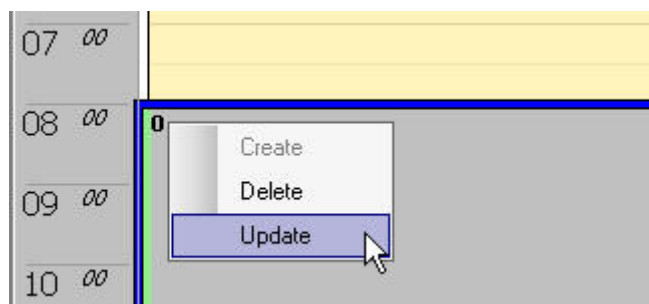
- 4. Click **Save** button on top of the Schedules tree.

Update Daily Schedule / Edit Switchpoint

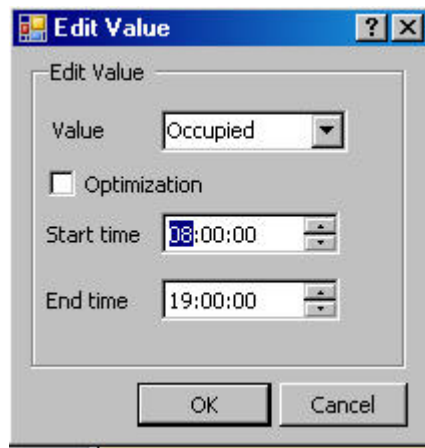
This function allows updating a daily schedule by editing the following switchpoint settings:

- Value
- Start and stop time
- Optimization status

1. In the *Schedules* tree, expand the tree and click on the daily schedule you want to update.
2. In the time table, right-click in the switchpoint area (green) and click **Update**.



The *Edit Value* dialog box displays.



3. Change the settings as desired.
4. Click **OK** button. The time table indicates the updated settings according to your changes.

Rename Daily Schedule

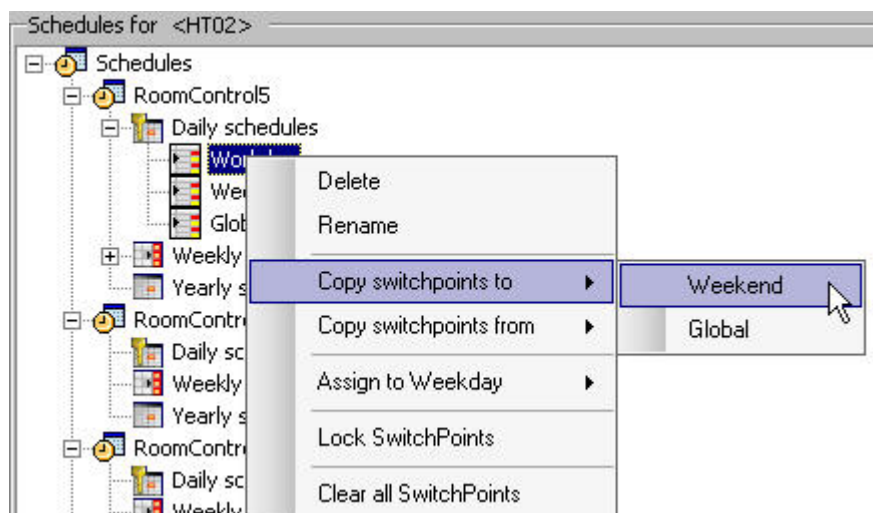
1. In the *Schedules* tree, expand the tree and right-click on the daily schedule you want to rename
2. Click **Rename**.
3. Change the flashing name in the tree and press ENTER key.
4. Click **Save** button on top of the Schedules tree.

Delete Daily Schedule

1. In the *Schedules* tree, right-click on the daily schedule, you want to delete.
2. Click **Delete**.
3. Click **Save** button on top of the Schedules tree.

Copy Switchpoints to another Daily Schedule

1. In the *Schedules* tree, right-click on the daily schedule of which switchpoints settings you want to copy to another daily schedule, for example, **Workday**.



2. Select **Copy switchpoints to**, and then click on daily schedule to which you want to copy the switchpoint settings, for example, **Weekend**.

Note that 'Weekend' switchpoints will be deleted and replaced by the Workday switchpoints.

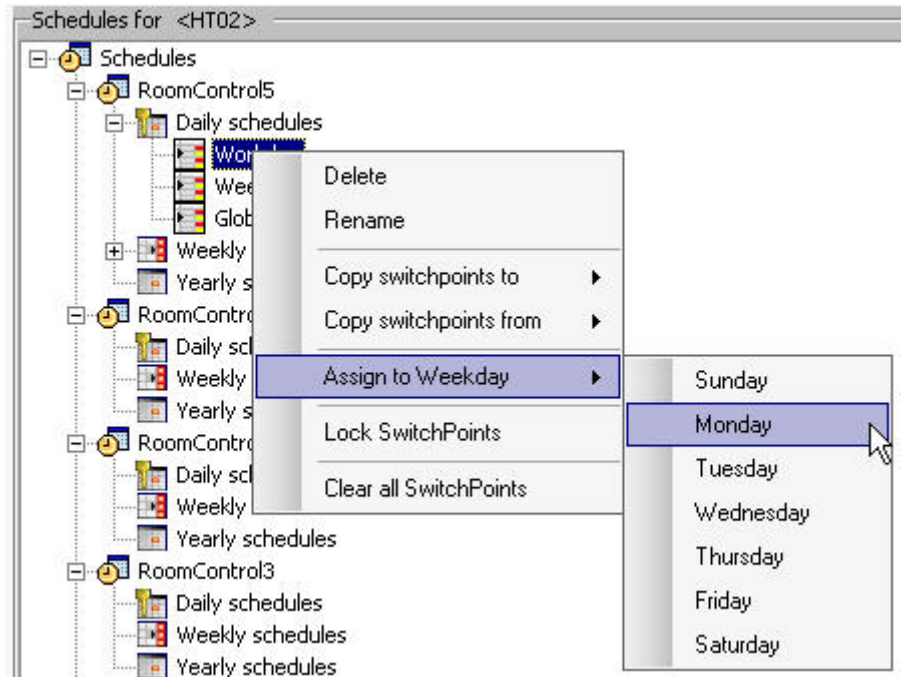
3. Click **Save** button on top of the Schedules tree.

Copy Switchpoints from another Daily Schedule

See "Create Daily Schedule" section.

Assign Daily Schedule to Weekday

1. In the *Schedules* tree, right-click on the daily schedule you want to assign to a particular weekday.



2. Select **Assign to Weekday**, and then click on the weekday you want to assign the daily schedule.
Note that the currently assigned daily schedule of the week day will be replaced with the selected daily schedule.
3. Click **Save** button on top of the Schedules tree.

Lock Switchpoints

1. In the *Schedules* tree, right-click on the daily schedule.
2. Select **Lock switchpoints**. This shows all switchpoint settings in an unchangeable mode.
3. Click **Save** button on top of the Schedules tree.

Clear All Switchpoints

1. In the *Schedules* tree, right-click on the daily schedule.
2. Select **Clear all switchpoints**. This deletes all switchpoints of the selected daily schedule.
3. Click **Save** button on top of the Schedules tree.

Weekly Schedules

IMPORTANT

Settings and changes made in daily schedules, weekly schedules and yearly schedules do only apply to the allocated time program, not any other time program(s).

By default, the weekly schedule has the 'Workday' and 'Weekend' daily schedules assigned. These assignments can be changed by selecting the Global daily schedule or user-defined daily schedules to particular weekdays of a normal week.

Modify Weekly Schedule

IMPORTANT

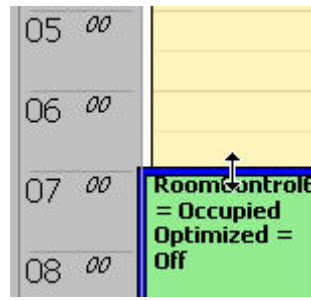
Changes on the Weekly Schedule apply only to the weekly schedules of the selected time program (room control, heating circuit).

1. Assign daily schedules to the weekly schedule by doing one of the following (steps 1 and):
2. In the tree, click the *Weekly schedules* folder. The whole week is shown in table format (summary view). Each weekday's settings can be edited by assigning the daily program to the weekday and setting the switchpoints per day.

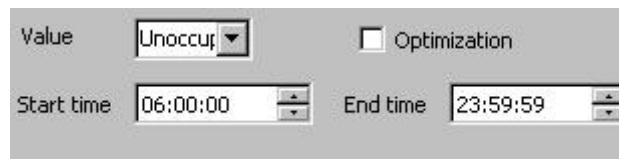
The screenshot shows the 'Schedules for <HT02>' window. On the left is a tree view with folders for 'RoomControl5', 'RoomControl8', 'RoomControl9', 'RoomControl3', 'RoomControl6', 'RoomControl10', and 'Heating Circ.1'. Each folder contains sub-folders for 'Daily schedules', 'Weekly schedules', and 'Yearly schedules'. The 'Weekly schedules' folder for 'RoomControl5' is selected. On the right is a summary view table for 'RoomControl5'. The table has columns for 'Monday' through 'Sunday' and rows for time slots from '00 00' to '11 00'. The 08:00-11:00 slot is highlighted in green and contains the text 'RoomControl 5 = Occupied Optimized = Off' for all days. Above the table are controls for 'Hide', 'Datapoints', 'Suppress Unoccupied Switchpoints', 'Value', 'Start time', and 'End time'.

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
00 00	Workday	Workday	Workday	Workday	Workday	Weekend	Weekend
01 00							
02 00							
03 00							
04 00							
05 00							
06 00							
07 00							
08 00	RoomControl 5 = Occupied Optimized = Off	RoomControl 5 = Occupied Optimized = Off	RoomControl 5 = Occupied Optimized = Off	RoomControl 5 = Occupied Optimized = Off	RoomControl 5 = Occupied Optimized = Off	RoomControl 5 = Occupied Optimized = Off	RoomControl 5 = Occupied Optimized = Off
09 00							
10 00							
11 00							

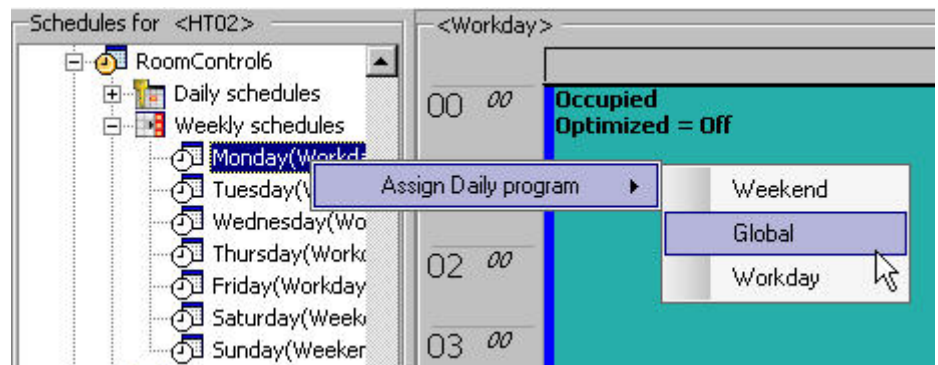
3. For each weekday, select the daily schedule from the drop-down listbox below the weekday name.
4. To edit switchpoints, do one of the following:
 - a. move the start and end times with the mouse.



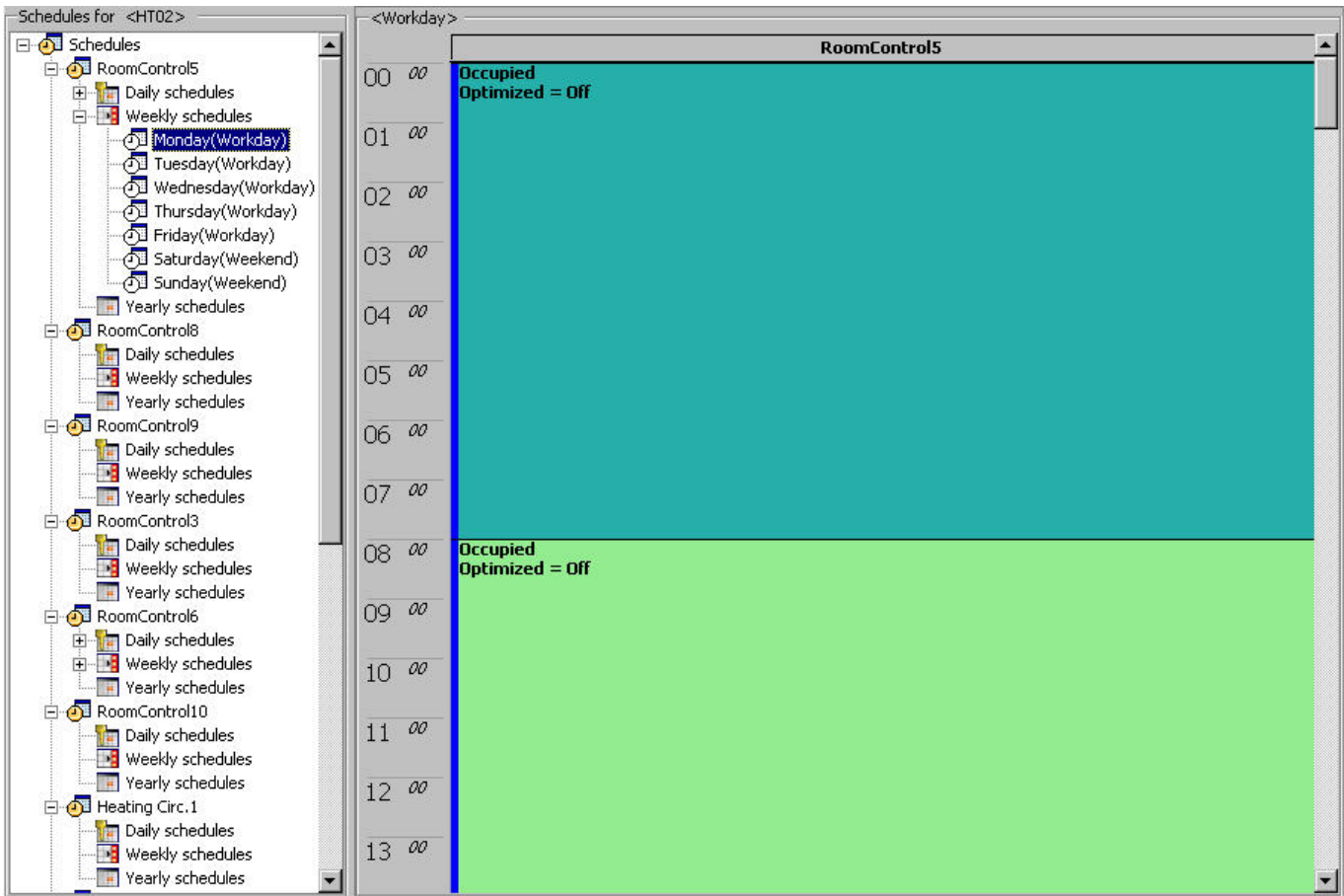
- b. Or, right-click on the switchpoint area, then click **Edit** and change settings in the *Edit Value* dialog box.
- c. Or, enter settings in the enabled **Value**, **Optimization**, **Start time** and **End time** fields on the top.



- 5. To add new switchpoints, click in the table row (time), where you want to make the switchpoint start, then right-click and click **Create**. For details see “Create Daily Schedule” section, step 3.
- 6. To delete a switchpoint, right-click on the switchpoints (green area) and click **Delete**.
Or,
- 7. In the tree, right-click the weekday, select **Assign Daily Program**, then click the daily schedule you want to assign to the weekday.



- 8. If desired, change switchpoint settings in the table (detailed view) as follows:



9. Click **Save** button on top of the Schedules tree.

Yearly Schedules

IMPORTANT

Settings and changes made in daily schedules, weekly schedules and yearly schedules do only apply to the allocated time program, not any other time program(s).

The yearly schedules can be changed for a specific period by assigning different daily schedules to particular weekdays of the desired period.

Example:

The yearly schedule consists of the weekly schedules 'workday' and 'weekend'. Only during the holiday period every day is assigned to the 'Weekend' daily schedule.

From 01.01.2007 to 15.07.2007	'Workday' schedule (Mo – Fr) 'Weekend' schedule (Sa-Su)
From 15.07.2007 to 30.08.2007	'Weekend' daily schedule (Mo – Su)
From 30.08.2007 to 31.12.2007	'Workday' schedule (Mo – Fr)

Modify Yearly Schedule

Setup schedule for specific days (period) of the year.

1. In the tree, click on the *Yearly schedules* folder. On the right pane, the yearly schedule is displayed for a defined time range.
2. Define time range to be displayed as follows:
 - a. Click on arrow in **Start Date** and click on start date in the calendar.
 - b. In **Week Range**, select the week range.

The time range is displayed below. The weekdays show their assigned daily schedules and their source. Source shows the time schedules where the assigned daily schedule is originally created, that is, either the weekly schedule or when assigning another daily schedule to a weekday here (override), the yearly schedule.

Yearly Schedule for < Heating Circ.1 >

Start date 06/04/2007 April Week Range 4

Week Day	Date	Assigned schedule	Source
Friday	06.04.2007	Workday	Weekly schedules
Saturday	07.04.2007	Weekend	Weekly schedules
Sunday	08.04.2007	Weekend	Weekly schedules
Monday	09.04.2007	Workday	Weekly schedules
Tuesday	10.04.2007	Workday	Weekly schedules
Wednesday	11.04.2007	Workday	Weekly schedules
Thursday	12.04.2007	Workday	Weekly schedules
Friday	13.04.2007	Workday	Weekly schedules
Saturday	14.04.2007	Weekend	Weekly schedules
Sunday	15.04.2007	Weekend	Weekly schedules
Monday	16.04.2007	Workday	Weekly schedules
Tuesday	17.04.2007	Workday	Weekly schedules
Wednesday	18.04.2007	Workday	Weekly schedules
Thursday	19.04.2007	Workday	Weekly schedules
Friday	20.04.2007	Workday	Weekly schedules
Saturday	21.04.2007	Weekend	Weekly schedules
Sunday	22.04.2007	Weekend	Weekly schedules
Monday	23.04.2007	Workday	Weekly schedules
Tuesday	24.04.2007	Workday	Weekly schedules
Wednesday	25.04.2007	Workday	Weekly schedules
Thursday	26.04.2007	Workday	Weekly schedules
Friday	27.04.2007	Workday	Weekly schedules
Saturday	28.04.2007	Weekend	Weekly schedules

- To assign another daily schedule to a weekday, right-click on the weekday, select **Assign**, then click the daily program, for example, 'Weekend'.

