zenon
by COPA-DATA

zenon manual

User Administration

v.8.10

Contents

1 Welcome to COPA-DATA help

ZENON VIDEO-TUTORIALS

You can find practical examples for project configuration with zenon in our YouTube channel (https://www.copadata.com/tutorial_menu). The tutorials are grouped according to topics and give an initial insight into working with different zenon modules. All tutorials are available in English.

GENERAL HELP

If you cannot find any information you require in this help chapter or can think of anything that you would like added, please send an email to documentation@copadata.com.

PROJECT SUPPORT

You can receive support for any real project you may have from our Support Team, who you can contact via email at support@copadata.com.

LICENSES AND MODULES

If you find that you need other modules or licenses, our staff will be happy to help you. Email sales@copadata.com.

2 User Administration

zenon supports user administration for the Editor and for the online operation (Runtime). The user administration fulfills the guidelines of the FDA (Food and Drug Administration, 21 CFR Part 11). It is also possible to administer Active Directory users (on page 197) in the Runtime.

BASICS

The COPA-DATA user administration makes a distinction between three user types:

- **User**: Can carry out actions according to the authorization levels they have been assigned.

- **Power user**: Can also create and edit users.
- **Administrator**: Can also carry out all other administration tasks such as canceling blocks, resetting passwords, etc.

The concept of the user administration assumes that different users have different operating rights (authorization levels (on page 18) and function authorizations (on page 28)). These rights are issued regardless of user type. Users can be administered via zenon and the Windows Active Directory.

Each user can be assigned several different authorizations. A maximum of 128 (0 to 127) authorizations can be configured. Users can be assigned to the individual authorization levels and the attendant project-specific password design in relation to this can be created completely freely. Each user can have any level allocated. Thus e.g. user 1 can have levels 0, 1, 5 and 6 assigned and user 2 can have levels 0, 1, 6, 8 and 10 assigned. Authorizations can only be issued if the administrator has those rights himself.

The user is logged into the Runtime using the login (on page 87) function and a *login* screen. If the user is to be logged in automatically based on an event (e.g. position of a key known to the system), the Login without password (on page 88) function is used. This function is projected with a limit value or a Rema of the variable in the variable management, respectively. With multi-project administration, users can automatically (on page 76) be logged into subprojects when they log in.

If during a defined period of time there is no operation, an automatic time-triggered logout can be engineered. Users can log off from the system at any time using the logout (on page 93) function. The user SYSTEM is thus logged in.

CREATING USERS AND ISSUING RIGHTS

In zenon, you can create and administer users in two ways:

1. zenon Editor and Runtime:
   Users are created in the Editor and given rights. You can log on in the Runtime. Administrators and power users can also create users and issue rights in the Runtime.
2. AD and AD LDS (on page 118):

   Active Directory Lightweight Directory Services (on page 132) (AD LDS) is a simplified version of the Active Directory and is suitable for use on normal desktop operating systems; it is not necessary to use a server operating system. Active Directory (on page 119) (AD) and AD LDS can be used in zenon for the user administration in zenon Runtime. AD and AD LDS are not available for the zenon Editor.

   User groups that are created in AD or AD LDS receive authorizations in zenon (on page 188), if user groups with the same name are created in zenon. A separate screen can be used to to read AD and AD LDS from zenon Runtime and edit them. Users who are created here have user rights for all zenon projects, regardless of the project from which they were created.

DISPLAY OF DELETED USERS

AD users who are deleted during ongoing operation can no longer be displayed in lists with their complete user names. If a user is not found in either the zenon user list or in the AD, the following applies:

- From now on, Runtime no longer attempts to read the complete user name of the domain controller. Another read only takes place if the cache is deleted. This happens is a user log on or Runtime is restarted.
- The user identification is shown in the AML, CEL and report viewer lists for these entries in the **Complete User Name** column.

Recommendation: Do not delete any AD user in the Runtime, simply deactivate the user.

3 Engineering in the zenon Editor

Users and user groups, passwords and authorizations are defined in the Editor. User settings can be amended in Runtime (on page 69).

Not all changes to the user-related parameter settings in the Editor are applied with a simple reload (on page 117) in the Runtime. Note the **Runtime changeable data** property when transferring Runtime files. Here, it is specified whether the configuration of the user administration is transferred to Runtime and overwrites the configuration in the Runtime. The contents of the user administration are not replaced by default when transferred to Runtime.

3.1 Project manager context menu

CONTEXT MENU USER ADMINISTRATION

Menu item	Action
Editor profiles	Opens the drop-down list with predefined editor profiles.
Help	Opens online-help

CONTEXT MENU USER

Menu item	Action
New user	Opens the dialog for creating a new user and adds the new user to the list of the detail view.
Export all as XML	Exports all entries as an XML file.

Menu item	Action
Import XML	Imports entries from an XML file.
Editor profile	Opens the drop-down list with predefined editor profiles.
Help	Opens online help.

CONTEXT MENU USER GROUP

Menu item	Action
New user group	Opens the dialog for creating a new user group and adds the new user group to the list of the detail view.
Export all as XML	Exports all entries as an XML file.
Import XML	Imports entries from an XML file.
Editor profiles	Opens the drop-down list with predefined editor profiles.
Help	Opens online help.

Context menu detail view: see also User administration detail view toolbar and context menu (on page 9)

3.2 Toolbar and context menu detail view

Menu item/symbol	Action
New user	Opens the dialog for creating a new user and adds the new user to the list of the detail view.
Jump back to starting element	Jumps back to the initial position in the zenon Editor. **Note:** This context menu entry is only available if a jump to the current position has been made from another position with the **Linked elements** context menu entry.
Copy	Copies the selected entries to the clipboard.
Paste	Pastes the content from the clipboard. If an entry with the same name already exists, the content is pasted as "**Copy of...**".
Delete	Deletes selected entries after a confirmation from list.
Export selected as XML...	Exports all selected entries as an XML file.

Menu item/symbol	Action
Import XML	Imports entries from an XML file.
Edit selected cell	Opens the selected cell for editing. The binocular symbol in the header shows which cell has been selected in a highlighted line. Only cells that can be edited can be selected.
Replace text in selected column	Opens the dialog for searching and replacing texts.
Remove all filters	Removes all filter settings.
Properties	Opens the **Properties** window.
Help	Opens online help.

CONTEXT MENU USER GROUP

Menu item	Action
New user group	Opens the dialog for creating a new user group and adds the new user group to the list of the detail view.
Copy	Copies the selected entries to the clipboard.
Paste	Pastes the content from the clipboard. If an entry with the same name already exists, the content is pasted as "**Copy of...**".
Delete	Deletes selected entries after a confirmation from list.
Export selected as XML...	Exports all selected entries as an XML file.
Import XML	Imports entries from an XML file.
Edit selected cell	Opens the selected cell for editing. The binocular symbol in the header shows which cell has been selected in a highlighted line. Only cells that can be edited can be selected.
Remove all filters	Removes all filter settings.
Replace text in selected column	Opens the dialog for searching and replacing texts.
Properties	Opens the **Properties** window.
Help	Opens online help.

3.3 Creating a user

To create a new user:

1. Navigate to node **User administration/User**.
2. select **New user...** in the context menu of the project manager, the detail view or in the toolbar .

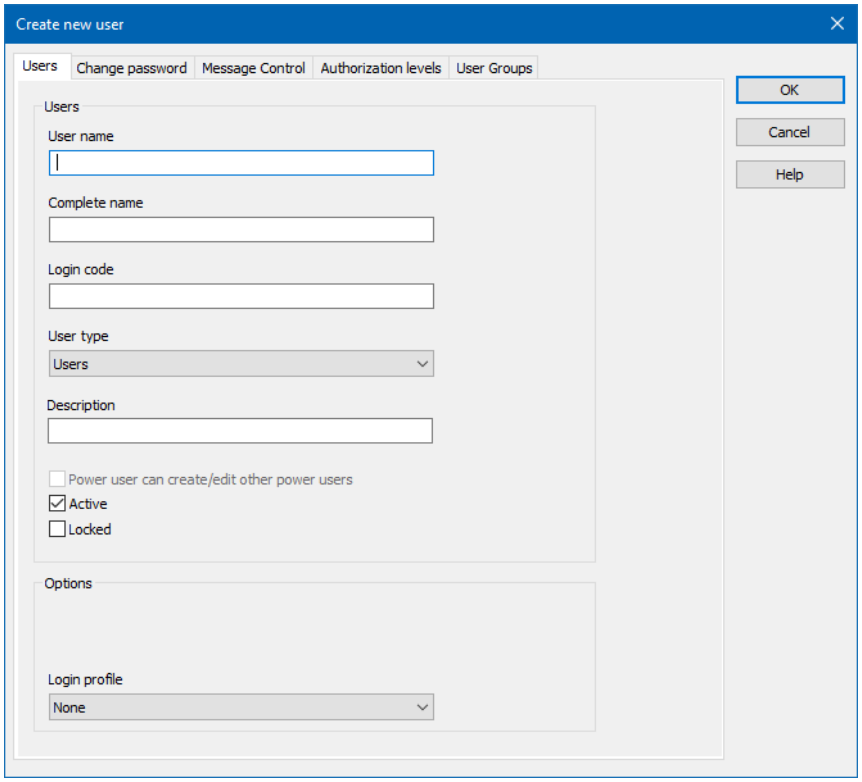
   The dialog for configuration is opened.
3. In the individual tabs define the settings for:
   - User (on page 12)

     Note: A user name can only be issued once. If an attempt is made to create a pre-existing user once again, an error message is issued.
   - Password (on page 15)
   - Message Control (on page 16)
   - Authorization levels (on page 18)
   - User Groups (on page 19)

> **Information**
>
> Recommendation: As first user define an administrator. Only they can access all functions and therefore reactivate users who were locked because they have been blocked by the system.

3.3.1 Users

Configuration of the user:



USER

Option	Description
User name	Enter the username. The user logs in to the system with his username. Maximum length: 20 characters. **Note:** This name must be unique and can only be issued once. If an attempt is made to create a pre-existing user again, an error message is issued.
Complete name	Enter the full name of the user. With this you can allocate a username to a real person.
Login code	Entry of the login code for login without password. The following is applicable for the login code: ▸ Must be unique within the project. **Note:** If the same login code is used for a user

Option	Description
	in the local project and the global project, the user from the global project is not transferred when creating the Runtime files in the Editor. Note the corresponding error message in the output window. When the login code is changed in the Runtime, it must not be the same as the code of a user from the global project. ▸ Can be empty. It is thus deactivated for this user. ▸ Maximum length: *1000 characters* ▸ Must not consist of spaces only. ▸ Leading or closing spaces are not permitted. ▸ All other characters are permitted. Default: (empty) If an invalid login code is entered, a corresponding error message is shown when the dialog is closed. For details, see the **Login via login code** (on page 90) chapter.
User type	Selection of the user type from a drop-down list: ▸ *User*: Can carry out actions according to the authorization levels they have been assigned. ▸ *Power user*: Can also create and edit users. Whether this is also applicable for other power users is configured using the **Power user can create/edit other power users** option. ▸ *Administrator*: Can create and edit all other users. ▸ Default: *User*
Description	Text field to enter additional information
Power user can create/edit other power users	Settings for the power users' detail rights: ▸ *Active*: Can also create and edit other power users. ▸ *Inactive*: Can only create and edit users.

Option	Description
	Default: *inactive*
Active	*Active*: The user is active and can login in the Runtime. **Note:** According to FDA 21 PART 11 regulations, a user can never be deleted, so it is possible to trace who carried out which action at any time. Therefore for projects which adhere to these regulations, a user must not be deleted but only deactivated. To prevent the deletion of users, deactivate the **User Administration** property in the **Deleting users** group in the project properties.
Locked	*Active*: The user is locked in the Runtime and cannot login. This option is set automatically if a user enters an incorrect password more than is permitted.

OPTIONS

Option	Description
Lock code	Four-digit PIN code. This code is used by the user in the command processing to block areas or to unlock them. Only available if **zenon Energy Edition** has been licensed.
Login profile	Selection of the Runtime profile that is used for login from a drop-down list: ▸ None ▸ Default ▸ Last

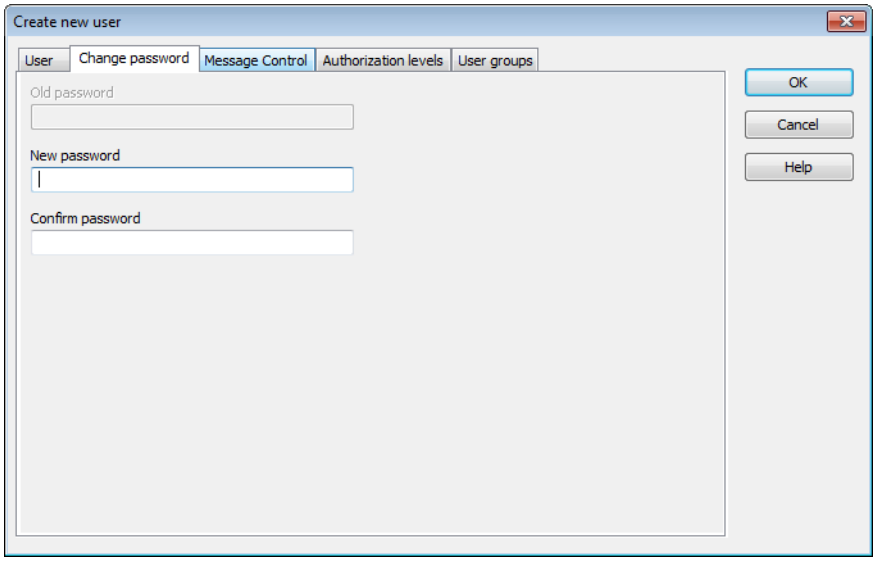
CLOSE DIALOG

Option	Description
OK	**Applies all changes in all tabs and closes the dialog.**
Cancel	Discards all changes in all tabs and closes the dialog.
Help	Opens online help.

3.3.2 Change password

Defining or changing the password.

Passwords may have a maximum of 20 characters. The minimum length is defined in the project settings in property **Minimum password length** in group **User Administration** (Default:



Parameter	Description
Old password	Current password.
New password	Enter new password. Input is automatically hidden. For projects with multiple languages, note that it must be possible to enter the characters with the respective keyboard in the Runtime.
Confirm password	Repeat the password. Input is automatically hidden.

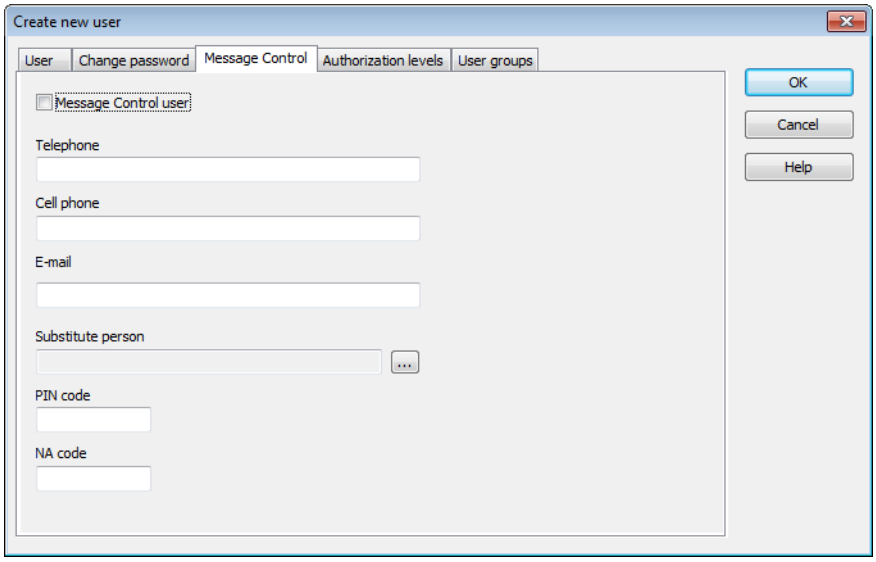
Note: The function **Copy and Paste** is not available for entering information in the password field.

CLOSE DIALOG

Option	Description
OK	**Applies all changes in all tabs and closes the dialog.**
Cancel	Discards all changes in all tabs and closes the dialog.
Help	Opens online help.

3.3.3 Message Control

Options for using the users in module Message Control.



Parameter	Description
Message Control User	*Active*: The user is used by the module Message Control.
Telephone	Number of the voice-compatible telephone device of the user. Used for text to speech. Enter numbers. In addition, the following are permitted: ▸ The prefix **+** as an abbreviation for *00* of the international area code is permitted. ▸ The following separators are also permitted in AD user administration: Minus (**-**), slash (**/**) and **space** Note: When communicating between AD and Message Control, separators are ignored as soon as the data from the AD is mapped to a zenon object.
Cell phone	Cellphone number of the user. Used for messages via GSM and SMS (text messages). Enter numbers. In addition, the following are permitted: ▸ The prefix **+** as an abbreviation for *00* of the international area code is permitted. ▸ The following separators are also permitted in AD user administration: Minus (**-**), slash (**/**) and **space**

Parameter	Description
	Note: When communicating between AD and Message Control, separators are ignored as soon as the data from the AD is mapped to a zenon object.
Email	E-mail address of the user
Substitute person	If a user has not been reached or they do not accept the message, a substitute person can be given. Click the **...** button and the dialog (on page 25) opens to select an user. Only users who have been activated as **Message Control** users are offered for selection.
PIN code	PIN code with which the user confirms the receipt of the message. The code consists of a four-digit number between *0000* and *9999*.
NA code	PIN code with which the user rejects the receipt of the message (not available). The message is then sent to the next user in the list. If there is no other user entered in the list, the message is entered as "*not successfully acknowledged*". The function assigned to this is executed. In addition, a "*rejected by*" CEL entry is created in each case. The code consists of a four-digit number between *0000* and *9999*. **Note:** You can find further information on the assignment of functions in the Confirmation of receipt - confirmation of receipt settings chapter.

CLOSE DIALOG

Option	Description
OK	**Applies all changes in all tabs and closes the dialog.**
Cancel	Discards all changes in all tabs and closes the dialog.
Help	Opens online help.

Attention

The acknowledgment codes for PIN (confirmation) and NA (rejection) must differ and should not be too similar.

If both codes are identical the code is interpreted as PIN and therefore as confirmation of the message.

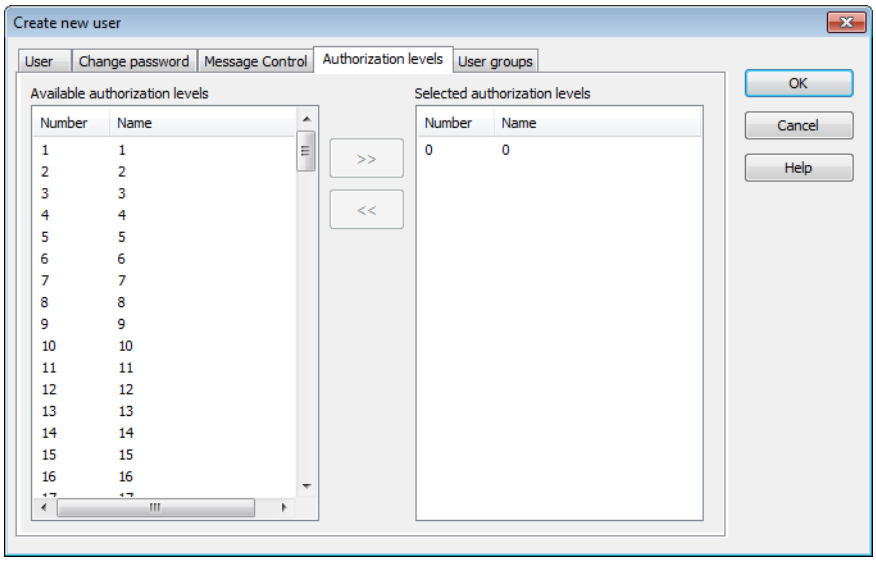
If an unknown code is received, a SMS and e--mail is sent to the substitute person. The error message is played back for voice messages.

3.3.4 Authorization levels

Assignment of authorization levels to a user. 128 authorization levels (from 0 127) are available.

You assign authorization levels using the dialog to create a user or by using the **Authorization levels** property.

DIALOG AUTHORIZATION LEVEL



Parameter	Description
Available authorization levels	List of all available authorizations.
Selected authorization levels	List of assigned authorizations.
Button double arrow to the right	Entries selected in the list **Available authorization levels** are added to list **Selected authorization levels**.

Parameter	Description
Button double arrow to the left	Selected entries in list **Selected authorization levels** are removed from the list.

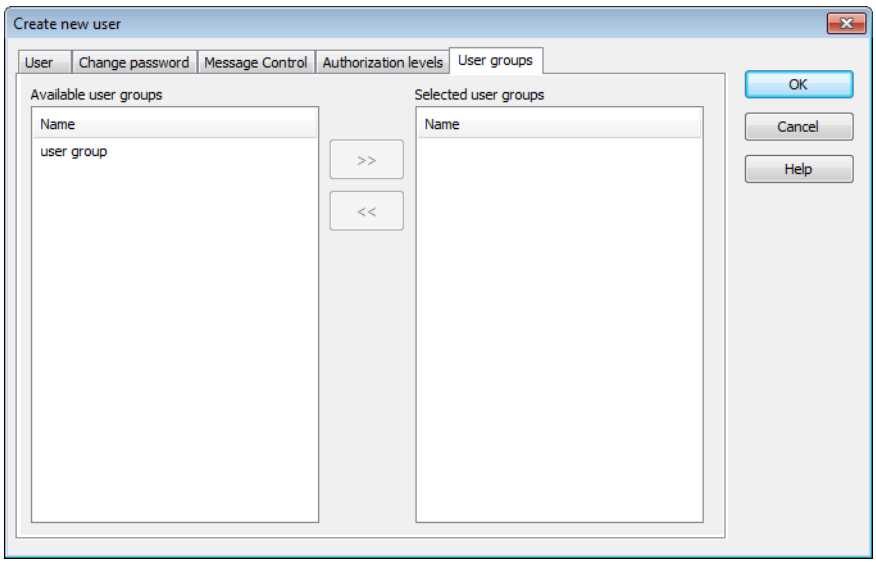
Note: Each desired level must be assigned and dedicated to that. A selected level closes neither the one above nor following levels.

CLOSE DIALOG

Option	Description
OK	**Applies all changes in all tabs and closes the dialog.**
Cancel	Discards all changes in all tabs and closes the dialog.
Help	Opens online help.

3.3.5 User groups

Assignment of the user to user groups.



Parameter	Description
Available user groups	List of all available user groups.
Selected user groups	List of assigned user groups.
Button double arrow to the right	Entries selected in the list **Available user groups** are added to list **Selected user groups**.

Parameter	Description
Button double arrow to the left	Selected entries in list **Selected user groups** are removed from the list.

CLOSE DIALOG

Option	Description
OK	**Applies all changes in all tabs and closes the dialog.**
Cancel	Discards all changes in all tabs and closes the dialog.
Help	Opens online help.

3.4 Create a user group

To create a user group:

1. Highlight the **User Groups** entry in the tree view of the Project Manager under the **User Administration** entry.
2. Right-click on the detailed view area (Project Manager Detail View) or directly on the **User Groups** entry
3. Select the **New user group** command in the context menu or alternatively click on the corresponding symbol in the toolbar

   The **Create new user group** dialog is opened.
4. Under Name (on page 21), define the naming of the user groups and the desired authorizations under authorization levels (on page 22).

Information

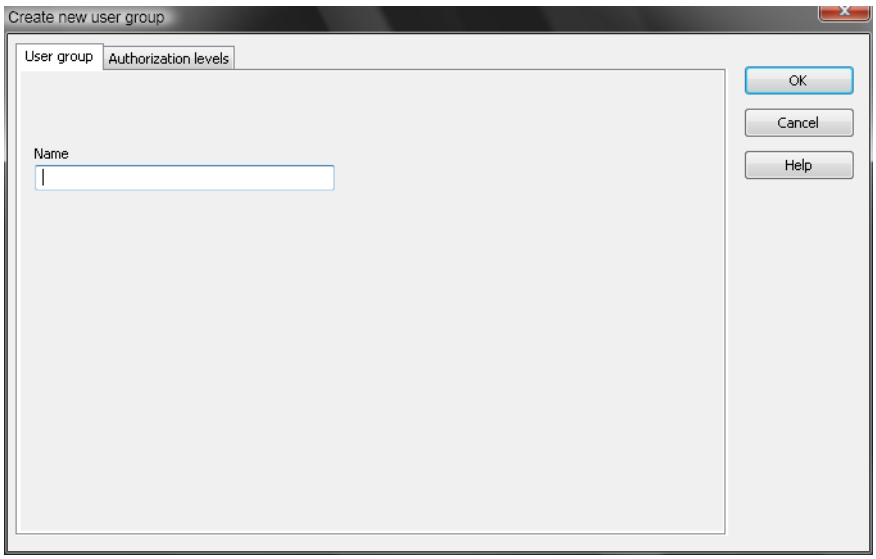
Each user group must have an unambiguous name in a project.

It is possible to create user groups with the same name in the global project and in the local project. If this is the case, the authorizations of the user group from the local project are used in the event of a conflict. If the local user group is deleted, the user again receives the rights from the group of the global project after the Runtime files are compiled in the Editor.

Example:

A user group **A** is present in both the local project and in the global project. In the global project it is allocated the authorization levels *1*, *2*, *3*, *100* and *101*, and authorization levels *1* and *2* in the local project. In the Runtime, the rules from the local project apply; only the authorization levels *1* and *2* are assigned. If user group A is not present in the local project, members of group **A** have authorization levels *1*, *2*, *3*, *100* and *101* from the global project.

3.4.1 Name the user group



Parameter	Description
Name	Name of the new user group Attention: **@** is not a valid character for a user group.

CLOSE DIALOG

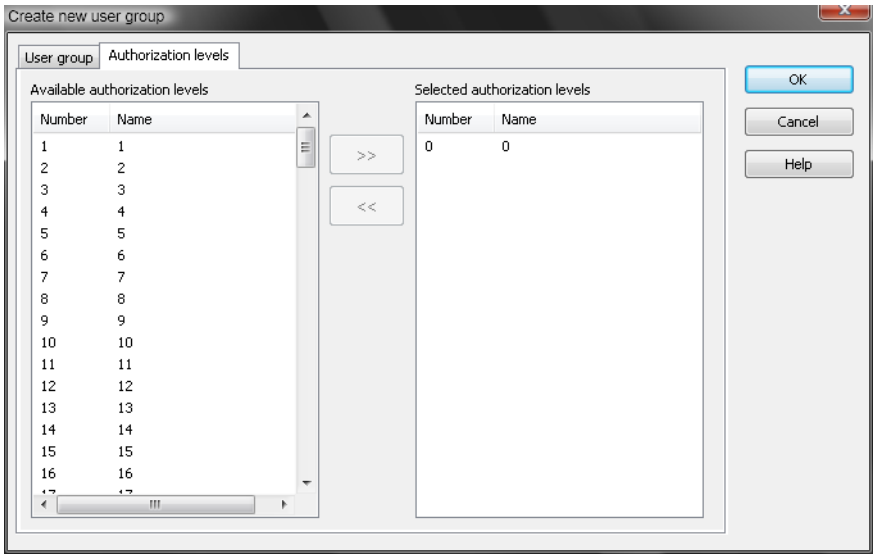
Option	Description
OK	**Applies all changes in all tabs and closes the dialog.**
Cancel	Discards all changes in all tabs and closes the dialog.
Help	Opens online help.

3.4.2 Authorization levels

Assignment of the authorization levels to a user group. 128 authorization levels (from 0 127) are available.

You assign authorization levels using the dialog to create an user group or by using the **Authorization levels** property.

DIALOG AUTHORIZATION LEVEL



Parameter	Description
Available authorization levels	List of all available authorizations
Selected authorization levels	List of assigned authorizations
Button double arrow to the right	Entries selected in the list **Available authorization levels** are added to list **Selected authorization levels**.
Button double arrow to the left	Selected entries in list **Selected authorization levels** are removed from the list.

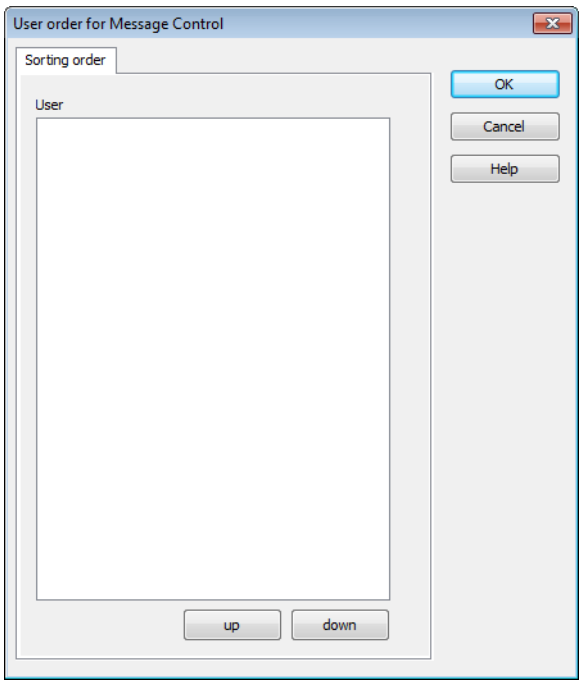
Note: Each desired level must be assigned and dedicated to that. A selected level closes neither the one above nor following levels.

CLOSE DIALOG

Option	Description
OK	**Applies all changes in all tabs and closes the dialog.**
Cancel	Discards all changes in all tabs and closes the dialog.
Help	Opens online help.

3.4.3 Order in Message Control

Defines the order of users within a group for the use of module Message Control.



Parameter	Description
User	List of all available users.
Up	Moves selected user up one place.
Down	Moves selected user down one place.
OK	Applies settings and closes the dialog.

Parameter	Description
Cancel	Discards all changes and closes the dialog.
Help	Opens online help.

3.5 Editing an user

A user is changed by selecting the user from the list in the detail view. As a result of this, the corresponding properties are displayed in the properties window and can be changed here.

3.6 Changing a user group

A user group is changed by selecting the user group from the list in the detail view. The respective parameters are displayed in the properties window as a result of this. You can change the **Name** and **Authorization levels** parameters.

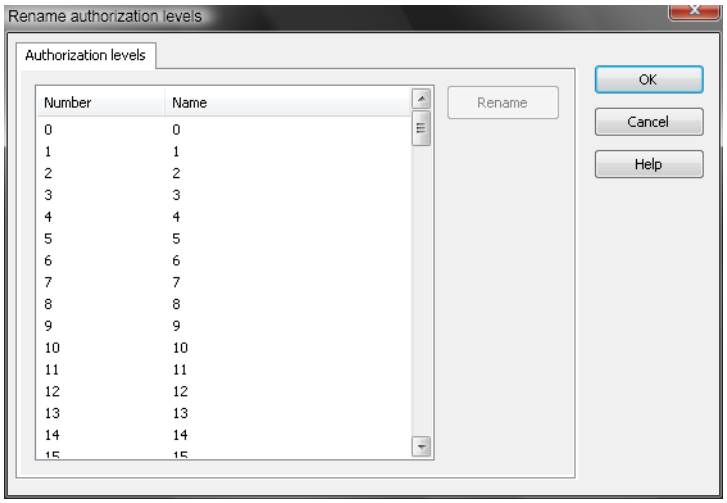
Information

If you rename a user group, all users that are linked to this user group lose this link. The user group is displayed with (del).

If there is already a user group with the same name in the global project however, all users previously linked to the group that has now been renamed assume all authorization levels of this user group.

3.7 Changing the names of the authorization levels

You can change the names of the authorization groups globally for your project. To do this, go to the **User Administration** group in project properties and click on the **Rename authorization levels** property there.



Open the editing field with a double click in the desired line of the **Name** column. Make the changes. The input is closed as soon as the focus is no longer in the field or it has been confirmed with **Enter**. The name is not changed if you press the **Esc key** or leave the edit field empty.

3.8 User selection: individual user

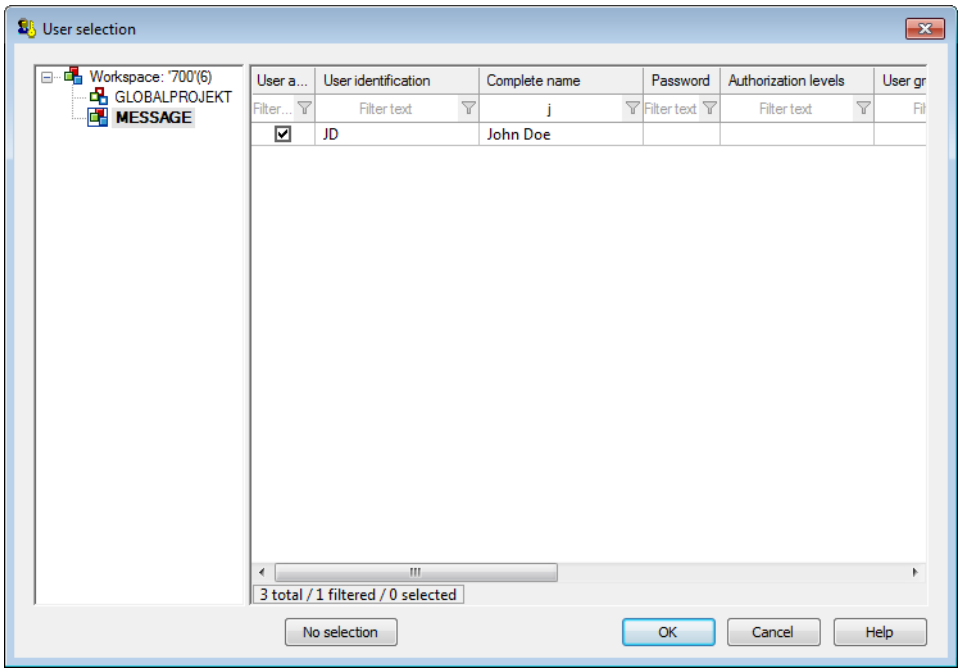
In the **user selection** dialog, you select a user in the Runtime for use in another module.

To select a user:

1. Highlight the desired driver in the list of existing users.
2. Confirm the settings with **OK**.

   The user is added.

USER SELECTION DIALOG



Option	Description
List workspace	Display and selection of the projects from which users can be selected.
List user	Display of the users of the selected projects. The list can be filtered.
No selection	An already existing user is deselected.

CLOSE DIALOG

Options	Description
OK	**Applies settings and closes the dialog.**
Cancel	Discards all changes and closes the dialog.
Help	Opens online help.

3.9 User selection: several users

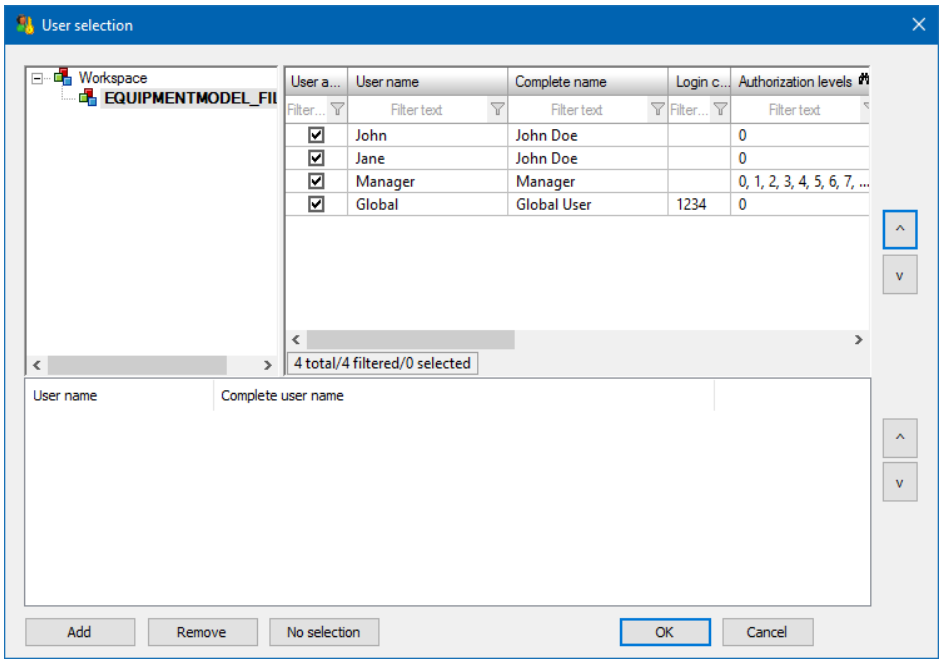
In the **user selection** dialog, you select several users in Runtime for use in another module.

To select users:

1. Highlight the desired users in the list of existing users.
2. Add the selection to the list of selected users with **Add**.
3. Confirm the settings with **OK**.

   The users are added to the dialog that is called up.

USER SELECTION DIALOG



Option	Description
Project list	Contains the projects available for selection. **Note:** Only the active project is available for shift management.
List of existing users	Displays all users available.
Arrow keys	Allows navigation in the list with touch operation.
List of selected users	Shows all users selected for use in the module.
Arrow keys	Allows navigation in the list with touch operation.
Add	Adds the users highlighted in the **list of existing users** to the **list of selected users**.
Remove	Removes all highlighted users from the **list of selected users**.
No selection	Removes the users who are already present in the **list of**

Option	Description
	selected users from the dialog.

CLOSE DIALOG

Option	Description
OK	**Applies settings and closes the dialog.**
Cancel	Discards all changes and closes the dialog.

3.10 Function authorizations

Function authorizations can be assigned in zenon. These function authorizations relate to functions in the Runtime and the configuration of modules in the Editor. If a user does not have the function authorization, then

- In the Runtime: the corresponding functions cannot be executed
- in the Editor: Toolbars and context menus of the corresponding module are grayed out

CONFIGURATION OF THE FUNCTION AUTHORIZATIONS

Function authorizations are configured in the zenon Editor (on page 29).

ASSIGNING THE FUNCTION AUTHORIZATIONS

This assignment is effected by means of:

- Function authorizations Runtime (on page 30)
- Function authorizations Editor (on page 38)

For global projects, the assignment is the same as for the Editor. In the process, the possibilities for selection are determined by the node points present in a global project.

As soon as one or more authorization levels greater than 0 are used, a login dialog appears when the project is loaded in the Editor. This dialog also appears if only one user was created in the project. This means that projects can be protected in the Editor. When entering the user name and password, a distinction is made between capital letter and small letters (case sensitivity).

IN GENERAL, THE FOLLOWING APPLIES:

- All project configurations for DragOver and drag&drop take module rights into account.
- For module rights that are not granted:

- The respective menu and toolbars are grayed out in the zenon Editor.
- No change to the project configuration is possible in the nodes and sub-nodes of the detail view.
- The corresponding key combinations are not active.
- The properties are grayed out in the properties window. As a result of this, further or "more in-depth" project configurations cannot be reached (for example combined elements, reaction matrix statuses, archive configuration etc.).
- If there are no module rights for the function authorization screen, editing of screens with the mouse is also no longer possible.

> **Attention**
>
> Therefore please note, even at the engineering stage, that at least one user is assigned to the following three authorization levels:
>
> - Load project
> - Project
> - User Administration

> **Information**
>
> If, for the global project, an authorization level (on page 38) greater than *0* is configured for the editing of screens and the logged-in user does not have this authorization level, the adding of symbols into the symbol library of the global project is not possible. Linked symbols from the global project also cannot be edited in screens of the local project in this case.

3.10.1 Configuration of function authorizations

To issue a function authorization:

1. Select the **User Administration** property group in the project properties.
2. In the **Function authorizations** properties field, click on the **...** button

   The dialog for configuration is opened
3. Issue the function authorization for:
   - The respective function in the Runtime

   and/or

- For the respective model in the Editor

4. Allocate the desired function authorization to an authorization level (on page 22).

To do this, it is necessary to have the respective licensing rights for the corresponding module. This is not taken in to account when engineering the individual authorization levels.

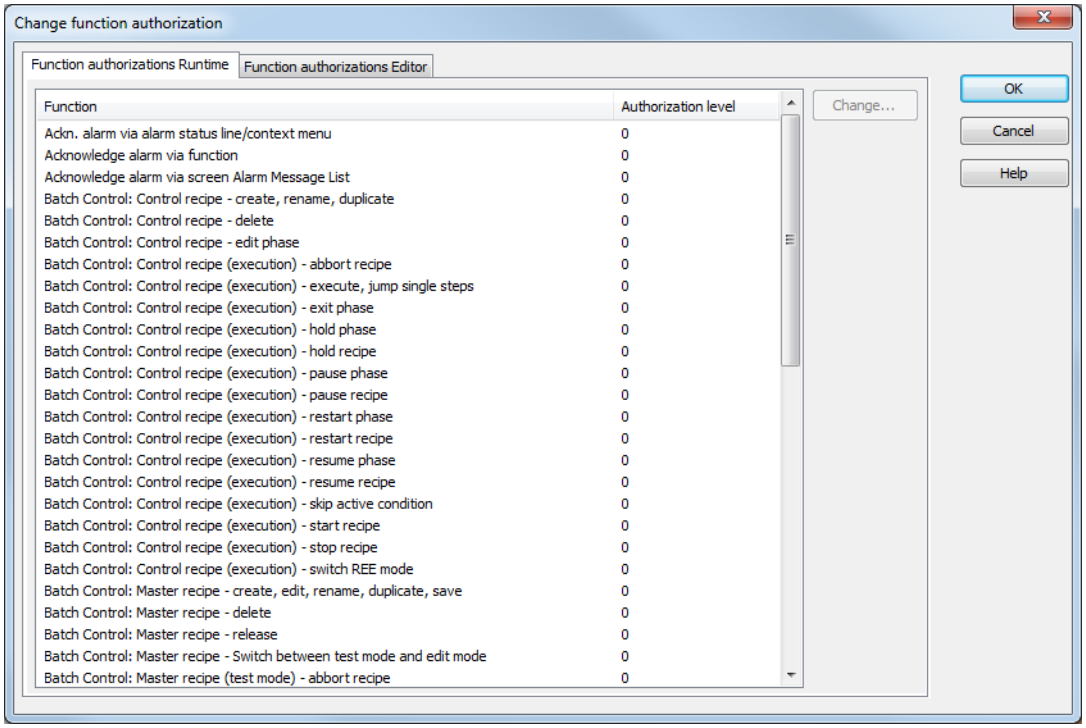
Note on function authorizations for the Editor:

- Changes to the function authorizations are only effective once the Editor has been restarted or the project has been reloaded.
- Ensure that at least one user has the required authorizations in order to edit user authorization settings.

3.10.2 Function authorizations Runtime

If function authorizations have been issued for Runtime, users must log in and have the corresponding authorization level in order for them to be able to execute this function.

CONFIGURATION OF FUNCTION AUTHORIZATIONS IN RUNTIME



For all actions, the user must be logged in and have the corresponding authorization levels.

FUNCTION AUTHORIZATIONS, GENERAL

Parameter	Description
Edit Extended Trend	Curves in Extended Trend can be edited in the Runtime. The following control elements are not available if the user does not have authorization: ▸ Diagram ▸ Curves ▸ Settings ▸ Cursor on/off ▸ X-axis
Return to last screen (PgUp)	Screen 'back' functions can be executed in Runtime.
Screen switch: *Enable* "**Show this dialog in Runtime**"	The **Screen switch** function, with the **Show this dialog in Runtime** option active, can only be executed if the user who is logged in meets authorization requirements.
Notepad: Open file	The function *Open file* in screen Notepad can only be carried out if the logged in user has the appropriate authorization level.
Notepad: Save file	The function *save* in screenNotepad can only be carried out if the logged in user has the appropriate authorization level.

FUNCTION AUTHORIZATIONS FOR ALARMS

Parameter	Description
Change alarm comment	A comment necessary for acknowledgment can be changed.
Enter alarm comment	A comment necessary for acknowledgment can be entered.
Confirm alarm acknowledgement	Alarms can be acknowledged in the Runtime.
Acknowledge alarm via alarm status line / context menu	Acknowledging an alarm via the alarm status line or the context menu is only possible if there is an authorization in the project of the alarm that is currently displayed. **For multi-project administration:** Acknowledging

Parameter	Description
	the system message in the alarm status line or via the context menu is only possible if there is authorization in the integration project. **Comment:** System messages are messages that appear in the alarm status line when a certain (configurable) number of alarms has been reached.
Acknowledge alarm via screen Alarm Message List	Acknowledging via Alarm Message List screens is only possible with authorization in the project linked to the variable (multi-project administration). **Note:**If there is no authorization, the flashing is stopped but the alarm is not acknowledged.
Acknowledge alarm via function	Acknowledging via a function is only possible if there is an authorization for the selected alarms in the respective projects.
Edit archive	Archive data (Archive server) can be amended in the Runtime.

You can set different authorization groups for each of these acknowledging methods. This allows you, for example, to configure that a certain user group can only acknowledge via the alarm status line, not in any other way.

Info

Acknowledging an alarm is only possible if there is an authorization for the selected alarms in the according projects.

FUNCTION AUTHORIZATION BATCH CONTROL

Parameter	Description
Batch Control: Import recipe/operation	Recipes can only be imported as an XML file in the Batch Control module if the user has the corresponding rights.
Batch Control: Control recipe - create, rename, duplicate	Control recipes in the Batch Control module can only be created and administered if the user has the corresponding rights.
Batch Control: Control recipe - edit control recipe	Settings in control recipes in the Batch Control module can only be edited if the user has the corresponding rights.

Parameter	Description
Batch Control: Control recipe - Delete	Control recipes in the Batch Control module can only be deleted if the user has the corresponding rights.
Batch Control: Control recipe (execution) - skip active condition	When executing control recipes in the Batch Control module, a phase can only be exited if the user has the corresponding rights.
Batch Control: Control recipe (execution) - exit phase	When executing control recipes in the Batch Control module, pending conditions can only be skipped if the user has the corresponding rights.
Batch Control: Control recipe (execution) - switch execution mode	When executing control recipes in the Batch Control module, the execution mode can only be switched if the user has the corresponding rights.
Batch Control: Control recipe (execution) - execute, jump single steps	When executing control recipes in the Batch Control module, the execution of individual steps can only be skipped if the user has the corresponding rights.
Batch Control: Control recipe (execution) - hold phase	When executing control recipes in the Batch Control module, a phase can only be stopped if the user has the corresponding rights.
Batch Control: Control recipe (execution) - resume phase	When executing control recipes in the Batch Control module, a phase can only be continued if the user has the corresponding rights.
Batch Control: Control recipe (execution) - restart phase	When executing control recipes in the Batch Control module, a phase can only be restarted if the user has the corresponding rights.
Batch Control: Control recipe (execution) - pause phase	When executing control recipes in the Batch Control module, a phase can only be paused if the user has the corresponding rights.
Batch Control: Control recipe (execution) - abort recipe	When executing control recipes in the Batch Control module, execution of the recipe can only be aborted if the user has the corresponding rights.
Batch Control: Control recipe (execution) - hold recipe	When executing control recipes in the Batch Control module, a recipe can only be stopped if the user has the corresponding rights.
Batch Control: Control recipe (execution) - resume recipe	When executing control recipes in the Batch Control module, a recipe can only be continued if the user has the corresponding rights.

Parameter	Description
Batch Control: Control recipe (execution) - restart recipe	When executing control recipes in the Batch Control module, a recipe can only be restarted if the user has the corresponding rights.
Batch Control: Control recipe (execution) - pause recipe	When executing control recipes in the Batch Control module, a recipe can only be paused if the user has the corresponding rights.
Batch Control: Control recipe (execution) - start recipe	When executing control recipes in the Batch Control module, a recipe can only be restarted if the user has the corresponding rights.
Batch Control: Control recipe (execution) - stop recipe	When executing control recipes in the Batch Control module, a recipe can only be stopped if the user has the corresponding rights.
Batch Control: Operation: create, edit, rename, duplicate, save	Operations in the Batch Control module can only be created, edited or administered if the user has the corresponding rights.
Batch Control: Operation: release	Operations in the Batch Control module can only be approved if the user has the corresponding rights.
Batch Control: Operation: delete	Operations in the Batch Control module can only be deleted if the user has the corresponding rights.
Batch Control: Master recipe - highlight as outdated	Master recipes in the Batch Control module can only be marked as obsolete if the user has the corresponding rights.
Batch Control: Master recipe - create, edit, rename, duplicate, save	Master recipes in the Batch Control module can only be created and administered if the user has the corresponding rights.
Batch Control: Master recipe - release	Master recipes in the Batch Control module can only be approved if the user has the corresponding rights.
Batch Control: Master recipe - Delete	Master recipes in the Batch Control module can only be deleted if the user has the corresponding rights.
Batch Control: Master recipe - Switch between test mode and edit mode	Switching between test mode and editing mode is only possible for master recipes in the Batch Control module if the user has the corresponding rights
Batch Control: Master recipe (test mode) - skip active condition	In test mode, with master recipes in the Batch Control module, it is only possible to skip a pending condition

Parameter	Description
	if the user has the corresponding rights.
Batch Control: Master recipe (test mode) - escape phase	In test mode, with master recipes in the Batch Control module, it is only possible to exit a phase if the user has the corresponding rights.
Batch Control: Master recipe (test mode) - switch execution mode	In test mode, with master recipes in the Batch Control module, the execution mode can only be switched if the user has the corresponding rights.
Batch Control: Master recipe (test mode) - execute, jump single step	In test mode, with master recipes in the Batch Control module, it is only possible to skip the execution of individual steps if the user has the corresponding rights.
Batch Control: Master recipe (test mode) - hold phase	In test mode, with master recipes in the Batch Control module, a phase can only be stopped if the user has the corresponding rights.
Batch Control: Master recipe (test mode) - edit phase	In test mode, with master recipes in the Batch Control module, a phase can only be edited if the user has the corresponding rights.
Batch Control: Master recipe (test mode) - resume phase	In test mode, with master recipes in the Batch Control module, a phase can only be continued if the user has the corresponding rights.
Batch Control: Master recipe (test mode) - restart phase	In test mode, with master recipes in the Batch Control module, a phase can only be started if the user has the corresponding rights.
Batch Control: Master recipe (test mode) - pause phase	In test mode, with master recipes in the Batch Control module, a phase can only be paused if the user has the corresponding rights.
Batch Control: Master recipe (test mode) - abort recipe	In test mode, with master recipes in the Batch Control module, a recipe can only be aborted if the user has the corresponding rights.
Batch Control: Master recipe (test mode) - hold recipe	In test mode, with master recipes in the Batch Control module, a recipe can only be held if the user has the corresponding rights.
Batch Control: Master recipe (test mode) - continue recipe	In test mode, with master recipes in the Batch Control module, a recipe can only be continued if the user has the corresponding rights.

