

VIRTUAL OBJECT – THERMOSTAT MANUAL

Object Manager Configuration

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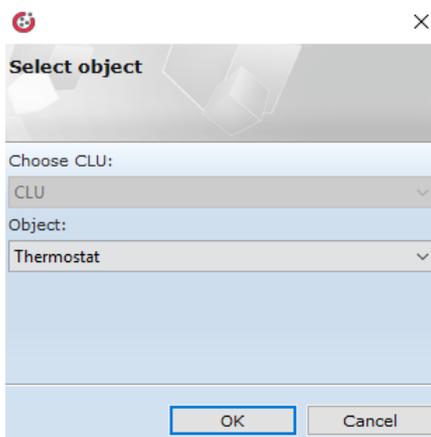
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1. ADDING THE OBJECT TO THE CONFIGURATION

1. Open Object Manager configuration software
2. Create a new project and conduct *CLU Discovery*/ open the existing project and communicate with CLU
3. From the main menu, choose option Add *CLU Virtual Object*



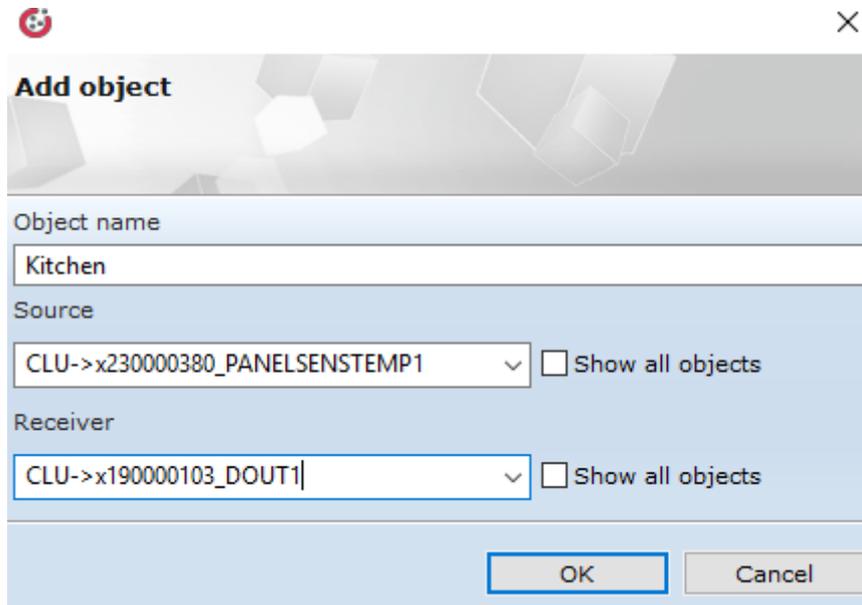
4. Choose *Thermostat* Object
5. Confirm with OK button



6. Type the name of the thermostat, for example, "Kitchen"

ATTENTION! The names of virtual objects cannot include spaces.

7. Type *Source* of the thermostat – the temperature sensor responsible for a given heated area- in case of larger CLU number in the project, the source must be connected to one of the nodules of a given CLU



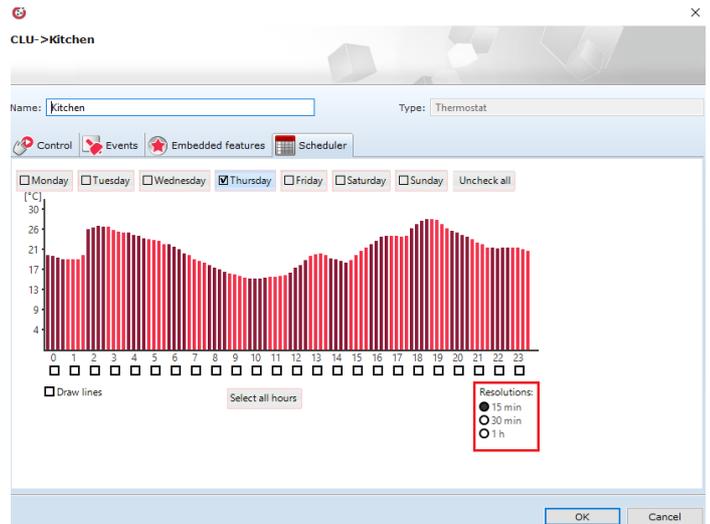
8. Enter *Receiver* – output, to which the device responsible for a given heated area is responsible – the head of the radiator, floor heating, etc.
9. Confirm with OK button