Week Day	Date	Assigned schedule	Source
Friday	06.04.2007	Workday	Weekly schedules
Saturday	07.04.2007	Weekend	Weekly schedules
Sunday	08.04.2007	Weekend	Weekly schedules
Monday	09.04.2007	Workday	Weekly schedules
Tuesday	10.04.2007	Workday	Weekly schedules
Wednesday	11.04.2007	Workday	Weekly schedules
Thursday	12.04.2007	Workday	Weekly schedules
Friday	13.04.2007	Workday	Weekly schedules

Assign

- Default
- Weekend
- Workday
- Day_A
- Day_B
- Day_C
- Global

The assigned daily schedule is shown in the *Assigned schedule* column. In the *Source* column, the overriding daily schedule is indicated by the entry 'Yearly schedules'.

Yearly Schedule for < Heating Circ.1 >					
Start date		06/04/2007	April	Week Range	4
Week Day	Date	Assigned schedule	Source		
▶ Friday	06.04.2007	Weekend	Yearly schedules		

4. Repeat step 3 for the desired weekdays of the displayed time range.
5. Click **Save** button on top of the Schedules tree.

Global Time Programs

Global time programs are individual daily time schedules which allow the simultaneous override of multiple time schedules (room controls) in a definable monthly-based time range. A time schedule to be overridden can be any of the following default schedules of the standard weekly time schedule:

- Workday
- Weekend
- Day A
- Day B
- Day C
- Global
- User-defined daily schedule

Prerequisites

The controller to which you want apply a global time program, must include the daily schedule type 'Global' with corresponding switchpoints in its time program.

Apply Global Time Program

The global time program consists of 'Global' daily schedules which can be set in the same way than any other daily schedule (workday, weekend). Applying the global time program means selecting a global daily schedule to be used for overriding the standard weekly time schedule or another existing global daily schedule on a particular date. Note that each time program uses its own global daily schedule for overriding the existing schedule on particular date.

1. In the tree, click on the site.
2. On the right pane, click *Global Time Programs* tab.

The *Global Time Programs* pane for the site displays showing a three-month period of a calendar. In a list, all CentralLine controllers (*Device* column) with their assigned time programs (*Time program* column) are displayed. The *Segment* column shows in which segment the time program is located.

The screenshot displays the 'Global Time Programs' configuration window for a site named 'Townhall'. On the left is a tree view showing the hierarchy: Townhall > HEATINGPLANT > Plant_1 > HT02. The main area is divided into two sections. The top section is a calendar for the period 'März 2007 - Mai 2007', showing days of the week (M, D, M, D, F, S, S) and dates for March, April, and May. The bottom section is a table with columns for 'Device', 'Segment', and 'TimeProgramAliasName'. Each row represents a device and has a checkbox in the first column. Below the table is a 'Scan' button and a 'Default'/'Override' toggle.

	Device	Segment	TimeProgramAliasName
<input type="checkbox"/>	HEATINGPLANT	HT02	Heating Circ.1
<input type="checkbox"/>	HEATINGPLANT	HT02	Heating Circ.2
<input type="checkbox"/>	HEATINGPLANT	HT02	Dom. Hot Water
<input type="checkbox"/>	HEATINGPLANT	HT02	RoomControl1
<input type="checkbox"/>	HEATINGPLANT	HT02	RoomControl2
<input type="checkbox"/>	HEATINGPLANT	HT02	RoomControl3
<input type="checkbox"/>	HEATINGPLANT	HT02	RoomControl4
<input type="checkbox"/>	HEATINGPLANT	HT02	RoomControl5
<input type="checkbox"/>	HEATINGPLANT	HT02	RoomControl6
<input type="checkbox"/>	HEATINGPLANT	HT02	RoomControl7
<input type="checkbox"/>	HEATINGPLANT	HT02	RoomControl8
<input type="checkbox"/>	HEATINGPLANT	HT02	RoomControl9
<input type="checkbox"/>	HEATINGPLANT	HT02	RoomControl10

3. In the device list, click controllers you want to override with the global time program.
4. In the calendar, set the time period in which you want to apply the global time programs by using the **Previous**, **Previous fast**, **Next** and **Next fast** buttons.
5. Click the **Scan** button.

The screenshot shows a software interface with a calendar on the left and a table on the right. The calendar displays months from März 2007 to Mai 2007. The table lists 10 rows of device settings, each with a checkbox, a device name (HEATINGPLANT), a segment (HT02), and a time program alias name (e.g., Heating Circ.1, RoomControl1-10). A 'Scan' button is located below the table.

	Device	Segment	TimeProgramAliasName
<input type="checkbox"/>	HEATINGPLANT	HT02	Heating Circ.1
<input type="checkbox"/>	HEATINGPLANT	HT02	Heating Circ.2
<input type="checkbox"/>	HEATINGPLANT	HT02	Dom. Hot Water
<input type="checkbox"/>	HEATINGPLANT	HT02	RoomControl1
<input checked="" type="checkbox"/>	HEATINGPLANT	HT02	RoomControl2
<input type="checkbox"/>	HEATINGPLANT	HT02	RoomControl3
<input checked="" type="checkbox"/>	HEATINGPLANT	HT02	RoomControl4
<input type="checkbox"/>	HEATINGPLANT	HT02	RoomControl5
<input checked="" type="checkbox"/>	HEATINGPLANT	HT02	RoomControl6
<input type="checkbox"/>	HEATINGPLANT	HT02	RoomControl7
<input type="checkbox"/>	HEATINGPLANT	HT02	RoomControl8
<input type="checkbox"/>	HEATINGPLANT	HT02	RoomControl9
<input type="checkbox"/>	HEATINGPLANT	HT02	RoomControl10

After scanning is finished, existing override dates are shown in the calendar as follows:

- Gray
Date is overridden by another global schedule in at least one of the selected time programs
- White
Date is overridden by a yearly schedule other than global in at least one of the selected time programs
- Blue
Date is overridden by another global schedule of the yearly schedule in at least one of the selected time programs

NOTE: When multiple time programs (controllers) are selected in the device list, it cannot be distinguished which override is caused by which time program.

- In the calendar, click dates to be overridden (Multiselection using the CTRL key is possible).
- Click **Override** button.
The selected global time programs are applied to the selected dates. In other words, each of the selected time programs applies its own global time program on the selected dates instead of the time program used before the override.
- Click **Save** button. The settings will be written to the controllers.
- Click **Default** button if you want to revert overridings. The global time program definitions in the yearly program will be replaced with the weekly program.

TRENDING AND TRENDS

Definition Trending means to record value changes of selected datapoints and show the developing of the values for a definable time interval in a chart or table.

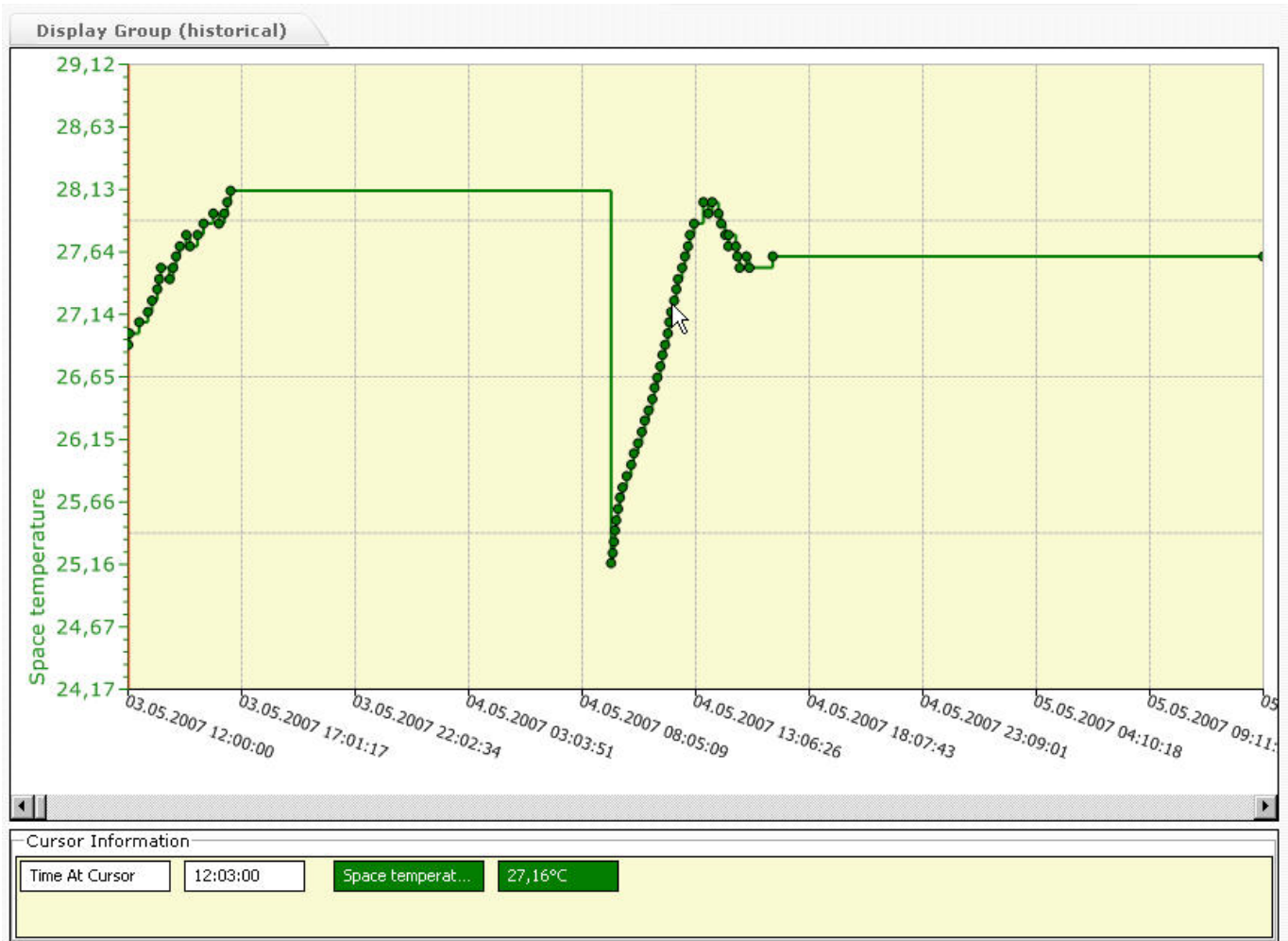


Fig. 23. Trend Example

Trend Types ARENA allows 2 ways of trending:

Historical Trend

The trended datapoint values are retrieved from the ARENA database which can contain values of all levels (station, site, and controller). In the first step, the datapoint values are recorded. In the second step, the trended datapoints are displayed for a definable time interval with a fixed start and end time.

Examples: Time interval = Last 3 Days
Trend data is saved and displayed for the last 3 days after starting the trend.

Time interval = From 04.04.2007, 12.00 through 04.05.2007, 12.00.
Trend data is saved and displayed for the time range 04.04.2007, 12.00 through 04.05.2007, 12.00.

NOTE: Historical trend is possible on all levels (station, site, controller, etc.) and in connected and disconnected states of ARENA.

Live Trend

The trend values come live from the controller of the selected site.

You can define a time window (“Last xx minutes”) and a time range (“Stop after yy hours”).

ARENA will automatically displaying the controller values. After the elapse of the time window, the oldest values will begin disappearing and new values will be added on.

This will be continued until the time range has elapsed. Thus, you are shown the actual values for the last xx minutes until yy hours have elapsed.

Example: Last = 15 minutes, Stop after: 6 hours

Trend data of the latest 15 minutes is continuously saved and displayed within 1 day after starting the trend.

The values can be saved to the ARENA database for performing a historical trend later.

NOTE: Live trend is only possible on site level and on levels below and ARENA must be connected.

Trend Templates

Each trend is based on a template which saves the trended datapoints (not the values) and display settings (display type, time interval). Thus templates allow the easy reuse of trend settings once defined. ARENA provides two default templates, the Live trend template for Live trends and the Historic trend template for historical trends. Before firstly using a default template it contains only the display settings but no datapoints. New templates can be created.

Trend Data Export

Trend data can be exported as .CSV file to MS Excel.

Trending and System Performance

Trending increases bus traffic and requires system resources. Hence, for historical trends, it is recommended to avoid adding more datapoints to trend than absolutely necessary. For Live trends, it is recommended to avoid storing datapoints in the database unless absolutely necessary.

Procedures

For both trend types, the basic procedure can be described as:

1. Record Trend Data

Here you select datapoints to be trended. For historical trends, the values of the selected datapoints are continuously saved in the ARENA database. For Live trends, the values of the selected datapoints are not saved in the database by default, but they can be saved during the live trend when Analyzing the Trend Data in step 2.

2. Analyze Trend Data

Here you do the following:

- Select datapoints for display
- Configure display
- Define time interval and
- Start trending


Record Trend Data

Historical Trend

Here you select the datapoints to be trended. The values of the selected datapoints are continuously saved in the ARENA database. This collection of trend data occurs in the background.

NOTE: Historical trend is possible on all levels (station, site, controller, etc.) and in connected and disconnected states of ARENA.

NOTE: Add only those datapoints to trend which you really want to trend since trending increases bus traffic and has negative impact on the system performance.

1. Hover the cursor over the **Configuration** menu icon  and click **Trending** in the configuration menu.

The *Data Collection* pane displays. On the *Data Collection* pane, you can select the datapoints to be set in trend and you can remove datapoints from trend setting. Here all datapoints of the site are available for selection by using the scroll buttons at the bottom. The datapoints are shown with their sources such as Device, Plant, and Segment.

Data Collection

Available points

	System	Device	Plant	Segment	Name
<input type="checkbox"/>	(all)	(all)	(all)	(all)	(all)
<input type="checkbox"/>		Conference	Plant_1	Conference	Active setpoint
<input type="checkbox"/>		Conference	Plant_1	Conference	Cooling Output
<input type="checkbox"/>		Conference	Plant_1	Conference	DI1 status
<input type="checkbox"/>		Conference	Plant_1	Conference	DI2 Window contact
<input type="checkbox"/>		Conference	Plant_1	Conference	Fan speed
<input type="checkbox"/>		Conference	Plant_1	Conference	Heating Output
<input type="checkbox"/>		Conference	Plant_1	Conference	Reheat Output
<input type="checkbox"/>		Conference	Plant_1	Conference	Space temperature
<input type="checkbox"/>		HEATINGPLANT	Plant_1	HT02	BL1_FlowTemp
<input type="checkbox"/>		HEATINGPLANT	Plant_1	HT02	BL1_ManSwCond
<input type="checkbox"/>		HEATINGPLANT	Plant_1	HT02	BL1_ST1
<input type="checkbox"/>		HEATINGPLANT	Plant_1	HT02	BL1_ST2
<input type="checkbox"/>		HEATINGPLANT	Plant_1	HT02	Block_Signal
<input type="checkbox"/>		HEATINGPLANT	Plant_1	HT02	CPU_Calc_Htg_Sp
<input type="checkbox"/>		HEATINGPLANT	Plant_1	HT02	CPU_Calc_Htg_Sp
<input type="checkbox"/>		HEATINGPLANT	Plant_1	HT02	DHW1_Calc_Sp
<input type="checkbox"/>		HEATINGPLANT	Plant_1	HT02	DHW1_ChgPmpCmd
<input type="checkbox"/>		HEATINGPLANT	Plant_1	HT02	DHW1_Leg_Alm
<input type="checkbox"/>		HEATINGPLANT	Plant_1	HT02	DHW1_ManSwCond
<input type="checkbox"/>		HEATINGPLANT	Plant_1	HT02	DHW1_SST_Alm

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↳ Note: Add only points to trend from which you require data. Adding a point to trend will increase bus traffic with this site and negatively impact system performance.

Trended points

	Trended Point	Hysteresis
<input type="checkbox"/>		

No records to display.

↳

Ok Cancel

Home

2. Click on the datapoint(s) you want to set in trend.

Data Collection

Available points

<input type="checkbox"/>	System	Device	Plant	Segment	Name
<input type="checkbox"/>	(all)	(all)	(all)	(all)	(all)
<input type="checkbox"/>		Conference	Plant_1	Conference	Active setpoint
<input type="checkbox"/>		Conference	Plant_1	Conference	Cooling Output
<input type="checkbox"/>		Conference	Plant_1	Conference	DI1 status
<input type="checkbox"/>		Conference	Plant_1	Conference	DI2 Window contact
<input type="checkbox"/>		Conference	Plant_1	Conference	Fan speed
<input type="checkbox"/>		Conference	Plant_1	Conference	Heating Output
<input type="checkbox"/>		Conference	Plant_1	Conference	Reheat Output
<input checked="" type="checkbox"/>		Conference	Plant_1	Conference	Space temperature
<input type="checkbox"/>		HEATINGPLANT	Plant_1	HT02	BL1_FlowTemp
<input type="checkbox"/>		HEATINGPLANT	Plant_1	HT02	BL1_ManSwCond
<input type="checkbox"/>		HEATINGPLANT	Plant_1	HT02	BL1_ST1
<input type="checkbox"/>		HEATINGPLANT	Plant_1	HT02	BL1_ST2
<input type="checkbox"/>		HEATINGPLANT	Plant_1	HT02	Block_Signal
<input type="checkbox"/>		HEATINGPLANT	Plant_1	HT02	CPU_Calc_Htg_Sp
<input type="checkbox"/>		HEATINGPLANT	Plant_1	HT02	CPU_Calc_Htg_Sp
<input type="checkbox"/>		HEATINGPLANT	Plant_1	HT02	DHW1_Calc_Sp
<input type="checkbox"/>		HEATINGPLANT	Plant_1	HT02	DHW1_ChgPmpCmd
<input type="checkbox"/>		HEATINGPLANT	Plant_1	HT02	DHW1_Leg_Alm
<input type="checkbox"/>		HEATINGPLANT	Plant_1	HT02	DHW1_ManSwCond
<input type="checkbox"/>		HEATINGPLANT	Plant_1	HT02	DHW1_SST_Alm

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Note: Add only points to trend from which you require data. Adding a point to trend will increase bus traffic with this site and negatively impact system performance.

