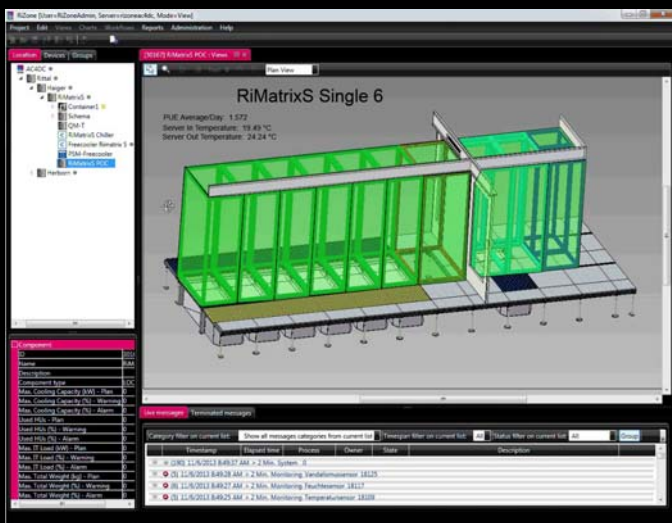# Rittal – The System.

Faster – better – everywhere.

RiZone
Data Center Infrastructure Management
DK 7990.x01
DK 7990.x03

Operating manual

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1 Documentation notes

1 Documentation notes

Appendix RiZone Version 3.8

1 Documentation notes

These instructions are aimed at administrators and users who are familiar with the installation and the operation of the software. Read these operating instructions prior to commissioning and be sure to keep them accessible for later use. Rittal can accept no liability for damage and operating problems resulting from non-compliance with these instructions.

1.1 Storage of documents

These instructions and all other applicable documents constitute an integral part of the product. They must be given to the administrator. The administrator is responsible for the storage of the documents so that they are readily available when needed.

1.2 Symbols used and technical terms

The signal word classifies the effects of a danger in case of non-observance of the safety instructions.

- **Note**
  Identification of the situations that can lead to incorrect configurations or material damage.

The signal words are shown in the following form in the instructions:
e.g.

	Signal word!
⚠	1. **Description of the danger and its effect**
	2. **2. Description of the behaviour of the user to prevent danger**

2   Commissioning RiZone

RiZone is offered as Appliance and as Software Appliance. The Commissioning chapter describes the commissioning of both variants.

2.1   Commissioning the RiZone Software Appliance

The commissioning of the Software Appliance requires a hypervisor. The format of the virtual hard disk is not the same between platforms. The following virtualisation solutions are supported: VM-Ware Server and ESX(i). The **RiZone Software Appliance requires 4 GB RAM, 80 GB hard disk and two CPUs with more than 2 GHz as resources**. Because of the large dependency between the speed and the availability of the network interface, we recommend that the Software Appliance is given its own network card.

The RiZone Software Appliance is started from the management tool of the virtualisation platform. The RiZone GUI is not yet available after booting.

For a detailed description of integrating the virtual hard disk in the virtualisation platform, please consult the virtualisation manufacturer's documentation.

2.2   Commissioning the RiZone Appliance

The installation is performed in accordance with the hardware manufacturer's specifications. After switching on the Appliance, the server will boot. The required services start automatically. The system is ready.

2.3   Commissioning RiZone

The login to the RiZone server is made with the standard user **Administrator** and the **password** "**RiZ0ne!!**" We recommend that you change the password after the first login.

RiZone is supplied with the English keyboard layout. If necessary, change the keyboard layout after the first login.

2.3.1   Server name, work group and domain

The configuration is made with the Windows Server 2008 R2 or 2012 R2 operating system. If the computer name is changed from the delivered state, a new certificate for RiZone must be created. The certificate is created with an additional program. This program is available on the server at **C:\install_rizone\RittalSSLCfg.exe**

.
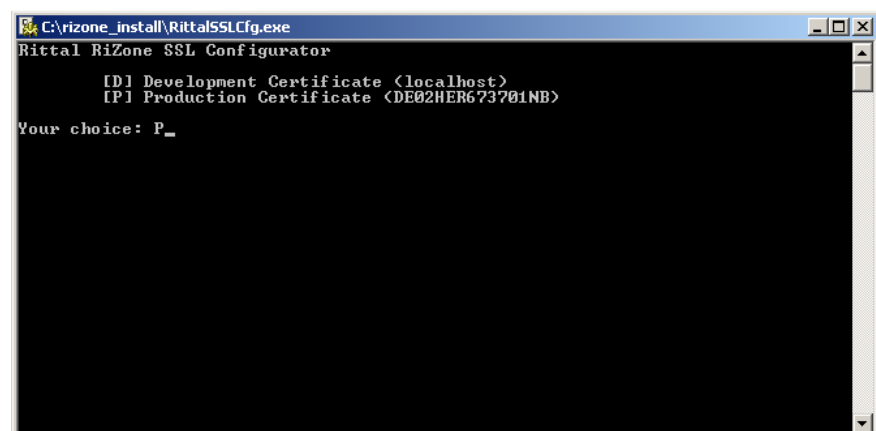
Fig. 1 Creating a certificate

P (upper-case must be specified) selects the creation of a certificate for productive operation. Press the Enter key to confirm the selection. This creates the certificate.

2.3.2 Network cards configuration

The network setting is configured from the Windows Server 2008 R2 or 2012 R2 server operating system. Customise the network setting to your network from **Start > Control panel > Network and sharing centre.**
If the IP address has been changed successfully, the trap receiver for all devices monitored with RiZone must be modified manually.
IPv6 is disabled in the delivered state.

2.3.3 Configuration of the Fully-Qualified Domain Name (FQDN)

If necessary, the **FQDN** is changed from **System properties (system) > Computer name > Change > More**. This configuration is not necessary if the RiZone server is a member of a directory service or the NetBios name of the RiZone server can be resolved.

2.3.4 NTP server configuration

All components of the RiZone installation must be operated synchronously.
If the RiZone server is a member of a directory service, the **NTP server** does not need to be configured because the directory service makes this information available.
The NTP server is configured manually in the operating system using the **Change date/time** function.

2.3.5 Database backup

RiZone has its own internal Microsoft SQL Express database. This database is compressed and backed up once per day. The operation of RiZone requires that the database backups are deleted regularly from the RiZone server. The backups should be stored on an external backup medium. The retention time must be changed appropriately depending on the customer requirements.
No local backups will be created if RiZone is operated with an external database.
As supplied, RiZone operates with a Microsoft SQL Express edition. The size of a single database is limited to 4 GB.

⚠ **Caution!**
Ensure that the databases and drives have sufficient free capacity.

To ensure the reliable operation of RiZone, the free storage space on the RiZone server must be checked in regular intervals. The C:\ drive contains the RiZone log files in the \Program Files(x86)\Rittal\RiZone folder and the SQL server log files in the \Program Files\Microsoft SQL Server\MSQL10.SQLEXPRESS\MSQL\Log folder.
The D:\ drive provides the storage space for the database.
The E:\ drive is the backup drive for the database.

Old messages and values (Float, Int, String) are deleted automatically from the database after 30 or 90 days. The number of days after which messages or values are discarded can be set in the *%APPDATA%\Rittal\RiZone\Data\MetaData\Configurations\DataDBConfig.xml* file using the two parameters <DaysAfterMessagesGetDeleted> and <DaysAfterValuesGetDeleted> or in the RiZone client via **Administration > Database**. If these parameters are not set, the standard values of 30 days for messages and 90 days for variable values will be assumed. Setting the parameter to 0 deactivates the automatic deletion.

The database backups are stored on the drive of the SQL instance.
If RiZone is connected to an external database (MS SQL or Oracle), the database backup must be performed there.

2.3.6 Updating the RiZone Appliance

If you have completed a service contract, you will receive updates for RiZone from our service department (E-mail: service@rittal.com, Tel.: +49 (0) 2772 505 1855).

3 Installation of the RiZone GUI

The RiZone GUI is installed locally on the client PC. The minimum requirement for the client PC: Windows Vista/7/8, 2 GHz CPU, 4 GB RAM, 40 MB free hard disk space.
As prerequisite, the Microsoft **.NET Framework 4.0 SP1** must be installed. The **.Net Framework** is available at the following URL:
http://www.microsoft.com/download/en/details.aspx?id=17851
The installation file of the RiZone GUI is located in the C:\install_rizone\ path on the RiZone server. The RiZone administrator must make available the installation file.

3.1 Installing the RiZone GUI

The **RiZone GUI Setup Vx.exe** MSI package must be available on the local client PC. A double-click executes the file.

Fig. 2 Installing the RiZone GUI

Click **OK** to perform the RiZone installation.
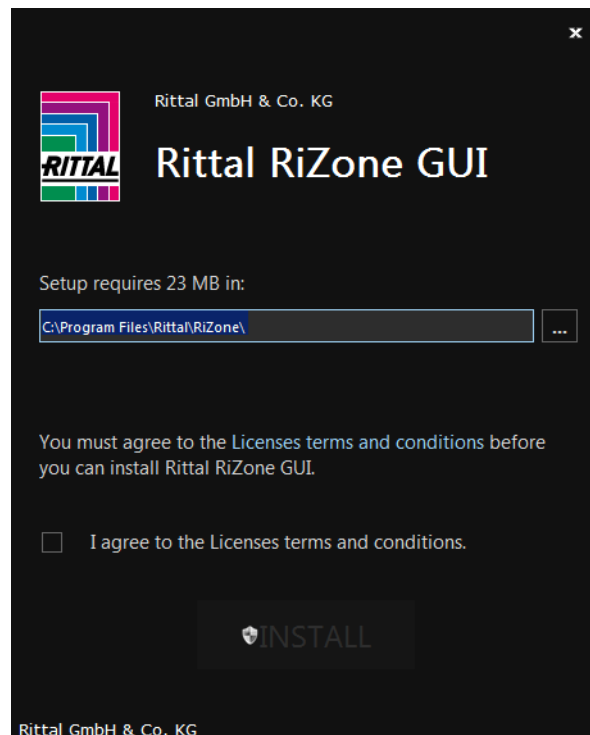
Fig. 3 Installing the RiZone GUI

The license conditions must be accepted.
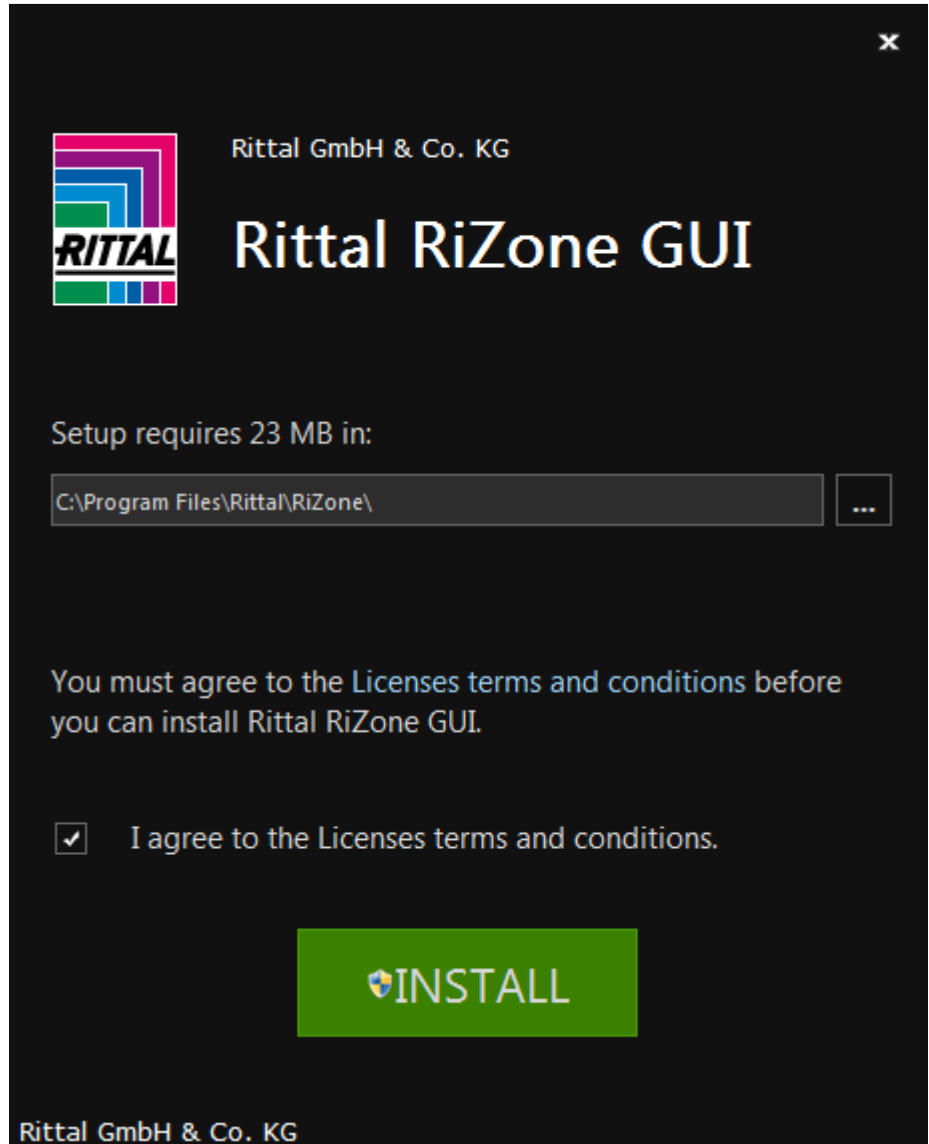
Fig. 4 Installing the RiZone GUI

The target directory can be changed. The preset target directory is:
C:\Program Files\Rittal\RiZone
Click **Install** to continue the installation process.
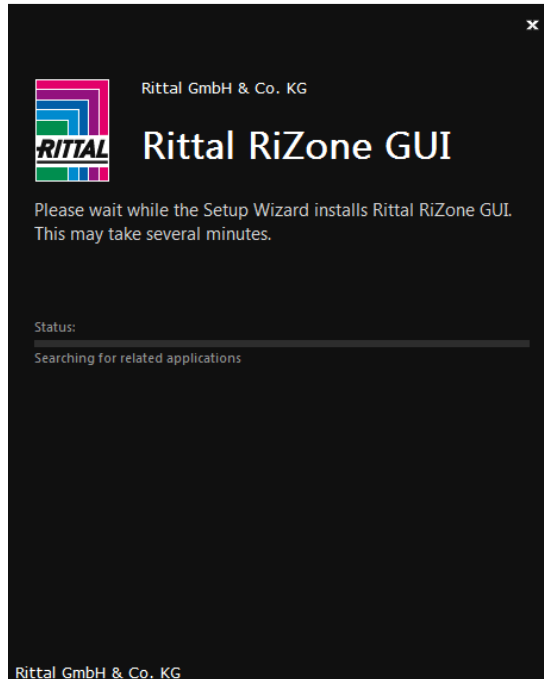
Fig. 5 Installing the RiZone GUI
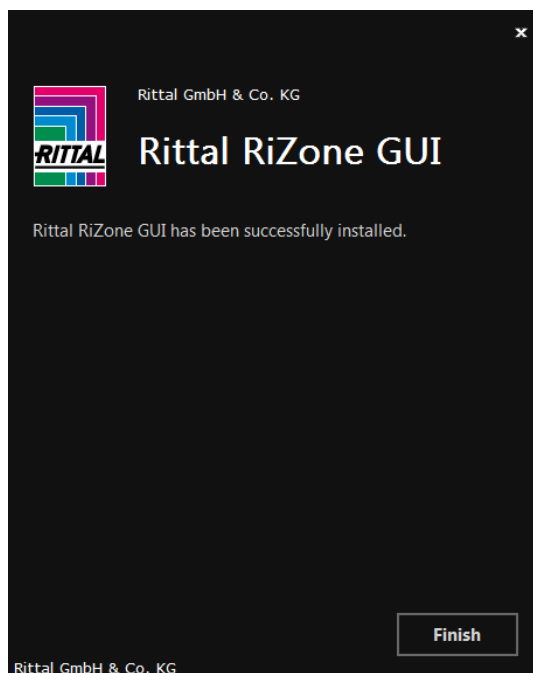
Fig. 6 Installing the RiZone GUI

Click **Finish** to complete the installation. A link to the RiZone GUI is now present on the desktop and a link is available at **Programs\Rittal**.

4   Licensing

RiZone's licensing concept provides a high flexibility matched to the needs of the end user. The licensing is made using the following criteria:

- The number of IP nodes to be monitored
- The number of concurrently logged-in users

The input of the license key activates the licensed functions. An unlicensed RiZone Appliance has a functionally restricted scope.

Model no.	Designation
7990.206 7990.306	RiZone volume license for 25 IP nodes
7990.208 7990.308	RiZone volume license for 100 IP nodes
7990.103 7990.203 7990.303	RiZone Server Software Appliance
7990.101 7990.201 7990.301	RiZone Server Appliance

4.1   Querying the license status

The **Administration > License** entry displays the customer number, the license key, the instance number and all licensed functions.

4.2   Entering the license key

The **Administration -> License** menu can be used in the dialogue to enter a license key.

The RiZone license key is entered in conjunction with the customer number and the instance number. Once the license data has been entered, **Check** must be clicked to check the input. The licensed functions will be shown in the license window.

4.3   Exceeding the licensing for RiZone

The user adds an additional device from the Discovery. No license check is made when the project is created. A check is made only when the project is uploaded to the server.

When the project is uploaded to the server, the following message appears in the message window: **The number of project nodes exceeds the limitation. The project has not been uploaded.**

4.4   Exceeding the licensing of the logged-in clients

When a user is logged in to RiZone, a check will be made whether sufficient client access licenses exist. If the maximum number of licenses is reached, the following message will be issued:

The number of concurrently used clients is exceeded.

5 Login mask

The RiZone server must be registered before the first login to RiZone is made. The registration installs a certificate for the encrypted communication from the server and the GUI on the client PC.

> ⚠ **Important!**
> **The certificate must have been created once previously on the server. For details, see Section 2.3.1.**

5.1 Registering a RiZone server

Prior to the registration of a RiZone server, it must be guaranteed that the server can be accessed from the client PC. The accessibility can be checked with the **Ping** command from the command line of the operating system. If the **Ping** command is performed successfully, the registration of the server can be performed.

To register the RiZone server, the RiZone GUI is opened. If a server is already registered in the GUI, the server will be shown in the server selection box. A server is registered from the **Others** menu item.

Fig. 7 Registering a RiZone server

The login mask opens a second window that permits the registration of a server. Several servers can be registered.

Fig. 8 Registering a RiZone server

The name of the RiZone server is entered in the **Host** input field. If the RiZone server cannot be reached, a tooltip will appear when the **OK** button is clicked and an exclamation mark indicates the **Host** menu item.
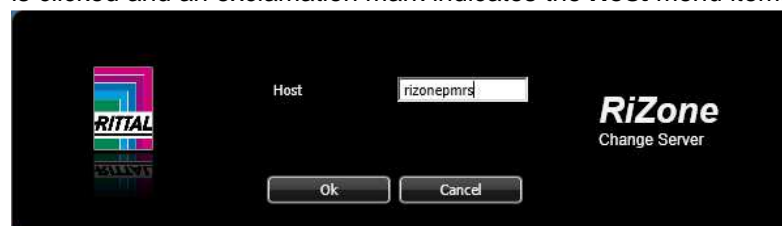
Fig. 9 Registering a RiZone server

When the registration of the RiZone server has been performed successfully, a message window will open that informs about the download of the certificate. This message must be confirmed with **Yes**. After the confirmation, the login mask opens.

Fig. 10 Registering a RiZone server

5.2 Login process

The RiZone GUI is started on the client PC. The RiZone login window opens. The RiZone server can be selected in the selection box. If no server is offered for selection, a RiZone server must be registered (see Section 5.1).

For the first login to the RiZone server, the user is preassigned with RiZoneAdmin. The standard password for the RiZoneAdmin is: **RiZ0ne!!** We recommend that you change the password before the first login.

5.3 Changing the password

The RiZone GUI is started on the client PC. The RiZone GUI login window opens. The RiZone server can be selected in the selection box.

The user's password is changed by clicking the **Change** menu item next to the Password input field. A second window opens in which the old password and the new password (twice) must be entered.
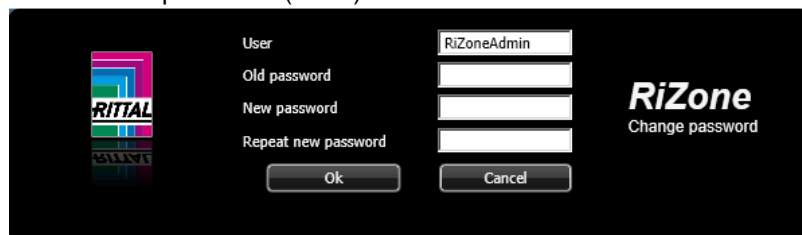
Fig. 11 Changing the password

The password for RiZoneAdmin must be at least seven characters (alphanumeric) long and contain a special character and both upper-case and lower-case characters. Once the password has been changed successfully, the login dialogue opens.

If an unsafe password has been selected, a message text will appear in the window.

Fig. 12 Changing the password

5.4 Selecting the GUI language

The GUI language is selected at the login to RiZone. The selection is made from the **Select language** menu item. If the GUI language differs from that of the operating system, all RiZone message boxes use the language of the operating system.

Fig. 13 Selecting the GUI language

6 RiZone user interface

This chapter provides an overview of the most important subareas of the RiZone user interface.

The RiZone user interface has two different modes, the admin mode and the view mode. You access admin mode only when you are logged in as user with administration rights. The user must be in admin mode to create new projects or edit existing projects. In view mode, the current RiZone project can be monitored only. Depending on the user rights, components can be controlled and device configurations changed from within RiZone.

Fig. 14 RiZone user interface

1	Drop-down main menu
2	Toolbar (refer to the toolbar explanation)
3	Tabs for project trees
	Locations tab: Project tree for the location structure. The components are represented in accordance with their physical arrangement.
	Devices tab: Project tree of all SNMP components. The components are represented in accordance with their technical arrangement.
	SNMP templates tab: List of all SNMP drivers for devices from third-parties (MIB browser). Drivers can be created, deleted or edited.
	Group tab: List of all variable groupings.
4	**View** window: Variable values and graphical evaluations are shown here. If several views are called, it is possible to switch between these using the tabs at the top of the View window.
5	Properties window of the components
	The properties of the components selected in window 2 are displayed.
6	Status window
	The current status messages appropriate for the currently selected action are output here.

Toolbar explanation

1. New project (active only in admin mode)
   Creates a new local project. To activate the project, it must be uploaded to the server.

2. Open project (active only in admin mode)
   Opens a project file on a drive and loads it to the client. To activate the project, it must be uploaded to the server.

3. Save project (active only in admin mode)
   Saves the project currently open in the client to a drive.

4. Upload to server (active only in admin mode)
   Uploads the project currently open in the client to the server and activates it there immediately. **Caution:** The project currently present on the server will be overwritten.

5. Start project (active only in admin mode)
   The client changes to the view mode and then shows the current and historic data collected by the server. The project used here is that what was most recently uploaded to the server.

6. Download from the server (active only in admin mode)
   Downloads the current project from the server to the client. The project on the server remains active. Any changes made previously in admin mode will be discarded.

7. Discover (active only in admin mode)
   Opens the discover window.

8. Configure project (active only in view mode)
   The client changes to admin mode. The project can be edited here (discover, add or remove components, create charts, etc.).

EN

7   Creating a new project

To create a new project, the user must be logged in as RiZone administrator.

7.1   Creating a new project

To create a new project, first click **Project > New project** or click the **New project** icon, specify a name for the project and confirm by clicking **OK**.
The newly-created project now appears on the left-hand side of the RiZone window.

For configuring, the existing infrastructure must first be created in a tree structure below the project name (root node).
To do this, select the **Locations** tab in the left-hand subwindow.

Then right-click the **Root node** and select the **Add** item from the opened context menu. Select here the required component from the Location, Building, Room, Enclosure Suite and Enclosure infrastructure components, assign a meaningful name and a description. After clicking **OK** to confirm, the new component appears below the root node.
Add additional components similarly until the infrastructure of your data centre is represented in the project tree.
Drag & drop can be used to subsequently assign created components to other components. Only logical moves, however, are possible here (example: a room cannot be assigned to an enclosure).
The context menu of the infrastructure components also contains the **Expand tree** and **Collapse tree** items. These items are used to open or close the complete tree structure below the selected node.
Please also note the functions 7.4.2 Copy components and 7.2.1 Autodiscovery of the SNMP components (multiselect functions), because they are very useful for creating a complete project tree.

7.2   Entering the SNMP components in the network

After the base project tree has been created, it must be populated with the components to be monitored actively.

7.2.1   Autodiscovery of the SNMP components

Active Rittal components in the network that support the SNMP protocol can be acquired using the Autodiscovery function and then added to the project tree.

Select from the **Edit > Discovery** drop-down menu or click the icon in the toolbar.
The discovery window opens.
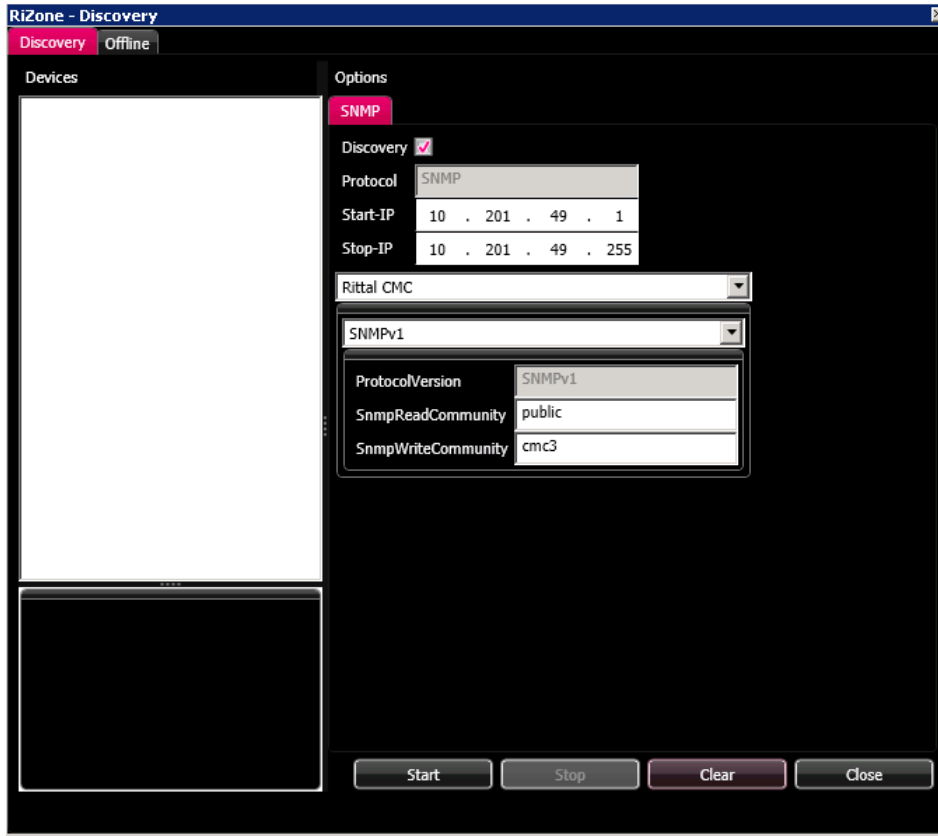
Fig. 15 Discovery

Parameters in the discovery window

Discovery	The Discovery checkbox activates the selected protocol for the discovery process.
Start-IP	RiZone begins with the search for Rittal SNMP components starting at this IP address. The address fields are empty for the first call of the discovery function (or after restarting the server services).
Stop-IP	RiZone ends with the search for Rittal SNMP components at this IP address. The address fields are empty for the first call of the discovery function (or after restarting the server services).
SNMPv1/ SNMPv3	Select whether devices should be discovered and included via SNMP v1 or SNMP v3.
Rittal CMC	Select if Rittal devices should be discovered. Read/Write Communities must be entered in the following two fields.
Custom Device	If a search should be made for third-party SNMP devices, the appropriate read/write communities must be entered in the following two fields. **Please note:** To access SNMP devices from third-parties, a driver must have been created previously ("SNMP templates" tab). Also refer to Section 7.3.
SNMPRead Community	Read community that contains the SNMP components (default **public**).
SNMPWrite Community	Write community that contains the SNMP components (default **public**).

Rittal CMC	If a search should be made for Rittal SNMP devices, the appropriate read/write communities must be entered in the following two fields.
SNMPRead Community	Read community that contains the SNMP components (default **public**).
SNMPWrite Community	Write community that contains the SNMP components (default **public**).

Once the parameters have been set correctly, click **Start** to start the automatic discovery function.

RiZone now searches for active Rittal components in the specified address range. A list with the devices supported by the current release can be found in the Release Notes for the appropriate current version on www.rimatrix5.com (Downloads > Software).

After completion of the discovery (100%), all discovered components will be listed under **Devices**.
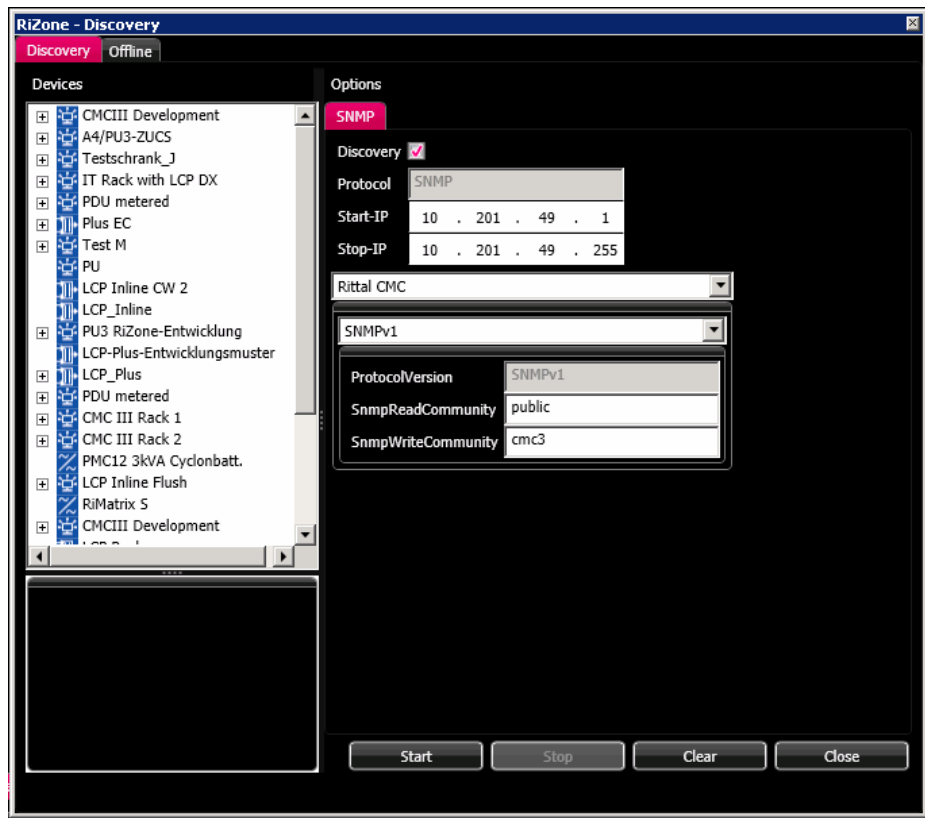
Fig. 16 Discovery with discovered components

⚠ **Important!**
If for the deployment of two communications modules not all devices are found during the discovery, check the IP address ranges that you have set for the modules.

Click the plus sign in front of a component to show additional subcomponents (e.g. sensors).
From the device list, the components in accordance with their arrangement in the data centre can be moved with drag & drop into the **Locations** project tree.

