

FCU RELAY CONFIGURATION

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1. FUNCTIONALITY DESCRIPTION

FCU Configuration allows you to control Fan Coil Unit with Grenton system. Instruction base on FCU unit controlled with 5 Relay digital outputs – 2 for valves for cold and hot water and 3 for three fan's speeds. Instruction shows how to prepare a basic configuration which may be extended with additional parameters. That example shows the method of configuring specific FCU unit – it may be different depending on used device. Defined parameters may be changed regarding on demanded functionality.

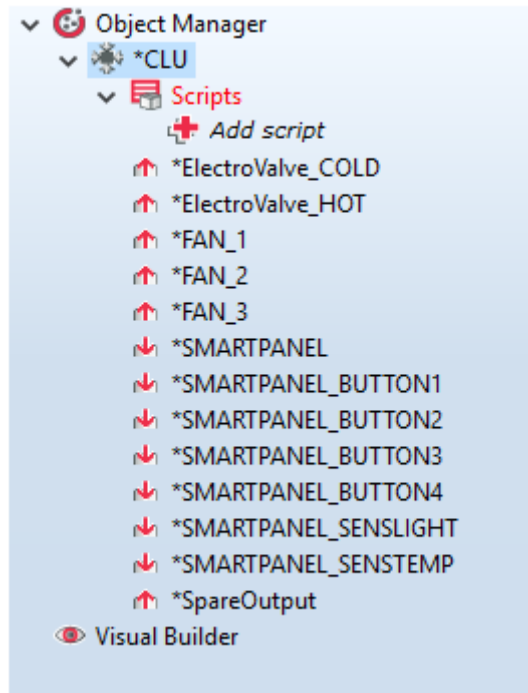
Configuration demands:

- a. CLU Z-Wave
- b. Relay x4
- c. Relay x2
- d. Temperature Sensor (ie. From Smart Panel OLED)

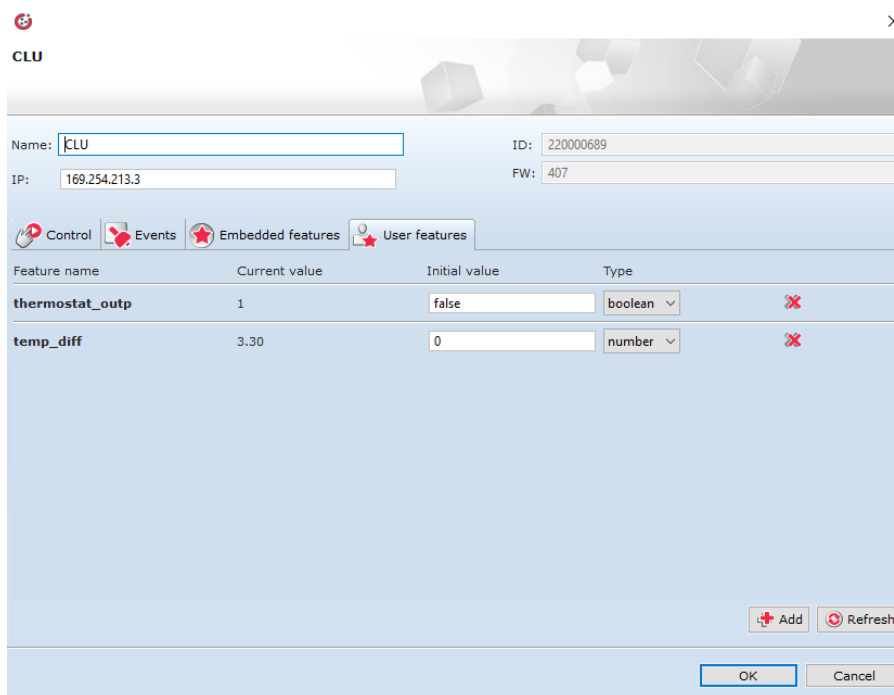
2. CONFIGURATION

1. Connect, supply modules and connect with PC by RJ45 port (directly or through WiFi router)
2. Open Object Manager software and create new project¹
3. After adding modules to the system
4. Change the modules names as show on the picture below

¹ In case of any troubles with CLU Discovery, please contact Grenton Support

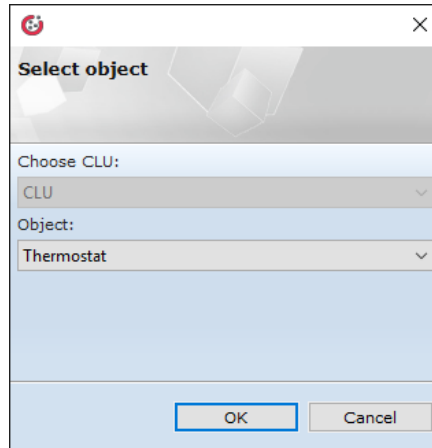


- With double click on CLU go to the last tab *User Features* and add feature "*thermostat_output*" with *Boolean* type and false initial value. Add second *User Feature*, name it "*temp_diff*", choose type *number* and set initial value to 0.