3. Click **Add To Trend** button.

The selected datapoint(s) are added to the *Trended Points* list below.

Note: Add only points to trend from which you require data. Adding a point to trend will increase bus traffic with this site and negatively impact system performance.

Trended points

<input type="checkbox"/>	Trended Point	Hysteresis
<input type="checkbox"/>	Conference/Plant_1/Conference/Space temperature	0 °C 

Ok Cancel

Home

4. To remove datapoints from the trend list, click **Remove From Trend** button.
5. To confirm the **Trended Points** selection, click the **OK** button.
6. Click **Home** button to leave the **Trending** configuration menu.
7. Continue with analyzing trend data as described in the “Analyze Trend Data” section.

Live Trend

For Live trends, the datapoints are set in trend at the same time when analyzing the trend data. Please refer to the “Analyze Trend Data” section.

NOTE: Live trend is only possible on site level and on levels below, and ARENA must be connected.

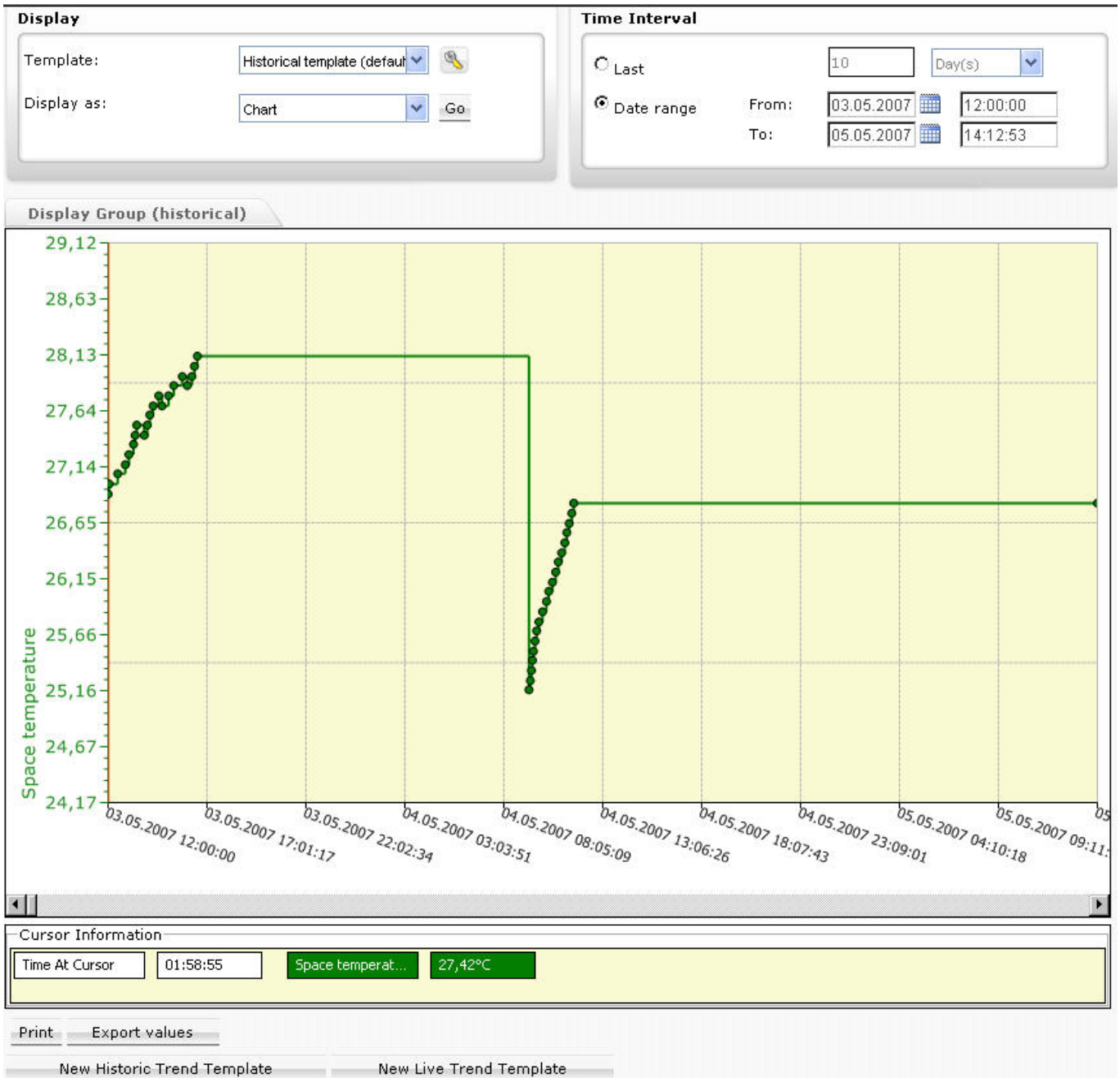
Analyze Trend Data

Analyzing trend data includes the following steps:

- Select datapoints for display
- Configure display

- Define time interval and
 - Start trending
1. In the tree, click on station, site, controller, etc. you want to trend.
 Analysis of historical trend data is possible on all levels (station, site, controller, etc.) and in connected and disconnected states of ARENA.


 Analysis of Live trend is only possible on site level and on levels below and ARENA must be connected.
 2. On the right, click on *Trends* tab.



On the *Trends* tab, you can do the following:

- Select, edit or create new template which includes:
 - Selecting and displaying datapoints
 - Defining time interval
 - Configuring display
- Starting trend
- Export trend values
- Print trend values

Continue with selecting a trend template as described in step 3.

3. In **Template**, do one of the following:
 - a. Select historical or live template you want to use for the trending. By default, the last template chosen by a user is selected. *Continue with step 4.*
 - b. Create a new template by clicking either the **New Historic Template** or **New Live Trend Template** button (see “Create New Trend Template” section).
4. Click the **Configure Display** icon .

The *Configure Display* dialog box displays.

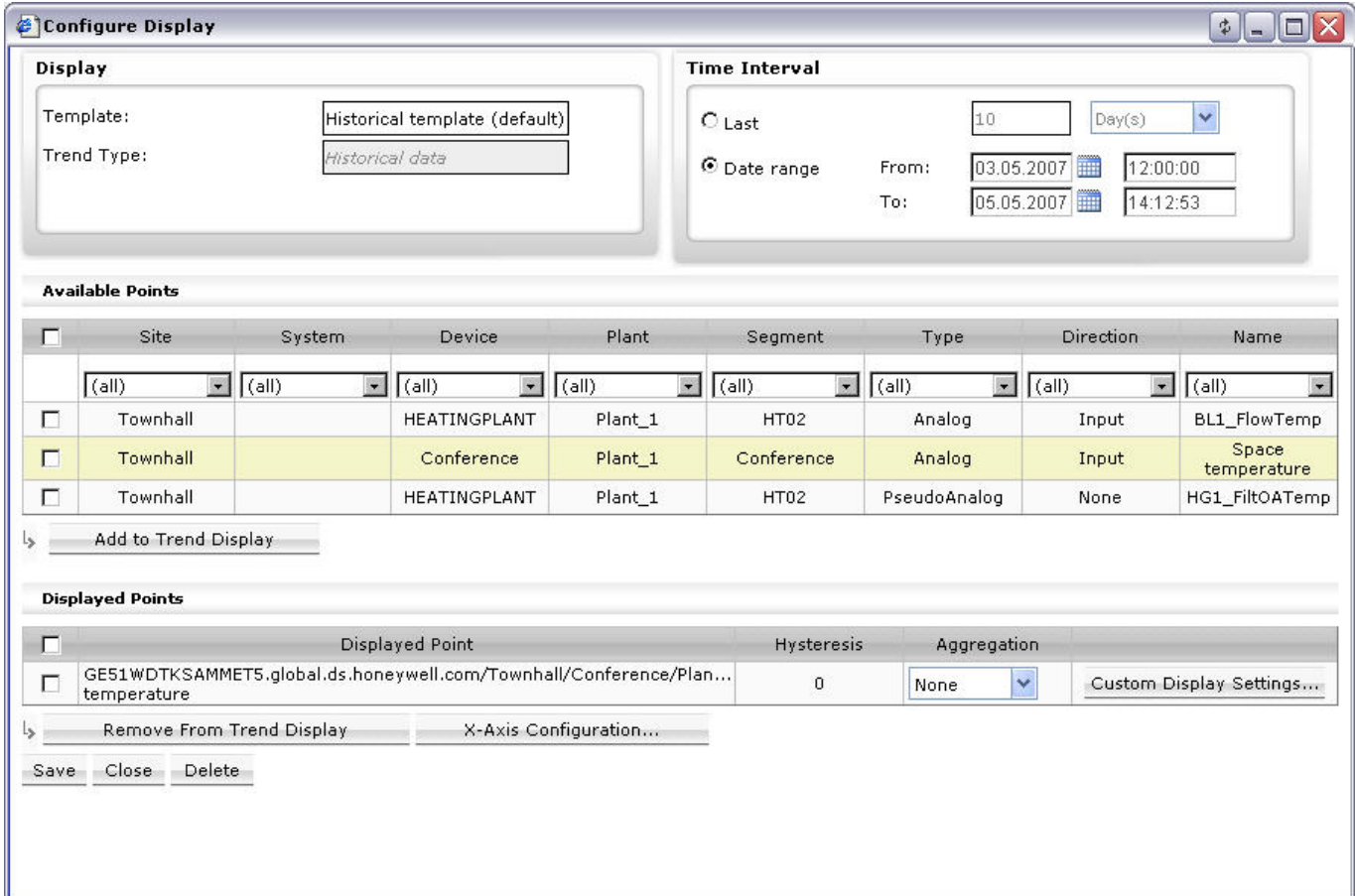


Fig. 24. Example: Configure Display of Historical Template (Default template)

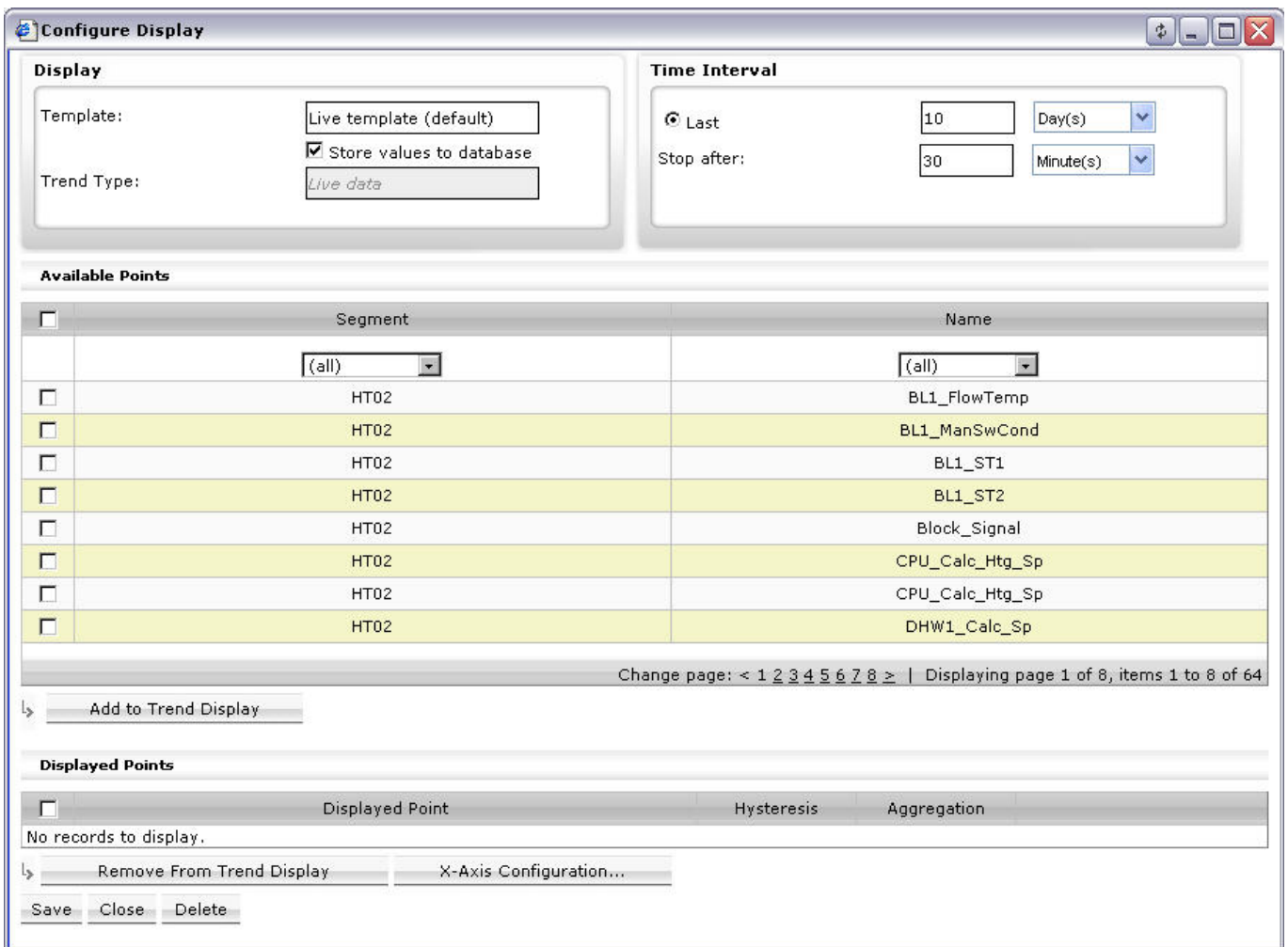
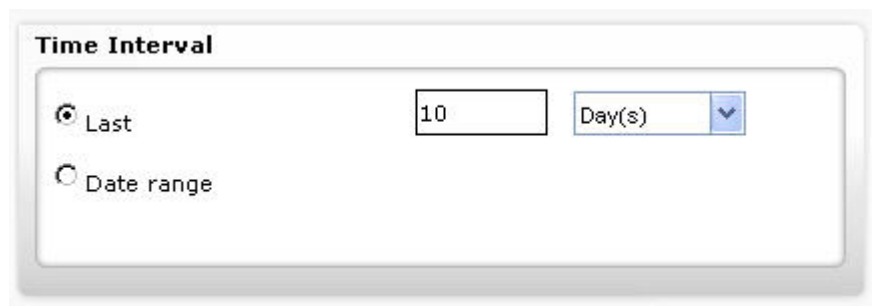


Fig. 25. Example: Configure Display of Live Template (Default template)


5. In **Template**, change the name of the template if desired. It is recommended to keep the name of a default template.
6. In **Time Interval**, define the time interval under:
 - Last** (Historic trend)

When a historic trend template has been selected, trending occurs for a definable time interval with a fixed start and end time in the past.



Select this option, if you want to trend for a fixed time period retroactively (i.e. counting backwards from now, e.g. the last 10 days).

- a. Select the time unit, e.g. Minute(s), Hour(s), etc., from the drop-down listbox at the far right.
 - b. Enter the number of units in the field next to **Last**.
- Date range** (Historic trend only)

- a. Select this option, if you want to trend for a fixed time interval definable by date and time in the past, e.g. 04.04.2007, 12.00 through 04.05.2007, 12.00.
- b. Enter date and time in the **From** and **To** fields. Use calendar icons  for the date input if desired.

Last (Live trend)

Stop after (Live trend only)

When a Live trend template has been selected, trending occurs live in a definable time window (Last) and stops after a definable time range (Stop after). ARENA will automatically displaying the controller values. After the elapse of the time window, the oldest values will begin disappearing and new values will be added on. This will be continued until the time range has elapsed. Thus, you are shown the actual values for the last e.g. xx minutes until e.g. yy hours have elapsed.

Last defines the time window

- a. Select the time unit, e.g. Minute(s), Hour(s), etc., from the drop-down listbox at the far right.
- b. Enter the number in the field to the right.

Stop after defines the time period

- c. Select the time unit, e.g. Minute(s), Hour(s), etc., from the drop-down listbox at the far right.
- d. Enter the number in the field to the right.

NOTE:

The **Stop after** setting must be higher than the **Last** setting.

- 7. In **Display as**, select the display type, chart or table (default).
- 8. In **Available Points**, all stations, sites, systems, devices, etc. are shown from which trend values exist in the ARENA database. Note that the number of columns depends on the selection level in the tree. If you have selected a controller (device) for trending, the higher levels such as System, Site, and Station are not available. The datapoints are shown in the **Name** column. Use filters in the columns if you want to filter for certain items.

Available Points								
<input type="checkbox"/>	Site	System	Device	Plant	Segment	Type	Direction	Name
	(all)	(all)	(all)	(all)	(all)	(all)	(all)	(all)
<input type="checkbox"/>	Townhall		HEATINGPLANT	Plant_1	HT02	Analog	Input	BL1_FlowTemp
<input type="checkbox"/>	Townhall		Conference	Plant_1	Conference	Analog	Input	Space temperature
<input type="checkbox"/>	Townhall		HEATINGPLANT	Plant_1	HT02	PseudoAnalog	None	HG1_FiltOATemp

Fig. 26. Example: Available Points based on a Historical Template

Available Points				
<input type="checkbox"/>	Device	Plant	Segment	Name
	(all)	(all)	(all)	(all)
<input type="checkbox"/>	HEATINGPLANT	Plant_1	HT02	BL1_FlowTemp
<input type="checkbox"/>	HEATINGPLANT	Plant_1	HT02	BL1_ManSwCond
<input type="checkbox"/>	HEATINGPLANT	Plant_1	HT02	BL1_ST1
<input type="checkbox"/>	HEATINGPLANT	Plant_1	HT02	BL1_ST2
<input type="checkbox"/>	HEATINGPLANT	Plant_1	HT02	Block_Signal
<input type="checkbox"/>	HEATINGPLANT	Plant_1	HT02	CPU_Calc_Htg_Sp
<input type="checkbox"/>	HEATINGPLANT	Plant_1	HT02	CPU_Calc_Htg_Sp
<input type="checkbox"/>	HEATINGPLANT	Plant_1	HT02	DHW1_Calc_Sp

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Fig. 27. Example: Available datapoints based on a Live Template

9. In **Available Points**, click the datapoints you want to trend.

Available Points								
<input checked="" type="checkbox"/>	Site	System	Device	Plant	Segment	Type	Direction	Name
	(all)	(all)	(all)	(all)	(all)	(all)	(all)	(all)
<input checked="" type="checkbox"/>	Townhall		HEATINGPLANT	Plant_1	HT02	Analog	Input	BL1_FlowTemp
<input checked="" type="checkbox"/>	Townhall		Conference	Plant_1	Conference	Analog	Input	Space temperature
<input checked="" type="checkbox"/>	Townhall		HEATINGPLANT	Plant_1	HT02	PseudoAnalog	None	HG1_FiltOATemp

Fig. 28. Example: Selected Points based on a Historical Template

10. Click **Add to Trend Display** button.

The datapoints are added in **Displayed Points**. For each datapoint, the display can be individually customized by clicking the **Custom Display Settings** button and doing the adjustments in the *Custom Display Settings* dialog box (see “Customize Display Settings” section). The X-Axis can be configured for all datapoints by clicking the **X-Axis Configuration** button and configuring it in the *X-Axis Configuration* dialog box (see “Define X-Axis Configuration” section).