> **Caution!**
> **All components must be selected individually. For example, the selection of a PU does not automatically include the selection of the associated connected components.**

Multiple components can be selected with multi-select and then moved. The order of clicking determines the order of the display in the tree after dragging.
Multi-select functions:

Ctrl + left mouse button	Select individual components
Ctrl + A	Select all components
Shift + left mouse button	Mark from the previously selected component through to the new component
Shift + up/down arrow	Mark from the previously selected component through to the component above/below
Ctrl + Plus (main keyboard)	Expand all components starting at the currently selected node
Ctrl + Minus (main keyboard)	Collapse all components starting at the currently selected node
Left/right arrow	Expand/collapse the current node
* (num block)	Expand all subcomponents
+ (num block)	Expand the next level
- (num block)	Collapse everything below the selected node

Components already assigned to a tree are marked light-blue in the discovery list.
During the move to the **locations tree**, the device also appears automatically in the **devices tree**, but not conversely. Components used only in the devices tree but not in the locations tree can be transferred to the locations tree with the **Add to locations** function.
To do this, right-click the component in the devices tree and then select **Add to locations**. The component will then be added at the end of the project in the locations tree from where it can be moved to any position in the project with drag & drop.
The moving of components with drag & drop to another position in the locations tree is always possible in admin mode.
If you want to update a component, perform the discovery of the component again and with pressed **Alt** key use drag & drop to move the newly discovered device to the component already present in the project. Before the component is replaced, a prompt is issued whether the names and setting values of the old components should be transferred to the new component. If the new component serves as replacement for the old component, click **Yes** to confirm the dialogue.

The list of the discovered devices can be deleted by clicking the **Reset** button.
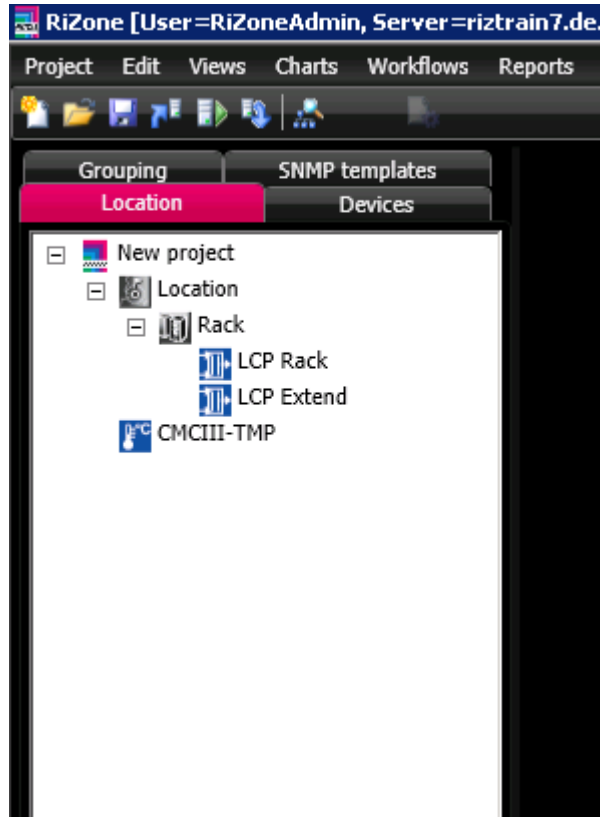
Fig. 17 Project tree with Rittal components

Fig. 17 shows a project tree for which the discovered components have already been added.

Basic configuring is completed once all infrastructure components have been acquired and the active SNMP components added.
The project should now be saved with **Project > Save project** or by clicking the 🖫 icon.

> ⚠️ **Note!**
> **The project can be saved only for the selected project tree.**
>
> **Before saving a project, a component of the devices tree or locations tree must be selected.**

7.2.2 Status display of the devices

After starting the project (see Section 7.5) and switching the representation in view mode, the status of each device and each infrastructure component in the locations tree is displayed. For this purpose, a dot is shown behind the device or infrastructure component.

Yellow dot	Status "warning"
Red dot	Status "alarm"
Grey dot	Status "timeout". The device could not be accessed for three successive query attempts. The status "timeout" hides (for the upwards inheritance in the structure tree) warning messages but not alarm messages.
No dot	Status "OK"

7.3 Including third-party SNMP devices (MIB Browser)

To also query data for third-party SNMP devices (non-Rittal devices with SNMP support), as of RiZone version 2.0, the "MIB Browser" function generates your own driver templates. The function must be enabled with an appropriate license key.

RiZone Appliance licenses ordered on the basis of Rittal's Catalogue 34 contain the function automatically!

The MIB (Management Information Base) of the third-party device must also be available. You can normally download the MIB from the device manufacturer's website.

7.3.1 Creating drivers for third-party devices

In admin mode (configure project), new drivers for SNMP devices can be created from the **SNMP templates** tab.
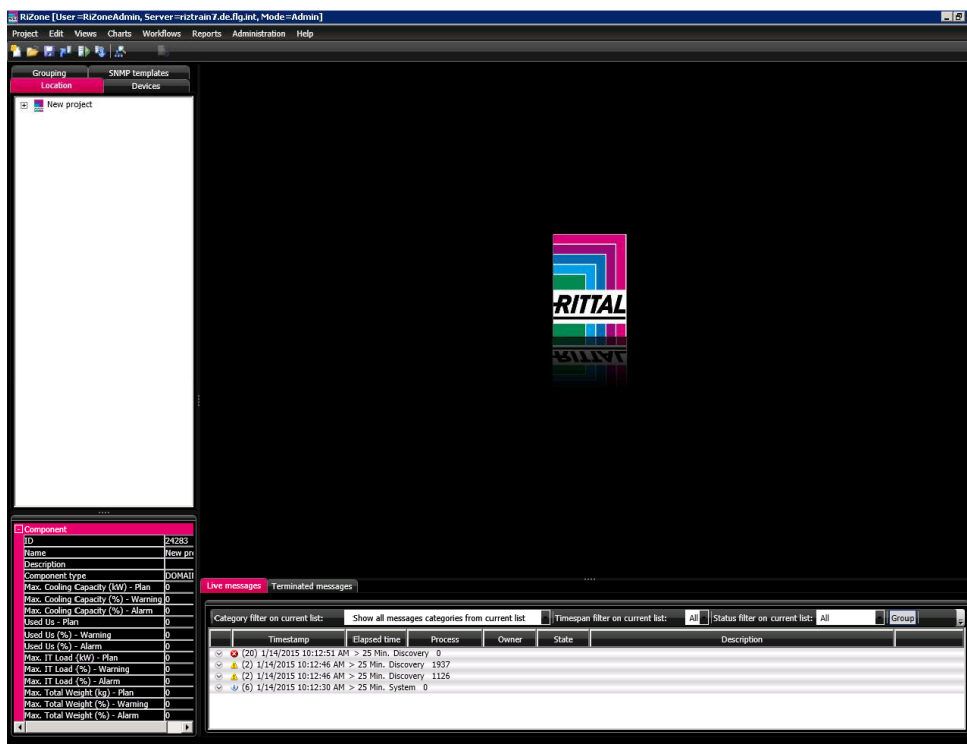
Fig. 18 SNMP templates tabs

To create a new driver template, first click the **Load SNMP templates** button, right-click the root node in the **SNMP templates** tab and select **Add**.
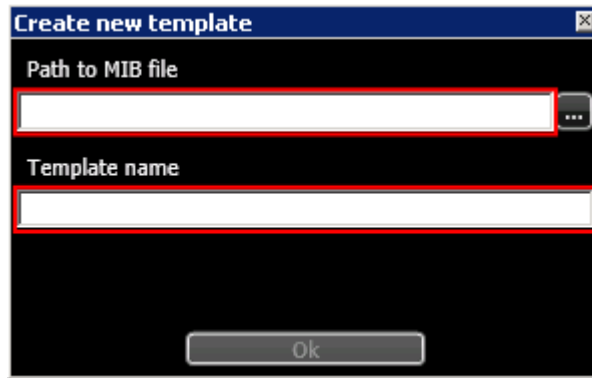
Fig. 19 Creating a new SNMP template

In the dialogue that now opens, select the file path for the MIB of the device manufacturer and assign a name for the template.

> ⚠ **Note!**
> **MIBs that themselves contain references to another MIB cannot be used. Multi-part MIBs must be copied together prior to the import.**

A two-part window now opens in the main area of the GUI. The device MIB is displayed in a tree structure on the left-hand side.

Now open the tree structure and find those variables (OIDs) whose values you want to query later from RiZone and use drag & drop to move them into the right-hand field.

If tables in the MIB are used for a third-party device for which the index of the table is not maintained, the exact OID in the table field must be added from the RiZone MIB Browser.

You can obtain the complete OID, for example, by means of an external MIB tool (such as "iReasoning MIB Browser"). The table in the MIB branch must be selected with the MIB tool. A "get bulk" can then be used to fetch all table entries. When the appropriate variable of the table is now selected, the complete OID will be displayed.

The OID is augmented in RiZone in the "Table Rows" window of the RiZone MIB browser. An additional "HowTo" in PDF form is available on our website www.rimatrix5.com (Downloads > Software).

Fig. 20 MIB Browser with opened MIB

If you want to delete a variable from the right-hand window, you can do this with a **right-click > Delete**.

> ⚠ **Note!**
> **You can obtain the description of the MIB and the meaning of the variables from the device manufacturer. Because of the large number of available SNMP devices, Rittal cannot provide any information about specific MIBs.**
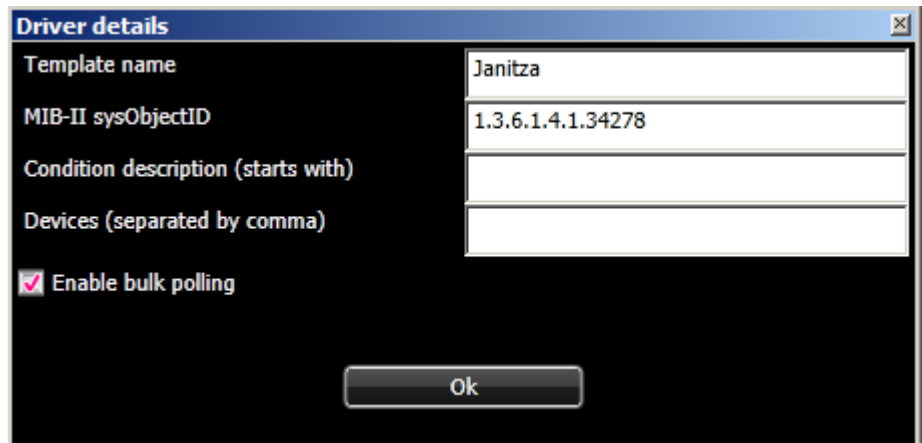
> ⚠ **Note!**
> **As of RiZone 3.0, it is possible to integrate traps for third-party devices in the driver. To do this, the status variable that initiates the trap like a normal variable is moved to the right-hand side in the variable selection and the driver saved subsequently.**
>
> **Traps in the project are displayed both in the variables list and in the message window.**

Once you have moved all required variables into the right-hand window, you must now specify the details of the variables in the right-hand window. For details, consult Section 7.3.3.
The driver must now be saved and loaded to the server. This is done by clicking **Save driver**.

Fig. 21 Driver details

Further data is required before the driver template can be saved.

- **Template name**
  The name of the template with which it will be stored later on the server must be specified in this field. The template name must conform to the general code conventions. This means, the name may contain only alphabetic characters (A-Z, a-z) and digits (0-9), and must start with an alphabetic character. Underscores are also permitted. If the input does not satisfy the specifications, the field will be displayed with a red frame and the **OK** button will be greyed-out.
- **MIB-II sysObjectID**
  During the discovery action, the Enterprise OID of the driver will be compared with the "sysObjectID" variable of the device. Only when the Enterprise OID specified here matches that in the device can a device be found during the discovery action.
  Although RiZone normally automatically fetches the MIB-II sysObjectID from the MIB, it must always be checked. If the ID is not fetched correctly, you can normally find the sysObjectID in the "private" branch or in the "mgmt >mib-2 > system" area of the MIB.
- **Condition description (begins with)**
  In addition to the Enterprise OID mentioned above, a comparison is also made with the value in the "sysDescr" SNMP variable. However, the variable value does not need to be specified here, but only the start of the character string. A case-sensitive character comparison is made. The description only needs to be specified when several templates should be created for an MIB.
- **Devices (separated by a comma)**
  Character strings to which devices the driver is assigned can be specified in the devices field. This input is used only to display the device information in the Properties window. Each individual device detail is separated with a comma.
- **Are bulk queries supported? (SNMP bulk query)**
  This checkbox should be activated only when the associated device can supply all configured variable values by bulk query.

Once at least the Name and Enterprise OID fields have been completed, the driver will be created automatically and loaded to the server when **OK** is

clicked. The driver template also appears in the template tree structure in the **SNMP templates** tab.

> ⚠ **Note!**
> **In the "Driver details" dialogue, not only must the Enterprise OID be entered in the "Enterprise OID" field, but also the complete sysObjectID of this manufacturer's device.**

7.3.2 Including third-party SNMP devices in the project

Once the driver has been created, third-party devices can be found with the discovery function and transferred to the project (locations or devices tree). See Chapter 7.2.

7.3.3 Third-party SNMP devices – variable details

Variables found with SNMP templates and included in the project differ from the details of a Rittal device.

You find the variable details of a third-party device variable when you have already moved variables into the right-hand window of the MIB browser. Double-click the variable to be edited.

Fig. 22 Variable properties of third-party devices

Variables property	Description
OID	Object ID of the variable to be polled. It is determined by moving the appropriate variable from the MIB tree.
Name	The name of the variable displayed later in the variable list. It must have a unique designation in the driver.
Data type	RiZone-internal data type. It is used for the visualisation and status evaluation of the variable. **StatusInt** -> Numeric value that RiZone should translate as status

	Float -> Measured values and setpoints as floating-point number **String** -> Character string
SNMP data type	SNMP standard data types (INT, OCTET_STRING, OBJECT_IDENTYFIER). If possible, the SNMP data type is initialised from the MIB.
Write access	The write access can be selected when a variable can generally be written using SNMP. The RiZone administrator has the capability here to further limit the write rights of a variable.
Display type	The RiZone-internal type used to display the values. The type defines the appearance and behaviour of the Setting window of the variable. **TYPE_ASCII_XSS_STRING** -> A string checked for Cross-Site Scripting (security mechanism to prevent infected source code from being imported). When this display type is selected, Minimum and Maximum define the minimum and maximum character length, respectively. If it should be possible to set the value, these must be specified appropriately. **TYPE_FLOAT** -> Set a floating-point value **TYPE_PASSWORD** -> Passwords are displayed as asterisks. Combo-values are stored separated with a comma. The first value is the selected default value; the various selection possibilities follow.
Interval	The specification in which time intervals RiZone should cyclically poll the variable. The time is specified in seconds.
Meaning	The meaning defines the access to the variable. The meaning causes the associated right to be assigned automatically to the variable. State and Value are assigned the "Read" right. Service is assigned the "Configuration" right. The Set buttons are also created using this setting: Only those variables with the Setting, Configuration, Execute or Service setting are displayed and then only when write access is activated for this variable. **State** -> The variable will be translated as state variable. Integer values are translated to the OK, Warning or Alarm state. If State is selected as meaning in the combobox, three additional input fields appear for the default values of the state translation. One or more unsigned integer values can be entered for each field. The inputs must be separated with a semicolon or a minus (input of a range). Note: "String" must be selected as display type. **Value** -> Values that can only be displayed (example: text items or temperature values). **Setting** -> Setting variables can be written from the GUI to the SNMP device. If Setting is selected in the combobox, limits must also be entered in the Minimum and Maximum fields. These define the settable range and the standard axis section for the chart. A step size

	must also be assigned that specifies in which step intervals the variables can be set (example: 0.5). This type is assigned in the rights assignment to the Setting right. **Configuration** -> This type is assigned in the rights assignment to the Configuration right. **Service** -> This type is assigned in the rights assignment to the Service right. **Execute ->** This type is assigned in the rights assignment to the Execute right. Setting, Configuration, Service and Execute are configurable variables in RiZone and are displayed with the **Set** button provided the Write right has been assigned. All other types are assigned the Read right.
Step size	This field specifies the minimum distance between the values that can be set. It is used only when SNMP values are also marked as **settable**. The distances can be specified as Float number; that means, also contain decimal places. This field does not have any effect on the display of the values but only on the Setting dialogue. It is displayed only when the write access is selected and Setting, Configuration, Service or Execute specified as meaning.
Unit	The string that can be entered here is used to display in which unit of measurement a value should be displayed on the GUI. Example: °C, V, kW, ...
Display factor	The display factor specifies a multiplier with which the data value stored in the database is converted before it is displayed on the GUI. The factor can be specified as Float number. The display factor is called Factor in the variable list of the GUI. Example: convert power value from W to kW with the factor 0.001.
Display format	Defines the numeric format with which the value is displayed: "0": Replaces the digit 0 with the specified digit (if present), otherwise the digit 0 is displayed on the result character string. "#": Replaces the "#" symbol with the specified digit (if present), otherwise no digit is displayed on the result character string. ".": Specifies the position of the decimal separator in the result character string. ",": Thousands separator Example 1: Display format: 0.0# Value = 1,234 Output: 1.23 Example 2: Display format: #,##0.00 Value = 1234,1 Output: 1,234.10
Factor	The factor defines the multiplier with which the fetched SNMP value is written in the database. It can also be specified as Float number.

	Example: voltage value with one decimal place (230.2V -> SNMP value 2302) -> specification factor: 0.1.
Minimum	The minimum value for which settable values can be set later by the user in a device via SNMP. For strings, the value defines the minimum number of characters that must be entered; for numbers, the minimum numeric value that can be entered. For measured values, this value defines the default entry for the smallest value shown in the chart (Min-Y).
Maximum	The maximum value that can be set. For strings, the value defines the maximum number of characters that may be entered; for numbers, the maximum numeric value that can be entered. For measured values, this value defines the default entry for the largest value shown in the chart (Max-Y).
Group	Classification of variables into a category of infrastructure functions. The following can be selected: - Cooling - Power - Monitoring - Security The assignment to a functional area is of particular importance for the evaluation of status variables. Graphics change their colour depending on the status only when the variable is assigned to at least one functional area. The status value is also included in an overall status of the functional area. The selection is used and displayed only for status variables.

7.3.4 Deleting a template

A template can be deleted in the SNMP templates tab. To do this, right-click the template to be deleted and then select **Delete** in the context menu. The subsequent delete prompt must be confirmed with **OK**.

> **Note!**
> **After the deletion, no new devices can be discovered using the template. After restarting the GUI, existing devices in the project will also no longer be displayed!**

7.3.5 Changing an existing template

To change an existing template, right-click the template in the SNMP templates tab and select **Edit**. The MIB associated with the driver and the variables selected for the driver now opens in the main window. These variables can now be augmented, changed or deleted. The driver must then be saved again with **Save driver**.

The changes affect only those devices discovered after the change.

If the template name is changed when the save is made, a second template will be created with the new name. The old template is also retained.

> **Note!**
> **Drivers must be unique. If a second driver should be generated from the same MIB, the device assignment must be made uniquely using the "Condition description (begins with)".**

7.3.6 Creating a template symbol for views

You can create for the created template a standard symbol that can be added later to the views in the project and then behaves similarly as the supplied symbols for the Rittal components.

To create a standard symbol, right-click the required template on the SNMP templates tab and select **Symbol**.

The View editor now opens in which you can construct the standard symbol from the following components:

- Polygons
- Variables
- Free text

The creation is performed similarly as the creation of a normal view (see Section 8.6).

Once the symbol has been created, the editor must be closed with **Views > Save view**. A red exclamation mark now appears after the template in the SNMP templates tab, because the template itself has not yet been saved in the current configuration.

Save the template with **right-click > Save**.

7.3.7   Creating standard charts

The Standard Charts function creates charts for the template that are created automatically with each device moved into a project.
To create a standard chart, right-click the required template on the SNMP templates tab and select **Standard Chart**.
The Chart editor now opens in which you can create charts similar to the creation of a normal chart (see Chapter 9). Only the variable source no longer needs to be selected with drag & drop. You have direct access to all numeric and Boolean variables that have been defined in the template.

The standard chart must be saved with **Charts > Save charts**.
A red exclamation mark now appears after the template in the SNMP templates tab, because the template itself has not yet been saved in the current configuration.
Save the template with **right-click > Save**.

Note!
If a standard chart is added subsequently to a driver, the appropriate devices must be rediscovered and with pressed Alt key dragged to the "old" devices. To activate the chart, a new chart must be created and edited. The standard chart settings can then be accepted with "Charts > Load standard charts". This procedure prevents an existing, individual chart from being automatically overwritten by the default chart.

7.4 Editing components

All functions listed here are available in admin mode for RiZone.

7.4.1 Deleting components

Right-click the component to be deleted and select the **Delete** item in the context menu.

The component will be deleted immediately from the tree structure.

If a device is deleted in the **Locations tree**, it is still present in the project and in the **Devices** tree. If, however, a device is deleted in the **Devices** tree, it will also be deleted in the **Locations** tree. Calculations that contain a variable of the deleted component will be deactivated. Both messages will be displayed in the GUI message window.

7.4.2 Copying infrastructure components

Right-click the component to be copied and select the **Copy** item in the context menu. Then select in the locations tree the infrastructure components with a left mouse-click under which the copied component should be added. Then **right-click the component > insert**. The previously copied component now appears as copy under the previously selected position in the tree. Note that only infrastructure components but no sensors / active components can be copied with this function.

7.4.3 Moving components in the tree

The moving of a component in the location or devices tree within a node is made in admin mode with a right-click on the component and the selection of the **Arrow up** or **Arrow down** menu tree.

If several components should be moved to another node, the components can be selected with multi-select (pressed Ctrl or Shift key) and then moved together with drag & drop. To retain the structure of the subcomponents during the move, the infrastructure components (e.g. several racks) must be selected individually with Ctrl. A multiple selection over an infrastructure component area (with pressed Shift key) may change the hierarchy after the move.

7.4.4 Transferring a component from the devices tree to the locations tree

Components used only in the devices tree but not in the locations tree can be transferred to the locations tree with the **Add to locations** function.

To do this, right-click the component in the devices tree and then select **Add to locations**. The component will then be added at the end of the project in the locations tree from where it can be moved to any position in the project with drag & drop.

7.4.5 Counting IP nodes

The **Number of IPs in the project** function determines the number of IP nodes used in the project. This is useful, for example, when you want to add new devices to the project and want to check beforehand whether the license key provides sufficient free IP nodes.

To determine the used IP nodes, switch to the devices tree, right-click the root node and select the **Number of IPs in the project** function. The number of used IP nodes will now be displayed.

7.5 Starting a project

Before a project can be started, it must first be uploaded to the server. This is done from the **Project > Upload to server** main menu or with the icon. The prompt whether the project should be uploaded must be confirmed. The upload to the server has completed once the "Validation completed, the project has been uploaded to the project folder" message appears in the message list.

The created RiZone project will now be performed on the server and so all active components also fetched using SNMP and any created workflows performed.

Project > Start project or is used to switch the RiZone client to view mode. The live data arriving at the server can be displayed in view mode. In this mode, the user also has access to the historical values that have been collected since the start of the project. These values, for example, can be displayed using charts.

All project start messages are listed in the message list. The prompt whether the project should be started must be confirmed.

7.6 Editing a project

If necessary, an existing project can be changed. To edit the project, the user must be in GUI admin mode. The project can be downloaded from the RiZone server or opened locally from the hard disk. The project is downloaded from the **Project > Download from server** main menu or with the icon. The project can now be edited.

The original project will continue to run until the modified project has been uploaded to the server. The editing of the project does not affect any other users.

7.7 Displaying values and variables

Once the project has been started, RiZone can be used to easily display all available values that the individual components supply.

Example CMC III temperature sensor:

- Right-click the required sensor (locations tree or devices tree) in the left-hand window.
- Select **Variables** in the context menu.
- The sensor variables will now be listed in the View window (right-hand side). All acquired values (in Fig. 18, the temperature) and the settings (Temperature.DescName, SetPtHighAlarm, SetPtHighWarning, SetPtLowWarning, SetPtLowAlarm, Hysteresis) will be output.
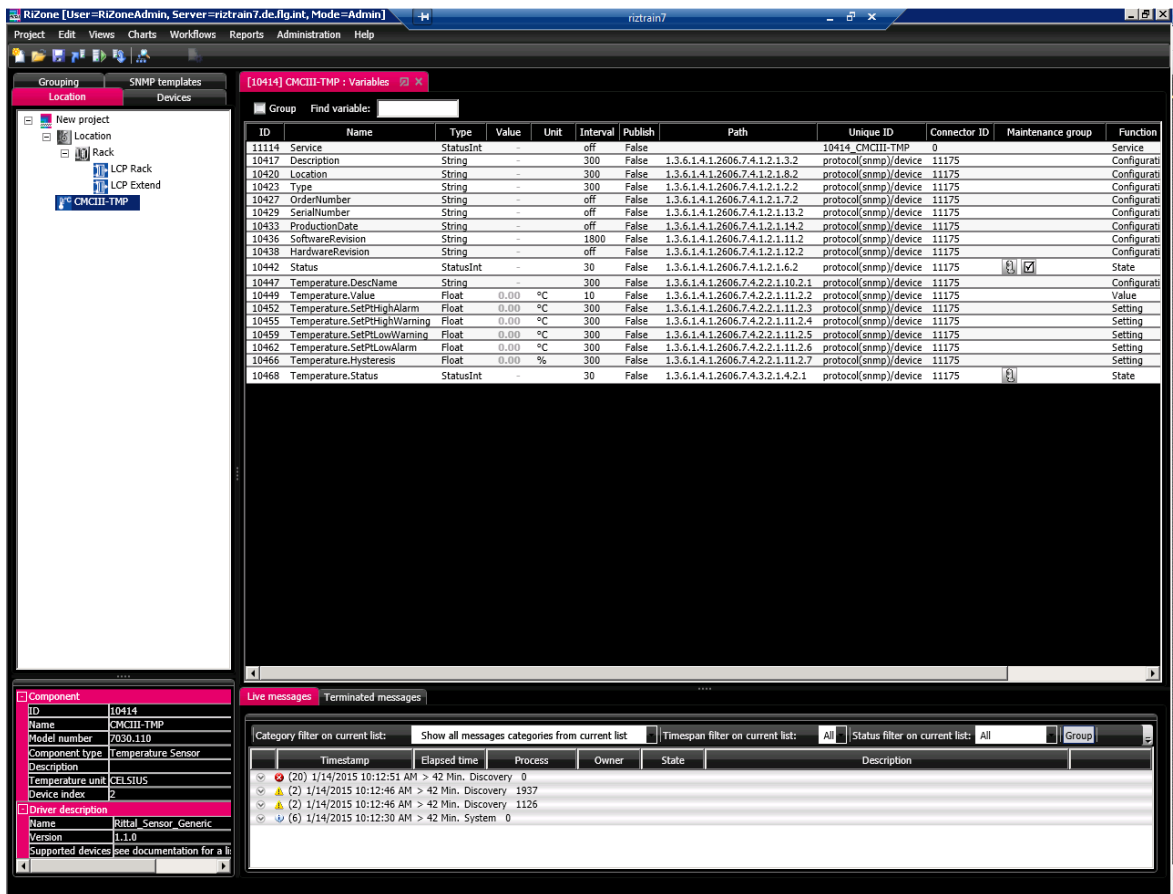
Fig. 23 Output values in the started project

If the variables of a higher-level component (e.g. room or enclosure) are fetched, a list with all sensors, PSM busbars, etc. assigned to the component opens in the View window. A click on the arrow in front of a sensor then shows its values.

Fig. 24 Variables of an enclosure (rack 1)

The Monitoring, Cooling, Security, Availability and Power status variables describe the status of the associated groups of this infrastructure component.
CapacityStatus and RackStatus are status variables of the capacity management. The associated details are described in Section 15.
TotalStatus provides the overall status of the infrastructure component over all groups.

The Service variable can be used to set individual devices or complete branches in the maintenance mode. Devices in maintenance mode are not used to determine the status.

7.8 Displaying values from the website

An alternative means of displaying sensor values involves calling the website of the components.

In admin mode, the properties of the device (**right-click > Properties)** selects whether an HTTP, an HTTPS or no web connection should be established. The web connection itself is called from the context menu of the device in the locations or devices tree.

A right-click on the component and the selection of **Open website** opens a browser window in which the website of the component (e.g. CMC III Processing Unit) is called.

> ⚠ **Note!**
> **The following functions are available only when you are in admin mode.**
> **Log in with a user who is member of the RiZone administrators group.**

> ⚠ **Note!**
> **Changes take effect only after the project is uploaded.**
> **Save the project and upload it to the server.**

7.9 Creating a new variable

Variables can be created in RiZone. These variables are assigned to an infrastructure component (e.g. room, enclosure, etc.). The variables can be used within charts, views, etc. A value can be assigned to the variables via the set function, a workflow or a variable calculation.

A new variable is created by right-clicking in the variable view and selecting the **New variable in [location]** item in the menu.

Input possibilities for creating a new variable

Name	Name of the variable.
Description	Description of the variable.
Type	**Float** and **StatusInt** are possible as variable type. Float is used when a (float) numeric value is stored in the variable, StatusInt for status variables. **Important note:** The variable type can be selected only when the variable is created. A subsequent change is not possible.
Publish	If set, the variable will be passed to the Messaging Service. The variable can now be fetched via SNMP by a different system.
Interval	Specifies the calculation cycle (in seconds). **Off** means that the variable will be calculated once after the project is uploaded. **Important:** If this a variable calculated by a calculation function based on other variables, interval **1800** must be selected instead of **off**. This ensures

	that the variables required for the calculation have already been polled.
Write access	If the field is set, the variable may be set manually or assigned a value. The associated dependencies are described in Section 7.17
Meaning	Meaning of the variable (Undefined, State, Value, Setting, Configuration, Service, Execute).
Phys. measurement quantity	Specifies the measurement quantity of the variable.
Unit	Specifies the unit of the variable.
Display factor	The variable is multiplied with the entered value and the result shown.
Display format	Defines the numeric format with which the value is displayed: "0": Replaces the digit 0 with the specified digit (if present), otherwise the digit 0 is displayed on the result character string. "#": Replaces the "#" symbol with the specified digit (if present), otherwise no digit is displayed on the result character string. ".": Specifies the position of the decimal separator in the result character string. ",": Thousands separator Example 1: Display format: 0.0# Value = 1,234 Output: 1.23 Example 2: Display format: #,##0.00 Value = 1234,1 Output: 1,234.10
Group	Selection of the group of the variable. The selection of the group affects the group status variables of the component to which the variable in the project is assigned. If the variable is assigned to a group and changes its status, the group status variable of the higher-level infrastructure component also changes its status on the variable (exception: the status of the group status variable has already been raised to a more critical status by a different variable).

7.10   Editing a variable

Variables can be edited in RiZone. A variable is edited by being right-clicked and the **Edit variable** item selected in the menu.

If the **Availability** group is selected, note that the group responds only to a specific status. For example, it does not respond to status such as **too high**, **too low**, **warning**.

The **Remoting** group does not have any effect on the status of higher-level views. If an alarm status occurs in the Remoting group, this is not signalled in the view by the colour of the rack.

The variable name and the physical measurement quantity cannot be changed.

7.11   Moving or copying variables

Once a variable has been created, it can be moved within the locations tree.
Please proceed as follows:

- Open the variables overview of the structure components (e.g. of a rack) that contains the variable to be moved.
- Left-click the user-created variable are move with drag & drop to another structure component.

The variable is now moved to the new location in the locations tree.

The copying of a user-created variable to another structure component is also possible.
Please proceed as follows:

- Open the variables overview of the structure components (e.g. of a rack) that contains the variable to be copied.
- Left-click the user-created variable are copy with drag & drop and pressed Ctrl key to another structure component. Note that the cursor icon is augmented with a small + symbol.

The copy action creates an identically-named variable with a new variable ID under the target structure component. The variable properties are also copied, but not any calculations configured in the source variable. The calculation for the source variable itself remains unaffected by the copy action.

7.12   Deleting a variable

Variables you created in RiZone can be deleted. A variable is deleted by being right-clicked and the **Delete variable** item selected in the menu.