Parameter	Description
Batch Control: Master recipe (test mode) - restart recipe	In test mode, with master recipes in the Batch Control module, a recipe can only be continued if the user has the corresponding rights.
Batch Control: Master recipe (test mode) - pause recipe	In test mode, with master recipes in the Batch Control module, a recipe can only be paused if the user has the corresponding rights.
Batch Control: Master recipe (test mode) - start recipe	In test mode, with master recipes in the Batch Control module, a recipe can only be started if the user has the corresponding rights.
Batch Control: Master recipe (test mode) - stop recipe	In test mode, with master recipes in the Batch Control module, a recipe can only be stopped if the user has the corresponding rights.

COMMAND SEQUENCER FUNCTION AUTHORIZATIONS:

Parameter	Description
Command Sequencer: Cancel execution	When executing command sequences in the Command Sequencer module, execution of the recipe can only be aborted if the user has the corresponding rights.
Command Sequencer: Continue execution	In the Command Sequencer module, a paused command sequence can only be continued if the user has the corresponding rights.
Command Sequencer: Pause execution	In the Command Sequencer module, a corresponding command sequence can only be paused if the user has the corresponding rights.
Command Sequencer: Start execution	Starting a command sequence in the Command Sequencer module is only possible if the user has the corresponding rights.
Command Sequencer: Switch execution mode	When executing command sequences in the Command Sequencer module, individual steps can only be executed or the execution of individual steps can only be skipped if the user has the corresponding rights.
Command Sequencer: Execute, jump single steps	When executing command sequences in the Command Sequencer module, individual steps can only be executed or the execution of individual steps

Parameter	Description
	can only be skipped if the user has the corresponding rights.
Command Sequencer: Create, edit, rename, duplicate, save	The administration of command sequences in the Command Sequencer module - for example creation, changing, editing, duplicating and saving - can only be configured if the user has the corresponding rights.
Command Sequencer: Delete	In the Command Sequencer module, configured command sequences can only be deleted if the user has the corresponding rights.
Command Sequencer: Import command sequences	Command sequences can only be imported as an XML file in the Command Sequencer module if the user has the corresponding rights.
Command Sequencer: Switching between execution and edit mode	Switching modes (edit mode and execution mode) is only possible in the Command Sequencer module if the user has the corresponding rights.

FUNCTION AUTHORIZATIONS FOR SHIFT MANAGEMENT:

Parameter	Description
Shift Management: create, edit or delete shift	When configuring shifts in the Shift Management module in the Runtime, a shift can only be created, edited or deleted if the user has the corresponding permissions.
Shift Management: create, edit or delete shift model	When configuring shift models in the Shift Management module in the Runtime, a shift can only be created, edited or deleted if the user has the corresponding permissions.

EDIT AUTHORIZATION LEVELS

Parameter	Description
Change	Opens the dialog (on page 22) to select the authorization levels. (The **user group** tab is hidden in the process) The selected authorization level is set for all selected functions.

CLOSE DIALOG

Option	Description
OK	**Applies all changes in all tabs and closes the dialog.**
Cancel	Discards all changes in all tabs and closes the dialog.
Help	Opens online help.

3.10.3 Function authorizations Editor

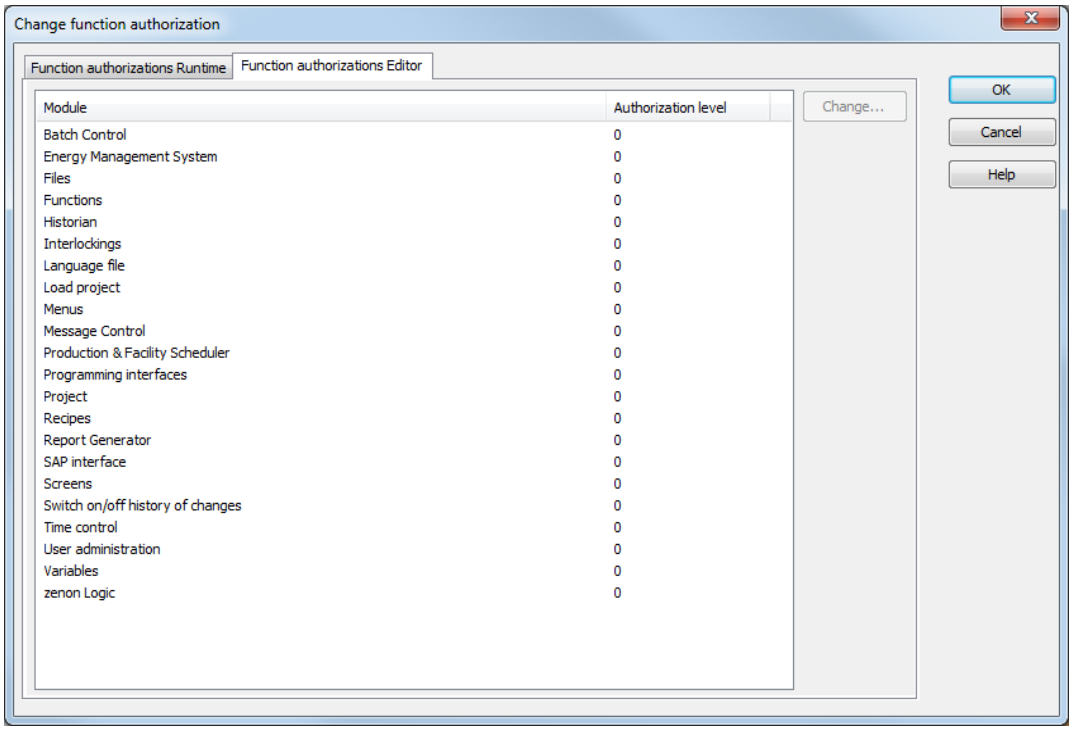
If a function authorization has been issued for at least one module, users must log in when opening the Editor. To do this, a dialog is called up when the editor is started. This shows the current project name in the header and allows login.

These function authorizations can only be amended again in this project. It is not possible to edit function authorizations with users from the global project or other projects.

Attention

Ensure that at least one user has the required authorizations in order to edit settings for the user authorization in the Editor. If no user, or only users with missing authorization levels, have been configured, this can lead to the project no longer being editable.

CONFIGURATION OF FUNCTION AUTHORIZATIONS IN THE EDITOR.



Module	Description
Switch on/off history of changes	The history of changes can only be switched on or off in the Editor,If the logged-in user is assigned to the corresponding user level.
Equipment Modeling	Only then is the Equipment modeling module available in the Editor for editing and engineering,If the logged-in user is assigned to the corresponding user level.
Historian	Only then is the Historian module available in the Editor for editing and engineering,If the logged-in user is assigned to the corresponding user level.
Batch Control	Only then is the Batch Control module available in the Editor for editing and engineering,If the logged-in user is assigned to the corresponding user level.
User Administration	Only then can users (on page 12) and user groups (on page 19) be edited or engineered in the Editor,If the logged-in user is assigned to the corresponding user level. **Comment:** In order to not be blocked out of a project, at least one user must be assigned to this function

Module	Description
	authorization.
Screens	Only then is the Screens node available in the Editor for editing and engineering,If the logged-in user is assigned to the corresponding user level.
Files	Only then is the Files node available in the Editor for editing and engineering,If the logged-in user is assigned to the corresponding user level.
Functions	Only then can functions and scripts be edited or engineered in the Editor,If the logged-in user is assigned to the corresponding user level.
Load Management	Only then is the Load management module available in the Editor for editing and project configuration,If the logged-in user is assigned to the corresponding user level.
Menus	Only then can menus be edited or engineered in the Editor,If the logged-in user is assigned to the corresponding user level.
Message Control	Only then is the Message Control module available in the Editor for editing and project configuration,If the logged-in user is assigned to the corresponding user level.
Production & Facility Scheduler	Only then is the Production& Facility Scheduler module available in the Editor for editing and engineering,If the logged-in user is assigned to the corresponding user level.
Programming Interfaces	Only then is the Programming interfaces node available in the Editor for editing and engineering,If the logged-in user is assigned to the corresponding user level.
Project	The project properties can only be amended in the Editor,If the logged-in user is assigned to the corresponding user level. **Comment:** In order to not be blocked out of a project, at least one user must be assigned to this function authorization.
Load project	The project can only be loaded in the Editor,If the logged-in user is assigned to the corresponding user

Module	Description
	level. **Comment:** In order to not be blocked out of a project, at least one user must be assigned to this function authorization.
Report Generator	Only then is the Report Generator available in the Editor for editing and engineering,If the logged-in user is assigned to the corresponding user level.
Recipes	Only then can Standard recipes and the Recipegroup Manager be edited or engineered in the Editor,If the logged-in user is assigned to the corresponding user level.
SAP Interface	Only then is the SAP interface module available in the Editor for editing and engineering,If the logged-in user is assigned to the corresponding user level.
Language File	Only then can Language switching be edited or engineered in the Editor,If the logged-in user is assigned to the corresponding user level.
Styles	Only then is the Styles module available in the Editor for editing and engineering,If the logged-in user is assigned to the corresponding user level. **Note:** Styles are only avialable in the Global Project.
Variables	Only then is the **Variables** node available in the Editor for editing and engineering,If the logged-in user is assigned to the corresponding user level.
Interlockings	Only then can Interlockings be edited or engineered in the Editor,If the logged-in user is assigned to the corresponding user level.
Time Control	Only then can Time Control be edited or engineered in the Editor,If the logged-in user is assigned to the corresponding user level.
zenon Logic	Only then can zenon Logic projects be edited or engineered in the Editor,If the logged-in user is assigned to the corresponding user level.

EDIT AUTHORIZATION LEVELS

Parameter	Description
Change	Opens the dialog (on page 22) to select the authorization levels. (The **user group** tab is hidden in the process) The selected authorization level is set for all selected functions.

CLOSE DIALOG

Option	Description
OK	**Applies all changes in all tabs and closes the dialog.**
Cancel	Discards all changes in all tabs and closes the dialog.
Help	Opens online help.

Info

You can select several entries at the same time with the keyboard shortcut **Ctrl+mouse click or Shift+mouse click**.

- You can select a number of entries by pressing and holding the **Ctrl key**.
- By pressing and holding **Shift** and select two entriey, you select all entries which lie between the two selected entries.
- By pressing and holding both **Ctrl** and **Shift** and selecting two entries, all entries which lie between the selected entries are selected. The entries which were selected beforehand remain selected.

3.11 Screen types, dialogs and functions for login and user administration

LOGIN

It is possible to log in to the Runtime by means of:

- A *Login* (on page 43) screen: Permanent login, temporary login or entry of a signature via screen switching.
- *Temporary login* (on page 74) modal dialog: Is used for a temporary login if no *login* screen is linked.

- *Login with dialog* (on page 87) function: Login via a modal dialog or the *login* screen if this has been linked.
- *Login without password* (on page 88) function: Logging in a user without entering a password by means of direct linking or by chip identification system.

If a *login* screen is to be used for temporary login or the **Login with dialog** function is to be used, it must be linked in the **Screen for Login** project property.

USER ADMINISTRATION

The following types of user are available:

- User list (on page 46) screen: Lists all zenon users who have been created and makes it possible to create, edit or delete these via the *Edit user* screen and to configure authorization levels.
- User group list (on page 54) screen Lists all zenon user groups that have been created and makes it possible to create new ones and configure authorization levels.
- Edit user (on page 58) screen: Makes it possible to edit users and passwords in the Runtime.
- Change user (on page 93) function: Opens a dialog to edit users and user groups.
- Change password (on page 116) function: Opens a dialog to edit your own password.

3.11.1 Creating a screen of the type Login

CREATING A SCREEN OF THE TYPE LOGIN

ENGINEERING

Two procedures are available to create a screen:

- The use of the screen creation dialog
- The creation of a screen using the properties

Steps to create the screen using the properties if the screen creation dialog has been deactivated in the menu bar under **Tools**, **Settings** and **Use assistant**:

1. Create a new screen.

   To do this, select the **New screen** command in the tool bar or in the context menu of the **Screens** node.
2. Change the properties of the screen:
   a) Name the screen in the **Name** property.
   b) Select *Login* in the **Screen type** property.

c) Select the desired frame in the **Frame** property.

3. Configure the content of the screen:

   a) Select the **Elements (screen type)** menu item from the menu bar.

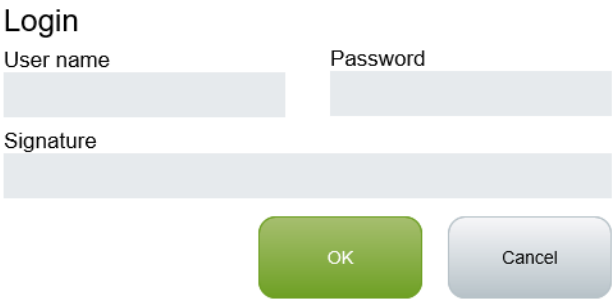
   b) Select *Insert template* in the drop-down list.
   The dialog to select pre-defined layouts is opened. Certain control elements are inserted into the screen at predefined positions.

   c) Remove elements that are not required from the screen.

   d) If necessary, select additional elements in the **Elements** drop-down list. Place these at the desired position in the screen.

4. Create a screen switch function.

SCREEN OF TYPE LOGIN



Control element	Description
Insert template	Opens the dialog for selecting a template for the screen type. Templates are shipped together with zenon and can also be created by the user. Templates add pre-defined control elements to pre-defined position in the screen. Elements that are not necessary can also be removed individually once they have been created. Additional elements are selected from the drop-down list and placed in the zenon screen. Elements can be moved on the screen and arranged individually.

Control element	Description
Current user (Display)	**Display of the currently logged in user** **Note: Element of the type *Dynamic text*. Functionality is assigned using the Screen type specific action property.**
User name	Input area for username. **Note:** Element of the type *Dynamic text*. Functionality is assigned using the **Screen type specific action** property.
Password	Input field for password. **Note:** Element of the type *Dynamic text*. Functionality is assigned using the **Screen type specific action** property.
Signature	Input field for signature. **Note:** Element of the type *Dynamic text*. Functionality is assigned using the **Screen type specific action** property.
OK	Button to close the screen after login.
Cancel	Cancels the login process.
Apply	Applies all changes and leaves the dialog open. **Exception:** The window is closed if the maximum number of invalid login attempts has been set to *0* using the **Max. user error** property.

COMPATIBLE ELEMENTS

Control element	Description
Compatible elements	Control elements that are replaced or removed by newer versions and continue to be available for compatibility reasons. These elements are not taken into account with automatic insertion of templates.
Users	Properties for users.
Current user (display)	Static Win32 control element. Was replaced by a

Control element	Description
	dynamic text field. For the description, see current element.
User name	Static Win32 control element. Was replaced by a *dynamic text* field. For the description, see current element.
Password	Static Win32 control element. Was replaced by a *dynamic text* field. For the description, see current element.
Signature	Static Win32 control element. Was replaced by a *dynamic text* field. For the description, see current element.

Note: For *dynamic text* or switch control elements , the respective functionality is assigned using the **Screen type specific action** property.

Information

When logging in/out, the corresponding entries are created in the CEL all projects concerned.

3.11.1.1 Screen switch to login

With screen switching, you define which screen is opened in the Runtime for the login of users.

To create a screen switch to a *login* screen:

1. Create a function.
2. Select screen switching.
3. select the *login* screen.
4. Link the function to a button.

3.11.2 Creating a user list screen

The *user list* screen lists all zenon users of the project who have been created and makes it possible to call up the *Edit user* screen and thus create, edit or delete users and configure authorization levels. Users from the global project are not displayed and cannot be administered.

If you want to edit the list directly using the monitor, activate the Multi-Touch functionality.
You can find detailed information in relation to this in the Configure interactions chapter.

ENGINEERING

Two procedures are available to create a screen:

- The use of the screen creation dialog
- The creation of a screen using the properties

Steps to create the screen using the properties if the screen creation dialog has been deactivated in the menu bar under **Tools**, **Settings** and **Use assistant**:

1. Create a new screen.

   To do this, select the **New screen** command in the tool bar or in the context menu of the **Screens** node.

2. Change the properties of the screen:

   a) Name the screen in the **Name** property.

   b) Select *User List* in the **Screen type** property.

   c) Select the desired frame in the **Frame** property.

3. Configure the content of the screen:

   a) Select the **Elements (screen type)** menu item from the menu bar.

   b) Select *Insert template* in the drop-down list.
   The dialog to select pre-defined layouts is opened. Certain control elements are inserted into the screen at predefined positions.

   c) Remove elements that are not required from the screen.

   d) If necessary, select additional elements in the **Elements** drop-down list. Place these at the desired position in the screen.

4. Create a screen switch function.

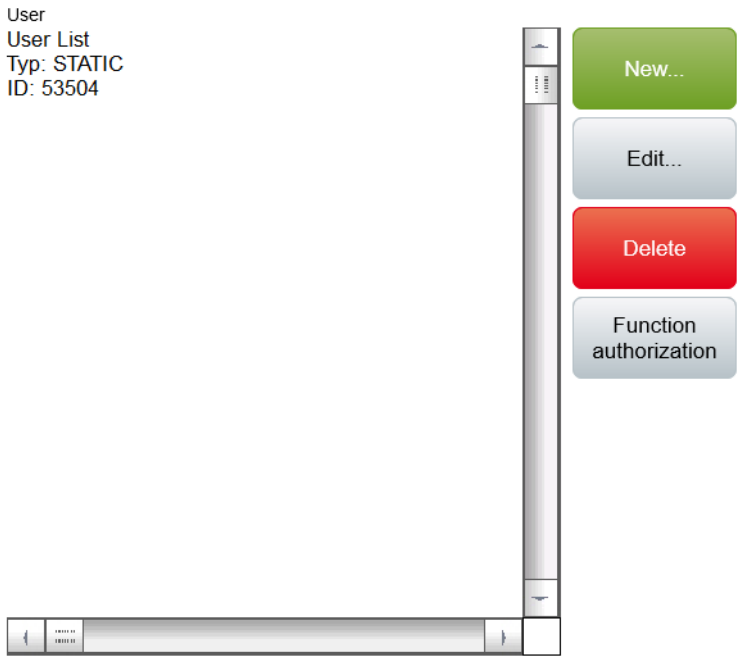
Note: This screen type is not available under Windows CE.

DISPLAY OF LONGER TEXTS IN LISTS

Longer texts can also be displayed in the Runtime over several lines using the **Automatic word wrap** property.

In the Editor, go to **Representation** in the properties of the respective list properties and activate the checkbox of the **Automatic word wrap** property.

The line height must be amended manually.



Control element	Description
Insert template	Opens the dialog for selecting a template for the screen type. Templates are shipped together with zenon and can also be created by the user. Templates add pre-defined control elements to pre-defined position in the screen. Elements that are not necessary can also be removed individually once they have been created. Additional elements are selected from the drop-down list and placed in the zenon screen. Elements can be moved on the screen and arranged individually.
User List	Displays the configured users.
New	Opens the screen defined in screen switching to create a new user.
Edit	Opens the screen defined in screen switching to edit a new user.
Delete	Deletes the selected user after requesting confirmation.
Function authorizations	Opens the dialog for issuing function authorizations.

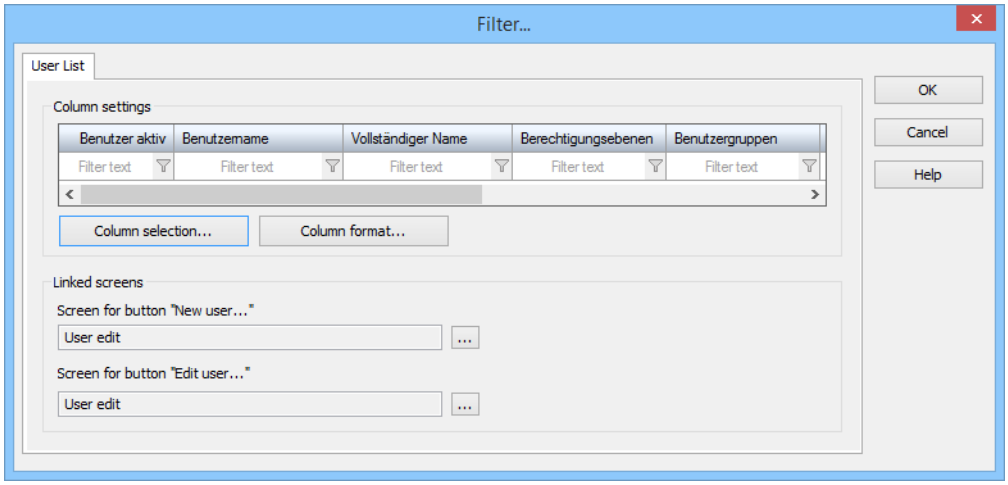
3.11.2.1 Screen switching to the user list

With screen switching, you define which screen is opened in the Runtime for the creation or editing of users.

To create a screen switch to a *user list* screen:

1. Create a function.
2. Select screen switching.
3. Select *user list* screen.
4. The dialog for configuration is opened
5. Configure the screen switching.
6. Confirm the configuration by clicking on **OK**.
7. Link the function to a button.

USER LIST DIALOG



Parameter	Description
Column settings	Display and configuration of the columns. Changing the order is carried out by moving the mouse or with the **column selection** button. The column width is set by moving the mouse or with the **column format** button.
Column selection	Opens the dialog for configuration (on page 50) of the

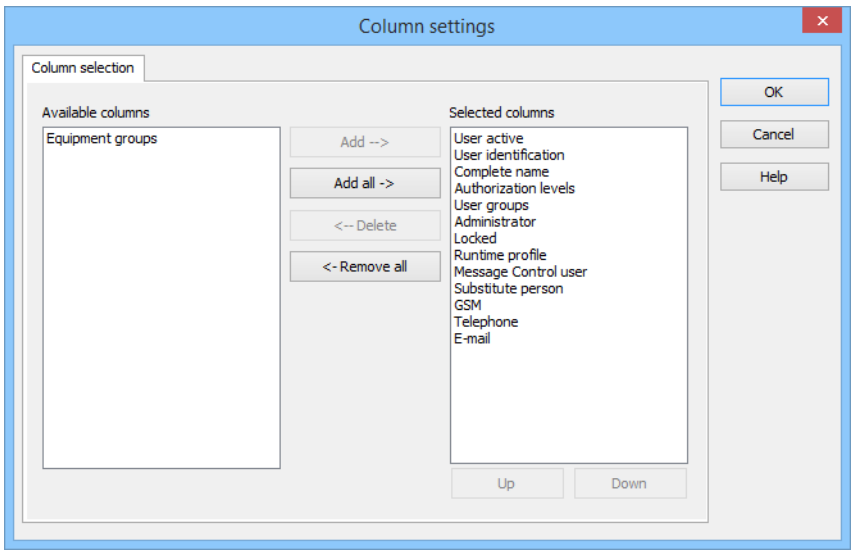
Parameter	Description
	columns.
Column format	Opens the dialog to format (on page 52) the columns..
Linked screens	Configuration of the screens that are opened in the Runtime by clicking on the **New** and **Edit** buttons.
Screen for "New user" button	Opens the dialog to select a screen in order to select a screen to create a new user in the Runtime. Only *Edit user* screens can be selected.
Screen for "Edit user" button	Opens the dialog to select a screen in order to select a screen to edit a user in the Runtime. Only *Edit user* screens can be selected.

CLOSE DIALOG

Options	Description
OK	**Applies settings and closes the dialog.**
Cancel	Discards all changes and closes the dialog.
Help	Opens online help.

3.11.2.1.1 Column selection

Configuration of the columns to be displayed:



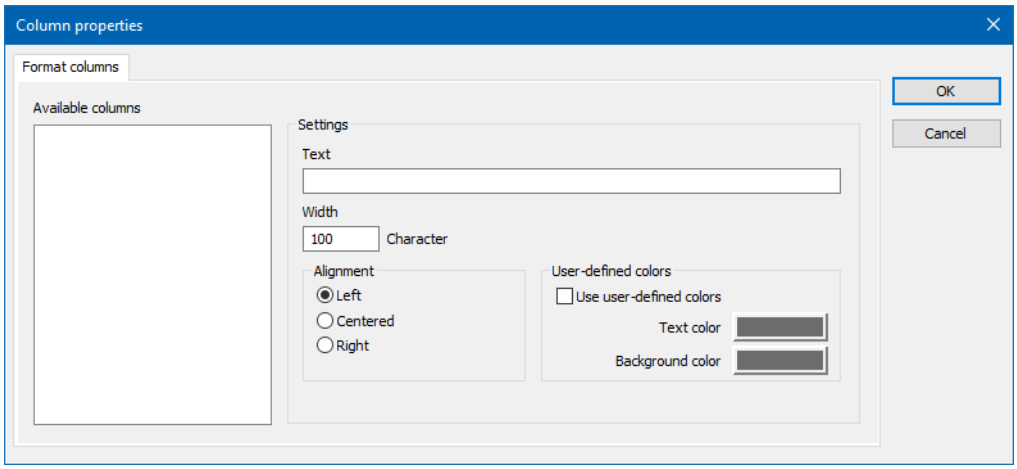
Option	Function
Available columns	List of columns that can be displayed in the table.
Selected columns	Columns that are displayed in the table.
Add ->	Moves the selected column from the available ones to the selected items. After you confirm the dialog with OK, they are shown in the detail view.
Add all ->	Moves all available columns to the selected columns.
<- Remove	Removes the marked columns from the selected items and shows them in the list of available columns. After you confirm the dialog with OK, they are removed from the detail view.
<- Remove all	All columns are removed from the list of the selected columns.
Up	Moves the selected entry upward. This function is only available for unique entries, multiple selection is not possible.
Down	Moves the selected entry downward. This function is only available for unique entries, multiple selection is not possible.

CLOSE DIALOG

Options	Description
OK	**Applies settings and closes the dialog.**
Cancel	Discards all changes and closes the dialog.
Help	Opens online help.

3.11.2.1.2 Column Format

Configuration of the properties of the columns for configurable lists. The settings have an effect on the respective list in the Editor or - when configuring screen switching - in Runtime.



AVAILABLE COLUMNS

Option	Description
Available columns	List of the available columns via **Column selection**. The highlighted column is configured via the options in the **Settings** area.

SETTINGS

Option	Description
Settings	Settings for selected column.
Labeling	Name for column title. The column title is online language switchable. To do this, the **@** character must be entered in front of the name.
Width	Width of the column in characters. Calculation: Number time average character width of the selected font.
Alignment	Alignment. Selection by means of radio buttons. Possible settings: ▸ **Left**: Text is justified on the left edge of the column. ▸ **Centered**: Text is displayed centered in the

Option	Description
	column. ▸ **Right**: Text is justified on the right edge of the column.
User-defined colors	Properties in order to define user-defined colors for text and background. The settings have an effect on the Editor and Runtime. **Note:** ▸ These settings are only available for configurable lists. ▸ In addition, the respective focus in the list can be signalized in the Runtime by means of different text and background colors. These are configured using the project properties.
User defined colors	*Active*: User-defined colors are used.
Text color	Color for text display. Clicking on the color opens the color palette to select a color.
Background color	Color for the display of the cell background. Clicking on the color opens the color palette to select a color.
Lock column filter in the Runtime	▸ *Active*: The filter for this column cannot be changed in the Runtime. **Note:** Only available for: ▸ Batch Control ▸ Extended Trend ▸ Filter screens ▸ Message Control ▸ Recipegroup Manager ▸ Shift Management ▸ Context List

CLOSE DIALOG

Option	Description
OK	**Applies all changes in all tabs and closes the dialog.**
Cancel	Discards all changes in all tabs and closes the dialog.
Help	Opens online help.

3.11.3 Creating a user group list screen

CREATING A USER GROUP LIST SCREEN

The *User Groups list* screen lists all zenon user groups created in the project and makes it possible to create new groups and assign authorization levels. User groups from the global project are not displayed and cannot be administered.

ENGINEERING

Two procedures are available to create a screen:

- The use of the screen creation dialog
- The creation of a screen using the properties

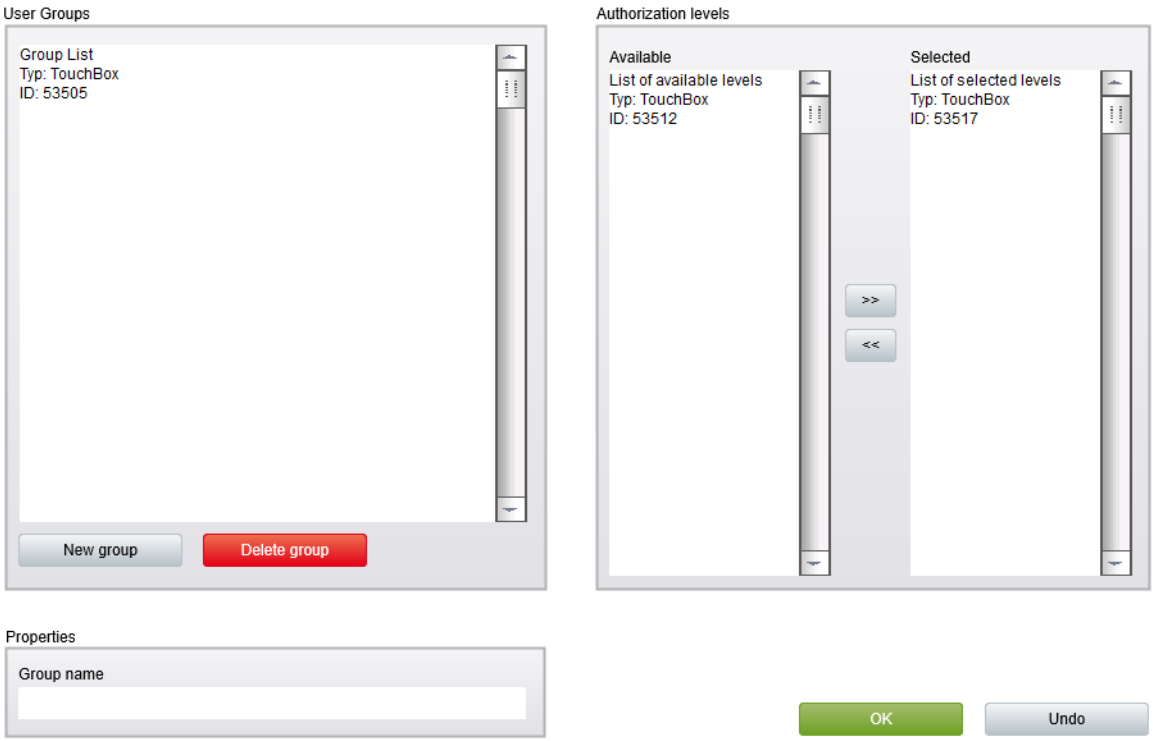
Steps to create the screen using the properties if the screen creation dialog has been deactivated in the menu bar under **Tools**, **Settings** and **Use assistant**:

1. Create a new screen.

   To do this, select the **New screen** command in the tool bar or in the context menu of the **Screens** node.
2. Change the properties of the screen:
   a) Name the screen in the **Name** property.
   b) Select *User Groups list* in the **Screen type** property.
   c) Select the desired frame in the **Frame** property.
3. Configure the content of the screen:
   a) Select the **Elements (screen type)** menu item from the menu bar.
   b) Select *Insert template* in the drop-down list.
   The dialog to select pre-defined layouts is opened. Certain control elements are inserted into the screen at predefined positions.
   c) Remove elements that are not required from the screen.

d) If necessary, select additional elements in the **Elements** drop-down list. Place these at the desired position in the screen.

4. Create a screen switch function.



Control element	Description
Insert template	Opens the dialog for selecting a template for the screen type. Templates are shipped together with zenon and can also be created by the user. Templates add pre-defined control elements to pre-defined position in the screen. Elements that are not necessary can also be removed individually once they have been created. Additional elements are selected from the drop-down list and placed in the zenon screen. Elements can be moved on the screen and arranged individually.

GROUP LIST

Control elements for the display of the user groups.

Control element	Description
Previous group	Goes to the previous group.
Group list	List of available user groups.
Next group	Goes to the next group.
New group	Creates a new user group. The focus is set to the **group name** control element for input. Clicking on the **OK** button after input creates a new user group.
Delete group	Deletes selected group after a confirmation message.

PROPERTIES

Issue of group names and confirmation/rejection of changes.

Control element	Description
Group name	Display or entry of a group name. **Note:** Element of the type *Dynamic text*. Functionality is assigned using the **Screen type specific action** property.
OK	Applies changes.
Cancel	Discards all changes since the last acceptance with **OK**.

AUTHORIZATION LEVELS

Configuration of the authorization levels.

Control element	Description
Available authorization levels	Display of the authorization levels available.
Previous available authorization level	Goes to the previous level.
Listbox	Display of the authorization levels.
Next available level	Goes to the next level.
Apply level (>>)	Moves selected level from **available authorization levels** to **selected authorization levels**.

Control element	Description
Remove level (<<)	Moves selected level from **selected authorization levels** to **available authorization levels**.
Selected authorization levels	Display of the authorization levels selected for the user group.
Previous selected level	Goes to the previous level.
Listbox	Display of the selected authorization levels.
Next selected level	Goes to the next level.

COMPATIBLE ELEMENTS

Control element	Description
Compatible elements	Control elements that are replaced or removed by newer versions and continue to be available for compatibility reasons. These elements are not taken into account with automatic insertion of templates.
Group name	Static Win32 control element. Was replaced by a *dynamic text* field. For the description, see current element.

Note: For *dynamic text* or switch control elements , the respective functionality is assigned using the **Screen type specific action** property.

3.11.3.1 Screen switching to user group list

With screen switching, you also define which screen is opened in the Runtime for the creation or editing of user groups.

To create a screen switch to a *user group list* screen:

1. Create a function.
2. Select screen switching.
3. Select the *user group list* screen
4. Confirm the configuration by clicking on **OK**.
5. Link the function to a button.

3.11.4 Create Edit user screen

This screen type allows the editing of users in the Runtime. Depending on the configuration of screen switching, users can be created or edited and passwords can be changed. Users and user groups from the global project cannot be administered.

Note: This screen type is not available under Windows CE.

ENGINEERING

Two procedures are available to create a screen:

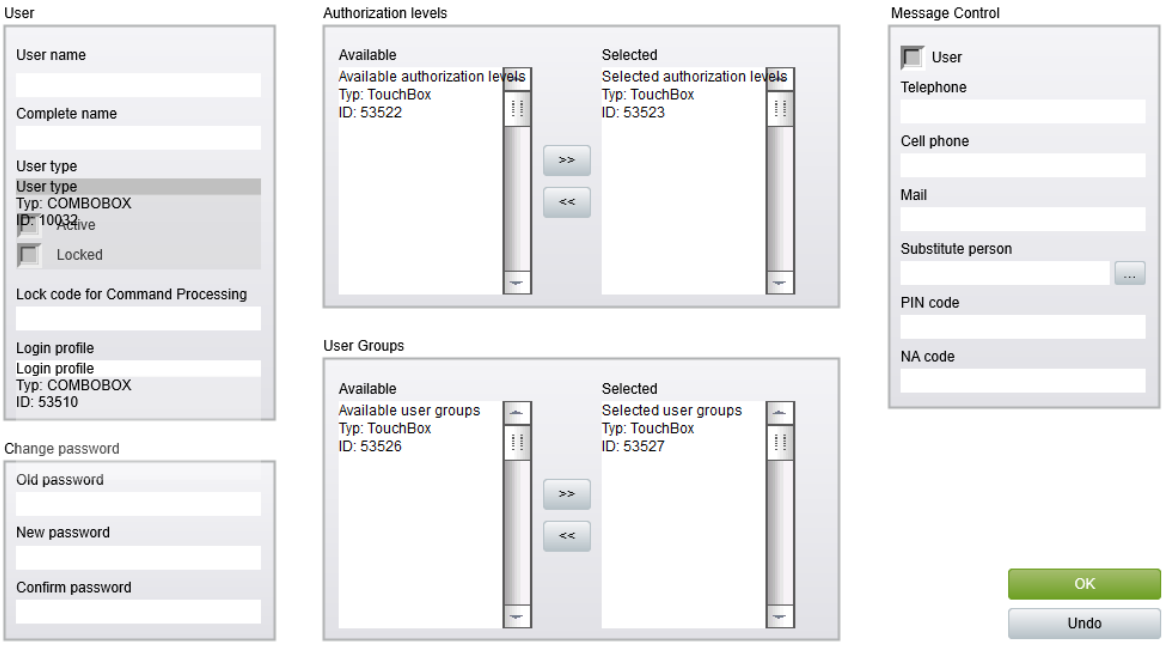
- The use of the screen creation dialog
- The creation of a screen using the properties

Steps to create the screen using the properties if the screen creation dialog has been deactivated in the menu bar under **Tools**, **Settings** and **Use assistant**:

1. Create a new screen.

   To do this, select the **New screen** command in the tool bar or in the context menu of the **Screens** node.
2. Change the properties of the screen:
   a) Name the screen in the **Name** property.
   b) Select *Edit User* in the **Screen type** property.
   c) Select the desired frame in the **Frame** property.
3. Configure the content of the screen:
   a) Select the **Elements (screen type)** menu item from the menu bar.
   b) Select *Insert template* in the drop-down list.
   The dialog to select pre-defined layouts is opened. Certain control elements are inserted into the screen at predefined positions.
   c) Remove elements that are not required from the screen.
   d) If necessary, select additional elements in the **Elements** drop-down list. Place these at the desired position in the screen.
4. Create a screen switch function.

CONTROL ELEMENTS



Control element	Description
Insert template	Opens the dialog for selecting a template for the screen type. Templates are shipped together with zenon and can also be created by the user. Templates add pre-defined control elements to pre-defined position in the screen. Elements that are not necessary can also be removed individually once they have been created. Additional elements are selected from the drop-down list and placed in the zenon screen. Elements can be moved on the screen and arranged individually.

USER

Control element for user configuration.

Control element	Description
User name	Enter the username. The user logs in to the system with his username. Maximum length: 20 characters.

Control element	Description
	Note: This name must be unique and can only be issued once. If an attempt is made to create a pre-existing user again, an error message is issued.
Complete name	Enter the full name of the user. With this you can allocate a username to a real person.
Login code	Entry of the login code for login without password. The following is applicable for the login code: ▸ Must be unique within the project. **Note:** If the same login code is used for a user in the local project and the global project, the user from the global project is not transferred when creating the Runtime files in the Editor. Note the corresponding error message in the output window. When the login code is changed in the Runtime, it must not be the same as the code of a user from the global project. ▸ Can be empty. It is thus deactivated for this user. ▸ Maximum length: *1000 characters* ▸ Must not consist of spaces only. ▸ Leading or closing spaces are not permitted. ▸ All other characters are permitted. Default: (empty) If an invalid login code is entered, a corresponding error message is shown when the dialog is closed. For details, see the **Login via login code** (on page 90) chapter.
User type	Drop-down list for the selection of the user type: ▸ *User*: Can carry out actions according to the authorization levels they have been assigned.

Control element	Description
	▸ *Power user*: Can also create and edit users. Whether this is also applicable for other power users is configured using the **Power user can create/edit other power users** option. ▸ *Administrator*: Can create and edit all other users and power users.
Active	Checkbox. *Active*: The user is active and can login in the Runtime. **Note:** According to FDA 21 PART 11 regulations, a user can never be deleted, so it is possible to trace who carried out which action at any time. Therefore for projects which adhere to these regulations, a user must not be deleted but only deactivated. To prevent the deletion of users, deactivate the **User Administration** property in the **Deleting users** group in the project properties.
Locked	Checkbox. *Active*: The user is locked in the Runtime and cannot login. This option is set automatically if a user enters an incorrect password more than is permitted.
Power user can create/edit other power users	Checkbox. Settings for the power users' detail rights: ▸ *Active*: Can also create and edit other power users. ▸ *Inactive*: Can only create and edit users. Default: *inactive*
Lock code for command processing	Four-digit PIN code.

Control element	Description
	This code is used by the user in the command processing to block areas or to unlock them. Only available if **zenon Energy Edition** has been licensed.
Login profile	Selection of the Runtime profile that is used for login from a drop-down list: ▸ None ▸ Default ▸ Last

CHANGE PASSWORD

Control element for password configuration.

Control element	Description
Old password	Current password.
New password	Enter new password. Input is automatically hidden. For projects with multiple languages, note that it must be possible to enter the characters with the respective keyboard in the Runtime.
Confirm password	Repeat the password. Input is automatically hidden.

MESSAGE CONTROL

Control element for configuration of Message Control.

Control element	Description
Message Control User	Checkbox. *Active*: The user is used by the module Message Control.
Telephone	Number of the voice-compatible telephone device of the user. Used for text to speech. Enter numbers. In addition, the following are permitted: ▸ The prefix **+** as an abbreviation for *00* of the

Control element	Description
	international area code is permitted. The following separators are also permitted in AD user administration: Minus (**-**), slash (**/**) and **space** Note: When communicating between AD and Message Control, separators are ignored as soon as the data from the AD is mapped to a zenon object.
Cell phone	Cellphone number of the user. Used for messages via GSM and SMS (text messages). Enter numbers. In addition, the following are permitted: ▸ The prefix **+** as an abbreviation for *00* of the international area code is permitted. The following separators are also permitted in AD user administration: Minus (**-**), slash (**/**) and **space** Note: When communicating between AD and Message Control, separators are ignored as soon as the data from the AD is mapped to a zenon object.
Email	E-mail address of the user
Substitute person	If a user has not been reached or they do not accept the message, a substitute person can be given. Click the **...** button and the dialog (on page 25) opens to select an user. Only users who have been activated as **Message Control** users are offered for selection.
Select substitute person	Click on the **...** button to open the dialog (on page 25) to select a substitute person.
PIN code	PIN code with which the user confirms the receipt of the message. The code consists of a four-digit number between *0000* and *9999*.
NA code	PIN code with which the user rejects the receipt of the message (not available). The message is then sent to the next user in the list. If there is no other user entered in the list, the

Control element	Description
	message is entered as "*not successfully acknowledged*". The function assigned to this is executed. In addition, a "*rejected by*" CEL entry is created in each case. The code consists of a four-digit number between *0000* and *9999*. **Note:** You can find further information on the assignment of functions in the Confirmation of receipt - confirmation of receipt settings chapter.

AUTHORIZATION LEVELS

Control element to configure the authorization levels.

Control element	Description
Available authorization levels	List of all available authorizations.
Selected authorization levels	List of all selected authorizations.
Apply authorization level (>>)	Entries selected in the list **Available authorization levels** are added to list **Selected authorization levels**.
Remove authorization level (<<)	Selected entries in list **Selected authorization levels** are removed from the list.

USER GROUPS

Control element to configure the user groups.

Control element	Description
Available user groups	List of all available user groups.
Selected user groups	List of assigned user groups.
Apply user group (>>)	Entries selected in the list **Available user groups** are added to list **Selected user groups**.
Remove user group (<<)	Selected entries in list **Selected user groups** are removed from the list.

TOUCH

Control element for navigation in list boxes, optimized for Touch operation.

Control element	Description
Available authorization level up	Navigates one authorization level up in the **Available authorization levels** list box.
Available authorization level down	Navigates one authorization level down in the **Available authorization levels** list box.
Selected authorization group up	Navigates one authorization level up in the **Selected authorization levels** list box.
Selected authorization group down	Navigates one authorization level down in the **Selected authorization levels** list box.
Available user groups up	Navigates one authorization level up in the **Available user groups** list box.
Available user groups down	Navigates one authorization level down in the **Available user groups** list box.
Selected user group up	Navigates one authorization level up in the **Selected user groups** list box.
Selected user group down	Navigates one authorization level down in the **Selected user groups** list box.

OK/CANCEL

Control element to confirm or discard changes.

Control element	Description
OK	Applies changes.
Cancel	Discards all changes since the last acceptance with **OK**.

COMPATIBLE ELEMENTS

Control element	Description
Compatible elements	Control elements that are replaced or removed by newer versions and continue to be available for compatibility reasons. These elements are not taken into account with automatic insertion of templates.
User	Static Win32 control element. Was replaced by a *dynamic text* field. For the description, see current

Control element	Description
	element.
User name	Static Win32 control element. Was replaced by a *dynamic text* field. For the description, see current element.
Complete name	Static Win32 control element. Was replaced by a *dynamic text* field. For the description, see current element.
Administrator [Button]	Static Win32 control element. Was replaced by a *switch* element. For the description, see new element.
Administrator [Switch]	*Switch* element. Has been replaced with the **user type** drop-down list. For the description, see new element.
Active	Static Win32 control element. Was replaced by a *switch* element. For the description, see new element.
Locked	Static Win32 control element. Was replaced by a *switch* element. For the description, see new element.
Lock code for Command Processing	Static Win32 control element. Was replaced by a *dynamic text* field. For the description, see current element.
Change password	Properties for the password.
Old password	Static Win32 control element. Was replaced by a *dynamic text* field. For the description, see current element.
New password	Static Win32 control element. Was replaced by a *dynamic text* field. For the description, see current element.
Confirm password	Static Win32 control element. Was replaced by a *dynamic text* field. For the description, see current element.
Message Control	Properties for use in the **Message Control** module.
Message Control user	Static Win32 control element. Was replaced by a

Control element	Description
	switch element. For the description, see new element.
Telephone	Static Win32 control element. Was replaced by a *dynamic text* field. For the description, see current element.
Cell phone	Static Win32 control element. Was replaced by a *dynamic text* field. For the description, see current element.
Email	Static Win32 control element. Was replaced by a *dynamic text* field. For the description, see current element.
Substitute person	Static Win32 control element. Was replaced by a *dynamic text* field. For the description, see current element.
PIN code	Static Win32 control element. Was replaced by a *dynamic text* field. For the description, see current element.
NA code	Static Win32 control element. Was replaced by a *dynamic text* field. For the description, see current element.

Note: For *dynamic text* or switch control elements , the respective functionality is assigned using the **Screen type specific action** property.

3.11.4.1 Screen switching for edit user

With the screen switching, you define how the edit user screen is called up. Depending on the configuration, you can:

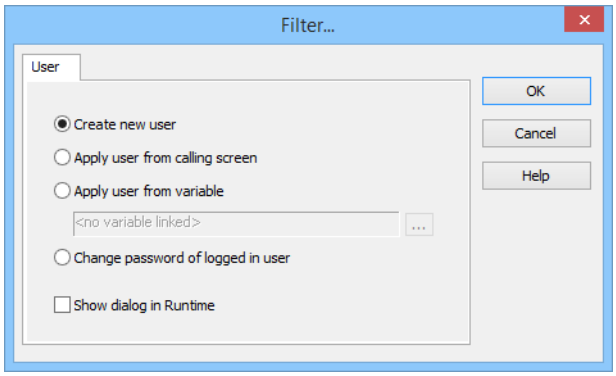
- Create a new user
- Edit a user from the user list or from a string variable
- Change passwords

To create a screen switch to an *edit user* screen:

1. Create a function.
2. Select screen switching.
3. Select the *edit user* screen.

4. The dialog for configuration is opened
5. Configure the screen switching.
6. Confirm the configuration by clicking on **OK**.
7. Link the function to a button.

USER LIST DIALOG



Parameter	Description
Create new user	The *edit user* screen is used to create a new user. The corresponding control elements are activated.
Apply user from calling screen	If the call is from the *user list* screen, the *edit user* screen that is selected in the user list is used to edit the user. The corresponding control elements are activated. **Note:** The editing user must have administrator rights in the Runtime. At least one user must be selected in the list.
Apply user from variable	The *edit user* screen whose name is transferred form the defined string variable is used to edit the user. The corresponding control elements are activated. Click on the ... button to open the dialog for selecting a variable.
Change password of logged in user	The *edit user* screen is only used to change the password of the user who is currently logged on. The corresponding control elements are activated.
Show dialog in the Runtime	Checkbox to select whether this dialog is shown in Runtime: ▸ *active*: This dialog is called up during operation in the Runtime on the current computer. In the network, this dialog is called up on the computer

Parameter	Description
	that executes the function. As a result, changes to existing parameter settings of an zenon Editor configuration are possible during execution in zenon Runtime. ▸ *Inactive*: This dialog is not shown in the Runtime during operation. The function or the command is immediately executed with the project configuration created in the Editor.

CLOSE DIALOG

Options	Description
OK	**Applies settings and closes the dialog.**
Cancel	Discards all changes and closes the dialog.
Help	Opens online help.

4 zenon login and user administration in the Runtime

Windows AD or AD LDS can also be used for user administration. Users can be logged in permanently or temporarily and administered in the Runtime.

Note: It is not possible to rename user groups in the Runtime.

Values or functions can also be protected by means of a signature. To do this, the **Signature necessary** property must be activated for the corresponding element. In this case, the user must enter their password and signature again, even if they are logged in and have the appropriate rights. In doing so, an additional entry is created in the Chronological Event List.

Note: The **Signature necessary** property can also be used for changes to Recipegroup Manager variables.

Attention

Settings for users who are changed in the editor can only be applied if the **Runtime changeable data** project property (**General** group) allows overwriting of user properties when writing Runtime files.

Settings changed in Runtime can be applied using the **Import Runtime files** command (Runtime files toolbar) in the Editor. To do this, decompiling must be permitted in the **Runtime changeable data** property. This is the case if the checkbox in the *Do not decompile* column is not activated in the *User Administration* row.

4.1 Login process and administration

The current user *SYSTEM* will be logged in with the approved user level *LEVEL 0* after Runtime is started. In multi-project administration, users can also be automatically (on page 76) be logged into all subprojects.

RULES FOR LOGIN IN THE RUNTIME.

Logging in in the Runtime has the following safety precautions:

- **Password**

  Note that different conditions are applicable for the password length:

  - Local users: a maximum password length of 20 characters is permitted
  - AD users: a maximum password length of 255 characters is permitted

  A user is locked after having entered a wrong password several times and they are logged out automatically. Therefore no elements of the system can be operated if they require an authorization level higher than *0*. They cannot carry out any operations linked to a user level any more. The number of login attempts that are permitted is configured in the project settings with the **Max. user error** property.