Displayed Points				
<input type="checkbox"/>	Displayed Point	Hysteresis	Aggregation	
<input type="checkbox"/>	GE51WDTKSAMMET5.global.ds.honeywell.com/Townhall/Conference/Plan... temperature	0	None	Custom Display Settings...
<input type="checkbox"/>	GE51WDTKSAMMET5.global.ds.honeywell.com/Townhall/HEATINGPLANT/...	0	None	Custom Display Settings...
<input type="checkbox"/>	GE51WDTKSAMMET5.global.ds.honeywell.com/Townhall/HEATINGPLANT/...	0	None	Custom Display Settings...

Remove From Trend Display X-Axis Configuration...

Save Close Delete

Fig. 29. Example: Displayed Points based on a Historical Template

11. To remove datapoints from trend display, click the datapoint(s) in the list and click **Remove From Trend Display** button.
12. In **Hysteresis**, enter a value for the hysteresis of analog points. Last wins if the same point is updated by different users. Default = 1.
13. In **Aggregation**, select how the information is aggregated for large time frames, for example, one year. The following are good defaults:
 - ‘Max.’ for analog pseudopoints with a technical address and totalizer points
 - ‘None’ for digital points
 - ‘Average’ for all other points

NOTE:

For Live trends, aggregation is not required

14. Do one of the following;
 - a. To save the template, click **Save** button.
 - b. To delete the template, click **Delete** button.
15. Click **Close** button.

The *Trend* tab redisplay and shows the trend display according to the template settings. By default, a trend is shown as table. In **Display as**, select ‘Chart’, if you want a chart display.
16. If a Live trend template has been selected, check **Store values to database** if you want to save the trended values in the ARENA database. In this case, the live trend result can be reused later for a historical trend.
17. Uncheck **Store values to database** if you not want to save the trended values in the ARENA database.
18. To start trending do the following;
 - a. For Historical trending, click **Go** button.
 - b. For live trending, click **Start** button.

On the *Display Group* tab below, the trended datapoints are displayed according to the settings:

The Table display shows the datapoint values with their time stamp.

The Chart display shows the trend curve with the time-based x-axis and the value-based y-axis. In the Chart display, additional information is shown in the *Cursor Information* pane and you can work in the graphic workspace for viewing more details of the displayed trend data (see “Working with Charts” section).

Display Group (historical)	
Time Stamp	Conference [...] Space temperature [°C]
04.05.2007 16:30:37	27,600
04.05.2007 15:28:37	27,510
04.05.2007 15:20:37	27,600
04.05.2007 15:02:37	27,510
04.05.2007 14:56:37	27,600
04.05.2007 14:52:37	27,680
04.05.2007 14:33:37	27,770
04.05.2007 14:32:37	27,680
04.05.2007 14:24:37	27,770
04.05.2007 14:13:37	27,860
04.05.2007 14:06:37	27,940
04.05.2007 13:49:37	28,030
04.05.2007 13:39:37	27,940
04.05.2007 13:26:37	28,030
04.05.2007 13:01:37	27,860
04.05.2007 12:50:37	27,770
04.05.2007 12:45:36	27,680
04.05.2007 12:37:36	27,600
04.05.2007 12:29:54	27,510
04.05.2007 12:18:54	27,420
04.05.2007 12:14:54	27,340
04.05.2007 12:08:54	27,250
04.05.2007 12:00:54	27,160
04.05.2007 11:55:54	27,080

Fig. 30. Example “Historical trend, Display as table”

04.05.2007 11:51:54	26,990
04.05.2007 11:44:54	26,900
04.05.2007 11:37:54	26,820
04.05.2007 11:31:54	26,730
04.05.2007 11:23:54	26,640
04.05.2007 11:16:54	26,560
04.05.2007 11:10:54	26,470
04.05.2007 11:00:54	26,380
04.05.2007 10:50:54	26,300
04.05.2007 10:42:54	26,210
04.05.2007 10:32:54	26,120
04.05.2007 10:21:54	26,040
04.05.2007 10:14:54	25,950
04.05.2007 10:02:54	25,860
04.05.2007 09:51:54	25,770
04.05.2007 09:44:54	25,690
04.05.2007 09:39:54	25,600
04.05.2007 09:34:54	25,510
04.05.2007 09:31:54	25,430
04.05.2007 09:28:54	25,340
04.05.2007 09:25:54	25,250
04.05.2007 09:21:30	25,170
03.05.2007 16:31:46	28,120
Change page: < 1 2 > Displaying page 1 of 2, items 1 to 50 of 69.	

Fig. 31. continued ... Example "Historical trend, Display as table"

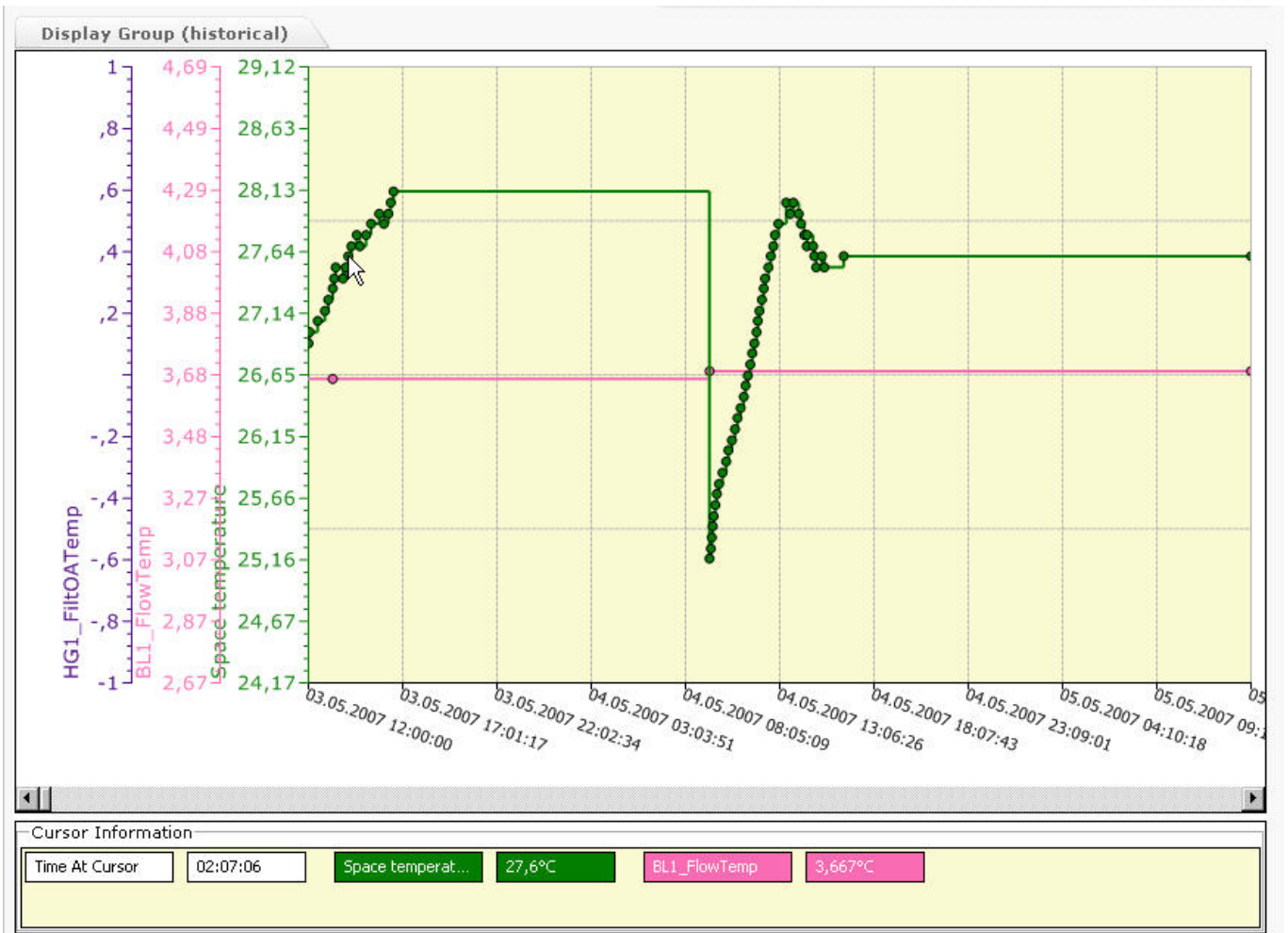


Fig. 32. Example “Historical trend, display as chart, multiple datapoints trended”

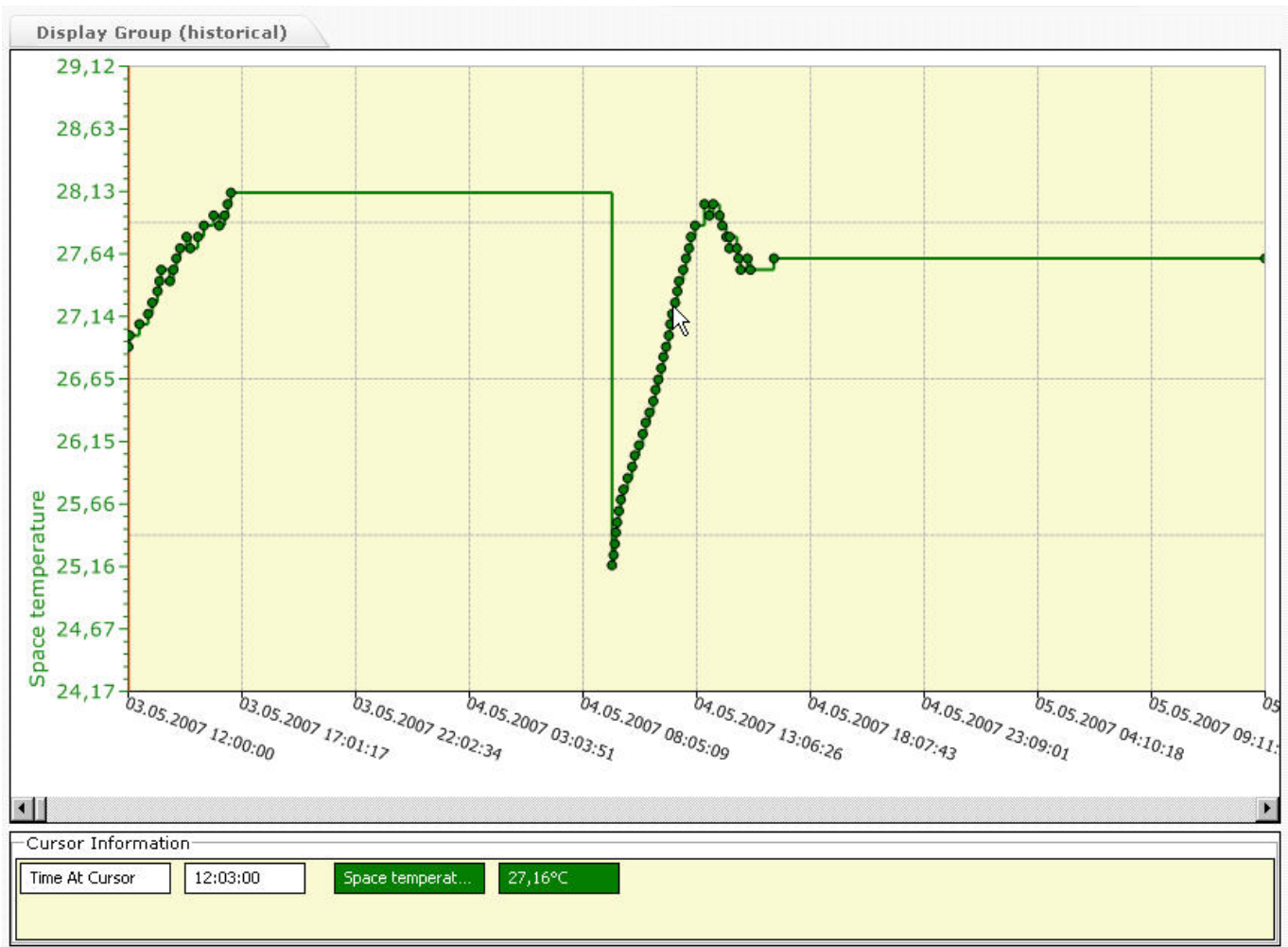

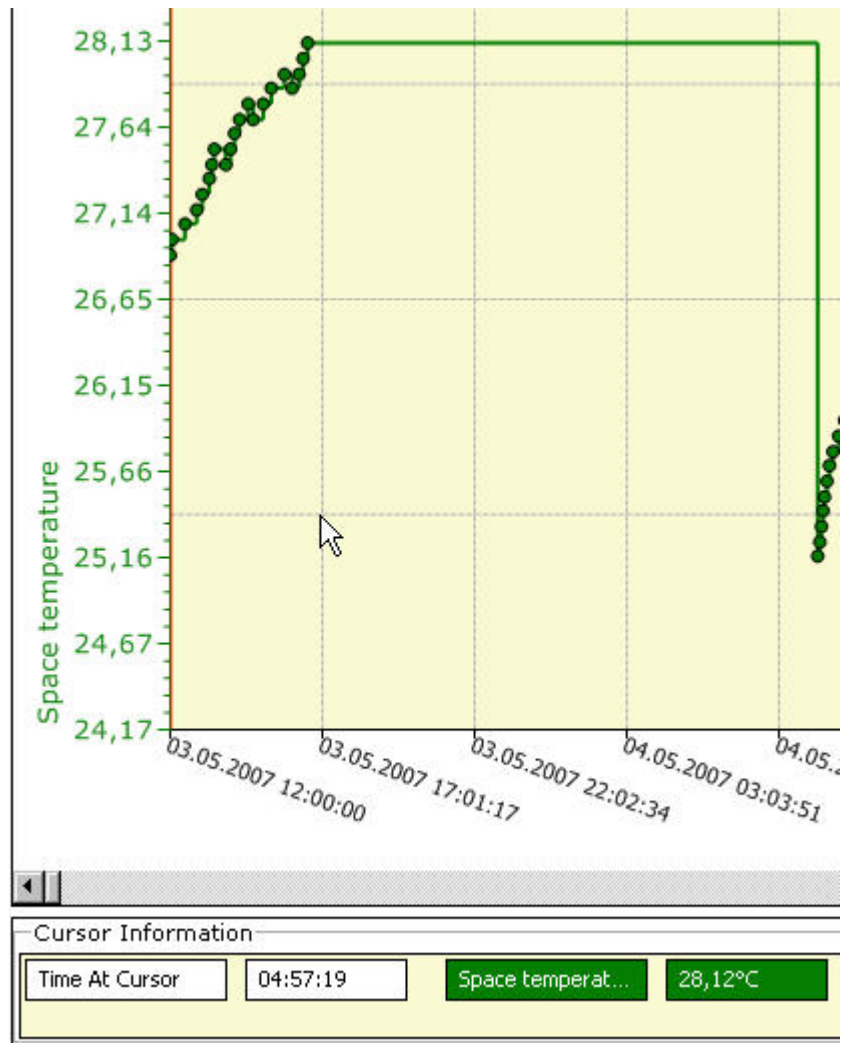


Fig. 33. Example “Historical trend, display as chart, one datapoint trended”

Working with Charts

The chart display shows the trend curve with the time-based x-axis and the value-based y-axis. If multiple datapoints are trended, the y-axis shows the datapoint values, each of them in a different color.

The chart display settings can be changed by clicking the **Configure Display** icon  (see “Configure Trend Display” section).



Cursor Information

In the *Cursor Information* pane, you can view time-value pairs dependent on the current cursor position when hovering the cursor over the chart.

Time at cursor

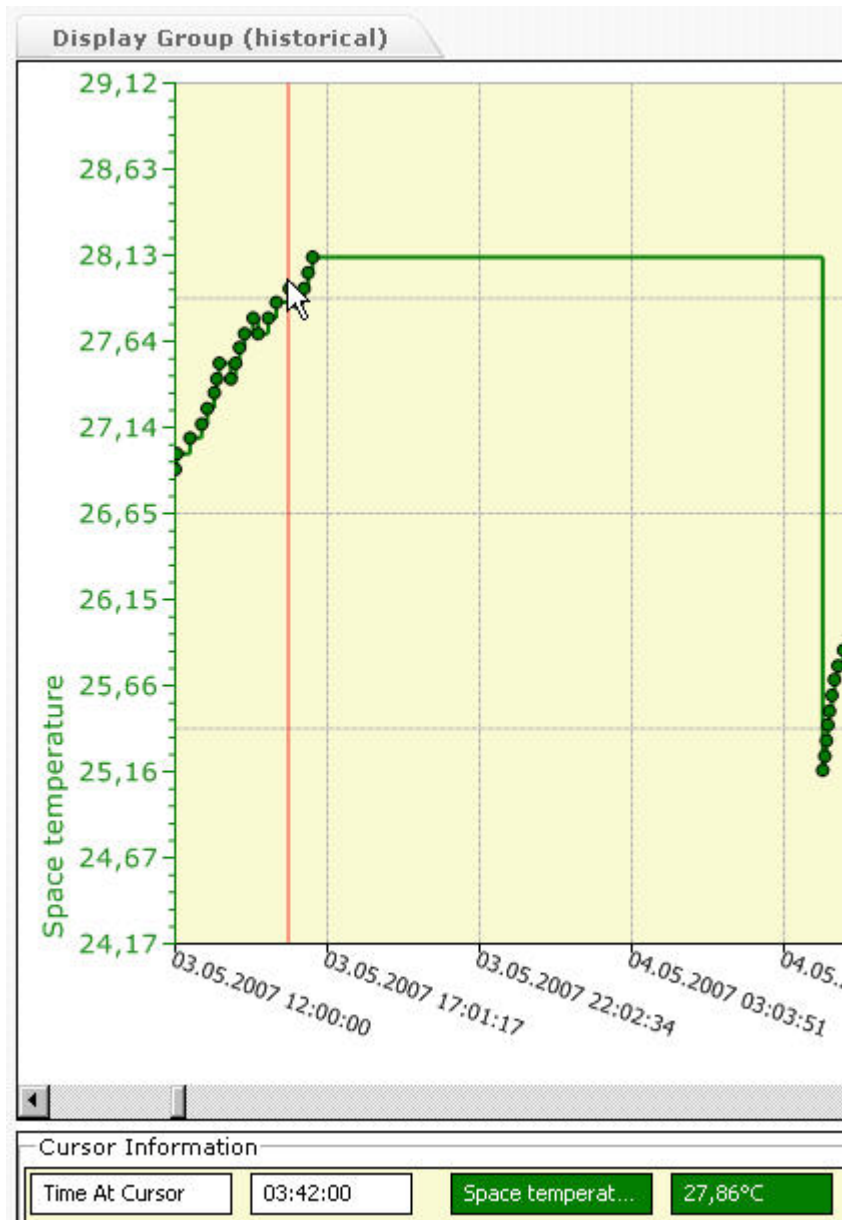
In the field right to this field, the trend time dependent of the current cursor position is displayed.