> ⚠ **Note!**
> **Only those variables you created**
> **yourself can be deleted.**

7.13   Grouping of variables

The grouping of variables makes it possible with a SET command to set several values in RiZone. The grouped variables can be set from a workflow, from a view and from the grouping tree.

Folders and groups can be added to the grouping tree. A folder can contain multiple subfolders and groups. A grouping can contain further groupings but no folders. A grouping can contain only variables of the same type, such as temperature values. The groupings inherit the value when set lower in the grouping hierarchy.

The following properties of the variables must be identical when they should be combined in a group: unit, value range and variable type.

7.13.1 Creating a grouping

A grouping is created in admin mode. A grouping is created and edited similarly as for a location component. As many as 64 groupings can be created under each other.

7.13.2 Creating a folder

A folder is created in admin mode. A folder is created and edited similarly as for a location component. As many as 128 folders can be created under each other.

7.13.3 Assigning a variable to a grouping
A variable is assigned to a grouping in admin mode with drag & drop from the variables list of the devices or locations tree. Only identical, write variables can be assigned to a grouping.

7.13.4 Setting a grouping variable
A variable is set from the GUI in view mode in the grouping tree, from a workflow or from a view.

7.13.5 Grouping tree
The grouping is selected with a click. A right-click opens the menu. Select the **Variables** menu item to open the variables window opens in the main window. The grouping variable to be set is selected. The multiple selection is made similar to the variables table of a component.
Select **Set value** to open a window in which the variable is set immediately.

7.13.6 Workflow
The grouping can be included in a workflow like a normal variable.

7.13.7 View
A group is configured in the admin mode similar to adding a variable to the view. Rather than associated component, the grouping is added to the selection box for the variable. If the grouping in a view is configured, the grouping in view mode behaves similarly to a variable. The values within the grouping are displayed with a right-click and the variables selection displayed in a separate window. To set variables of a grouping within a view, right-click and select **Set value**. The variables window of the grouping opens for setting the variables within the grouping.

7.13.8 Grouping with devices configured offline
The variables do not have any units for grouping with devices configured offline. Consequently, RiZone cannot check whether variables of the same type are added to a grouping. Ensure that the variables in a grouping always have the same type.

7.13.9 Grouping with user-created variables
The grouping of user-created variables is possible only if they have the *Setting* **function type** and they can be written. All variables must have the same unit and the same value range.

7.14 Calculating a numeric variable
RiZone can calculate variables. Self-created variables (**Float** type) can be used to link variable values mathematically, for example, those supplied by sensors. The self-created variables can then be used further within RiZone, for example, for display in charts or in workflows.

Predefined functions exist and you can create your own formulas. The functions offer the following calculations: Custom, Sum, Minimum, Maximum, Average, Delta, Number of changes, Integral, Percentage and Consumption. The Custom function allows the use of the four basic arithmetic operations, brackets and Boolean algebra in order to create your own calculations.

Function name	Function
Sum	Summation function
Minimum	Minimum value of a variable within an interval

Maximum	Maximum value of a variable within an interval
Average	Average value of a variable within an interval
Delta	Maximum change of a variable within an interval
Number of changes	The number of changes of the variable value within an interval
Integral	Integral of a variable within an interval
Percentage	Convert a variable value into a percentage
Consumption	Calculate the consumption from a power variable within an interval

The interval for functions can be minute, hour, day, week, month, year and now. The interval always starts at the beginning of a minute, hour, etc., other than for the **Now** interval. In this case, the start date is specified in the format dd.mm.yyyy hh:mm:ss.

Fig. 25 Interval selection from the dropdown menu

7.14.1   Selecting a variable
Only self-created variables of the **Float** type can be calculated. To select the variable, the variable view of a component must be opened in admin mode. A right-click opens the context menu of the variable and selects the **Calculate variable** entry.
The **Calculate <variable name>** menu opens.

7.14.2   Selection of the component for calculating the variable
The component is selected using drag & drop. The component that contains the variable required for the calculation is selected in the project tree. Drag the component to the **Select variable** field in the variable calculation window; you then have access to all available values of the component.

⚠ **Note!**
Only those components that contain numeric variables can be selected.

> ⚠️ **Important!**
> **RiZone calculates logical operations bitwise. This means the status is linked based on its bit structure:**
> **OK: 001**
> **Warning: 010**
> **Alarm: 100**

7.14.3 Selection of variables

Once the component has been selected, all variables will be displayed in the window. These variables are selected individually and with the **Down arrow** button transferred to the variable list. Only numeric variables can be selected.

7.14.4 Transfer of the variables to the formula field

A variable is transferred to the formula field by being marked with the left mouse button and transferred to the formula field by copying the variable with **Ctrl-C** and pasting the variable with **Ctrl-V**.

7.14.5 Creating the formula

The mathematical expression is created in the formula window for the Custom function. The four basic arithmetic operations, Boolean algebra and the setting of brackets are available.

7.14.6 Checking the calculation

RiZone checks the formula for mathematical correctness. If the formula is correct, it can be saved. The check is initiated by clicking the **Validate** button.

7.14.7 Saving the formula

If the formula has been validated successfully, it can be saved. To start the calculation, the project must be loaded to the server.
The formula is saved by clicking the **Save** button.

7.15 Calculating a status variable with float values

In addition to the normal variables that contain numeric values, status variables can also be created. Although status variables can be created on any infrastructure component (see Section 7.9), **StatusInt** and **State** or **Execute** must be selected as type and meaning, respectively.
The status variables can assume the values: **ok**, **warning**, **alarm** or **undefined** are calculated in the following form:
if <number || variable> <operators> <number || variable> then <ok||alarm||warning||undefined> else <alarm||warning||undefined>

Example: **if VAR_4711 > 30 then ok else alarm**
A space must be present before and after the operator.
The use of the **and**, **or**, **not** logical operators is also possible. These operators must always be used with Boolean operators, such as:
if not(a > b and c != b) then ok else warning
or
if (a < b) and (c == d) then ok else alarm
or
if (((a + b) < c) or ((x - y) == z)) then warning else alarm

The calculation could have the following form in practical use:
if VAR_4711 > 30 and VAR_0815 < 40 then ok else alarm

⚠️ **Important!**
The calculation of a status variable with float values must always contain the command structure *if .. then .. else ..*

7.16 Calculating a status variable with status values

A status variable can be calculated from several status variables. The variable to be calculated must have the type **StatusInt** and **State** or **Execute** meaning set. Several status variables can be linked logically with each other. The result of the new status variables corresponds to the operation.

⚠️ **Important!**
In the calculation of a status variable with status values, the result of an &-operation is undefined provided not all status values are equal!

7.17 Setting user-defined variables

A user-defined variable can be set from the variables list in the GUI or in a created view by the user provided the appropriate authorisation is given. The write access from an external system is possible provided the prerequisites described in Section 16.4 are satisfied. A variable created in RiZone can be changed provided the **write-access** field was activated when created and the variable is adapted appropriately depending on the FunctionType data type.

The *Setting* FunctionType must be selected for a *Float* variable. RiZone then interprets this variable as setpoint. The value range for this variable must be adapted.

For a status variable, *StatusInt* and *Execute* must be configured as data type and as FunctionType, respectively.

All status information in the **Set Value** menu is then available.

7.18 Offline configuring

The offline configuring can be used to configure a RiZone project in advance. The offline configuring does not require an IP connection to the CMC III components to be configured.

The project is created identically as for a normal project. Select the **Offline** tab in the discovery window (**Edit > Discovery** menu).

The Offline tab shows all CMC III devices and the LCP available for the offline configuring.

> ⚠️ **Important!**
> **For the offline configuring, ensure that the CMC III PU to be configured later is installed with version level 3.13.xx or later.**
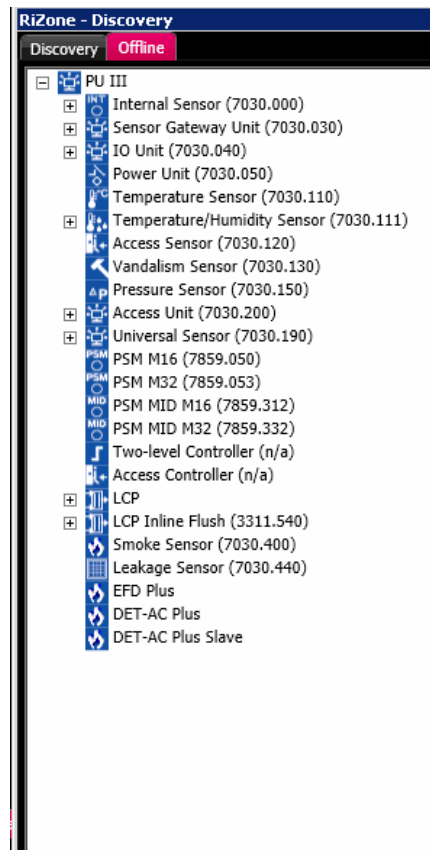
Fig. 26 Sensors that can be configured offline

These devices can be dragged to the locations tree (not in the devices tree) and marked with an additional icon. Most adaptations also possible in a RiZone project with real devices can be made. For example, the configuring of views, charts, workflows and reports, and the creation of calculations.
If the configuration area is completed and the active real devices and sensors are recognised by a normal discovery; the devices and sensors can then be dragged individually with drag & drop to the dummy devices of the offline configuring in the locations tree. Each node must be assigned individually. The offline device is replaced with the real device. The symbol that indicates an offline device is deleted.
When the project is saved, all links configured during the offline configuring are transferred to the active devices and sensors.
Note that the following restrictions exist for the offline configuring:

- Not all variables of the devices are visible offline.
- The PUIII root node cannot be dragged offline to the locations tree.
- Each sensor appears with its own PU in the devices tree. This is corrected and the number of PUs reduced once the offline sensors have been replaced with the real sensors.
- Adapt the designations of the devices in the locations tree already in offline mode. The offline designation is retained for the transfer of the real sensors.

- Some settings in the workflows, e.g. the setting of outputs (status variables such as SetOn or SetOff) can be configured only with real devices.
- Chart configuration: Settings (e.g. Min/Max values of the axes) must be entered manually for the offline creation. They are not replaced later with the default values of the individual devices.

The project can now be uploaded to the server and works just like a traditionally configured project.

7.18.1   Offline configuring of a RiMatrix S module
The offline configuring of a module for a standardised RiMatrix S data centre deviates from the procedure described in the previous section.

The discovery function is not used to create a RiMatrix S module. Instead, the modules can be created in the locations tree with a **right-click on an infrastructure component of type Location > Add**. The RiMatrix S module (e.g. Single6) can now be selected in the **Component type** selection box. Click **OK** to create offline below the infrastructure component all components and devices required for the RiMatrix S module. Views, charts and variables (PUE, PUE_absolute, PUE_day, PUE_hour, PUE_year) are also generated automatically for some components.

The components are given an English name irrespective of the language setting made for the RiZone client.
RiMatrix S modules currently available: Single 6, Double 6, Single 9, Double 9.
The replacement of the offline devices with real devices is done similarly as for the procedure described in Section 7.18.

7.19   Export/import project
The **Project > Export project** and **Project > Import project** functions transfer projects to other servers.

Export project
An uploaded project can be exported. This also stores the ClientRegistration.txt and NameRegistration.txt files in the project file.

Import project
This function imports an exported project to the same or another RiZone server (with the same version number). This deletes all entries in the database (ClientRegistration and NameRegistration) and replaces them with the registrations from the imported project.
Using the import/export function, projects can be ported between different computers.
For this purpose, the two NameRegistration.txt and ClientRegistration.txt files are also uploaded when a project is uploaded and the entries written to the database when the RiZoneCore service is restarted. A check is also made to ensure that the project, the settings of the Communication Module and the DB match. These registrations make the project also operational on servers on which the devices were not detected previously with the discovery function.

This differs from the save/open project by the registration database entries also being saved.

> ⚠ **Note!**
> **After the import of a project, it is possible that other projects of the server that were saved with the "Save project" function will no longer operate correctly. If you want to reuse these projects later, you must save them previously with the "Export project" function.**

> ⚠ **Note!**
> **Self-created SNMP templates are not transferred when a project is exported. If a project that contains SNMP templates for third-party devices is "moved" to a different server, third-party SNMP devices on the new server will not be recognised.**

8 Views

The views can be used to create graphical representations of your complete infrastructure components.

Views can be created for each component in the locations tree. A differentiation between the lateral view and the plan view is made for the representation of the views. Whereas the location, building and room component types have a plan view, the enclosure suite and the enclosure have a lateral view.

Customised graphics (e.g. the floor plan of a computing room) can be created for plan views. The graphic can be manually overlaid with active buttons that indicate the status of the components. For the lateral views, the corresponding graphics of the enclosures and components are already present in RiZone and only need to be assigned appropriately to the project. The views are configured in admin mode.

> ⚠ **Note!**
> **Status variables must be assigned to a**
> **group so they can be evaluated**
> **coloured in the view.**

8.1 Creating a new view

The selection of the **Views** menu item creates the view for a component. Only the view for one component can be edited concurrently.

The view opens in edit mode in the main view of the GUI.

A view is created by right-clicking the component icon. A context menu now opens and the **View** function can be selected. Alternatively, moving the mouse over the component displays five icons. The second icon from the left ⊞ opens a new view.

The new view must first be scaled before it is created. This function creates scaled views on the component level because all RiZone components exist as SI units.

Scaling is made in mm and can be given a scale.

8.2   Editing a view

A previously opened and stored view is opened for editing by calling the **Edit view** function in the **View** menu.

The opened view has a pink frame that indicates the editing mode.

8.3   Loading a background picture

A right-click in the view window opens the dialogue for loading a background picture. Call **Load background** to open the **Open file** window from which a .jpg format file can be selected. The file size of the picture may not exceed 1 MB.

The background picture will be created.

8.4   Assigning a component to a drawing

A component is assigned to the view by dragging to the drawing. The mouse can be used to place the component anywhere in the view.

8.5   Saving the view

A view is saved by calling the **Save view** function in the **Views** menu.

8.6   Operating the views editor

The views editor provides the following functions:

	Zoom
	Rotate
	Draw polygon
Text	Add text
V	Display variable in the view
	Undo
	Step forwards

8.6.1   Zoom

The zoom function can be performed by clicking the **Magnifying glass** icon or by pressing the **Ctrl key** and using the **mouse wheel**.

Selecting the **magnifying glass** activates the zoom function. It is now possible to zoom a rectangle from the view. A subsequent right-click restores the original size.

A view can be zoomed by pressing the **Ctrl key** and the **mouse wheel**. The view must be clicked to perform this function. The zoom function is then available. Pressing the right mouse button restores the original size. When the mouse wheel is turned forwards, zooming is made into the view; when the mouse wheel is turned backwards, zooming is made from the view.

8.6.2 Rotate

A component in a view is rotated at the movable rotation point of the

selected component. The **Rotate** icon is a sector of a circle with arrow .
The component is selected in the view and then the **Rotate** icon selected.
Once the rotate function has been selected, the component can be rotated.

8.6.3 Polygons

The RiZone editor can be used to draw a polygon and then assign this
polygon to a RiZone infrastructure component. The polygon in the drawing
uses the colours green, yellow and red to indicate the three states of the
component: OK, warning and alarm.

⚠ **Note!**
Status variables must be assigned to a
group so they can be evaluated
coloured in the view.

The **Polygon** icon is used to activate the drawing of a polygon. A left-click
can now be used to add a corner of the polygon. A double-click closes the
polygon.

A drawn polygon can be edited in drawing mode. Individual corners can be
moved or corners added (arrow cursor and **Ctrl right-click on a line**) or
deleted (arrow cursor and **Ctrl right-click**).

A polygon can be assigned to a component in the component tree. Please
proceed as follows:
1. Mark the component in the locations tree.
2. Keep the **Alt** key pressed.
3. Now drag & drop the marked component to the required polygon.
If the action completed successfully, the polygon colour changes to green.

Polygons can be copied. Mark the polygon and **right-click > Copy**. **Right-
click > Add** adds a copy of the polygon to the view. Only the actual polygon
is copied not any assignment to a component.

8.6.4 Placing components in the view in the foreground or
background

When a view is created, the last component is always placed in the
foreground. If the sequence for a view should be changed, this is done with
a right-click on the associated component. The **To foreground** or **To
background** selection changes the sequence.

8.6.5 Displaying free text in a view

The **Text** function can be used to display any free text items in a view.
The view must be open in edit mode. Click the **Text** icon in the editor toolbar.
Then click the view position where the text should be displayed (the
placement can be changed subsequently). A text input window opens. Enter
the required text and click **OK** to confirm.
Once the project has been loaded onto the server, the text will be displayed
in the view.

8.6.6 Displaying and changing variables in a view

The **V** function can be used to display any variable values in a view.

The view must be open in edit mode. Click the **V** icon in the editor toolbar. Then click the view position where the values of the variable should be displayed (the placement can be changed subsequently). A variable selection window now opens. Move a sensor or a component with drag & drop into the variable field. You now have the selection of all values of the sensor or the component. Select the required variable and click **OK** to confirm. It can also be specified whether the name of the variable or free text should be displayed together with the variable. This selection, the variable value and the unit will be displayed in the view once the project has been loaded onto the server.

If the variable can be set by the user, the variable value can also be set in the view (view mode).

A double-click on the variable opens the **Set variable** window. The **Set variable** window has the same functional scope as in the variable view.

8.6.7 Undo

The **Undo** function undoes the creation steps.

8.6.8 Restore

The **Restore** function undoes the undo function.

8.6.9 Multiple selection

A multiple selection of components is possible by drawing a frame around the components to be selected. The selected components are coloured.

8.6.10 "Go to" and "Open website" functions

If a view is open, a right-click on the individual components (e.g. PSM busbar) calls a context menu. Depending on the component and the configuring, none or one of the **Go to** or **Open website** options appears here.

Go to

The view of the clicked infrastructure components opens. This is possible only when the view was created previously in admin mode.

Example: In the multiple-enclosure view, a right-click is made on a specific enclosure and **Go to** selected. The enclosure view (provided created) of the selected enclosure now opens.

Open website

A right-click on a sensor opens the context menu with the**Open website** option. The selection of the **Open website** item opens in the standard browser the website for the sensor.

8.6.11 View list

The view list of a component can be called from its context menu (right mouse key).

In admin mode, existing views can be edited or new views created in the view list.

In view mode, a selection from the existing views can be made. A double-click on the view opens it.

9 Charts in RiZone

The chart function displays measured values graphically in RiZone. It is possible here to display several values in a diagram.

Charts must be grouped in admin mode. When the project is started, the created charts can be called and then show the current and historic acquired values.

The chart list shows all charts assigned to the infrastructure component. The context menu (right-click), new charts can be created or existing charts renamed or deleted.

9.1 Creating charts

Charts are linked to a component (sensor, PU, LCP, etc.) or an infrastructure component (location, building, room, enclosure suite, enclosure) during their creation. For a started project, these charts can then be called using the appropriate (infrastructure) components.
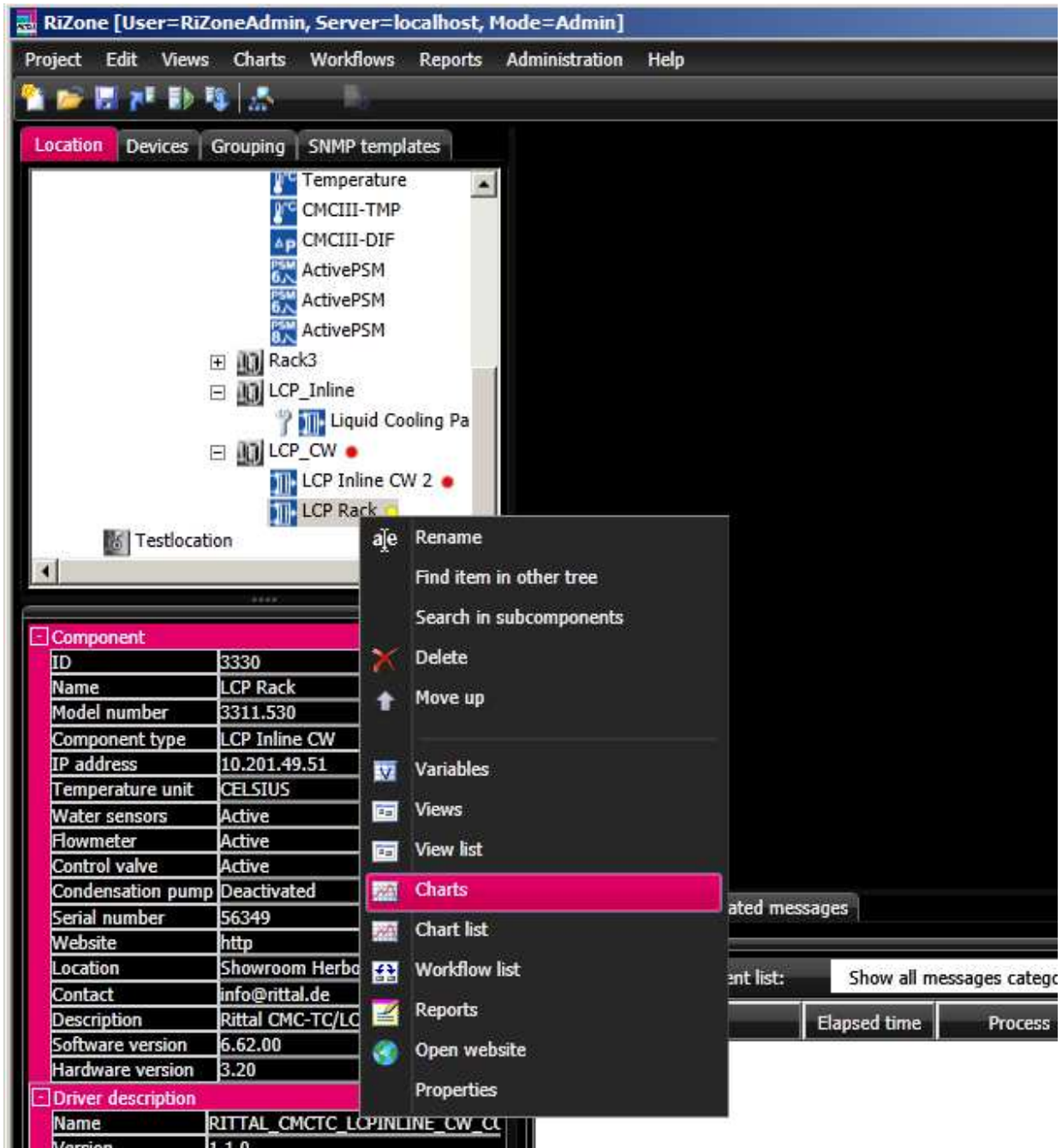
Fig. 27 Creating a chart

To create a new chart, right-click the component with which the chart is linked and select **Charts** or **Chart list**. The chart list shows all charts assigned to the infrastructure component. From this list, the required chart can be selected with a double-click or a new chart created with **right-click** > **New**.

The chart configuration now opens in the View window.

Fig. 28 Chart configuration

Legend

1 Add/remove a new chart
2 Add/remove a diagram within a chart
3 Add/remove a variable to/from a diagram

Input possibilities in the chart configuration

Name	Name of the chart
Description	Description of the chart
Name	Diagram name
Diagram type	Representation of the values in the diagram as line, pie or bar chart (Gantt)
Colour	Measuring curve colour. Clicking the colour opens a colour selection palette that can be used to specify the colour for this measured value.
Description	Description of the measured value
Axis caption	Title of the Y-axis for this measured value
Variable	The measured value to be displayed is selected here. Drag & drop a component from the project tree to the **Variable** field. The drop-down menu can then be used to select all available measured values of the selected component. This value will then be displayed later in the diagram.
Min-Y	Minimum value of the Y-axis. It should be adapted to the expected minimum value of the selected measured value.

Max-Y	Maximum value of the Y-axis. It should be adapted to the expected maximum value of the selected measured value. If Min and Max = 0 are specified, an automatic scaling will be performed.
Unit	Unit of the acquired measured value
Axis	Selection of the associated axis. If several units are used, each unit has its own axis.
Format	Defines the numeric format with which the value is displayed: "0": Replaces the digit 0 with the specified digit (if present), otherwise the digit 0 is displayed on the result character string. "#": Replaces the "#" symbol with the specified digit (if present), otherwise no digit is displayed on the result character string. ".": Specifies the position of the decimal separator in the result character string. ",": Thousands separator Example 1: Display format: 0.0# Value = 1,234 Output: 1.23 Example 2: Display format: #,##0.00 Value = 1234,1 Output: 1,234.10
Factor	Scaling factor for the measurement curve and legend. Can be used, for example, to output energy values in kW rather than watts.
Chart preview	Displays a preview of the configured chart.

The **+** and **–** buttons add or remove values to/from the chart. Click **+** to add a new configuration row. These values can originate from different components. This allows the very flexible creation of individual charts. Click **–** to remove the marked measured value row from the chart configuration.

The drop-down main menu can be used to discard any changes that have been made. To do this, select **Charts > Reset chart**. RiZone contains standard charts for some components (LCPs). They can be restored at any time with **Charts > Load standard charts**.
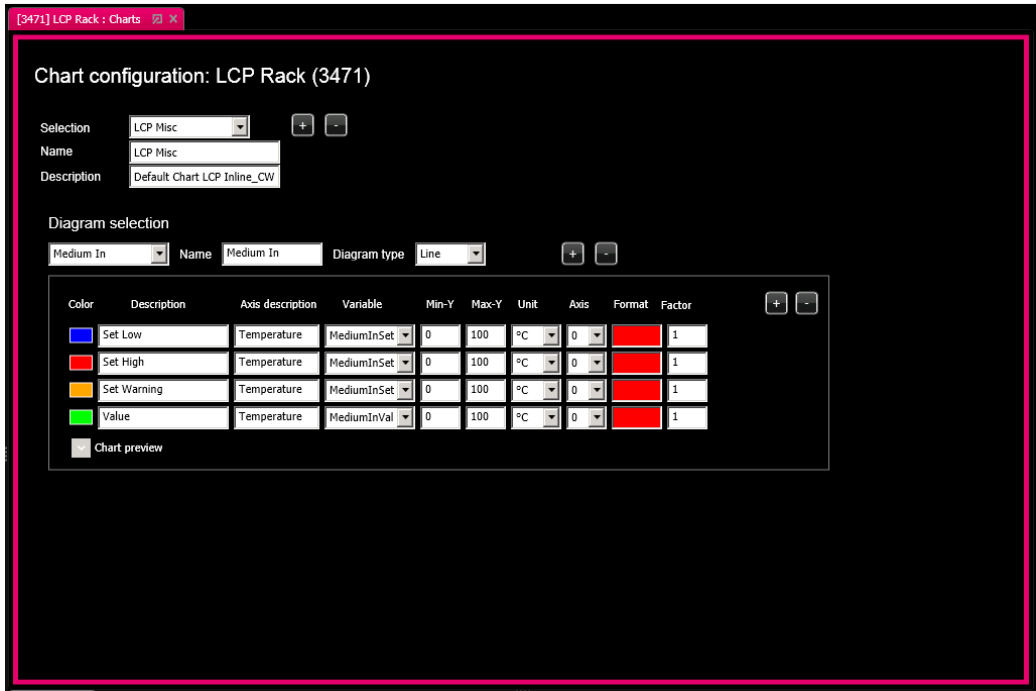
Fig. 29 Chart configuration example

Fig. 22 shows an example configuration for an LCP chart that shows the LCP temperature (green), the high temperature warning threshold of the LCP (red), the low temperature warning threshold of the LCP (blue) and the warning temperature warning threshold of the LCP (orange).

9.2 Displaying a chart

Once the chart has been configured, the chart together with the complete

project can be loaded to the server (**Project > Upload to server** or ![icon]). The chart can also be fetched when the project is performed (**Project >**

Start project or ![icon]).
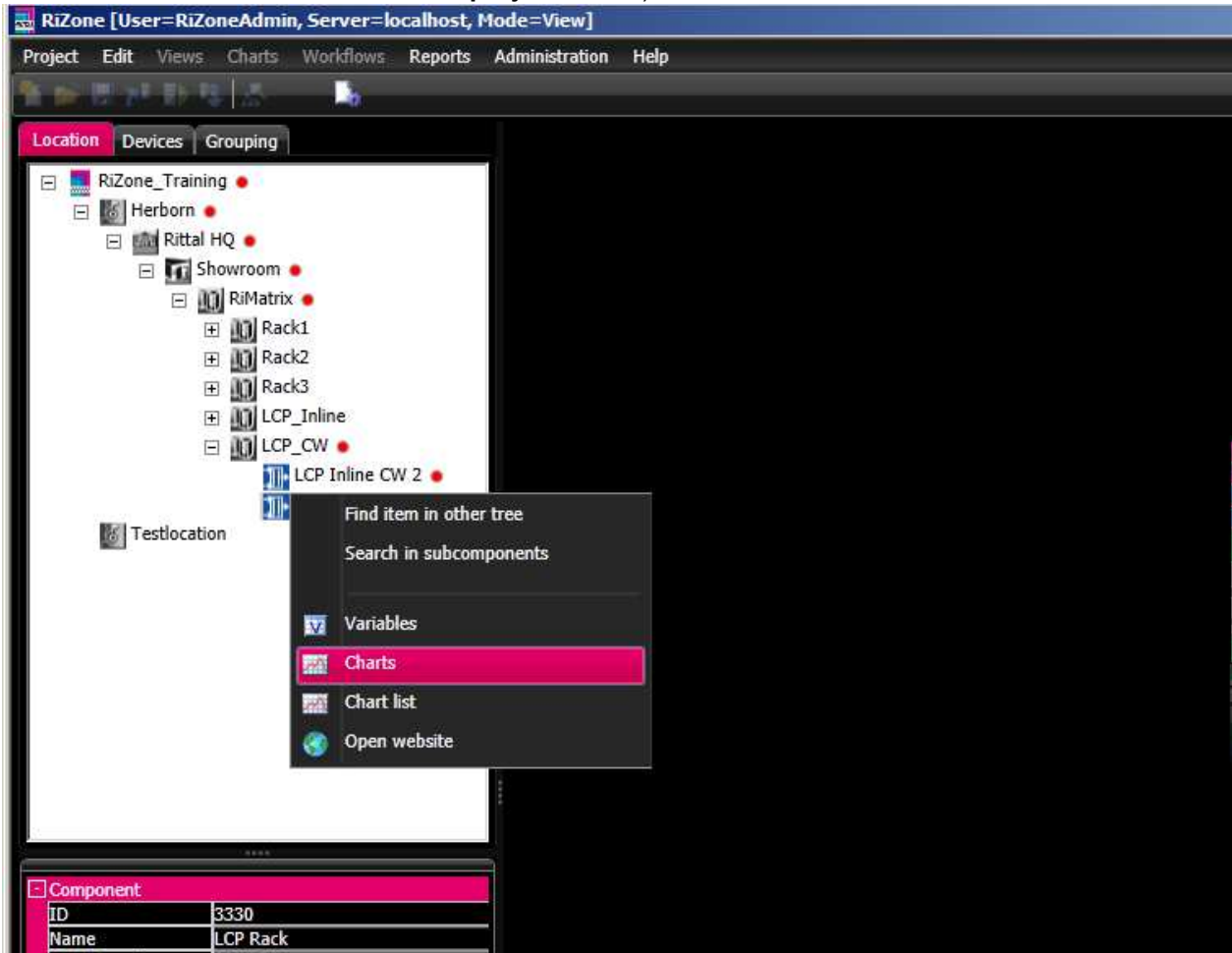
Fig. 30 Opening a chart

To do this, right-click in the project tree the (infrastructure) components to which the chart was linked for the configuration and select **Charts** or **Chart list**. If **Chart list** was clicked, the chart must now be selected.

The chart opens in the View window and the values supplied by the components to RiZone are shown.

Fig. 31 Chart representation for the started project

The elements in the uppermost line of the chart window can be used to set the representation interval of the chart.