2. VIRTUAL OBJECT CONFIGURATION

1. Basic Configuration
 - a. The virtual object thermostat serves for creating the configuration, controlling heating or cooling, depending on a given temperature sensor and the set automatic heating or cooling schedule.
 - b. Make changes in the thermostat window, in Schedule tab, regarding the values of temperature depending on the hour and the day (see: point 2)
 - c. Send the configuration to CLU (in order to perform more detailed configuration you can use the following tips)
 - d. After sending the configuration, make sure that the thermostat is on (State feature is set on value 1 – see: point 7)

2. Scheduler Tab

- a. The schedule defines set temperatures to thermostat's response depending on the hour and weekday. In thermostat edition, the resolution is set by default to 1 h, however, it is possible to set 15 or 30 mins. The thermostat reacts to the schedule when it is in AUTO mode. The change of mode takes place through the use of the application or through object's methods.
- b. To carry out the changes, choose the required resolution, days and hours and move the mouse, dragging the bars denoting the setting of a given temperature for a given hour of a given day
- c. The choice of the days in the bar with the use of selected works in two ways: by selecting in the selection field, there is a possibility to select a few days in a row, and by pressing the name of the day (not hitting in a field), only a selected day will be chosen, and the rest will be unselected



3. Embedded Features Tab

- a. *HolidayModeValue* – defining the value for HolidayMode
- b. *Hysteresis* – defining the borders from the value set for the thermostat for turning on and off the thermostat to *TargetTemp* feature, that is, independently from the mode in which the thermostat works currently – for example for the set target temperature value 25 °C and hysteresis loss 2 °C, the thermostat will turn the heating on at 24 °C, and off – at 26 °C
- c. *ControlDirection* – defining, whether the device connected to the thermostat is a heating or cooling device.
- d. *MiniMax* – defining the borders of a schedule, in the scope of which we can apply changes

4. Methods Tab

- a. Start and Stop – for activating or deactivating the work of thermostat. It sets the feature State. In case of the value equal to 0, the thermostat does not control the output and does not analyse the temperature value.
- b. IncreaseDegree and DecreaseDegree – for changing the values of set temperature in manual mode by 1 °C
- c. HeatUp – for setting the variables defining HeatUp mode, which after activating the time set in the method, heats the room by a specific temperature leap (the value indicated together with the time upon invoking the method). This mode is turned off at the moment of reaching the temperature from TargetTemp feature or after the time defined for HeatUp mode.

- d. *HolidayModeStart* and *HolidayModeStop* – for activating the *HolidayMode* setting the Mode feature of the thermostat (value 1 for the launched mode). The mode sets the *TargetTemp* feature (the temperature to which the thermostat is controlled) to the set temperature – the feature responsible for this is *HolidayModeValue*, which may be set before sending the configuration to CLU or through the use of the *SetHolidayModeValue* method.
- e. *AutoModeStart* and *AutoModeStop* – for launching the *AutoMode*, setting the Mode feature of the thermostat (value 2 for the launched mode). The mode sets the Target Temp feature depending on the schedule set
- f. *SetData* – for setting the schedule by the use of a sequence of symbols – OM by itself analyses what we type as temperature bars and changes it into the sequence of symbols
- g. *SetOutputType* – for setting the mode of set output 0 as automatic, digital or analogue, when an output of the Analog module is connected at the output
- h. *SetPointValue* – for setting the value of set temperature in manual mode – if the thermostat is in manual mode (State feature equal to 0), the *PointValue* feature is reassigned to *TargetTemp* value.
- i. *SetHysteresys* – to set the value of hysteresis feature
- j. *SetControl/Direction* – to set whether the thermostat should realize heating or cooling.

5. Events Tab

- a. The virtual object Thermostat reacts to 5 events, to which it is possible to assign the specified actions, which should be executed after the events.
- b. The OnChange event is invoked in the moment of the change of PointValue feature
- c. The OnStart event is invoked in the moment of changing the feature State from 0 to 1 – the launch of the thermostat
- d. The OnStop event is invoked in the moment of change of State feature from 1 to 0 – the stop of thermostat work
- e. The OnOutOn event is invoked in the moment of change of the status of an OutValue feature from 0 to 1 – the launch of the virtual object output
- f. The OnoutOff event is invoked in the moment of change of the status of an OutValue feature from 1 to 0 – turning off the output of the virtual object
- g. By pressing  upon a given event, you can add the action to the event, so that they are invoked in the moment of the appearance of a given event

6. After completing the configuration, send it to the CLU



- 7. Make sure that State feature is equal to 1 in all created thermostats. If not, launch them by the use of Start method in each thermostat (see: point 4a)

