COPADATA
do it your way

zenon manual

Scheduler

v.7.11

Contents

1. Welcome to COPA-DATA help

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 (mailto: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 (mailto: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 (mailto:sales@copadata.com).

2. Scheduler

The Scheduler allows the automatic execution of actions at a defined time or in a defined time grid. This can for example be changing the value of a variable, executing a System function and much more.

License information

Part of the standard license of the Editor and Runtime.

The Scheduler works with the absolute times in the Schedules (on page 5). Therefore, the following functions are not available in the Scheduler:

- Relative Times, e.g. Shift start, shift end,…
- User defined events

> **Information**
>
> *In difference to the Production & Facility Scheduler (PFS), which has to be licensed, the Scheduler is also available under Windows CE.*

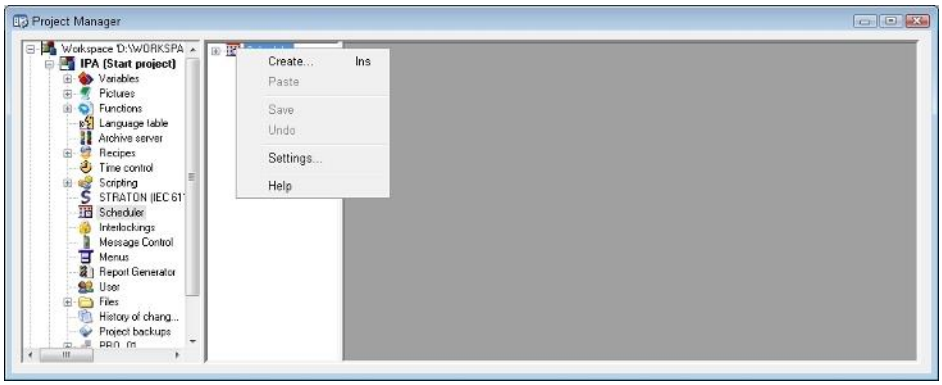
CHANGE BETWEEN SCHEDULER AND PFS

The Scheduler is used if the module Production & Facility Scheduler (PFS) is not licensed. Its functionality is similar to the PFS, but the functional range is limited.

- Updating the Scheduler to the PFS is possible at any time by licensing the module, the defined scheduler data is compatible.
- However, data created in the PFS cannot be used in the Scheduler!

3. Creating a schedule

A new schedule can be created in the detailview of the Scheduler.



Parameters	Description
Function new ...	Creates a new schedule.
Insert	Inserts an existing schedule.
Save	Saves the changes.
Undo	After the confirmation all changes are undone.
Options	Opens the settings dialog of the Scheduler.
Help	Opens the Online help