1	Interval	The time interval of the chart display can be selected here (15 minutes, hourly, daily, etc.).
2		Updates and sets the cursor to the current value in the chart.
3		Print - opens the print dialogue for the currently displayed chart. The number of charts to be printed on each page can be specified in the print dialogue.
4	Time	The date and the time when the chart display should begin can be specified directly here.
5	Chart selection	If several charts were created for the component, it is possible to switch between the individual charts here.
6	Legends	Moving the mouse cursor over the legend entry colours the associated line in the chart and the corresponding scale on the Y-axis. This permits any easy line ->scale assignment that simplifies reading the chart.
7	Scroll	A double-click on this area scrolls the chart forwards or backwards on the time window.

10 Workflows

10.1 Operation of the workflows in RiZone

The workflows in RiZone are used for the automatic processing of conditional actions. The actions involve the setting of values using SNMP, the sending of e-mails and the parametrised call of external programs. The values of the monitored devices collected by RiZone or the variables calculated by RiZone can be used for the conditions that determine the execution of an action.

Syntactically correct and fully configured are marked as *active* when saved.
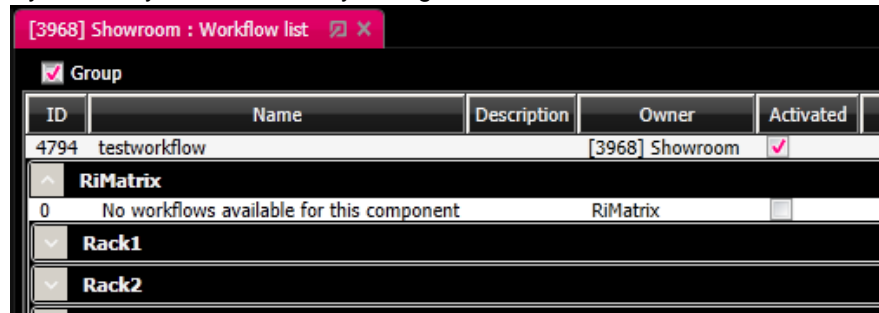
Fig. 32 Activated workflow in the admin view

The workflows in the workflow list (admin mode) can be activated or deactivated manually with the *Activated* checkbox.

Once a project with an *active* workflow is uploaded to the server, the workflow becomes active and will be executed by the server.
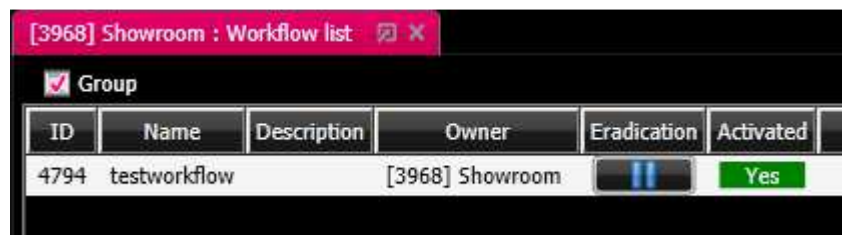
Fig. 33 Workflow list view mode

In view mode, the Play/Pause button pauses the processing.

10.2 Creating a new workflow

A workflow is always assigned to an infrastructure component (room, enclosure suite, etc.). Each workflow, however, always has access to all sensor values of the project and not just to the values assigned to "its" infrastructure component.

To create a new workflow, right-click the infrastructure component and select **Workflow list** in the context menu.

The overview window for all workflows of the component (workflow list) now opens. A right-click on **New** in the workflow list creates a new workflow.

Enter a name for the workflow and click **OK to confirm.** The new workflow will now be shown in the list and can be edited.

10.3 Deleting a workflow

To delete an existing workflow, right-click the infrastructure component and select **Workflow list** in the context menu.

The overview window for all workflows of the component and the logically subordinate components now opens.

A right-click on the workflow to be deleted opens the associated context menu. Select **Delete** to delete the workflow.
Click **Yes** to confirm the delete action.
The workflow will now be deleted. To also delete the workflow on the server, the updated project must first be uploaded to the server (see Upload project).

10.4 Editing a workflow

To edit a workflow, right-click the infrastructure component and select **Workflow list** in the context menu.
Right-click to select the workflow to be edited. The associated context menu opens. Select **Open**.
The graphical workflow editor now opens.
The pink frame of the workflow editor window indicates the edit mode. The editing is completed with the **Workflow > Save workflow** drop-down menu (the pink frame vanishes). To return to the edit mode for an open workflow, select **Workflow > Edit workflow**.
The workflow can now be formed using workflow modules (see Workflow modules section). To create a workflow, click the required modules in the module bar which then appear immediately on the workflow work surface. After the first click on the icon, it appears on the work surface, brought to the correct position and released with a left-click.
A double-click on an icon opens the associated properties menu. The properties of the module can then be configured (for details, refer to the Workflow modules section).
If configured modules are clicked, all components whose variables are used in the module are marked in the locations tree.
The view of the workflow desktop can be zoomed with the **Ctrl + mouse wheel** combination.
A **right-click on the desktop > automatic zoom** sets the desktop so that complete workflow is visible.

10.5 Workflow templates

The RiZone workflow editor provides predefined templates and can be extended with customer-specific templates. When a workflow is created, the RiZone predefined templates are displayed with the **Templates** dropdown menu and under **Templates** in the **Workflow** menu. For the templates, only the variables must be replaced and the recipient of the notification selected.

The following workflows are available as templates:

- Redundancy lost Power and Cooling
- Rackspace
- Total Weight
- Alarm Power and Cooling

These workflows are provided for use in conjunction with the capacity management.

In addition to the predefined templates, user templates can be created. Please proceed as follows:
1. Open the list of workflow templates (**Workflows > Templates**)
2. **Right-click on the list of workflow templates > New**

3. The **New workflow template** dialogue opens. Enter the name and the description of the template, and click **OK** to confirm.
4. The Workflow editor now starts. Configure your workflow template. Once this has been done, save the template with **Workflow > Save**. The newly create template is now listed when you open the list of workflow templates.

10.5.1 Redundancy lost Power and Cooling template

This template generates an e-mail notification when the configured warning thresholds in the capacity management are reached.

10.5.2 Rackspace template

This template generates a warning or alarm as e-mail notification when the configured warning thresholds are reached.

10.5.3 Total Weight template

This template generates a warning or alarm when the configured warning thresholds are reached.

10.5.4 Alarm Power and Cooling template

This template generates an e-mail notification when the configured alarm thresholds in the capacity management are reached.

10.6 Configuration of the mail server

The mail server is required for the *Send email* function of the workflow.

The mail server is configured in admin mode from the **Administration > Mail server configuration** menu item.
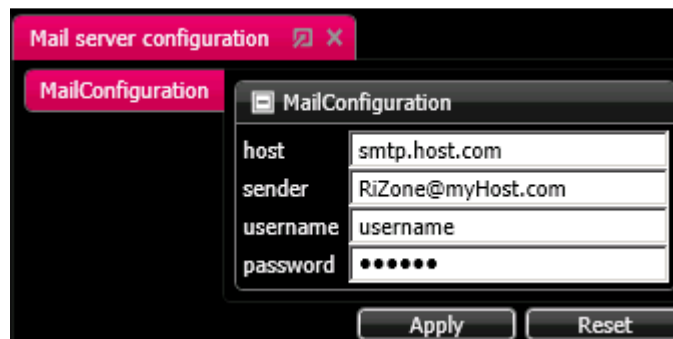
Fig. 34 Mail server configuration

⚠ **Note!**
Workflows in projects created with RiZone versions < V3.5 that already contain an SMTP configuration in Send-Email actions continue to use it. If, however, such an old workflow is opened and saved again in the GUI, the new global SMTP configuration will be used in future for this workflow.

10.7 Structure of a workflow

A workflow consists of various modules (refer to Workflow modules section) connected with each other using arrows (directed edges). The arrow direction also specifies the flow direction through the workflow.
During the creation, ensure that:
1. Just one start symbol exists.
2. At least one end symbol exists.
3. All modules have just one successor (= outgoing arrow). The Event Gateway and Data Gateway are exceptions. These elements can have several successors.
4. All symbols are connected with each other using arrows.
5. At least one action must be defined.

A workflow will be validated for correct syntax before it is saved. The workflow must be corrected if the validation fails.
The error description for the errors on the workflow will be output in the message list.
Otherwise the workflow will only be saved and not switched active when uploaded to the server.

10.8 Displaying the description of a workflow element

With the activation of the description of a workflow element, a permanent notice can be displayed in the workflow editor. The description is activated or deactivated with a **right-click on the workflow element > Display description**. This permanent notice contains the description of the element.

10.9 Workflow modules

This section describes the individual workflow modules and their configuration capabilities.

10.9.1 Start event

Fig. 35 Start event

The **Start event** indicates the starting point of each workflow. It must exist just once in each workflow. The properties menu contains the name and the unique symbol ID (UID). An individual description of the element can be entered in the Description field.

10.9.2 Stop event

Fig. 36 Stop event

The **Stop event** terminates a workflow. At least one Stop event must exist for each workflow. Several Stop events are possible in a workflow.
The properties menu contains the name and the unique symbol ID (UID). An individual description of the element can be entered in the Description field.

10.9.3 Condition event

Fig. 37 Condition event

The Condition event stops the workflow at this point until the set condition (e.g. an alarm of a specific sensor) occurs.
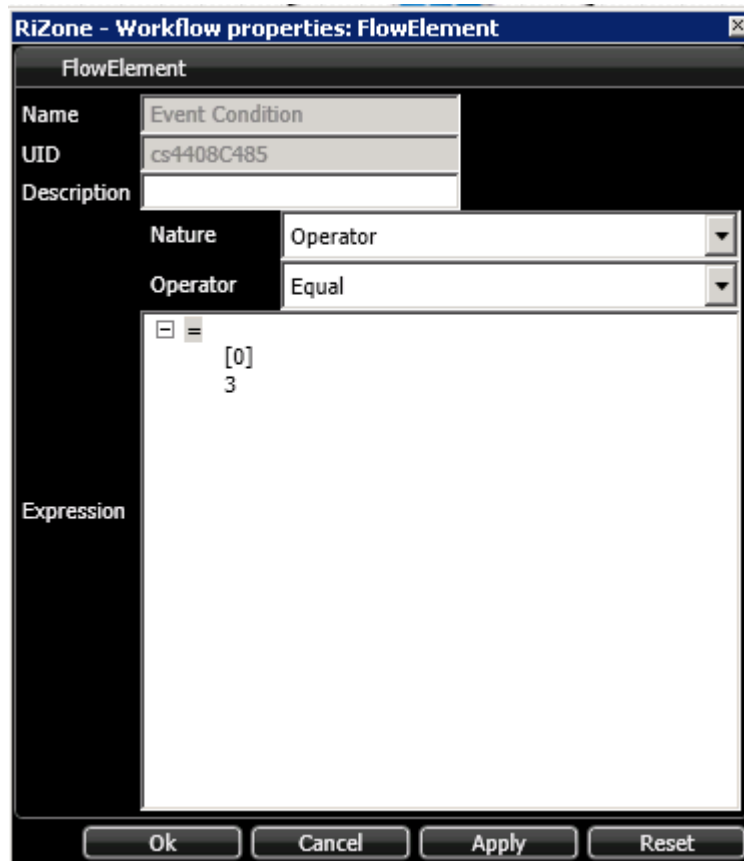
Fig. 38 Condition event properties

A double-click on the symbol opens the properties window of the Condition event. To configure the condition, proceed as follows:

1. An individual description of the element can be entered in the Description field.
2. Select the **Operator** in the lower window. The Equal operator is selected in the figure. Possible operators are: **Equal, Unequal, Above, Below, AboveOrEqual, BelowOrEqual, And, Or, NAND, NOR**.
3. Now select the first operand.
4. The **Type** menu selects whether a constant or a variable is involved. If you select a variable, a sensor that supplies the required sensor value must then be selected. To do this, left-click the required component from the locations or devices view and move with drag & drop to the free menu field with the designation **Variable**. The value stored in the database is always used as variable value. Any specified display factors are not considered for the comparison operations.

5. You can then select from the selection menu a variable from the list of all variables supplied by the component.
6. If you want to enter a constant, select for **Type** the **Constant** option and enter the required value for **Value**.
7. Select the value for the second operand and repeat steps 3 to 5 as for the first operand.

⚠ **Note!**
Nested operations are possible when "And", "Or", "Nand" or "Nor" is selected as operator.

Click **Apply** to accept the changes or **Reset** to reset all settings. The window can be closed by clicking the "Close window" icon at the top right.

10.9.4 Timer event

Fig. 39 Timer event

The Timer event stops the workflow at this point until the set time has expired.
A double-click on the icon opens the properties window of the Timer event.
The time unit (seconds, minutes, hours, days) and the time value can be set here.

Example: A delay of 15 seconds should be set
Unit = seconds
Time = 15

10.9.5 Send Email

Fig. 40 Send Email event

The Send Email event can be used within a workflow to send an email. The email will be sent when the workflow reaches the Send Email event.
A double-click on the icon opens the properties window of the Send Email event.
The following parameters must be configured here:
- Description: An individual description of the element can be entered in the Description field.
- Recipient: The manual input of an e-mail address as recipient.
- ToUsers: Select one or more RiZone users as mail recipient.
- Subject: Subject line
- Text: Email text

10.9.6 Execute Program

Fig. 41 Execute Program event

The Execute Program event can be used within a workflow to start an external program on the server. The program will be started when the workflow reaches the Execute Program event.

A double-click on the icon opens the properties window of the Execute Program event.

The following parameters can be configured here:

- Programme: The programme name, incl. path. Important: The programme must be located on the RiZone server rather than on the client on which the GUI runs.
- Arguments: Call parameters for the programme to be started. The values and the syntax depend on the programme to be started.

> **Note!**
> **The programme will be executed on the RiZone server under the RizoneService user. This means the graphical user interface for the executed program is not visible.**

10.9.7 Set Value

Fig. 42 Set Value event

The Set Value event sets a value within a workflow using SNMP. This requires that the actor has already been integrated in the RiZone project using the Discovery function. The value will be set when the workflow reaches the Set Value event.

A double-click on the icon opens the properties window of the Set Value event.

Fig. 43 Properties of the Set Value event

To configure the setting of a value, proceed as follows:

1. An individual description of the element can be entered in the Description field.
2. Left-click the required component from the locations or devices view and move with drag & drop to the free menu field with the designation **Variable**.

> ⚠ **Note!**
> **If the Variable field remains empty after a device has been added, this device does not have any variables that can be set.**

3. You can then select from the selection menu a settable variable from the list of all variables supplied by the component.
4. Now enter for **Value** the value to be set on the actor or select one of the states that may be specified.

Click **Apply** to accept the changes or **Reset** to reset all settings. Click **OK** to close the window. **Cancel** terminates the configuration of the workflow.

10.9.8 Event Gateway

Fig. 44 Event Gateway

The Event Gateway is a branch on two or more Condition events.
Important: The direct successors of an Event Gateway can be only Condition events or Timer events (refer to the Event Gateway example figure).
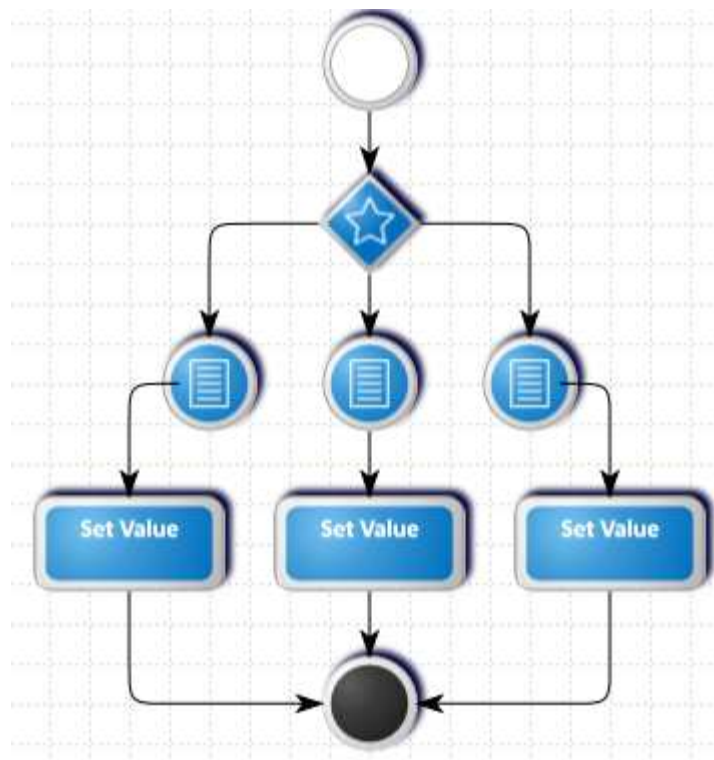
Fig. 45 Event Gateway example

If, during the processing, the workflow reaches the Event Gateway, the workflow will continue at that Condition event whose condition is satisfied (true) first.

> ⚠ **Note!**
> **This condition is executed just once.**
> **The condition will be executed again only when it reoccurs.**

> ⚠ **Note!**
> **If no condition is satisfied, a wait will be made at the Event Gateway.**
> **The wait at the Event Gateway continues until one of the conditions is satisfied.**

10.9.9 Copy Value
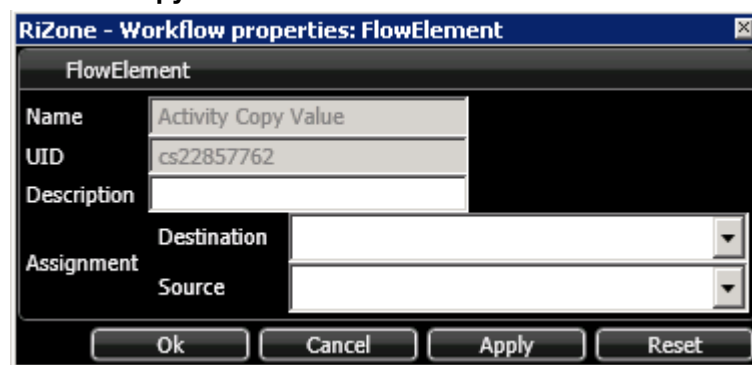
Fig. 46 Properties of the Copy Value event

The *Copy Value* activity assigns the value of another variable to the variable. It is the extension of the *Set Value* activity for which a constant is assigned to a variable.

Copy Value is used to assign the calculated values to the components, for example, via the Workflow engine.

10.9.10 Data Gateway

Fig. 47 Data Gateway

The Data Gateway is a branch on two or more events.

The direct successors of a Data Gateway can be all modules except for the Start symbol.

The conditions that determine which path the workflow follows are linked at the outgoing edges for the Data Gateway.

To specify a condition, the properties window of the edge must first be opened with a double-click on the edge.
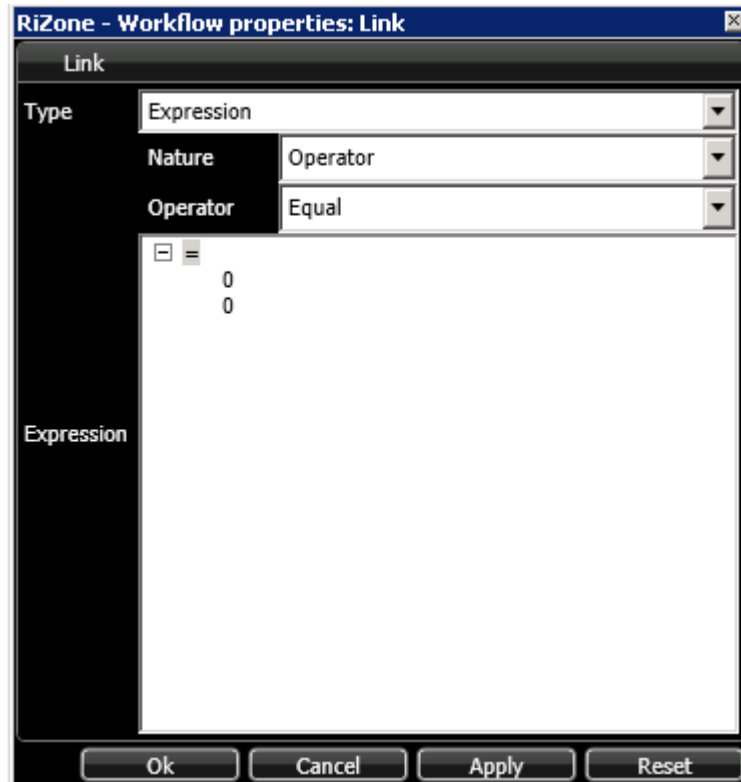
Fig. 48 Properties of an outgoing Data Gateway edge

The condition can now be specified as follows:

1. Select the **Operator** in the lower window. The AboveOrEqual operator is selected in figure 38. Possible operators are: **Equal, Unequal, Above, Below, AboveOrEqual, BelowOrEqual, And, Or, NAND, NOR**.
2. Now select the first operand.
3. The **Type** menu selects whether a constant or a variable is involved. If you select a variable, a component that supplies the required sensor value must then be selected. To do this, left-click the required component from the locations or devices view and move with drag & drop to the free menu field with the designation **Variable**.
   The value stored in the database is always used as variable value. Any specified display factors are not considered for the comparison operations.
4. Select from the selection menu a variable from the list of all variables supplied by the sensor.
5. If you want to enter a constant, select for **Type** the **Constant** option and enter the required value for **Value** or select one of the states that may have been specified.
6. Select the value for the second operand and repeat steps 3 to 5 as for the first operand.
7. Click **Apply** to accept the settings.

The condition for this edge is now configured.
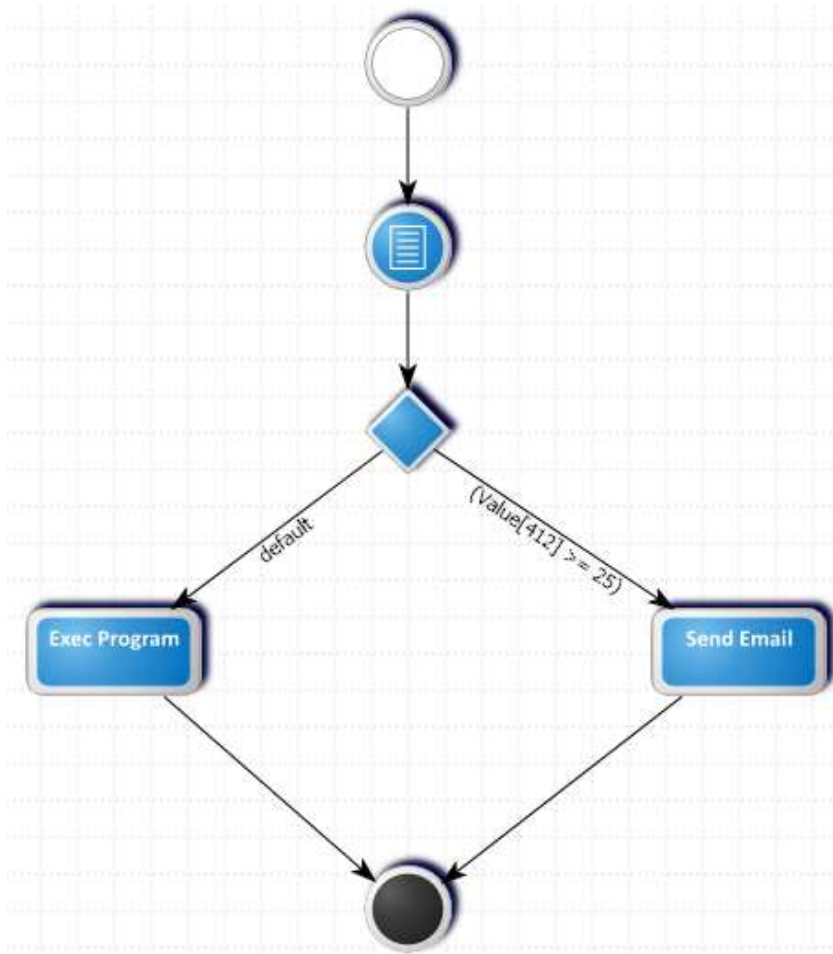
Fig. 49 Default Gateway example

> **Important!**
>
> **One edge must be defined as default edge. To do this, the value for Type in the properties must be changed to Default Path.**
>
> **If during processing the workflow reaches the Data Gateway and no condition of any of the outgoing edges is satisfied (=true), the workflow will be continued at the default edge.**

11   Maintenance mode

The maintenance mode indicates that the configuration of a device has changed. In this state, the device data can no longer be evaluated in RiZone. The maintenance mode can either be set manually with the Service variable or activated automatically by the system when certain events occur (see Section 11.1).

The maintenance mode is indicated by a spanner in front of the devices icon.
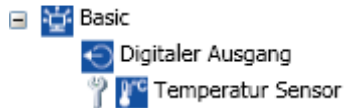
Fig. 50 Temperature sensor in maintenance mode

All variables of the affected device change their state:
Quality = "Bad"
Quality Detail = "COMPONENT_MAINTENANCE_MODE"
The maintenance mode causes the variable calculation of the Calculation Engine to be delivered automatically with the Quality Bad. No new events are initiated by the Quality Bad variable in the Workflow Engine.

There are several possibilities why a device has changed to maintenance mode. There are two ways of exiting the maintenance mode:
- The device changes its configuration back to the original state. In this case, the maintenance mode will be deactivated automatically.
- The device will be rediscovered in the configuration mode and with pressed **Alt** key moved to the affected device in the project tree. The current settings are now accepted as original.

11.1   Reasons for a maintenance mode

11.1.1   Changing the temperature unit

For Rittal CMC devices, the temperature unit can be changed between °C and °F. This also changes the values transported via the SNMP interface. This situation means the calculated values and limit value tests in a workflow are incorrect and the maintenance mode will be activated. If the device changes its temperature unit back to the configured state, the maintenance mode will be revoked automatically (if the change is made from the website, this can take as long as five minutes). Incorrect calculations and workflows cannot be excluded during this time.

The maintenance mode is activated only for those devices that supply a temperature value. You can recognise this by them having a "Temperature Unit" entry in the properties window. This shows the state present during the Discovery.

Fig. 51 Properties

The following devices have this field:
LCP
LCP Extend
LCP Inline
LCP Inline EC
LCP Inline CW
LCP Plus
LCP Plus EC
LCP Rack CW
LCP Smart
LCP T3+ AC
LCP T3+ EC
LCP platform (SK3311.xyz)
Temperature sensor
Temperature sensor WL
CMC III temperature sensor
CMC III humidity sensor
CMC III Processing Unit
CMC III Processing Unit Compact
RiMatrix S

The Climate Unit does not have this field because the temperature sensor exists as an independent device.

> **Note!**
> If a Rittal device supported by RiZone has at least one temperature variable, the "Temperature Unit" property also exists.

11.1.2 Changing the hardware configuration

The possible changes are listed in the properties of the LCPs.

Component	
ID	12720
Name	LCP_Plus
Model number	3301.480
Component type	LCP Plus
IP address	10.201.49.167
Temperature unit	CELSIUS
Water sensors	Active
Flowmeter	Active
Control valve	Active
Serial number	1395
Website	http
Location	Location of the Unit
Contact	Contact Person
Description	Rittal CMC-TC/LCP+ SN 01395 HW V3.
Software version	6.50.00

Fig. 52 Properties

These properties are assigned to the device during the Discovery. If these no longer match those of the device, a switch is made to maintenance mode. The maintenance mode will be exited when the old state is restored. If the device with the changes is to be accepted, it must be deleted from the project and a new discovery performed. Alternatively, it can be moved with pressed **Alt** key to the existing component and so updated.

The following devices have these fields:
LCP Inline   / Water Sensor / Flowmeter / Control valve
LCP Inline EC / Water Sensor / Flowmeter / Control valve
LCP Inline CW / Water Sensor / Flowmeter / Control valve
LCP Plus   / Water Sensor / Flowmeter / Control valve
LCP Plus EC   / Water Sensor / Flowmeter / Control valve
LCP Rack CW / Water Sensor / Flowmeter / Control valve
LCP Smart   / Water Sensor / Flowmeter / Control valve / Condensation pump
LCP Standard / Fan Module 1 / Fan Module 2 / Fan Module 3 / Water Module

11.1.3 Configuration Changed

If a device (PU, LCP, etc.) enters the "Configuration Changed" mode, this device will be set into the maintenance mode.
The following procedure must be adopted to return the device to the **active** mode:

1. Acknowledge the "Configuration changed" status on the Processing Unit.
2. The component must be updated in the project. To do this, perform the discovery of the component again and with pressed **Alt** key use drag & drop to move the newly discovered device to the component already present in the project. This updates the data for this component in the project.
3. Components that no longer exist must be deleted from the project.
4. Finally, upload the updated project to the server.

> **Important!**
> **A reorganisation of the device branch for a CMC III PU can cause a change of the OIDs of the connected components. A new discovery and update must be performed in RiZone.**

11.1.4 Service variable

Devices and infrastructure components that possess the **Service** variable can be placed into the maintenance mode by setting the variable to the **Maintenance** value. To exit the maintenance mode again, either the **Service** variable can be set to **active** or the project uploaded to the server again.

> **Important!**
> **If an infrastructure component (e.g. rack suite) or a device with subordinate components (e.g. PU with multiple sensors) is placed into the maintenance mode, all subordinate components/sensors will also be automatically placed into the maintenance mode.**
>
> **To return all components to the "active" mode, the Service variable of all subcomponents/sensors must be individually set to "active" again.
> As an alternative, the complete project can be uploaded to the server again. This also sets the components back to "active".**

12   Message list

RiZone has a message list that contains all messages of the RiZone server. The messages have various categories, owners and states. Each message has a unique timestamp and owner. The message description explains the message. Moving the mouse over the message displays the description of the message as Tooltip.

The message list differentiates between **current messages** and **finalised messages**. Finalised messages are current messages whose **status** has been set manually to **Terminate.** To set the Terminate status, the message must be opened with a double-click. The status then can be changed from the drop-down field. The time interval for which messages are displayed can be restricted. The restrictions are:

All, 1 hour, 1 day, 1 week.

All messages for specific categories can be filtered. The categories are:

Errors, Warnings, Information and **OK.**

The filtering applies to the displayed messages rather than all messages in the database.

The arrow keys navigate through the message list. A **right-click** opens the context menu. A **double-click** opens the properties window of the message. The message list also has a function for grouping messages. In this case, the messages are grouped in the message window according to sensor status or event. The grouping can be activated and deactivated with the **Grouping** button.

12.1   Process

The process assigns the message. The following processes are differentiated:

12.1.1   Monitoring

The messages grouped in the Monitoring process apply to the active area of RiZone.

12.1.2   System

The messages grouped in the System process are system messages.

12.1.3   Workflow

The messages of the Workflow process are those messages issued while uploading a project when one or more workflows were created in a project.

12.1.4   Calculation

The messages of the Calculation process are those messages issued while uploading a project when one or more calculations were created in a project.

12.1.5   Discovery

The messages of the Discovery process provide information about the devices found during the discovery process. If RiZone does not support a firmware, an error message will be issued during the Discovery process.

12.2   Owner

The owner of a message is the component ID for RiZone. This can be a device, a workflow or a calculation.

12.3 Status

The status of a message indicates the processing status of a message.

12.3.1 None

The **None** status specifies that the message has not yet been accepted by any user in RiZone. The message is not yet processed.

12.3.2 Commit

The **Commit** status specifies that the message has been accepted by a user in RiZone. The message is not yet processed.

12.3.3 Confirm

The **Confirm** status indicates that the message from a user in RiZone has been confirmed. The message is not yet processed.

12.3.4 Work On

The **Work On** status specifies that the message has been accepted by a user in RiZone. The message is being processed.

12.3.5 Terminate

The **Terminate** status specifies that the message has been accepted by a user in RiZone. The message is completed.
Messages with the **Terminate** status can be viewed only from the **Finalised messages** tab.

12.4 Properties

A double-click on a message opens the properties window. The detailed message is displayed in the properties window. It is possible to change the status and add a comment to the message. The user who accepted the message is logged.
A history of the messages is saved.