Colored Fields

In the colored fields, the trended value(s) of the datapoints dependent on the current cursor position are displayed. If multiple datapoints are trended, the fields are shown in different colors.

Optical Guideline

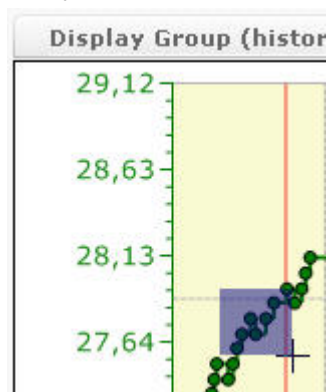
You can add an optical guideline by clicking at the desired position in the chart. A red vertical line is added to the chart and the corresponding cursor information is shown in the *Cursor Information* pane.



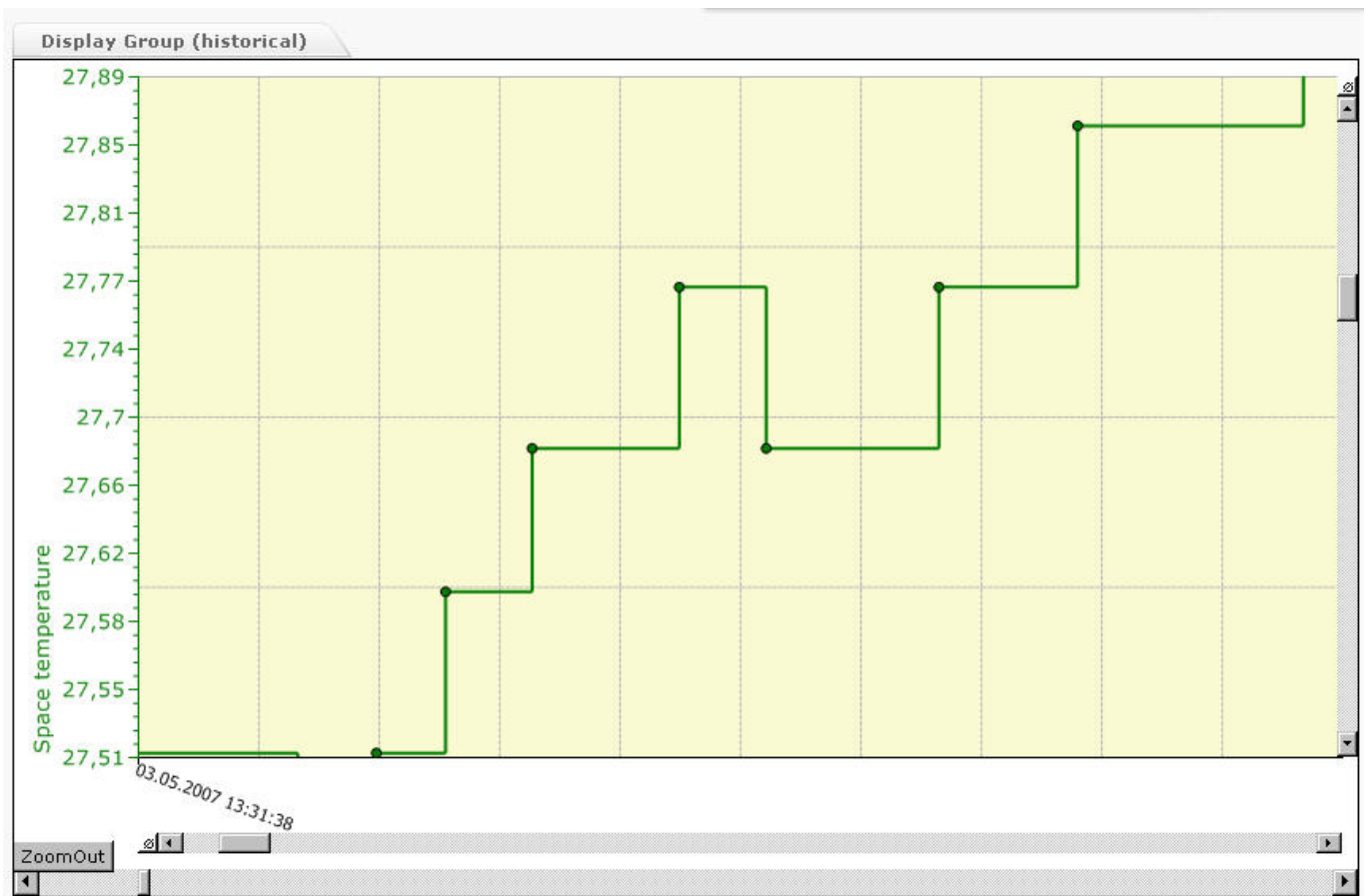
Zoom Chart Area

You can zoom a desired part of the chart as follows:

1. Click at desired position and with hold mouse button, draw a rectangle over the area you want to zoom.



2. Release the mouse button.
The area is zoomed.



3. To zoom out of the area in order to go back to the original scale, click **ZoomOut** button.

Create New Trend Template

A trend is based on a template which saves the trended datapoints and display settings. There are two types of templates available, the Live trend template for Live trends and the Historic trend template for historical trends. A template allows the easy reuse of the trend settings. Note that the trended values are not saved in the template.

1. Select the *Trends* tab, if it is not selected yet.
2. Do one of the following:
 - a. Click on **New Historic Trend Template** button, if you want to start a historical trend.
 - b. Click on **New Live Trend Template** button, if you want to start a live trend.
 The *Configure Display* dialog box displays.

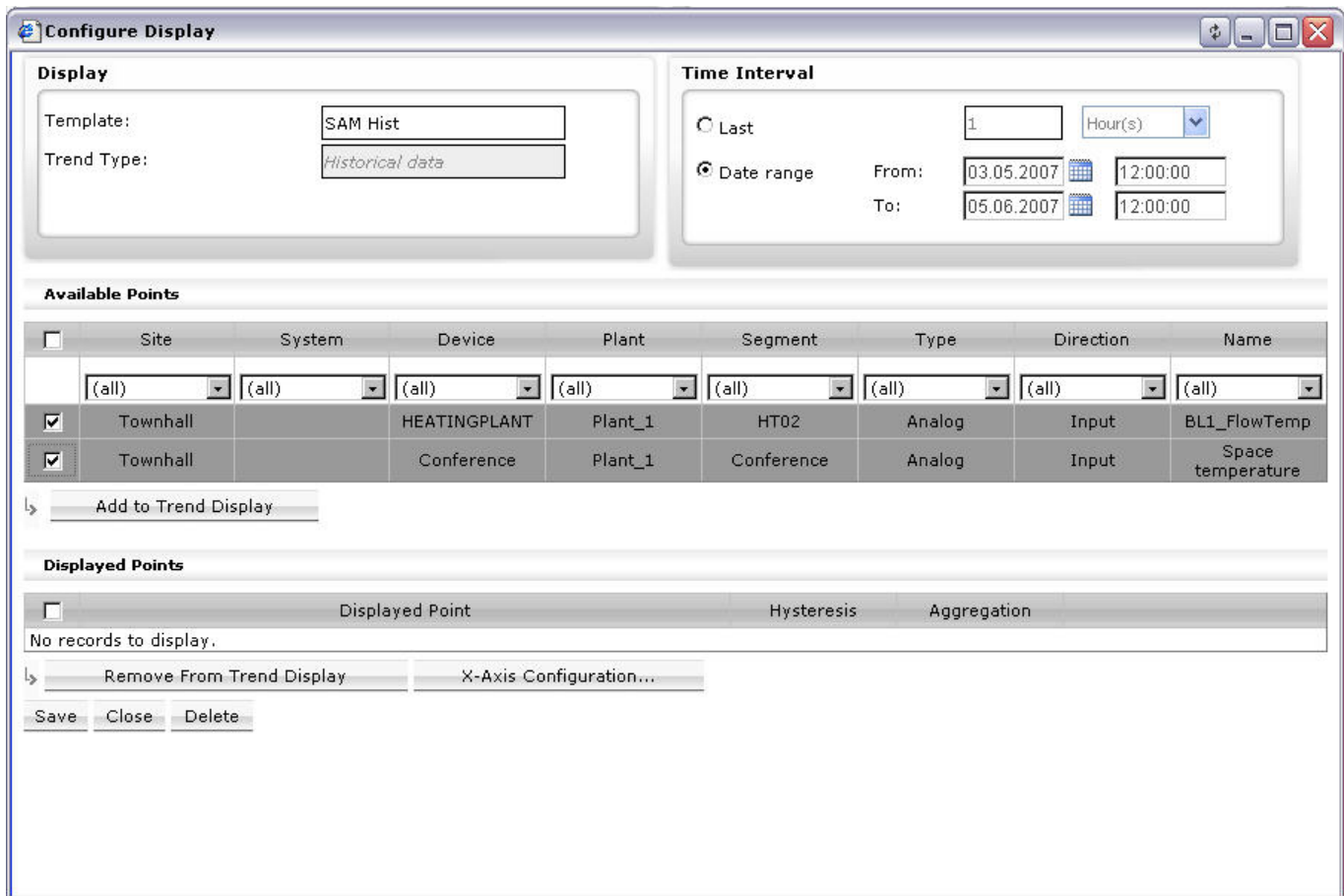



Fig. 34. Example: "Historical trend template"

3. Under **Display**, in **Template**, enter the name for the template.
4. Continue with steps 6 through 18 described in the previous "Analyze Trend Data" section.

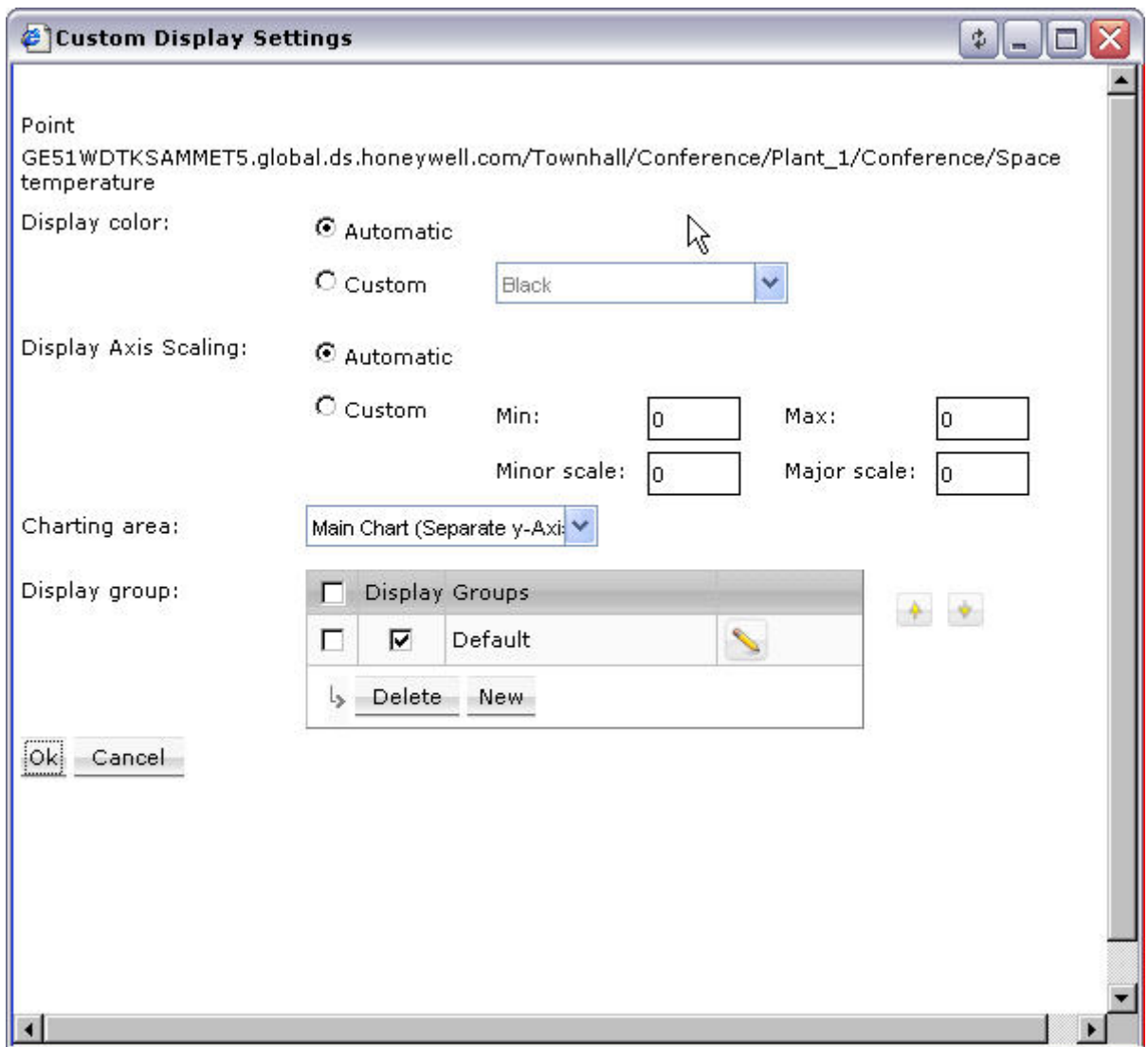
Configure Display

Depending on the trend type, display settings are saved in a Historical or Live trend template.

1. To change display settings, click *Trends* tab.
2. In **Template**, select the template.
3. Click **Configure Display** icon .
4. Continue with steps 5 through 17 as described in the "Analyze Trend Data" section.

Customize Display Settings

1. In **Displayed Points**, click **Custom Display Settings** button in the line of the datapoint which settings you want to customize.
The **Custom Display Settings** dialog box displays.



2. Set options as follows:

Display Color

Select **Automatic** if ARENA should define the color for the curve and axis automatically.

Select **Custom** if you want define the color by your own and select the color in the right drop-down listbox.

Display Axis Scaling

Select **Automatic** if ARENA should define the axis scaling automatically.

Select **Custom** if you want define the axis scaling by your own and enter desired values as follows:

- c. In **Min**, enter the start value of the x-axis (origin).
- d. In **Max**, enter the end value of the x-axis.
- e. In **Major scale**, enter a value for the major scale lines. For example, 1 defines that a major scale line is drawn every 1 unit dependent on the **Min** and **Max** values.
- f. In **Minor scale**, enter a value for the minor scale lines. For example, 1 defines that a minor scale line is drawn every 1 unit dependent on the **Min** and **Max** values.

Charting area

Select how the curve is displayed under:

Main chart (common y-axis)

The curve is shown in the main chart and uses the same y-axis as the other curve(s)

Main chart (separate y-axis)

The curve is shown in the main chart and uses a separate y-axis than the other curve(s)

Separate chart (stacked)

The curve is shown in a separate chart

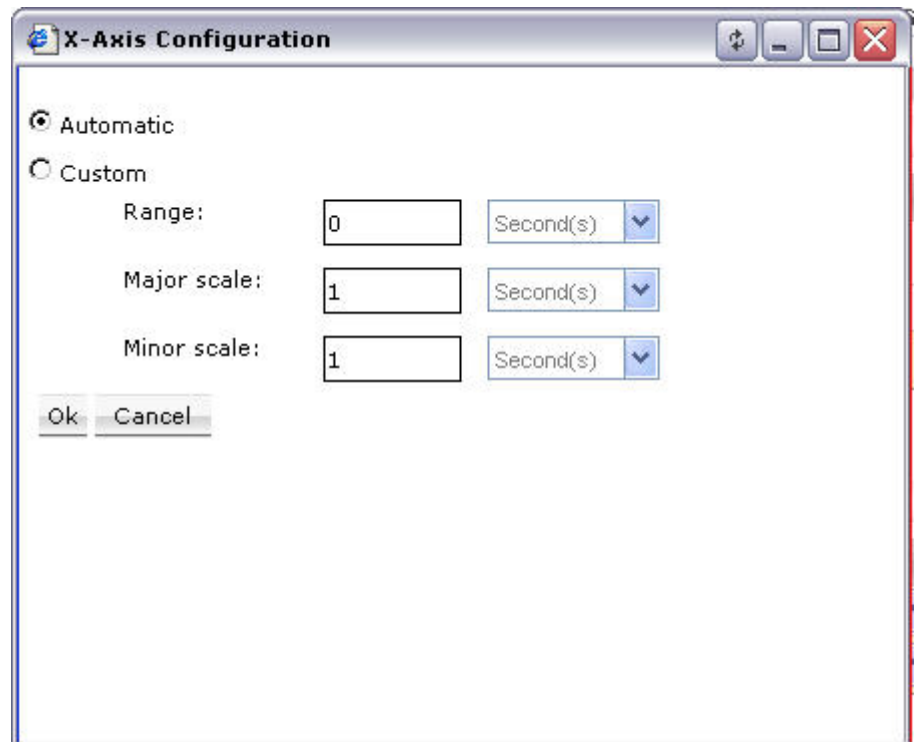
Display Group

A display group is the tab on which the curve is displayed on the *Trends* tab. The checkmark in the second column indicates where the curve is displayed. You can create a new group by clicking the **New** button and delete a group by clicking the **Delete** button after you have checked the group in the first column

- Click **OK** button to save display settings.