  The user name that was used for the login attempt is logged in the Chronological Event List. The administrator has to unlock this user (deactivating the **Locked** property).

- **User name**

  If a non-existent user name is entered, the error message '**Invalid user name**' is displayed. After three unsuccessful attempts, the system is blocked for all elements that require a higher authorization level than *0*. No user is therefore in a position to carry out protected operations with a user level. Only the administrator can unlock the system.

The username of a user trying to log in incorrectly is logged in the Chronological Event List as an event for the user that is currently logged in.

If a correct user name is used for login but the password field remains empty, this is considered an invalid password. The user is blocked after a defined number of permitted unsuccessful attempts (default 2, block after a third failed attempt).

- **Logging in after deactivation**

  If an user is deactivated and he tries to log in, this is not possible. This attempt is logged in the Chronologic Event list.

Note: Changes to the password via functions, screens, dialogs and API are also checked and lead to the user being blocked if the current password is entered incorrectly several times. The number of characters in the field of the current password does not provide any indication of its the length of the password.

EXTERNAL AUTHENTICATION

User authentication can be carried out for external programs or applications using zenon API. If there is an incorrect external authentication, the system or the user can be blocked.

Activate the **System lock for wrong external authentication** property and/or **User lock for wrong external authentication** in the **User Administration** properties group.

Note: It is recommended that these options are activated in order to achieve the highest degree of security.

Furthermore, it is possible to state, under the options **Max. user error** or **Max. password error**, the amount of incorrect entries that are permitted to occur before a block is activated.

Attention

This setting has no influence on the user block in the Active Directory when using AD users. The domain settings are always applicable here.

REQUIREMENTS FOR AD AND AD LDS USE

In order to be able to use AD and AD LDS for logging in to zenon Runtime, the zenon project property **User Administration/Access to Active Directory** must be configured.

- **AD**: *Yes* must be selected for the property and the computer must be in the domain.
- **AD LDS**: *ADAM/AD LDS* must be selected for the property.
  The properties **AD LDS connection**, **AD LDS user name** and **AD LDS password** correctly configured.
  - AD LDS must be prepared accordingly.

Note: ADAM is not supported.

Administration is possible for:

- From Windows 8 and Windows Server 2012 (on page 133)
- Windows 7 (on page 166)
- Windows Server 2008 (on page 186)

> **Attention**
>
> Rights that are issued in zenon are applicable for the respective project or the workspace. Permissions that are issued in the Active Directory are applicable globally.
>
> If rights have been issued to users or user groups of the Active Directory, then the rights for these users are applicable in all zenon projects!

ADMINISTRATION IN THE RUNTIME

Each user has the possibility to change their own password in the Runtime. But he cannot edit another user. Only an administrator can do that. Changes in the Runtime must be read back in the Editor, in order to be available there. Note the **Runtime changeable data** property when transferring Runtime files. Here, it is specified whether the configuration of the user administration is transferred to Runtime and overwrites the configuration in the Runtime. The contents of the user administration are not replaced by default when transferred to Runtime.

RIGHTS IN THE RUNTIME USING FUNCTIONS AND SCREEN TYPES

Depending on the user type, users can carry out different actions in the Runtime:

User type / rights	Administrator	Power user	User
Create and administer users	*X*	*X*	--
Create and administer power users	*X*	*0* if configured	--
Create and manage administrators	*X*	--	--
Create and manage user groups	*X*	--	--
Issuing authorization levels **Note:** Only authorizations that the user also has can be issued. This prevents administrators or power users enabling the system themselves.	*X*	*X*	--

User type / rights	Administrator	Power user	User
Change your own password	*X*	*X*	*X*

Note: User and user groups from the Editor global project are combined with the users and user groups of the project in the Runtime. They can neither be edited in the Runtime, nor read back in the Editor.

Attention

Compliance with FDA 21 CFR Part 11:

- Neither user nor administrator can change the user name in the Runtime.
- Deleting users can be prohibited in the project settings with the help of the **Deleting users** property in the **User Administration** group.

PASSWORD

The user himself is the only one knowing his password. And he is the only one able to change his password. Once the user has been given a password by the Administrator, they must change it when they first log in. This makes sure, that no administrator knows user passwords und thus could effect wrong signatures. (Important for FDA 21 PART 11).

If an user forgets his password, the administrator can delete his password und enter a new initial password. To do this the administrator does not have to know the password. The user must change their password the next time they log in.

For more information on changed Runtime files see also chapter: Files that can be changed in Runtime

Attention

Login via screen of type **Login**: If, when logging in via a **Login** screen (on page 43), no password is entered for a valid user, you do not receive an error message. The user is not logged in. Even after three failed login tries with no password entered the system is not logged.

If entering a wrong password or a not existing user name, the system is locked after three tries as usual.

4.2 User login

Logging into a project is carried out by means of a modal dialog or a *login* screen.
Users can be signed in in different ways:

- Permanent
- Temporary
- Automatic
- Externally via the API
- With cached sign-in information (only with Active Directory)
- Without pre-existing domain connection

4.2.1 Permanent login

After a permanent login, the user is permanently logged in and can carry out all operations that they are authorized (on page 18) to do. For actions that the user is not authorized to carry out, a message is shown accordingly.

Permanent login can be effected by means of:

- A screen switch to a *login* (on page 43) screen
- The function (on page 87) **Login with dialog**
- The **Login without password** function (on page 88)

Hint: Password-protected buttons can be made invisible for logged-in users. To do this, the **Locked buttons** property (**Project properties** -> **User Administration** -> **Login and signature**) must be configured accordingly.

Note: Temporary login is not possible for logged-in users. Logged-in users therefore do not receive a dialog to log in temporarily for functions for which they do not have sufficient authorization.

4.2.2 Temporary login

If an operation that requires authentication is necessary for a user who is not logged in, or entry of a signature is required, the user can be logged in temporarily. To do this, the **User Administration** property (-> **Login and signature** -> **Temp. login active**) must be activated.

Temporary login can be effected by means of:

- Modal dialog, which is automatically called up by zenon.
- *Login* (on page 43) screen that is linked to the **Screen for Login** property.

Procedure for login in the Runtime:

1. The configured dialog to log in or enter a signature is opened when a password-protected function is executed.
   If a *Login* (on page 43) screen is linked, this is opened. Otherwise a modal dialog is opened.

2. The user can log themselves in and execute operations in accordance with their rights. If the user does not have authorizations, they receive a corresponding message.
3. The user is automatically logged out again immediately after the operation

> **Information**
>
> Temporary login:
>
> - Is only effective if a function is executed
> - Supports switches, but not pushbutton
> - Is deactivated for permanently logged in users

SCREEN OF TYPE LOGIN

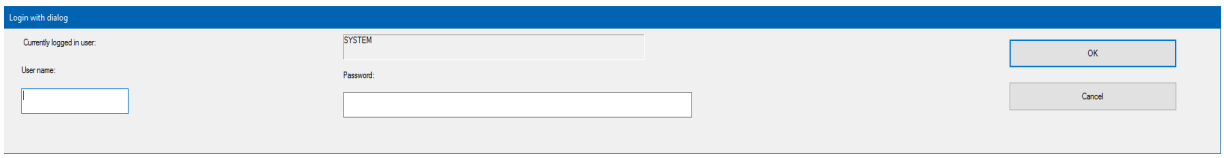
This screen type allows temporary login or the entry of a signature.

Control element	Description
Current user (Display)	**Display of the currently logged in user** **Note: Element of the type *Dynamic text*. Functionality is assigned using the Screen type specific action property.**
User name	Input area for username. **Note:** Element of the type *Dynamic text*. Functionality is assigned using the **Screen type specific action** property.
Password	Input field for password. **Note:** Element of the type *Dynamic text*. Functionality is assigned using the **Screen type specific action** property.
Signature	Input field for signature.

Control element	Description
	Note: Element of the type *Dynamic text*. Functionality is assigned using the **Screen type specific action** property.
OK	Button to close the screen after login.
Cancel	Cancels the login process.
Apply	Applies all changes and leaves the dialog open. **Exception:** The window is closed if the maximum number of invalid login attempts has been set to *0* using the **Max. user error** property.

TEMPORARY LOGIN MODAL DIALOG

This dialog allows temporary login. If a signature is required, this must be entered in a second stage.



Control element	Description
Current user (display)	Display of the currently logged in user
User name	Input area for username.
Password	Input field for password.
OK	Button to close the screen after login.
Cancel	Cancels the login process.

4.2.3 Automatic login and logout for subprojects

In multi-project administration, users can be logged into subprojects and logged out from them automatically.

The basis for automatic login are central users (the same for all projects).

There are several possibilities to achieve this:

- Use of Active Directory or AD LDS/ADAM users

- Is the preferred possibility for administering users throughout projects.
- You can find more detailed information on configuration and use in the Active Directory (on page 119), AD LDS (on page 132) and ADAM (on page 193) chapters.

- Use of users from the global project
  - Users from the global project are available for all projects in the workspace.
  - **Attention:** Users from the global project cannot be edited in the Runtime.
- Manual administration/synchronization of users
  - If, in the integration project and/or in the subprojects, there are users with the same name and the integration project is logged into, the users with the same name are also logged into the subprojects.

CONFIGURATION IN THE EDITOR

To configure automatic login/logout:

1. Open the project properties.
2. Go to the **User Administration** node.
3. Activate the **Automatic login/logout in subprojects** property.
4. Repeat this step for all projects that are to support automatic login/logout.

APPLICATION IN THE RUNTIME

Log into Runtime with a user in a project.

The following is applicable in the Runtime:

- When logging into a project, an user is automatically logged in to all subprojects that support it. They are logged out of all subprojects when logging out.
- No corresponding dialogs are called up in the subprojects when logging in or out. Users who are already logged in are logged out.
- If the user logs out from a subproject, then:
  - They are logged out of this project and all its subprojects
  - They remain logged in to all superordinate projects in which they are logged in
- When logging in/out, the corresponding entries are created in the CEL all projects concerned.
- Automatic login/logout only works in the direction of projects to subprojects, never the other way round.

Note: This functionality is not suitable for temporary login.

PROCEDURE FOR WINDOWS USERS

A Windows user who is already logged into a subproject (AD/AD LDS/ADAM) is reused in a subproject with automatic login. To do this, the context (AD path or AD LDS/ADAM path) must be the same. If a Windows user is used for the first time in the login chain, the password is checked at this point. If a check at the start of the login chain returns invalidity, the complete login process is canceled. If a login attempt in a subproject is rejected, this login is canceled, but the process is continued for all other projects.

Information

For the logged-in user, the authorization level of the project that comes from the user is always used.

Example:

In the integration project, a user **A** can have the authorization levels *1,2,3*, whilst in the subproject, a user **A** can have the authorization levels *1,2,3,4,5*.

The same applies for users from the Active Directory and the assignment of authorization levels via zenon user groups. A user **B** can thus inherit, from the Active Directory, the authorization levels *1,2,3* from a zenon user group in the integration project and a user *B* in the subproject can inherit the authorization levels *1,2,3,4,5* from the user group of the subproject.

You can find further information in relation to this in the Same user groups in zenon and in the Active Directory (on page 123) chapter.

4.2.4 External authentication

User authentication can be carried out for external programs or applications using zenon API. If there is an incorrect external authentication, the system or the user can be blocked.

Activate the **System lock for wrong external authentication** property and/or **User lock for wrong external authentication** in the **User Administration** properties group.

Note: It is recommended that these options are activated in order to achieve the highest degree of security.

Furthermore, it is possible to state, under the options **Max. user error** or **Max. password error**, the amount of incorrect entries that are permitted to occur before a block is activated.

Attention

This setting has no influence on the user block in the Active Directory when using AD users. The domain settings are always applicable here.

4.2.5 Login with cached credentials.

For AD domain users (on page 118), login with cached sign-in information is possible. The sign-in can also take place if there is no connection to the AD Domain Controller.

CONFIGURE LOGIN

To allow a login with cached login information:

1. Go to the **User Administration** group in the project properties.
2. Go to the **Active Directory/AD LDS** section.
3. In the **User group for Active Directory login with cached credentials** property, click on the **...** button.

   The dialog for selecting an user group is opened.
4. Select the desired user group.
5. Close the selection dialog.

   The GUID of the selected user group is saved in **project.ini** .

CONFIGURE USER GROUP

For the selected user group, issue the authorization levels that are to be available to all users. The users do not also need to be added to the group. The group properties are automatically applicable for all users who are signed in with cached sign-in information.

If the user group is deleted, its GUID remains saved. Users can continue to be signed in, but do not receive any authorization levels. If the group in the **User group for Active Directory login with cached credentials** property is set to **No selection** or a new selection is made, the GUID will be deleted or reentered accordingly.

BEHAVIOR IN THE RUNTIME

If an AD user logs on in the Runtime, if there is no connection to the AD Domain Controller, a check is made to see whether, in the **project.ini** file, there is a GUID for a user group for the **USRGROUP_AD_CACHED** entry:

- The sign-in is rejected if there is no GUID.
  No user group has been configured or a configured user group has been removed by clicking on **No selection**.
- If there is the GUID of a valid user group, the user is signed in with authorization levels from this group.
  A valid user group has been configured.
- If there is the GUID of an invalid user group, the user is signed in without authorization levels.
  A user group was entered in the **User group for Active Directory login with cached credentials** property but the user group has been deleted however.

Each attempt to sign in with cached login information is entered in the CEL.

HANDLING DELETED USER GROUPS

User groups are linked by means of their GUID, not their name.
If an **AD_Login** user group is selected, its GUID is entered into **project.ini** and queried on sign-in. If the **AD_Login** user group is deleted, its GUID remains entered. If a new **AD_Login** user group is created, this gets a new GUID. The original GUID remains entered in **project.ini**. The new **AD_Login** user group is not automatically linked. It must be newly selected using the dialog of the **User group for Active Directory login with cached credentials** property.

Attention

in the Runtime, a user who is signed in with cached login information gets all rights of the selected group. Their authorizations can thus also exceed the rights that they normally have.

4.2.6 Login with alternative domain

AD domain users (on page 118) can, for signing into zenon, even use a different AD domain than that which is used for sign-in in Windows.

Information

Automatic login in subprojects:

If, in the integration project, the **Access to Active Directory** property is active and an alternative domain has been configured for the **Acive Directory domain** property, users are only logged in subprojects automatically if, for its **Acive Directory domain** property, the same domain has been configured as in the integration project.

CONFIGURATION OF ALTERNATIVE DOMAINS

If an alternative domain is to be used, this must be configured in the Editor:

1. In the Editor, go to the project properties for **User Administration**.
2. Ensure that **Access to Active Directory** is activated.
3. In the **Acive Directory domain** property, enter the name of the desired domain.
   Attention: If the entry stays empty, it is not possible to sign into another domain.

4.2.7 Login without existing domain connection

Active Directory users can log in to zenon, even if Runtime has not been started by an Active Directory user.

> **Information**
>
> Automatic login in subprojects:
>
> If, in the integration project, the **Access to Active Directory** property is active and a domain has been configured for the **Acive Directory domain** property, users are only logged in subprojects automatically if, for its **Acive Directory domain** property, the same domain has been configured as in the integration project.

CONFIGURATION OF LOGIN IN DOMAINS

In order to allow the login of AD users under these circumstances, the project must be configured accordingly:

1. In the Editor, go to the project properties for **User Administration**.
2. Ensure that **Access to Active Directory** is activated.
3. In the **Acive Directory domain** property, enter the name of the desired domain.
   Attention: If the entry stays empty, it is not possible to log in.

4.2.7.1 Read user names from domains for AML and CEL

The complete Windows user names can be displayed in the AML and CEL. If Runtime is started by an AD user, this data is automatically available. If Runtime is started by a local user, the reading-out must be configured in the domain controller.

To display user data by means of AD:

1. In zenon Editor, enter the domains in the **Active Directory/AD LDS** group in the **Acive Directory domain** property.

2. Enter the desired user data in the Windows **login information administration** in the **Generic login information**:
   - **Net address:** Domain
   - **User name:** Windows user identification of a user entitled to read access
   - **Password**: User's password

   Hint: You get to the Windows **login information administration** via **Control Panel -> System and Security -> User Accounts -> Generic login information** or via the command line with **rundll32.exe keymgr.dll,KRShowKeyMgr**.

Note Runtime: There must already be a connection to the domain controller when Runtime is started. Otherwise no complete user names are displayed. They are also not displayed if a connection to the domain controller is subsequently established. In this case, Runtime must be restarted with the connection established.

4.3 Administer users and user groups

Users and user groups can also be administered in the Runtime.

Information

Note the following with changes in the Runtime:

- Write them back to the Editor of the project configuration computer
- Do not overwrite them with Editor settings

The following possibilities are available for user administration in the Runtime:

Action	Screen type/Function
Create user	- *User list* screen - *Edit user* screen - *Change user* function
Edit user	- *User list* screen - *Edit user* screen - *Change user* function
Delete user	- *User list* screen - *Change user* function **Attention:** Do not delete a user who is a general module owner.
Change password	- *Edit user* screen

Action	Screen type/Function
	▸ *Change user* function ▸ *Change password* function
Assign function authorization	▸ *Change user* function
Creating a user group	▸ *User group list* screen
Edit user group	▸ *User group list* screen
Assign authorization level	▸ *User group list* screen

4.4 Screen types to administer users and user groups

Users cannot only be administered in the Runtime with functions and modal dialogs; they can also be administered by means of special screen types:

- User list (on page 83): Lists all users and offers possibilities to create, edit and delete users as well as to assign function authorizations.
- User group list (on page 84): Lists all user groups and offers the possibility to create and administer user groups and to assign function authorizations.
- Edit user (on page 85): Allows the creation and administration of users.

You must be logged in as an administrator for all actions. Exception: Users without administrator rights can change their own password.

4.4.1 User List

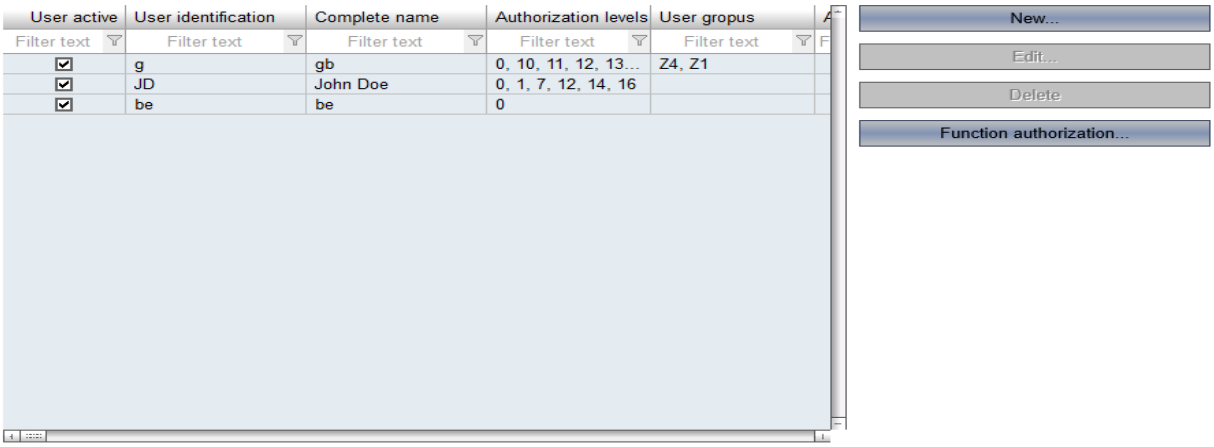
You administer users with this screen.
In doing so, the following applies:

- You must be logged in as an administrator or as a power user.
- You can create new users.
- You can edit users.
- You can delete users.
- You can only issue function authorizations that you have yourself directly or as a member of a user group.

To administer users:

1. Log in as an administrator or power user.
2. Create a *user list* screen.

3. Configure the desired settings.
   - Clicking on **New** opens an *edit user* screen. This must be linked for screen switching.
   - Clicking on **Edit** opens an *edit user* screen. This must be linked for screen switching.



You can read details about the control elements in the **Create user list screen** (on page 46) chapter.

4.4.2 User Groups List

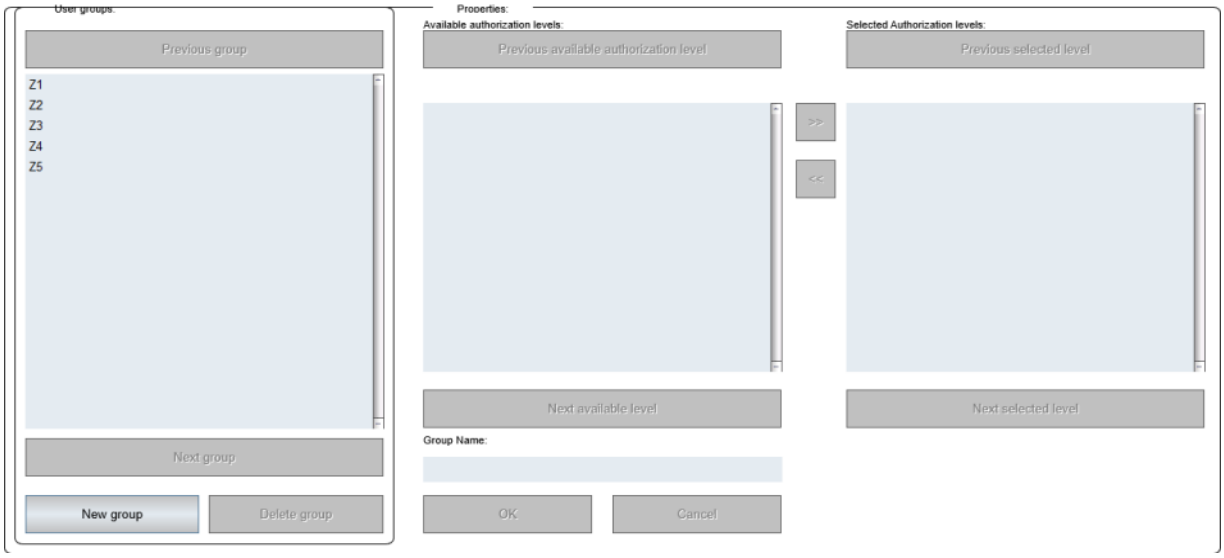
You administer user groups with this screen.
In doing so, the following applies:

- You must be logged in as an administrator.
- You can only administer user groups to which you also belong.
- You can create new user groups.
  User groups that you create are assigned to you immediately. The group thus has at least one member and can be assigned further users.

To administer user groups:

1. Log in as an administrator.
2. Open a *user group list* screen.

3. Configure the desired settings. The possible settings correspond to those in the Editor.



You can read details about the control elements in the **Create user group list screen** (on page 54) chapter.

4.4.3 Edit users and change password

You can administer other users with this screen. All users can also change their own password.
In doing so, the following applies:

1. You must be logged in as an administrator or as a power user.
   Exception Users without administrator rights can change their own password.

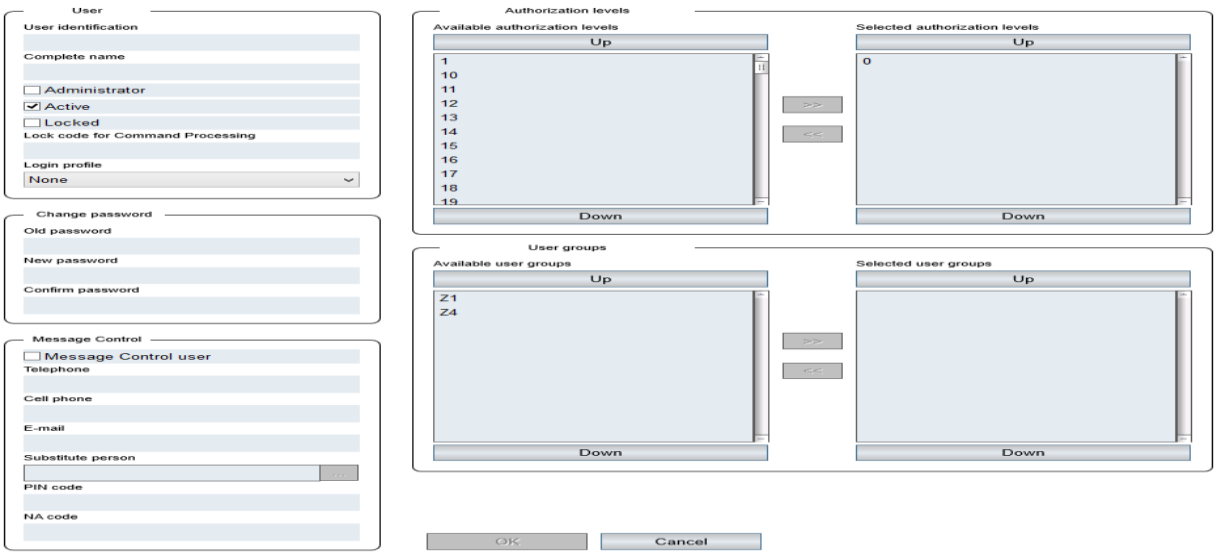
- You can only issue authorization levels that you have yourself directly or as a member of a user group.
- You can only assign user groups to which you also belong.
- You cannot change your own authorization levels or user groups in the Runtime.

EDIT USER

To administer users:

1. Log in as an administrator or power user.
2. Open an *edit user* screen
   or open a *user list* and click on **New** or **Edit** there.

3. Configure the desired settings. The possible settings correspond to those in the Editor or the Change user (on page 93) function.



You can read details about the control elements in the **Create edit user screen** (on page 58) chapter.

CHANGE PASSWORD

A modal dialog is called up in order for users to be able to change their own password. This dialog can also be replaced by an *edit user* screen. The dialog or screen can be called up modally if:

- The **Change password** function is executed
- The user who is logged in is to change their password (new user, expired password, password reset)

To allow users to edit their password by means of a screen:

1. Link, in the **User Administration Login and signature** project properties, the **Screen for password change** property to an *Edit user* screen.
2. The screen is opened modally instead of the modal dialog in the Runtime.
3. Users can change their password.

Attention

Note when changing passwords for AD users:

The requirements of zenon for a minimum and maximum length of password take priority.

Example of minimum length: AD requires a minimum length of 4 characters. In zenon, a minimum length of 8 characters has been configured using the **Minimum password length** property. If a password with fewer than 8 characters is entered, this leads to an error message. The password can be valid for AD, but is rejected by zenon.

Note on maximum length: Different maximum password lengths are permitted in zenon Runtime:

- Local user: maximum of 20 characters
- AD user: maximum of 255 characters

If the AD password is longer than 20 characters, an AD can use it to sign into zenon. The password can also be changed in zenon however.

4.5 Functions for the user administration module

The following functions are available for the user administration in the Runtime:

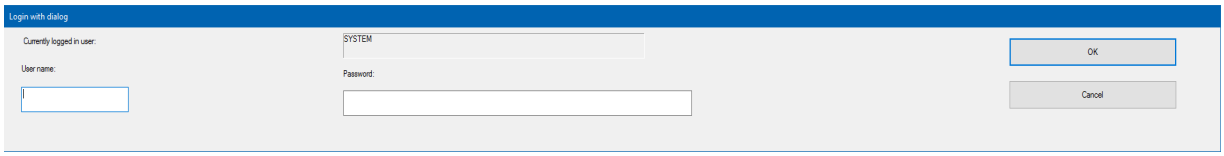
- Login with dialog (on page 87): Opens a modal dialog or the login screen for permanent login in the Runtime.
- Login without password (on page 88): Logs in the user defined in the Editor without password entry or allows login with a chip identification system.
- Logout (on page 93): Logs out the user who is currently logged in and logs in the *System* user with authorization level *0*.
- Change user (on page 93): Opens a dialog to edit users and user groups.
- Change password (on page 116): Opens a dialog in the Runtime to change the password.

4.5.1 Login with dialog

This function opens in the Runtime, depending on the configuration:

- The modal login dialog
- The *login* (on page 43) screen

Modal dialog



Control element	Description
Current user (display)	Display of the currently logged in user
User name	Input area for username.
Password	Input field for password.
OK	Button to close the screen after login.
Cancel	Cancels the login process.

The login is logged in the Chronological Event list.

SIZE AND POSITION

The size and position of the login window in the Runtime can be defined in **zenon6.ini**:

1. Open zenon 6.ini.
2. Create or modify the area:

   [Command Processing]
3. Enter a values for:

   POSITION= left, right, top, bottom

   Default: POSITION= 0.001, 0.999, 0.835, 0.964

   Attention: The size relates to the screen size and not the size of the main window.

> **Information**
>
> You can find**zenon6.ini** in the following path:
> *%ProgramData%\COPA-DATA\System*

4.5.2 Login without password

This function makes it possible to log in a user to zenon without a password in the Runtime. To do this, the user is logged on directly and without making any selection or entering anything. To do this, the user is identified by means of a variable, a code or a chip identification system. This function can be

executed by an event (status of a key) or by time control. The login is logged in the Chronological Event List.

Login without a password is also suitable for automatic login using card reading devices. There are two possibilities available for this:

- **Login via login code** (on page 90):
  Any desired code can be linked to a user and transferred to a variable. This transfers the code to the **Login without password** function. This version is only available for zenon users.
- **Log in via Chip Ident System** (on page 92):
  The user name is transferred to a variable that logs in the user. Available for zenon and AD users.

> **Attention**
>
> Note the consequences if this function is configured with a string variable as a parameter:
>
> - The user administration can be avoided.
> - For Active Directory users, the check of user name and password does not take place via the domain controller. It is thus possible for users who have been blocked due to incorrect password entries or who cannot be logged in due to time limitations or workstation limitations.
>
> Only use this possibility if other configurations are not possible and note the effects on the security of the system.

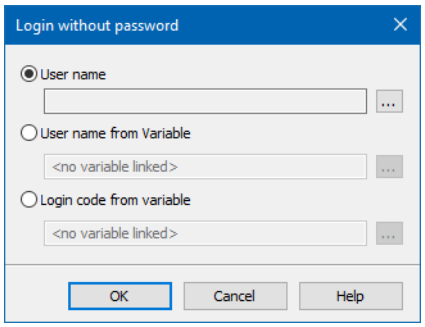
CREATE A FUNCTION

To create the **Login without password** function:

- Create a new function.
- Go to the **User Administration** node.
- Select **Login without password**.

  The dialog to configure the login user is opened.
- Select the type of log in

DIALOG LOGIN WITHOUT PASSWORD



Option	Description
User name	Logs in the selected user. Click the **...** button and the dialog (on page 25) opens to select an user.
User name from Variable	Logs in the user with the user name from the transferring variable. Makes it possible to login a user via a **Chip Ident System**. Click on button **...** in order to open the dialog for selecting a String variable. For details see the "**Login via Chip Ident System**" section.
Login code from variable	Logs a users in by means of a login code. This code is linked to the user in the user administration (on page 12) and transferred in the Runtime by means of a **STRING** variable. **Attention:** This type of login only works for zenon users and is not available for AD users. For details, see the **Login by means of login code** (on page 90) chapter.
OK	Applies settings and closes the dialog.
Cancel	Discards all changes and closes the dialog.
Help	Opens online help.

4.5.2.1 Login via login code

Users can also be logged in without a password in the Runtime by means of a separate login code. This code is linked to the user and is transferred for login by means of a variable.

LOGIN CODE

The login code can be linked to the user by means of:

- The **Users** (on page 12) tab in the dialog for user configurationzur Benutzerkonfiguration
- The **Login code** property

The following is applicable for the login code:

- Must be unique within the project.
  Note: If the same login code is used for a user in the local project and the global project, the user from the global project is not transferred when creating the Runtime files in the Editor. Note the corresponding error message in the output window. When the login code is changed in the Runtime, it must not be the same as the code of a user from the global project.
- Can be empty.
  It is thus deactivated for this user.
- Maximum length: *1000 characters*
- Must not consist of spaces only.
- Leading or closing spaces are not permitted.
- All other characters are permitted.
- Default: (empty)

ACTION ON EXPORT AND IMPORT

The login code is exported in plain text during the XML export of a user.

During an XML import, the login code contained in the XML file is evaluated. It is removed if it does not correspond to the input criteria. An error message is displayed in the output window.

LOGIN CODE FROM VARIABLE

To log a user in by means of a **login code from a variable**:

1. Link the desired code to a user in the dialog to create a user (on page 11).
2. Create a **STRING** variable that transfers the code in the Runtime.

   This variable must do the following in the Runtime:

   a) Receive the code by means of an input field or from the ID card

   b) Call up the **Login without password** function in the event of a value change

   c) Transfer the code
3. Create a **Login without password** function.
4. Select the **Login code from variable** option.

5. Link the variable that transfers the code.

In the Runtime, the code of the ID card or the input from the input field is written to the variable. This calls up the **Login without password** function and transfers the code. The linked user is searched for. If a corresponding user is found, they are logged on.

If automatic login for subprojects (on page 76) has been configured, the login is also carried out for the subprojects.

When incorrect login codes are transferred, the same rules (on page 70) as for login with incorrect user names are applied.

> **Attention**
>
> Login with a login code only works for zenon users and is not available for AD users.

EDIT LOGIN CODE IN THE RUNTIME

In the Runtime, the login code can only be amended by a user with administrator rights. Other users also cannot amend their own code.

The administrator has two possibilities for changing the login code in the Runtime:

- Edit screen of type user (on page 58): The input field for the login code must be configured in the screen, so that a login code can be issued in the Runtime.
- **Change user** function (on page 93): Allows the amendment and creation of users, including login code.

Each change to the login code is logged in the CEL.

4.5.2.2 Log in via Chip Ident System

The **Login without password** function with the **User from variable** option makes it possible to use chip identification systems such as the Eucher or Keba identification systems. To use the function, please note:

- The user must exist in the zenon user administration or in the Active Directory with the same user name as in the chip.

  For example: The user name in the chip is **J. Smith**; there must be a **J. Smith** with corresponding rights in the user administration or in the Active Directory.
- If the user holds his chip in front of the chip reader, the String variable (e.g. **username**) is filled with the data of the chip (e.g. **J. Smith**) and the user is logged in.
- In order for this to work, a **reaction matrix** of the type *String* must exist which reacts to each value change and executes the function.

- This reaction matrix must be linked with the variable (e.g. **username**).

4.5.3 Logout

When this function is used in the Runtime, the current user is logged out and the user SYSTEM is logged in with authorization level *0*. The log in of an user is logged in the Chronological Event List. If an Active Directory user is logged in, they are also logged out.

No transfer parameters are needed.

Attention

Automatic logout vs. automatic function:

- **Automatic Logout**: Happens *permanently* after the defined time has passed after the last user action.
- **Automatic function**: Happens *only once* after the defined time has passed after the last user action.

4.5.4 Change user

The **Change user** function makes it possible to create and administer users and to assign them authorization levels in the Runtime.

To create the function:

1. Create a new function.
2. Go to the **User Administration** section.
3. Select the **Change user** function.
4. Link the function to a button.

USAGE IN THE RUNTIME

This dialog is opened in the Runtime when the function is called up. This allows the creation and editing of:

- Users (on page 94)
- User Groups (on page 113)

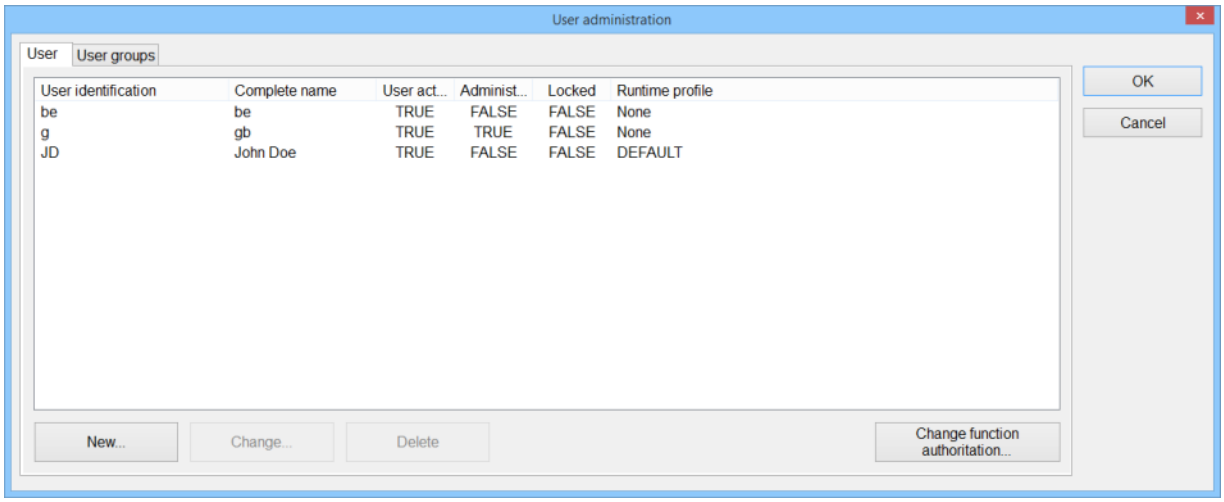
Information

Rules:

- Administrators can administer all other users and their settings.
- Administrators cannot grant additional authorization levels themselves or add themselves to other user groups.
- Power users can administer other users.
- Users without administrator rights can only change their password and their settings for Message Control.

4.5.4.1 User

Users are configured in this tab.



Parameter	Description
List user	Lists all configured users.
New	Opens the dialog (on page 95) to create and amend new users.
Change	Opens the dialog (on page 95) to create and amend new users.
Delete	Deletes the selected user after requesting confirmation.
Change function authorization	Opens the dialog dialog (on page 104) to assign function authorizations to authorization levels for Runtime.

CLOSE DIALOG

Option	Description
OK	**Applies settings and closes the dialog.**
Cancel	Discards all changes and closes the dialog.

ADMINISTER USERS

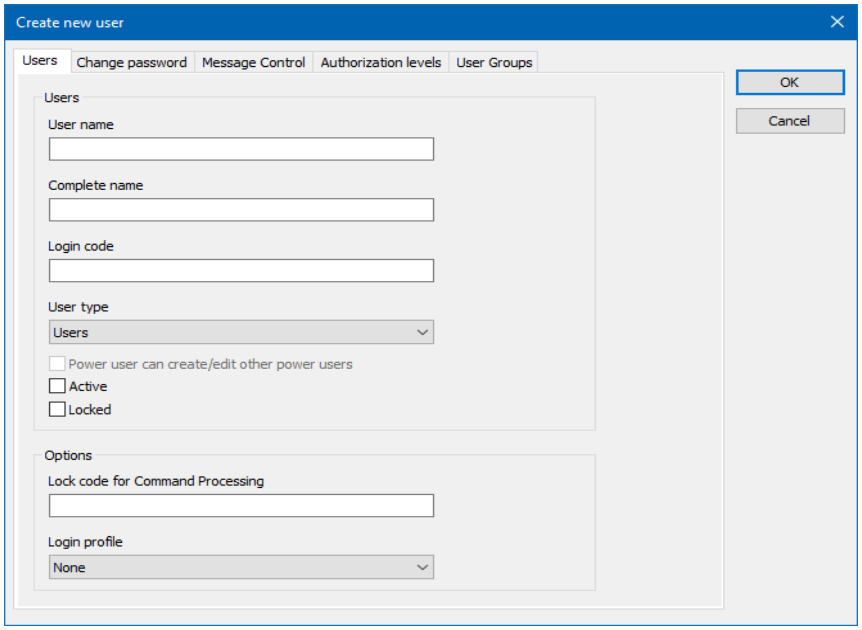
To administer a user:

1. Highlight the user in the list.
2. Select the desired action by clicking on one of the buttons.

Note: Amending the dialogs for users and creating new users is different.

4.5.4.1.1 Users

Entry of the user data.



USER

Option	Description
User name	Enter the username. The user logs in to the system with his username. Maximum length: 20 characters.

Option	Description
	Note: This name must be unique and can only be issued once. If an attempt is made to create a pre-existing user again, an error message is issued.
Complete name	Enter the full name of the user. With this you can allocate a username to a real person.
Login code	Entry of the login code for login without password. The following is applicable for the login code: ▸ Must be unique within the project. **Note:** If the same login code is used for a user in the local project and the global project, the user from the global project is not transferred when creating the Runtime files in the Editor. Note the corresponding error message in the output window. When the login code is changed in the Runtime, it must not be the same as the code of a user from the global project. ▸ Can be empty. It is thus deactivated for this user. ▸ Maximum length: *1000 characters* ▸ Must not consist of spaces only. ▸ Leading or closing spaces are not permitted. ▸ All other characters are permitted. Default: (empty) If an invalid login code is entered, a corresponding error message is shown when the dialog is closed. For details, see the **Login via login code** (on page 90) chapter.
User type	Selection of the user type from a drop-down list: ▸ *User*: Can carry out actions according to the authorization levels they have been assigned. ▸ *Power user*: Can also create and edit users. Whether this is also applicable for other power users is configured

Option	Description
	using the **Power user can create/edit other power users** option. ▸ *Administrator*: Can create and edit all other users. ▸ Default: *User*
Description	Text field to enter additional information
Power user can create/edit other power users	Settings for the power users' detail rights: ▸ *Active*: Can also create and edit other power users. ▸ *Inactive*: Can only create and edit users. Default: *inactive*
Active	*Active*: The user is active and can login in the Runtime. **Note:** According to FDA 21 PART 11 regulations, a user can never be deleted, so it is possible to trace who carried out which action at any time. Therefore for projects which adhere to these regulations, a user must not be deleted but only deactivated. To prevent the deletion of users, deactivate the **User Administration** property in the **Deleting users** group in the project properties.
Locked	*Active*: The user is locked in the Runtime and cannot login. This option is set automatically if a user enters an incorrect password more than is permitted.

OPTIONS

Option	Description
Lock code	Four-digit PIN code. This code is used by the user in the command processing to block areas or to unlock them. Only available if **zenon Energy Edition** has been licensed.
Login profile	Selection of the Runtime profile that is used for login from a drop-down list:

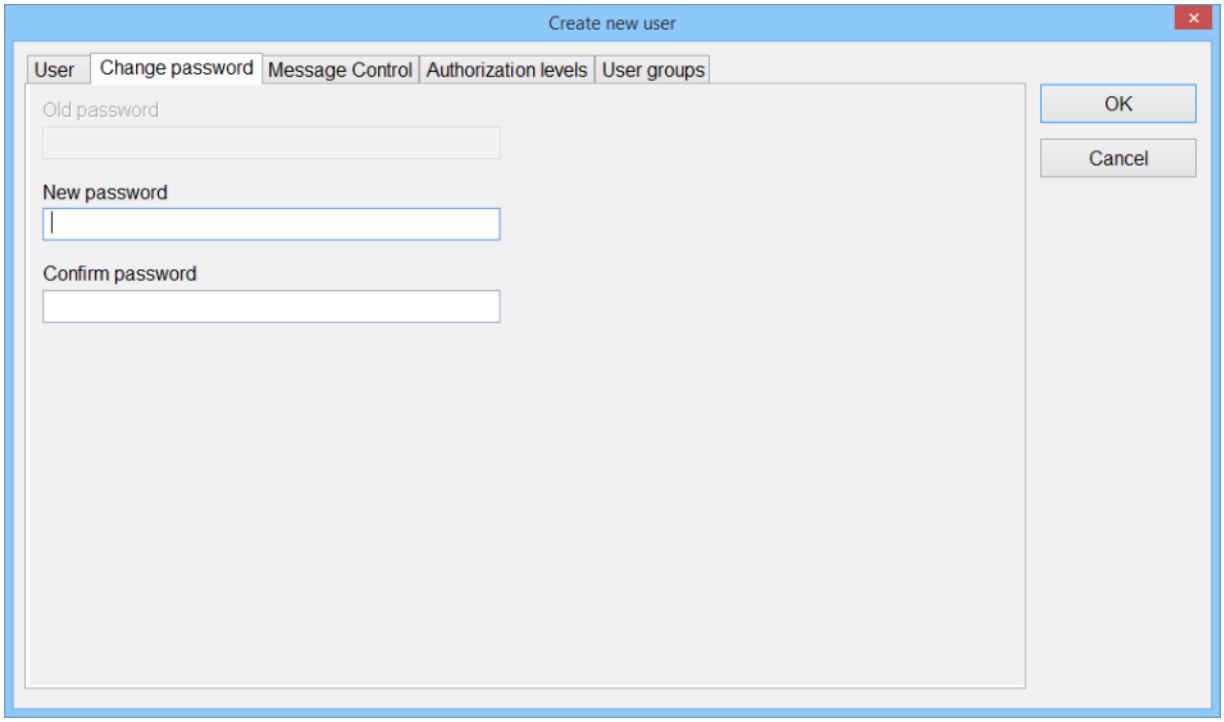
Option	Description
	▸ None ▸ Default ▸ Last

CLOSE DIALOG

Option	Description
OK	**Applies all changes in all tabs and closes the dialog.**
Cancel	Discards all changes in all tabs and closes the dialog.

4.5.4.1.2Change password

Issue of the password for the user.



Parameter	Description
Old password	Current password.
New password	Enter new password. Input is automatically hidden. For projects with multiple languages, note that it must be possible

Parameter	Description
	to enter the characters with the respective keyboard in the Runtime.
Confirm password	Repeat the password. Input is automatically hidden.

Note: The function **Copy and Paste** is not available for entering information in the password field.

CLOSE DIALOG

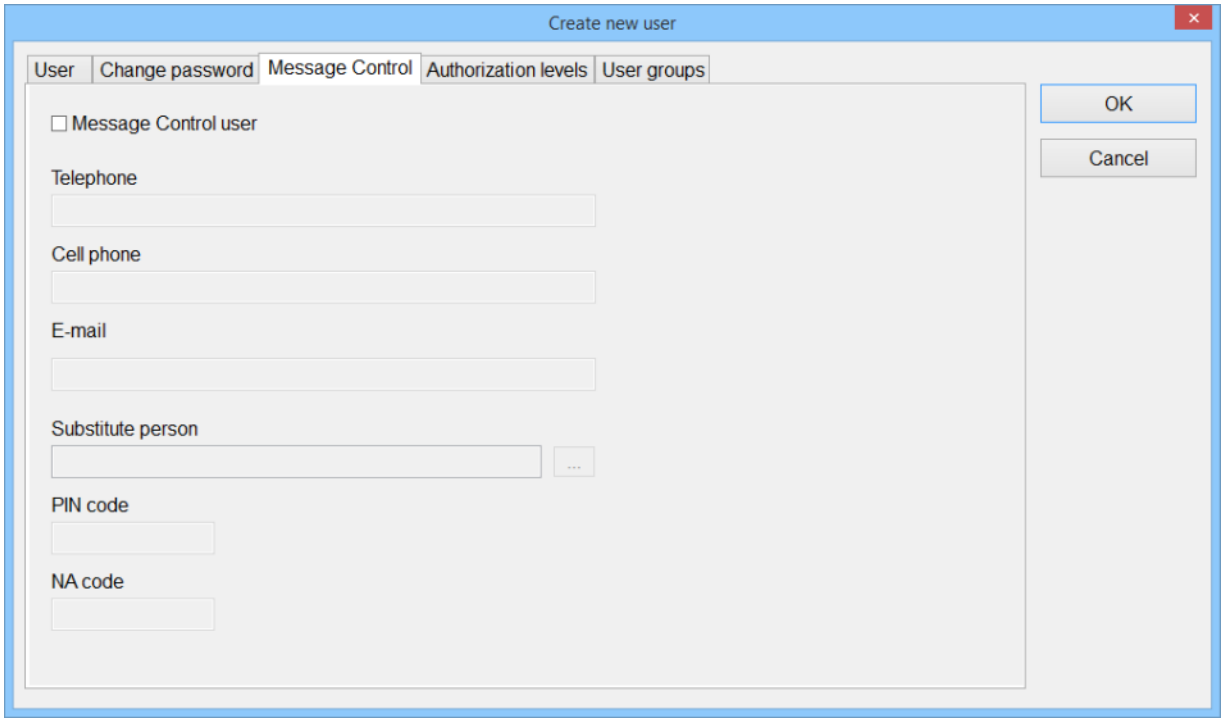
Option	Description
OK	**Applies all changes in all tabs and closes the dialog.**
Cancel	Discards all changes in all tabs and closes the dialog.

Information

An administrator can only enable users for groups for which he has the rights himself.

4.5.4.1.3Message Control

Configuration for Message Control.



Parameter	Description
Message Control User	*Active*: The user is used by the module Message Control.
Telephone	Number of the voice-compatible telephone device of the user. Used for text to speech. Enter numbers. In addition, the following are permitted: ▸ The prefix **+** as an abbreviation for *00* of the international area code is permitted. ▸ The following separators are also permitted in AD user administration: Minus (**-**), slash (**/**) and **space** Note: When communicating between AD and Message Control, separators are ignored as soon as the data from the AD is mapped to a zenon object.
Cell phone	Cellphone number of the user. Used for messages via GSM and SMS (text messages). Enter numbers. In addition, the following are permitted: ▸ The prefix **+** as an abbreviation for *00* of the international area code is permitted.

Parameter	Description
	▸ The following separators are also permitted in AD user administration: Minus (**-**), slash (**/**) and **space** Note: When communicating between AD and Message Control, separators are ignored as soon as the data from the AD is mapped to a zenon object.
Email	E-mail address of the user
Substitute person	If a user has not been reached or they do not accept the message, a substitute person can be given. Click the **...** button and the dialog (on page 25) opens to select an user. Only users who have been activated as **Message Control** users are offered for selection.
PIN code	PIN code with which the user confirms the receipt of the message. The code consists of a four-digit number between *0000* and *9999*.
NA code	PIN code with which the user rejects the receipt of the message (not available). The message is then sent to the next user in the list. If there is no other user entered in the list, the message is entered as "*not successfully acknowledged*". The function assigned to this is executed. In addition, a "*rejected by*" CEL entry is created in each case. The code consists of a four-digit number between *0000* and *9999*. **Note:** You can find further information on the assignment of functions in the Confirmation of receipt - confirmation of receipt settings chapter.

CLOSE DIALOG

Option	Description
OK	**Applies all changes in all tabs and closes the dialog.**
Cancel	Discards all changes in all tabs and closes the dialog.

Attention

The acknowledgment codes for PIN (confirmation) and NA (rejection) must differ and should not be too similar.