13 Report

RiZone provides the capability to generate a report for the variables associated with a node. This report can be executed cyclically and downloaded from the server to the client PC. The access control for a report is controlled in the user administration.

13.1 Creating a report

A report can be created for any component of the RiZone project. The **Report** function in admin mode opens the configuration window in the GUI. The **New** function creates a new report.
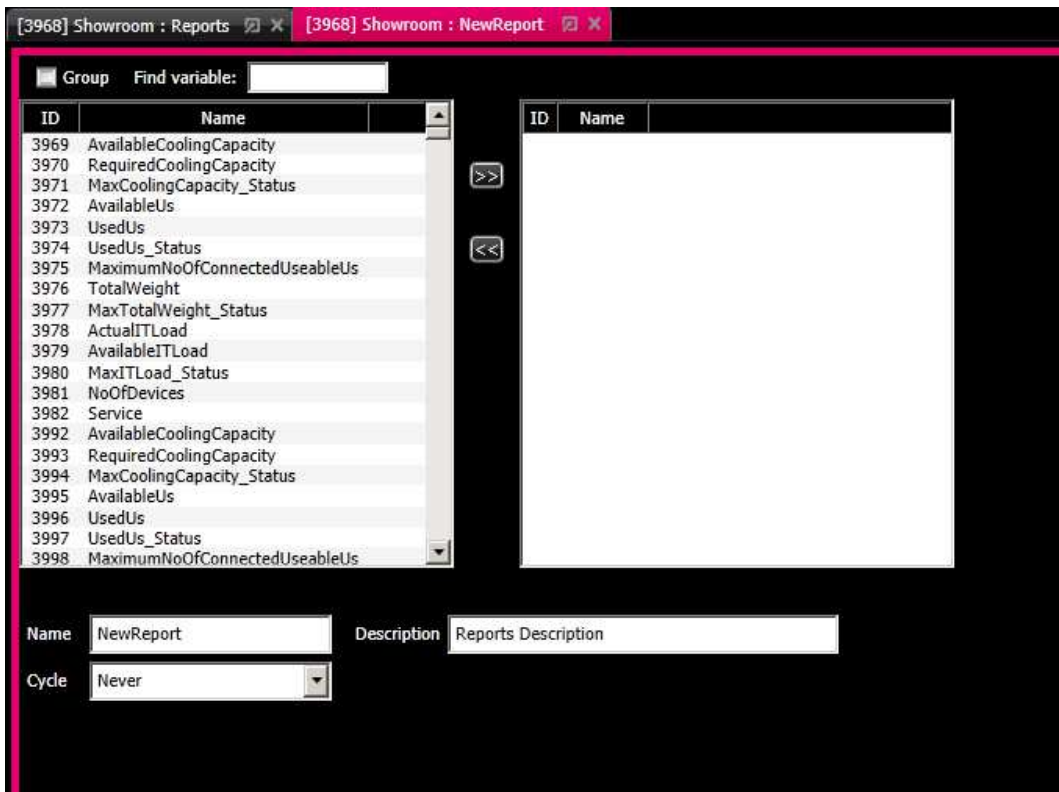
Fig. 53 Creating a report

13.1.1 Selecting variables

The variables are selected with a mouse click in the window. **Ctrl** and **click** select more than one item. **Shift** and **click** select a group of variables. The marked variables have a blue background. Click the **>>** double-arrow to transfer the variables to the selection window. The selection of the variable and the click on the **<<** double-arrow deselects the variable.

13.1.2 Name/description

The name of a report is a mandatory field and preassigned. Only digits, alphabetic characters and the underscore are permitted for a name. Accented characters are not supported. The name of a report may not begin with a digit. The maximum length of the name is 50 characters.

The report description is optional. The maximum length is 256 characters.

13.1.3 Cycle

The regular execution of the report is configured in the cycle selection window. **Never** specifies that no report will be created.

13.1.4 Saving a report

A report is saved by selecting the **Reports** tab in the menu and then clicking **Save**. The report will be saved under the selected node. The changes take effect on the RiZone server only when the project has once again been uploaded to the server.

13.2 Deleting a report

A report can have been created at any node of the RiZone project. The **Report** function in admin mode opens the configuration window in the GUI. A list of the reports present for the node is displayed. Click **Delete** to delete the associated report. Confirm the prompt with Shift and click.

13.3 Downloading a report

A report can be downloaded in the view mode of the GUI. The logged-in user must have the appropriate authorisations. The report has CSV format. The reports are saved in the **~\My Documents\RiZone\Reports** directory. The report is downloaded by selecting the appropriate report and then selecting the **Synchronise** function. The **Reports > Synchronise all** option in the drop-down menu downloads all versions of the report.

14   User administration

The RiZone user administration is based on the user administration of the RiZone Appliance operating system. The membership of the RiZone Appliance in the directory service integrates the user administration in a directory service.

14.1   Creating a user with the GUI

A new RiZone user is created from the **Administration > User administration > Users > Create user** menu. The user is created as local user on the RiZone Appliance. The user name must consist of at least five characters, and the password requires a minimum length of seven characters, including one special character. The assignment of the e-mail address must be unique: An e-mail address can be entered only for one user. The e-mail address may be used later in the **Send EMail > ToUsers** workflow element.

All fields are mandatory for creating a user. The activation of the **Enable user?** checkbox activates the user.

<table>
<tr>
<td>⚠</td>
<td>Note!
A user must be activated in order to log in to the RiZone server.

Activate the user during the creation.</td>
</tr>
</table>

14.2   Changing a user account

A user account is changed from the **Administration > User administration > Users** menu. Select the user with a double-click.

The e-mail address and the comment for the user can be changed in the **Change details** menu item.

The **Change password** menu item changes the password.

The **Administer roles** menu assigns the user to one or several roles.

The **Delete user account** menu item deletes the selected user.

The **Deactivate user account** function deactivates the user. The user can then no longer log in to RiZone. All user settings, however, are retained.

The **Activate user account** function activates the user.

Administer other user accounts returns to the user selection.

14.3   Creating a role with the GUI

A new RiZone role is created from the **Administration > User administration > Roles > Create new role** menu. The role is created as local group on the RiZone Appliance. The group name must begin with RiZone.

<table>
<tr>
<td>⚠</td>
<td>Note!
Role names cannot be changed later!</td>
</tr>
</table>

14.4   Assigning a user to a role

The **Change user account > Administer roles** menu assigns the user to one or several roles.

This is also possible by selecting the appropriate role and assigning the user to the role in the **Roles** menu.

14.5 Removing a user from a role

The **Change user account > Administer roles** menu removes the user from a role.

This is also possible by selecting the appropriate role in the **Roles** menu and removing the user from the role.

14.6 Deleting a user with the GUI

The **Delete user account** menu item deletes the selected user.

14.7 Deleting a role with the GUI

To delete a role, proceed as follows:
- Select the **Role** tab
- Double-click the role to be deleted
- Click **Delete role**
- Confirm the prompt

The role will now be deleted.

14.8 Configuring RiZone in a directory service

RiZone is integrated in a directory service by the membership of groups of the directory service in the local groups of the RiZone server that were created as role with the RiZone GUI.

15   Capacity management

The RiZone capacity management allows a transparent monitoring of the energy supply, cooling, available height units and loading of the server enclosures. The location components are configured with the planned values of the data centre and an automated calculation of the currently installed inventory performed.

Caution: When the capacity management is deployed, all location components must be configured because otherwise the status information may be incorrect.

The IT load is calculated automatically on the *enclosure* component when PSM busbars or PDUs have been configured by Rittal. The IT load on the other location components is calculated automatically by upwards inheritance in the hierarchy.

15.1 Configuring the location components

Each location component must be configured for the deployment of the capacity management. A multiple selection for the same infrastructure components is possible. The percentage values always apply to 100%.

Example: The status alarm of the IT load should be initiated at 8 kW because the maximum redundant load lies at 10 kW.
For a redundant infeed of 10 kW per enclosure, the maximum IT load that can be provided electrically is 20 kW. The planned IT load should not exceed 80% of the redundant load. The planned value for the IT load must be configured with 8 kW. The threshold value for the warning does not need to be edited. An alarm should be issued when no further redundancy exists. The alarm value must be adapted accordingly to 25%.
The status alarm is generated at 125% of 8 kW -> 10 kW.
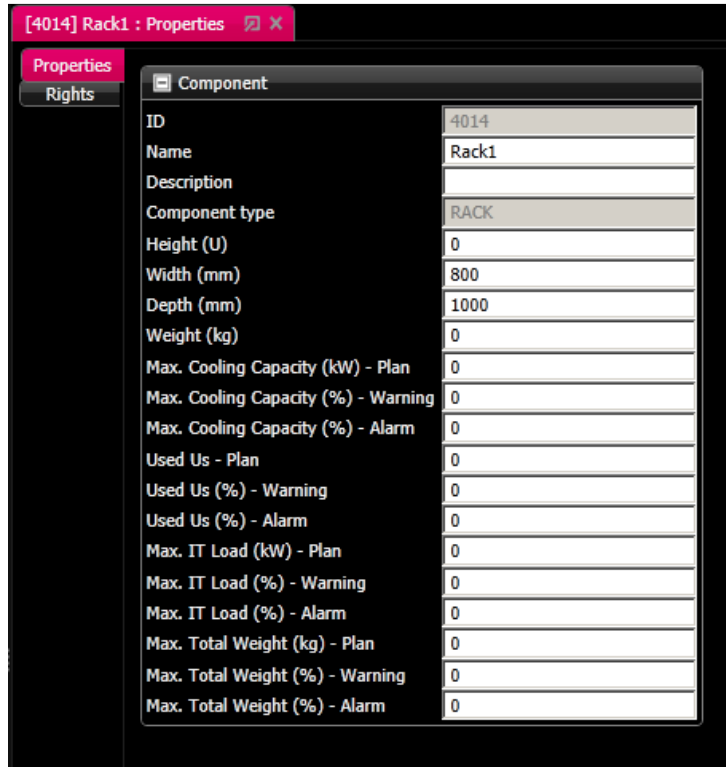
⚠	**Note!**
	If the warning and alarm threshold values are set to 0, no alarming RiZone occurs. Also for cases in which the capacity management should not be used, all warning and alarm threshold values must be set to 0.

Fig. 54 Capacity management component properties

15.2 Variables

The variables of the capacity management belong to the standard variables of each infrastructure component. The calculations are performed automatically based on the properties of the infrastructure component as well as the information from DRC, PSM, PDU and the rack items. The deployment of power distribution components not supported by native RiZone requires that the calculations for the IT load are configured manually.

15 Capacity management

Fig. 55 Capacity management variables of the infrastructure components (here enclosure)

AvailableCoolingCapacity	The available cooling capacity of the infrastructure component (IC). The difference of maximum cooling capacity and the currently required cooling capacity of the IC specified for the component properties.
RequiredCoolingCapacity	The cooling capacity that the installed components require currently (corresponds to the power consumption of the IT components).
MaxCoolingCapacity_Status	Status of the maximum cooling capacity. Limit values are configured for the properties of the IC.
AvailableUs	Available height units (Us) of the components. The assignment is calculated using the U entries of the enclosure elements.
UsedUs	Assigned height units of the components. The assignment is calculated using the U entries of the enclosure elements. Entered blank panels belong to the assigned Us.
UsedUs_Status	Status of the height units. Limit values are configured for the properties of the IC.
MaximumNoOfConnected UseableUs	Number of height units that form the largest free installation field in the IC.
TotalWeight	Current weight of the IC, including installed components.

MaxTotalWeight_Status	Status of the maximum weight of the IC. Limit values are configured for the properties of the IC.
ActualITLoad	Current electrical load of the devices in the IC. The value is calculated automatically for the deployment of Rittal PDU or PSM power busbars with measurement. For the deployment of third-party devices, ActualITLoad must be calculated manually by calculating variables (Section 7.14). If this is changed again to an automatic calculation (prerequisite: deployment of Rittal PDU/PSM busbars), the variable calculation for ActualITLoad must be opened and all calculation steps removed. The ActualITLoad is calculated automatically once the changes have been saved and the project loaded onto the server.
AvailableITLoad	The free electrical power still available to the IC devices. Limit values are configured for the properties of the IC.
MaxITLoad_Status	Status of the maximum electrical load of the IC devices.
NoOfDevices	Number of devices installed in the IC. This also includes blank panels.

15.3 Charts

The capacity management has a default chart that uses a speedometer to represent the IT load utilisation, the available cooling capacity, the available height units and the possible loading of the location component.

⚠️ **Note!**
If the planned values are set to 0, no speedometer display is made in the charts.

If the warning and alarm threshold values are set to 0, the speedometer is displayed without a warning and alarm area.

16 Assigning rights for RiZone components

Rights are assigned in a project at the component level in the project tree. The component rights are assigned to a RiZone role. This role is assigned to a user group of the operating system. Rights can be assigned in the locations tree and in the devices tree.

16.1 The rights concept for RiZone

RiZone has seven different authorisations. These authorisations can be used for just one component or can be inherited. The inheritance permits all subordinate components of the selected reference tree to be given the same rights.

16.2 RiZone rights

16.2.1 Read

The **read** right permits read access to the component. No changes can be made to the component.

16.2.2 Setting

The **setting** right permits the change of threshold values.

16.2.3 Configuration

The **configuration** right permits the change of a component. This permits the change of the component name or the change of the SNMP configuration. Specific LCP settings are also assigned to the "Configuration" group (some parameters from LCP Standard and Extend).

16.2.4 Execute

The **execute** right permits the switching of the outputs of a device that has a switching function.

16.2.5 Charts

The **charts** right permits the display of a chart. The chart must be created by an administrator.

16.2.6 Workflows

The **workflows** right permits the display of a workflow. The workflow must be created by an administrator.

16.2.7 Reports

The **reports** right permits the download of a report. The report must be created by an administrator.

16.3 Changing an authorisation in the object tree

The rights are assigned for a component in the properties window. The properties window is opened with a **right-click** on the component icon and the selection of **properties**. The properties window opens in the GUI main window. The selection of the **Rights** tab opens the **rights administration**. The **Reference tree** drop-down menu is used to select in which project tree the rights assignment is made. The **Subordinate components ...** checkbox permits the inheritance of rights below the component.

It is possible to assign a role to each individual right. Multiple selection is possible.
The changes take effect only after the upload of the project.

16.4 Setting variables for the external application via SNMP

To allow variables for external systems to be set in RiZone via SNMP, the following steps must be performed.

- The variable to be set must be set to **publish**.
- The *RiZone3rdParty* standard role must be entered in the rights assignment of the component or the sensor under **setting, execute or configuration** (depending on the application).

Each external application known to the SNMP read- and write-community can now set such configured variables externally. SNMP user and SNMP password are also required for SNMP v3.

17 Searching for variables and components

The search for RiZone is possible in view and admin mode. The search is called from the **Edit> Search** menu or with the "Ctrl+F" key combination. A search can be made for variables or components. Multiple search criteria can be combined with an "And operation".

The search for components also allows the search for infrastructure variables of the capacity management. A search can be made for the following capacity variables:

Available Us	Number of available height units of an infrastructure component (IC).
Consecutive usable Us	Maximum number of consecutive height units of an IC.
Available IT load	Available free electrical load of an IC.
Current IT load	The currently used electrical load of an IC.

The input of an operator and a value completes the search request.
To create more complex queries, further criteria can be added with the **+Add criterion** button.

The results in the variable or component branch are shown in the results window. A double-click on the displayed component or variable opens the variables view in the RiZone GUI.

18 Relocating a tab as a single window

When several monitors are used, it can be desirable to relocate the individual tabs of the RiZone GUI to another monitor. This is done with a click on the **Relocate tab** icon.
This function is possible only in view mode.

Fig. 56 Close tab button

If the relocated window is closed, it will once again be integrated as tab in the GUI.

19   Setting values

19.1   Setting the values of a component from the user interface

The RiZone user interface serves not only for querying of data using SNMP, values such as thresholds for temperature sensors can also be set. This function is available only in view mode and the logged-in user requires the necessary authorisations.

To set or change a value, proceed as follows:

- Right-click to select the component/sensor in the project tree and select **Variables** in the context menu. The variable view of the component now opens in the View window.

- Now click the **Set** button after the variable value in the View window that you want to change.
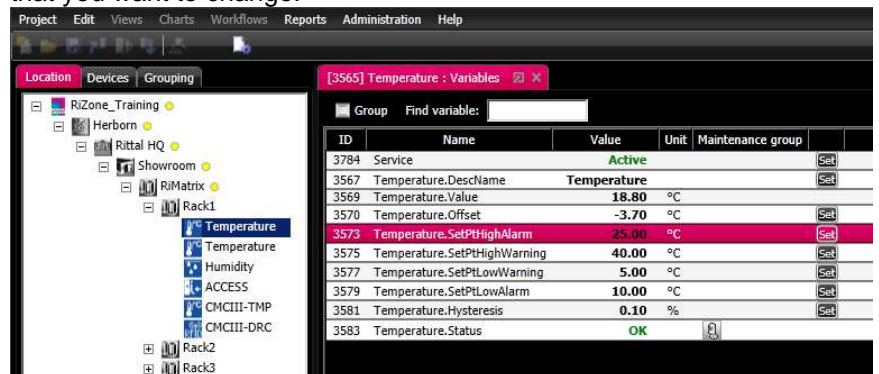
- You can change the value either by the direct input of the value or using the slider in the **Set value** window that now opens. The slider specifies the permitted value range.
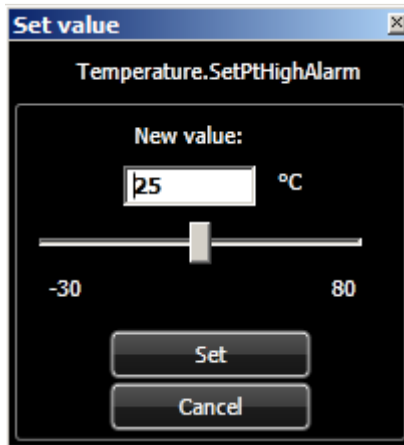
If only specific values are permitted, a drop-down menu lists all possible inputs.

- After changing the value, click the **Set** button to transfer the value to the component.
- Once the value has been written successfully, it will be displayed immediately in the View window.

10568	Temperature.Value	24.30	°C
10567	Temperature.DescName	**Temperature**	
10570	Temperature.SetPtHighWarning	35.00	°C
10569	Temperature.SetPtHighAlarm	40.00	°C

Note!

To set one or more values, the IP of the RiZone server must be entered as trap receiver in the component (e.g. CMC Processing Unit II). If this is not the case, the component does not accept any values from the RiZone server.

Note!

If the value cannot be set, an error message will indicate this situation. In this case, the value must be reset and Set clicked to reinitiate the action.

19.2 Setting several values simultaneously

In addition to the setting of individual values, the RiZone user interface can also be used to change several values simultaneously.

- Right-click to select the component/sensor in the project tree and select **Variables** in the context menu. The variable view of the component now opens in the View window.
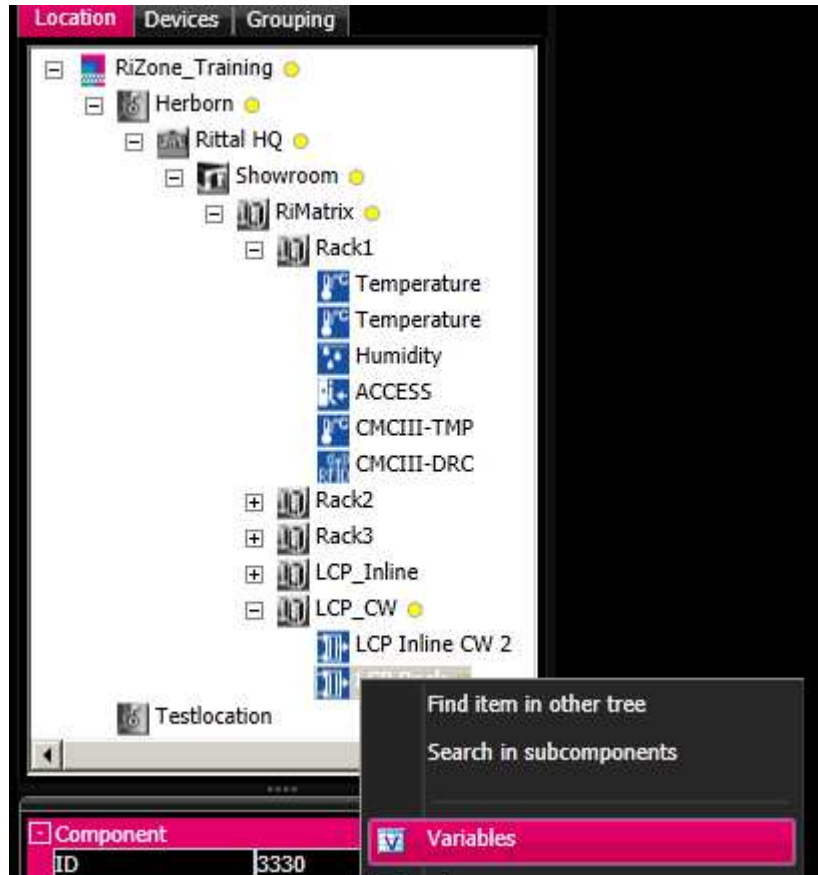
- Now select in the View window all values that are to be changed simultaneously. To do this, click successively all variables to be changed while keeping the **Ctrl** key pressed. It is also possible to mark an area by pressing the **Shift** key.

- Now click the **Set** button for one of the selected variables.
- The **Set value** dialogue for several values opens.

- To set values simultaneously, the selection box in front of each selected variable must be set.
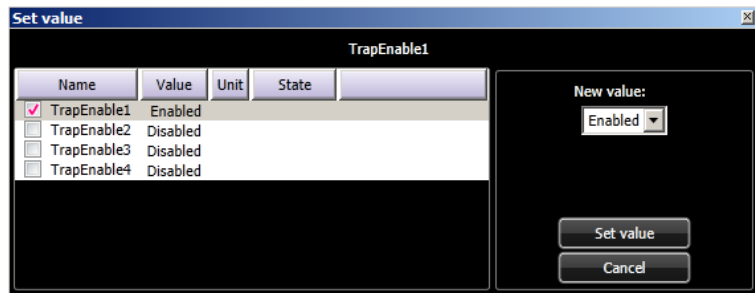
- Now enter the value to be used for all selected variables as **New value** and click **Set value** to confirm.

> ⚠ **Caution!**
> **Only the same variable types can be set with a multiple selection.**
>
> **Select the same variable types, such as VoltageCxPx_SetLow**

- Once the values have been written successfully, they will be displayed immediately in the View window.
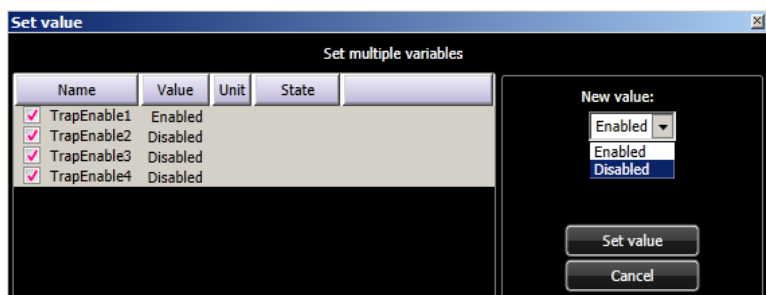
> ⚠ **Note!**
> **If the trap receiver is not configured on the RiZone Server for the PU, the changes will be transferred to the RiZone Server after five minutes at the latest. If the change should be made faster, the PU must be rediscovered and replaced in the project tree.**

20 Configuration of the SNMP devices

The SNMP devices are configured during the configuration and in the running project. During the configuration, the variables of the discovered devices are configured.

The SNMP communication will be activated when the project is started. If the project has been started, the individual devices can be configured.

20.1 Configuration of variables

In addition to the SNMP-polled variables, variables can also be created manually. Their value can be calculated using arithmetic operations for polled or other manually-created variables. This makes it possible, for example, to create a variable that calculates the total power consumption of a rack when the individual values are fetched in RiZone with SNMP polling.

For the configuration of a variable, the GUI must be in admin mode and an infrastructure component (e.g. rack) in the project tree selected. A right-click on the variable opens the context menu. The **Variables** option will be selected. The variables window of the selected component opens in the main window (View window) of the RiZone GUI. If required, click **Down arrow** to open the variables list.
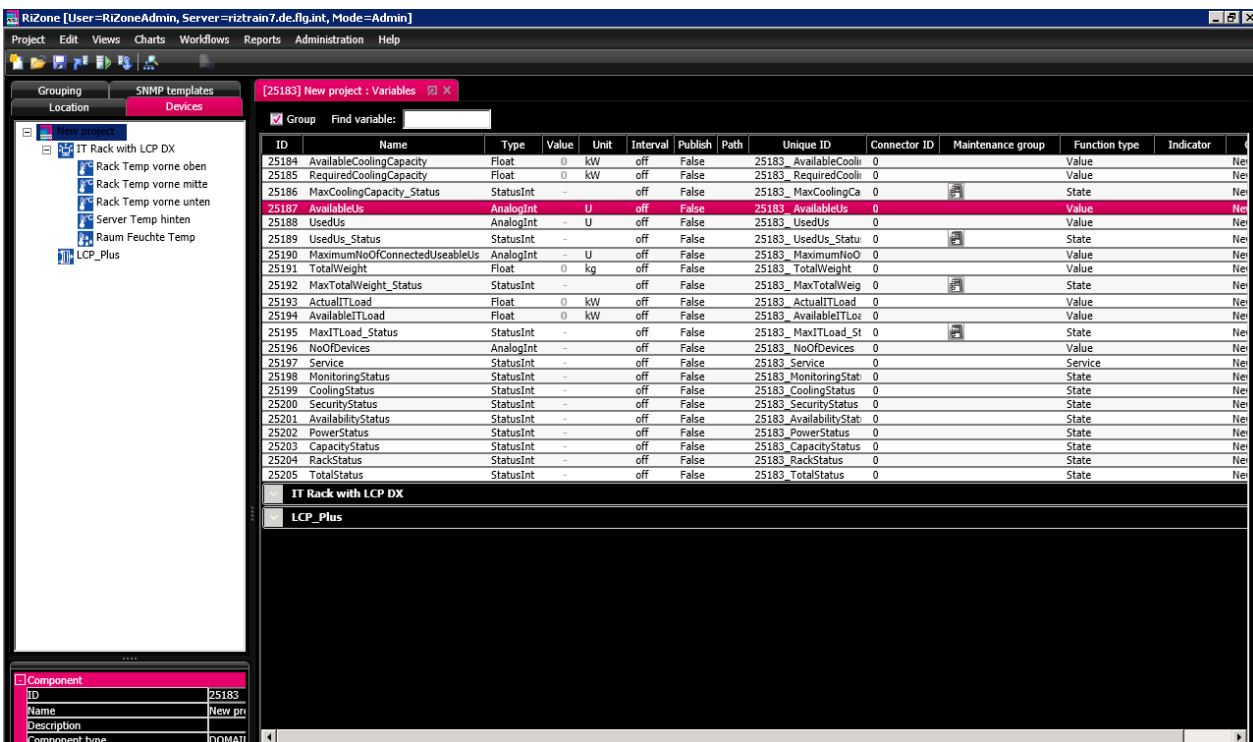
Fig. 57 Configuration of variables

The mouse can now be used to select a variable. A right-click opens the context menu.

The **New variable** menu item creates a new variable at the infrastructure component level.

The **Edit variable** menu item permits the configuration of the automatically discovered variables of a Rittal component.

The **Shift** and **Ctrl** keys can be used to select multiple variables. Only the selected field is refreshed for a multiple selection. All other fields remain unchanged.

The following variables can be configured for the configuration:

- Interval
- Group
- Description
- Publish (the value of the variable is published via SNMP, i.e. a higher-level management system can query this value from RiZone via SNMP)

To ensure correct operation, no other settings may be changed.

Ways of entering a variable

Name	Name of the variable.
Description	Description of the variable.
Type	**Float** and **StatusInt** are possible as variable type. Float is used when a (float) numeric value is stored in the variable, StatusInt for status variables. **Important note:** The variable type can be selected only when the variable is created. A subsequent change is not possible.
Publish	If set, the variable will be passed to the Messaging Service. The variable can now be fetched via SNMP by a different system.
Write access	If the option is activated, the variable can be set via RiZone (Set button). It may be activated only when this variable can be written on the device side via SNMP.
Interval	Specifies the refresh cycle (in seconds). **Off** means that the variable will be refreshed once after the project is uploaded.
Meaning	Meaning of the variable (Undefined, State, Value, Setting, Configuration, Service, Execute).
Phys. measurement quantity	Specifies the measurement quantity of the variable.
Unit	Specifies the unit of the variable.
Min/Max	Specifies the minimum and maximum value that the variable can assume.
Display factor	Display factor of the variable.
Display format	Defines the numeric format with which the value is displayed: "0": Replaces the digit 0 with the specified digit (if present), otherwise the digit 0 is displayed on the result character string. "#": Replaces the "#" symbol with the specified digit (if present), otherwise no digit is displayed on the result character string. ".": Specifies the position of the decimal separator in the result character string. ",": Thousands separator Example 1: Display format: 0.0# Value = 1,234 Output: 1.23 Example 2: Display format: #,##0.00 Value = 1234,1

	Output: 1,234.10
Group	Selection of the group of the variable. The selection of the group affects the group status variables of the component to which the variable in the project is assigned. If the variable is assigned to a group and changes its status, the group status variable of the higher-level infrastructure component also changes its status on the variable (exception: the status of the group status variable has already been raised to a more critical status by a different variable).

Fig. 58 Changing of variables

20.2   Configuration of SNMP devices

The SNMP devices are configured in the running project; the logged-in user must have the appropriate rights. A device is selected in the project tree. A right-click on the selected component opens the associated context menu. The **Variable** menu item can now be selected. The variables list of the component opens in the RiZone GUI main window.