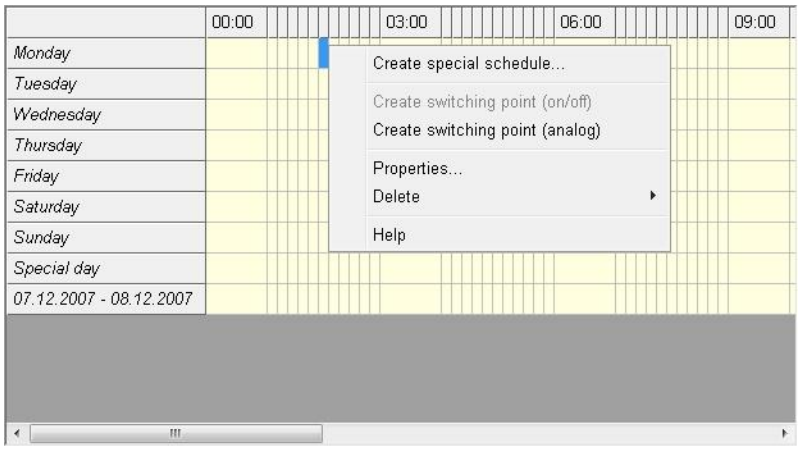
4. Switching points

Information

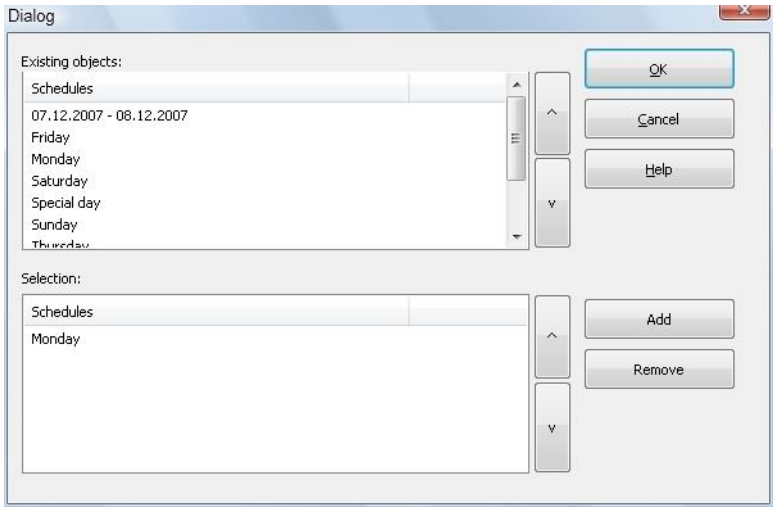
Per default switching points are always created as inactive in the Runtime and must be activated decidedly in order for them to work. Per default switching point are created as active in the Editor. .

4.1 Create an analog switching point

An analog switching point allows to set the value of a numeric variable (e.g. UINT, INT, etc.) once at a certain time.



Then the days can be selected and be added or removed.

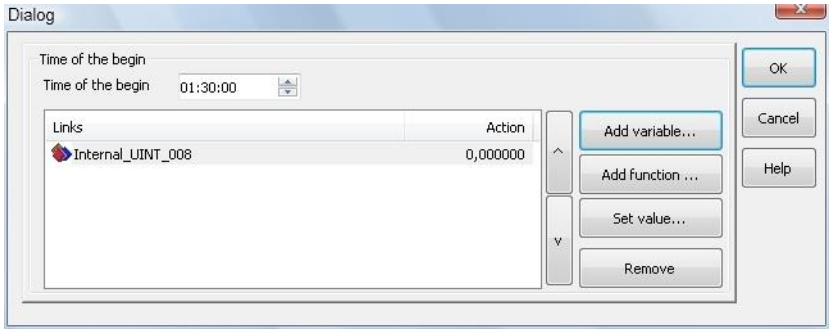


Information

There is the possibility to pre-select the scheduler objects with the mouse; when opening the object catalog these objects are displayed as selected objects. Additionally the start and end times are accepted according to the selected range.

4.1.1 Add variables

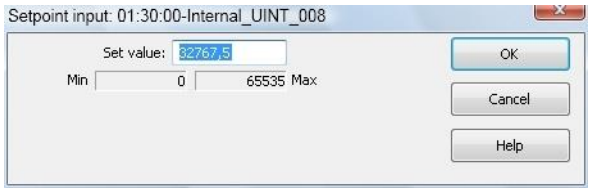
Variables can be selected. The starting time can be entered:



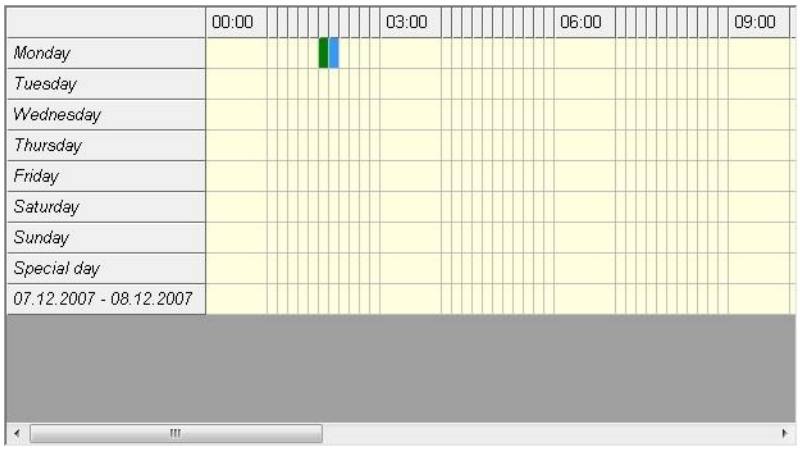
Parameters	Description
Time of begin	Time, when the switch point has to be executed.
Add variable	Adds a new variable to the schedule. This is also possible during Runtime.
Add function	Adds a new function to the schedule. This is also possible during Runtime.
Set value	Allows the setting of values.
Delete	Removes the schedules link to a variable or function. Switching points using the variable or function are deleted.