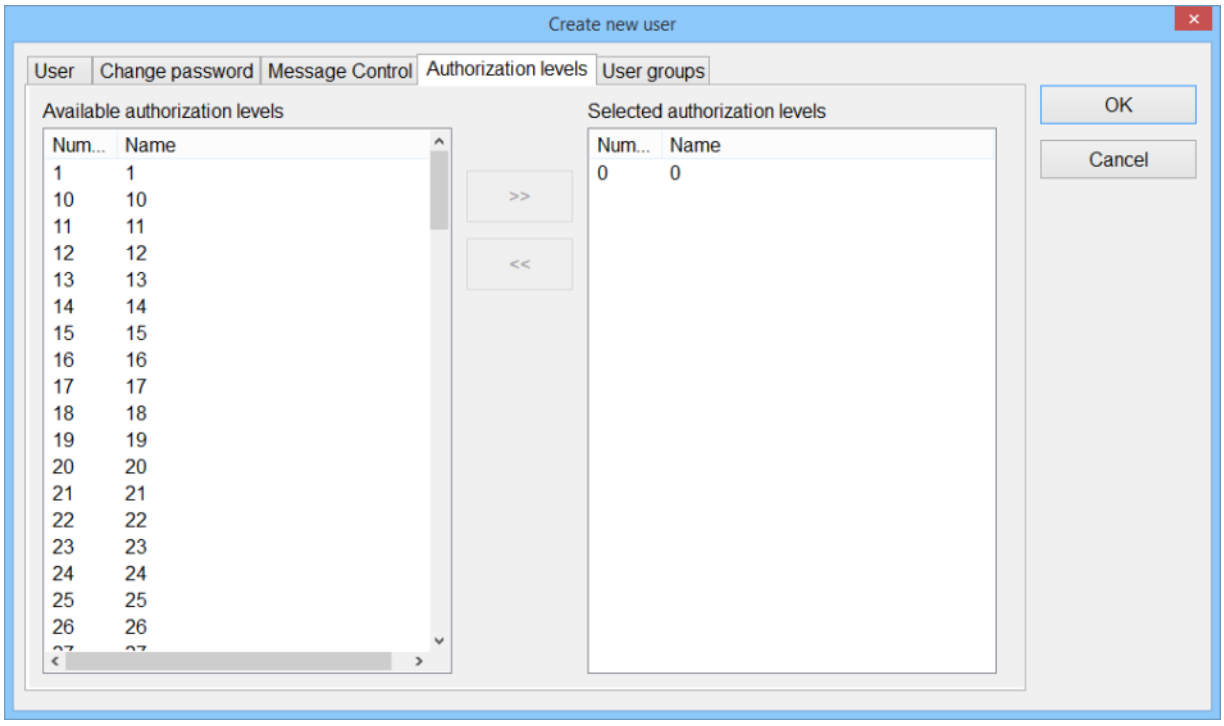
If both codes are identical the code is interpreted as PIN and therefore as confirmation of the message.

If an unknown code is received, a SMS and e--mail is sent to the substitute person. The error message is played back for voice messages.

4.5.4.1.4 Authorization levels

Assignment of authorization levels to a user. 128 authorization levels (from 0 127) are available.

DIALOG AUTHORIZATION LEVEL



Parameter	Description
Available authorization levels	List of all available authorizations.
Selected authorization levels	List of assigned authorizations.
Button double arrow to the right	Entries selected in the list **Available authorization levels**

Parameter	Description
	are added to list **Selected authorization levels**.
Button double arrow to the left	Selected entries in list **Selected authorization levels** are removed from the list.

Note: Each desired level must be assigned and dedicated to that. A selected level closes neither the one above nor following levels.

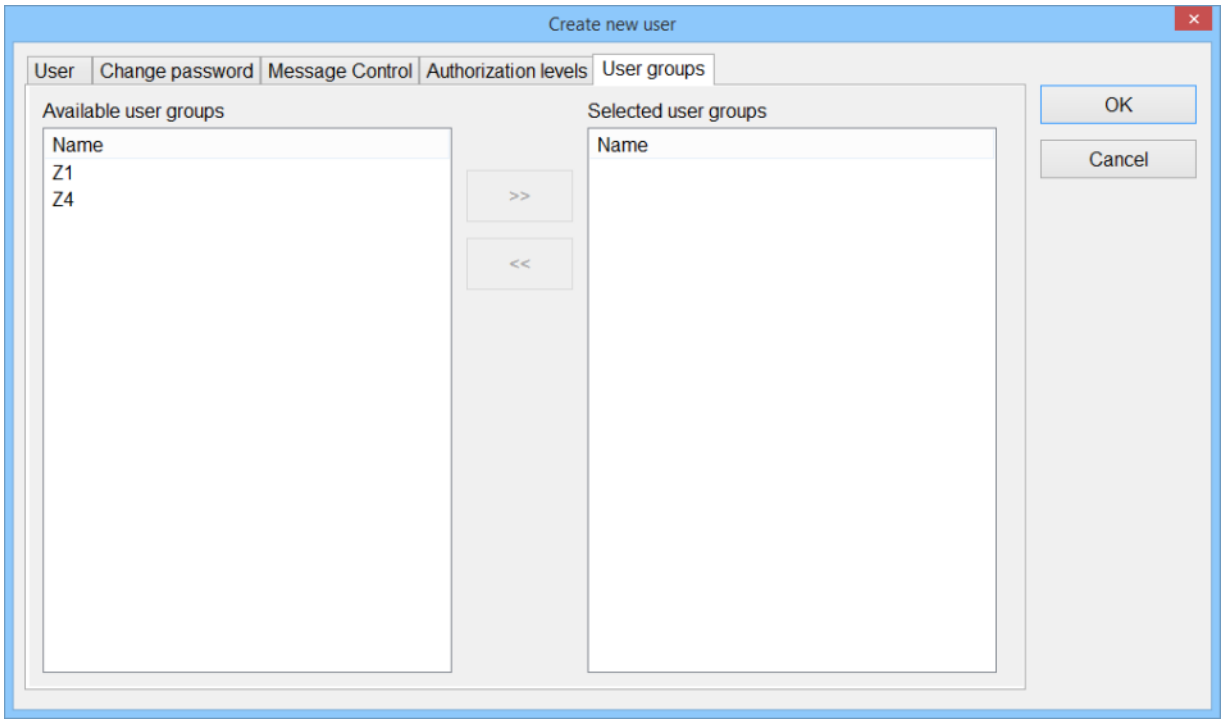
CLOSE DIALOG

Option	Description
OK	**Applies all changes in all tabs and closes the dialog.**
Cancel	Discards all changes in all tabs and closes the dialog.

4.5.4.1.5User groups

Assignment of user groups.

Note: You can only assign user groups that you have yourself.



Parameter	Description
Available user groups	List of all available user groups.
Selected user groups	List of assigned user groups.
Button double arrow to the right	Entries selected in the list **Available user groups** are added to list **Selected user groups**.
Button double arrow to the left	Selected entries in list **Selected user groups** are removed from the list.

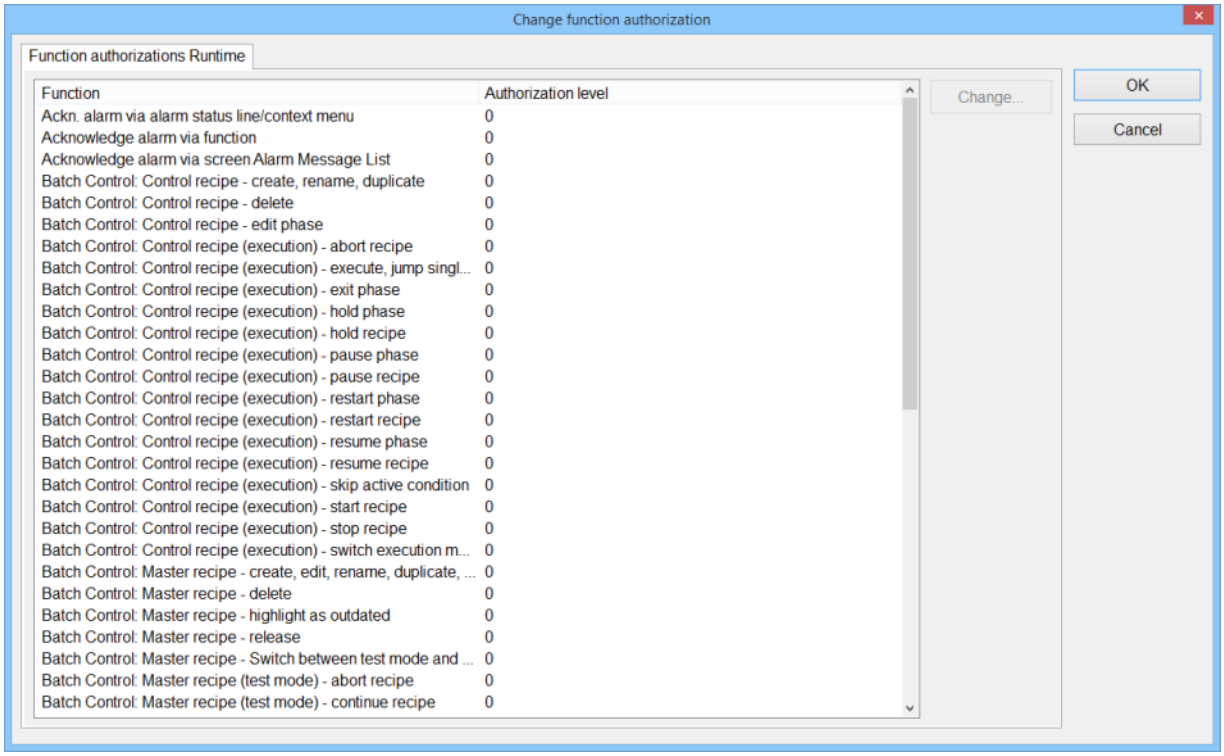
CLOSE DIALOG

Option	Description
OK	**Applies all changes in all tabs and closes the dialog.**
Cancel	Discards all changes in all tabs and closes the dialog.

4.5.4.1.6Issue function authorizations

Issue of function authorizations to authorization levels.

Note: You can only issue function authorizations that you have yourself directly or as a member of a user group.



Parameters	Description
List of functions	List of existing functions and the assigned authorization levels.
Change	Opens the dialog to assign a new authorization level.

CLOSE DIALOG

Option	Description
OK	**Applies all changes in all tabs and closes the dialog.**
Cancel	Discards all changes in all tabs and closes the dialog.

FUNCTION AUTHORIZATIONS, GENERAL

Parameter	Description
Edit Extended Trend	Curves in Extended Trend can be edited in the Runtime. The following control elements are not available if the user does not have authorization: ▸ Diagram

Parameter	Description
	▸ Curves ▸ Settings ▸ Cursor on/off ▸ X-axis
Return to last screen (PgUp)	Screen 'back' functions can be executed in Runtime.
Screen switch: *Enable* "**Show this dialog in Runtime**"	The **Screen switch** function, with the **Show this dialog in Runtime** option active, can only be executed if the user who is logged in meets authorization requirements.
Notepad: Open file	The function *Open file* in screen Notepad can only be carried out if the logged in user has the appropriate authorization level.
Notepad: Save file	The function *save* in screenNotepad can only be carried out if the logged in user has the appropriate authorization level.

FUNCTION AUTHORIZATIONS FOR ALARMS

Parameter	Description
Change alarm comment	A comment necessary for acknowledgment can be changed.
Enter alarm comment	A comment necessary for acknowledgment can be entered.
Confirm alarm acknowledgement	Alarms can be acknowledged in the Runtime.
Acknowledge alarm via alarm status line / context menu	Acknowledging an alarm via the alarm status line or the context menu is only possible if there is an authorization in the project of the alarm that is currently displayed. **For multi-project administration:** Acknowledging the system message in the alarm status line or via the context menu is only possible if there is authorization in the integration project. **Comment:** System messages are messages that appear in the alarm status line when a certain (configurable) number of alarms has been reached.

Parameter	Description
Acknowledge alarm via screen Alarm Message List	Acknowledging via Alarm Message List screens is only possible with authorization in the project linked to the variable (multi-project administration). **Note:**If there is no authorization, the flashing is stopped but the alarm is not acknowledged.
Acknowledge alarm via function	Acknowledging via a function is only possible if there is an authorization for the selected alarms in the respective projects.
Edit archive	Archive data (Archive server) can be amended in the Runtime.

You can set different authorization groups for each of these acknowledging methods. This allows you, for example, to configure that a certain user group can only acknowledge via the alarm status line, not in any other way.

Info

Acknowledging an alarm is only possible if there is an authorization for the selected alarms in the according projects.

FUNCTION AUTHORIZATION BATCH CONTROL

Parameter	Description
Batch Control: Import recipe/operation	Recipes can only be imported as an XML file in the Batch Control module if the user has the corresponding rights.
Batch Control: Control recipe - create, rename, duplicate	Control recipes in the Batch Control module can only be created and administered if the user has the corresponding rights.
Batch Control: Control recipe - edit control recipe	Settings in control recipes in the Batch Control module can only be edited if the user has the corresponding rights.
Batch Control: Control recipe - Delete	Control recipes in the Batch Control module can only be deleted if the user has the corresponding rights.
Batch Control: Control recipe (execution) - skip active condition	When executing control recipes in the Batch Control module, a phase can only be exited if the user has the corresponding rights.
Batch Control: Control recipe	When executing control recipes in the Batch Control

Parameter	Description
(execution) - exit phase	module, pending conditions can only be skipped if the user has the corresponding rights.
Batch Control: Control recipe (execution) - switch execution mode	When executing control recipes in the Batch Control module, the execution mode can only be switched if the user has the corresponding rights.
Batch Control: Control recipe (execution) - execute, jump single steps	When executing control recipes in the Batch Control module, the execution of individual steps can only be skipped if the user has the corresponding rights.
Batch Control: Control recipe (execution) - hold phase	When executing control recipes in the Batch Control module, a phase can only be stopped if the user has the corresponding rights.
Batch Control: Control recipe (execution) - resume phase	When executing control recipes in the Batch Control module, a phase can only be continued if the user has the corresponding rights.
Batch Control: Control recipe (execution) - restart phase	When executing control recipes in the Batch Control module, a phase can only be restarted if the user has the corresponding rights.
Batch Control: Control recipe (execution) - pause phase	When executing control recipes in the Batch Control module, a phase can only be paused if the user has the corresponding rights.
Batch Control: Control recipe (execution) - abort recipe	When executing control recipes in the Batch Control module, execution of the recipe can only be aborted if the user has the corresponding rights.
Batch Control: Control recipe (execution) - hold recipe	When executing control recipes in the Batch Control module, a recipe can only be stopped if the user has the corresponding rights.
Batch Control: Control recipe (execution) - resume recipe	When executing control recipes in the Batch Control module, a recipe can only be continued if the user has the corresponding rights.
Batch Control: Control recipe (execution) - restart recipe	When executing control recipes in the Batch Control module, a recipe can only be restarted if the user has the corresponding rights.
Batch Control: Control recipe (execution) - pause recipe	When executing control recipes in the Batch Control module, a recipe can only be paused if the user has the corresponding rights.

Parameter	Description
Batch Control: Control recipe (execution) - start recipe	When executing control recipes in the Batch Control module, a recipe can only be restarted if the user has the corresponding rights.
Batch Control: Control recipe (execution) - stop recipe	When executing control recipes in the Batch Control module, a recipe can only be stopped if the user has the corresponding rights.
Batch Control: Operation: create, edit, rename, duplicate, save	Operations in the Batch Control module can only be created, edited or administered if the user has the corresponding rights.
Batch Control: Operation: release	Operations in the Batch Control module can only be approved if the user has the corresponding rights.
Batch Control: Operation: delete	Operations in the Batch Control module can only be deleted if the user has the corresponding rights.
Batch Control: Master recipe - highlight as outdated	Master recipes in the Batch Control module can only be marked as obsolete if the user has the corresponding rights.
Batch Control: Master recipe - create, edit, rename, duplicate, save	Master recipes in the Batch Control module can only be created and administered if the user has the corresponding rights.
Batch Control: Master recipe - release	Master recipes in the Batch Control module can only be approved if the user has the corresponding rights.
Batch Control: Master recipe - Delete	Master recipes in the Batch Control module can only be deleted if the user has the corresponding rights.
Batch Control: Master recipe - Switch between test mode and edit mode	Switching between test mode and editing mode is only possible for master recipes in the Batch Control module if the user has the corresponding rights
Batch Control: Master recipe (test mode) - skip active condition	In test mode, with master recipes in the Batch Control module, it is only possible to skip a pending condition if the user has the corresponding rights.
Batch Control: Master recipe (test mode) - escape phase	In test mode, with master recipes in the Batch Control module, it is only possible to exit a phase if the user has the corresponding rights.
Batch Control: Master recipe (test mode) - switch execution mode	In test mode, with master recipes in the Batch Control module, the execution mode can only be switched if

Parameter	Description
	the user has the corresponding rights.
Batch Control: Master recipe (test mode) - execute, jump single step	In test mode, with master recipes in the Batch Control module, it is only possible to skip the execution of individual steps if the user has the corresponding rights.
Batch Control: Master recipe (test mode) - hold phase	In test mode, with master recipes in the Batch Control module, a phase can only be stopped if the user has the corresponding rights.
Batch Control: Master recipe (test mode) - edit phase	In test mode, with master recipes in the Batch Control module, a phase can only be edited if the user has the corresponding rights.
Batch Control: Master recipe (test mode) - resume phase	In test mode, with master recipes in the Batch Control module, a phase can only be continued if the user has the corresponding rights.
Batch Control: Master recipe (test mode) - restart phase	In test mode, with master recipes in the Batch Control module, a phase can only be started if the user has the corresponding rights.
Batch Control: Master recipe (test mode) - pause phase	In test mode, with master recipes in the Batch Control module, a phase can only be paused if the user has the corresponding rights.
Batch Control: Master recipe (test mode) - abort recipe	In test mode, with master recipes in the Batch Control module, a recipe can only be aborted if the user has the corresponding rights.
Batch Control: Master recipe (test mode) - hold recipe	In test mode, with master recipes in the Batch Control module, a recipe can only be held if the user has the corresponding rights.
Batch Control: Master recipe (test mode) - continue recipe	In test mode, with master recipes in the Batch Control module, a recipe can only be continued if the user has the corresponding rights.
Batch Control: Master recipe (test mode) - restart recipe	In test mode, with master recipes in the Batch Control module, a recipe can only be continued if the user has the corresponding rights.
Batch Control: Master recipe (test mode) - pause recipe	In test mode, with master recipes in the Batch Control module, a recipe can only be paused if the user has the corresponding rights.

Parameter	Description
Batch Control: Master recipe (test mode) - start recipe	In test mode, with master recipes in the Batch Control module, a recipe can only be started if the user has the corresponding rights.
Batch Control: Master recipe (test mode) - stop recipe	In test mode, with master recipes in the Batch Control module, a recipe can only be stopped if the user has the corresponding rights.

COMMAND SEQUENCER FUNCTION AUTHORIZATIONS:

Parameter	Description
Command Sequencer: Cancel execution	When executing command sequences in the Command Sequencer module, execution of the recipe can only be aborted if the user has the corresponding rights.
Command Sequencer: Continue execution	In the Command Sequencer module, a paused command sequence can only be continued if the user has the corresponding rights.
Command Sequencer: Pause execution	In the Command Sequencer module, a corresponding command sequence can only be paused if the user has the corresponding rights.
Command Sequencer: Start execution	Starting a command sequence in the Command Sequencer module is only possible if the user has the corresponding rights.
Command Sequencer: Switch execution mode	When executing command sequences in the Command Sequencer module, individual steps can only be executed or the execution of individual steps can only be skipped if the user has the corresponding rights.
Command Sequencer: Execute, jump single steps	When executing command sequences in the Command Sequencer module, individual steps can only be executed or the execution of individual steps can only be skipped if the user has the corresponding rights.
Command Sequencer: Create, edit, rename, duplicate, save	The administration of command sequences in the Command Sequencer module - for example creation, changing, editing, duplicating and saving - can only be configured if the user has the corresponding rights.

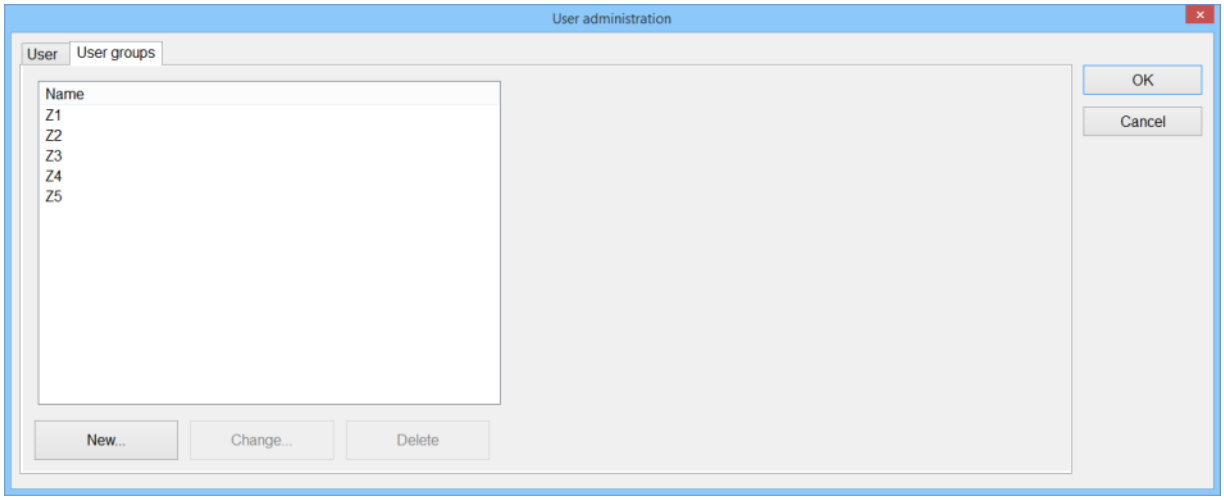
Parameter	Description
Command Sequencer: Delete	In the Command Sequencer module, configured command sequences can only be deleted if the user has the corresponding rights.
Command Sequencer: Import command sequences	Command sequences can only be imported as an XML file in the Command Sequencer module if the user has the corresponding rights.
Command Sequencer: Switching between execution and edit mode	Switching modes (edit mode and execution mode) is only possible in the Command Sequencer module if the user has the corresponding rights.

FUNCTION AUTHORIZATIONS FOR SHIFT MANAGEMENT:

Parameter	Description
Shift Management: create, edit or delete shift	When configuring shifts in the Shift Management module in the Runtime, a shift can only be created, edited or deleted if the user has the corresponding permissions.
Shift Management: create, edit or delete shift model	When configuring shift models in the Shift Management module in the Runtime, a shift can only be created, edited or deleted if the user has the corresponding permissions.

4.5.4.2 User group

User groups are configured in this tab.



Parameters	Description
List of user groups	Lists all configured user groups.
New	Opens the dialog (on page 95) to create and amend new user groups.
Change	Opens the dialog (on page 95) to create and amend new user groups.
Delete	Deletes the selected user group after confirmation.

CLOSE DIALOG

Option	Description
OK	**Applies settings and closes the dialog.**
Cancel	Discards all changes and closes the dialog.

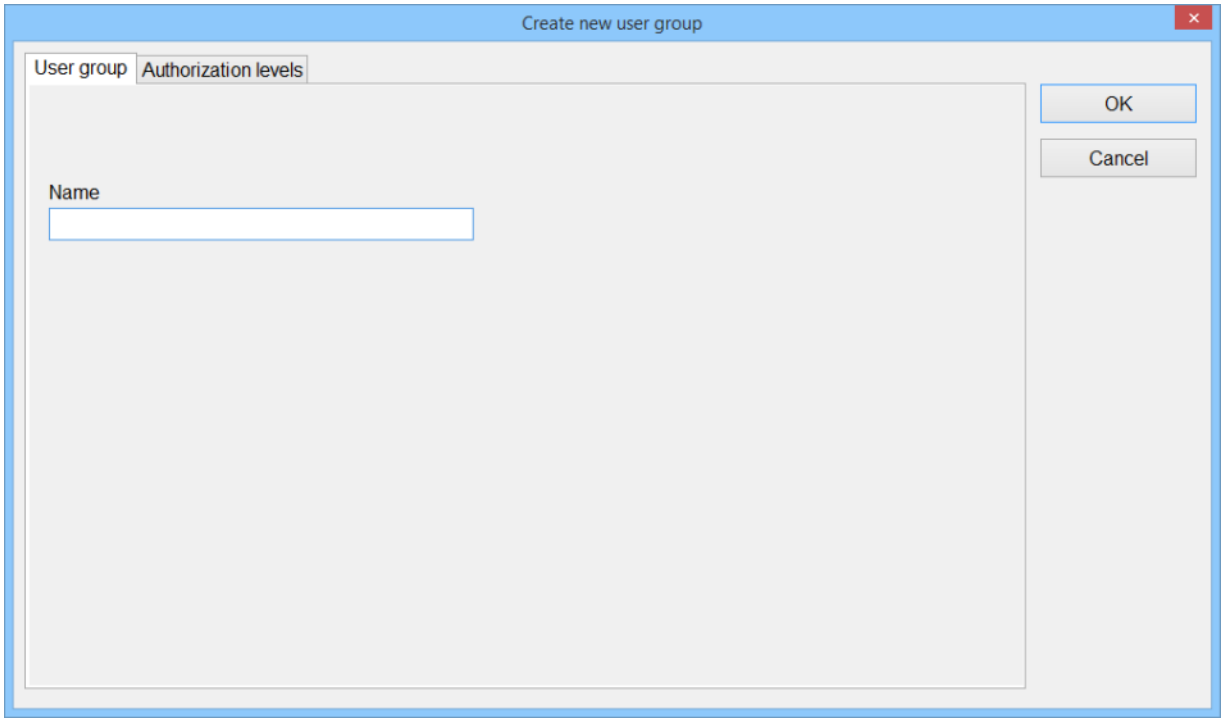
ADMINISTER USER GROUPS

To administer a user group:

1. Highlight the user group in the list.
2. Select the desired action by clicking on one of the buttons.

4.5.4.2.1User group

Creation of a new user group.



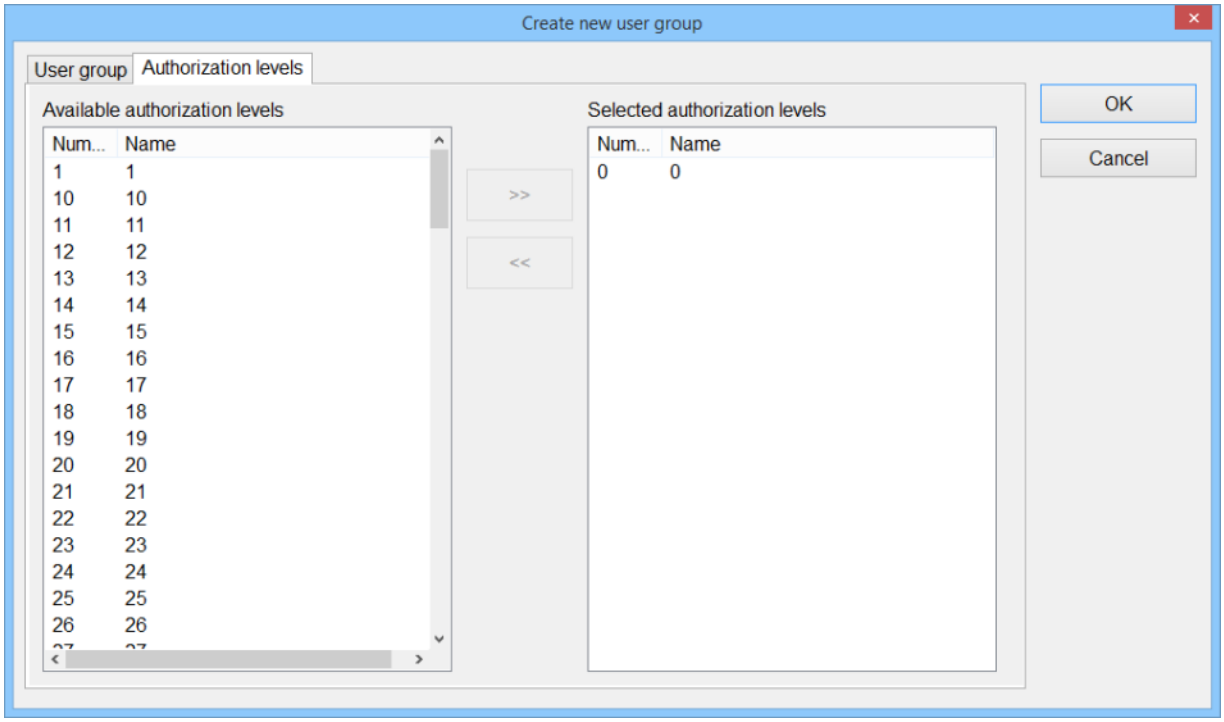
Parameter	Description
Name	Name of the new user group Attention: **@** is not a valid character for a user group.

CLOSE DIALOG

Option	Description
OK	**Applies all changes in all tabs and closes the dialog.**
Cancel	Discards all changes in all tabs and closes the dialog.

4.5.4.2.2 Authorization levels

Assignment of authorization levels to a user. 128 authorization levels (from 0 127) are available.



Parameter	Description
Available authorization levels	List of all available authorizations
Selected authorization levels	List of assigned authorizations
Button double arrow to the right	Entries selected in the list **Available authorization levels** are added to list **Selected authorization levels**.
Button double arrow to the left	Selected entries in list **Selected authorization levels** are removed from the list.

Note: Each desired level must be assigned and dedicated to that. A selected level closes neither the one above nor following levels.

CLOSE DIALOG

Option	Description
OK	**Applies all changes in all tabs and closes the dialog.**
Cancel	Discards all changes in all tabs and closes the dialog.

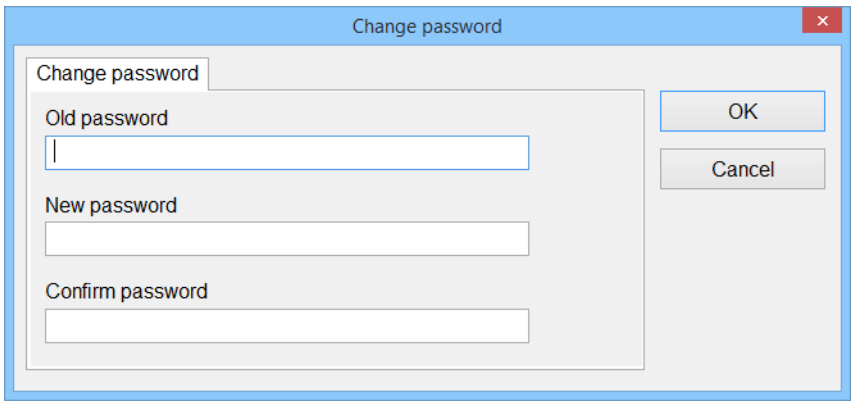
4.5.5 Change password

When this function is used, the user who is logged in can change their current password in the Runtime. For system-internal users no changes are possible.

Note that different conditions are applicable for the password length:

- Local users: a maximum password length of 20 characters is permitted
- AD users: a maximum password length of 255 characters is permitted

A dialog to change the password is called up in the Runtime.



Required inputs:

Parameter	Description
Old password	Enter current password.
New password	Enter new password.
Confirm password	Enter new password again.
OK	Accepts the new password and closes the dialog.
Cancel	Cancels the process.

If no password has been assigned to the user, he can define it, the first time he executes the function in the Runtime. In this case, no old password is asked for in the dialog.

4.6 Password protection for dynamic elements

All dynamic screen elements that either allow a function execution or the **Write set value** function can be linked to an authorization group in the Runtime.

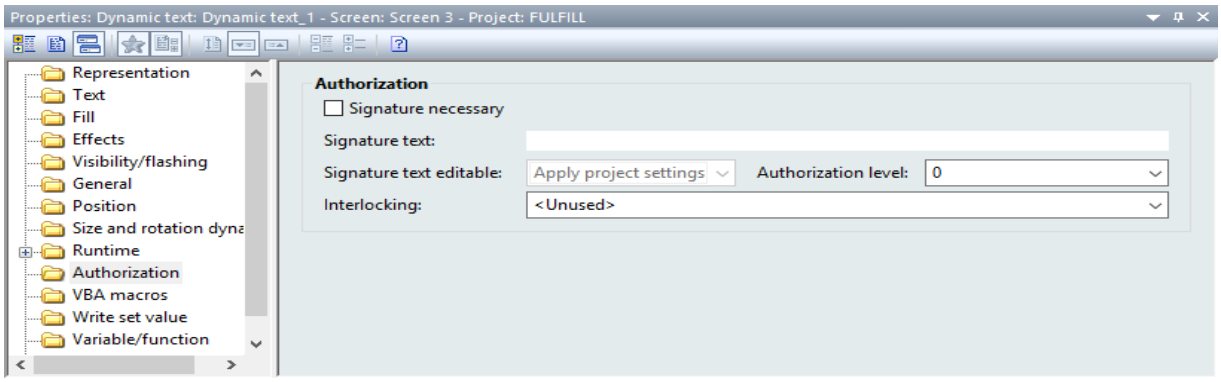
1. Create a dynamic element. E.g. a text button.

Now all configurable properties for this dynamic element will be displayed in the property window.

2. Go to the **authorization level** property in the the properties in the **Authorization** group.

   You can set the authorization level necessary to execute the function with the drop-down list.

Note: With dynamic elements for which the setting of values should be secured, you must first link a variable using the properties window and activating the **Write set value** property before the authorization level can be set.



4.7 Apply changes in the Editor in the Runtime

Not all changes to the user administration are accepted in the Runtime after a reload. Note most of all:

THE MAXIMUM NUMBER OF INCORRECT PASSWORD INPUTS

If you change the default setting for the maximum number of erroneous attempts for entering a password in the Editor, this change is only effective once Runtime is restarted. Reloading alone is not sufficient, because otherwise as many attempts at entering a password as desired would be possible. You change the value at: Project properties -> **User Administration** -> **Max. user error**

CHANGES TO USER GROUPS AND AUTHORIZATIONS

If user groups are added or removed or authorizations are changed in the Editor, these changes are not accepted in the Runtime for users that are logged in on reloading. In order for these changes to be effective, users who are logged in must log out of the system and log in again. This also applies to use by Active Directory users.

5 External user administration with Microsoft Active Directory

With zenon, you can also use Microsoft Active Directory for user administration:

In order to be able to use AD and AD LDS for logging in to zenon Runtime, the zenon project property **User Administration**/**Access to Active Directory** must be configured.

- **AD**: *Yes* must be selected for the property and the computer must be in the domain.
- **AD LDS**: *ADAM/AD LDS* must be selected for the property.
  The properties **AD LDS connection**, **AD LDS user name** and **AD LDS password** correctly configured.
  - AD LDS must be prepared accordingly.

Note: ADAM is not supported.

GENERAL RULES

The following is applicable for the administration of zenon users in the Active Directory (on page 197):

- Users from the Active Directory do not automatically get administrator rights in zenon. These can however be issued in the Runtime using an *Active Directory user administration* screen (on page 198).
  Attention: These rights are applicable globally regardless of the project, i.e. for all other zenon projects too.
- Users from the Active Directory cannot load or edit any projects in the Editor.

Attention: zenon does not support any fine-grained password guidelines.
For example, the automatic unblocking of blocked user accounts is not supported.

USER RIGHTS FOR AD USERS

The rights that an Active Director user gets in the Runtime depend on the type of login and how they belong to user groups:

- Login with Domain Controller contactable:
  The user can get user authorizations via:
  - an Active Directory Schema Extension (on page 123)
  - an Active Directory user group description with special syntax to which the user belongs
  - an Active Directory user attribute *groupMembershipSAM*
  - A local zenon user group that corresponds to an AD user group to which the user belongs

- Login with cached login information:
  If a user with cached login information logs in, because the Domain Controller cannot be contacted, they then get the rights of the zenon user group that has been configured for the **login with cached login information** (on page 79).

> **Attention**
>
> Rights that are issued in zenon are applicable for the respective project or the workspace. Permissions that are issued in the Active Directory are applicable globally.
>
> If rights have been issued to users or user groups of the Active Directory, then the rights for these users are applicable in all zenon projects!

5.1 Active Directory (AD)

Active Directory can be used in zenon for login and for user administration in zenon Runtime. For the zenon Editor AD is not available.

> **Information**
>
> **Active Directory** and **AD LDS**, as well as **ADAM** (for Windows XP), are not available under Windows CE.

USE OF AD IN ZENON

The active directory can be used for three types of zenon:

1. The name of the authorization group in zenon user administration corresponds to the of the group names of a user group in Active Directory: Automatic assignment of the Active Directory user to zenon authorization group. All AD group users receive user rights that are defined in the zenon authorization group. See User groups in zenon and groups in Active Directory have the same name (on page 123)
2. In the description of the Active Directory group, the zenon authorization levels and the project are stored in a certain syntax. All users of the group receive the user rights stored in the AD group in zenon. See Assignment of an Active Directory user to zenon authorization levels (on page 120)
3. The Active Directory schema is expanded by fields in which the zenon authorization levels are saved. This requires an Active Directory extension schema. However this is not suitable for use in an FDA 21 CFR Part 11 regulated environment. See: Active Directory extension schema (on page 123).

Information

When checking the password in zenon, the **Active Directory Max. password age** property is also checked.

5.1.1 General

In order to be able to use the users of the Active Directory (hereinafter called AD) in zenon, a domain based on a Windows server operating system is required. In order to be able to administer user in the Active Directory, the server has to be a DNS server.

So a domain controller with DNS and Active Directory has to be available to be able to use these user accounts as users of zenon on a PC in the domain.

Access to the users of the Active Directory has to be activated in the properties of the project.

Basic knowledge about the Active Directory and the Windows server technology is assumed.

Attention

If login is via Active Directory, all computers without exception must have access to the Active Directory. This also applies to clients and zenon Web Clients.

Background: A client is logged in directly from the client to the Active Directory. The zenon Runtime server is not involved in this.
An Active Directory user can therefore only be logged on if a client:

- Is a member of the domain
  and
- has access to the domain

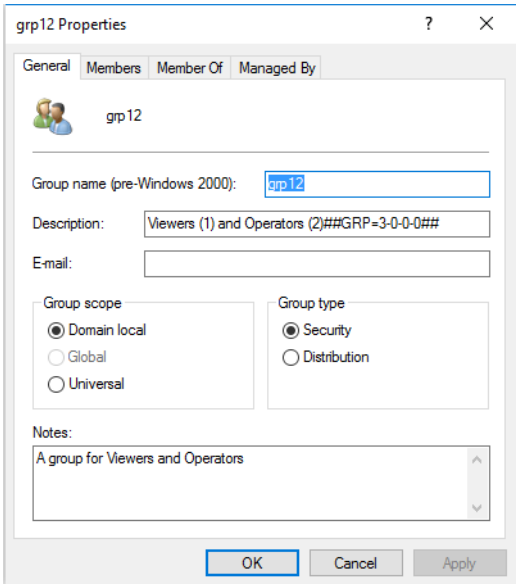
5.1.2 Setting the zenon authorization levels in Active Directory

Windows users can be assigned authorization levels for zenon in the Active Directory. These are set in the description field of a user group.

In order to allocate a user zenon authorization levels:

1. Create a domain group that is used for authorization levels in zenon.
2. Assign the user to this domain group.
3. Link the domain group to the domain for zenon users.

4. Assign the authorization levels in the domain group.
   To do this: Enter the authorization levels in the **Description** option.
   - Syntax: **[free text] ##[group description=HEX number]##**
   - **Free text**: Optional text to identify the group.
   - **Group name**: zenon authorization levels in HEX format.
     The group description is introduced and concluded by **##**.



Note: A user can belong to several groups. In this case, they get the sum of the authorization levels of all groups.

Procedure when logging in to zenon:

- The information about the users is read.
- Whether the user is present in zenon is established.
- If they are not found in zenon, a check is carried out to see whether the user belongs to an appropriate domain group.
- The group description in the AD domain is read.
- Whether corresponding authorization levels for the domain user in zenon Runtime have been defined is established.
- The domain user is assigned the defined authorization levels.

Note: If a user exists in neither zenon nor in the AD domain, the user is not logged in. If the user does not exist in AD, but has no valid authorization levels assigned, they are logged in with the authorization level 0. An entry in the CEL is created in both cases.

ZENON AUTHORIZATION LEVELS AS A HEX NUMBER

The authorization levels are assigned in binary format. This is shown in hex format in the description of the AD group for greater readability. The HEX number has 32 digits and is subdivided into four groups. These are each separated by a hyphen. Not all 32 digits need to be given. Missing digits are interpreted as *0*.

Examples:

Example	Authorization levels	Remark
##GRP=7##	*0*, *1*, *2*	7 hexadecimal equals 111 as binary number. For each 1 in the binary number, the corresponding authorization level is set. ▸ The bit on the far right stands for the authorization level *0*. ▸ The bit in the middle stands for the authorization level *1*. ▸ The bit to the left of this stands for authorization level *2*.
##GRP=FFFFFFFF-FFFFFFFF-FFFFFFFF-FFFFFFFF##	*0* to *127*	

EXAMPLE OF AUTHORIZATION LEVELS IN ACTIVE DIRECTORY

Configuration:

- In the Active Directory, there is a domain user called **user_grp12**.
- This user is a member of the domain group **grp12**.
- The domain group **grp12** is a member of the domain for zenon.
- The following is entered in the description of the domain group: *Viewers (1) and Operators (2)##GRP=3-0-0-0##*.

Procedure in the Runtime:

- The user **user_grp12** is logged into zenon.
- It is established that they belong to the **grp12** domain group.
- The description of the domain group is read.

- The authorization levels are read from the entry.
- The user is assigned the authorization levels *0*, *1*.

5.1.3 The same user groups in zenon and in Active Directory

The following applies for users in zenon and in Active Directory:

- If a user is in the AD, but not in zenon, then:
  - The user groups are checked in zenon
  - The group authorization levels to which the user belongs, are allocated to the AD user
- If a user exists in both AD and in zenon and the user logs into Runtime, then:
  - The local zenon user has priority over the AD user
  - If no authorization levels are checked in AD, because the local user is logged in

5.1.4 Active Directory extension scheme

Note: This expansion should not be used in an FDA 21 CFR Part11 regulated environment. For FDA 21 CFR Part 11 compliant user administration, use either the User groups in zenon and groups in the Active Directory (on page 123) method or Allocation of an Active Directory user to zenon authorization levels (on page 120).

Information

Active Directory and **AD LDS**, as well as **ADAM** (for Windows XP), are not available under Windows CE.

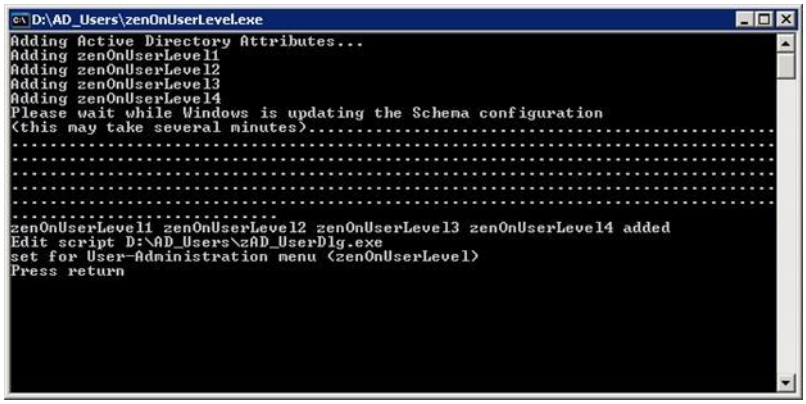
5.1.4.1 Installation of the schema extension

In order for the users in AD to also be able to be assigned the 128 authorization levels of zenon, the AD schema must be supplemented with these entries (4 integer values).

For this purpose, two files (**zenonUserLevel.exe** and **zAD_UserDlg.exe**) are copied to the server (ideally to their own folder). As soon as the setup (**zenonUserLevel.exe**) has been started, this folder and the files contained therein must no longer be renamed or deleted.

Attention

You can find the two files **zenonUserLevel.exe** and **zAD_UserDlg.exe** on the zenon installation medium in the */Software/zenonUserLevel/* folder



A reference to the *zAD_UserDlg.exe* file is stored in the AD schema.

Furthermore, 4 integer values (*zenonUserLevel1*, *zenonUserLevel2*, *zenonUserLevel3*, *zenonUserLevel4*) are added to the AD schema.

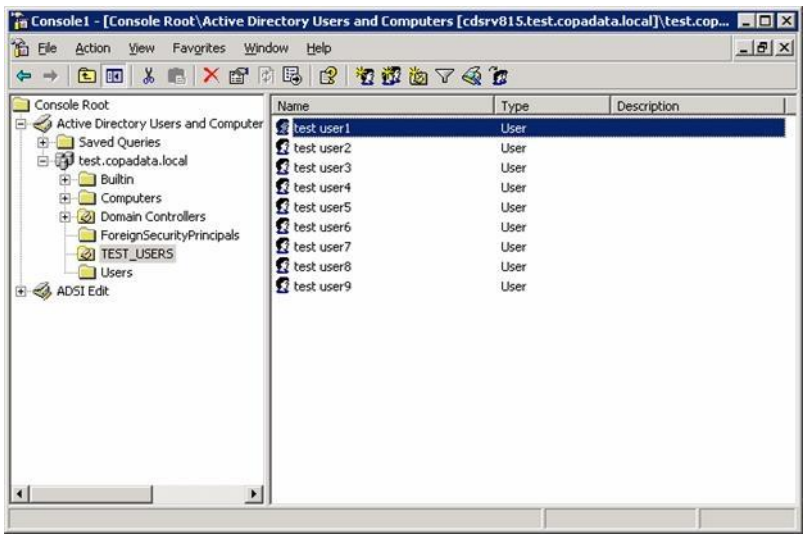
Information

Only a user from the **Schema administrators** group can make these changes! The domain administrator normally has these rights.

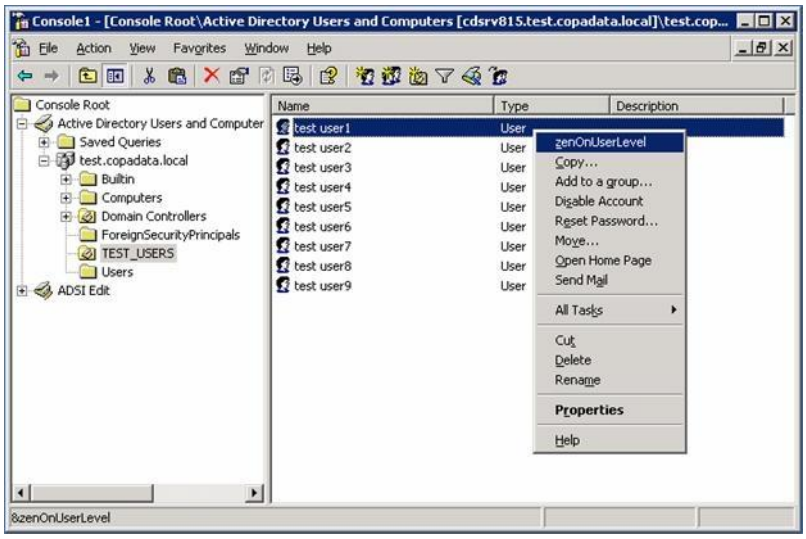
5.1.4.2 Granting user rights

After the successful extension of the schema the authorization levels can be granted to the single users.

For this purpose, the Microsoft Management Console (MMC) with the **Active Directory Users and Computers** plug-in is opened.



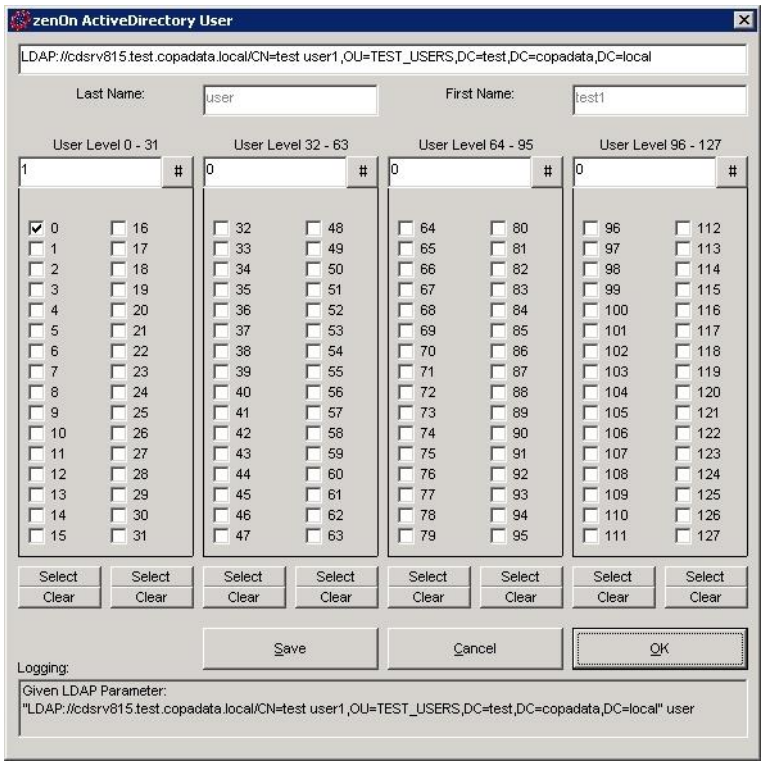
A context menu is opened by clicking on the desired user with the right mouse button. A new menu item is visible in the context menu: **zenonUserLevel**.



In this context menu, the **zenonUserLevel** entry has to be selected, so that the administration tool (zAD_UserDlg.exe) for the selected user is opened.

Information

The authorization levels for zenon can only be granted directly to the user, groups and organization units are not supported.