Define X-Axis Configuration

- In Displayed Points, click X-Axis Configuration. The **X-Axis Configuration** dialog box displays.



- Set options as follows:
 - Select **Automatic** if ARENA should configure the X-Axis scale automatically.
 - Select **Custom** if you want to configure the X-Axis scale by your own.
 - a. In **Range**, enter a range and select the unit in the drop-down listbox. If the range is smaller than the displayed time interval on the *Trends* tab, you can scroll. For example, if the time interval is 1 month, you can display only a range of 1 week.
 - b. In **Major scale**, enter a value for the major scale and select the unit in the drop-down listbox. For example, 1 hour(s) defines that a major scale line is drawn every 1 hour.

- c. In **Minor scale**, enter a value for the minor scale and select the unit in the drop-down listbox. For example, 1 minute(s) defines that a minor scale line is drawn every 1 minute.
3. Click **OK** button to save display settings.

MISCELLANEOUS

Alias Name and NV Name Correspondents for SERVAL Controller

NOTE: It is forbidden to use the slash character "/" in alias names because this may result in an unexpected behavior of ARENA.

When trending a SERVAL controller, the following table is helpful for identifying the network variable names of the corresponding alias names.

Alias Name	Network Variable Name (Trend)
Inputs	
Room Temperature	SpaceTempOut
Bypass input	EffectOccMode
Digital input2	
State	WindowOut.state
Sensor	
Digital input 1	Sensor.contact_state_DI1
Setpoint wheel input	Sensor.remote_set_point
Outputs	
Active Setpoint	EffectSetPnt
Output Status	
Heating output signal	UnitStatus.heat_output_primary
Cooling output signal	UnitStatus.cool_output
Fan speed	UnitStatus.fan_output
Parameters	
Wall module	
Min Limit Setpoint Pot	WallMod.si_low_setpt
Max Limit Setpoint Pot	WallMod.si_high_setpt
Bypass Time	WallMod.ui_bypass_time
Control Settings	
Cooling Fan Stage 3 Switching Level	CntrlSettings.switch_level_cool
Heating Fan Stage 3 Switching Level	CntrlSettings.switch_level_heat
Temperature SetPoint	
Cooling Occupied Setpoint	TempSetPts.occupied_cool
Heating Occupied Setpoint	TempSetPts.occupied_heat
Cooling Standby Setpoint	TempSetPts.standby_cool
Heating Standby Setpoint	TempSetPts.standby_heat
Cooling Unoccupied Setpoint	TempSetPts.unoccupied_cool
Heating Unoccupied Setpoint	TempSetPts.unoccupied_heat
Energy Management	
Cooling Recovery Ramp	EnergyManag.optstart_cool_grad
Heating Recovery Ramp	EnergyManag.optstart_heat_grad
Control Parameters	
Cooling Proportional Band	FcuGains.si_pid_cool_Xp
Heating Proportional Band	FcuGains.si_pid_heat_Xp
Cooling Integral Time	FcuGains.si_pid_cool_Tn
Heating Integral Time	FcuGains.si_pid_heat_Tn

Alias Name	Network Variable Name (Trend)
Control Parameters	
Cooling Derivative Time	FcuGains.si_pid_cool_Tv
Heating Derivative Time	FcuGains.si_pid_heat_Tv

Font Size Setting

For proper display of custom graphics created with ARENA Editor do **not** change the font size from Normal (96 DPI) to Large or Extralarge under **Settings – Control Panel - Display – Appearance** in Windows.

Arena Editor

The graphic user interface is independent of the site tree in ARENA although it can consist of multiple hierarchical levels. There are built-in intelligent drawing elements which allow you to create interactive system graphics in which you can display and change values. System graphics typically show the application, including boilers, heat pumps, water pipes, etc. and attached intelligent display fields which will show the actual datapoint or setting values in ARENA. System graphics can be enhanced with “animated” pictures created with the help of the ARENA Editor. Hierarchical levels can be linked using linking hotspots. “Real” images can be imported for getting a more picturesque style.

ARENA Editor is not necessary for the function of ARENA, but makes the operation of complex systems easier and more comfortable.

ARENA Editor will take care of ARENA graphics for navigation and display. The work done with ARENA Editor will be imported into ARENA in order to work in the ARENA software.

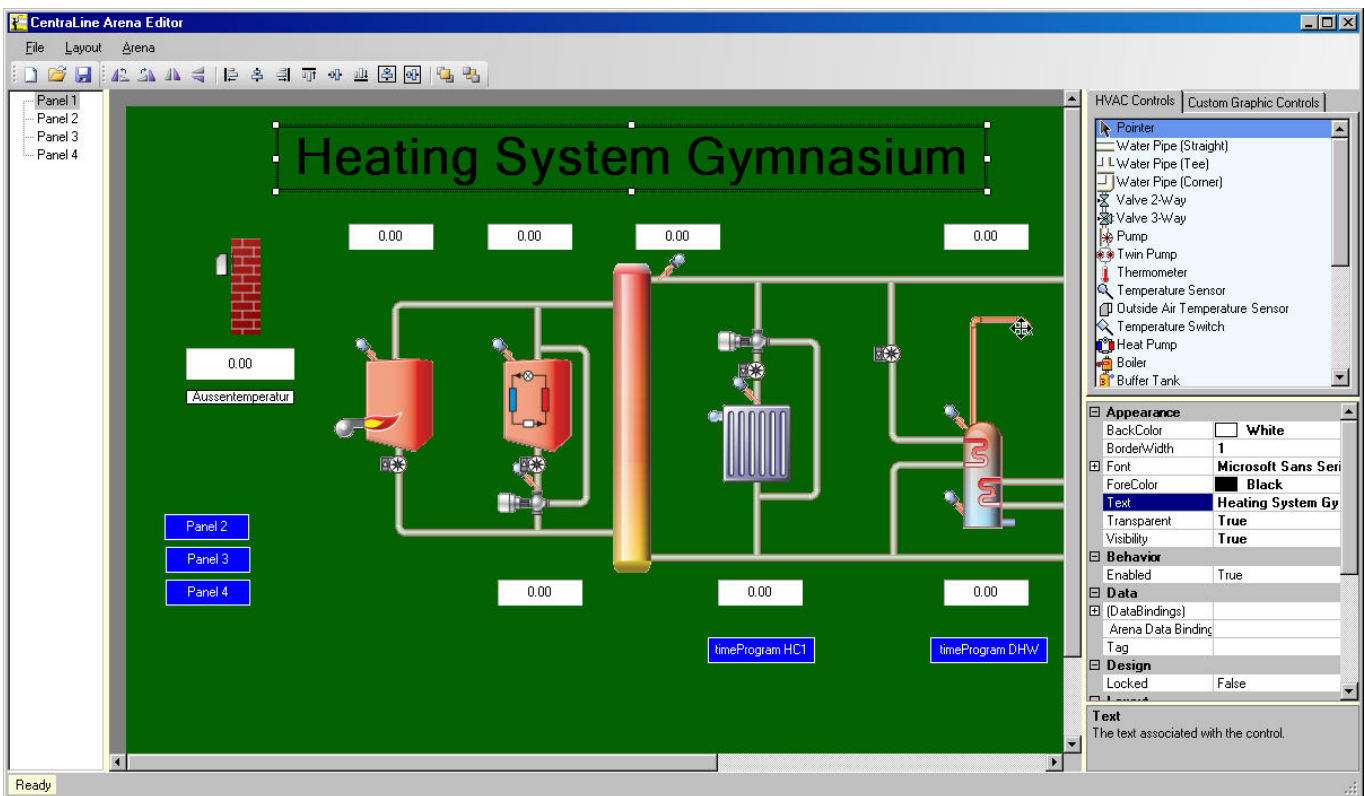
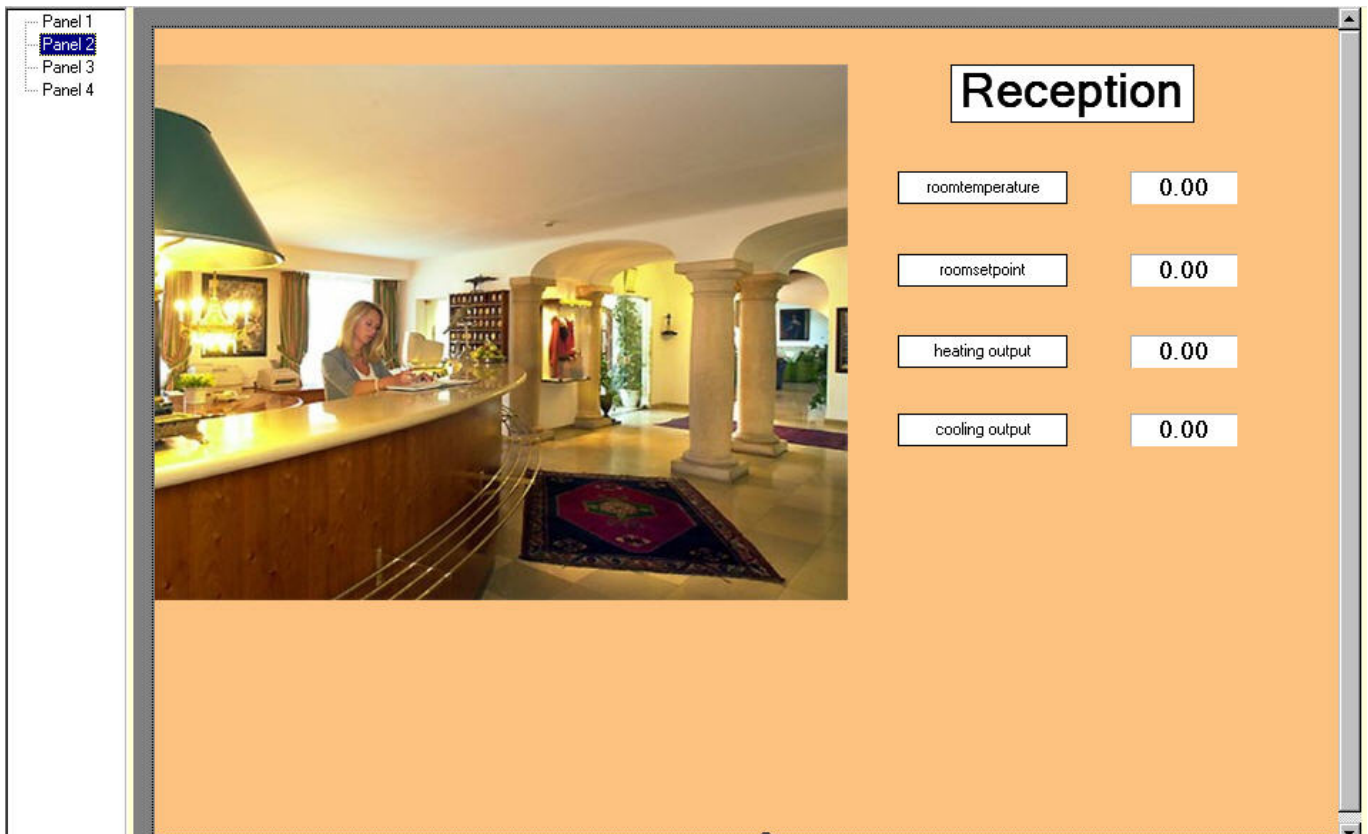


Fig. 35. System Graphic with interactive value drawing elements and links to other levels



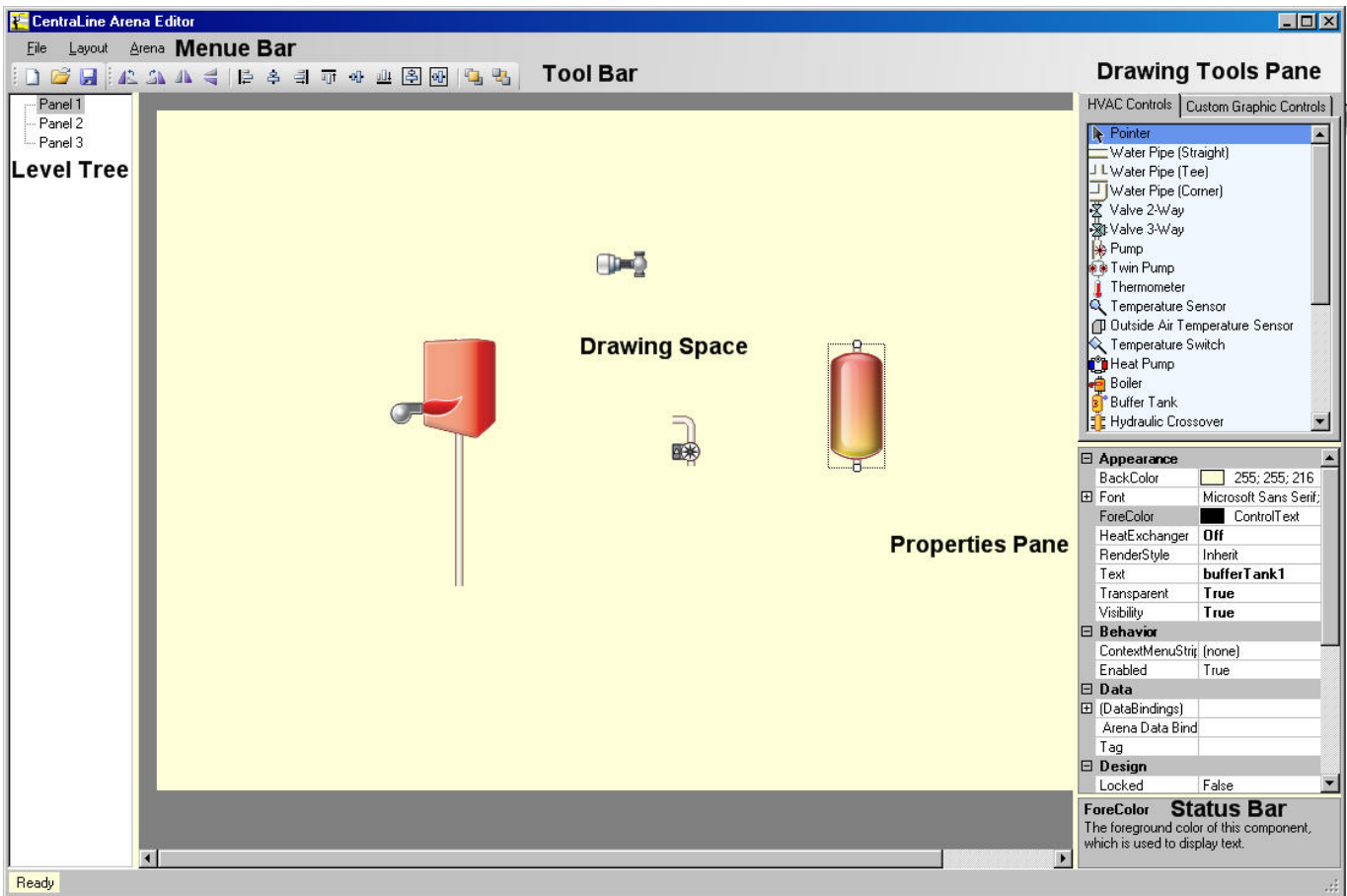
Imported image usage

There are two types of intelligent drawing elements provided by ARENA Editor. These are:

- HVAC Controls
Provides typical application components such as boiler, heat pump, water pipe, etc.
- Custom Graphic Controls
Provides various drawing elements for:
 - Creating display fields for datapoint and setting values
 - Linking to time programs, settings, documents (e.g. txt, xls), pictures, and other graphic pages
 - Adding comments and simple lines

ARENA Editor Environment

After starting ARENA Editor, the *Main Window* is displayed providing the tools and functions read in the following figure.