20.2.1   Component name

The component name is configured by selecting **Name** and clicking the **Set** button. Ensure that the name of the component is not longer than the maximum character length. Observe the operating instructions of the component used.
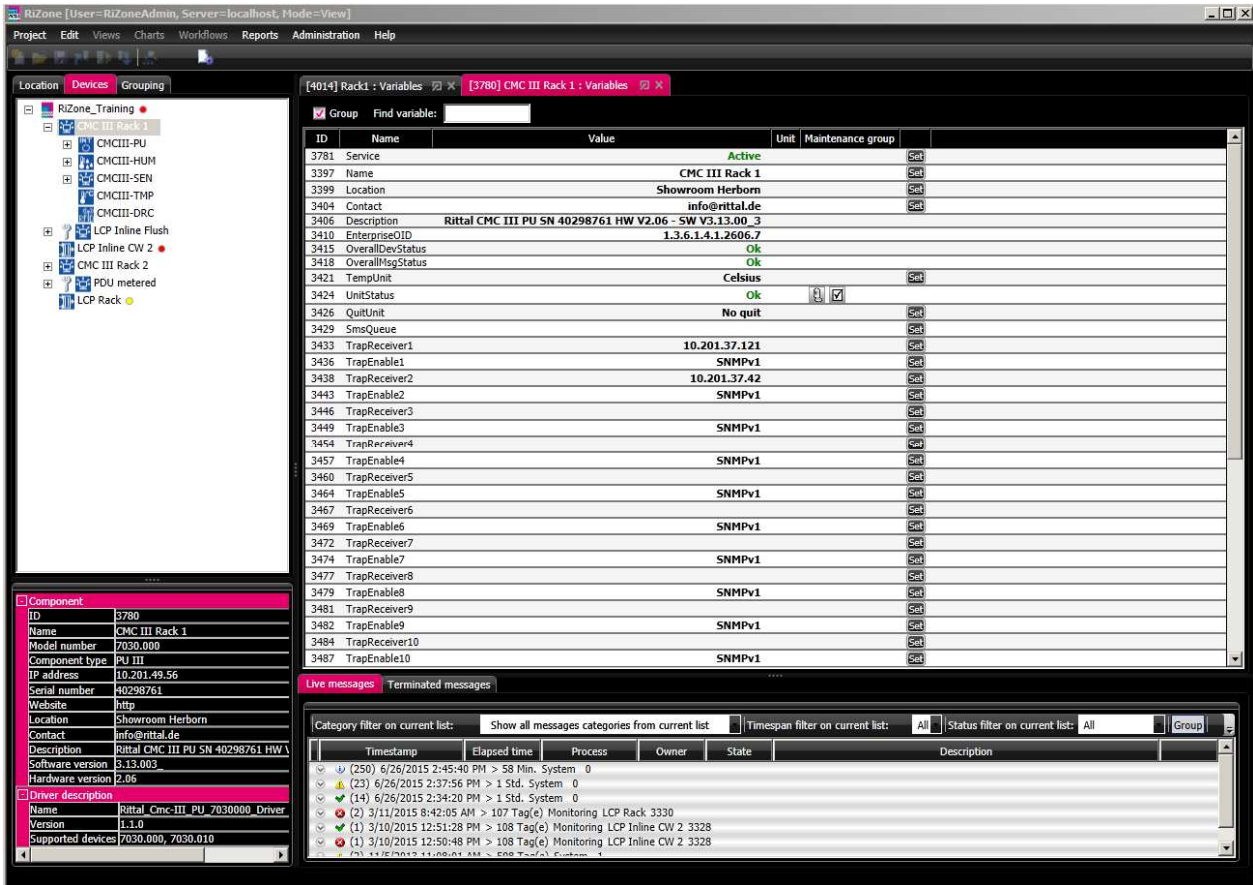
Fig. 59 Name of the component
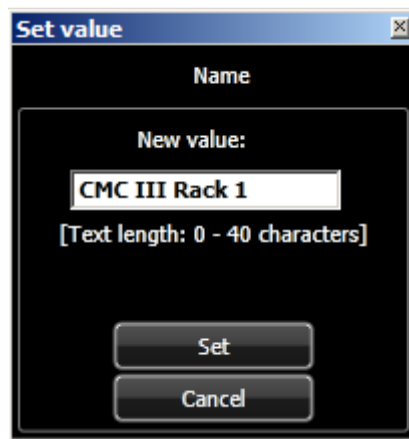
Fig. 60 Component name value input

20.2.2 Location name

The location name is configured by selecting **Location** and clicking the **Set** button. Ensure that the name of the location is not longer than the maximum character length. Observe the operating instructions of the component used.
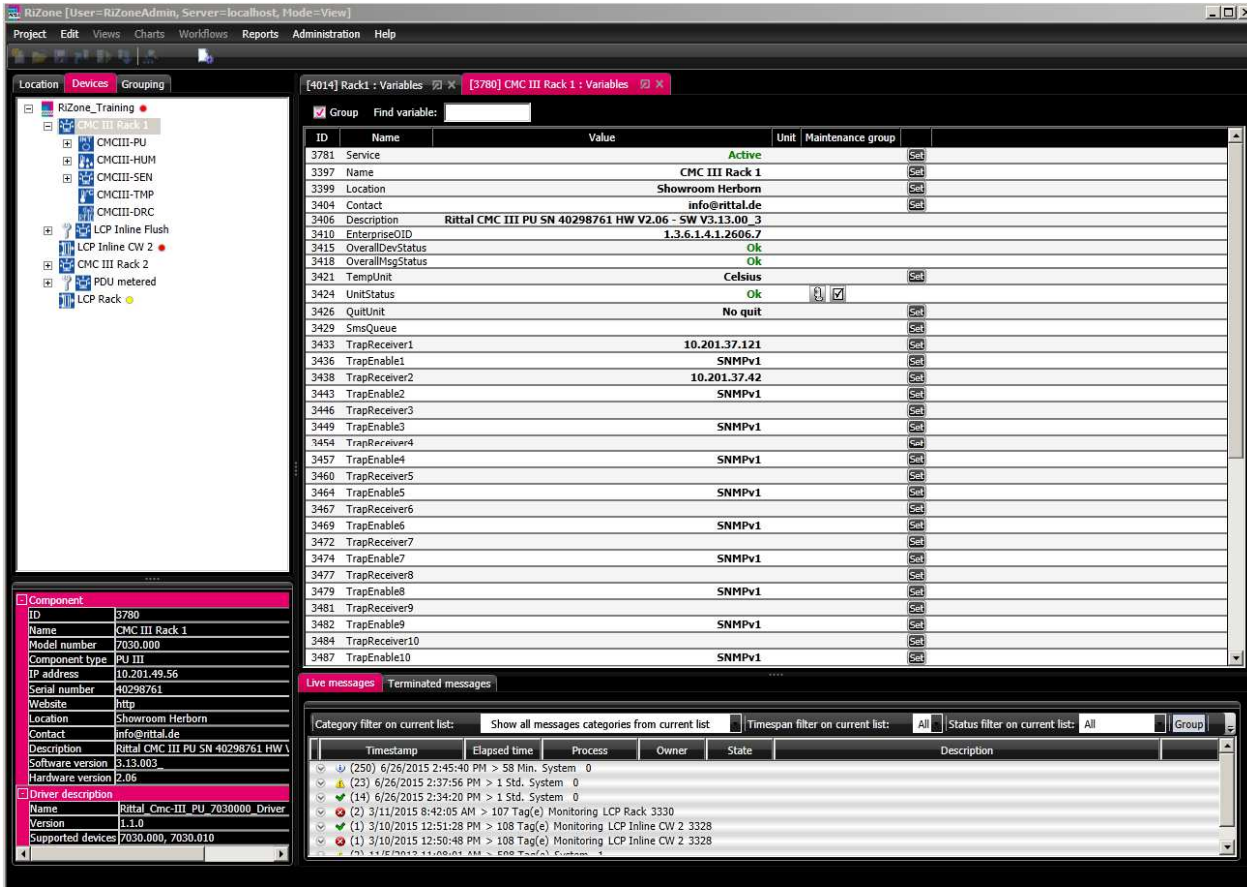
Fig. 61 Location name
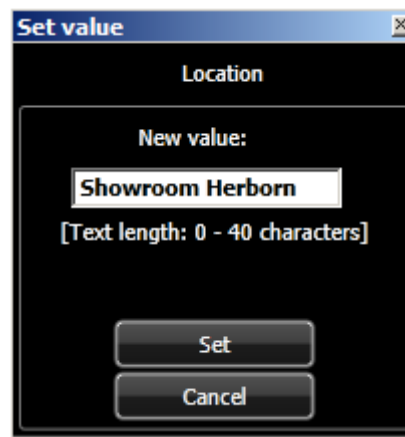
Fig. 62 Location name value input

20.2.3 Contact name

The contact name is configured by selecting **Contact** and clicking the **Set** button. Ensure that the name of the contact is not longer than the maximum character length. Observe the operating instructions of the component used.
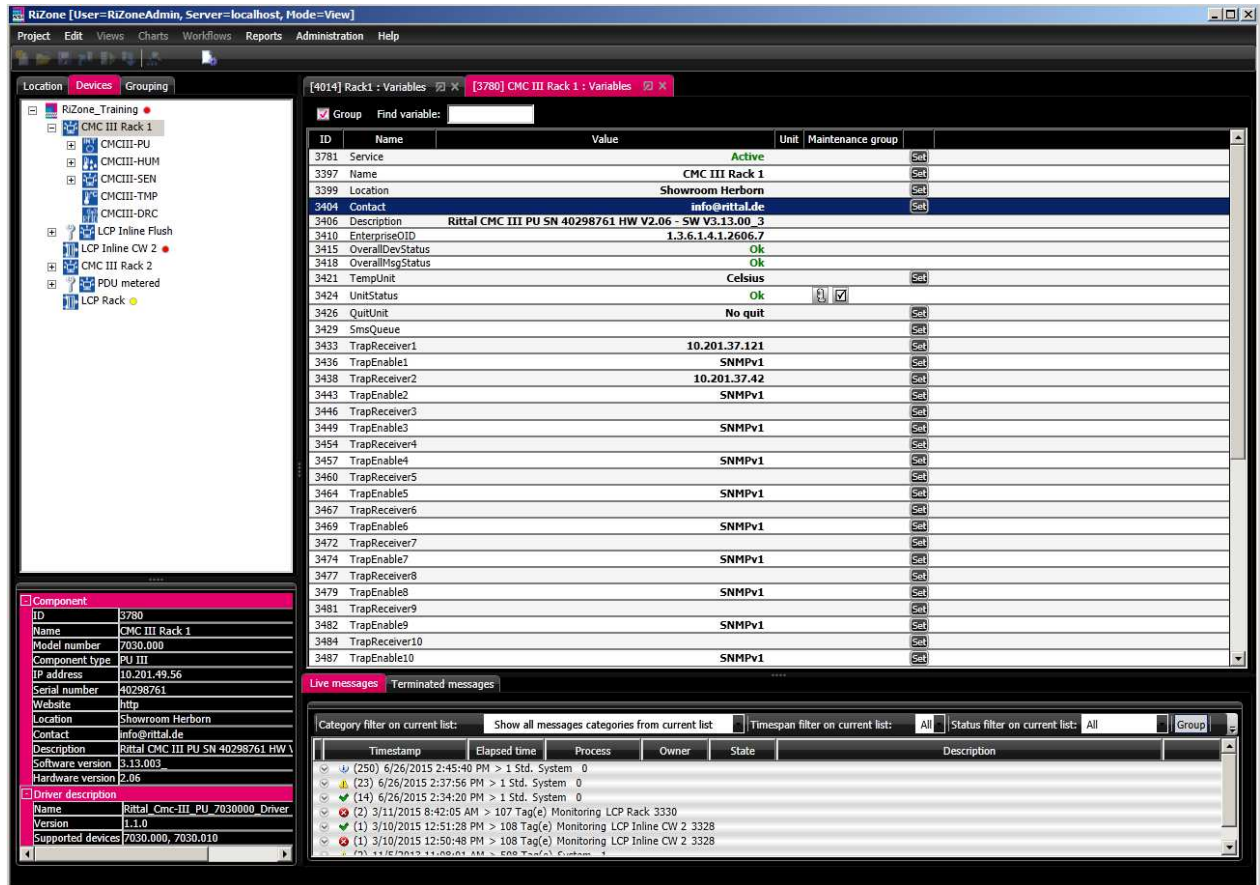
Fig. 63 Contact name
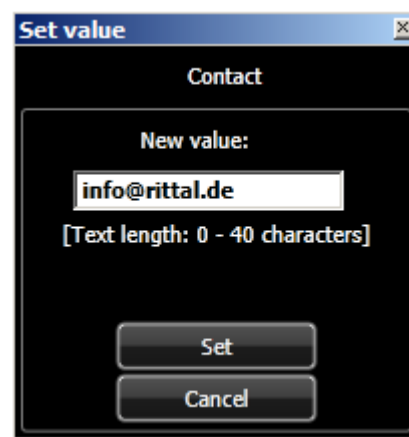
Fig. 64 Contact name value input

20.2.4 Quit

The Quit function permits the automatic acknowledgement of a message and the confirmation of configuration changes for the CMC-TC system. The **Set** button enables and disables the function.

The "**Quit"**, "**No quit"** and "**Restart"** (only CMC-TC) functions can be selected.

Quit: The message will be acknowledged.

No quit: The message will not be acknowledged.

Restart: The Processing Unit will be rebooted (only CMC-TC).

Observe the operating instructions of the component used.
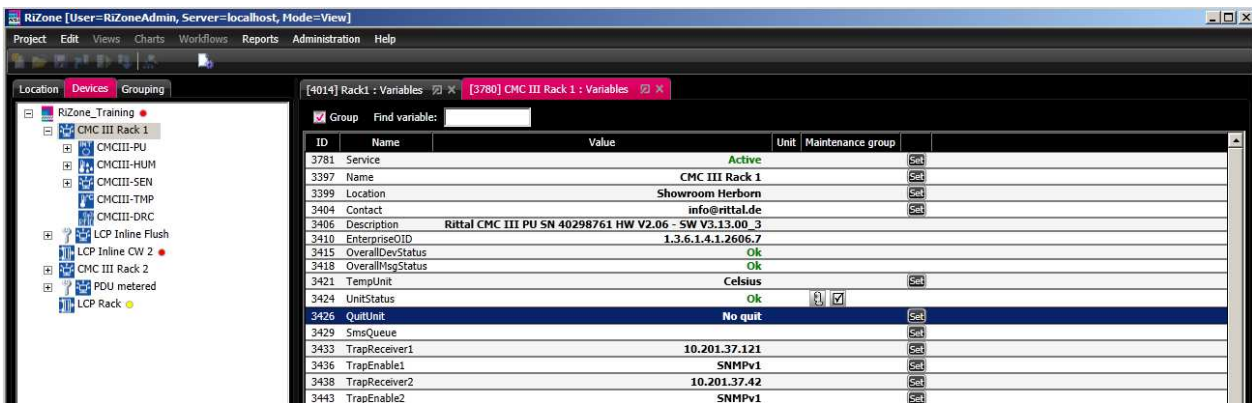
Fig. 65 Activating the Quit function

20.2.5 Trap enable 1-16

The **Trap enable** function activates/deactivates the trap receiver. The **Set** button enables and disables the function. Observe the operating instructions of the component used.
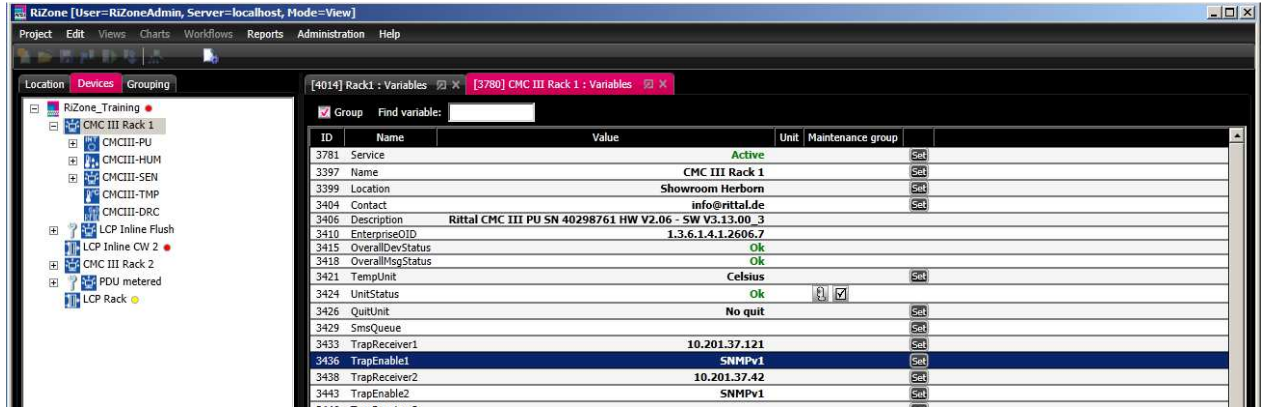
Fig. 66 Trap enable function
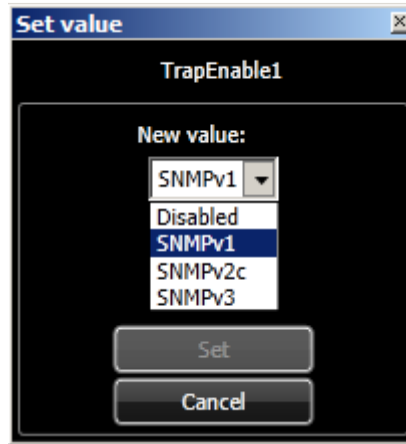
Fig. 67 Trap enable value selection

20.2.6 Trap receiver 1-16

The **Trap receiver** function configures the trap receiver. The **Set** button configures the IP address of the trap receiver. Observe the operating instructions of the component used.
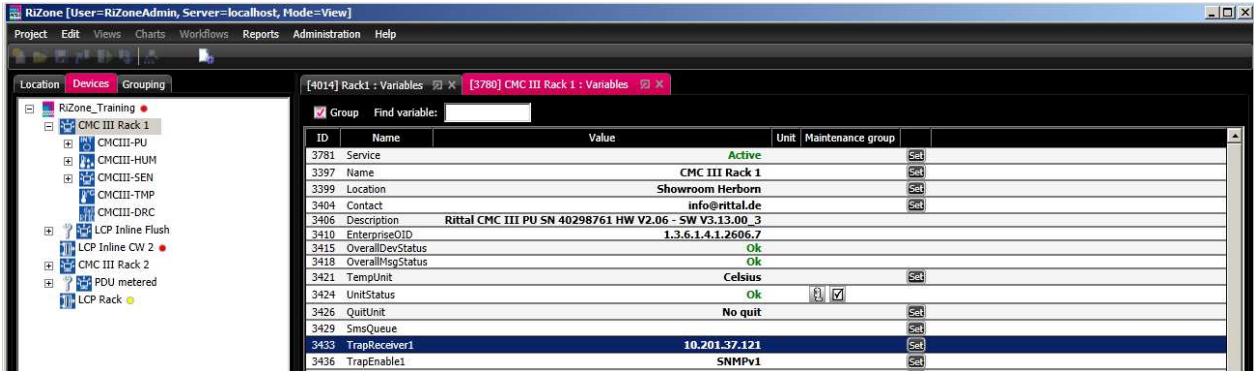
Fig. 68 Configuring the trap receiver
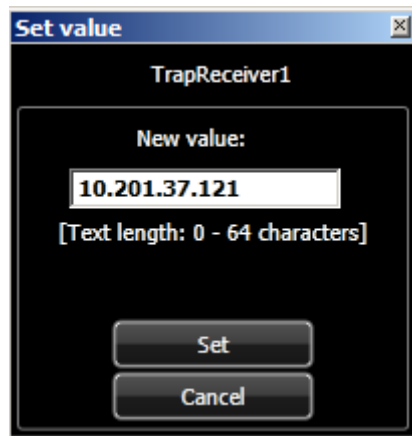
Fig. 69 Entering the IP address of the trap receiver

20.2.7 Configuring a value

The **Set** button is used to set a value. Observe the operating instructions of the component used.
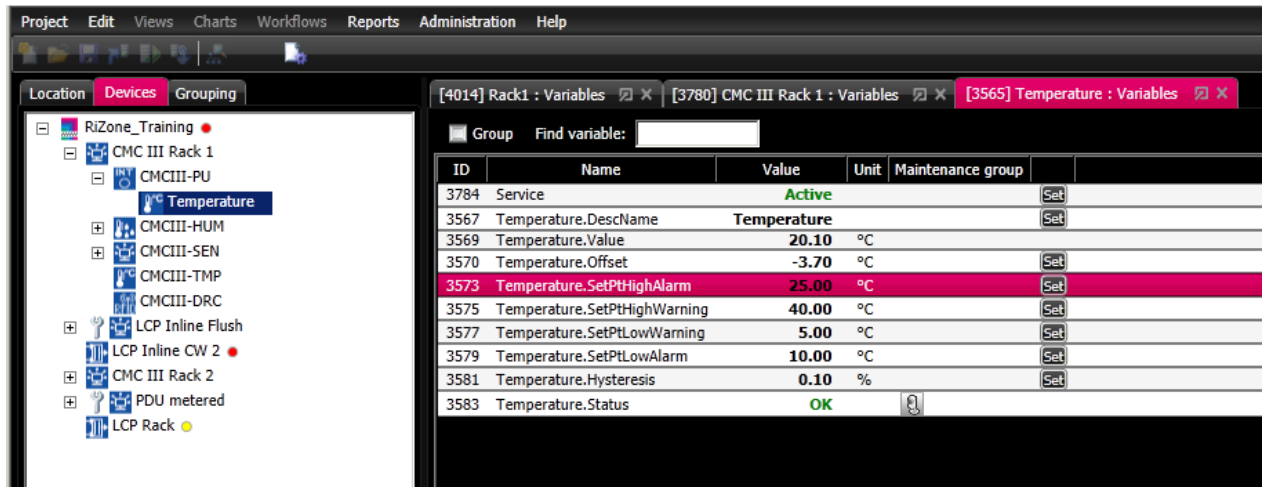
Fig. 70 Setting values (general)

21   Replacing a device

RiZone allows the replacement of a device in the project tree without changing the configured properties. Ensure that the device type and the configuration of the devices are identical.

Procedure:

- Selection of the new device
  Left-click the device to mark it in the **Discovery** window.
- Moving the device into the project tree
  Drag the device with pressed **Alt** key to the device to be replaced. Before the component is replaced, a prompt is issued whether the names and setting values of the old components should be transferred to the new component. If the new component serves as replacement for the old component, click **Yes** to confirm the dialogue.

22   Configuring the communications modules

To increase the capability of RiZone for projects with a larger number of IP nodes (>150 IP nodes), a second communications module can be started on the server. The configuration options can be accessed from the **Administration > Configure communications module** menu item.
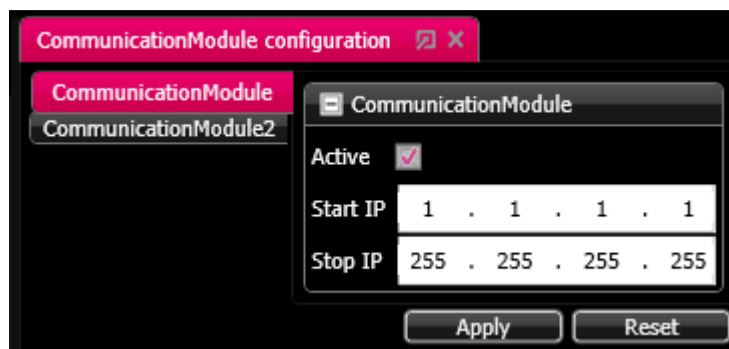
Fig. 71 Configuring the communications module

1 Tab for Communications module 1 configuration

2 Tab for Communications module 2 configuration

Active	The corresponding module is active when the checkbox is activated. **Note:** The first communications module is the master module and cannot be deactivated.
Start IP	The start of the IP range that the communications module queries using the SNMP protocol.
Stop IP	The end of the IP range that the communications module queries using the SNMP protocol.

The communications module 1 is automatically active after the installation of RiZone.

To activate the second module, the "active" checkbox must be activated for communications module 2 and the IP range to be queried entered (Start/Stop IP).
If the second module is activated, a second communications module service will be started automatically on the server.

⚠ **Note!**
To ensure that all IP addresses are monitored, enter the monitored address ranges.

23 Configuring the database connection

RiZone saves all fetched and calculated data automatically in an SQL database. The supplied system contains an MS SQL Express database that fully suffices for smaller projects and permits the saving of data for several months (depending on the number and type of the IP nodes).

For mid-sized and larger projects with more than 50 IP nodes or for projects in which mainly SNMP devices are deployed that supply many values (e.g. PSM busbars with measurement, LCP, etc.), it is desirable to connect RiZone to an external database with larger storage capacity.
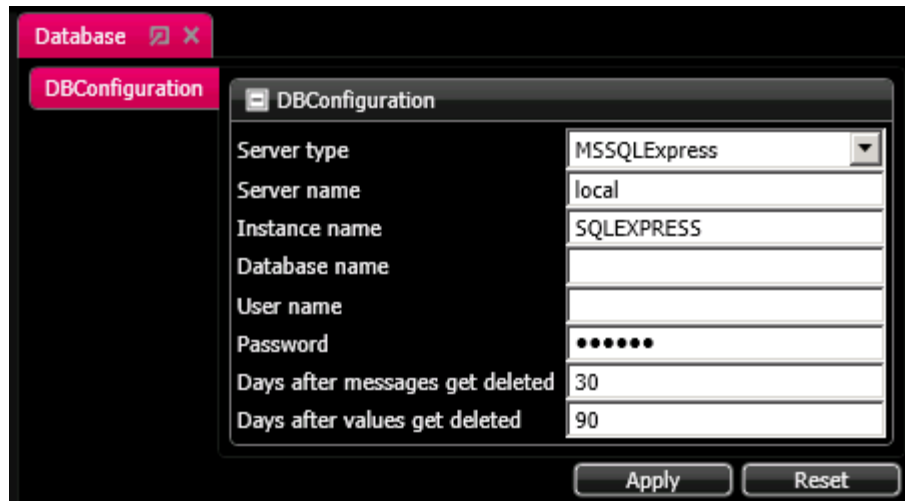
Fig. 72 Configuring the database connection

The following parameters can be set in the configurations tab (Fig. 72 Configuring the database connection):

Server type	The server type. **MSSQL Express** (default setting, database is supplied) **MSSQL** **Oracle**
Server name	The name or IP address of the database server (default: local).
Instance name	The name of the database instance (default: SQLEXPRESS).
Database name	The name of the database.
User name	The user name for the database access. If a specific user should access the database, the user name must be entered here.
Password	Enter the password that belongs to the user name.
The days after which messages are discarded	The number of days after which messages (message list) are deleted from the database.
The days after which values are discarded	The number of days after which values are deleted from the database.

If RiZone should access an external MSSQL database (MSSQL option), the access rights can be represented with two variants.

Variant 1: Creation and operation of the database with DB owner

RiZone requires for creation of the databases the membership of the database user in the public and dbcreator SQL Server roles. For normal operation, after the successful creation of the databases, the dbcreator role can be revoked again.

Variant 2: Creation and operation of the database with separate users
The user for creating the databases must have the authorisation as for Variant 1. After the successful creation of the databases, the connection configuration can be changed to a separate user for operation. This user requires the following authorisations on all RiZone databases: EXECUTE and ALTER, as well as the membership in the database roles db_datareader and db_datawriter.

⚠ **Note!**
When Oracle is deployed, the required database entered in the configurations tab must have been created on the Oracle database server prior to the start of RiZone. Otherwise RiZone cannot establish any connection to the database.

---

24   Updating the RiZone driver

The **Administration > Update device driver** function updates the RiZone device driver.
If necessary, updated drivers will be made available as DLL file on our www.rimatrix5.com website or from our support.
To install the driver, proceed as follows:
1. Click **Administration > Update device driver** in the opened RiZone client. A file selection window now opens.
2. In the file selection window, change to the folder in which you stored the DLL file. Select the DLL file and click **Open**.
3. A window opens with the transfer status. Once the transfer has completed, click **OK** to confirm the action.
This completes the update and the driver will be updated.

After a driver has been updated, those devices previously discovered with the old driver must be rediscovered and moved to the project.
If the transfer status from item 3 reports an error: Note that only DLLs provided by Rittal are suitable for update. RiZone does not accept other DLL files.

25   Reconnecting the client with the server

If the RiZone client loses the connection to the server, the **Administration > reconnect** menu item re-establishes the connection. The RiZone client is then in the same mode (admin/view) as for the connection termination.

26   Downloading the log files

The RiZone logs all user and system actions in the appropriate log files. In addition, all actions of the RiZone services (Core, Communication, Workflow, Calculation, Messages, Monitoring) are logged.

To download the log files to the local computer, select the **Administration > Download log files** function in the view mode of the client.

Fig. 73 Downloading the log files

Select the date of the required log files and click **OK** to confirm. In the subsequent **Save as** dialogue specify the storage location and the file name of the Zip file. Click **OK** to save the ZIP file in the selected folder.

UserAction

This log file records all actions that the users made (login, mode change, set commands, etc.).

System

This log file records all actions that the RiZone or RiZone modules have performed.

Maintenance

This log file records when a device or sensor switches to maintenance mode.

RiZone services logs

Separate log files for the Core, Communication, Workflow, Calculation, Messages and Monitoring services.

The GUI log file is not present here. The GUI log file is always stored on the folder on which the GUI is executed and is located under \RiZone\logs in the document directory of the active user.

27 Messaging service

With the messaging service, RiZone offers the capability to transfer not only the status of components but also individual, published variables to a higher-level network management system with the SNMP and OPC-UA protocols. RiZone variables can also be set by external SNMP management systems via SNMP.

The status of a component is forwarded automatically to the messaging service and does not need to be configured separately.

27.1 Configuring a variable for the messaging service

During the creation or editing of a project, the **Publish** checkbox can be activated for the editing of a variable. If this checkbox is activated, the variable will be passed to the messaging service. If variables should be set by external systems via SNMP, the rights that belong to the variable must be adapted appropriately. For details, consult Section 16.4.

To activate the changes, the changed project must be uploaded to the RiZone server.

27.2 SNMP configuration

The **SNMP agent** tab is selected in the **Administration > Messaging service** menu. The **Activate SNMP agent** checkbox activates the service for connection to a network management system.

The **Reinitialise SNMP agent** checkbox re-establishes the dynamic MIB for RiZone. This function deletes the OID in the MIB when a variable is no longer published.

If the MIB is re-established, this can lead to integration incompatibilities of RiZone in the network management system.

27.2.1 Network

The **Network** menu assigns the rights for the SNMP access. The **SNMP version** specifies whether RiZone can be queried via SNMPv1 or SNMPv3 provided the SNMP agent has been activated (Section 27.2).

The configuration for the **Read community** and **Write community** controls this authorisation for SNMPv1.

For SNMPv3, the user name and the password must be specified.

These settings must be identical with those in the management system.

The access from arbitrary management systems via SNMPv1 can be permitted when the Read and Write community fields are empty.

27.2.2 MIB-II

Settings are made in the MIB-II menu to identify the RiZone server using SNMP.

SysName: SNMP name of the RiZone server

SysLocation: Location of the RiZone server

SysContact: System officer

27.2.3 Trap

RiZone supports a maximum of two trap recipients. These can be configured as **Trap recipient 1** and **Trap recipient 2**.

27.3 Specification of the MIB
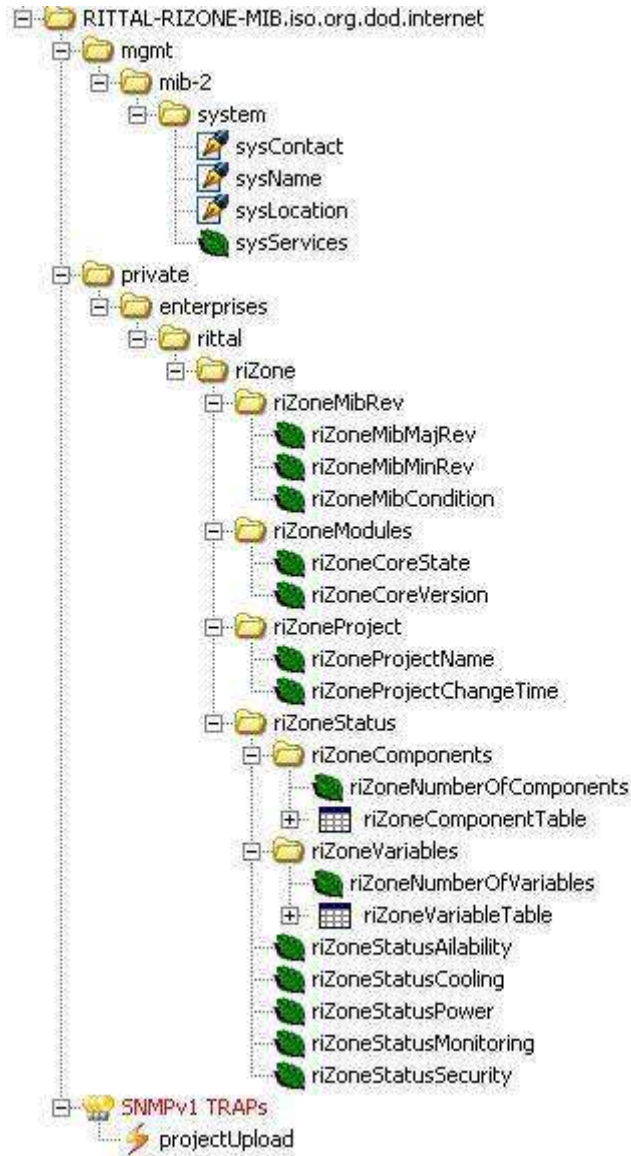
Fig. 74 Example representation of an MIB

mgmt.mib-2.system – data for identifying the computer. In accordance with the MIB specification, some data can be written. For deviations between the SNMP agent and the setting dialogue, the dialogue data is used (to view the changes in the setting dialogue, the dialogue must be closed and re-opened).
private.enterprises.rittal.riZone.rizoneMibRev – version details of the used MIB, currently 1.2.

private.enterprises.rittal.riZone.rizoneMibRev.riZoneMibCondition –
status of the complete system
other (1),
ok (2),
degraded (3),
failed (4),
configChanged (5)

private.enterprises.rittal.riZone.rizoneMibRev.riZoneModule – status
and version of the installed RiZone server

private.enterprises.rittal.riZone.rizoneMibRev.riZoneProject – project
name and timestamp of the last change

private.enterprises.rittal.riZone.rizoneMibRev.riZoneStatus – status of
the components and variables contained in RiZone. The overall status of the
project can also be queried specifically. This corresponds to the status of the
uppermost project node.