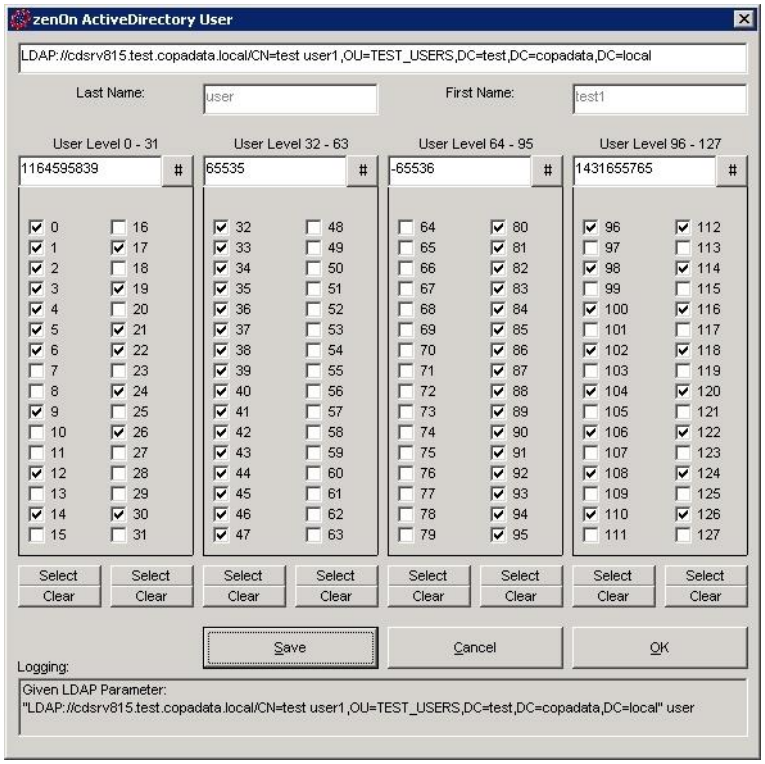
Up to 128 authorization levels per user can be defined with the help of the administration tool.

Information

As a default, the authorization level *0* is granted to each user; this cannot be deactivated in the administration tool.

This level corresponds to the **SYSTEM** user of zenon.

5.1.4.2.1 Description of the administration tool



Parameters	Description
[first line]	LDAP parameter that serves as connection string.
Last name	Last name of the selected user.
First Name	First name of the selected user.
User Level	Four integer values represent 32 authorization levels. They are inputted by activating or deactivating the checkboxes or directly inputting into the field.
#	Updates display of authorization levels.
Select	Activates all checkboxes in a column.
Clear	Deactivates all checkboxes in a column.
Save	Saves current settings.
Cancel	Rejects all changes made since the last save and closes the dialog.
OK	Saves all settings and closes dialog.
Logging	Displays logging information.

5.1.5 Schema extension – details

To clarify the whole background, the schema extensions are explained in detail here, so that they can be checked in the event of problems.

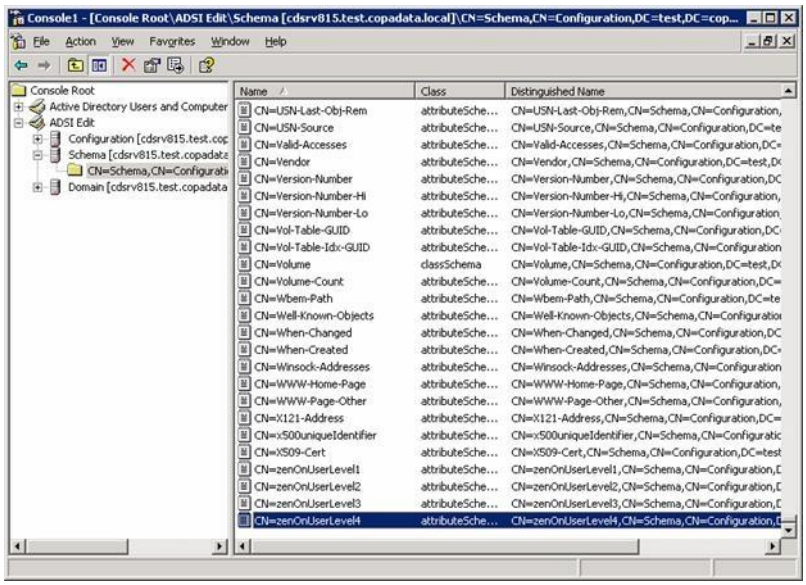
In order to be able to see the details of the AD schema, **ADSI Edit** has to be installed on the server. This tool is available as soon as the support tools for the Microsoft Server have been installed.

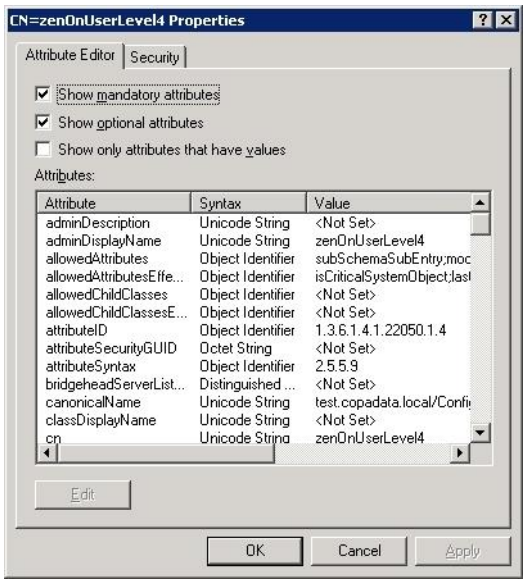
Then the **ADSI Edit** plug-in can be opened in the Microsoft Management Console (MMC). Now different connections can be established.

5.1.6 Schema

The additional attributes can be checked in the schema. These are normally listed at the bottom.

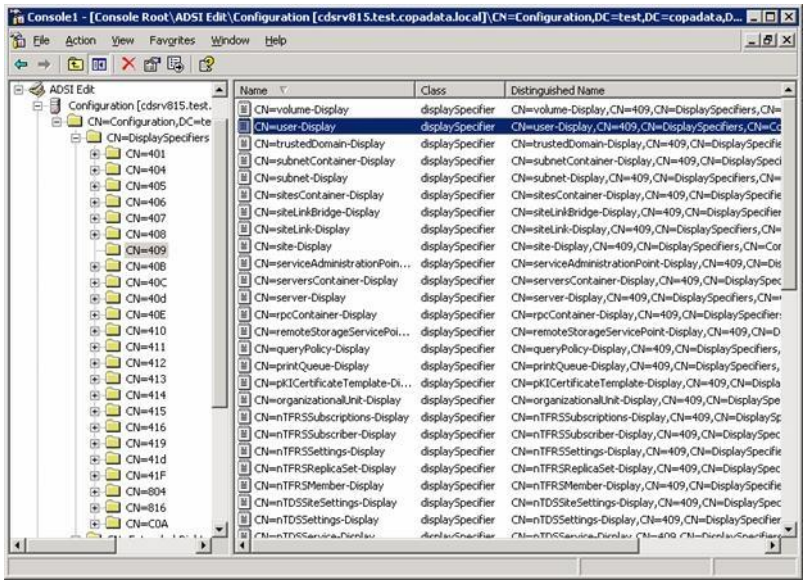
zenonUserLevel1 - zenonUserLevel4

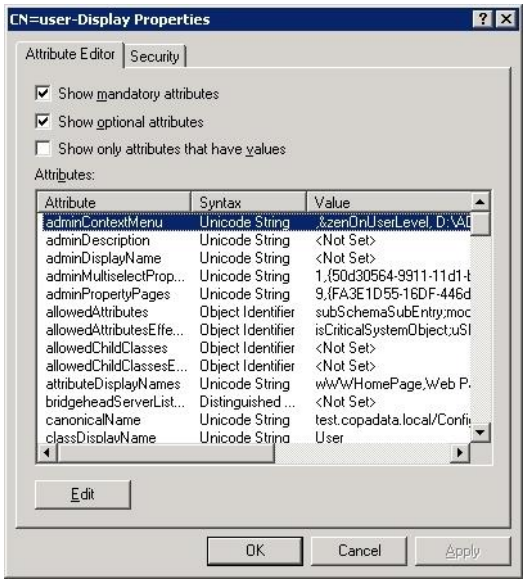



CN=zenOnUserLevel4 Properties
Attribute Editor
Security
Show mandatory attributes
Show optional attributes
Show only attributes that have values
Attributes:
Attribute
Syntax
Value
adminDescription
Unicode String
<Not Set>
adminDisplayName
Unicode String
zenOnUserLevel4
allowedAttributes
Object Identifier
subSchemaSubEntry;moc
allowedAttributesEffe...
Object Identifier
isCriticalSystemObject;last
allowedChildClasses
Object Identifier
<Not Set>
allowedChildClassesE...
Object Identifier
<Not Set>
attributeID
Object Identifier
1.3.6.1.4.1.22050.1.4
attributeSecurityGUID
Octet String
<Not Set>
attributeSyntax
Object Identifier
2.5.5.9
bridgeheadServerList...
Distinguished ...
<Not Set>
canonicalName
Unicode String
test.copadata.local/Confi
classDisplayName
Unicode String
<Not Set>
cn
Unicode String
zenOnUserLevel4
Edit
OK
Cancel
Apply

5.1.7 Configuration

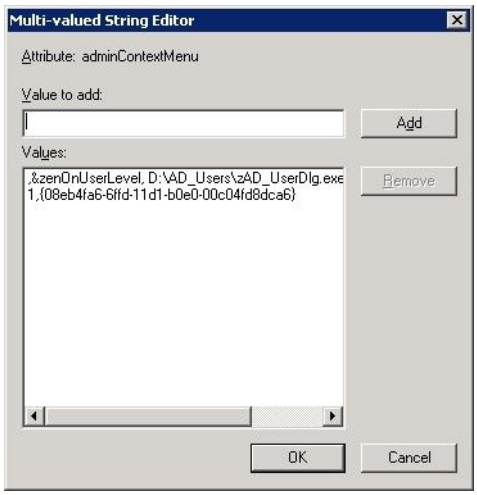
After the connection to configuration has been defined, the details of the single AD objects can be checked and edited. In this case, only the object user-display in the single 'DisplaySpecifiers' is of interest, because here the link between user object and AdministrationTool is established.





The properties of the **user-Display** object only contain attributes with the names **adminContextMenu**.

This attribute contains the link to the administration tool (**zAD_UserDlg.exe**).



This entry can also be amended manually if necessary.

To do this:

1. Select the entry
2. Press the **Remove** button
3. Adapt the parameters
4. Use **Add** to add again

The parameter has the following structure:

,name of the menu entry, path of the file zAD_UserDlg.exe

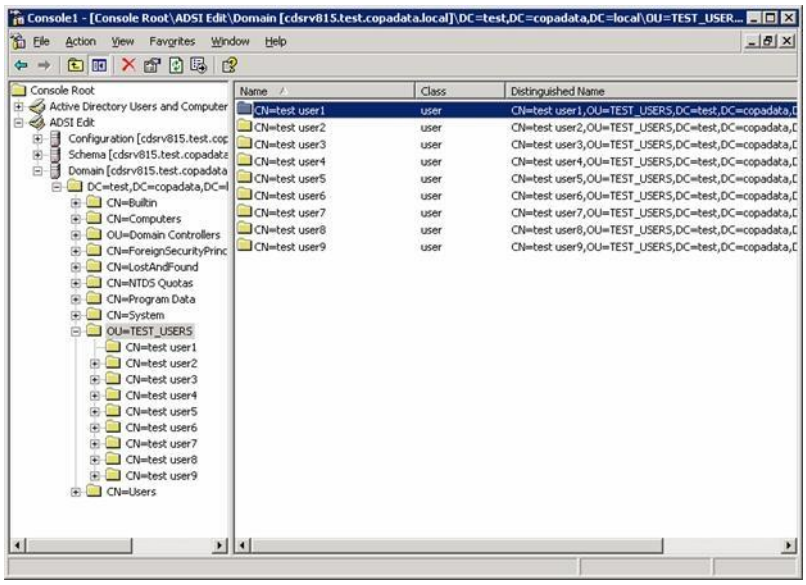
Example

Example, if the EXE file is in the folder *D:\\AD_Users*.

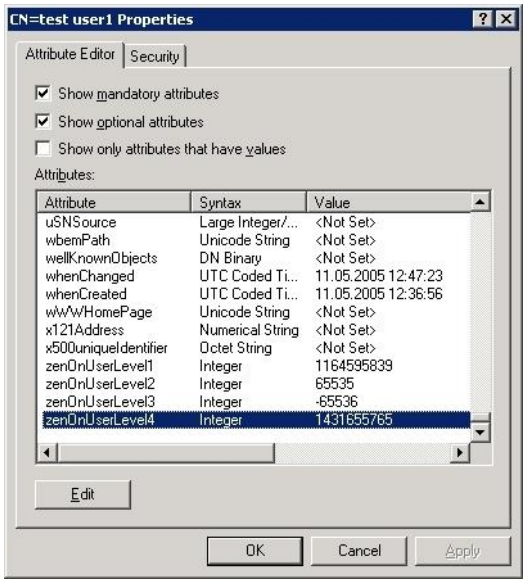
,&zenonUserLevel,D:/AD_Users/zAD_UserDlg.exe

5.1.8 Domain

If the connection **domain** is openen, it looks similar to the MMC with the PlugIn **Active Directory Users and Computers**. Exactly this information can also be found here, but with more details.



If you check the properties of a user object and scroll down to the bottom of the list, here you will also find 4 integer values for the authorization levels.



5.2 Active Directory Lightweight Directory Services - AD LDS

Active Directory Lightweight Directory Services (abbreviation: AD LDS) is a simplified version of the Active Directory (on page 119) and is suitable for use on normal desktop operating systems; it is not necessary to use a server operating system. LikeAD (on page 119), AD LDS also supports:

1. The name of the authorization group in zenon user administration corresponds to the of the group names of a user group in Active Directory: Automatic assignment of the Active Directory user to zenon authorization group. All AD group users receive user rights that are defined in the zenon authorization group. See User groups in zenon and groups in Active Directory have the same name (on page 123)
2. In the description of the Active Directory group, the zenon authorization levels and the project are stored in a certain syntax. All users of the group receive the user rights stored in the AD group in zenon. See Assignment of an Active Directory user to zenon authorization levels (on page 120)

You can use AD LDS with:

- Windows 7 (on page 166)
- Windows 8 (on page 133)
- Windows Server 2008 (on page 186)
- Windows Server 2012 (on page 133)

5.2.1 AD LDS from Windows 8 and from Windows Server 2012

To use AD LDS from Windows 8 or from Windows Server 2012 and zenon:

1. Install AD LDS (on page 133)
2. Create a new AD LDS instance (on page 137)
3. Import an AD LDS scheme (on page 142)
4. Install the Remote Administration for Windows Server (on page 144)
5. Configure the Active Directory snap-in (on page 145) in order to manage the AD LDS instances
6. Define the roles, organization units, users and user groups (on page 149)

Note: The instructions on installation and use of AD LDS sometimes use screenshots with an English user interface.

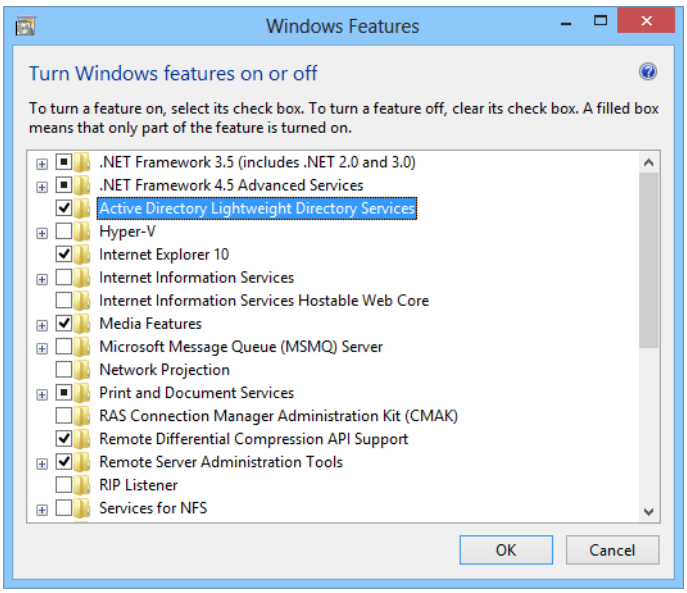
5.2.1.1 Installing AD LDS

WINDOWS 8

To install AD LDS under Windows 8:

1. Open Control Panel.
2. Open **Programs and Features**.

3. Select **Turn Windows features on or off**.

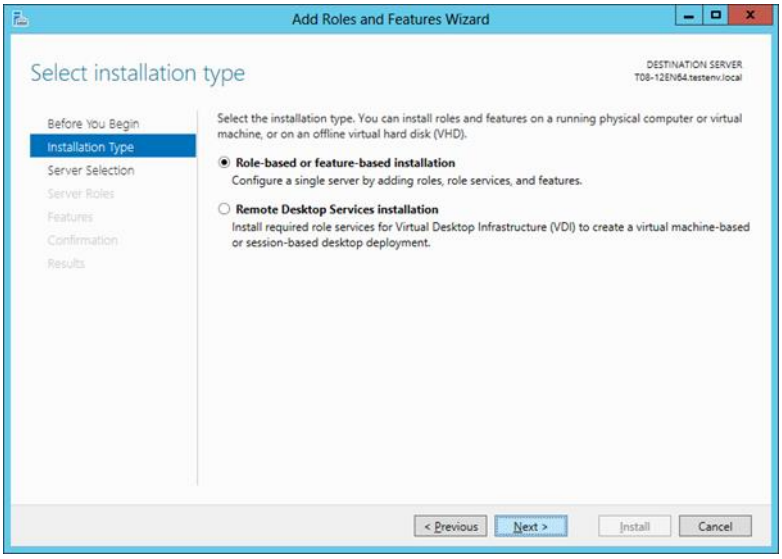


4. Activate the check box in front of **Active Directory Lightweight Directory Services**.
5. Click on **OK**.

WINDOWS SERVER 2012

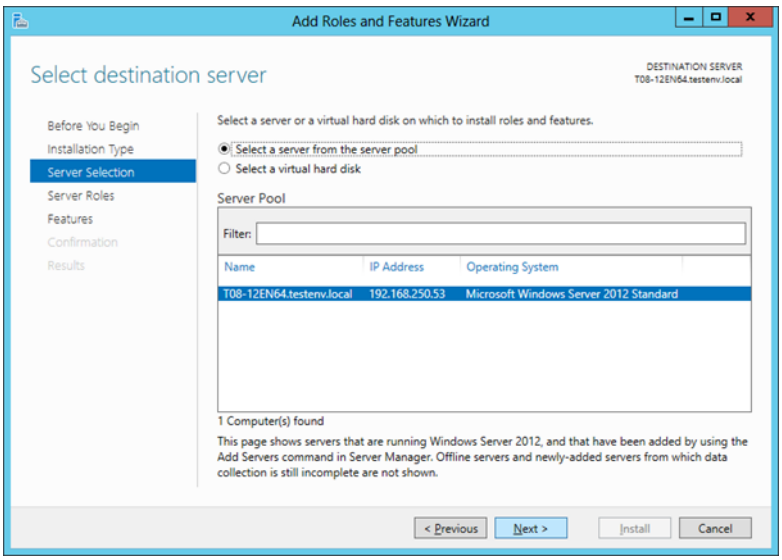
To install AD LDS under Windows Server 2012:

1. Go to **Manage -> Add Roles and Features**.
2. The wizard is started.

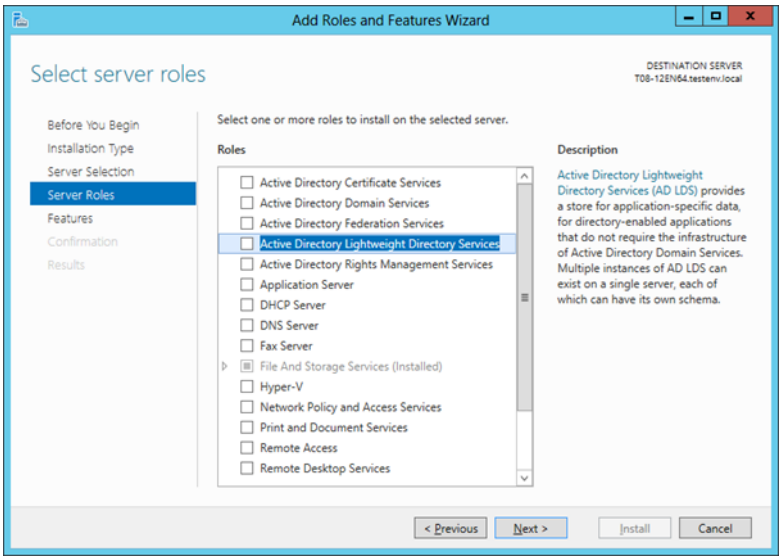


3. Select **Role-based or feature-based installation**.

4. Click on **Next**.

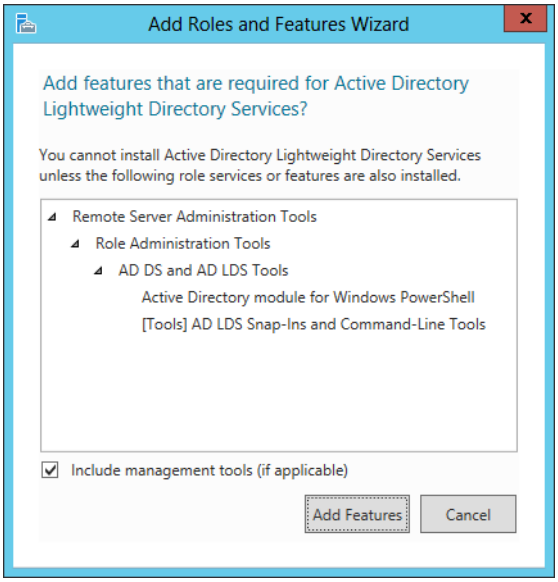


5. Select a server from the server pool.
6. Click on **Next**.

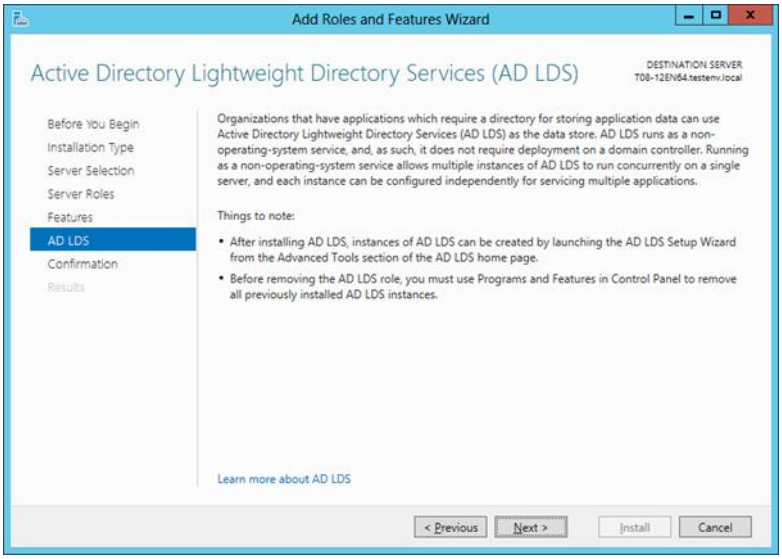


7. Activate the check box in front of **Active Directory Lightweight Directory Services** for server roles.

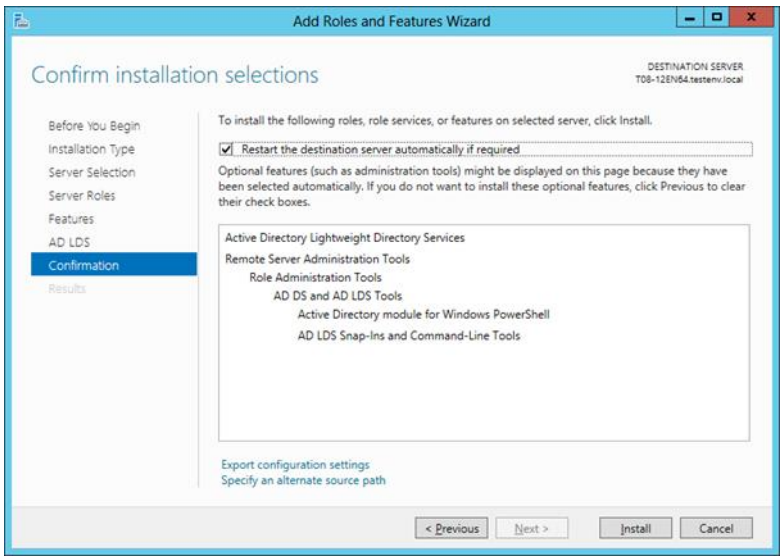
8. Click on **Next**.



9. Activate the check box for **Include management tools**.
10. Click on **Add Features**.



11. Click on **Next**.

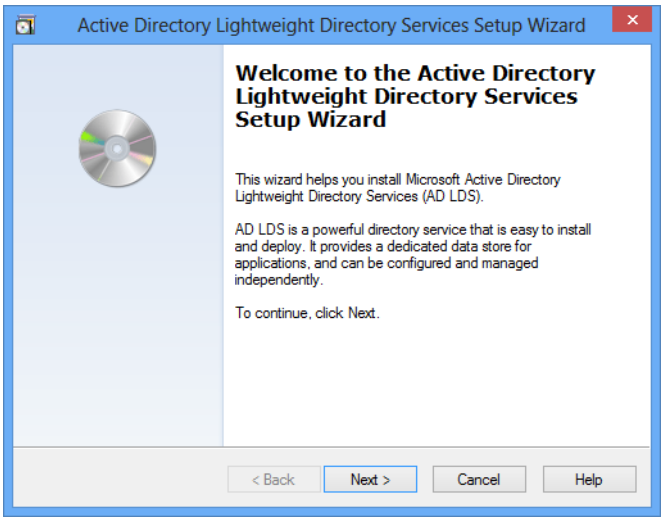


12. Confirm the automatic restart of the server.

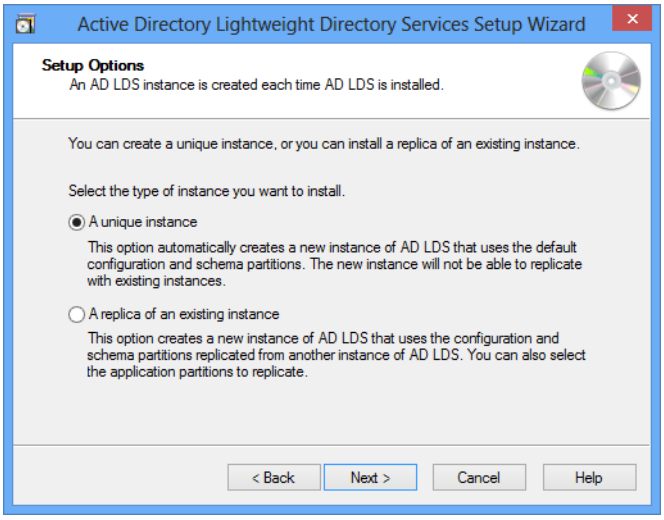
5.2.1.2 Create new AD LDS instance

To create a new AD LDS instance:

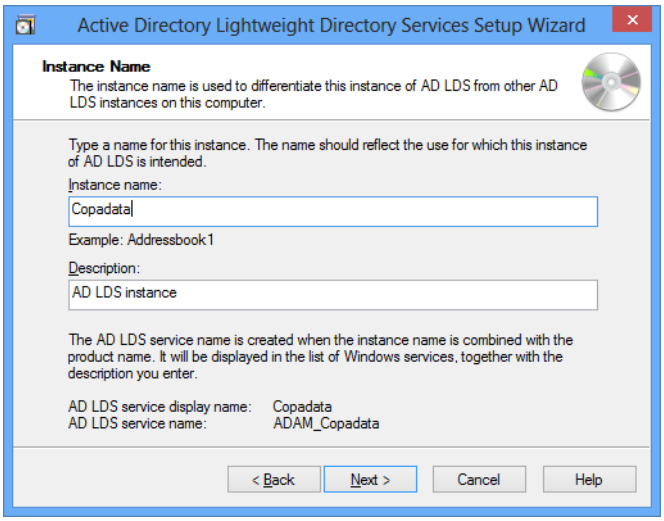
1. In Windows, go to the *%ProgramData%\Microsoft\Windows\Start Menu\Programs\Administrative Tools* folder.
2. Start the **Setup Assistant for Active Directory Lightweight Directory Services** file.



3. Click on **Next**.

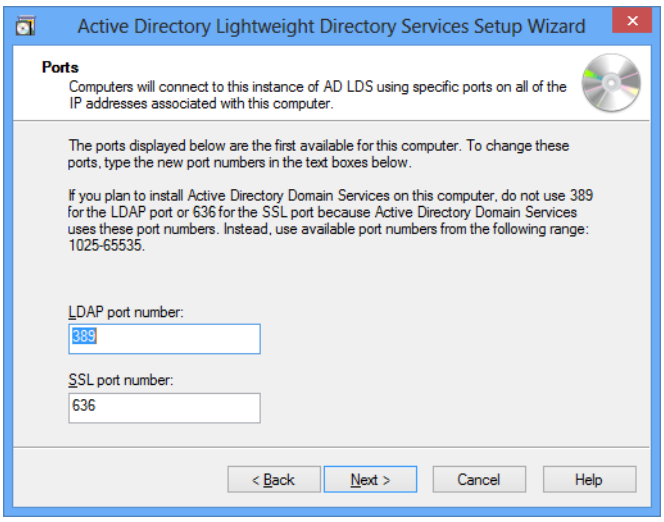


4. Select **unique instance** as the installation type.
5. Click on **Next**.



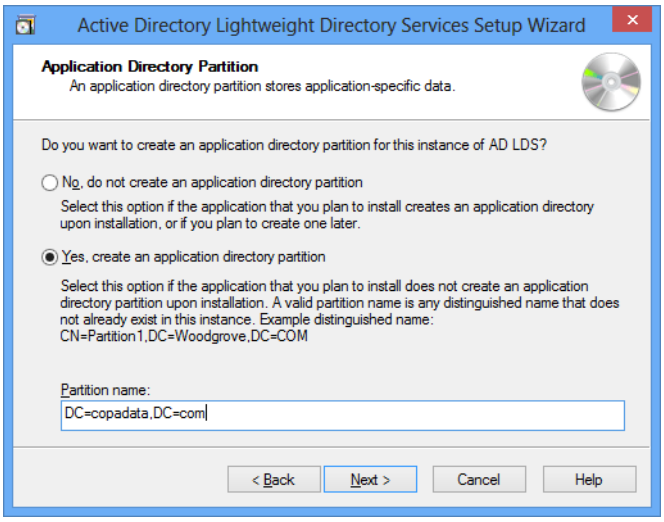
6. Assign an **instance name**.

7. Click on **Next**.



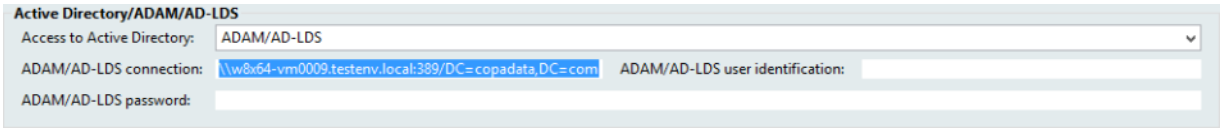
8. Enter the port number for LDAP and SSL.
   Default LDAP: *389*
   Default SSL: *636*
   Note: If you change one of the port numbers, this must also be amended in some of the following steps.

9. Click on **Next**.

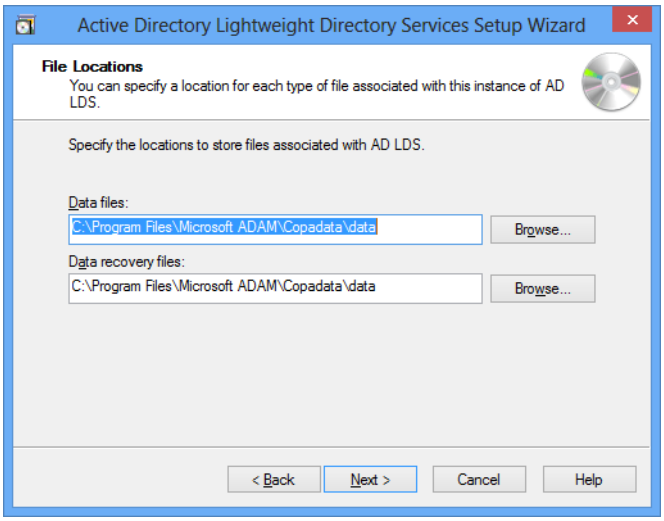


10. Activate the option for an application directory partition.
11. Enter **Partition name**.

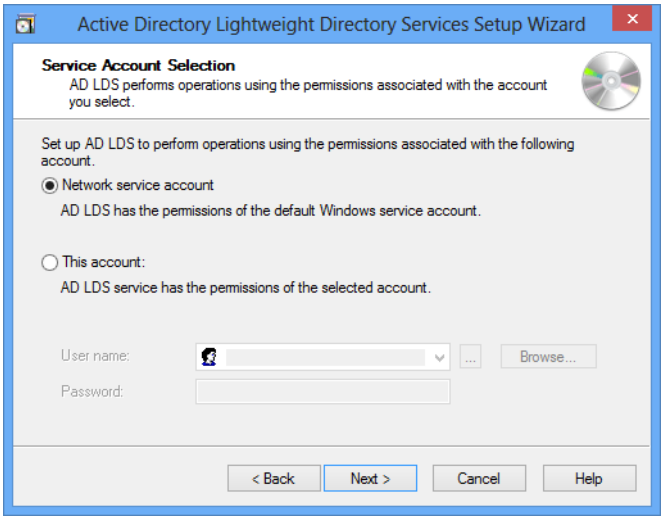
Note: The **partition name** is used together with the port number and server name in zenon. In this example, the entry in the corresponding zenon **AD LDS connection** property would be: *\\w8x64-vm0009.testenv.local:389/DC=copadata,DC=com*



12. Click on **Next** in the assistant.



13. Enter the save location for data files and restores. (you can leave it at the default setting.)
14. Click on **Next**.

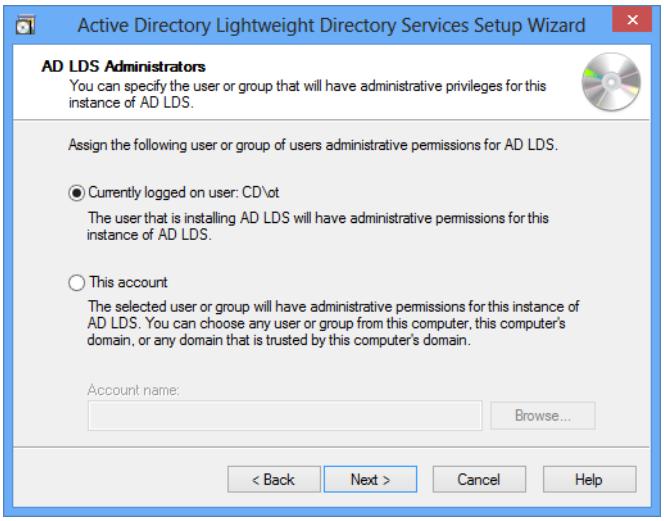


15. Select the authorization levels with which authorization processes are to be carried out. (**Network service account** in this example)

Note: If the computer on which you install AD LDS is not a member of a domain, you receive a warning message accordingly:

This will not impair the functionality as long as you do not carry out any replications. Confirm the notice by clicking **Yes**

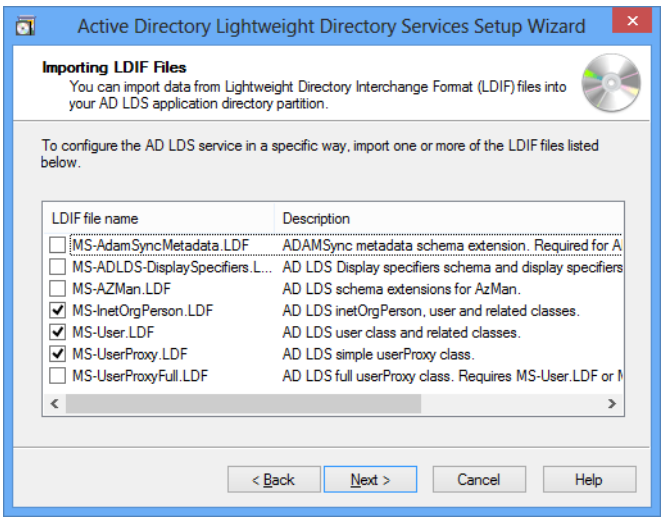
16. Click on **Next** in the assistant.



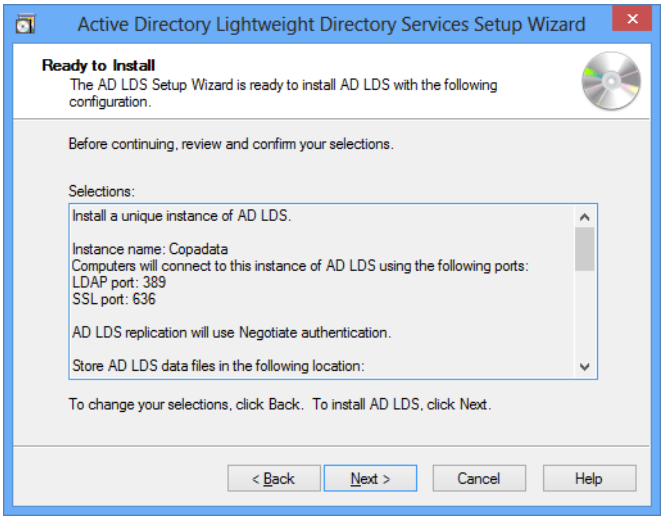
17. Enter the user who is to administer AD LDS. The user who is currently logged on is used in this example.
The user does not need to be a local administrator or domain administrator. A group can also be given.
But: An individual user must be given in zenon. This can be a member of a group.

The user configured here is used in zenon in the **AD LDS user name** and **AD LDS password** properties:

18. Click on **Next** in the assistant.



19. Import the required LFIF files: You need:
    - **MS-InetOrgPerson.LDF**
    - **MS-User.LDF**
    - **MS-UserProxy.LDF**
20. Click on **Next**.



21. Confirm the configuration by clicking on **Next**.

    The installation is carried out.
22. Close the assistant by clicking on the **Finish** button

5.2.1.3 Importing an AD LDS schema

To import LD ADS schemas:

1. Open the command line.
2. Navigate to the AD LDS folder: *%WINDIR%\ADAM*.
3. Enter the following command and press the **Enter key**:

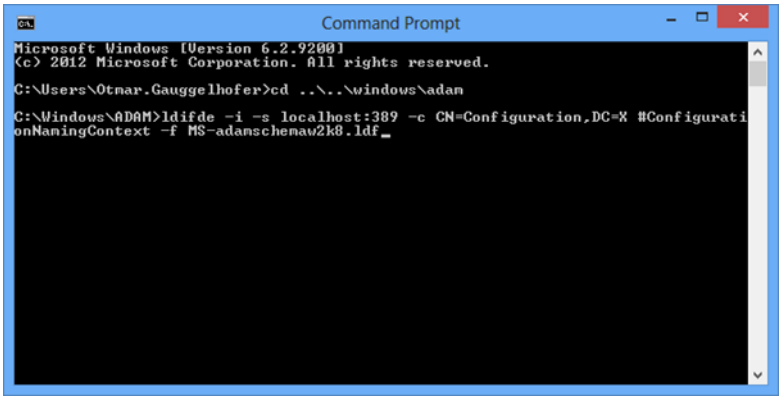
   ldifde -i -s localhost:389 -c CN=Configuration,DC=X #ConfigurationNamingContext -f MS-adamschemaw2k8.ldf

   Attention: Windows Power Shell: If Windows Power Shell is used for input, the configuration part must be placed in quotation marks: **ldifde -i -s localhost:389 -c "CN=Configuration,DC=X" "#ConfigurationNamingContext" -f MS-adamschemaw2k8.ldf**

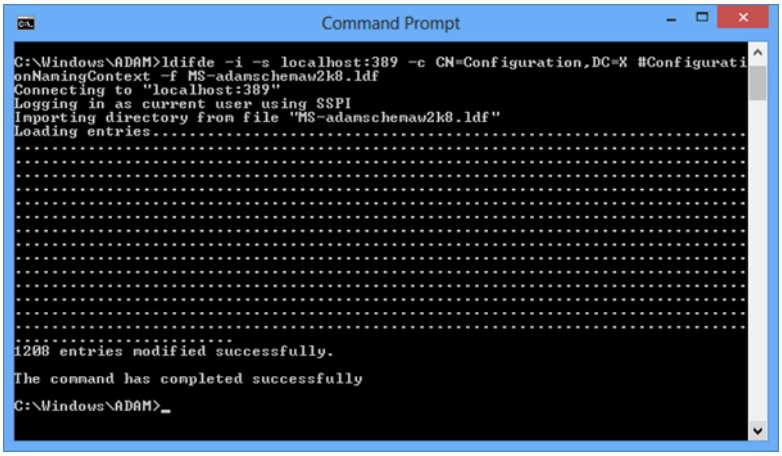
   Note: If you have configured a dedicated user for the AD LDS partition, you must also enter:

   - User
   - Domain
   - Passwort for ldifde

   Syntax: **user: ADLDS, domain: T08-12en64, password: password): ldifde -i -s localhost:389 -c CN=Configuration,DC=X #ConfigurationNamingContext -f MS-adamschemaw2k8.ldf -b ADLDS T08-12en64 Copadata1**
   Quotation marks are needed again for Windows Power Shell.

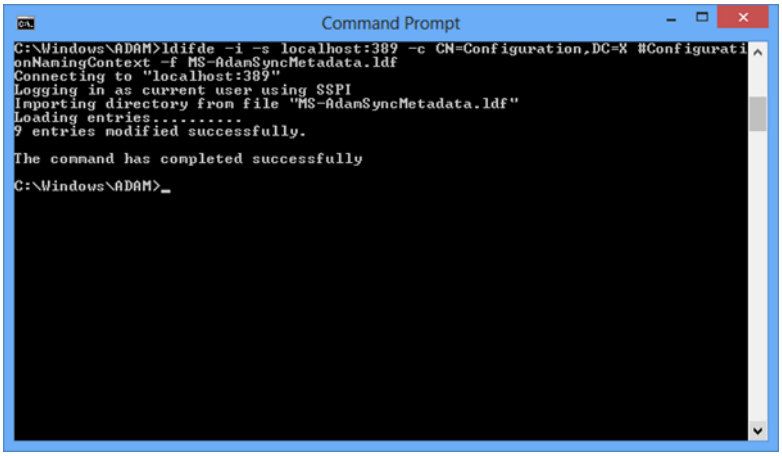


4. You receive a confirmation once the changes have been made.



5. Enter the following command and press the **Enter key** (the rules for dedicated users also apply here too, as with the previous step):

   ldifde -i -s localhost:389 -c CN=Configuration,DC=X #ConfigurationNamingContext -f MS-AdamSyncMetadata.ldf

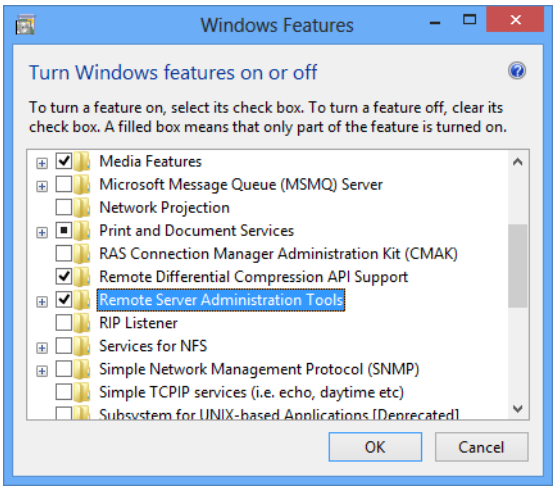


6. You receive a confirmation once it has been successfully carried out.

5.2.1.4 Installing Remote Server administration under Windows 8

Under Windows 8, you must still install the Remote Server administration. To do this:

1. Open Control Panel.
2. Open **Programs and Features**.
3. Select **Turn Windows features on or off**.



4. Activate the check box in front of **Remote server administration tools**.
5. Click on **OK**.

Note: If the **remote server administration tools** are not displayed, download these from the Microsoft website and install them.

5.2.1.5 Tools

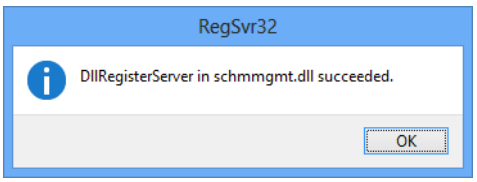
The following tools are helpful for the administration of AD LDS:

- Microsoft **mmc** with the Active Directory schema snap-in: **mmc –a**
- ADSI Edit
- ADExplorer (can be downloaded from Microsoft Sysinternals)

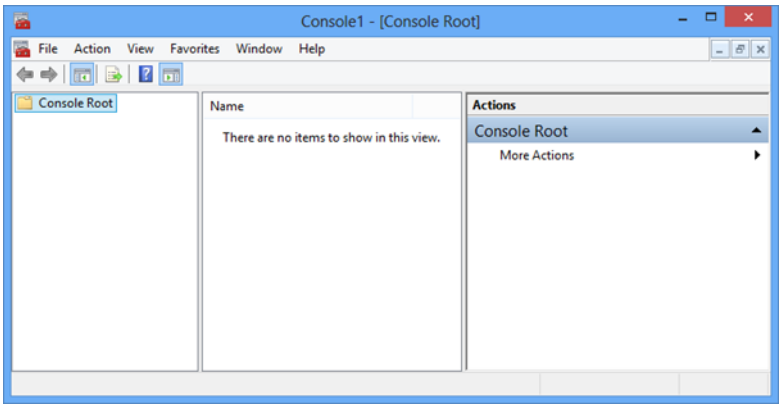
5.2.1.6 Configuring Active Directory schema snap-in

To configure the Active Directory schema snap-in:

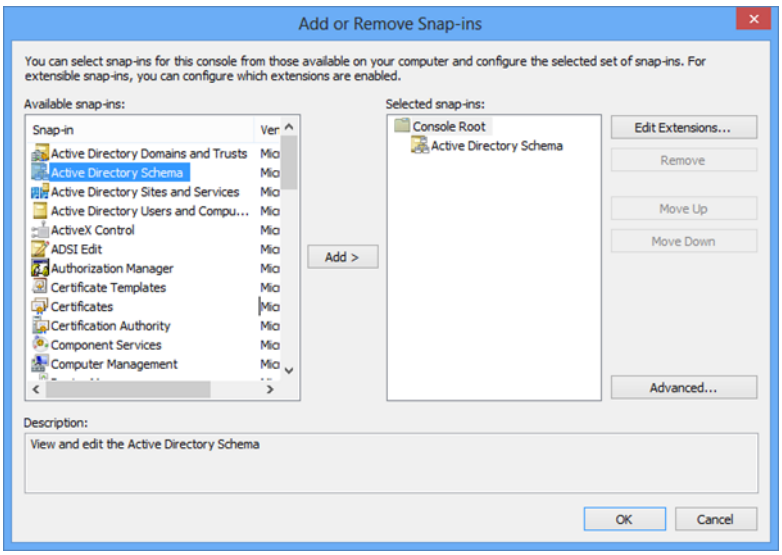
1. Open the command line with administrator rights.
2. Enter the following command and press the **Enter key**: **regsvr32 schmmgmt.dll**
3. You receive a confirmation after successful registration:



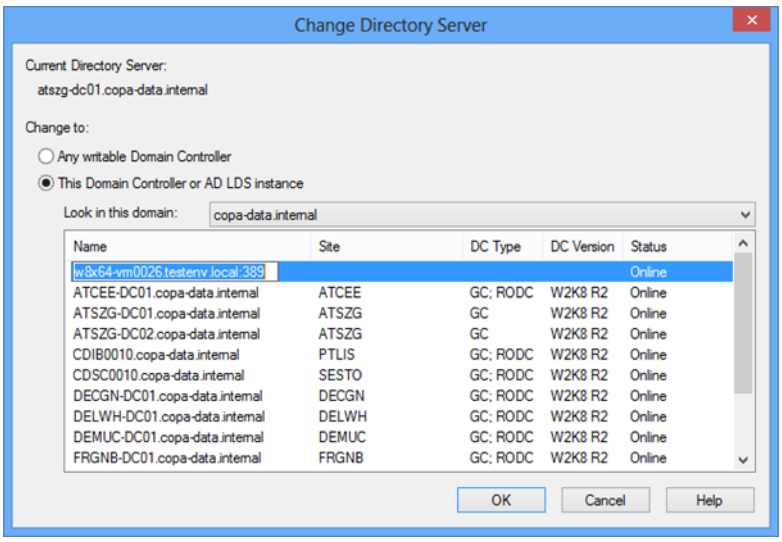
4. Open the version.
   Enter: **mmc /a**
5. The administration console is opened:



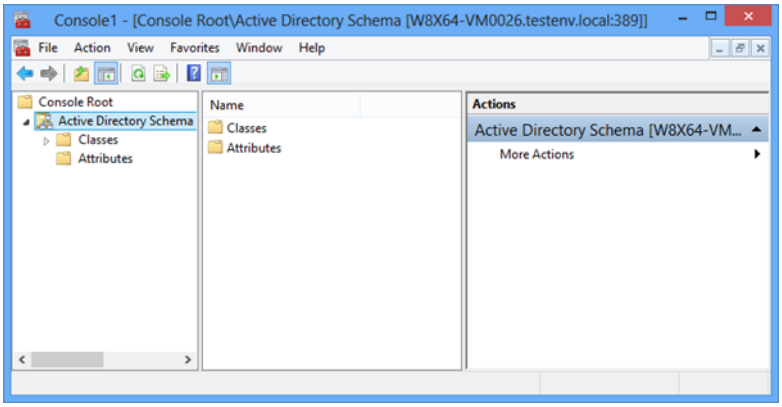
6. Click, in the **File** menu, on the **Add/remove snap-in** command.