For detailed information on the *Main Window* tools and functions, please refer to the following sections:

- Menu Bar
- Tool Bar
- Level Tree
- Workspace
- Drawing Tools Pane
- Properties Pane
- Status Bar

Menu Bar

The menu bar allows access to the program menus as described in the following tables:

File	
New	Creates a blank layout document
Open	Opens an existing layout document
Save	Saves the active layout document under the same name in XML format
Save As	Saves the active layout document under a specified name in XML format.
Print	Opens the <i>Print</i> dialog box
Exit	Exits ARENA Editor
















Layout	
Rotate Left	Rotates a drawing element to the left
Rotate Right	Rotates a drawing element to the right

Layout	
Flip Vertically	Flips a drawing vertically
Flip Horizontally	Flips a drawing horizontally
Align Lefts	Aligns several drawing elements to the left
Align Centers	Centers a drawing element
Align Rights	Aligns several drawing elements to the right
Align Tops	Aligns several drawing elements to the top
Align Middles	Aligns several drawing elements in the middle
Align Bottoms	Aligns several drawing elements to the bottom
Z-Order Bring to Front	Displays a drawing element of 2 overlapping drawing elements on the front
Z-Order Send to Back	Displays a drawing element of 2 overlapping drawing elements in the back
Add Page	Adds a new page (level) to the list

Arena	
Import Arena database	Imports an Arena database (.are file)
Export Arena graphic	Exports Arena graphic as .are file

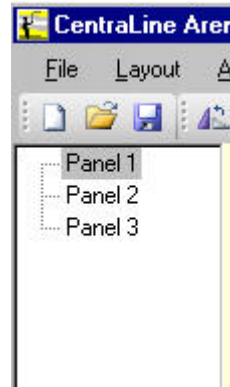
Tool Bar

The tool bar allows quicker access to some commonly used menu functions. The following tables show the toolbar functions:

Icon	Description
	Creates a blank layout document
	Opens an existing layout document
	Saves the active layout document under the same name in XML format
	Rotates a drawing element to the left
	Rotates a drawing element to the right
	Flips a drawing vertically
	Flips a drawing horizontally
	Aligns several drawing elements to the left
	Centers several drawing elements
	Aligns several drawing elements to the right
	Aligns several drawing elements to the top
	Aligns several drawing elements in the middle
	Aligns several drawing elements to the bottom
	Displays a drawing element of 2 overlapping drawing elements on the front
	Displays a drawing element of 2 overlapping drawing elements in the back

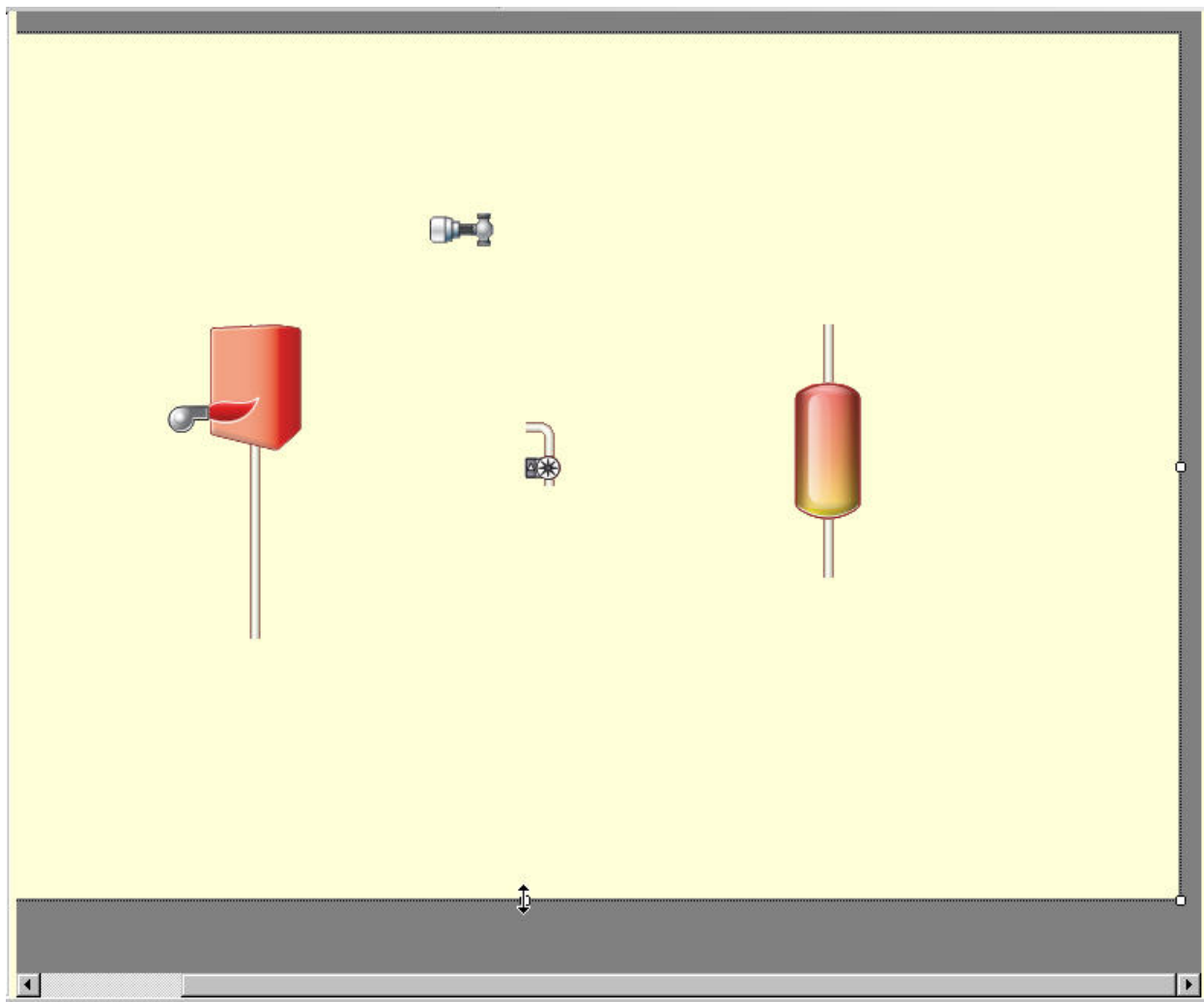
Panel Window

In the *Panel Windows*, the number of panels for the graphic navigation are shown. Each time, when adding a panel, an additional panel is added to the tree. When selecting the panel in the tree, the corresponding graphic is displayed in the drawing space; and can then be edited.



Drawing Space

The drawing space provides the area for drawing the graphic by adding drawing elements from the Drawing Tools pane via drag&drop. The drawing space can be resized by moving the arrows displayed when hovering over the borders.

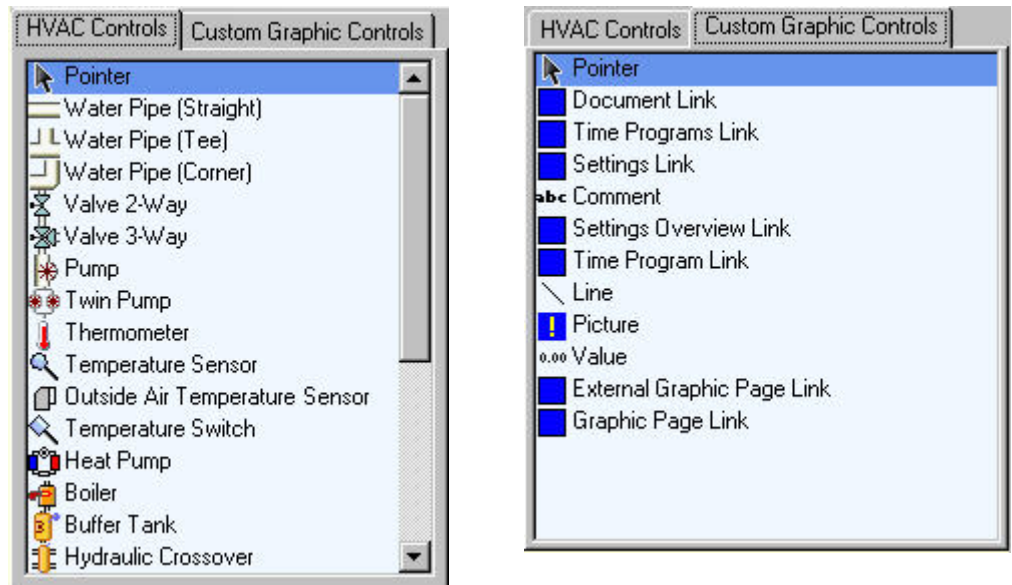


Drawing Tools Pane

The *Drawing Tools* Pane provides the drawing elements for creating a graphic. The following two basic drawing element types are provided in libraries:

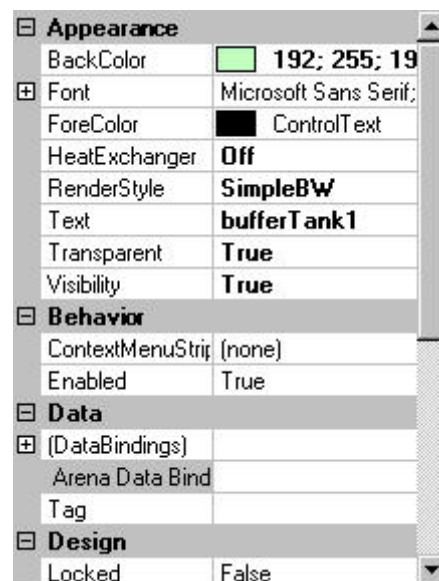
- HVAC Controls
Provides typical application components such as boiler, heat pump, water pipe, etc.
- Custom Graphic Controls
Provides various drawing elements for:
 - Creating display areas for datapoint and setting values
 - Linking to time programs, settings, documents (e.g. txt, xls), pictures, and other graphic pages
 - Adding comments and simple lines

The drawing elements will be added to the drawing space by simple drag&drop.



Properties Pane

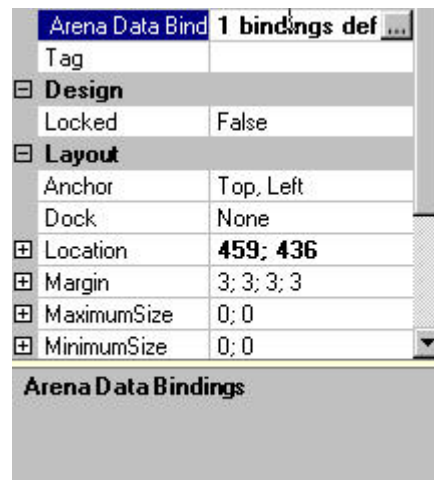
The *Properties* pane shows the multiple properties of a selected drawing element in the drawing space and allows editing the properties as desired. Editing can be done by simple clicking which shows the settings (values and options) available for a property.



Status Bar

The status bar shows the denotation of the selected drawing element property:

Example: **Arena Data Bindings** is the property selected in the *Properties* Pane.




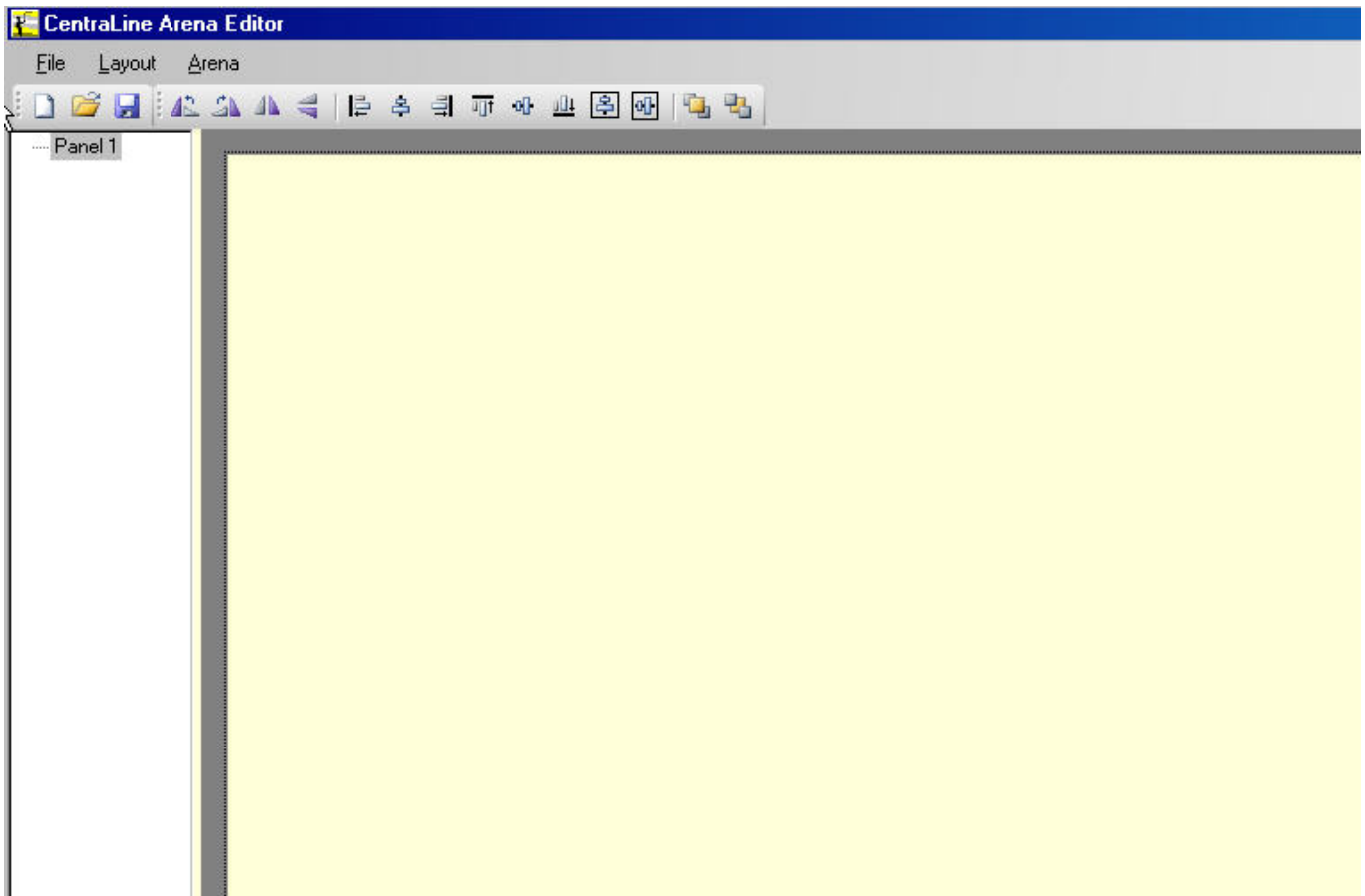
Procedures

The creation of a graphic includes the following steps:

1. Create new document
2. Import ARENA database
3. Create graphic
4. Save document for further use and backup
5. Export Arena graphic for the use in ARENA.

Create new document

1. In the **File** menu, click **New**, or click  in the tool bar.
A blank layout document is created with one panel.



Import ARENA Database

To assign datapoints or settings to graphics, the ARENA database must be imported. The ARENA database contains information about all the devices and sites installed.

1. In the Arena menu, click **Import Arena database**.
2. In the *Select Arena Database* dialog box, browse to the location where the *.are* file is saved.
3. Select the *.are* file and click **Open** button.

When successfully imported, the following message displays:



4. Confirm the message by clicking **OK** button.

Create Graphic

The graphic user interface can include multiple graphics depending on the number of levels (panels) included. Each panel includes one graphic. There are many scenarios for the creation of a graphic user interface and the included graphics may look very different. However there are some typical procedures, which are described in the following sections. The procedures can be combined with each other:

- Draw application schematic
- Creating display field for datapoint, datapoint attribute, or setting values

- Linking to time programs, settings, documents (e.g. txt, xls), pictures, and other graphic pages
- Adding comments and simple lines

The procedures use one of the following pre-defined drawing elements provided in the Drawing Tools pane:

- HVAC Controls
- Custom Graphic Controls

The drawing elements will be added to the drawing space by simple drag&rop.

Draw Application Schematic

The following procedure describes how to draw an application schematic by adding various drawing elements such as boilers, heat pumps, etc.

1. In the *Drawing Tools* Pane, click the *HVAC Controls* tab.
2. Drag a drawing element, for example, a boiler, or a heat pump and drag it to the drawing space.

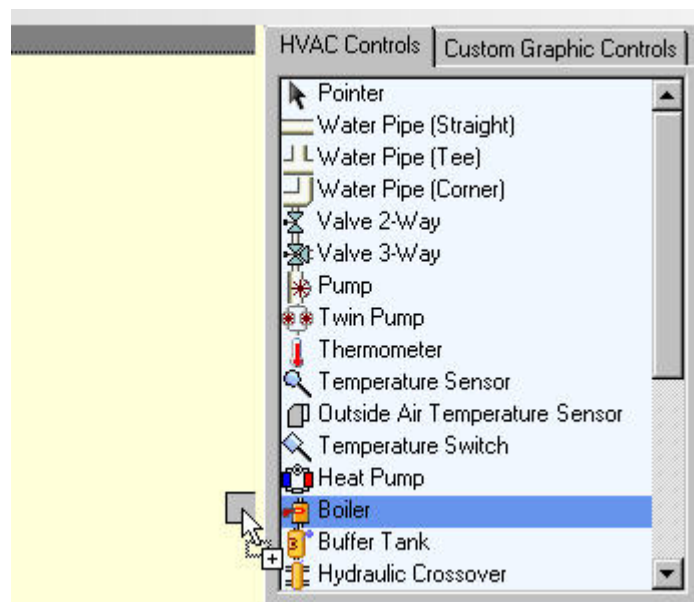


Fig. 36. Step 1: Dragging Boiler

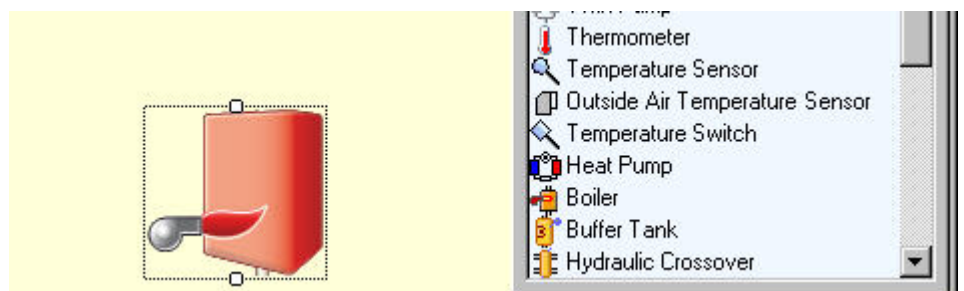


Fig. 37. Step 2: Dropping Boiler

3. Build the graphic by doing the following:
 - a. add drawing elements to the drawing space
 - b. position drawing elements at desired locations by simply moving, entering values under **Layout** on the *Properties* pane, or using **Align** and **Order** toolbar functions
 - c. resize selected drawing elements using the mouse or entering values under **Layout** on the *Properties* pane

- d. Connect drawing elements with each other using the mouse. Elements are snapping at defined points when moving them to each other
 - e. delete unused drawing elements by selecting them and pressing the Delete key.
4. On the *Properties* pane, define all necessary settings for elements, for example, the burner type of a boiler, etc.

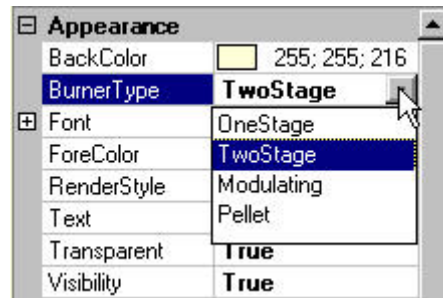


Fig. 38. Example: Setting properties for drawing element (boiler)

- 5. When finished with drawing, save graphic as described in the “Save Document” section.

Create Display Field for Datapoint, Datapoint Attribute or Setting Values

The following procedure describes how to create a field for displaying and changing a datapoint value, datapoint attribute or setting. The procedure describes the assignment for a datapoint value. The assignment for a datapoint attribute and a setting is done in the same way.

- 1. If not already done, import the Arena database as described in the “Import ARENA Database” section.
- 2. In the *Drawing Tools* Pane, click the *Custom Graphic Controls* tab.
- 3. Drag the drawing element ‘00,0 Value’ and drop in the drawing space.