Component table
All RiZone components are always available in the component list.

componentIndex	componentId	componentName	componentTyp	componentParent	componentStatusTotal	componentStatusAvailability	componentStatusCooling	componentStatusPower	componentStatusMonitoring	componentStatusSecurity
1	1	Neues Projekt	domain	0	alarm	ok	ok	ok	alarm	alarm
2	3903	Schrank 089	rack	1	alarm	ok	ok	ok	alarm	alarm
3	2902	Testunit	device	3903	ok	ok	ok	ok	ok	ok
4	3897	CMC-TC-IOW	device	3903	alarm	ok	ok	ok	alarm	ok

Fig. 75 Components table

Component Index –table index
Component Id – RiZone ID of the component
Component Name – RiZone component name
Component Type –
removed (1),
domain (2), – line is no longer used
location (3),
building (4),
room (5),
rackrow (6),
rack (7),
device (8), – component represented by a driver (CMC, LCP, UPS ...)
Rack Item (9)

Component Parent – ID of the higher-level component in the RiZone
locations tree
Component Status Total – overall status of Availability, Cooling, Power,
Monitoring, Rack, Capacity and Security

Variables table
The variables list contains all variables that have activated the **Publish**
option in the properties.

variableIndex	variableId	variableName	variableMaintanaceGroup	variableMeasurand	variableParentId	variableType	variableQuality	variableValueInt	variableValueString	variableValueUnit	variableDivisor	variableMultiplicator
1	3628	Value	0	temperature	3632	number	good	29	29	C	1	1
2	2602	Status	192	undefined	2621	enum	good	4	Ok		1	1
3	4006	HumidityValue	0	humidity	1347	number	good	3330	333.0	% r.H.	10	1

Fig. 76 Variables table

⚠️ **Note!**
The table will be updated when the "Reinitialise SNMP agent" function has been executed. If the function is not called, values may remain in the table that are no longer present in the RiZone project or should no longer be published.

Variable Index – table index
Variable ID – RiZone ID of the variable
Variable Name – name from the RiZone variable list
Variable Maintenance Group – specifies to which group the status belongs. This is a bit-coded field.
undefined(1),
cooling(2),
power(4),
rack(8),
monitoring(16),
remoting(32),
availability(64),
security(128),
capacity (256)
Variable Unit – specifies the physical measurement unit. This does not determine the factor (mW, W, KW).
undefined(1),
temperature(2),
current(3),
power(4),
effectivePower(5),
humidity(6),
voltage(7),
energy(8),
frequency(9),
access(10),
leakage(11),
percent(12),
rpm(13),
co2(14),
pue(15),
flow(16),
time(17),
costs(18),
imp(19)
heatCapacity(20)
constant(21)
temperatureDiff(22)
timespan(23)
pulseRate(34)
cycles(24),
pressure(35),
acceleration(36),
timeSpanTicks(37)
Variable Parent ID – RiZone ID of the component to which the variable is assigned.
Variable Type – specifies the data type.

number(1),
string(2),
enum(3)
Variable Quality – validity of the measured value.
undefine(1), – value is not yet initialised. This can occur at the restart of the RiZone server.
good(2), – value is OK.
bad(3), – the value could not be determined (e.g. timeout). These values do not represent the current status and cannot be used for calculations.

Variable Value Int – integer value of the variable (type number or enum)
Variable Value String – written out value. For (type = number) the value taking account of the factors and a point as decimal separator. For (type = enum) the significance of the value, e.g. Int=4 > String="OK".
Variable Value Unit – measurement unit of the (Int value * multiplicand/divisor) e.g. (W, kW, mA, °C)
Variable Divisor – divisor of the value (e.g. value = 333 ; divisor = 10 ; unit = °C gives 33.3 °C)
Variable Multiplicand – multiplicand of the value.

Trap
The RiZone MIB integrates a "projectUpload" trap. This is sent for each upload from a project to the entered trap receiver. The content of the trap are variables from the tree listed above – sysContact, sysName, sysLocation, riZoneProjectName, riZoneProjectChangeTime.

FAQs
There is no setting dialogue for the SNMP agent.
Check your license whether the SNMP agent is activated.

No message arrives in RiZone whether the SNMP agent has been started.
Activate "Activate SNMP agent". You must now receive a message in the RiZone message list. If not, check whether the Messaging Service is running. (As of version 1.3, the Messaging Service is a Windows service.)

27.4 OPC-UA configuration

To activate the OPC-UA interface, select the **OPC UA-Agent** tab in the **Administration > Messaging service** menu. Activate the **Activate OPC-UA-Agent** checkbox to activate the service.

Activate the **Enable OPC-Protocol** checkbox to establish the connection using an OPC UA-Server.

Enter the configuration of the OPC-UA port **OPC-Port** in the field.

To login the OPC-UA server to the RiZone OPC-UA client, the user of the server must be a member of the **RiZone3rdParty** local group. This user must be created via the user administration of the operating system. Further rights are assigned on the RiZone side.

Caution!
A read access to all published variables is possible without any further rights assignment.

28   Update and deinstallation of the RiZone GUI

28.1   Update of the RiZone GUI

The RiZone GUI is updated by the deinstallation and the installation of the new GUI.

Detailed information is provided in the Installation and Deinstallation sections of the GUI.

As of RiZone 2.0, an installed Microsoft .Net Framework 4.0 is required for the operation.

The .Net 4.0 download is available at:
http://www.microsoft.com/download/en/details.aspx?id=17851

28.2   Deinstallation of the RiZone GUI

The RiZone GUI is deinstalled locally from the client PC control panel.

Example Windows 7: The control panel is opened and the **P** menu item selected. Then select the **Rittal RiZone GUI** program.
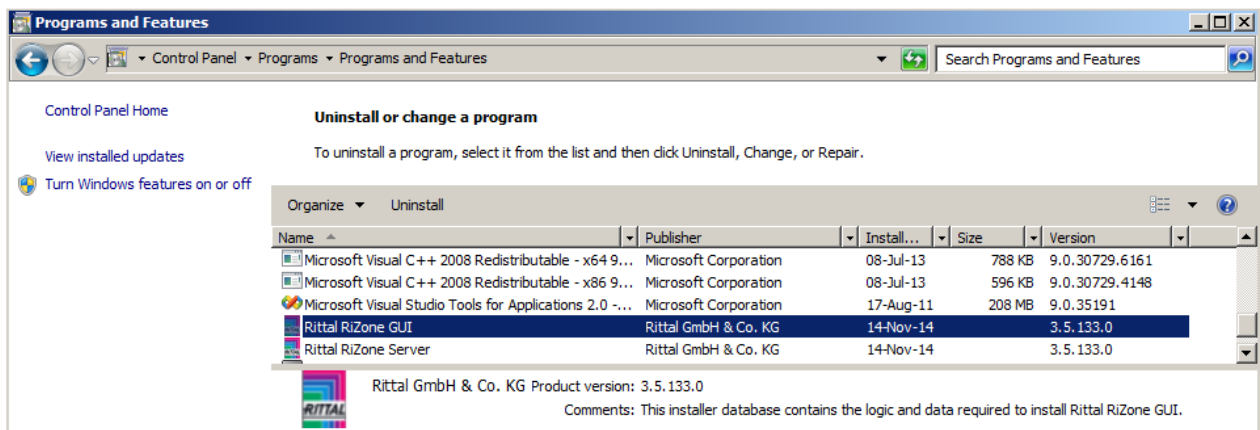
Fig. 77 Deinstallation of the RiZone GUI

Click the **Deinstall** button to prepare the deinstallation of RiZone.

A deinstallation under Vista or Windows 8 is performed similarly.

Alternatively, the deinstallation or repair of the RiZone GUI can be performed via the GUI Setup file (*RiZone GUI Setup V3xxx.exe*). To do this, start the GUI Setup with a double-click on the file in the Windows Explorer. You can then select between **Repair** and **Remove**. Follow the instructions on the screen.

29 Technical specifications

29.1 Virtual machine (Software Appliance) technical specifications

System requirements*	
CPU	2 GHz dual core processor
RAM	4 GB
Hard disk capacity	120 GB
Network	1 Gbit SNMP 1 Gbit Fileshare/Management
File format	OVA
Client operating system	Windows Server 2008 R2 64-bit Windows Server 2012 R2 64-bit
Ports used	161 (SNMP get/set), 162 (SNMP trap handler), 800 (certificate provider), 3389 (RDP), 4433 (https for roles and rights), 22222 & 22223 (RiZone Core service port)

* The listed system prerequisites apply to the virtual machine. The virtualisation environment (hypervisor) must then run on more powerful hardware with more CPU power / RAM.

29.2 Hardware Appliance technical specifications

CPU	Xeon Quad Core processor with 3.2 GHz
RAM	4 GB
Hard disk capacity	2 x 500 GB (RAID 1)
Network	2 x 1 Gbit Ethernet
Operating system	Windows Server 2008 R2 64-bit Windows Server 2012 R2 64-bit
Ports used	161 (SNMP get/set), 162 (SNMP trap handler), 800 (certificate provider), 3389 (RDP), 4433 (https for roles and rights), 22222 & 22223 (RiZone Core service port)

⚠ **Note!**
The installation of virus scanners on both appliances is permitted provided the database folder is excluded from the scan.
The installation of a backup client is also permitted.

29.3 Network ports for the process communication
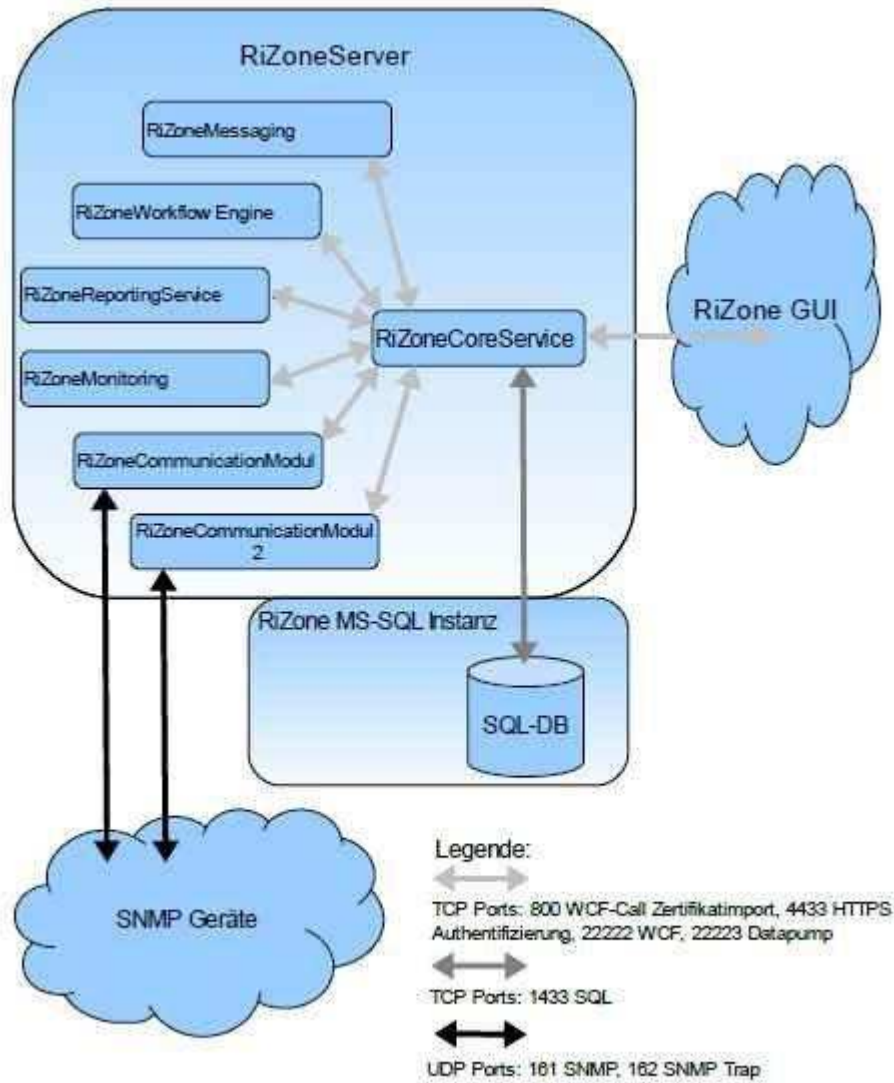
Fig. 78 Used network ports

Appendix RiZone Version 3.6

30   GUI

30.1   Project statistics

The RiZone GUI can display project statistics. This is done from the **Edit** menu item. The report is prepared for the complete RiZone project. The following values are displayed:

Variables: *Total number of variables in the project*
Variables (published): *Published (SNMP) variables*
Variables polled just once:
Variables with 10 seconds polling interval:
Variables with 30 seconds polling interval:
Variables with 300 seconds polling interval:
Variables with 1800 seconds polling interval:
IPs: *Number of IP nodes in the project*
Structure components: *List of all structure component types and their amount*
Rittal devices: *List of all deployed Rittal device types and their number*
Third-party devices: *List of all deployed third-party device types and their amount*
Unknown components: *Components for which no driver is available*

31   Including SNMP third-party devices

RiZone 3.6 provides several new functions for creating SNMP drivers for devices from third-party manufacturers (see Section 7.3).

31.1   Creating a template for the view

In administration mode, the **Symbol** menu item is selected with a right-click on the driver in the SNMP template tree. This allows a standard view to be created for this device type. The editor has the same functionality as for creating views (Chapter 8).
As in the normal views editor **right-click > Load background** places a background image over the complete defined drawing area of the symbol. The size of the drawing area must be defined beforehand by specifying the height [mm], width [mm] and scale. The side ratio assumes particular importance because otherwise the background image becomes distorted. The scaling size cannot be altered retrospectively. If the size/scaling is incorrect, the symbol or the complete view must first be deleted and then recreated.
Any variables of the device can be represented with the V function in the view. Variables can also be placed next to the background by placing them outside the drawing area.
If one or more polygon areas are placed on the background with the polygon function, they indicate the device status later during running operation (green, yellow, red).

31.2   Automatic import of status values

During the creation of a driver in RiZone, the status variables of a device are detected automatically provided the translation is made in accordance with the schema "Integer { on (0) , off(1) }".
The status variable must be configured as follows for an automatic translation:

Data type: StatusInt
Display type: String
Function type: Setting

31.3 Assigning status designations

The variable details provide the **Translate status** option. Whereby, each value of the status variable can be assigned a status (e.g. OK, Warning, Alarm). This improves clarity during the subsequent operation because the status is displayed in plain text rather than just as a numeric value.
The translation is defined as a table with the Name and Value columns. The translation is activated or deactivated with the associated checkbox.
The **Name** column contains the user-defined translation, e.g. **on** or **off**.
The **Value** column contains the values for which the user-defined translation should be displayed.
The names and values must be unique!
A name may contain only alphabetic characters (A-Z, a-z) and digits (0-9), and must begin with an alphabetic character!
A value may contain only integers and the semicolon delimiter!

31.4 Validating the SNMP Set command

When creating the third-party driver, the **SNMP Get** command that RiZone executes automatically after an **SNMP Set** command can be deactivated. To do this, double-click the associated variable to invoke the variable details. The Set command is disabled by deactivating the **SNMP-Set Test** checkbox.

Components are available on the market that respond only to the edge of the **SNMP Set** command and reset the variable to default automatically. RiZone then signals that the **SNMP Set** command execution failed, even though the **SNMP Set** command was executed successfully. The deactivation suppresses this false message.

32 LDAP / Active Directory connection

In addition to common RiZone users and access users, RiZone can also work with domain users from LDAP / Active Directory. To use the domain users in RiZone, the RiZone server services must be executed under a domain user. This may need to be considered during the installation of the server.

32.1 Adding users from LDAP / Active Directory (AD)

To add an LDAP/AD user, proceed as follows:
Administration > User administration > Create/add user > Switch combobox **Add user from domain** > **Add** (opens the Windows dialogue **Select user**) **>** *Enter name* **> OK > Create/add user**

The **Add user from domain** combobox is available only when the RiZone server services are executed under a domain user.

32.2 Administering LDAP / AD users in RiZone

Like common RiZone users, users created via LDAP/AD can be assigned roles that can also be revoked later. If such a user is deleted, no deletion from the domain is performed, but rather all role assignments are revoked. When performing a login of the user on the RiZone client, ensure that the complete User Principle Name (UPN) is specified. Example: max.muster@domaene.de

33 Access administration

As of RiZone version 3.6, the access administration of all Processing Unit III systems contained in the project can be configured centrally. The central administration greatly simplifies the configuration of the access rights compared with the local configuration on each individual Processing Unit. RiZone also supports the 4-eyes principle for access control.

To use the functionality in RiZone, the Processing Units contained in the project must use firmware version 3.15.00_3 or later.

33.1 Importing access users from Processing Units

If users for access administration have already been created on the Processing Units III (PU), they can be imported as access users in RiZone. This requires that the following general conditions are satisfied:

- Access via SFTP must be enabled on all PUs. This is done in the device tree with **a right-click on PU > Properties**. The data in accordance with the configuration on the PU must be entered for **SFTP/SSH User and Password**.
- Import is possible only when none of the users exists already on the PU in RiZone. An existing user prevents the complete import.
- Only the access users and the first PIN / card number are imported. No import of any rights configured on the PU is performed.

To perform the import, first click **Administration > Import access administration**.

All PUs of the project are listed in the **Import access administration** window. The PUs whose access users should be imported are selected by activating the associated checkbox in front of each line. The checkbox at the top left in the window selects all available PUs.

The dropdown menu in the first line permits the selection between **User** and **Information**. The selection specifies whether the user name should be fetched from the User field or from the Information field of the PU. If the user name is stored on some PUs in the User field and on others in the Information field, the import must be performed more than once.

Click **OK** to start the import.

All users on the selected PUs are then created as access users in RiZone (observe the general conditions).

33.2 Reader differentiation

The handle that each card reader / keypad is permitted to open is specified via the reader differentiation.

To use the reader differentiation, the **Enable access configuration** checkbox must be activated in the properties of the Processing Unit III (PU) (**device tree, right-click PU > Properties**). The data in accordance with the configuration on the PU must also be entered for SFTP/SSH User and Password.

To configure the reader differentiation in the device tree, right-click the associated PU and select **Reader differentiation**.

The window for reader differentiation opens. It contains a matrix with the card readers / keypads on the Y-axis and the handles on the X-axis. Activating the associated checkbox gives the card reader / keypad access to the handle. In addition to the card readers / keypads, the LCPs and universal sensors with Wiegand configuration are listed as reader unit.

Important: If all checkboxes are deactivated, all card readers / keypads have access to all handles.

The project must then be uploaded to the server via **Project > Upload to server**. This also creates the individual access.cmc3 files for the PUs that are distributed via SFTP to the PUs (see also the configuration of the roles and rights for access administration).

33.3 Configuration of the roles and rights for access administration

To allow users or access users to open handles, the normal roles and rights concept is used in RiZone.

Consequently, a new role is created first (see Chapter 16). To give the new role access to a handle, right-click the desired node in the location tree (Handle or Access controller) and select **Properties > Rights**.

Click the **Select** button in the **access** field to select the role(s). If more than one handle should be assigned the same roles, it is better to use a higher level structure component (e.g. a room or an enclosure suite) via Properties > Rights. If the role is assigned in the **access** field and the **Include lower-level components of the location tree** checkbox is activated, the role assignment applies to all lower-level handles and access controllers of the structure component.

All users or access users who should be authorised must still be assigned the new role (see Section 14.4).

The project must then be uploaded to the server via **Project > Upload to server**. This also creates the individual access.cmc3 files for the PUs that are distributed via SFTP to the PUs.

Note that RiZone supports a maximum of 2000 lines in access.cmc3.

33.4 Using Access Acknowledge (4-eyes principle)

For the 4-eyes principle, the PINs or keycards must be entered by two users in order to open the handle.

To configure this in RiZone, a role to be determined for this purpose must be assigned to the **access acknowledge** right in the properties of the handle.

The authorised users for access acknowledge must also be assigned to this acknowledge role.

The project must then be uploaded via **Project > Upload to server**.

Please note: If the Acknowledge right has been set for a handle, the Acknowledge right must also be set for all handles of the same Processing Unit. If this is not done, these handles can no longer be opened!
The behaviour results from the construction of the Processing Unit.

33.5 Logging accesses

Accesses to the enclosure via keypads or keycard readers are displayed in a new message list. The message list is displayed via the **Access messages** tab in the lower message area of the RiZone GUI.

The message list can be filtered according to time interval, status, variable ID, location and user.

If one or more Processing Units are not accessible via the network for some time, no access messages are displayed for this interval. Consequently, once the network connection has been re-established, the message list is matched with the local access logging on the PU.

Please note: The data in accordance with the configuration must be entered on the PUs for SFTP/SSH User and Password. This must be performed in the component properties. The name of the component (node) in RiZone must also match the **Description** on the CMC III component itself. A "reorganise" (prior to the configuring in RiZone) on the CMC III component can cause values from log files generated prior to the "reorganise" in RiZone to be assigned incorrectly.

The matching is made via the time stamp (3-second inaccuracy). Consequently, we recommend that RiZone Servers and Processing Units use the same NTP server.

34 Database

The database connection is configured in the **Administration > Database** menu in the RiZone GUI. RiZone supports database version up to Oracle 12c as well as Microsoft SQL Server 2005, 2008R2 and 2012.

34.1 Configuring a database backup

The interval of the database backup can be configured for the **SQL Express** server type. The number of days between the backups can be set in the **Interval** menu item. The value "0" deactivates the backup.
After setting the value, the backup is made at 2:00 a.m. on the following day. The backup is then performed in accordance with the configured interval.

34.2 Database diagnostics

Activating the **Activate database diagnostics** checkbox creates performance counters that allow Rittal Service to evaluate the speed of the database.
The results file is stored in the following data path:
<user>\AppData\Roaming\Rittal\RiZone\Data\Diagnostics*.csv.

35 Offline configuring

The offline configuring can be used to configure a RiZone project in advance (see Section 7.18). The offline configuring does not require an IP connection to the CMC III components to be configured.
The project is created identically as for a normal project. Select the **Offline** tab in the discovery window (**Edit > Discovery** menu).
The **Offline** tab shows all CMC III devices and the LCP available for the offline configuring.
No rights assignment is possible for offline configuring.

36 Login mask

36.1 Password expiration

An appropriate message will be issued if users with expired password or deactivated account attempt to login.
Local server users can reset their password if it has expired. Domain users cannot change their password via RiZone.
Note: Users are notified seven days prior to expiration of their password during the login.

37   Message list

37.1   Saving the message list

The message list can be saved on the client computer using the RiZone GUI by opening the **Administration > Download messages** menu. The following selection window opens:
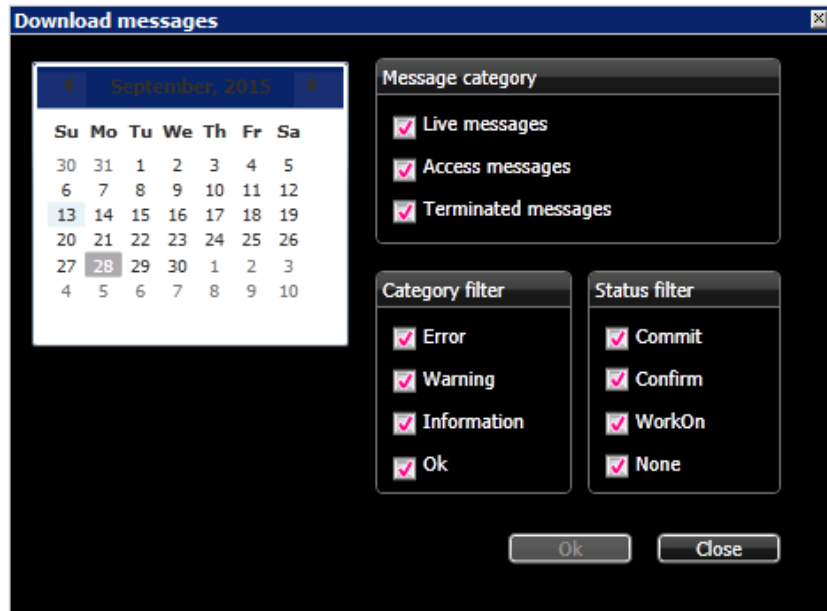
The date of the log files is selected using the calendar function. The category, the message type and the status are selected by activating the appropriate checkboxes.

37.2   Filtering by location

Two new input fields, **ID** and **Location,** are provided in the **Current messages** and **Access messages** message lists. These are fields with autocompletion functionality.
If the name of an existing variable ID or location is entered, only those messages whose owner is assigned below this component in the location tree are displayed.

38   Traps

38.1   Creating traps in the workflow

The Workflow engine can send user-defined traps with the **Send Trap** FlowElement.
The traps must be classified into the following categories:

- NA
- Info
- Warning
- Error
- OK

The maximum length of a message text is 256 characters.
Variables are selected with Variable Binding by moving the component that owns the variables into the selection window with drag & drop. The variables

are selected from the usual dropdown menu. Only those variables set as published can be sent (**Variables list > double-click variable > activate the Publish checkbox**).

The target of the traps, the so-called trap receivers, must be entered at **Administration > Messaging service > Trap receiver 1 & 2**.

38.2   Forwarding traps

Incoming traps can be forwarded automatically to the set trap receivers.

The trap of a component is forwarded to the trap receiver set in the MessagingService only if the **SendTraps** flag is set in the component properties.

The trap is forwarded unchanged and possesses the usual agent address (that of the device).

38.3   Discarding generic traps

The discarded generic traps (**Discard generic traps**) are configured in the **Properties** window of the component.

The following traps can be selected.

- Cold start
- Warm start
- Link down
- Link up
- Authentication failure
- EGB neighbour loss

Multiple components can be selected and the setting made with a multiselect.

38.4   Discarding specific traps

The discarded specific traps (**Discard specific traps**) are configured in the **Properties** window of the component. A maximum of 32 traps can be blocked. The configuration is made via the trap number as specified in the documentation or in the MIB of the terminal.

The number of the specific trap is also shown in the message window when the trap details are opened.

38.5   Discarding unknown traps

To discard traps unknown to the RiZone project (unknown traps) proceed as follows:

Administration > Communications module configuration > activate **Suppress unknown traps** checkbox.

38.6   Traps from third-party devices

Variable Binding supports traps from third-party devices. If a trap is not sent standard-conform from the terminal to RiZone, it will be represented as information in the message list.

39   Polling interval

For complex SNMP devices with very many or redundant variables, it may be desirable not to poll several variables by RiZone.

Consequently, it is now possible to set the polling interval of a variable to **deactivated**. This is possible in the **Change variable** window (**Variables list > double-click variable**). The variable is then represented as empty value with **quality bad**.

If the variable should be polled just once after the project start, the polling interval must be set to **once**. This corresponds to the **off** configuration of earlier RiZone versions.

40   Displaying the SNMP version of the devices

The SNMP version used for the communication is displayed in the properties of a device. The value is updated when the project is uploaded or downloaded.

A search for this property can be made with the search function:
Edit > Search > Components > Property > SNMP version.

41   Address of the SNMP agent

RiZone can be queried via SNMP from other management systems (Chapter 27). The IP address with which the external management system accesses the SNMP agent is set under **Administration > Messaging service > SNMP agent > Agent address**. As possible options, all IP addresses of the RiZone server are displayed or **Any**.

The correct selection depends on the individual configuration of the RiZone server. If only one IP address is assigned to the server, it does not matter whether **Any** or the IP address is selected.

42   Extending the search function

The search function under **Edit > Search** has been extended in the component search area.

It is now possible to search for the rights assignments for **read, settings, configuration, execution, charts, workflow, reports, access** and **acknowledge access**. All users assigned at least one role are displayed automatically as **value**. It does not matter whether a RiZone user or a domain user is involved.

43   Support for video stream from Axis cameras

RiZone supports Axis Web cameras via the HTTP protocol (VAPIX V3). The discovery is made in the additional **HTTP** tab in the discovery window. Note that during a discovery, either SNMP or HTTP devices can be discovered, but not both together.

The IP area and the password of the camera must be entered. The URL, the user name and the port are preconfigured as follows:

URL: */axis-cgi/admin/param.cgi?action=list&group=Properties.API.HTTP.Version*
User: *root*
Port: *80*

The video signal is represented in its own tab in the RiZone GUI main window. The videostream is not recorded. The Web cam is not monitored for network availability.

44 Dynamic Rack Control (DRC) (as of RiZone 3.6.xx.5)

The DRC integration in RiZone permits an automatic acquisition of all components installed in the rack as well as the photo-realistic representation of the server racks. The DRC allows the capacity management described in Section 15 to be largely automated.

44.1 DRC in the locations tree and in views

During the project creation, the DRC component must be assigned to a rack in the locations tree. As usual, this is done with drag & drop from the discovery window to the locations tree.

When creating the view of this rack, the rack must first be dragged to the view drawing area. The DRC component must then be moved also with drag & drop from the locations tree <u>to</u> the rack in the drawing area. After saving the view and uploading the project to the server, the rack is represented with the components identified via the DRC. If no templates are defined, the DRC tag components are represented as monochrome area with encryption.

For a photo-realistic representation, templates for the automatic generation of a view on the rack must be created and the DRC component must be configured on the rack components in the view.

During the first project start, all available RFID tags are added automatically to the RiZone project. If an RFID tag is assigned subsequently to the enclosure, it will be transferred automatically to the project.

If a project that contains the DRC is uploaded to the server, the client issues a prompt whether the tags should also be displayed in Admin mode. If the prompt is confirmed with **Yes**, the project will be updated in Admin mode and all tags recognised by the DRC are displayed in the project trees. If **No** is selected, only the DRC components, but not the individual tags, are still displayed in the trees.

During the initial commissioning of the DRC, it must be selected in which direction the entries of the RFID tag are synchronised. Possible directions are:

DRC -> RiZone: The data on the RFID tags overwrites the data in the RiZone enclosure element (more exactly: the existing element is deleted and is replaced with the tag).

RiZone -> DRC: The data of the RiZone component overwrites the data on the RFID tag.