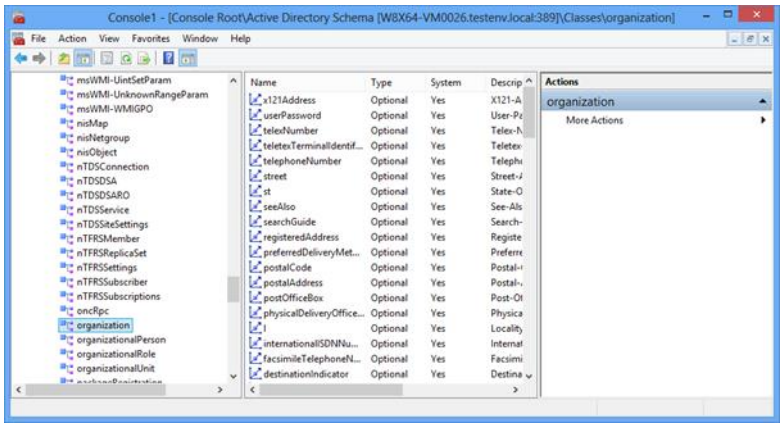
7. Select **Active Directory Schema**.
8. Click on **Add**.
9. Click on **OK**.
10. Highlight the **Active Directory Schema** entry.
11. Select the **Change Active Directory Domain Controller** command in the context menu



12. Enter the server name and the port in the empty field. In our example: **w8x64-vm0026.testenv.local:389.**
    Select your server and port here.
    You now see this view:

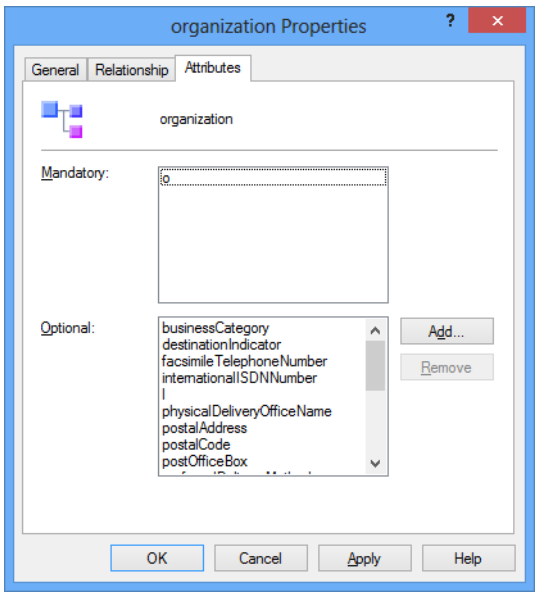


13. Save the snap-in via **File -> Save**.
14. Optional:
    a) Open the **Classes** folder and navigate to the **organization** entry.



    b) Click on **Properties** in the context menu.

c) Open the **Attributes** tab.



d) Click on **Add** and search for **maxPwdAge**. Click on OK.

Add **lockoutDuration** and **lockoutThreshold** too.

Close the dialog by clicking on **OK**.

These steps are optional and require the corresponding rights. **maxPwdAge** defines the time period in which a password is valid before it must be renewed. **lockoutDuration** defines how long a user is locked out after entering the password incorrectly after several attempts. The permitted number of incorrect password entries is defined with **lockoutThreshold**.

15. Open the **Classes** folder and navigate to the **user** entry.

a) Click on **Properties** in the context menu.

b) Open the **Attributes** tab.

c) Click on **Add** and search for **sAMAccountName**. Click on OK.
Add groupMembershipSAM and userAccountControl too.

Close the dialog by clicking on **OK**.

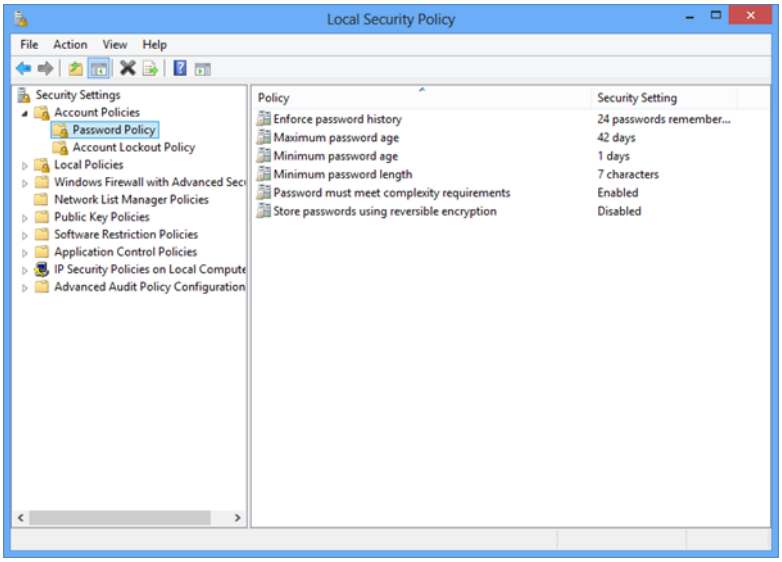
16. Close the console.

PASSWORD GUIDELINES

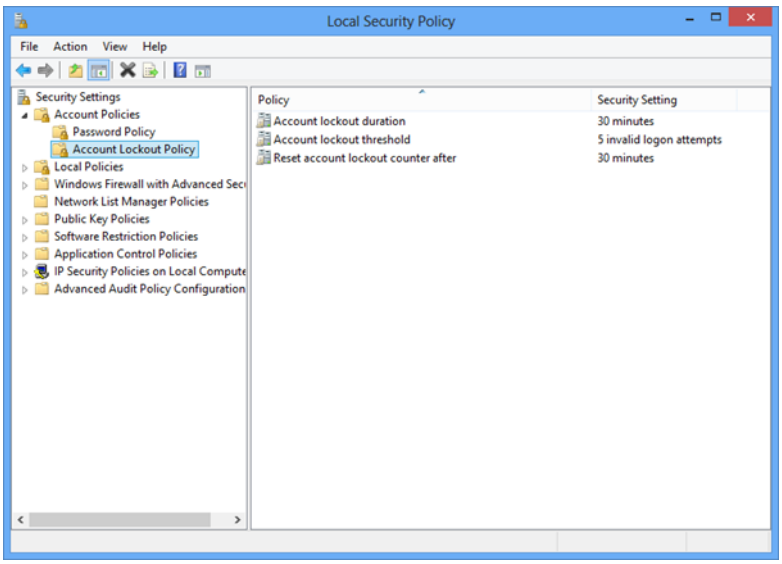
The guidelines for password complexity, minimum password length and minimum password age are configured in the local security guidelines of the computer. If the computer on which AD LDS is running is in a workgroup, you see the local security guidelines. If the computer is in a domain, you see the domain security policies. Depending on your installation, you must configure the password guidelines.

For local security guidelines:

1. Go to *%ProgramData%\Microsoft\Windows\Start Menu\Programs\Administrative Tools\Tools*
2. Start *Local Security Policy*
3. Configure **Password Policy**



4. Configure **Account Lockout Policy**

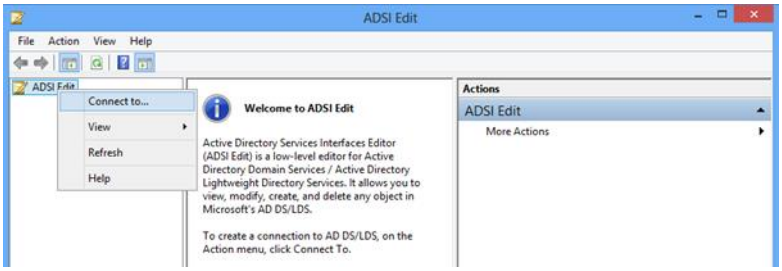


5.2.1.7 Configure roles, organization units and users

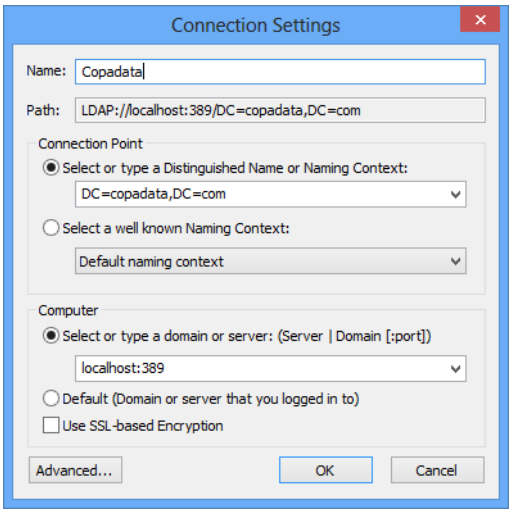
Use the ADSI Editor to configure the roles, organization units and users. You can find it in the path *%ProgramData%\Microsoft\Windows\Start Menu\Programs\Administrative Tools*.

To set up configurations with the ADSI editor:

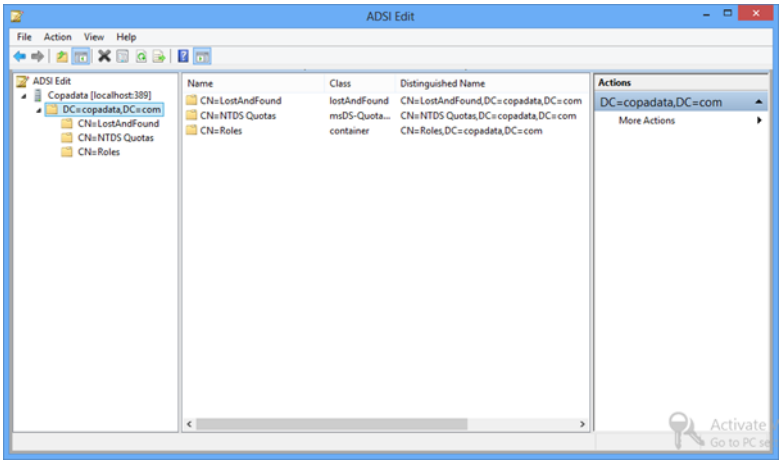
1. Start the ADSI editor.



2. Select **Establish connection** in the context menu.
3. The dialog for the connection settings is opened.



4. Configure the following options according to your selected settings:
   - Connection point: *DC=copadata,DC=com*
   - Computer: *localhost:389*
   - Close the dialog by clicking on **OK**.
5. You should now have the following view of the editor (open the tree in the left window by clicking on the cursor or double clicking on the entry):



This is the starting point for all other configurations. In our example:

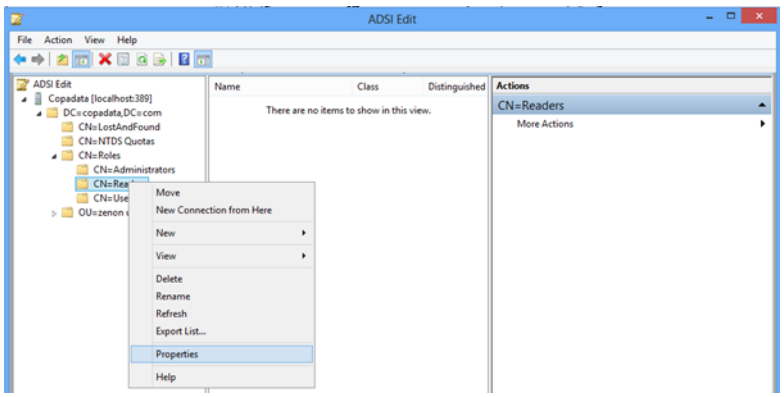
- Configuring roles (on page 151)
- Configuring **maxPwdAge** (on page 153)
- Creating an organization unit (on page 154)
- Creating a group (on page 155)
- Creating a user (on page 159)
- Adding users to groups (on page 162)

5.2.1.7.1 Configuring roles

In this chapter, you find out how you can issue zenon read rights for the structure of the AD LDS tree.

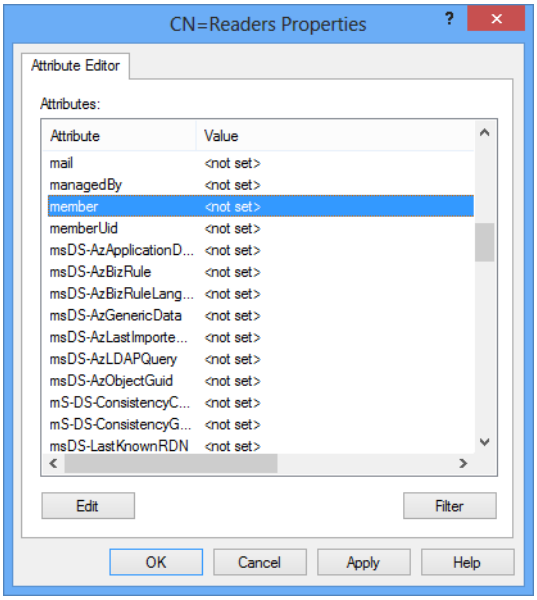
To do this:

1. Expand the folder **CN=Roles**.

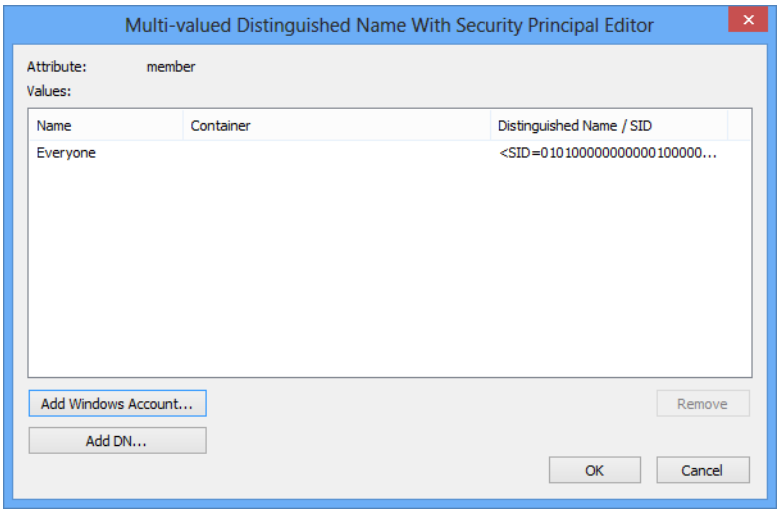


2. Highlight **CN=Readers**.
3. select **Properties** in the context menu

4. The properties dialog is opened



5. Navigate to the **member** entry.
6. Click on **Edit**.
7. Click on **Add Windows account**.
8. Add the user **Everyone** (*Everyone*) for the local host.
9. Close the dialog.
10. You will have the following view

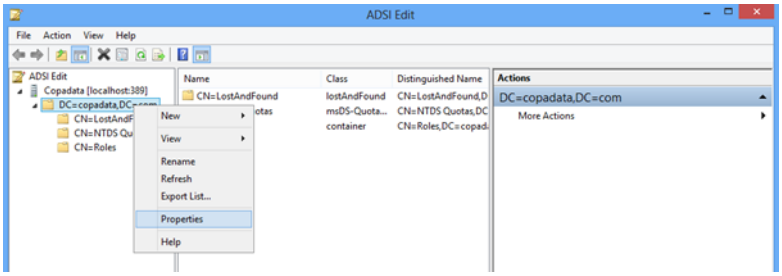


5.2.1.7.2 Configuring the password duration

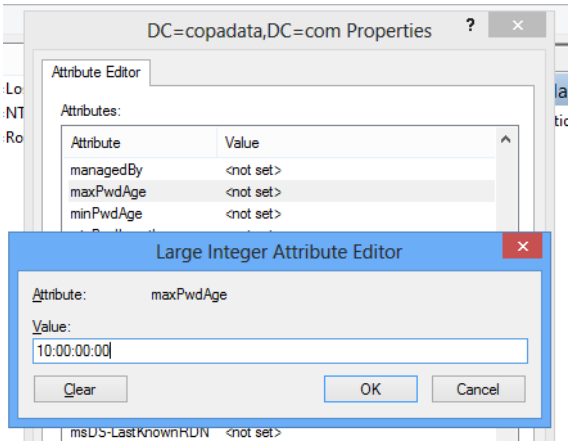
This area is important if you want dedicated password rules for the zenon organization unit. If you do not configure these rules, the local security guidelines of the computer on which AD LDS was installed are applied.

To configure rules:

1. Highligt the folder **DC=copadata,DC=com**.
2. Click on **Refresh**.
3. Close the ADSI editor.
4. Open the editor again.
5. Highlight the **DC=copadata,DC=com** entry.
6. Open the properties using the context menu:



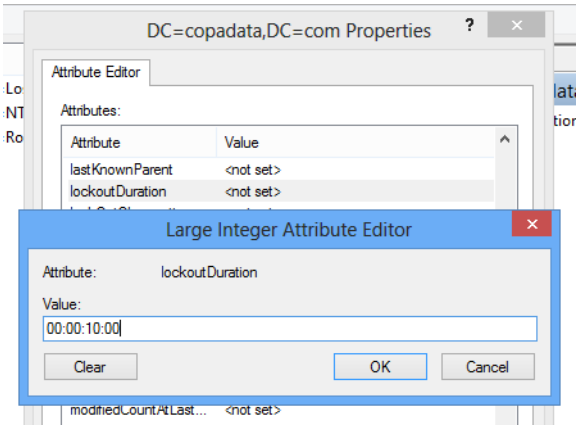
7. Navigate to the maxPwdAge entry.
8. Enter a valid value (format: **DD:HH:MM:SS**) and close the dialog.



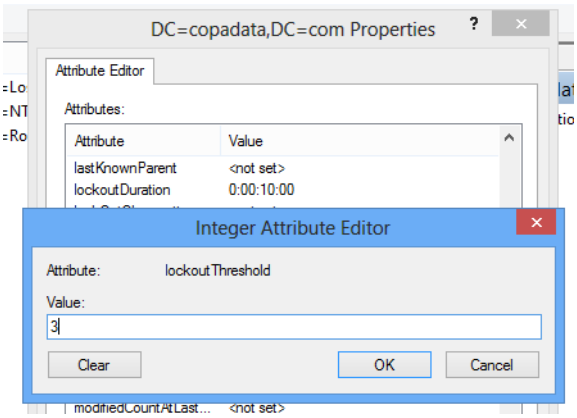
Note: If the entry **maxPwdAge** is not available, check to see if the property has been added correctly. The updating or closing and reopening of the editor can also rectify the problem.

9. Navigate to the **lockoutDuration** entry.

10. Enter a valid value (format: **DD:HH:MM:SS**) and close the dialog.



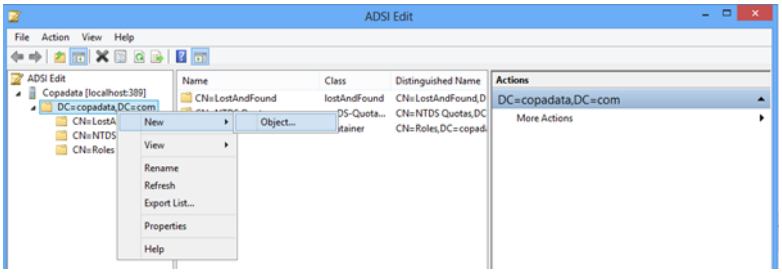
11. Navigate to the **lockoutThreshold** entry.
12. Enter a valid value and close the dialog.



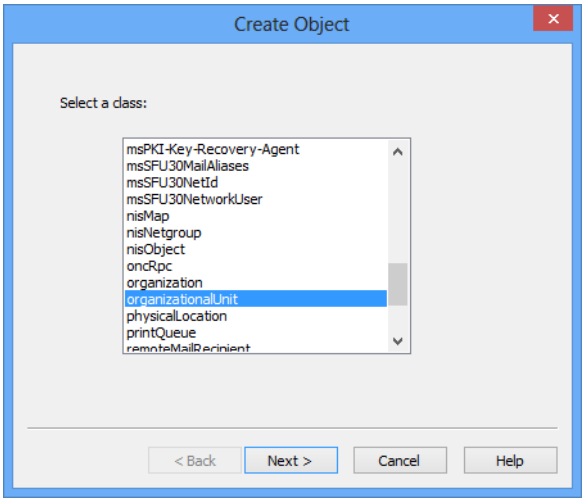
5.2.1.7.3 Creating an organization unit

To create a organization unit:

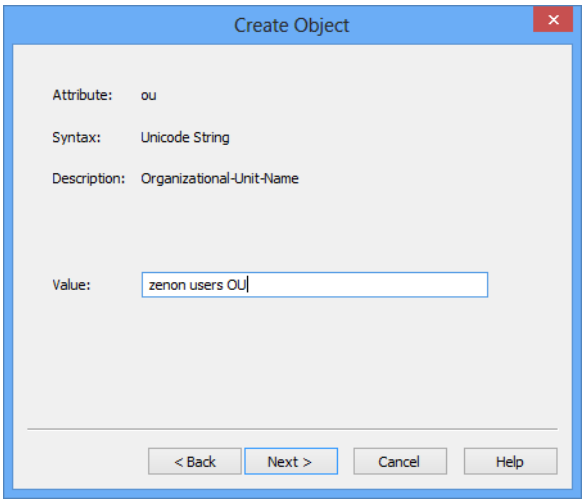
1. Highligt the folder **DC=copadata,DC=com**.



2. Select **New -> Object** in the context menu.



3. Select **organizationalUnit** as a class.
4. Click on **Next**.

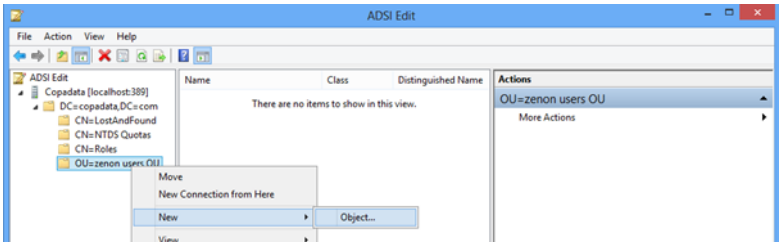


5. Enter a name as a value.
6. Click on **Next**.
7. Click on **Close**.

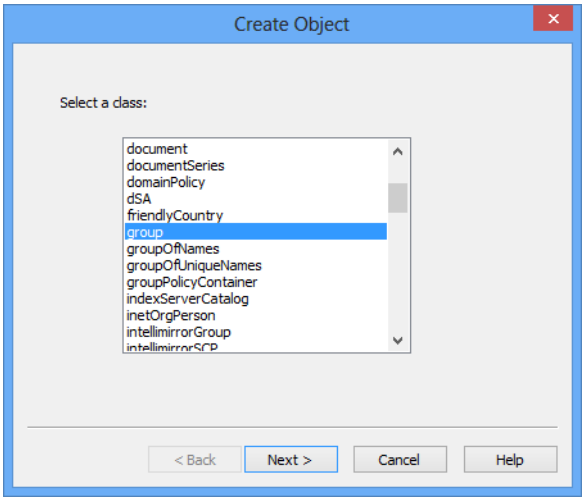
5.2.1.7.4Creating a user group

To create user groups:

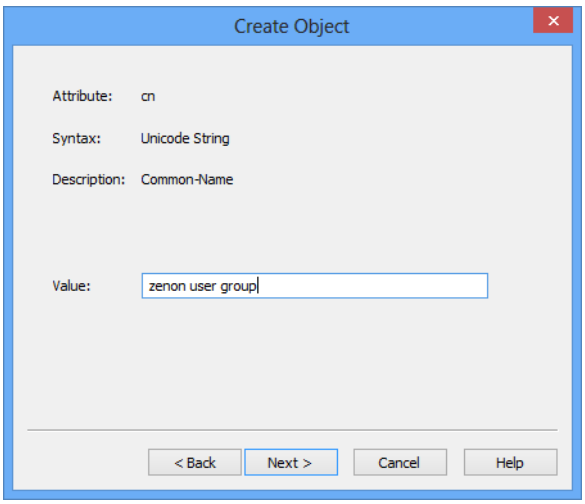
1. Highlight the folder with the organization unit that has been created.



2. Select **New -> Object** in the context menu.

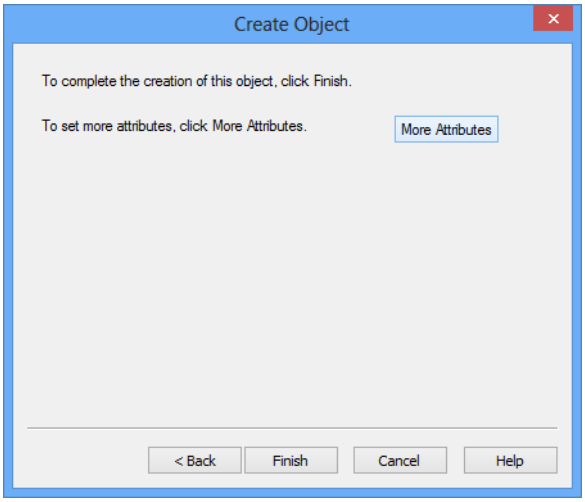


3. Select the **group** entry.
4. Click on **Next**.

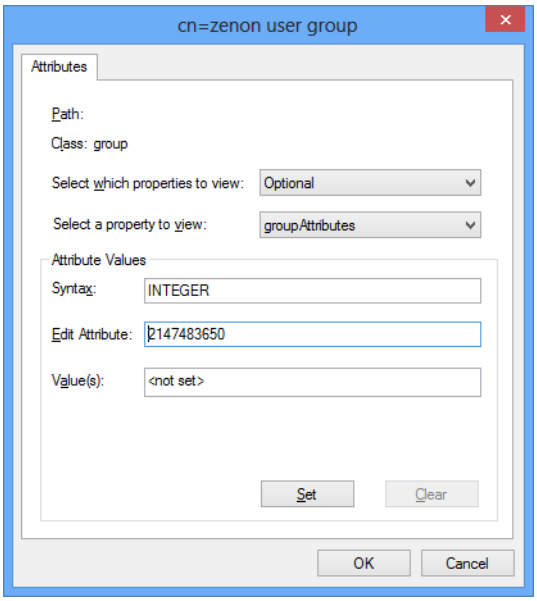


5. Enter a name for **Value**, **zenon user group** in this example.

6. Click on **Next**.

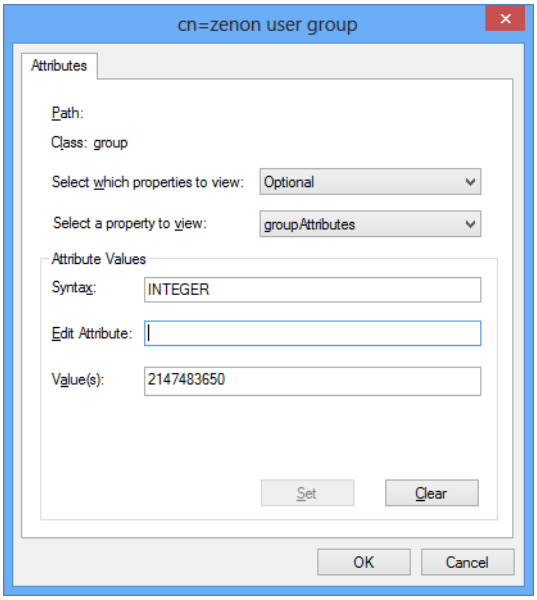


7. Click on the **More attributes** button.
8. Select the **groupAttributes** entry.



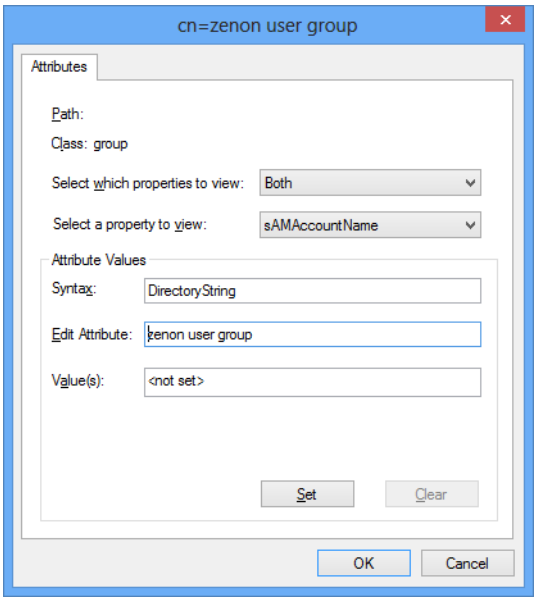
9. Enter *2147483650* in **Edit attribute**.

10. Click on **Define**.



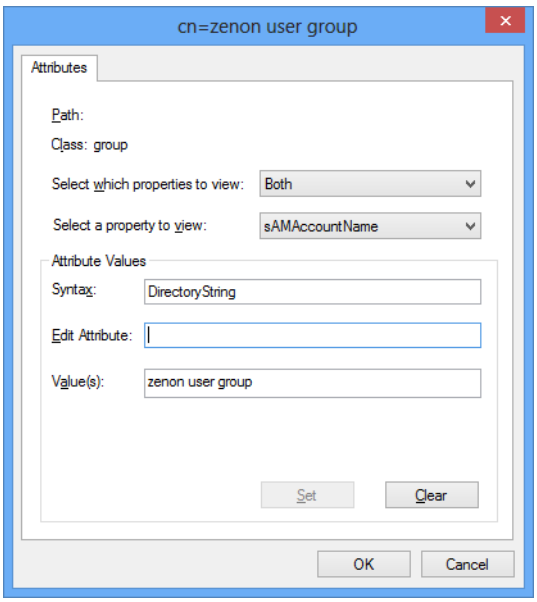
11. Click on **OK**.

12. Select, in the **More attributes** dialog, the **sAMAccountName** property.



13. Enter the same value as for **group**.

14. Click on **Define**.

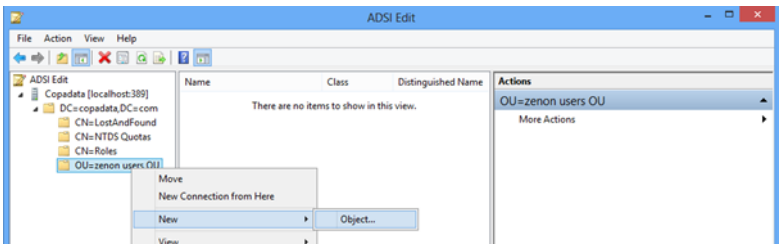


15. Click on **OK**.
16. Click on **Finish**.

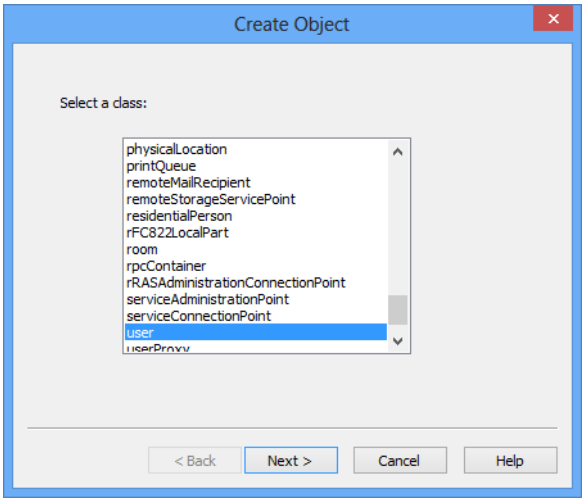
5.2.1.7.5 Creating a user

To create a user:

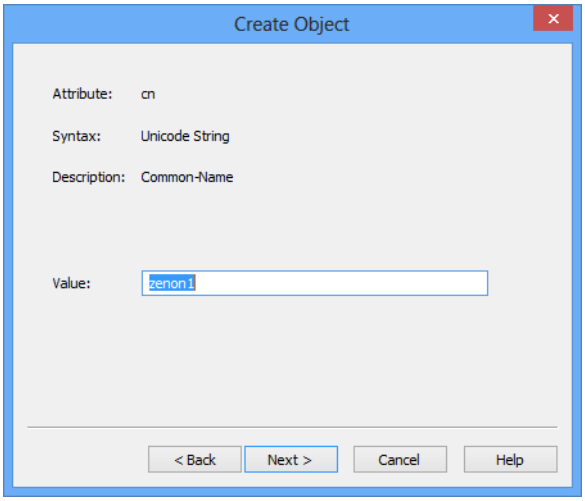
1. Highlight the organization unit.



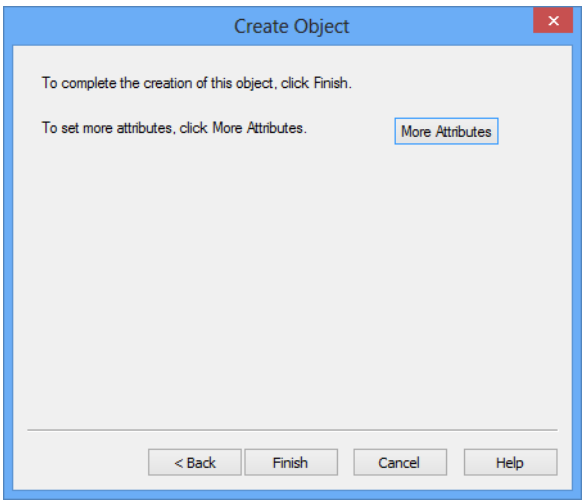
2. Select **New -> Object** in the context menu.



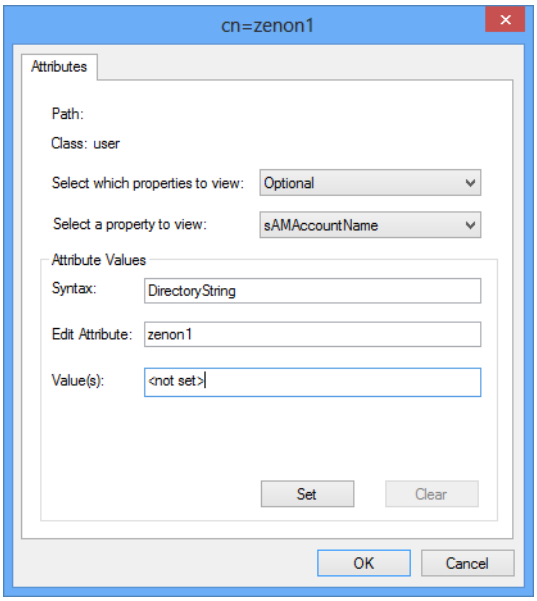
3. Select *user* as object.



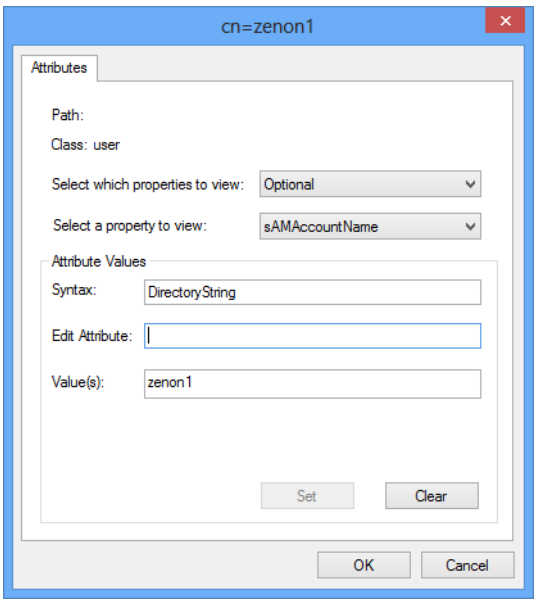
4. Enter a name as a **value**.
5. Click on **Next**.



6. Click on **More attributes**.
7. Select *sAMAccountName*.

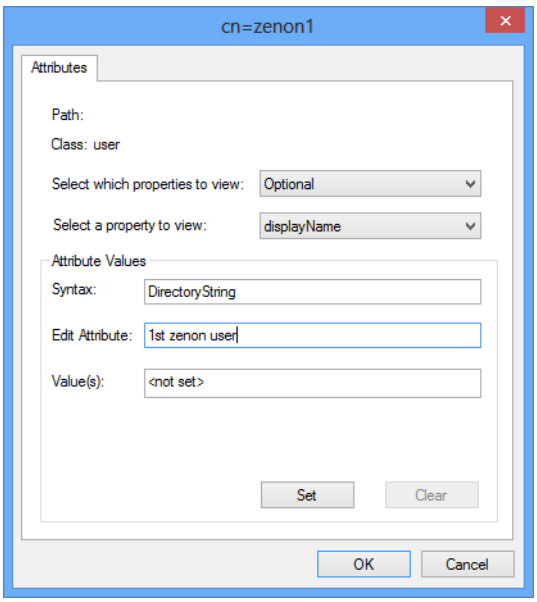


8. Enter the same value as for *user*.
   Note: This is important in order for the user to be used in zenon.
9. Click on **Define**.

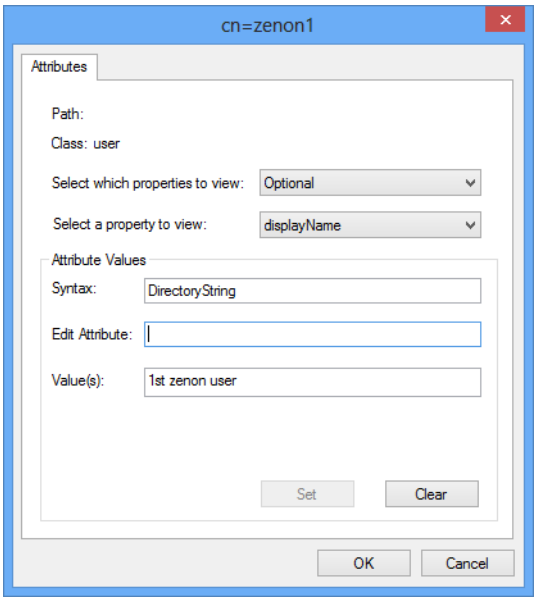


10. Click on **OK**.
11. Click on **More attributes**.

12. Select *displayName*.



13. Enter a description for the display
14. Click on **Define**.



15. Click on **OK**.
16. Click on **Finish**.

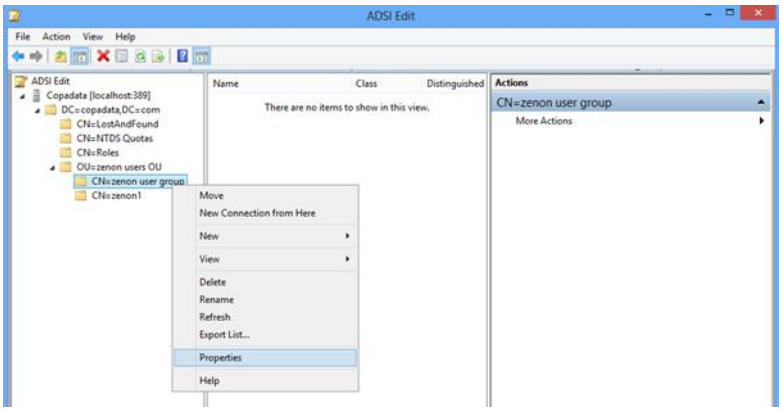
5.2.1.7.6 Adding users to groups and setting a password

In this section, you add a user to a group and issue a password.

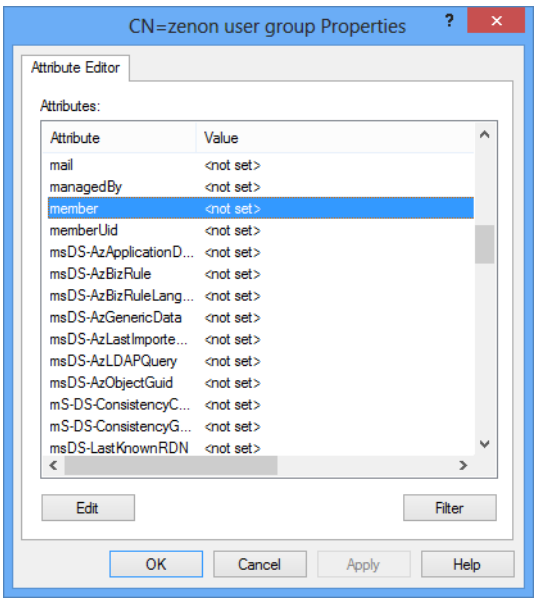
ADDING A USER

To add users to a group:

1. Highlight the group.

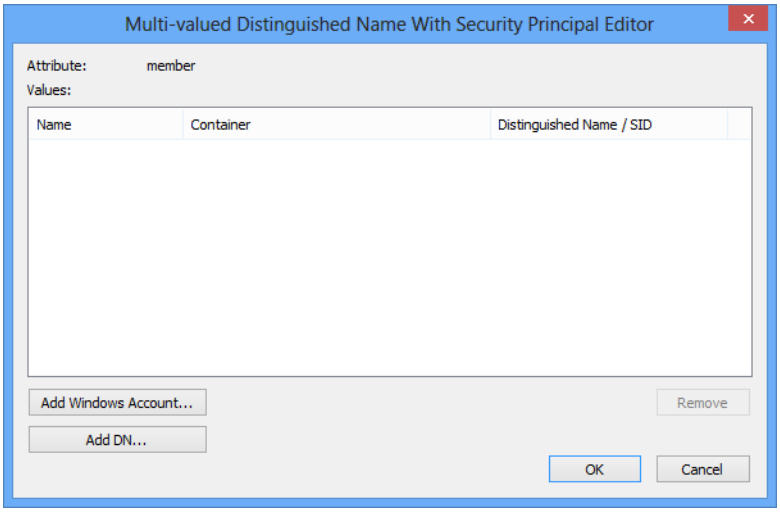


2. select **Properties** in the context menu

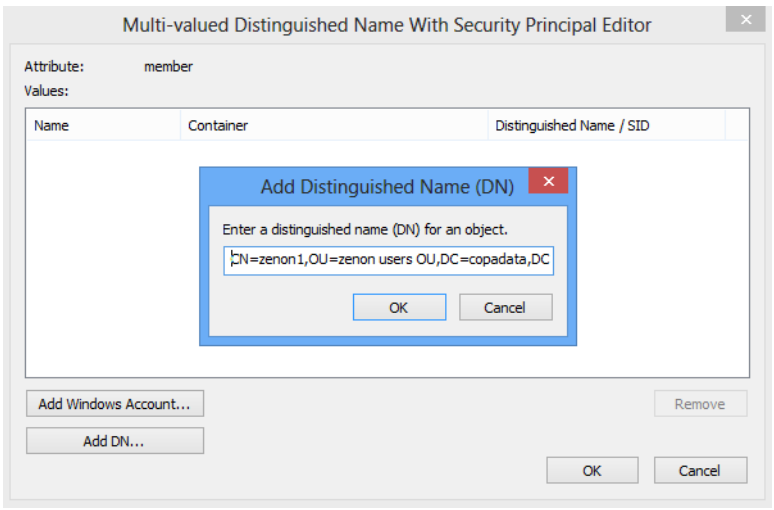


3. Highlight *member*.

4. Click on **Edit**.

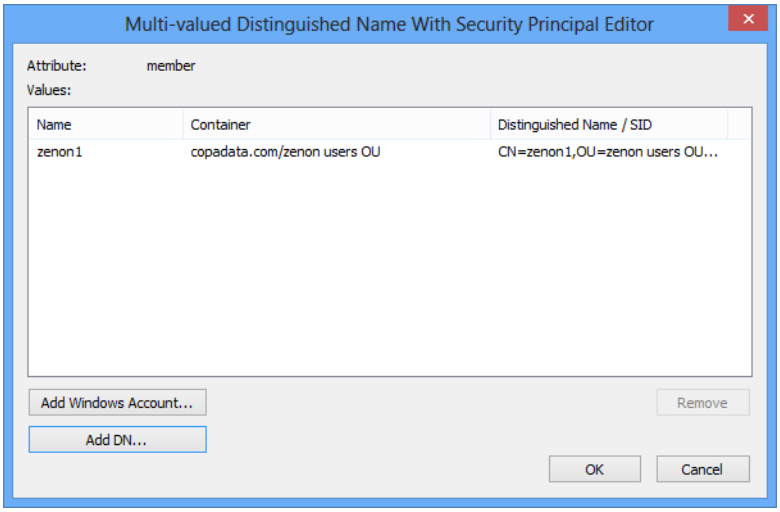


5. Click on **Add DN**.
The dialog to add a previously-configured user is opened



6. Enter, for the user from our example: **CN=zenon1,OU=zenon users OU,DC=copadata,DC=com**

7. Click on **OK** to close the dialog.

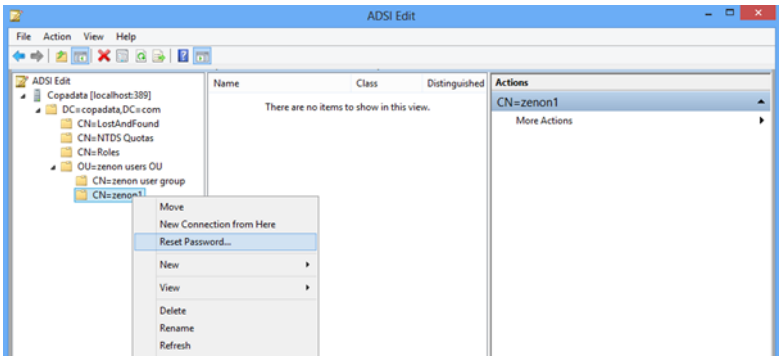


8. Click on **OK**.

SET PASSWORD

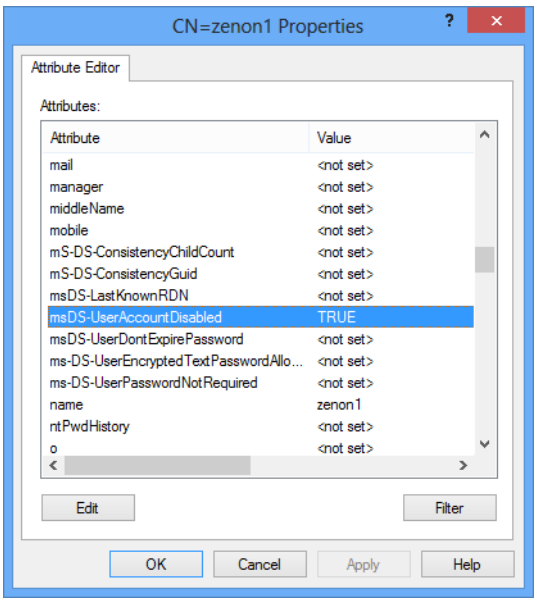
Now define a password for the user. To do this:

1. Highlight the user that has just been created.

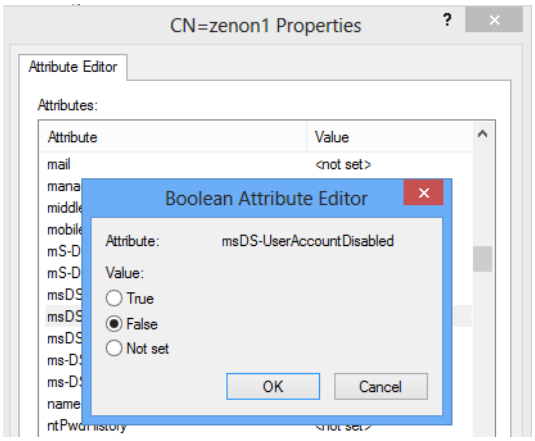


2. Select **Reset password** in the context menu.
3. Issue a password.
   Note: the password must meet the requirements of the **local security guidelines**.
4. Close the dialog.

5. Select **Properties** in the context menu of the user



6. Select the properties *msDS-UserAccountDisabled*.



7. Set the value to *incorrect*.

The user can now be used in zenon.

5.2.2 AD LDS with Windows 7

AD LDS can also be used with Windows 7. You can find the setups for these on the Microsoft website (http://www.microsoft.com/downloads/en/default.aspx).

After installation, configuration is carried out via **System control-> Administration** in the same way as the description for Windows Server 2008 (on page 186).

5.2.2.1 Create new AD LDS instance

To create a new AD LDS instance:

1. Call up, in the Active Directory Lightweight **Directory Services Control Panel**, the **AD LDS Setup Wizard**.

2. Start the wizard:

3. Select the *A unique instance* option.

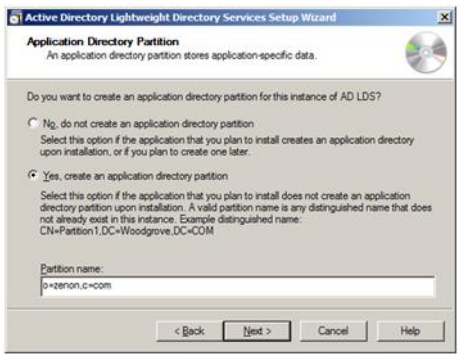
4. Give the instance a name.

5. Configure the ports. Default:
   - LDAP: *389*
   - SSL: *636*

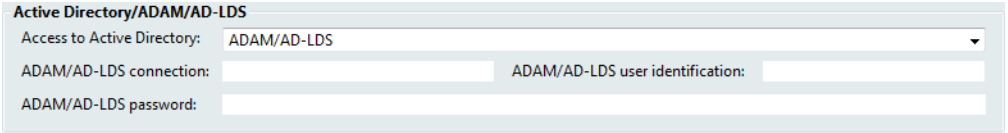
Note: If you change the pre-set port here, you must also amend the port in some of the following settings.

6. Specify the **Partition Name**.

   In our example: *o=zenon,c=com*

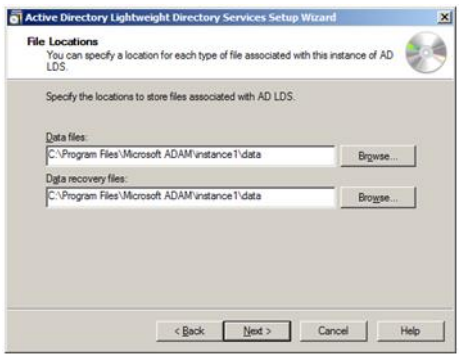


   The **Partition Name** is used together with the port and the server name later in zenon.



   This configuration can also be set up later in zenon. Continue with configuration in the wizard.

7. Define the save location.
   The setting can be left as the default setting.



8. Define the service account for AD LDS.

In our example: **Network service account**

If the computer on which AD LDS is installed is not a member of a domain, you receive a warning message:

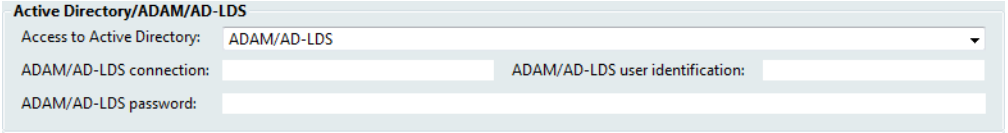
This does not impair the functionality of AD LDS. Exception: You use the Replication function.

Confirm the warning by clicking on the **Yes** button.

9. Define the user who receives administrator rights.

   In our example, we use *Currently logged on user*. In our case, a local user with administrator rights.

   The user and their password are used later in zenon.