The set value for variables can be defined within the variable limits (binary variables 0 or 1).

In the filed of Min/Max value the value range of the variable is dispayed.



The finished switching plan should look like below.



4.1.2 Add functions

Functions for the switching point can be freely selected.

Any functions – even project overlapping – can be linked to the start or end time. Here it is also possible to link several or different functions for the start and end time.

Information

With the function "Execute VBA macro" also VBA macros can be executed at switching points.

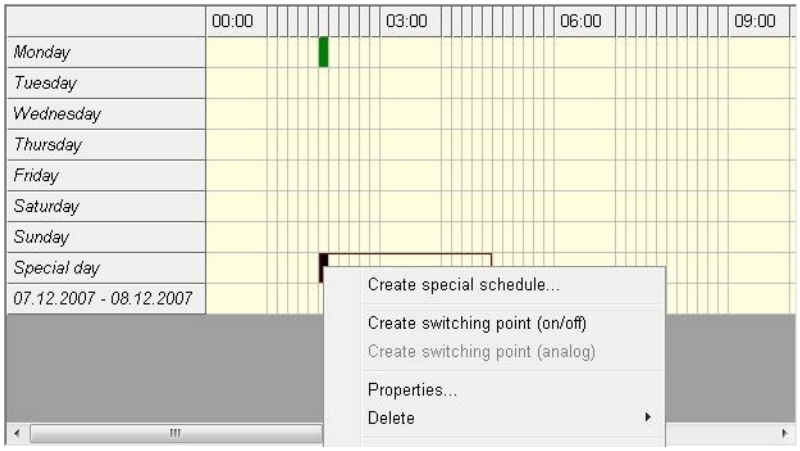
4.2 Create an on/off switching point

The functionality on/off switching points allows to set a binary variable to 0 or to 1 for a defined period of time.

Information

At the begin of such a switching plan the variable is set to TRUE and at the end it is set to FALSE. If you want it the other way round, you first create the switching point and then open its menu with a doubleclick. Here you can set the values by hand (edit, set active or inactive or change the time).

In the Editor you can do this with the right mouse button, in the Runtime there is a special MDI function.

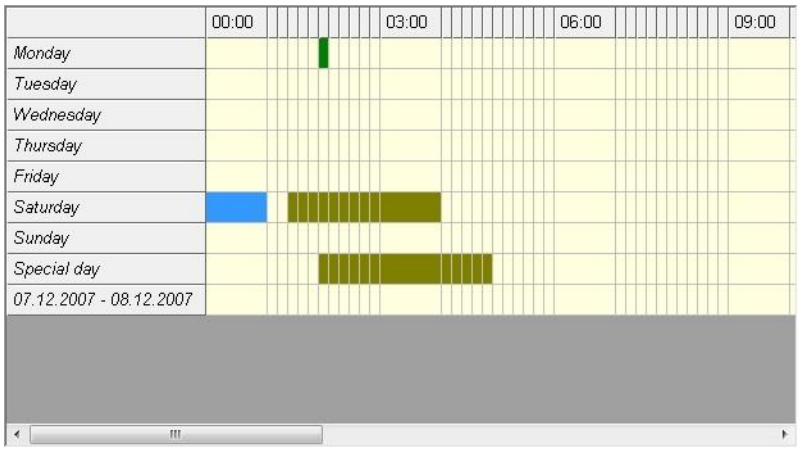


A new switching point can be created with the context menu.

Information

Only binary variables can be selected.