44.2 Manual confirmation for configuration changes

If alarms or changes occur in the enclosure, for example those caused by adding or removing devices, they will be detected by the RFID system and reported to the RiZone. The affected device or its tag is marked red in the view of the DRC rack. Like other sensors, these alarms are inherited upwards in the infrastructure and are displayed on the higher-level infrastructure components.
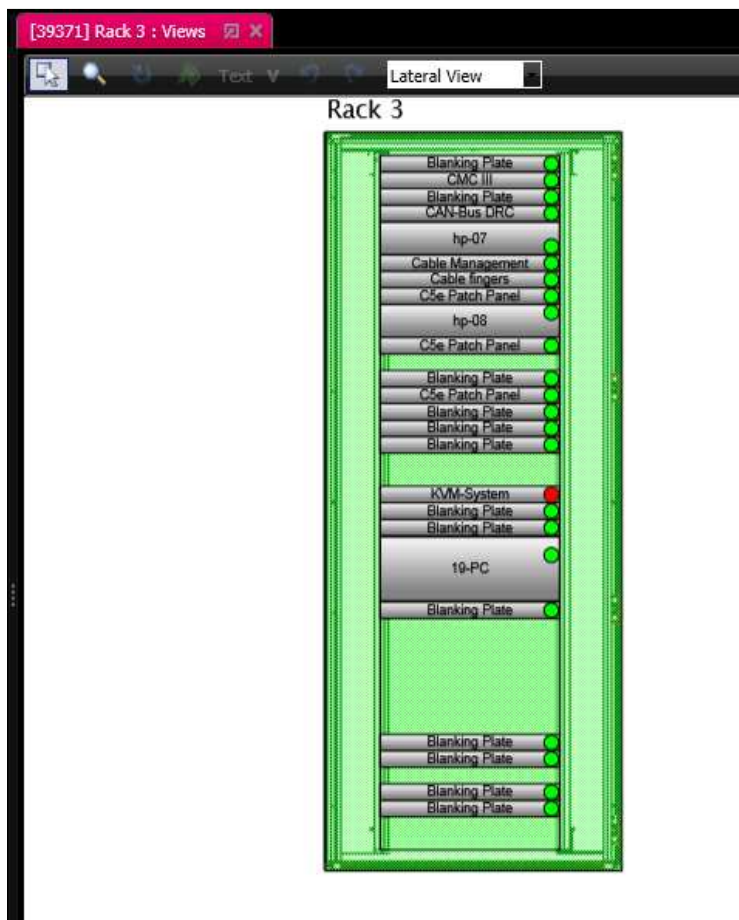
Fig. 79 Changes for tags in the rack

Such changes must be confirmed by the user in order to signal to the system that the changes are authorised. This requires that the associated tag is acknowledged.
Be aware that as long as 30 seconds can elapse between a change being made in the enclosure and the signalling in the DRC view.
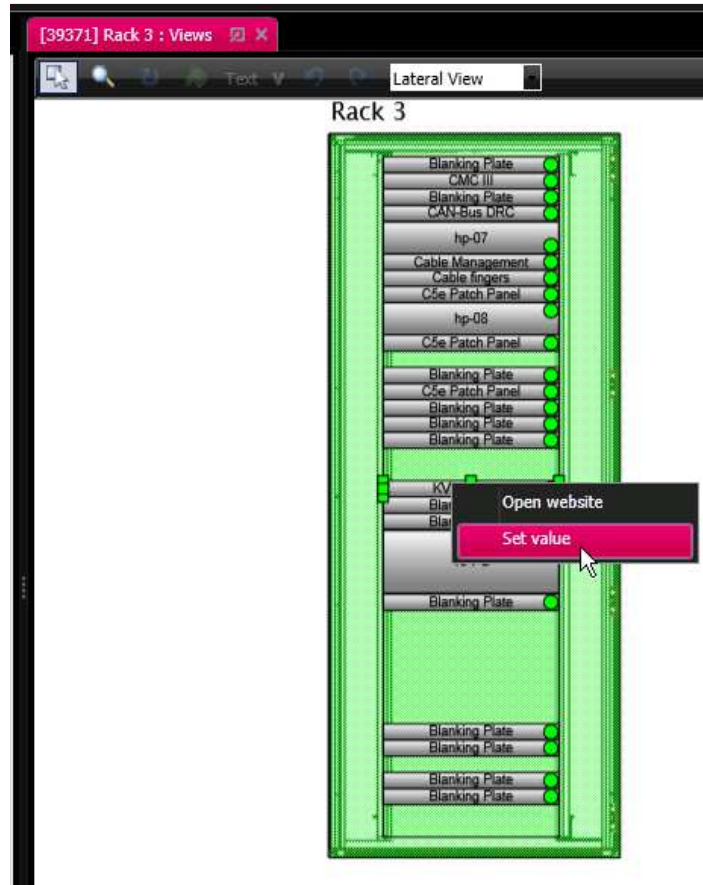
Fig. 80 Acknowledging a change via the context menu - 1

To do this, right-click the tag and select **Set value**.

EN
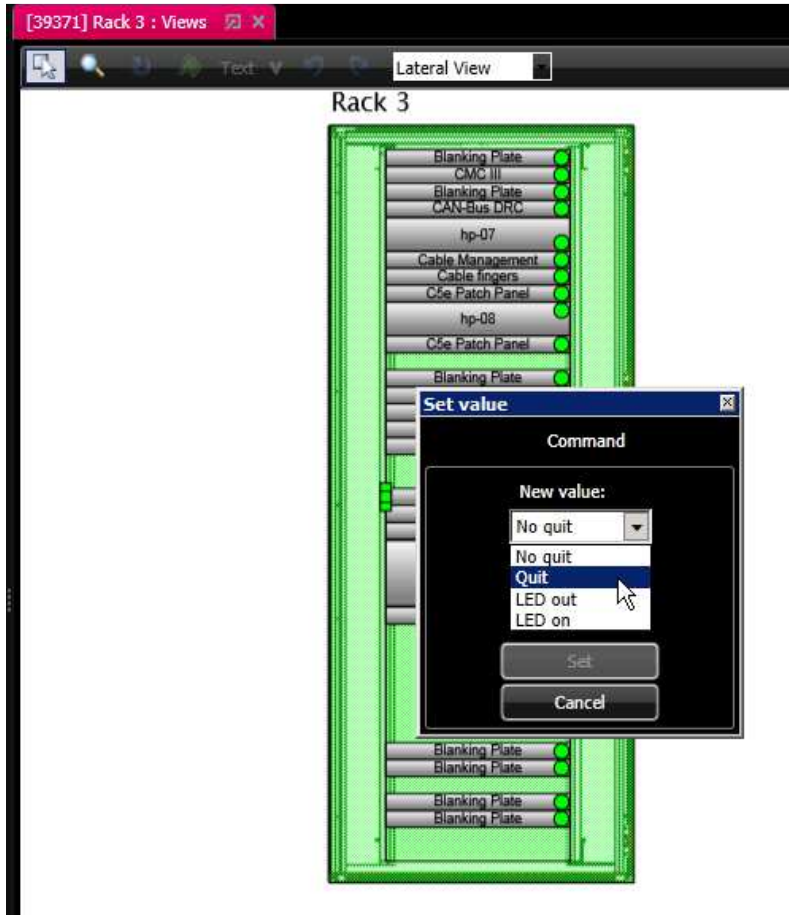
Fig. 81 Acknowledging a change via the context menu - 2

Now select **Quit** and click **Set**.

The acknowledge command is now sent to the appropriate Processing Unit and the tag status switches to **OK** (green).

Alternatively, the tag can also be acknowledged via the variables list of the tag.

Important!
If a device, incl. tag, is dragged from the enclosure, it will be displayed immediately via the message list in RiZone. The display of the change in the variables list and the values history, however, can appear after a delay as long as 30 seconds.

ID	Name	Value	Unit	Maintenance group	
41266	Status	OK			
41268	UID	E005000004545970			
41270	Position	0			
41273	UnitFormfactor	1			Set
41275	Offset	0			Set
41278	UPosition	22			
41281	DeviceClass	KVM			Set
41283	DescName	KVM-System			Set
41285	Manufacturer	Rittal			Set
41287	Type				Set
41289	SerialNumber				Set
41291	Vendor				Set
41292	Mac1				Set
41294	Mac2				Set
41296	TagService				Set
41297	DeviceName				Set
41299	InventoryCode				Set
41301	Power	230	W		Set
41303	Current	1	A		Set
41305	Voltage	230	V		Set
41307	LastService				Set
41309	NextService				Set
41310	LastUpdate				Set
41312	NextUpdate				Set
41314	InitialStart				Set
41316	Weight	0	kg		Set
41318	Custom				Set
41320	Command	No quit			Set
41322	Start	64			
41324	End	66			
41327	AntennaMap	66			
41328	Service	Active			Set

Fig. 82 Acknowledging via the variables list of the tag

To do this, the **Command** variable must be set to **Quit** by clicking the **Set** button.

44.3 Creating a 19" template

A 19" template is created in the similar manner as an infrastructure component. Folders can be created in the templates tree. This permits a hierarchical structure according to manufacturer and type of the 19" templates. For the automatic assignment of the template to an RFID tag, the component name of the 19" template must match the *Manufacturer* and *Type* fields of the RFID tag (case insensitive).
The 19" template, however, can also contain wildcards ("*" or "+"), so that a single 19" template can cover different model types.

Examples:
Template
Name: Dell Poweredge R7*
Description: *any*
Result: The template is used for all Dell Poweredge servers from the R700 series (R710, R715, R720, etc.).

Name: Dell Poweredge R71+

Description: *any*

Result: The template is used for all Dell Poweredge servers from the R700 series whose name begins with R71 followed by a digit or an alphabetic character (R710, R715).

For the photo-realistic representation of the 19" template within a rack, a graphic must be stored in JPG format. The *Height* value specifies how many height units are required by the 19" template.

The *Weight* value is used for the capacity management in order to calculate the floor loading of the rack. The *Depth* and *Connection Power* values complete the properties of a 19" template.

44.4   Editing a 19" template

Renaming, copying and deleting is performed similarly as for the functions of the locations tree.

The image assignment when multiselect is used is an exception. The images for representing the device in the enclosure may only be assigned individually.

44.5   Exporting a 19" template

Multiselection is not possible for exporting a 19" template. If several 19" templates must be exported together, they must be grouped in a folder and this folder then exported. The root node cannot be exported. When exporting a 19" template, the *Save file* dialogue opens in which the user can specify the storage location. 19" templates can be exchanged between different RiZone servers.

44.6   Importing a 19" template

The *Open file* dialogue opens when a 19" template is imported. The 19" templates are imported below the node from which the dialogue was called.

44.7   Rights of the RFID tags

The rights of a DRC component are inherited to all RFID tags currently acquired by the DRC. Further information about the "Rights assignment" topic for components is contained in Section 16.

45   Passwords of the RiZone services and the server key (as of RiZone 3.6.xx.5)

Several services are executed on the RiZone server that in turn run under different users. These users have a default password. To increase the security of the server, customised passwords can be assigned to these users provided the users have not been created prior to the installation.

45.1   Passwords of the RiZone services

The RiZone services are executed on the server under the RiZoneService user with a default password. If customised passwords are used for the services, they can be changed directly during the installation of the server services. If the setup file of the RiZone server (*C:\install_rizone\ RiZone Server Setup Vxxx.exe* file on the RiZone server) is executed, the Installer

offers during the setup process the possibility to install and execute RiZone services not under the standard user, but rather under a freely chosen user.
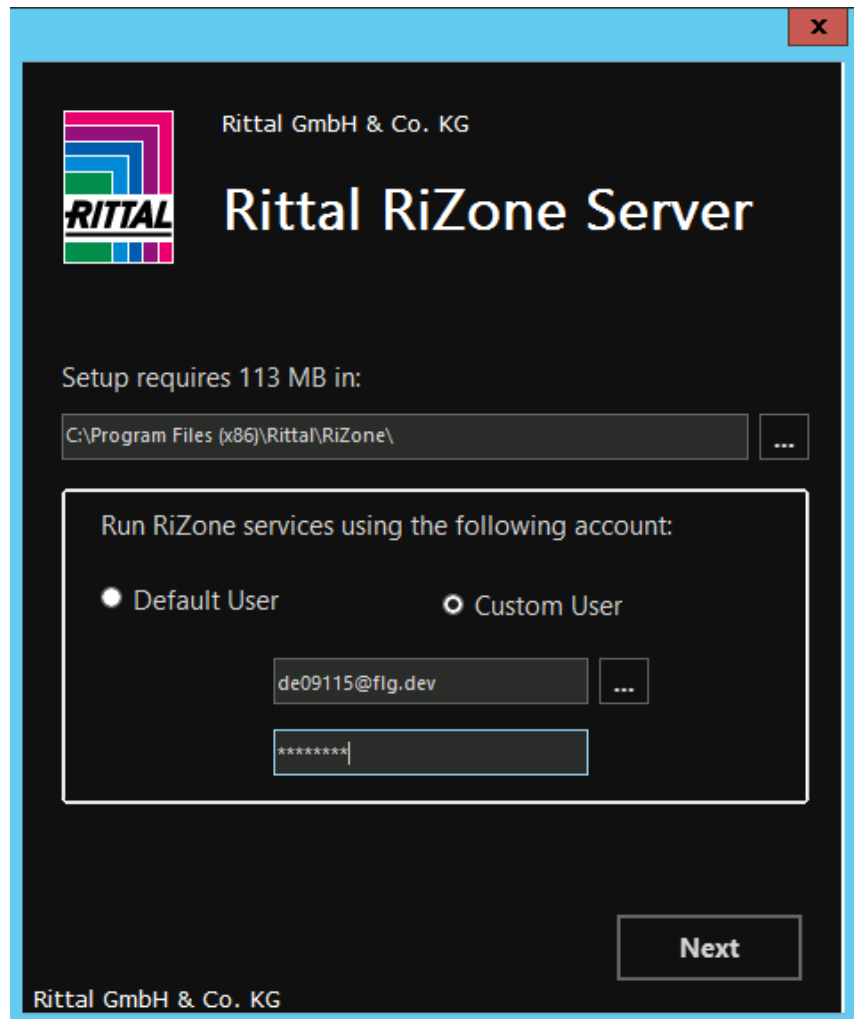
Fig. 83 Selecting a default or custom user

If, for security reasons, you do not want to use the **Default User**, then select the **Custom User** option here and enter the required user. If a domain user is to be selected, the RiZone server must be part of the domain.

In the next step, if required, freely-selected passwords can be specified for specific services (**Custom password**).

Fig. 84 Selecting a default or custom password for a services user

If, however, **Default password** is selected, the services use the standard password.

If a **Custom password** is used for the **RzGuiUser**, it should be noted down because it is required for the subsequent client installation.

Another option is the specification of the server key. Its significance is described in the following section.

45.2   RiZone server key

All projects created on the server are encrypted with the RiZone server key. If a customised server key (not **default**) is selected duri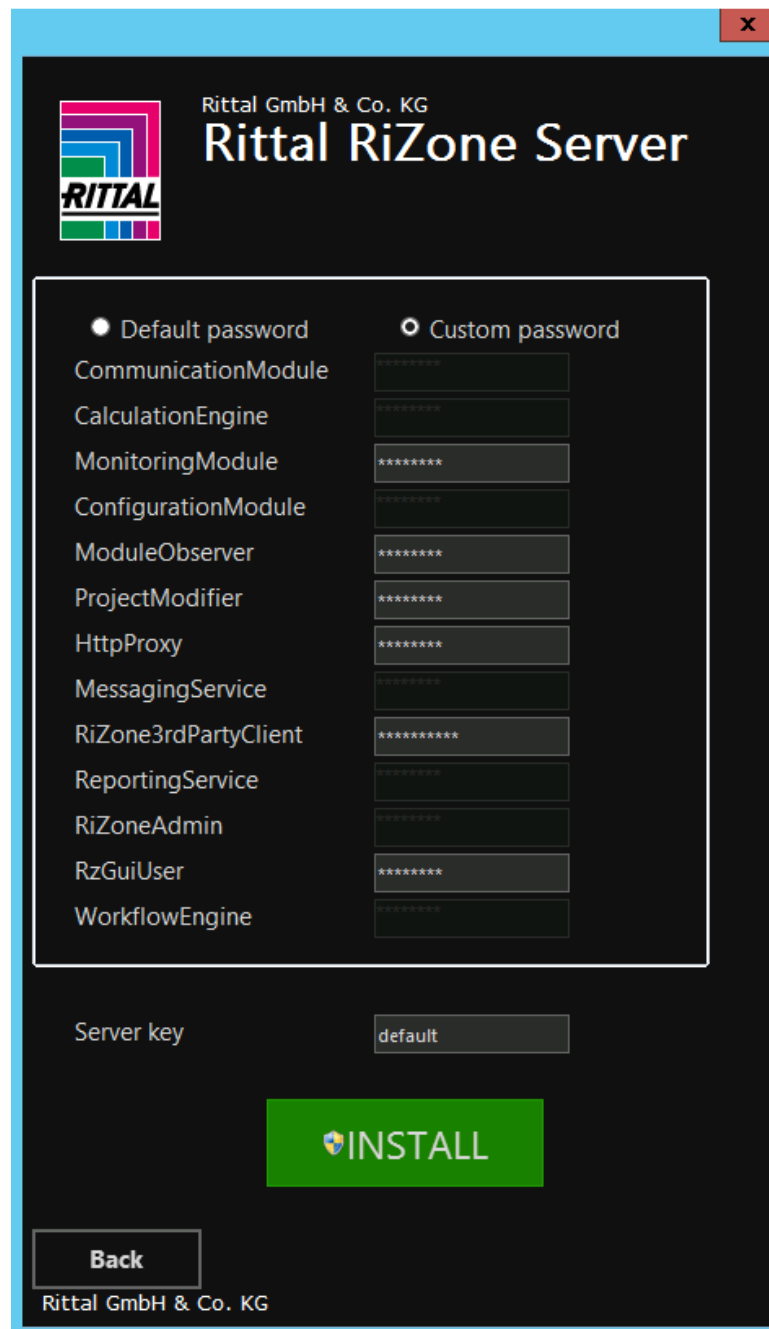ng the installation, exported projects can be imported to other servers only when the server key of the exporting server is known.

> ⚠️ **Important!**
> **Please note the server key in case you need to change it during the installation or later. The restoration of a project created on this server is not possible without the server key.**
>
> **If the server key is created after creating a project, this project also can no longer be executed on this server!**

In addition to the possibility to set the server key during the server installation, it can also be changed later via the RiZone client. To do this, call the **Administration > Change server key** menu item in the client. To change the server key, the current server key must also be entered.

> ⚠️ **We strongly recommend that you change the server key only during the server installation (when increased security is required).**

45.3   Password of the RzGuiUser

To prevent a login to the server via a non-authorised GUI (client), RiZone 3.6 has introduced a password for the RzGuiUser service. The RzGuiUser service runs on the server and checks the user name and password of the RiZone user performing the login.

Important: The RZGuiUser should not be confused with RiZone users who have been created with roles and rights in RiZone and who can then login to the server via the client.

The password of the RZGuiUser service is specified during the installation of the server (see Fig. 84) (default or freely chosen).

45 Passwords of the RiZone services and the server key (as of RiZone 3.6.xx.5)
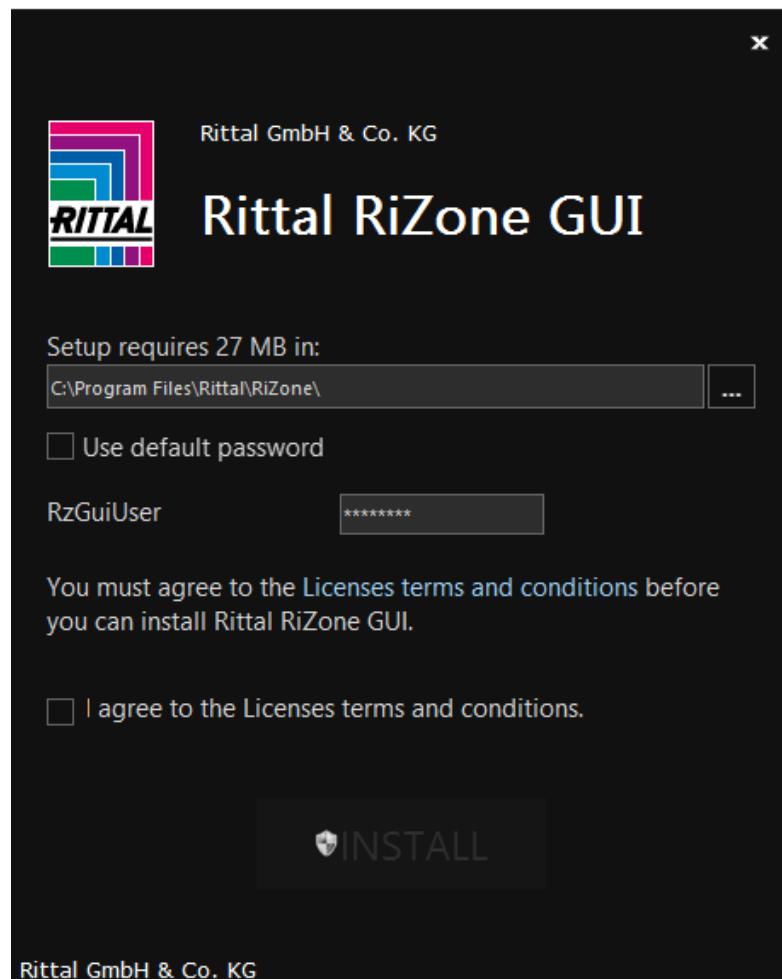
Fig. 85 Selecting a default or custom password for a services user

On the client side, the password can either be specified during the client installation or changed during operation in the client via **Administration > Change password for RzGuiUser**.

If you attempt to login with a client with a password that deviates from that on the server, the client requests the correct RzGuiUser password automatically.

If you want to ensure that you can login to the server from any client (RiZone user + password required), always use the "use default password" option for the client and server installations or always specify the same customised RzGuiUser password on the server and the client.

A subsequent change of the RZGuiUser password on the server is possible via the Windows user administration of the server.

46 Changes from earlier RiZone versions (as of RiZone 3.6.xx.5)

46.1 Changed polling behaviour of the CMCIII Processing Unit

The polling behaviour compared with CMCIII-based devices (Processing Unit III, LCP CW, DRC) has been optimised. ALL values whose value has changed within the last 10 seconds are now transferred to RiZone every 10 seconds. Changing the polling interval of individual variables of these devices via the variable properties is not supported. The interval is always 10 seconds.

The variable calculation and the trap sending are not affected by this new ruling.

46.2 Deleting messages in the message list

Previously, all logged-in users in view mode could delete messages from the message list of the client. With immediate effect, this is possible only when the user has RiZoneAdmin rights.

46.3 Maintenance mode during changes to the CMC III PU

If changes need to be made to the CAN bus (add/remove sensors) or to the firmware on the CMC III Processing Unit or products based on them (PDU, LCP CW), the Processing Unit must previously be placed in maintenance mode (set **Service variable** to *Maintenance*). After the change, the **Service variable** can be set again to *active* and so maintenance mode terminated. If this is not done, false alarms or incorrect value displays can occur.

Appendix RiZone Version 3.8

47 Access administration with one-time PIN and emergency PIN

As of version 3.8, RiZone supports access administration by means of a
one-time PIN and an emergency PIN.

47.1 Access administration with one-time PIN

The *One-time PIN* function allows access to a rack once or for a limited
period from 1 hour to 36 hours.

For this purpose, the location tree in the context menu provides the
Generate one-time PIN function to generate a PIN that allows the enclosure
to be opened once or during a specified period.

A typical application scenario is, for example, opening the enclosure by a
technician who receives the associated one-time authorisation by telephone
from the responsible control room.

The prerequisite for the use of the one-time PIN is that the rack is equipped
with a Rittal access system with the following components:

- CMC III Processing Unit with firmware as of 3.15.20_6
- CMC III CAN bus access (7030.200)
- CMC III coded lock (7030.220)
- TS 8 handle with master key function (7320.721)

In RiZone, the handle (or Access Controller) must be assigned correctly to
the enclosure in the location tree. The keypad has to be part of the project,
too. For the keypad it does not matter if it is assigned to the enclosure or any
other infrastructure component.

Fig. 86 Handle rack assignment

Furthermore, the following configurations in the properties of the handle or
the Access Controller and of the CMC III PU must be made in Admin mode
for RiZone. Even if the symbol for the Processing Unit is not assigned in the
location tree, the Processing Unit can always be accessed via the device
tree.

1. **SFTP/SSH configuration**
   The port, user and password for the SFTP/SSH access must be
   entered in the properties of the CMC III PU to which the Access
   System is connected. By default, these are the values: Port=*22*,
   User=*admin*, Password=*admin*. Click **Accept** to confirm the change.
   We recommend that at least the password on the CMC III PU is

changed. This requires that the new password must also be entered in RiZone.
RiZone then transfers the one-time PIN via SFTP to the associated CMC III PU later.

2. **Enable access configuration**
The **Enable access configuration** option must be activated in the properties of the CMC III PU to which the Access System is connected. Click **Accept** to confirm the change.
Note that when uploading the project for activated **Enable access configuration**, the access administration file for RiZone is transferred to the CMC III PU. RiZone must now handle the access administration, at the latest.

3. **Enable one-time PIN**
The **Enable one-time PIN** option must be activated in the properties of the Access Controller or handle to be opened later. Click **Accept** to confirm the change.

The updated RiZone project must then be uploaded via **Project > Upload to server**.

In the RiZone View mode, the **Generate one-time PIN** function can now be called by right-clicking the associated rack in the location tree.

Fig. 87 "Set one-time PIN" dialogue

RiZone generates the 6-character PIN using a random function.
The validity of the PIN is defined via the **Validity duration** dropdown menu.
One-time: The PIN is discarded immediately after its one-time use for opening the rack.
1 h – 36 h: The PIN can be used for the specified time interval to open the rack.

Clicking **Set** transfers the PIN with the set validity duration to the CMC III PU via SFTP. The successful transfer is confirmed with the *PIN set successfully* message.
The rack can then be opened by entering the one-time PIN on the keycode reader.
A failed transfer is signalled with the *PIN could not be set* message. In this case, check the above-mentioned settings and also the SFTP settings on the CMC III PU.

After opening the rack with the one-time PIN (or after expiration of its validity duration), the one-time PIN on the CMC III PU is deleted automatically.

47.2   Access administration with emergency PIN

The 8-character emergency PIN has a similar behaviour as the one-time PIN. The emergency PIN, however, remains valid until it is replaced by the user via RiZone with a new emergency PIN.

An emergency PIN and a one-time PIN can also be used in parallel on a PU III or a handle.

A typical application scenario, for example, is to note the emergency PIN after transfer to the CMC III PU and to store this document securely for emergencies (e.g. in a safe).

The prerequisite for the use of the emergency PIN is that the rack is equipped with a Rittal access system that has the following components:

- CMC III Processing Unit with firmware as of 3.15.20_6
- CMC III CAN bus access (7030.200)
- CMC III coded lock (7030.220)
- TS 8 handle with master key function (7320.721)

In RiZone, the handle (or Access Controller) must be assigned correctly to the enclosure in the location tree.
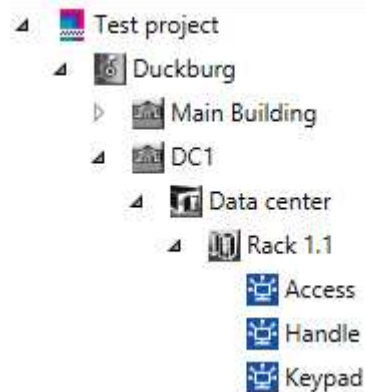

Fig. 88 Handle rack assignment

Furthermore, the following configurations in the properties of the handle or the Access Controller and of the CMC III PU must be made in Admin mode for RiZone. Even if the symbol for the Processing Unit is not assigned in the location tree, the Processing Unit can always be accessed via the device tree.

1. **SFTP/SSH configuration**
   The port, user and password for the SFTP/SSH access must be entered in the properties of the CMC III PU to which the Access System is connected. By default, these are the values: Port=*22*, User=*admin*, Password=*admin*. Click **Accept** to confirm the change. We recommend that at least the password on the CMC III PU is changed. This requires that the new password must also be entered in RiZone.
   RiZone then transfers the emergency PIN via SFTP to the associated CMC III PU later.

2. **Enable access configuration**
   The **Enable access configuration** option must be activated in the properties of the CMC III PU to which the Access System is connected. Click **Accept** to confirm the change.
3. **Enable emergency PIN**
   The **Enable emergency PIN** option must be activated in the properties of the Access Controller or handle to be opened later. Click **Accept** to confirm the change.

The updated RiZone project must then be uploaded via **Project > Upload to server**.

In the RiZone View mode, the **Generate emergency PIN** function can now be called by right-clicking the associated rack or a higher-level node in the location tree. If an emergency PIN is activated on a higher-level node, this PIN is used for all handles subordinate to this node.
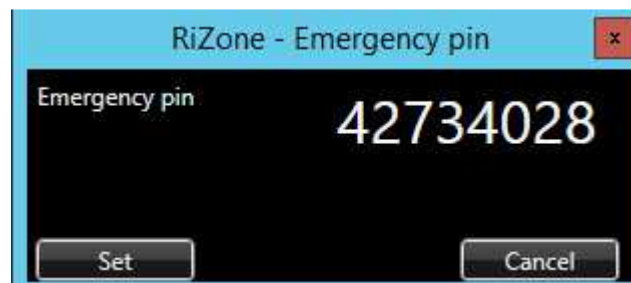

Fig. 89 "Set emergency PIN" dialogue

RiZone generates the 8-character emergency PIN using a random function.

Clicking **Set** transfers the emergency PIN to the CMC III PU via SFTP. The successful transfer is confirmed with the *PIN set successfully* message.
The rack can then be opened by entering the emergency PIN on the keycode reader.
The rack can now be opened any number of times with the emergency PIN. Although the emergency PIN does not expire, it can be overwritten with a new emergency PIN.

⚠ **Caution!**
After transferring to the CMC III PU and closing the "Set emergency PIN" dialogue, this PIN can <u>no longer</u> be displayed by RiZone. The emergency PIN is then stored encrypted on the CMC III PU and can no longer be fetched. Consequently, note the emergency PIN and store the document at a secure location. The current emergency PIN can be overwritten only by generating a new emergency PIN.

47.3 Search for access authorisations

RiZone supports the search for card numbers and PINs in the access authorisation.

The access authorisations are configured via **Administration > User administration >** *User* **> Administer access authorisations**.

The search provides a text field for the PINs and card numbers. The search is activated when one of the text fields is filled.

The filter text may contain all characters.

- One or more digits at the start of the filter text mean that the sought PIN or card number begins with these digits.
- One or more digits at the end of the filter text mean that the sought PIN or card number ends with these digits.
- The * character can represent any character string (wildcard).
- The + character represents just one arbitrary character.

If an invalid character string is entered in the filter text field, the input field receives a red frame and *Unallowed characters in filter text* is displayed as tooltip.

The filter function so makes it easy to determine whether a PIN or card number is assigned to the user.

48 Firmware update

RiZone supports a central firmware management of the CMC III PU. The transfer of the firmware file to the PU requires that the PU is integrated in the RiZone project. If the CMC III PU has been rediscovered, the project must first be uploaded before this PU can be updated. The SFTP/SSH user must be specified in the PU properties, the password entered, and the project then uploaded.

Once RiZone has loaded the file to the CMC III PU, the PU checks the update file before performing the update. In the event of an incorrect update, the CMC is restarted automatically after approximately 5 minutes, and the last operational firmware and configuration restored.

The RiZone update function allows different versions of the PU firmware to be updated to a new version in a single work step.

To perform the CMC III PU firmware update from RiZone, proceed as follows:

1. **Firmware update** menu
   The GUI must be in Admin mode. Open the function via **Administration > Firmware update**.
2. **Select the firmware file**
   After selecting the **Firmware update** menu item, the **Open file** dialogue opens. The firmware file must be selected and opened with a double-click or by clicking the **Open** button.
3. **Select the CMC III PU devices**
   The Update menu lists all available PUs.
   The checkbox in front of each PU can be activated to select the associated PU for the update process. Activating the higher-level checkbox selects all PUs.

4. **Perform the update**
   Clicking **Update** in the dialogue initiates the update process. RiZone
   transfers the firmware file with the SFTP protocol to the PU. Clicking
   Cancel cancels the update process immediately.
   Any previously initiated SFTP transfers and updates will be performed.
   The current status is displayed in the Status column of the menu:
   Upload the firmware: The firmware file is uploaded to the PU
   Update being performed: The PU is being updated.
   Successful: The PU update was successful.
   Error: The PU update failed.
   Cancelled: The update operation was cancelled.
   Wait for restart: The update has been performed, RiZone is waiting for
   the PU restart to complete.
5. **Behaviour in the event of an error**
   If an error occurred during the PU update, this error will be logged in the
   message list (failure).

49 Eventlog

The RiZone services log the *Start, Stop, ConnectToCore,
LostConnectionToCore* and *ProjectLoaded* status information in the
Eventlog of the RiZone server operating system.
The following RiZone services write to the Windows Log or to the Application
Eventlog:
*CoreService, MessagingService, MonitoringModule, ReportingService,
WorkflowService, CommunicationService, CalculationEngine,
SecurityService, ProjectModifierService, ProxyService, ConfigurationModule.*

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