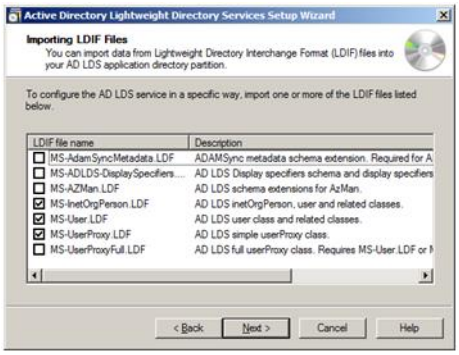


   This configuration can be set up later. Continue with configuration in the wizard.

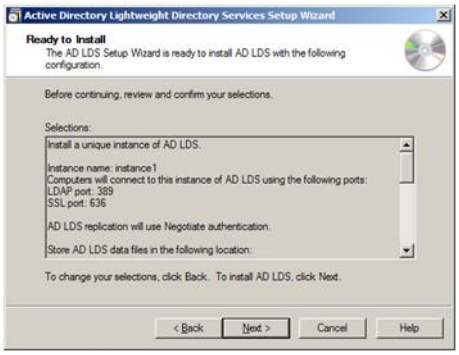
10. Import the required LDIF files:

    - **MS-InetOrgPerson.LDF**

- **MS-User.LDF**
- **MS-UserProxy.LDF**



11. Finish the installation

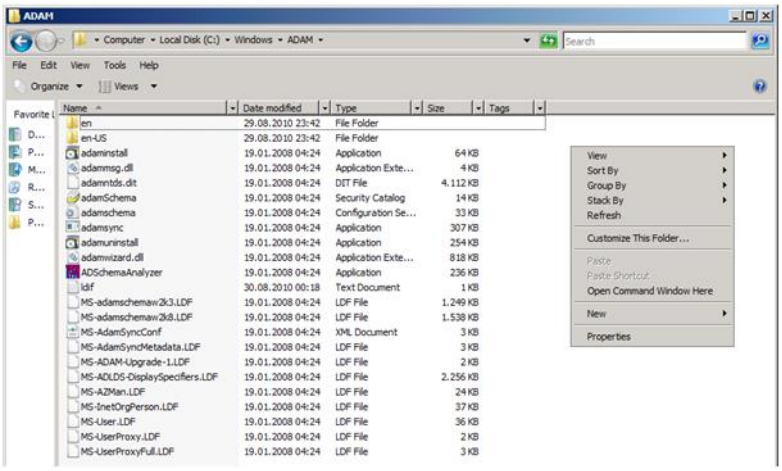


5.2.2.2 Importing an AD LDS schema

To import the AD LDS schema:

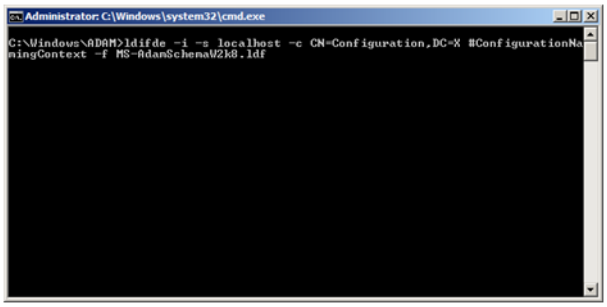
1. In Windows Explorer, navigate to the *%WINDIR%\ADAM* folder.

2. In the context menu, select [**Shift key + right mouse key**]: **Open input request here**.

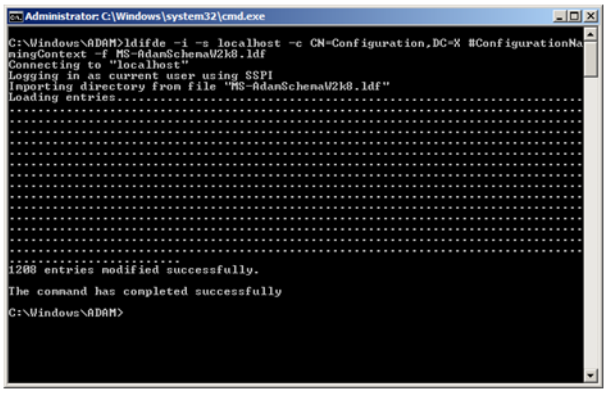


3. Enter the following character string:

ldifde -i -s localhost -c CN=Configuration,DC=X #ConfigurationNamingContext -f MS-AdamSchemaW2k8.ldf



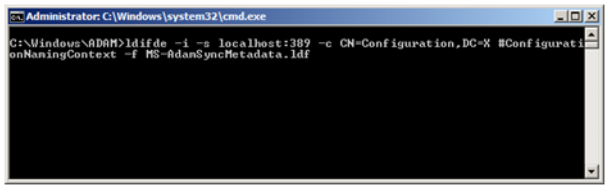
4. Press the **Enter key**:



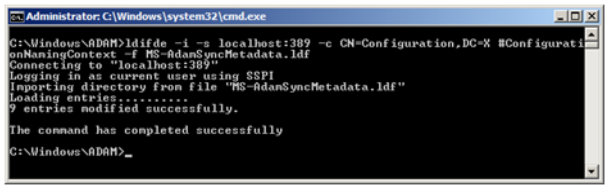
5. Enter the following character string:

ldifde -i -s localhost:389 -c CN=Configuration,DC=X #ConfigurationNamingContext -f MS-AdamSyncMetadata.ldf

Note: If you have changed a port, it must be amended here accordingly.



6. Press the **Enter key**:



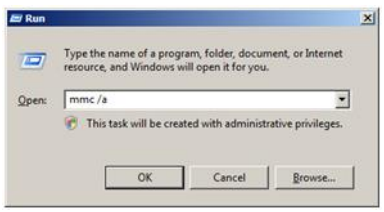
5.2.2.3 Configuring the AD Snap-in schema

To configure the Snap-in schema, first register using the command prompt (administrator rights are required):

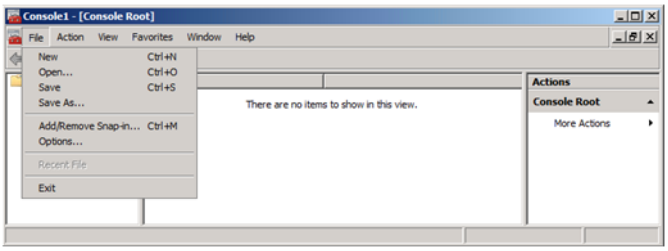
1. Click on the **Start** button.
2. Navigate to **Command prompt**.
3. Select *Run as administrator* in the context menu.
4. At the command prompt, enter: **regsvr32 schmmgmt.dll**.
5. Confirm with the **Enter key**.

CONFIGURATION

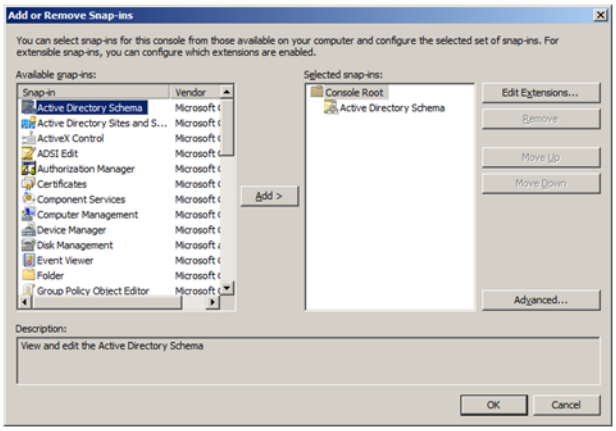
1. Right-click the **Start symbol**.
2. Open **Run**.
3. Enter: **mmc /a**.



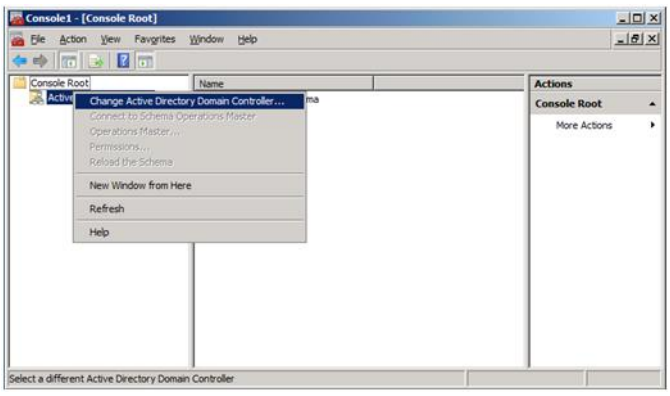
4. Click on **File -> Add/Remove Snap-in...**



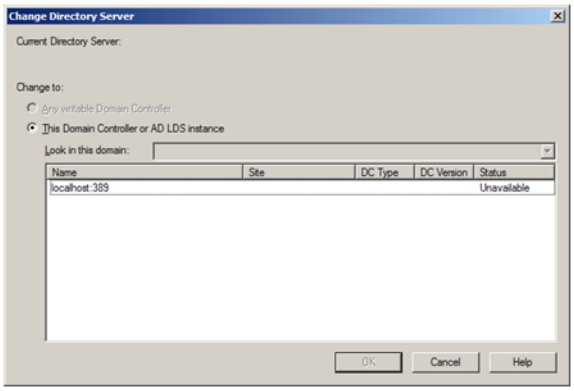
5. Select **Active Directory Schema.**
6. Click **Add**.
7. Click **OK**.



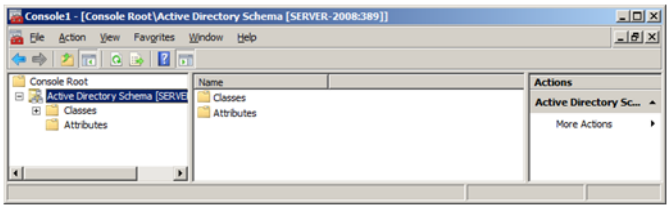
8. Go to **Active Directory Schema**.
9. In the context menu select **Change Active Directory Domain Controller...**



10. Enter the server and port (in this example) *localhost:389*).

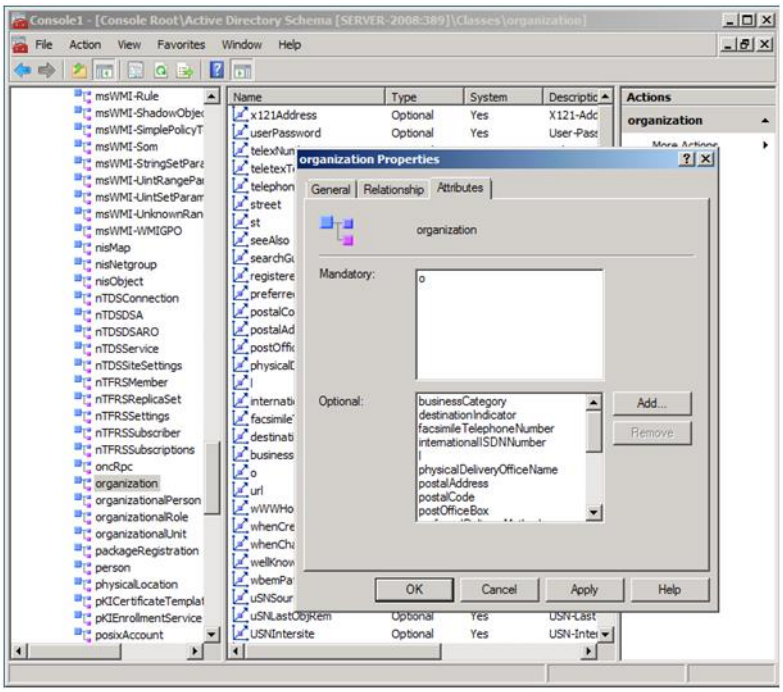


11. You should now see this window:



12. Go to **Classes -> organization**.

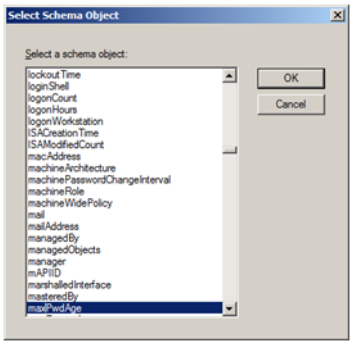
13. Open **Properties**:



14. click **Add**.

    a) Search for **maxPwdAge**.

b) Click **OK**.



c) Repeat this step for **lockoutDuration**

d) and for **lockoutThreshold**.

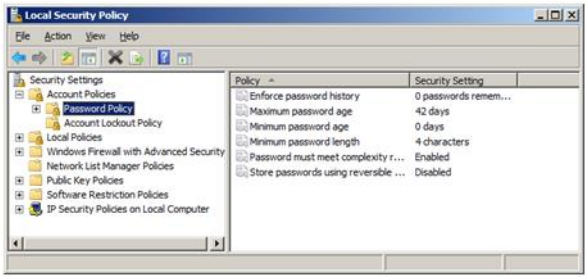
15. Click **OK**.

16. Open the **Classes** folder and navigate to the **user** entry.
    a) Select the **Properties** entry in the context menu.
    b) Open the **Attributes** tab.
    c) Click on **Add** and look for **sAMAccountName**.
    d) Click **OK**.
    e) Also add **groupMembershipSAM** and **userAccountControl**.
    f) Close the dialog by clicking on **OK**.
17. Close the console.

Note:

- These steps are absolutely necessary to have **maxPwdAge** available in the organization unit, which is configured next.
  - **maxPwdAge** defines the maximum password age; the password must be changed after this time.
  - **lockoutDuration** defines how long a user is locked out for after they have repeatedly entered their password incorrectly.
  - **lockoutThreshold** defines the number of possible failed attempts before a user is locked out for a certain period.
- In the local security guidelines, you define the regulations for:
  - **password complexity**
  - **minimum password length**

- **age**



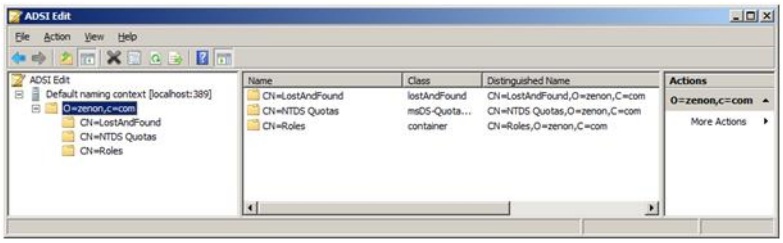
5.2.2.4 Configure organization units, groups and users

To configure organization units, groups and users:

1. Open **Start -> Administrative Tools -> ADSI Edit**

2. Select **Connect to...** in the context menu
3. Use the following settings (change other settings if they have been set up previously):
   a) **Connection Point:** *o=zenon,c=com*
   b) **Computer: localhost**:*389*

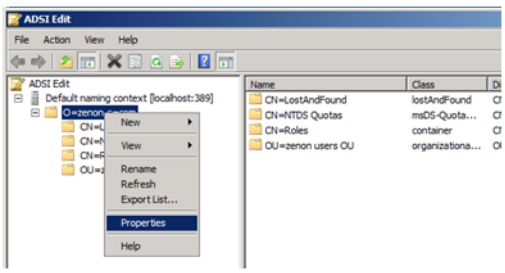
   You should now see the following configuration:



CONFIGURING MAXPWDAGE

1. Highlight **O=zenon,c=com**
2. Click on **Refresh**
3. Close **ADSI Edit**
4. Open **ADSI Edit** again
5. Highlight **O=zenon,c=com**

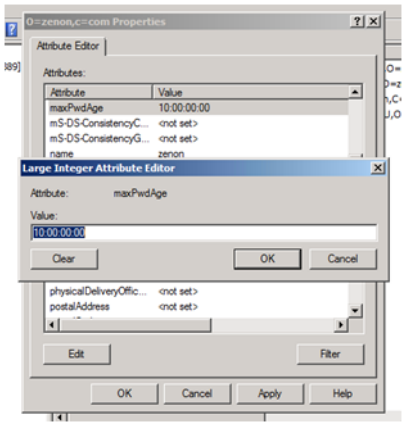
6. Select **Properties** in the context menu.



7. navigate to **maxPwdAge**

   a) Enter a valid value

   b) Format: *DD:HH:MM:SS* (in our example *10:00:00:00*)

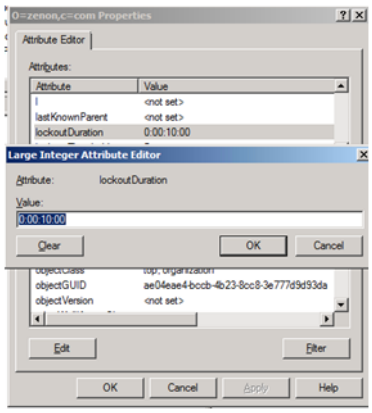


Note: If the **maxPwdAge** property is not visible, check to see that it has been correctly added. A refresh, or closing and opening **ADSI Edit** or reloading the schemas may rectify the problem.

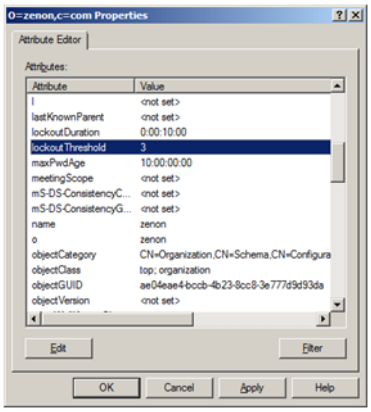
8. Navigate to **lockoutDuration**

   a) Enter a valid value

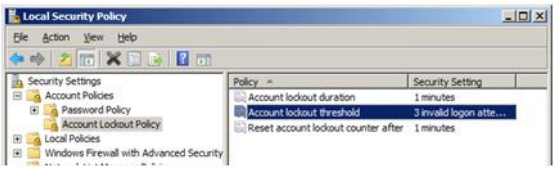
   b) Format: *DD:HH:MM:SS* (in our example *00:00:10:00*, -> 10 minutes)



9. Navigate to **lockoutThreshold**



10. Enter the same value as in the local security guidelines (*3* for example)

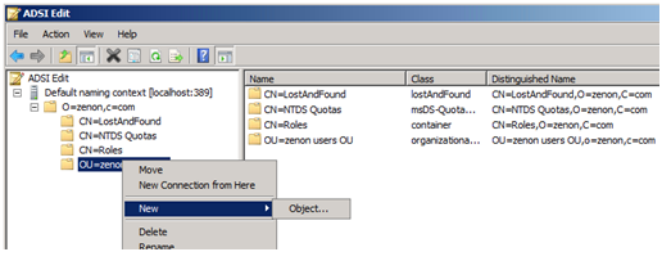


Note: The settings for the duration of the account block are ignored in AD LDS. The **lockoutDuration** property (*O=zenon,c=com*) is used.

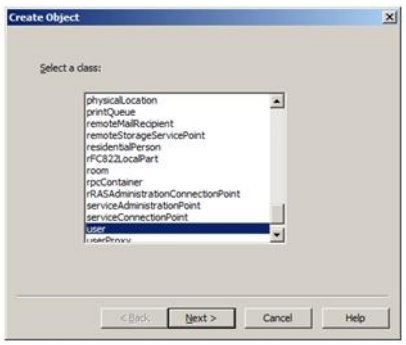
5.2.2.4.1Users

To create a user:

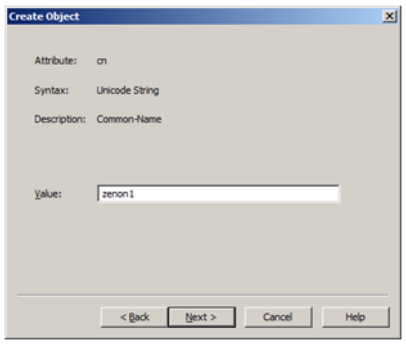
1. Highlight the organization unit.
2. Select **New -> Object** in the context menu



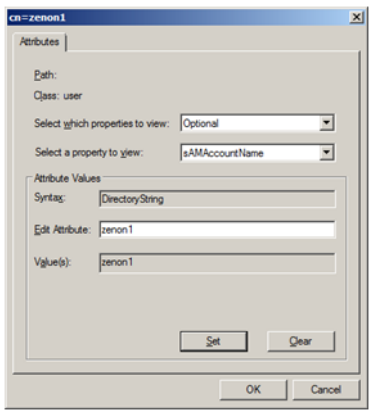
3. Select the **user** class.



4. Enter a name.
   In our example: *zenon1*.

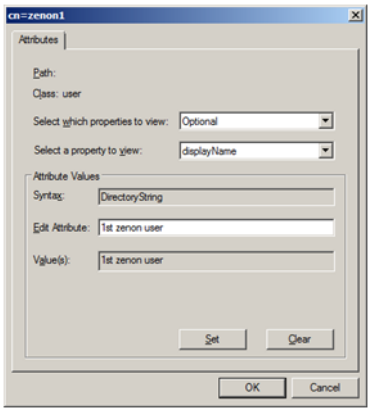


5. Click **Next**.
6. Switch to tab **Attributes**.
7. Click **More Attributes**.
   a) Go to the **Select a property to view** property.
   b) Select *sAMAccountName* in the drop-down list.
   c) Go to **Edit Attribute**.
   d) Enter the same value as for the user (*zenon1)*
      This configuration is necessary in order for the user to be able to be used in zenon.



8. Click **Set**.

9. Now, in the **Select a property to view** property, select *displayName*.
10. Enter a value for the display of a name, such as **1st SCADA user**.

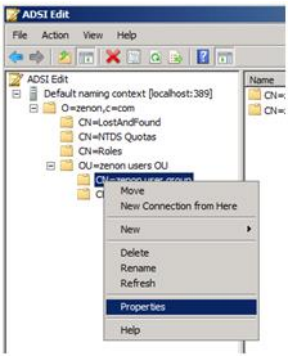


11. Click on **Set**, then on **OK** and on **Finish**.

ADDING A USER TO THE GROUP

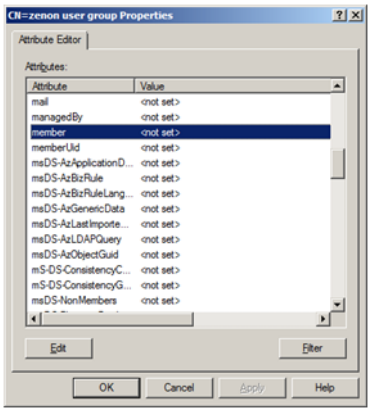
To add users to a group:

1. Select **zenon user group**.
2. Select **Properties** in the context menu



3. Highlight **member.**

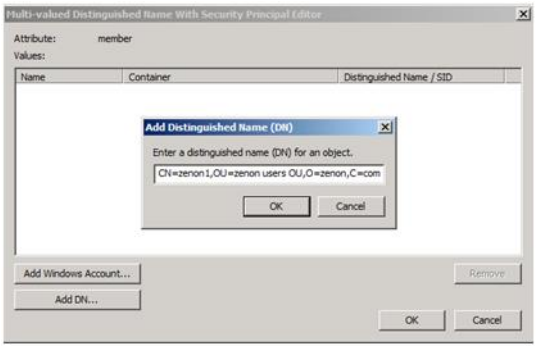
4. Click on **Edit.**



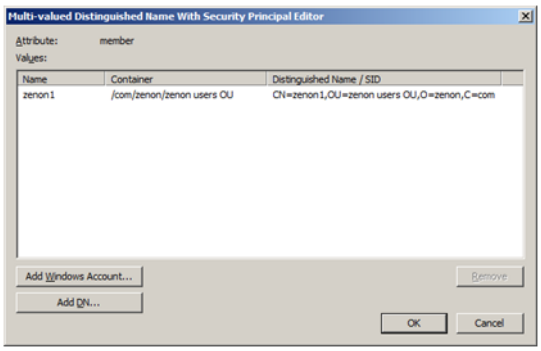
5. To add the created AD LDS account (**user**):

   a) Click **Add DN...**.

   b) At the input field, enter: *CN=zenon1,OU=zenon users OU,O=zenon,C=com*.



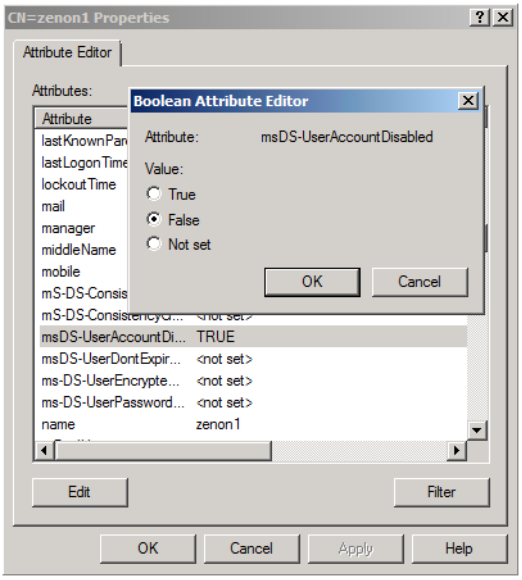
You receive the result:



6. Define a password for the user **zenon1.**

Note: The password must meet the requirements of the local security guidelines.

7. For the user **zenon1**, set the properties **set msDS-UserAccountDisabled** to *False*.

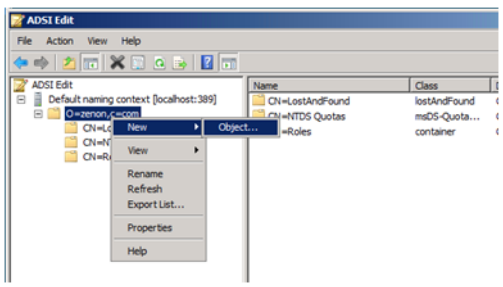


The user has now been created and can be used in zenon.

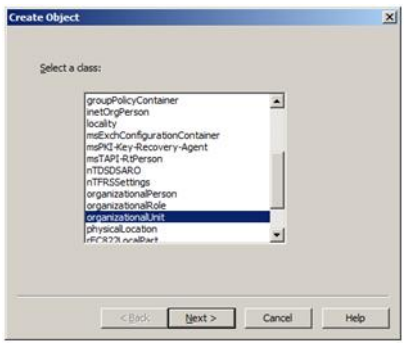
5.2.2.4.2 Organization units

To create a organization unit:

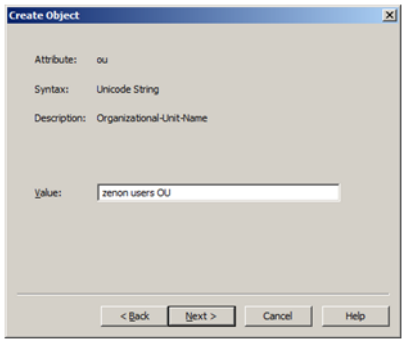
1. Highlight **O=zenon,c=com**
2. Select **New -> Object** in the context menu



3. Select **organizationalUnit**



4. Enter a name (in our example: *zenon users OU*)

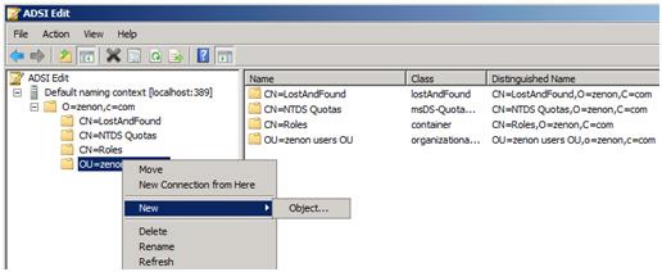


5. Click on **Next** and then on **Finish**

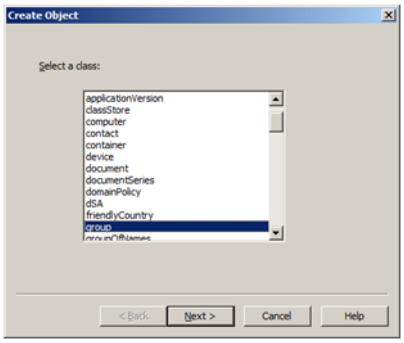
5.2.2.4.3 Groups

To create a group:

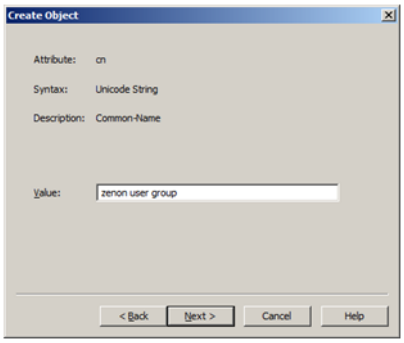
1. Highlight the organization unit
2. Select **New -> Object** in the context menu



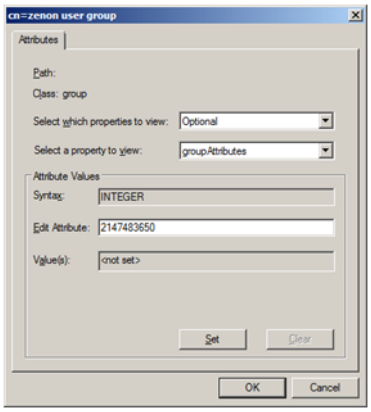
3. Select **group**



4. Enter a name (in our example: **zenon user group**)



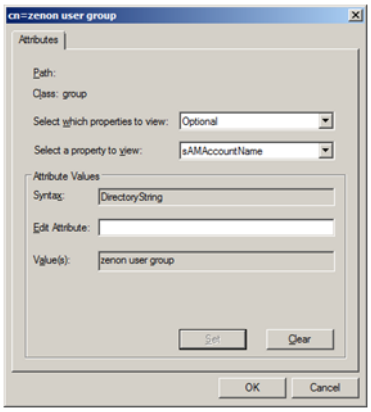
5. Click on **Next**
6. Switch to the **Attributes** tab
7. Click on **More attributes**
   a) Navigate to **Select a property to view**
   b) Select *groupAttributes* in the drop-down list
   c) Navigate to **Edit Attribute**
   d) Enter the value *2147483650* (represents an **account group**)



8. Click on **Set**
9. Now select *sAMAccountName* in **Select a property to view**

10. Enter the same value as for the group (**zenon user group**)

    Note: This setting is necessary in order for the user groups in zenon to be configured

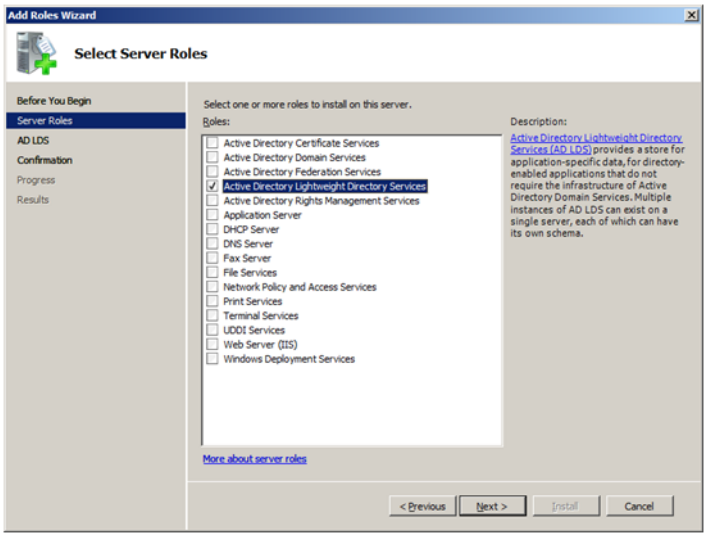


11. Click on **OK** and then in **Finish**

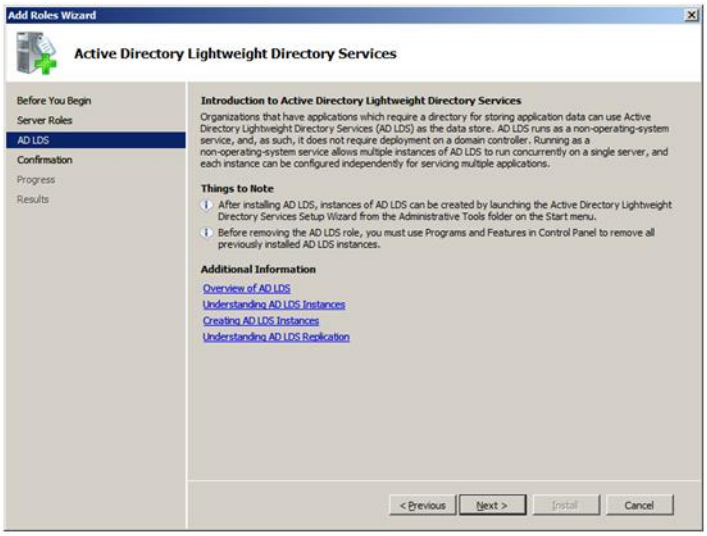
5.2.3 AD LDS with Windows Server 2008

To install the AD LDS server role:

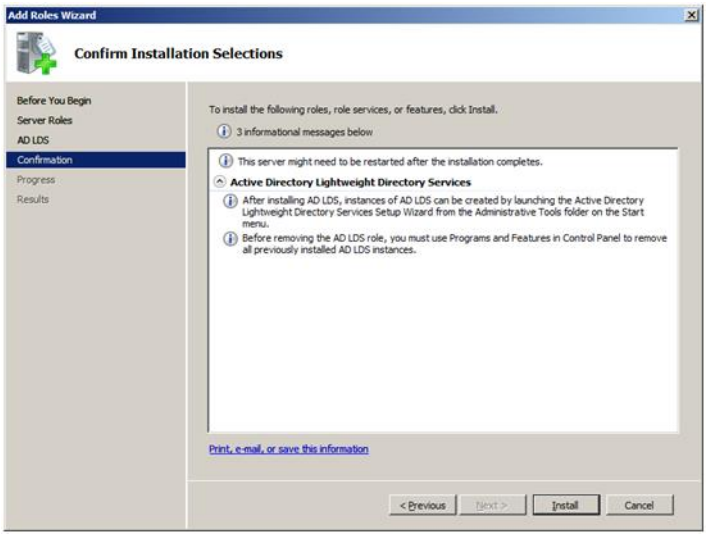
1. Select **Server Manager** in the administrative tools

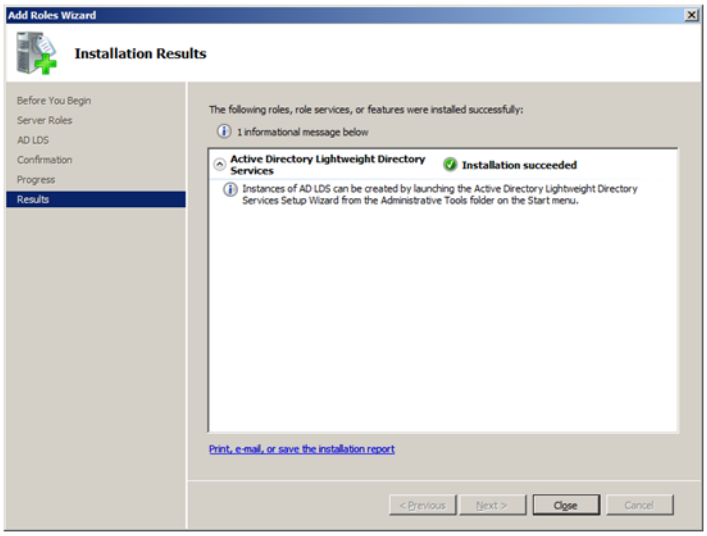


2. Click on **Add Roles**



3. Add the **AD LDS Role**





5.2.4 zenon administration with Active Directory

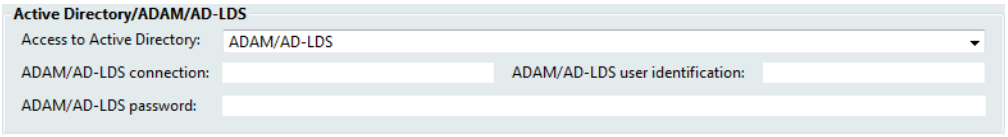
For use in zenon, first configure the settings in the Editor (on page 188) and set the user identification to AD LDS level in the Runtime (on page 189).

Information

Active Directory and **AD LDS**, as well as **ADAM** (for Windows XP), are not available under Windows CE.

5.2.4.1 Editor

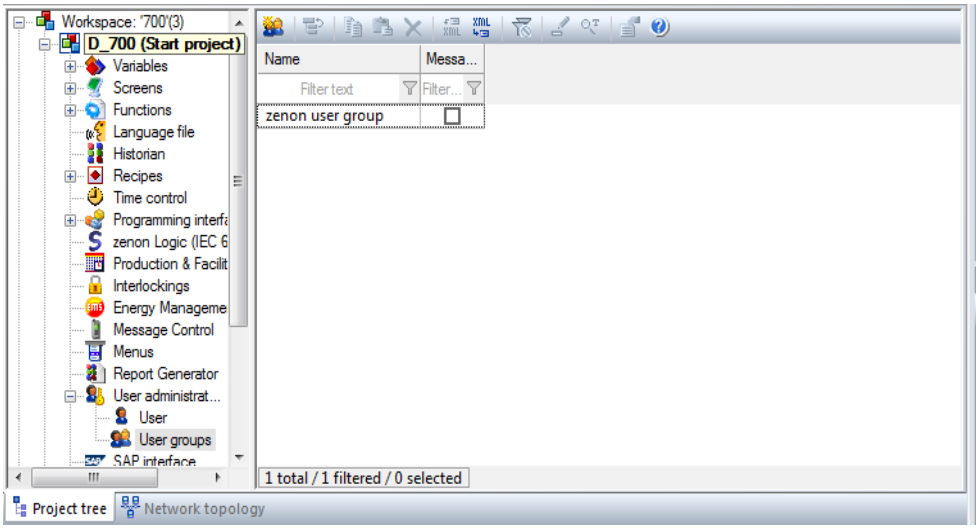
Configuration is carried out in the project properties in **User Administration**:



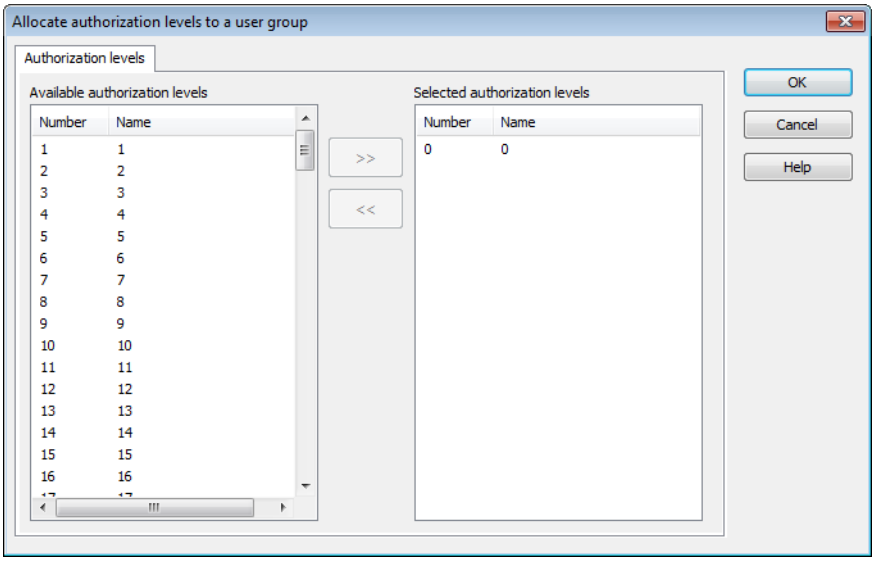
EXAMPLE

The following settings have been made:

- A user group with the name *zenon user group* has been created by the user.



- This was assigned an authorization level.

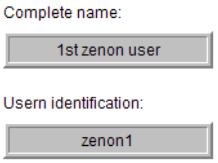


5.2.4.2 Runtime - system driver variables

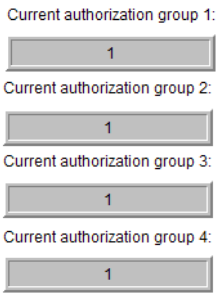
- The user **zenon1** can log in to zenon:

  The **Complete name** property in zenon corresponds to the AD LDS attribute *displayName*.

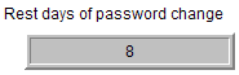
  The **User name** property corresponds to the AD LDS attribute *sAMAccountName*.



- The user receives their authorization levels from the zenon group:



- The remaining days until the password must be changed are displayed (with a day's difference):



ERROR TREATMENT

If errors in the Runtime occur, check whether:

- The settings have been set up correctly:
  - User name
  - *sAMAccountName*
- The firewall settings have been set up correctly:
- The Editor configuration is correct for:
  - Connection
  - Password

If the user does not receive any authorization levels from the zenon group, check if:

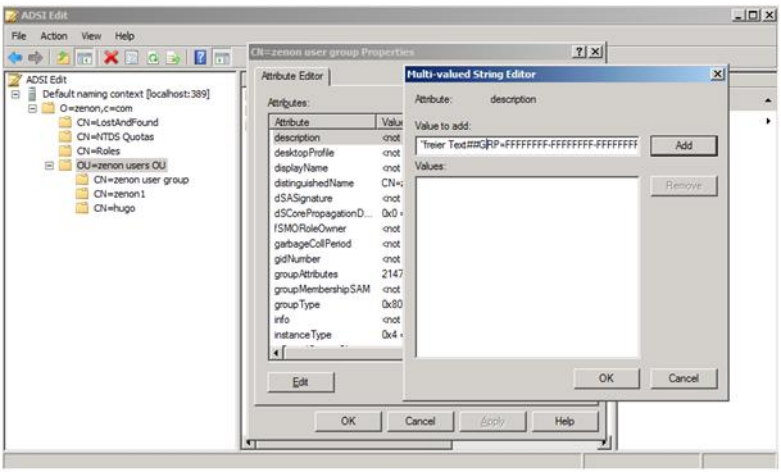
- The names correspond to each other
- sAMAccountName of the group in **AD LDS** was set
- The user in **AD LDS** was added to the group

AD

If operating authorizations from the user group in **AD** are to come, the following must be the case in **AD LDS**:

- The **description** property must be amended for the group

- The group must have the exact same name as the project



For further information, see the Setting the zenon authorization levels in the description field of an Active Directory group (on page 120) section.

5.2.5 Problem handling

CHECK THE CONNECTION TO THE AD LDS DIRECTORY

1. Start the Microsoft ADExplorer on the computer on which the zenon Editor or zenon Runtime is used.
2. Attempt to establish a connection to the AD LDS directory with the settings used in zenon.
3. The causes of the error can be:
   - Incorrect host name
   - Incorrect port
   - Firewall rules in the network

USER CANNOT LOG IN

Check to see if all attributes are set correctly in AD LDS:

- *sAMAccountName*
- *groupMembershipSAM*
- *userAccountControl*

THE USER DOES NOT RECEIVE ALL AUTHORIZATION LEVELS THAT WERE ASSIGNED TO THEM.

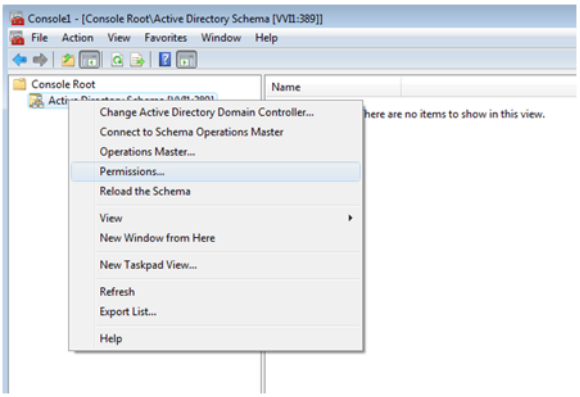
Please check:

- Is the **Name** of the zenon**User Group** configured the same that in AD LDS?
- Is the AD LDS user assigned to the corresponding AD LDS group?
- Is the attribute *sAMAccountName* set in the AD LDS group?

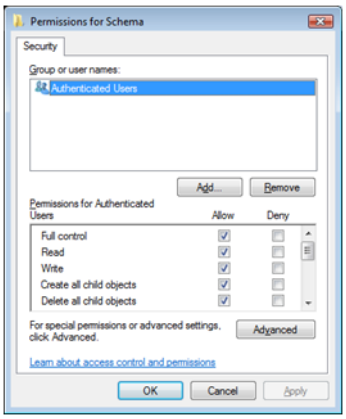
NO CONTENT IN THE SNAP-IN

If no content is displayed after opening the Active Directory schema snap-ins, the access rights must be amended. To do this:

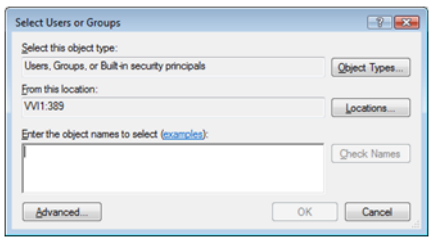
1. Select **Permissions...** in the context menu



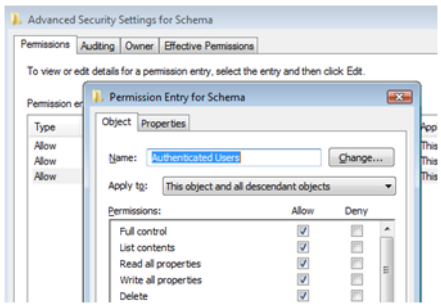
2. Assign the necessary users the corresponding rights
(you add new users by clicking on **Add**)



3. Click on the **Advanced** button



4. Click on the **Advanced** button
5. Open the **Permissions** tab
6. Activate the **Apply to this object and all descendant objects** option for the respective user



7. Close the console and open it again (**mmc /a**) for further configuration

5.3 Active Directory Application Mode - ADAM (Windows XP only)

Active Directory Application Mode (ADAM) is designed for use with Windows XP. Windows XP is no longer supported by zenon, because Microsoft has discontinued the product and no longer supports it. This documentation only relates to systems that still run under Windows XP.

For current operating systems, use Active Directory Lightweight Directory Services (on page 132):

- Windows 7
- Windows 8/8.1
- Windows Server 2008
- Windows Server 2012

REQUIREMENTS

In order to be able to use Active Directory Application Mode for zenon, you must pay attention to the following points when configuring ADAM.

1. Create a new ADAM instance (on page 194)
2. Bring in an AD schema (on page 196)

3. In order to make access possible for the ADAM user, click **Program -> Administration -> Local security guidelines**. In the following dialog click **Security settings -> Account guidelines**. Define the desired settings for password guidelines and account blocking guidelines.
4. Configure the ADAM Snap-in (on page 197) schema.
5. In the snap-in, right-click under Classes -> Organization and select Properties. On tab **Attribute** enter **maxPxdAge** as optional attribute. You thus ensure that the password validation and the password change work in the same way as for the Active Directory.

   Note: You must enter the validity period of the password in nanoseconds.
6. Create user and user groups in ADAM. Pay attention to the following:
   - At the user and at the user group you must enter the name again manually under Property -> Attribute-Editor at the Attribute **sAMAccountName**.
   - At the user group you must enter the name as described in Using the Active Directory (on page 119).
   - You can create the zenon authorization levels as described in Using the Active Directory (on page 119) under attribute**description**.

   > **Information**
   >
   > In order to display the username with the help of the system driver variable, you must set the username manually in ADAM at the user under **Properties -> Attribute-Editor** at the Attribute **displayName**.

5.3.1 Create new instance of ADAM

1. This is how you install an instance of ADAM using the Active Directory Application Mode setup assistant:
2. Click on start to launch the Active Directory Application Mode setup assistant, select **All programs** and then on **ADAM**, and then click on **Create ADAM instance**.
3. On the **welcome page**, click on **Next**.
4. On the **set up options** page, you can choose if you wish to install a separate ADAM instance or would like to assign an existing configuration to a new instance. Because you are installing the first ADAM instance, click on **A unique instance** Click on **Next**.
5. On the **Instance name** page, enter a name for the ADAM instance to be installed. The name is used to clearly identify the ADAM instance on the local computer. Then click on **Next**.
6. On the **Ports** page, enter the communication ports that are to be used by the ADAM instance. ADAM can communicate with the help of LDAP (Lightweight Directory Access-Protokoll) or SSL (Secure Sockets Layer). You must therefore give a value for both ports. Then click on **Next**.

Note: If one of the standard ports is already used on the computer on which you install ADAM, the Active Directory Application Setup Assistant automatically looks for the next available port, starting with 50000. For example, ports 389 and 636, as well as ports 3268 and 3269 are used on global catalog servers. Therefore, when installing ADAM on a domain controller, the default values 50000 for the LDAP port and 50001 are assigned to the SSL port.

7. On the **Application directory partition** page, you can create an application partition or a name context) by clicking on **Yes, create application directory partition**. If, you click on **No, do not create application directory partition** you must create an application partition manually after installation. If you create an application partition, you must enter a defined name for the new partition. Then click on **Next**.

   Note: ADAM supports defined names in X.500 and in DNS style (Domain Name System) for upper level directory partitions.

8. On the **File path** page, you can display and amend the installation folder for ADAM files and recovery files (protocol files). ADAM files and recovery files are saved under **%ProgramFiles(x86)%\Microsoft ADAM\Instance name\data** by default. In doing so, Instance name displays the ADAM instance name that you enter on the Instance name page. Click on **Next**, to import the standard paths.

   Note: When installing ADAM on a Windows XP XP, you must install these files on the same logical volume. When installing ADAM under Windows Serve 2003 and Windows Server 2003 R2 in a production environment, it is recommended that you install the files on separate physical data carriers.
   Program files and administration programs are installed by ADAM in **%windir%\ADAM**.

9. On the **Select service account** page, select an account that is used as a service account for ADAM. The selected account determines the security context in which the ADAM instance is executed. If you do not install ADAM on a domain controller, the network service account of Active Directory Application Mode Setup Assistant is used by default. Click on **Next**, to import the *Network service account* standard setting. When installing ADAM on a domain controller, click on **This account** instead and then select a domain user account as an ADAM service account.

   Note: You can change the ADAM service account after installing ADAM with the command line program **dsmgmt**. When installing ADAM on a domain controller, you must select a domain user account as an ADAM service account.

10. On the **ADAM administrators** page, select a user or a group as a standard administrator for the ADAM instance. The selected user or selected group has full administrator functionality for the ADAM instance. As standard, the current registered user is given by the Active Directory Application Mode Setup Assistant. You can change this selection in each local account or domain account or in each group in the network. Click on **Current registered user** and then click on **Next**.