The start and end time can be entered.

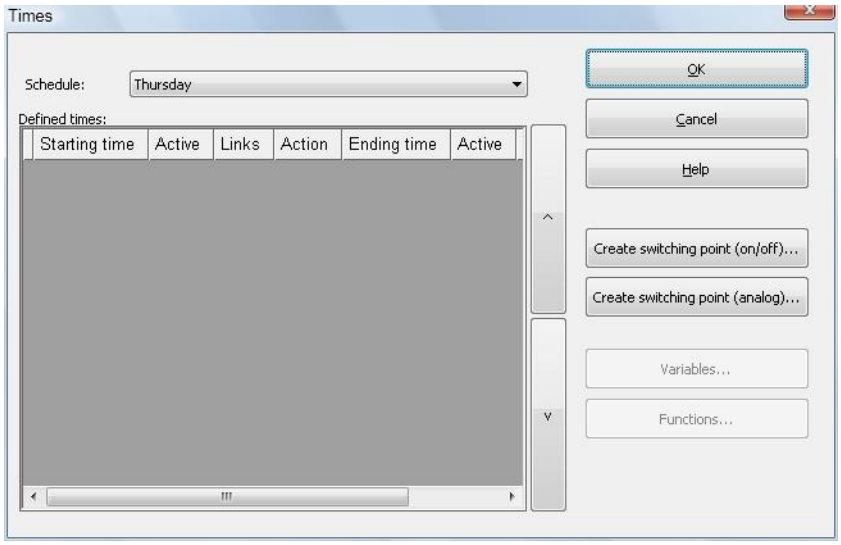


Example

If a user only needs a single time (only one switching point), the end time has to be set to the start time or the duration has to be 00:00:00. Then variables/functions can be defined for only one point of time.

4.3 Editing of switching points

With a doubleclick on an existing switching point the edit dialog is opened. Here all the properties like e.g. start and end times can be edited. Additionally there is the possibility to create new numerical and on/off (binary) switching points.



4.4 Colors of the switching points

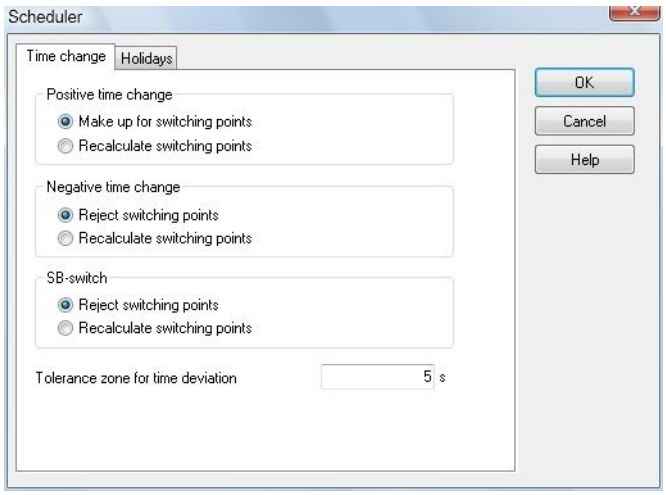
The color indicates the type of switching point.

Parameters	Description
Green	numeric switching point
Khaki	binary switching point
Blue	two overlapping binary switching points
turquoise	two overlapping switching points, one binary, one numerically

5. The settings of the Scheduler

The settings of the Scheduler can be defined with the context menu of the detail view and the command **Settings**.

5.1 Time change



In this configuration it can be set, which time changes are the basis for calculation.