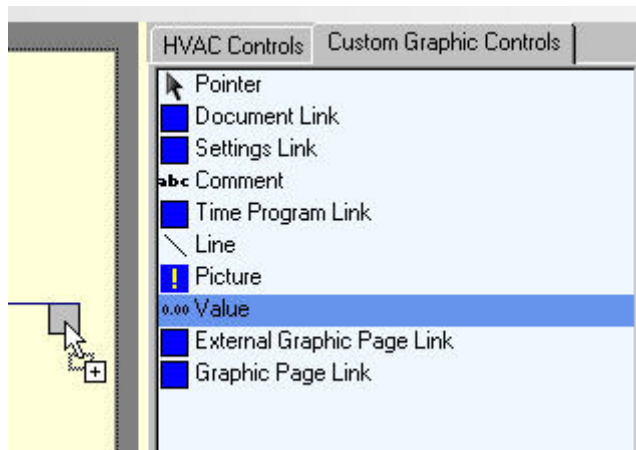


Fig. 39. Step 1: Dragging ‘Value’ control

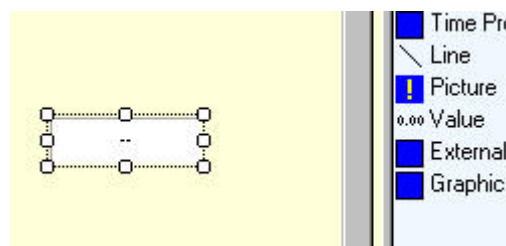
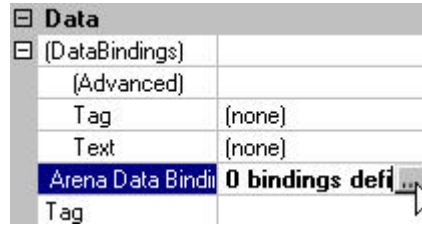


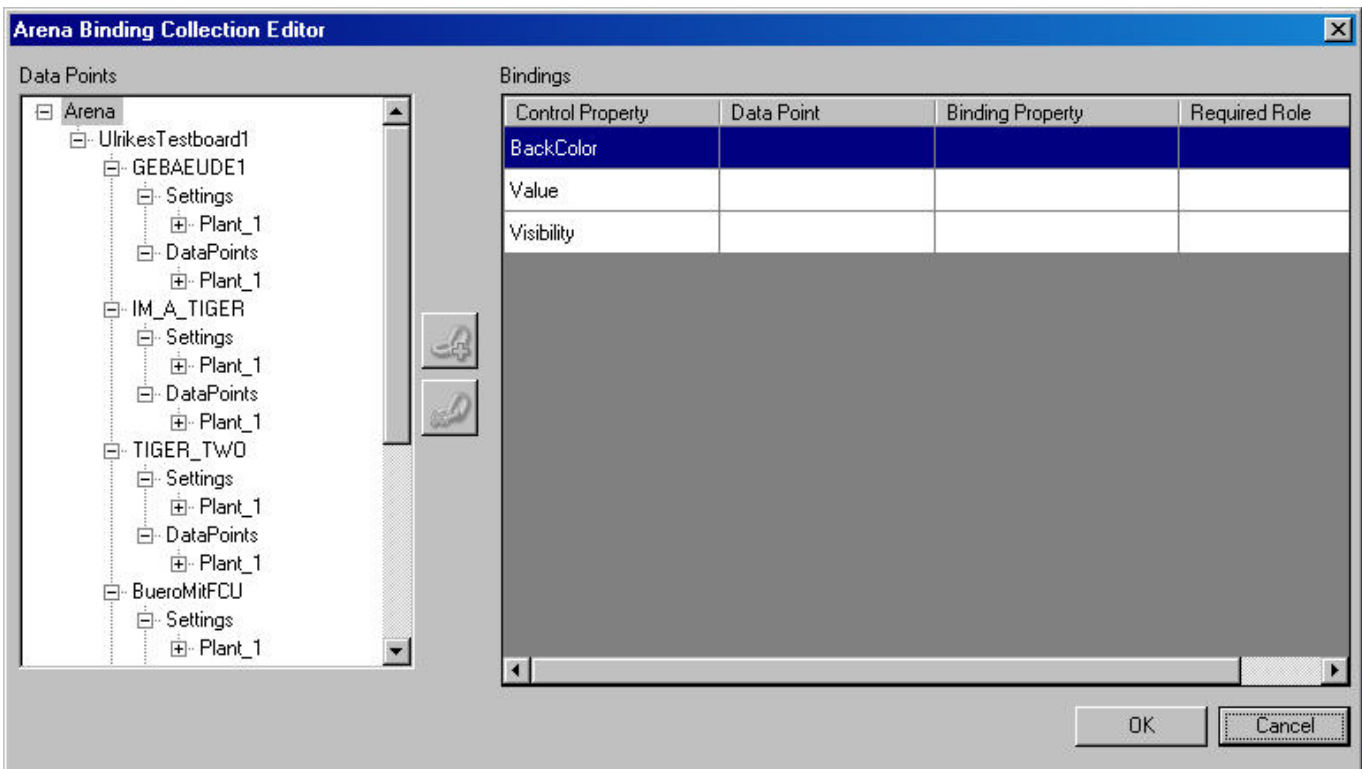
Fig. 40. Step 2: Dropping ‘Value’ control

- 4. Assign datapoint by doing the following:

- a. Select custom graphic control in the drawing space
- b. In the *Properties* pane, expand **Data**.



- c. Click on cell right to **Arena Data Bindings**. The *Arena Binding Collection Editor* dialog box displays. Here you can assign a datapoint, datapoint attribute, or setting to custom control graphic and define settings for back color, value, and visibility.

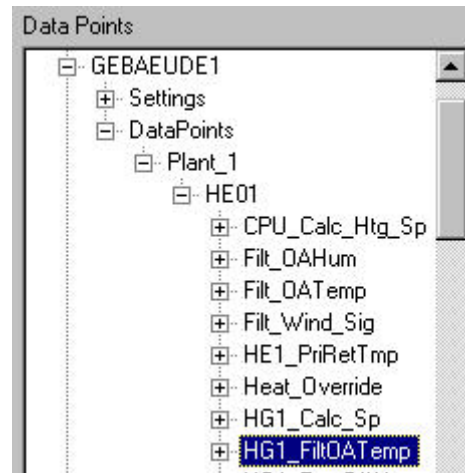


- d. In **Bindings**, select the property to which you want assign the datapoint. Per step, only one property can be selected but you can assign the datapoint to all relevant properties of the Bindings list.

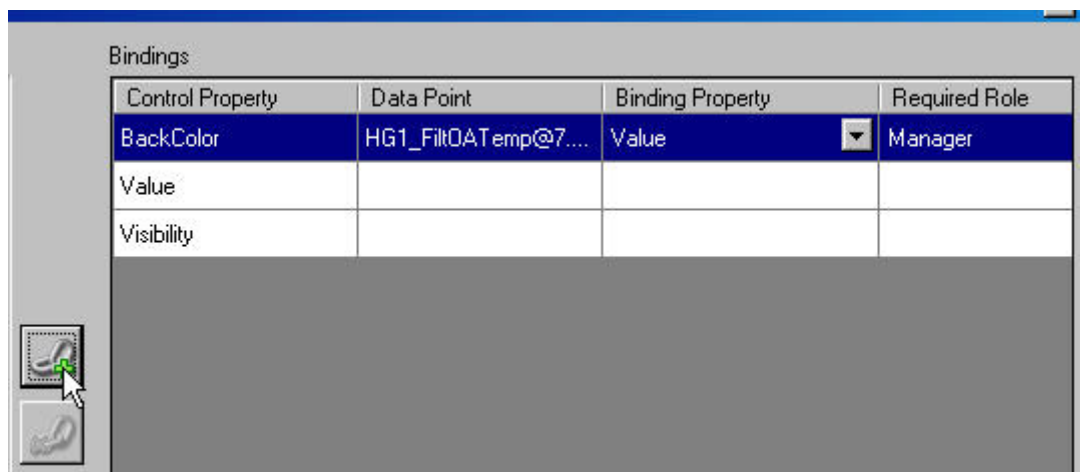
NOTE:

Assign always the same datapoint to the properties. You can also assign datapoint attributes, for example, the alarm status of the 'HGI_FiltOatTemp' datapoint. The attributes are available below the datapoint level (expand datapoint in the tree).


- e. In **Data Points**, expand the tree and browse to the controller that includes the datapoint you want to assign.

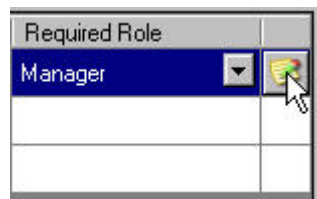


f. Select the datapoint and click the green button.

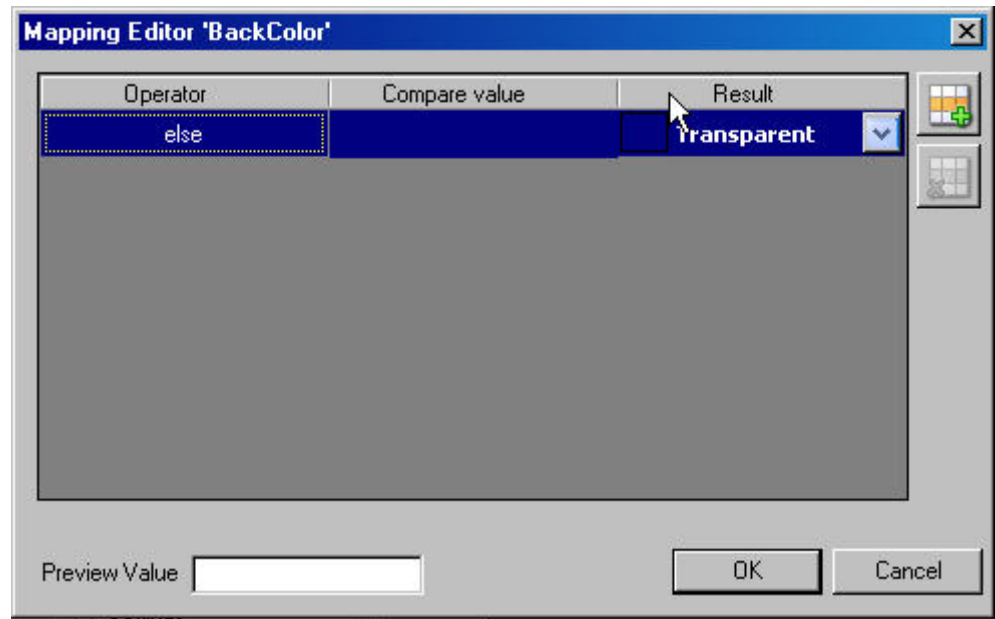



The datapoint is assigned to the selected property.

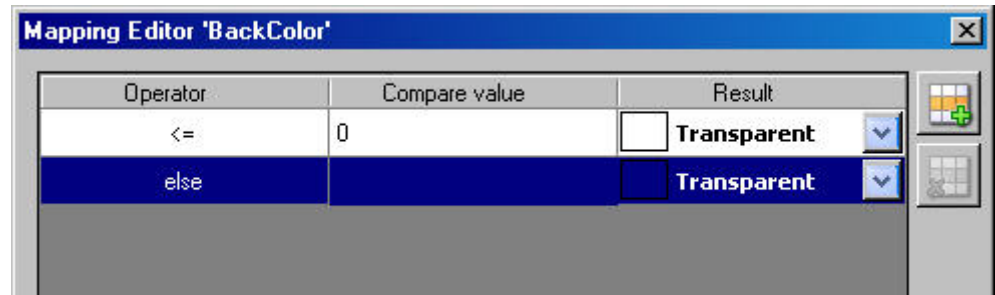
g. Scroll to the right and click the Mapping Editor icon .



The *Mapping Editor* dialog box displays for defining the color - value relationship for the custom graphic control, i.e. which color has the custom graphic control at which value.

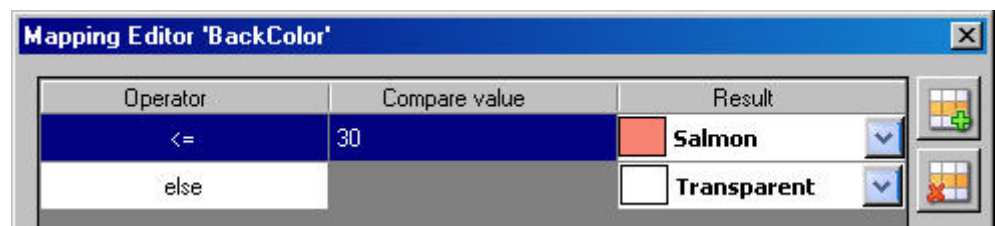


h. Add a new row by clicking the  icon.



i. In the row with the <= operator, enter the value in the *Compare* column and the select the color in the *Result* column.

j. In the row with the else operator, select the color in the *Result* column.



Example:

In the above example, the custom graphic control is displayed in the color Salmon for values <= 30 and displayed in transparent for values > 30.

k. Click **OK** button.

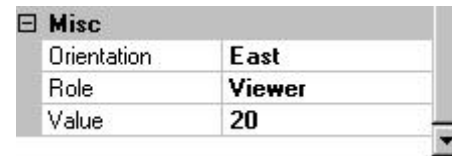
l. In the *Arena Binding Collection Editor* assign further properties to the datapoint in the same way by repeating steps d through k.

m. Click **OK** button.

5. In the *Properties* pane, the number of bindings are shown under **Arena Data Bindings**.



- To test the behavior of the custom control graphic, enter appropriate values, for the assigned properties, for example, enter different values in the **Value** field if the value property is assigned.



- As desired, set relevant properties for the custom control graphic for **Appearance, Behavior, Data, Design, Layout and Navigation** in the *Properties* pane.

Creating Links

Using drawing elements of the Custom Graphic Controls library allows creating links to:

- Other graphic pages within the graphic user interface or to an external graphic user interface of a remote ARENA.
- Time programs overview of a specific segment
- Single time programs
- Settings overview
- Single settings
- Documents (e.g. txt, xls, pdf files, etc.)
- Public or internal web pages
- Pictures

Most of custom graphic controls use an URL link. Some such as 'Picture' or Document need a file. For all, general properties can be set on the *Properties* pane. The "Custom Graphics Control Overview" section gives a functional overview of the various Custom Graphics Controls.

- Use the functional overview described in the "Custom Graphics Controls Overview" section below when applying the following steps for creating Links.
- Drag&drop the custom graphic control to the drawing space or select the custom graphic control in the drawing space if already there.
- Under **Navigation** in the *Properties* pane, click the property, e.g. **Document** for a document link, **Setting** for a setting link, etc.
- In the *Choose ...* dialog box, select the target document, setting, etc., and then click the **OK** button.
- As desired, set relevant properties for the custom control graphic for **Appearance, Behavior, Data, Design, and Layout** in the *Properties* pane.

NOTES for Linking Documents:

To properly link documents you must consider the following:

The document to be linked must be located in the following route folder "C:\Program Files\CentralLine\Arena2\Website" or in subfolders of this folder, e.g. "C:\Program Files\CentralLine\Arena2\Website\Documents". The path (URL) entry when the route folder has been used, is as follows:

<IP address of ARENA PC>/Arena/<document file name>, e.g.
192.100.310.166/Arena/application.doc

The path (URL) entry when a subfolder has been created and used below the route folder, is as follows:

<IP address of ARENA PC>/Arena/<subfolder name>/<document file name>,
e.g. 192.100.310.166/Arena/documents/appendix.xls

Internet Explorer Settings:

Make sure that the IP address of the ARENA PC is added to the trusted sites and that the **Automatic Prompting from File Downloads** option is enabled (see ARENA Installation Guide EN1Z-0906GE51).

Add Comment

1. Use the functional overview described in the “Custom Graphics Controls Overview” section below when applying the following steps for adding comments.
2. Drag&drop the ‘Comment’ control to the drawing space.
3. In **Appearance**, enter the text in the **Text** field.
4. As desired, set relevant properties for the custom control graphic for **Appearance, Behavior, Data, Design, and Layout**. in the *Properties* pane.

Add Line

1. Drag&drop the ‘Line’ control to the drawing space.
2. Use the functional overview described in the “Custom Graphics Controls Overview” section below when applying the following steps for adding lines.
3. As desired, set relevant properties for the custom control graphic for **Appearance, Behavior, Data, Design, and Layout** in the *Properties* pane.

Custom Graphics Control Overview

The following table shows an overview of all available custom graphic controls explaining their function.

Custom Graphic Control	Function	Select Property in Properties pane under ...
Document Link	Links to any kind of document such as <i>.doc, .xls</i> file.	Document Required Role	Navigation
Settings Link	Links to settings of a segment or to a list of settings (parameter) file of a specific segment. This allows operating a setting/setting overview directly from the graphic.	Setting Required Role	Navigation
Comment	Used as short descriptors for areas in a level or otherwise where there is a need to add text, for example, instructions.	-	-
Time Program Link	Links to a specific time program of a segment or to the time program overview of a segment. This allows operating a time program/time program overview directly from the graphic.	Time program Required Role	Navigation
Line	For drawing building blocks. They have no function other than decoration	-	-
Picture	Used to display an image. This is primarily for decoration and is mainly used to provide a background for hot spots	-	-
Value	Used to display device datapoint values and other specific system information, i.e. temperature or fan speed. This allows operating a datapoint directly from the graphic.	Value Required Role	Value
External Graphic Page Link	Links to a graphic page of a remote Arena	Panel Remote Arena Required Role	Navigation
Graphic Page Link	Links to a different graphic page of own	Panel	Navigation

Custom Graphic Control	Function	Select Property in Properties pane under ...
	Arena, e.g. Page_	Required Role	

Save document

Saving a document is important for data security and reuse of the created graphic. After you saved the final version of the graphic you can export the graphic for use in ARENA.

1. In the level tree, click the panel you want to save.
2. In the Arena menu, click **Save as**
3. In the *Save As* dialog box, browse to the location where the graphic should be saved as *.xml* file.
4. Click **Save** button.

Export ARENA Graphic

You must export each panel separately.

1. In the Level tree, select the panel you want to export.
2. In the Arena menu, click **Export Arena Graphic**.
3. In the *Browse for Folder* dialog box, browse to the following location:

```
<drive>:\Program
Files\CentraLine\Arena2\Website\Graphic\<<PC name>
```

NOTE: The files must be stored at this location for the automatic display in ARENA.

4. Click **OK** button.
Each graphic is displayed in a separate window and saved as *.dll* file to the selected location.
5. Close the window in which the graphic is displayed.

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