11. You can import two LDF files with user class object definitions into the ADAM scheme on the Import LDIF file page. Importing user class object definitions is optional.

a) Click on Import selected LDIF file for this ADAM instance.

b) Click on MS-InetOrgPerson.LDF and then on **Add**.

c) Click on MS-User.LDF and then on **Add**.

d) Click on MS-UserProxy.LDF,on **Add** and then on **Next**.

12. On the Ready for installation page, you can verify the selected installation options. If you click on **Next**, the Active Directory Application Mode Setup Assistant starts by copying the files and installing ADAM on the computer.
13. If the Active Directory Application Setup Assistant has successfully finished installing ADAM, the following message is shown: "**The Active Directory Application Setup Assistant mode was concluded successfully.**" If the **Finish assistant** page is displayed, click on **Finish** to close the assistant.

    Note: If the Active Directory Application Setup Assistant is not successfully concluded, the reason for the error is displayed on the Summary page.
14. If an error occurs in the Active Directory Application Assistant, before the **Summary** is opened, you can verify the error message displayed. Furthermore, you can click on **Start** and then on **Execute** and enter one of the following file names:
    %windir%\Debug\Adamsetup.log
    %windir%\Debug\Adamsetup_loader.log
    The files **%windir%\Debug\Adamsetup.log** and **%windir%\Debug\Adamsetup_loader.log** contain useful information about dealing with problems in the event of ADAM setup errors.

5.3.2 Input AD scheme

This is how you use the Active Directory/ADAM synchronization program for the first time

- click on **Start**,
- Open **All Programs**,
- Click on **ADAM** and
- then on **ADAM administration programs**:

  A command window in the ADAM directory opens.

To extend the ADAM schema to the standard schema objects of Windows Server in Active Directory:

- Enter the following command on one line of the command prompt:

  ldifde -i -s localhost -c CN=Configuration,DC=X #ConfigurationNamingContext -f MS-AdamSchemaW2k8.ldf

- Press the Return key.

5.3.3 Configure ADAM scheme snap-in

CONFIGURING THE ADAM SCHEME SNAP-IN ADMINISTRATION PROGRAM.

You can administer the ADAM scheme with another ADAM administration program, the ADAM scheme snap-in. If you have already used the Active Directory scheme snap-in, you should be familiar with the ADAM scheme. Before you can use the ADAM scheme snap-in, you must create an MMC file for it, as described in this process.

- Click on start, then on Execute, enter mmc /a and then click on OK.
- In the file menu, click on Add/remove snap-in and then click on Add.
- Click on the independent snap-ins available in the ADAM scheme, on Add, on Close and then click on OK.
- To save this console, click on Save in the File menu.
- Enter the following filename and then click on Save:
  %windir%\system32\adamschmmgmt.msc
- Create a connection to the ADAM instance using the ADAM scheme snap-in. To do this, right click on ADAM scheme in the console structure and click on change ADAM server. Enter *localhost* at ADAM server and *389* at Port.
- Click on OK. The ADAM scheme snap-in now looks as follows. You can search through and display the classes and attributes of the ADAM scheme.
- To create a link for the ADAM scheme snap-in start menu, carry out the following actions:
  - Right click on Start, click on Open – all users, double-click on the folder programs, and double-click on the ADAM folder.
  - Move to New in the file menu, and then click on link.
  - In the assistant to create links, enter adamschmmgmt.msc as the save location for the element and then click on Next.
  - On the select program description page, enter the name for the link and the name of the ADAM scheme, and then click on Finish.

6 Administering Active Directory users from zenon Runtime

You can access the Windows Active Directory in the Runtime with an *Active Directory user administration screen*. You can create, delete and edit organization units, users and user groups and assign them rights in zenon.

Information

Active Directory and **AD LDS**, as well as **ADAM** (for Windows XP), are not available under Windows CE.

DOMAIN IN THE RUNTIME

In the Runtime, the domain of the user who started Runtime for the Active Directory login is used. Only the users who belong to this domain can log in.

USER AUTHORIZATION

Attention

Rights that are issued in zenon are applicable for the respective project or the workspace. Permissions that are issued in the Active Directory are applicable globally.

If rights have been issued to users or user groups of the Active Directory, then the rights for these users are applicable in all zenon projects!

DISPLAY OF DELETED USERS

AD users who are deleted during ongoing operation can no longer be displayed in lists with their complete user names. If a user is not found in either the zenon user list or in the AD, the following applies:

- From now on, Runtime no longer attempts to read the complete user name of the domain controller. Another read only takes place if the cache is deleted. This happens is a user log on or Runtime is restarted.
- The user identification is shown in the AML, CEL and report viewer lists for these entries in the **Complete User Name** column.

Recommendation: Do not delete any AD user in the Runtime, simply deactivate the user.

6.1 Creating an Active Directory user administration screen

ENGINEERING

Two procedures are available to create a screen:

- The use of the screen creation dialog
- The creation of a screen using the properties

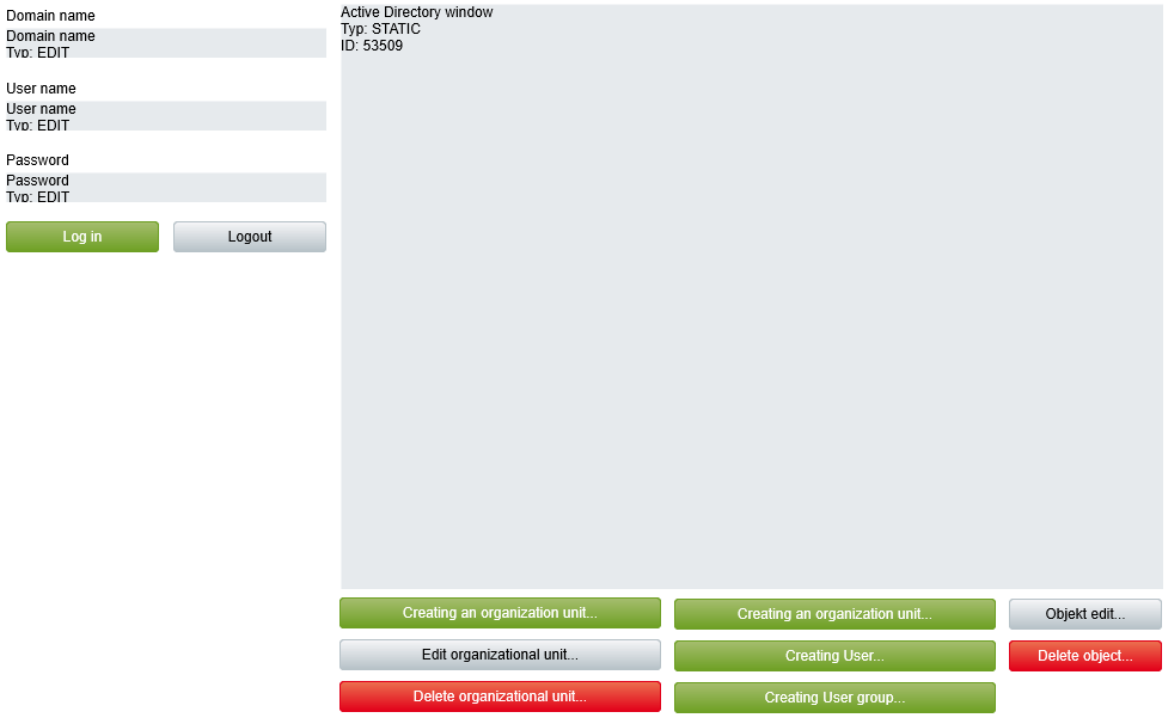
Steps to create the screen using the properties if the screen creation dialog has been deactivated in the menu bar under **Tools**, **Settings** and **Use assistant**:

1. Create a new screen.

   To do this, select the **New screen** command in the tool bar or in the context menu of the **Screens** node.

2. Change the properties of the screen:
   a) Name the screen in the **Name** property.
   b) Select *Active Directory user administration* in the **Screen type** property.
   c) Select the desired frame in the **Frame** property.
3. Configure the content of the screen:
   a) Select the **Elements (screen type)** menu item from the menu bar.
   b) Select *Insert template* in the drop-down list.
   The dialog to select pre-defined layouts is opened. Certain control elements are inserted into the screen at predefined positions.
   c) Remove elements that are not required from the screen.
   d) If necessary, select additional elements in the **Elements** drop-down list. Place these at the desired position in the screen.
4. Create a screen switch function.

ACTIVE DIRECTORY USER ADMINISTRATION SCREEN



CONTROL ELEMENTS

Control element	Description
Insert template	Opens the dialog for selecting a template for the screen type. Templates are shipped together with zenon and can also be created by the user. Templates add pre-defined control elements to pre-defined position in the screen. Elements that are not necessary can also be removed individually once they have been created. Additional elements are selected from the drop-down list and placed in the zenon screen. Elements can be moved on the screen and arranged individually.

ACTIVE DIRECTORY WINDOW

Control elements for the display and administration of the Active Directory.

Contains the **Active Directory detail view:** Window in which the structure of the Active Directory is displayed.

Control element	Description
Active Directory Explorer	
Create new organization unit (tree)	Opens the dialog to create a new organization unit in the tree.
Edit organisation unit	
Delete organization unit... (Tree)	Deletes the organization unit selected in the tree after requesting confirmation.
One level up	Navigates to one level higher in the structure.
Create new organization unit	Creates a new organization unit below the element selected in the tree. The corresponding dialog is opened:
Create new user	Opens the dialog to create a new user.
Create new user group	Opens the dialog to create a new user group.
Edit object	Opens the dialog to edit the selected object.
Delete object	Deletes the selected object.

LOGIN

Control elements for logging into the Active Directory.

Control element	Description
Domain name	Entry and display of the domain name. **Note:** Element of the type *Dynamic text*. Functionality is assigned using the **Screen type specific action** property.
User name	Entry and display of the AD user name. **Note:** Element of the type *Dynamic text*. Functionality is assigned using the **Screen type specific action** property.
Password	Entry of the password. **Note:** Element of the type *Dynamic text*. Functionality is assigned using the **Screen type specific action** property.
Login	Clicking logs the user into the AD.

Control element	Description
Logout	Clicking logs the user out.

COMPATIBLE ELEMENTS

Control elements that are replaced or removed by newer versions and continue to be available for compatibility reasons. These elements are not taken into account with automatic insertion of templates.

Control element	Description
Domain name	Static Win32 control element. Was replaced by a *dynamic text* field. For the description, see current element.
User name	Static Win32 control element. Was replaced by a *dynamic text* field. For the description, see current element.
Password	Static Win32 control element. Was replaced by a *dynamic text* field. For the description, see current element.

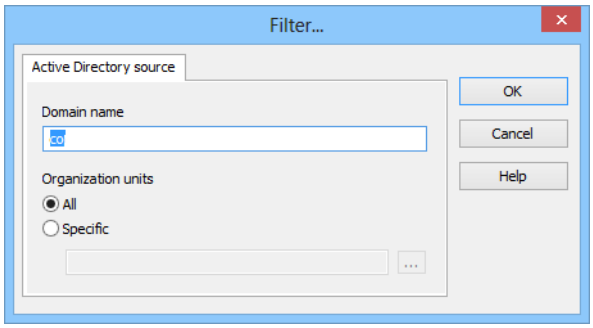
6.2 Screen switching to Active Directory user administration

To use the *Active Directory user administration* screen in the Runtime, configure screen switching. In doing so, you can set pre-settings for the organization units to be displayed. This is how you can control the organization units that respective users can select.

Configuring screen switching:

1. Create a screen switch to an *Active Directory user administration* screen function.
2. Issue a **domain name**, in order to open the AD of a certain domain in the Runtime.
   You can also leave the name empty. Then the **domain name** must be entered in the Runtime when logging in.
3. Configure the **organization units** to be displayed.
   You can have them all displayed, or select specific ones.
4. Close the dialog by clicking on **OK** and link the function with a button in the screen.

FILTER DIALOG

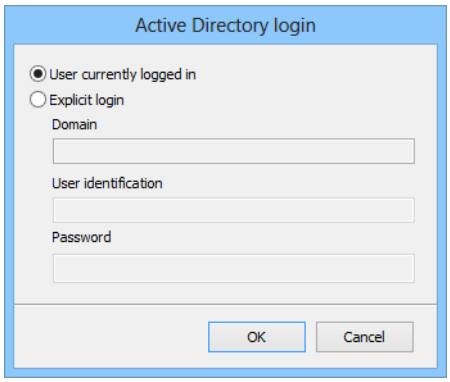


Parameter	Description
Domain name	Entry of the domain for which the Active Directory is to be loaded when screen switching.
Organization units	Selection of the organization units to be displayed. Selection by means of radio buttons: ▸ **All**: All nodes of the AD structure organization of the domains are displayed in the Runtime. ▸ **Specific**: Allows the selection of certain organization units. Clicking on the ... button in the input field opens the dialog to select the organization units.
OK	Applies settings and closes the dialog.
Cancel	Discards all changes and closes the dialog.
Help	Opens online help.

SELECT ORGANIZATION UNITS

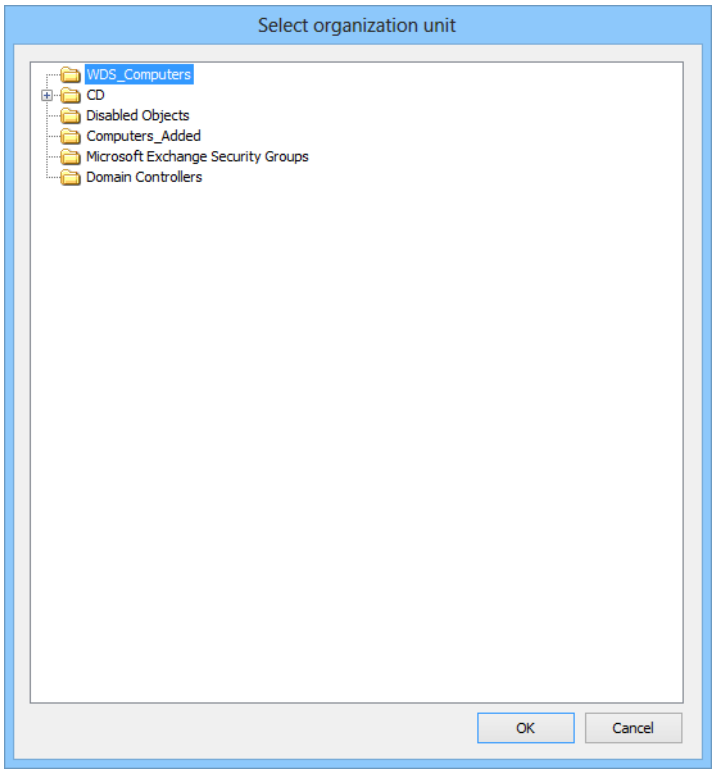
If you select **specific organization units** in the filter dialog, the dialog to enter the login files is opened first, then the dialog to select the organization units.

LOGIN



Parameter	Description
User currently logged in	*Active*: The user who is currently logged into the computer is logged in to the AD to select the organization units.
Explicit login	*Active*: A certain user who is logged in to the AD to select the organization units. ▸ **Domain**: Entry of the domains whose structure is to be displayed. ▸ **Username**: User. Can remain empty if reading of the data only is sufficient. ▸ **Password**:
OK	Applies settings and opens the **Select organization units** dialog.
Cancel	Discards all changes and closes the dialog.

ORGANIZATION UNITS



Parameter	Description
List of organization units	Display of all organization units of the selected domain. Selection from the folder tree.
OK	Applies settings and closes the dialog.
Cancel	Discards all changes and closes the dialog.

6.3 Administer Active Directory users in the Runtime.

Organization units, user groups and users of the active directory can be administered from zenon Runtime with an *Active Directory user administration* screen.

Attention

Rights that are issued in zenon are applicable for the respective project or the workspace. Permissions that are issued in the Active Directory are applicable globally.

If rights have been issued to users or user groups of the Active Directory, then the rights for these users are applicable in all zenon projects!

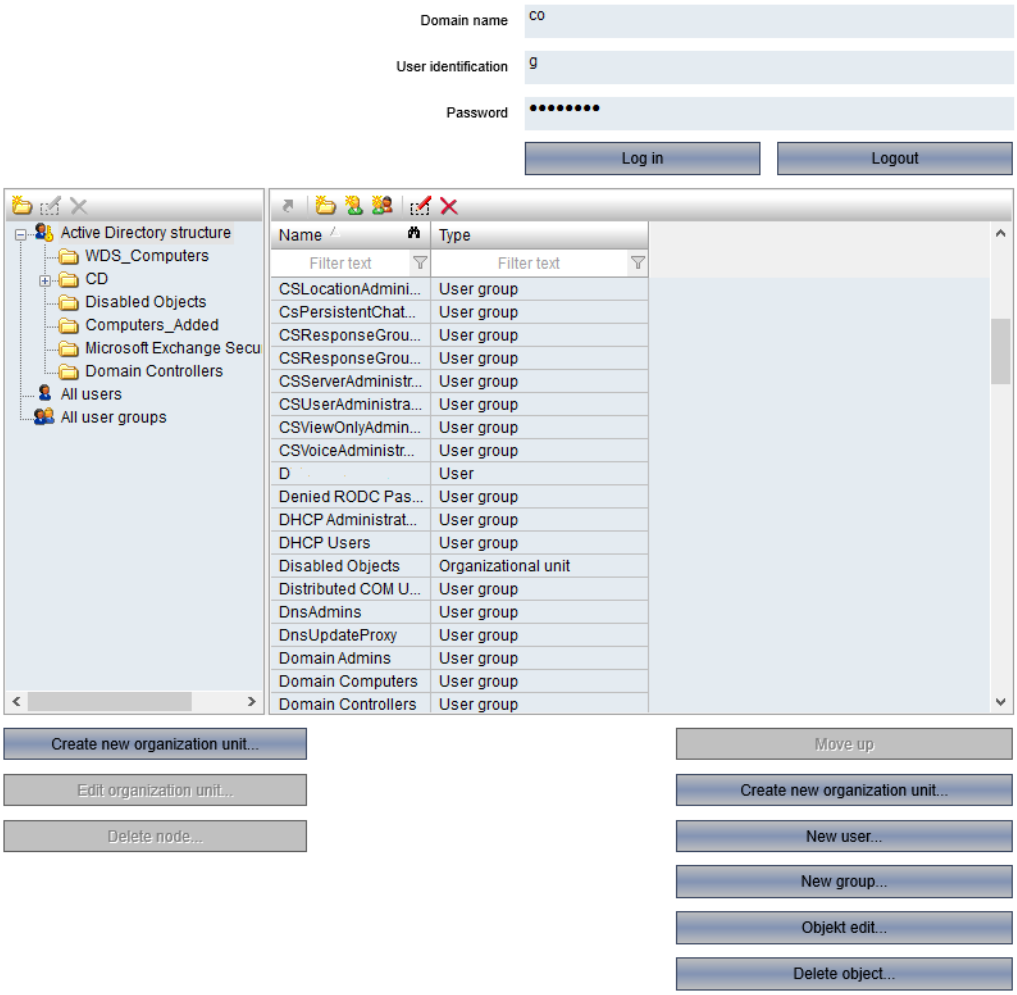
ACTIVE DIRECTORY USER ADMINISTRATION SCREEN

The screen is empty, when the screen switch function is executed.

To administer users in the AD:

1. Enter the **domain name** (can already be defined in the screen switching), **user name** and **password**
2. Click on **Login**
3. The connection is created.
   If errors (on page 191) occur, check the configuration in the Active Directory (on page 133) and in zenon.
4. The domain data is read and displayed in the window.
5. Edit the desired elements. Available actions:
   - Creating and deleting organization units (on page 210)
   - Creating, editing and deleting users (on page 211)
   - Creating, editing and deleting user groups (on page 219)

Note: The user who is logged on must have the corresponding rights in the domain.



Parameter	Description

ACTIVE DIRECTORY WINDOW

Control elements for the display and administration of the Active Directory.

Contains the **Active Directory detail view:** Window in which the structure of the Active Directory is displayed.

Control element	Description
Active Directory Explorer	
Create new organization unit (tree)	Opens the dialog to create a new organization unit in the tree.
Edit organisation unit	
Delete organization unit... (Tree)	Deletes the organization unit selected in the tree after

Control element	Description
	requesting confirmation.
One level up	Navigates to one level higher in the structure.
Create new organization unit	Creates a new organization unit below the element selected in the tree. The corresponding dialog is opened:
Create new user	Opens the dialog to create a new user.
Create new user group	Opens the dialog to create a new user group.
Edit object	Opens the dialog to edit the selected object.
Delete object	Deletes the selected object.

LOGIN

Control elements for logging into the Active Directory.

Control element	Description
Domain name	Entry and display of the domain name. **Note:** Element of the type *Dynamic text*. Functionality is assigned using the **Screen type specific action** property.
User name	Entry and display of the AD user name. **Note:** Element of the type *Dynamic text*. Functionality is assigned using the **Screen type specific action** property.
Password	Entry of the password. **Note:** Element of the type *Dynamic text*. Functionality is assigned using the **Screen type specific action** property.
Login	Clicking logs the user into the AD.
Logout	Clicking logs the user out.

COMPATIBLE ELEMENTS

Control elements that are replaced or removed by newer versions and continue to be available for compatibility reasons. These elements are not taken into account with automatic insertion of templates.

Control element	Description
Domain name	Static Win32 control element. Was replaced by a *dynamic text* field. For the description, see current element.

Control element	Description
User name	Static Win32 control element. Was replaced by a *dynamic text* field. For the description, see current element.
Password	Static Win32 control element. Was replaced by a *dynamic text* field. For the description, see current element.

TREE CONTEXT MENU

Depending on the element selected, the context menu in the tree (left window) provides the following commands:

Command	Description
Create new organization unit	Creates a new organization unit below the element selected in the tree. The corresponding dialog is opened:
Create new user	Deletes the organization unit selected in the tree after requesting confirmation.

TOOLBAR AND CONTEXT MENU DETAIL VIEW

Depending on the element selected, the context menu and the toolbar in the detail view (right window) provide the following commands:

Command	Description
One level up	Navigates to one level higher in the structure.
Create new organization unit	Creates a new organization unit below the element selected in the tree. The corresponding dialog is opened:
Create new user	Opens the dialog to create a new user.
Create new user group	Opens the dialog to create a new user group.
Edit selected object	Opens the dialog to edit the selected object.
Delete selected object	Deletes the selected object.

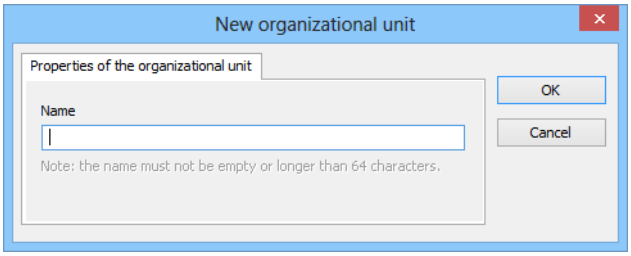
6.3.1 Manage organization unit

You can create and delete AD organization units in the tree and in the detail view.

CREATING AN ORGANIZATION UNIT

To create a new organization unit:

1. Click in the screen on the button or select **Create new organization unit** in the context menu of a highlighted element.
2. The dialog to configure an organization unit is opened



3. Give it a name.
   Maximum length: 64 *characters*
4. Click on **OK**.

EDIT ORGANISATION UNIT

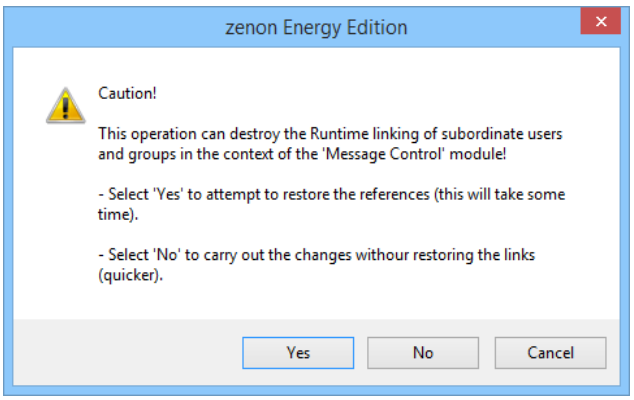
The name of the organization unit can be changed.

Attention: When changing the name, links to users and user groups that are used in the **Message Control** module are destroyed.

To edit an organization unit in the tree:

1. Select the desired organization unit and click on the corresponding button or command in the context menu. In the detail view, click on the **Edit object** or the **Edit selected object** command in the context menu.
2. The dialog editing is opened.
3. Edit the object.

4. If you click on the OK button, you are asked how linking should be handled:



5. Select the desired option:

   - **Yes**: The renaming is carried out.
     An attempt is made to restore linking to users and user groups that are used in the Message Control module.
     This process can take some time.
   - **No**: The change is made immediately.
     Attention: Linking to users and user groups that are used in the Message Control module can be destroyed!
   - **Cancel**: The renaming is not applied and the dialog is closed.

DELETE ORGANIZATION UNIT

To delete an organization unit in the tree, select the desired organization unit and click on the corresponding button or command in the context menu. In the detail view, click on the **Delete object** button or the **Delete selected object** command in the context menu.

Note: An organization unit can only be deleted if it no longer contains any objects.

6.3.2 Managing users

New users can be created and existing users can be edited and deleted. Users with the same visual name in the list can be distinguished by the information in the tool tip.

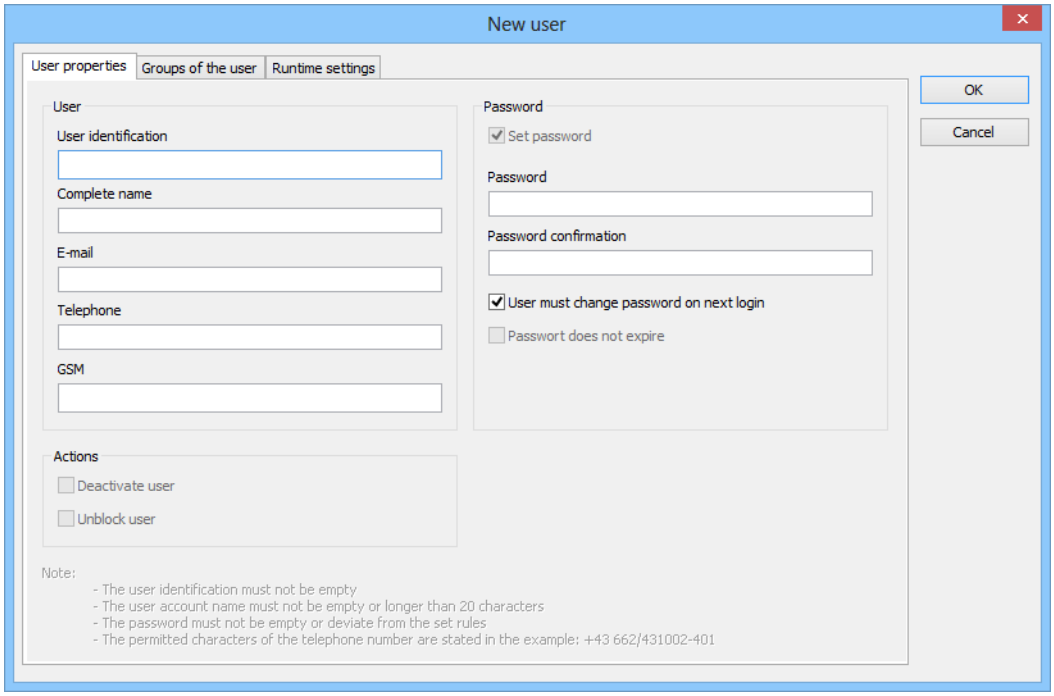
- Create new user: Click on the corresponding button, or the command in the toolbar or the context menu.
- Edit user: Double-click a user entry or click on the corresponding button or on the **Edit selected object** command in the context menu.
- Delete user: Highlight the desired user and press the **Del key**, click on the corresponding button or on the **Delete selected object** command in the context menu.

When creating and editing, a dialog is opened, in which you can configure the user.

DIALOG TO CREATE OR EDIT AN USER

The dialog consists of three tabs. You can also find notes on the options in the **Project configuration in the Editor** (on page 8)/**Creation of a user** (on page 11) chapter.

USER PROPERTIES



USER

Parameter	Description
User	Settings for user data.
User name	Unique name of the user for the login.
Complete name	Displayed name of the user.
Email	E-mail address of the user
Telephone	Number of the voice-compatible telephone device of the user. Used for text to speech. Enter numbers. In addition, the following are permitted: ▸ The prefix **+** as an abbreviation for *00* of the international area code is permitted. The following separators are also permitted in AD user administration: Minus (**-**), slash (**/**) and **space**

Parameter	Description
	Note: When communicating between AD and Message Control, separators are ignored as soon as the data from the AD is mapped to a zenon object.
GSM	Cellphone number of the user. Used for messages via GSM and SMS (text messages). Enter numbers. In addition, the following are permitted: ▸ The prefix **+** as an abbreviation for *00* of the international area code is permitted. The following separators are also permitted in AD user administration: Minus (**-**), slash (**/**) and **space** Note: When communicating between AD and Message Control, separators are ignored as soon as the data from the AD is mapped to a zenon object.

PASSWORD

Parameter	Description
Password	Settings for the password.
Set password	*Active*: The password is set again.
Password	Enter new password. Input is automatically hidden. For projects with multiple languages, note that it must be possible to enter the characters with the respective keyboard in the Runtime.
Password confirmation	Repeat the password. Input is automatically hidden.
User must change password on next login	*Active*: The user must, as soon as they log in to the system, change their password.
Password does not expire	*Active*: Password never needs to be changed

Attention

Note when changing passwords for AD users:

The requirements of zenon for a minimum and maximum length of password take priority.

Example of minimum length: AD requires a minimum length of 4 characters. In zenon, a minimum length of 8 characters has been configured using the **Minimum password length** property. If a password with fewer than 8 characters is entered, this leads to an error message. The password can be valid for AD, but is rejected by zenon.

Note on maximum length: Different maximum password lengths are permitted in zenon Runtime:

- Local user: maximum of 20 characters
- AD user: maximum of 255 characters

If the AD password is longer than 20 characters, an AD can use it to sign into zenon. The password can also be changed in zenon however.

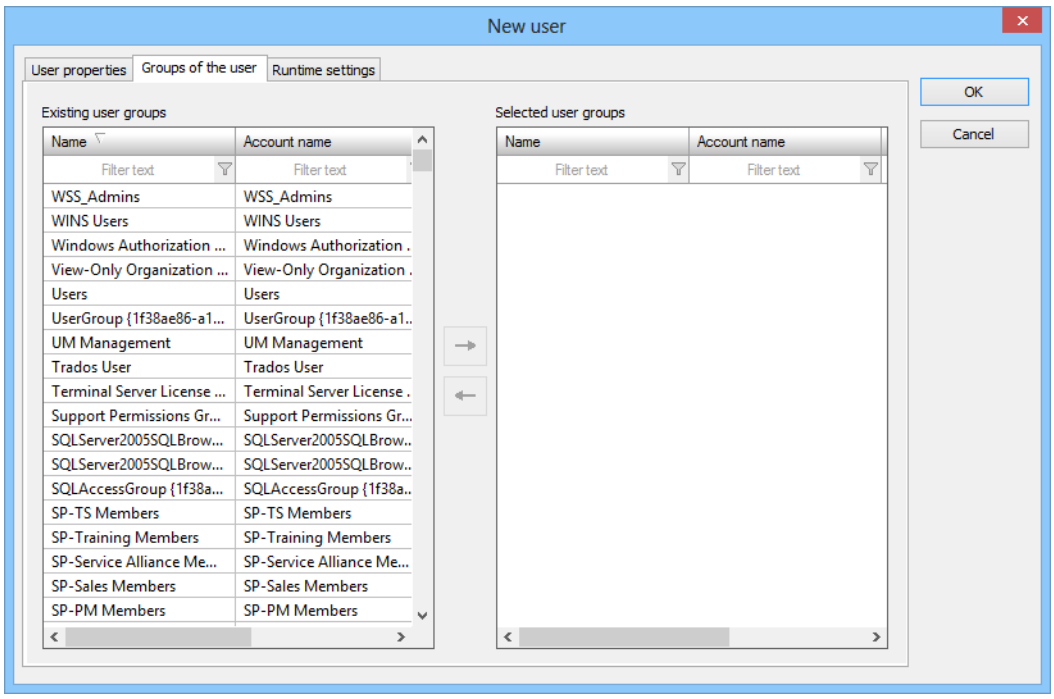
ACTIONS

Parameter	Description
Actions	Configuration of actions for the account.
Deactivate user	*Active*: The user is deactivated and can no longer log in.
Unblock user	*Active*: The blocked user is unblocked and can log in in the Runtime again.
OK	Applies all changes in all tabs and closes the dialog.
Cancel	Discards all changes in all tabs and closes the dialog.

USER GROUPS OF THE USER

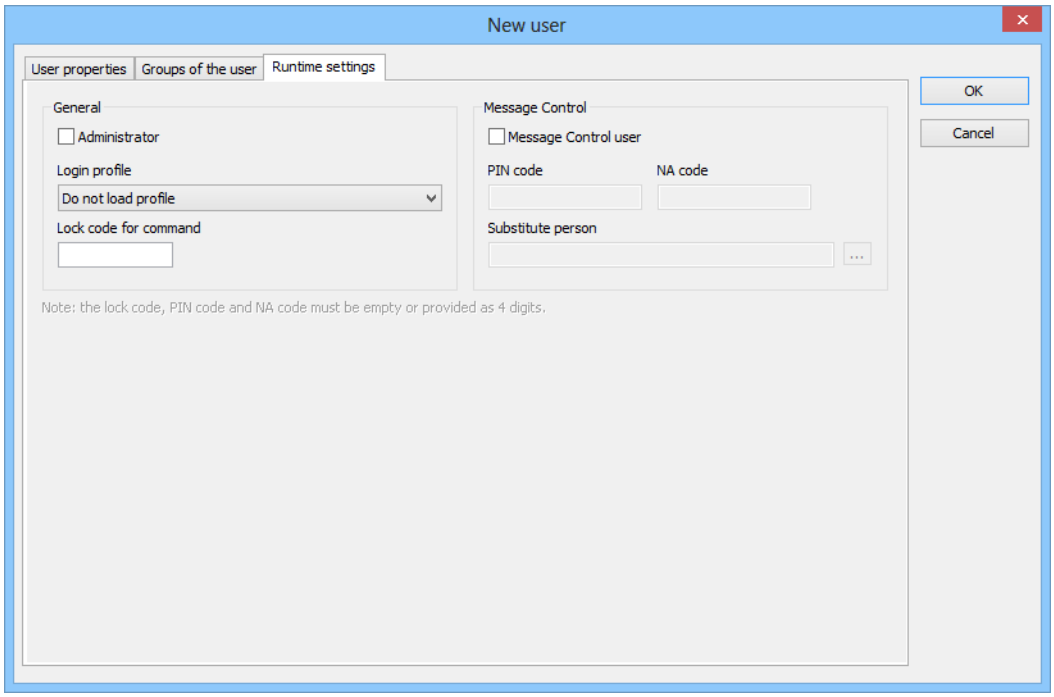
1. Select, in the **Existing user groups** window, the desired user groups from the existing ones.
2. Add the selected groups to the list of **selected user groups** with the arrow key **->**.

3. You can also select user groups that have already been allocated and remove them again with the arrow key <-.



Parameter	Description
Existing user groups	List of configured user groups.
Selected user groups	List of the user groups selected for the user.
Arrow keys	Clicking moves the highlighted groups to the corresponding list.
OK	Applies all changes in all tabs and closes the dialog.
Cancel	Discards all changes in all tabs and closes the dialog.

RUNTIME SETTINGS



GENERAL

Parameter	Description
General	General settings.
Administrator	Active: The user takes on the role of a zenon administrator. Only an administrator can unblock zenon user accounts that have been blocked. **Note:** If a user is stipulated as an administrator, then this role is also applicable for all zenon projects!
Login profile	Selection of the Runtime profile that is used for login from a drop-down list: ▸ None ▸ Default ▸ Last
Lock code for Command Processing	Four-digit PIN code. This code is used by the user in the command processing to block areas or to unlock them. Only available if **zenon Energy Edition** has been

Parameter	Description
	licensed.

MESSAGE CONTROL

Parameter	Description
Message Control	Settings for Message Control.
Message Control user	*Active*: The user is used by the module Message Control.
PIN code	PIN code with which the user confirms the receipt of the message. The code consists of a four-digit number between *0000* and *9999*.
NA code	PIN code with which the user rejects the receipt of the message (not available). The message is then sent to the next user in the list. If there is no other user entered in the list, the message is entered as "*not successfully acknowledged*". The function assigned to this is executed. In addition, a "*rejected by*" CEL entry is created in each case. The code consists of a four-digit number between *0000* and *9999*. **Note:** You can find further information on the assignment of functions in the Confirmation of receipt - confirmation of receipt settings chapter.

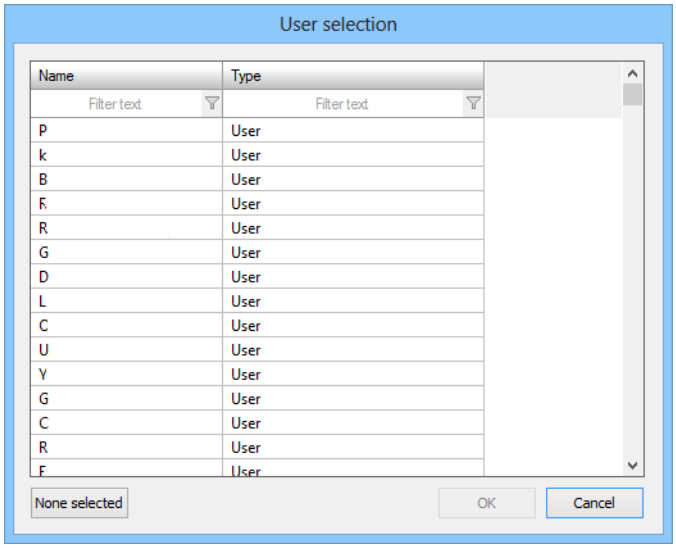
SUBSTITUTE PERSON

Parameter	Description
Substitute person	If a user has not been reached or they do not accept the message, a substitute person can be given. Click the **...** button and the dialog (on page 25) opens to select an user. Only users who have

Parameter	Description
	been activated as **Message Control** users are offered for selection.
OK	Applies all changes in all tabs and closes the dialog.
Cancel	Discards all changes in all tabs and closes the dialog.

SUBSTITUTE PERSON DIALOG

If a substitute person is to be selected for the Message Control module, a click on the button opens a dialog with previously-configured users.



Parameter	Description
List of persons	List of users available.
No selection	A user who is already defined in the dialog is deleted.
OK	Applies settings and closes the dialog.
Cancel	Discards all changes and closes the dialog.

Select the desired user and click on **OK**.

To remove a substitute person who has already been configured, click on **None** and then on **OK**.

6.3.3 Managing user groups

New user groups can be created and existing user groups can be edited and deleted.

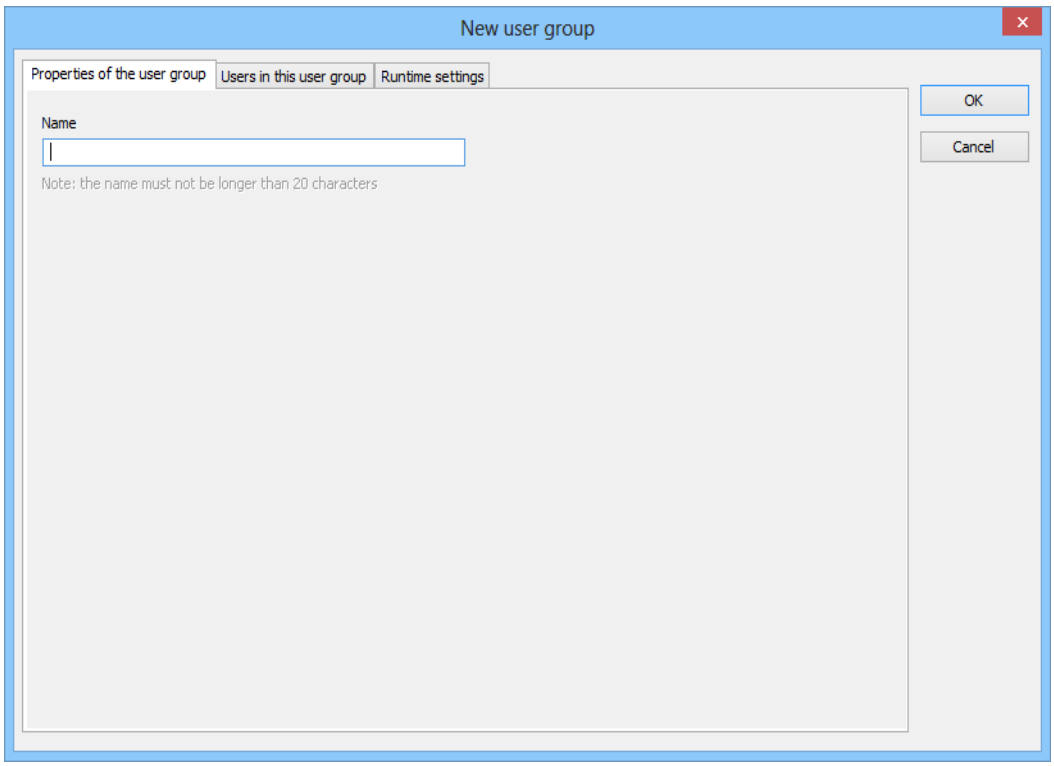
- Creating a new user group: Click on the corresponding button, or the command in the toolbar or the context menu.
- Editing user groups: Double-click an user group entry or click on the corresponding button or on the **Edit selected object** command in the context menu.
- Deleting user groups: Highlight the desired user group and press the **Del key**, click on the corresponding button or on the **Delete selected object** command in the context menu.

When creating and editing, a dialog is opened, in which you can configure the user.

DIALOG FOR CREATING AND MODIFYING USER GROUPS

The dialog consists of three tabs. You can also find notes on configuration in the **Project configuration in the Editor** (on page 8)/**Creation of a user** (on page 20) chapter.

PROPERTIES OF THE USER GROUP

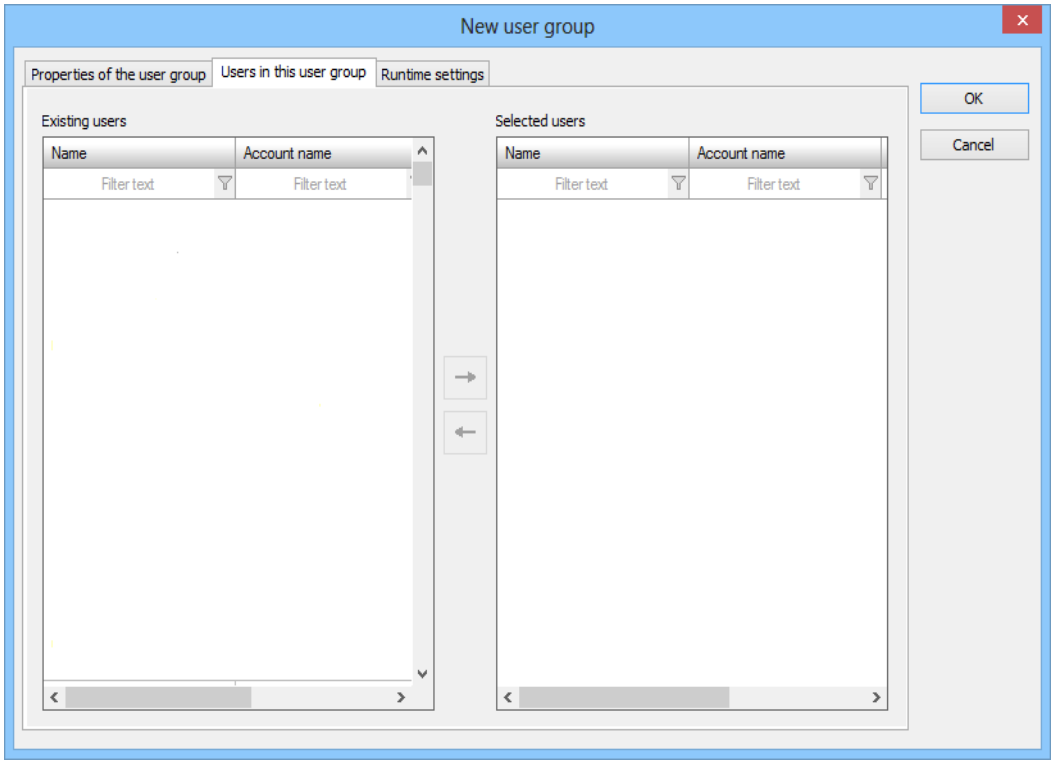


Parameter	Description
Name	Entry of a unique, valid name for the database backup.
OK	Applies all changes in all tabs and closes the dialog.

Parameter	Description
Cancel	Discards all changes in all tabs and closes the dialog.

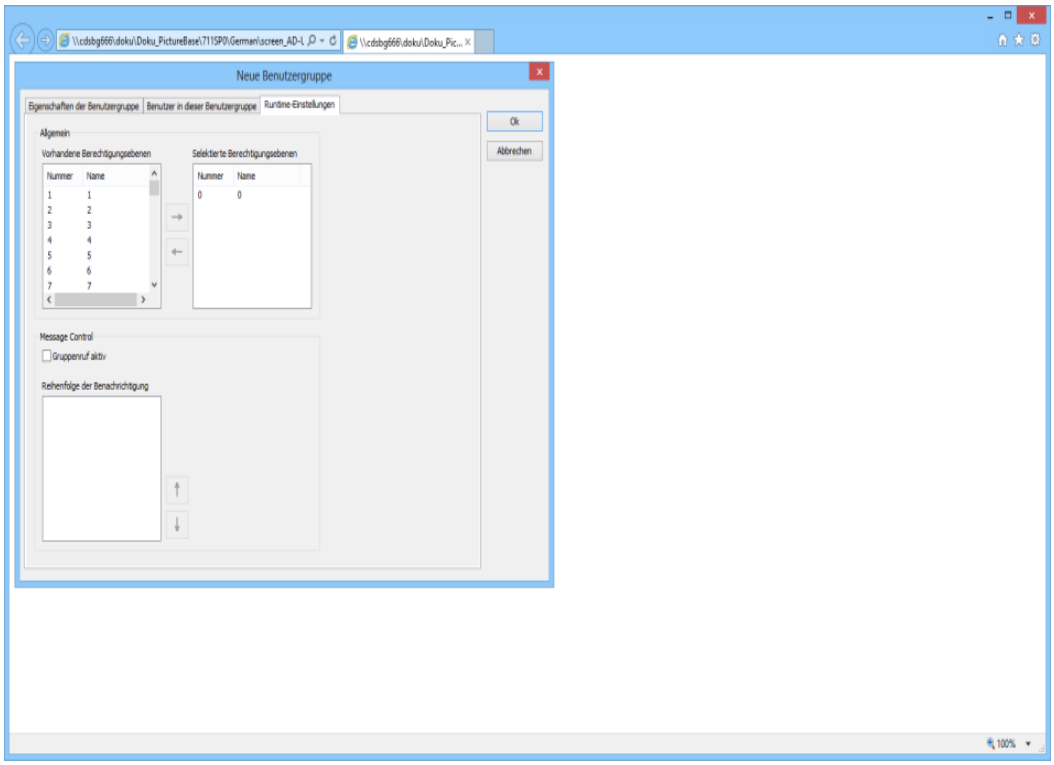
USERS IN THIS USER GROUP

1. Select, in the **Existing users** window, the desired users from the existing users.
2. Add the selected users with the arrow key **->** to the list of **selected users**.
3. You can also select users who have already been allocated and remove them again with the arrow key **<-**.



Parameter	Description
List of existing users	List of configured users.
List of selected users	List of the users selected for this group.
Arrow keys	Clicking on an arrow key moves the selected user to the corresponding group.
OK	Applies all changes in all tabs and closes the dialog.
Cancel	Discards all changes in all tabs and closes the dialog.

RUNTIME SETTINGS



GENERAL

Parameter	Description
General	General settings. Configuration of the authorization levels.
List of existing authorization levels	List of the authorization levels configured in zenon.
List of selected authorization levels	List of authorization levels that are allocated to this group.
Arrow keys	Clicking on an arrow key moves the authorization levels to the corresponding group.

MESSAGE CONTROL

Parameter	Description
Message Control	Configuration for zenon Message Control.
Group call active	*Active*: All members of the user group are messaged when messaging via Message Control.
Sequence of messaging	List of all available users. Sequencing is carried out

Parameter	Description
	using the arrow keys.
OK	Applies all changes in all tabs and closes the dialog.
Cancel	Discards all changes in all tabs and closes the dialog.

7 about AD/AD LDS properties used in zenon

ENCRYPTION

NTLM/Kerberos encryption is used to log in a zenon AD/ADAM user. No explicit encryption is envisaged for ADSI (MS APIs for AD) for the exchange of data other than passwords in the session that is already logged on.

LIST OF THE PROPERTIES IN AD/ AD LDS USED BY ZENON

DOMAIN

General form	Remark
defaultNamingContext	
distinguishedName	From containers.
name	From containers.
objectClass	From containers.
maxPwdAge	
lockoutDuration	

USER GROUP

General form	Remark
distinguishedName	
name	

General form	Remark
sAMAccountName	
member	Possible amendment of the value necessary in AD/AD LDS.
description	
groupMembershipSAM	Is set when editing in zenon in the *Active Directory user administration* screen.
groupType	
objectClass	

USERS

General form	Remark
distinguishedName	
sAMAccountName	
displayName	
memberOf	Possible amendment of the value necessary in AD/AD LDS.
mail	
telephoneNumber	
Mobile	
pwdLastSet	
userAccountControl	
groupMembershipSAM	Is set when editing in zenon in the *Active Directory user administration* screen.
userPrincipalName	Possible amendment of the value necessary in AD/AD LDS.
objectClass	
objectCategory	
ZenOnUserLevel1	Not a default property of AD/AD LDS. Is not normally needed. Only present for compatibility reasons.
ZenOnUserLevel2	Not a default property of AD/AD LDS. Is not normally needed. Only present for compatibility reasons.

General form	Remark
ZenOnUserLevel3	Not a default property of AD/AD LDS. Is not normally needed. Only present for compatibility reasons.