Parameters	Description
Positive time change	The time is set ahead, the Systemtime is set into the future (e.g. summer time)

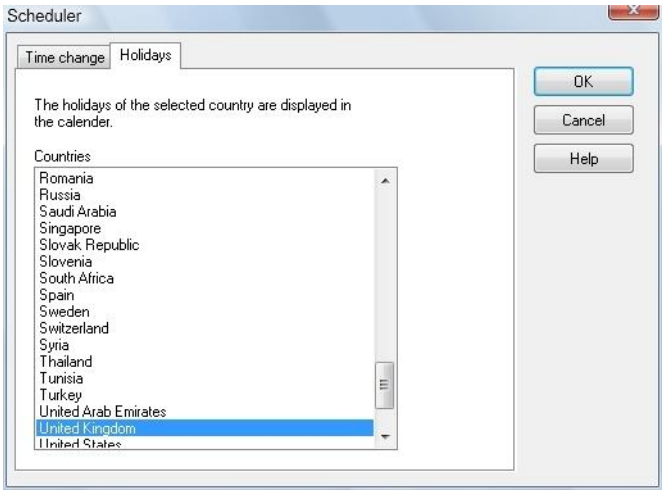
Parameters	Description
Make up for switching points	Actions between the current time and the newly set time, are executed directly after the time setting.
Recalculate switching points	Actions between the current time and the newly set time, are ignored and not executed. Switching points are recalculated.
Negative time change	The time is set back, the Systemtime is set into the past (e.g. winter time)
Reject switching points	Switching points are recalculated. Switiching points are calculated when the original time is reached.
Recalculate switching points	Action, between the current time and the newly set time, are recalculated. (That means that when the defined time is reached, they are executed.) This causes a double execution of swithing points in the corrected time period.
SB Switch	Standby Server switch, valid for timeout during redundance switch.
Reject switching points	The execution of switching points starts according to the current position of the Standby. Switching points in the switching period might not be executed.
Recalculate switching points	The switching points are recalculated and exectued according to the new time. This might cause a double execution of switching points.
Tolerance zone for time deviation	Tolerance, in how far the systemtime can be changed, without causing a recalculation of switching points according to the criteria described above.

Attention

Always carry out a switch to daylight saving time/standard time with the automatic Windows time switching. Never change the time manually, because this could lead to errors with times that are relevant to zenon.

5.2 Holidays

Holidays can be insert automatically depending on the country.



The basis data for the holidays can be found in the zenon program folder in the file **`Feiertage.txt`** and can be edited with any text editor.

The entries for a country start with the country name in brackets and the international telephone prefix.

The definition of holidays can be found in the following line, the name and date of the holiday.

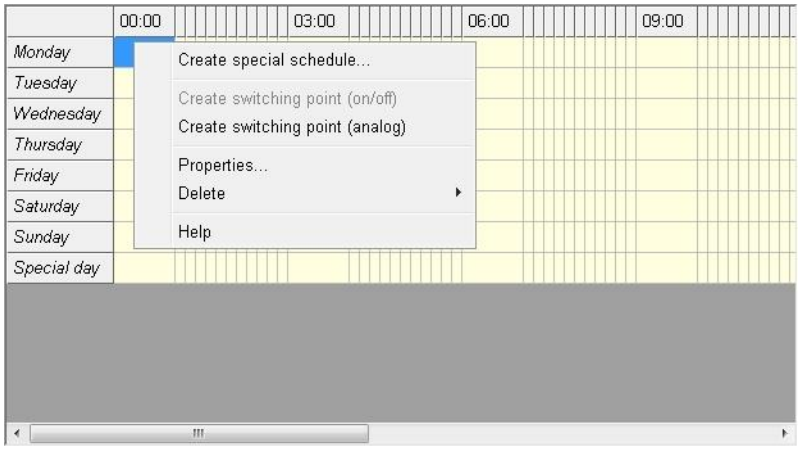
[Austria] 45
All Saint's Day, 1998/11/01
All Saint's Day, 1999/11/01
All Saint's Day, 2000/11/01
All Saint's Day, 2001/11/01
All Saint's Day, 2002/11/01
Ascension Day, 1998/05/21
Ascension Day, 1999/05/13
Ascension Day, 2000/06/01
Ascension Day, 2001/05/24
Ascension Day, 2002/05/09
...

The correct definition is necessary.

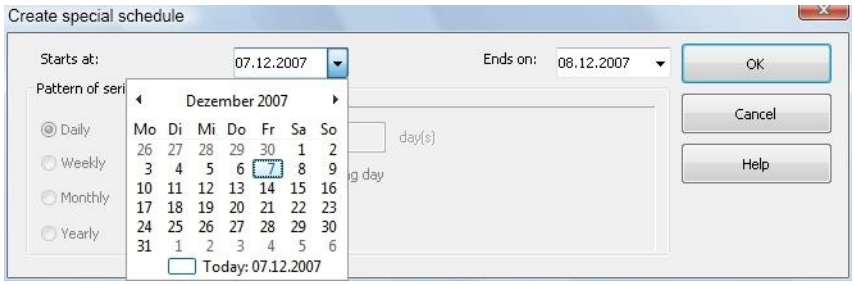
Doubleclicking the plan allows to correct the input.

6. Create a special schedule

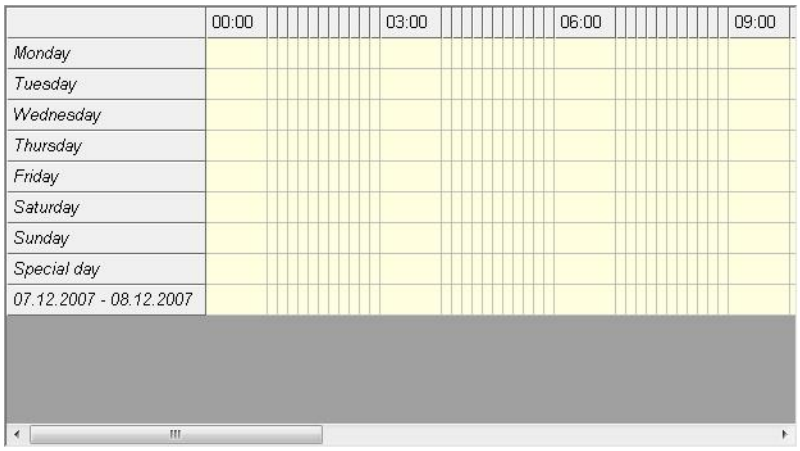
Additional to the legal holidays any number of special schedules can be created (e.g. company holidays). These can be created as special schedules with the context menu of the scheduler. Here the same rule as with holidays is valid; if a special schedule exists, the switching points of the standard schedule are overwritten.



First the time is defined.



The special day is added to the table:

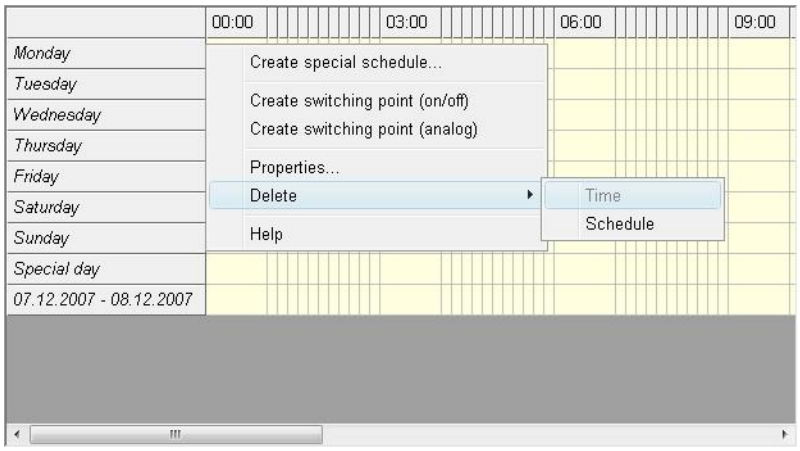


Attention

It is not possible to execute several special days at the same time. I.e. if for a time a special day already exists, no other special day can be created.

7. Delete a special schedule

Special schedules can be deleted with the context menu entry **`Delete`**. Also time-models can be deleted from this context menu by selecting the entry **`Time`**.



8. Copy or replace schedules

With the right mouse button a schedule can be copied and linked to other variables via replace. The replace dialog opens and the replacement can either be executed or canceled. If canceled an identical scheduler is created.

9. Schedules in integration projects

If a schedule with data of a sub-project should be executed, the according function of the sub-project has to be called.

The data for the scheduler always come from the project,from which the screen switch function is.