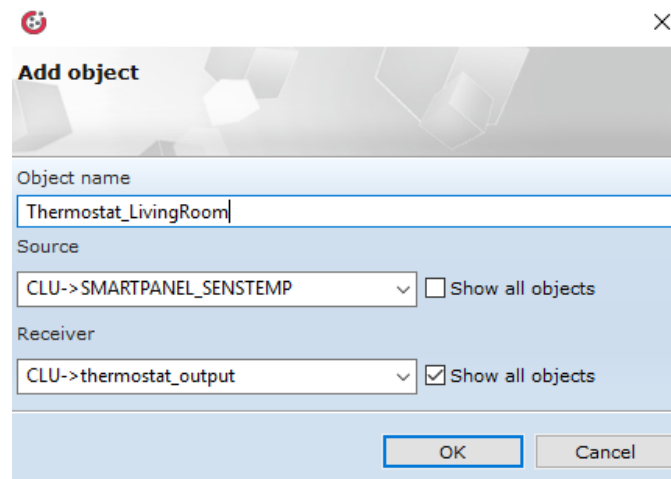


- Add virtual object *Thermostat* with main menu option

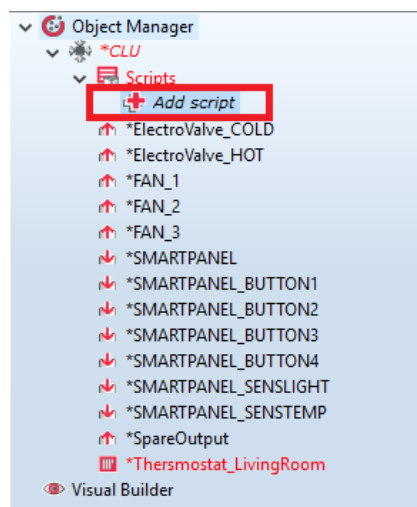




7. Give the name, the Source (temperature sensor) and the Receiver (previously created *User Feature*)



8. Click OK and close Thermostat window
9. From the left modules menu, choose *Add script* option



10. Add script named "*ThermostatOff*" and in *Text Mode* write instructions as show below:

```

CLU->FAN_1->SwitchOff(0)
CLU->FAN_2->SwitchOff(0)
CLU->FAN_3->SwitchOff(0)

```

```

CLU->ElectroValve_COLD->SwitchOff(0)
CLU->ElectroValve_HOT->SwitchOff(0)2

```

11. Add another script and name it “*ThermostatSet*” and as previously fill it with the instructions:

```

if(CLU->Thermostat_LivingRoom->ControlOutValue == 1) then
    if(CLU->temp_diff > 0 and CLU->temp_diff <= 2) then
        CLU->FAN_2->SwitchOff(0)
        CLU->FAN_3->SwitchOff(0)
        SYSTEM.Wait(500)
        CLU->FAN_1->SwitchOn(0)
    elseif(CLU->temp_diff > 2 and CLU->temp_diff <= 4) then
        CLU->FAN_1->SwitchOff(0)
        CLU->FAN_3->SwitchOff(0)
        SYSTEM.Wait(500)
        CLU->FAN_2->SwitchOn(0)
    elseif(CLU->temp_diff > 4) then
        CLU->FAN_1->SwitchOff(0)
        CLU->FAN_2->SwitchOff(0)
        SYSTEM.Wait(500)
        CLU->FAN_3->SwitchOn(0)
    end
end

```

12. Add script “*ThermostatMode*”:

```

if(CLU->Thermostat_LivingRoom->TargetTemp>CLU->SMARTPANEL_SENSTEMP-
>Value) then
    CLU->Thermostat_LivingRoom->SetControlDirection(0)
else
    CLU->Thermostat_LivingRoom->SetControlDirection(1)
end

```

13. Add script “*ElectrovalveMode*”

```

SYSTEM.Wait(1000)
if(CLU->Thermostat_LivingRoom->ControlOutValue == 1 and CLU-
>Thermostat_LivingRoom->State == 1) then
    if(CLU->Thermostat_LivingRoom->ControlDirection == 1) then
        CLU->ElectroValve_HOT->SwitchOff(0)
        SYSTEM.Wait(500)
        CLU->ElectroValve_COLD->SwitchOn(0)
    else
        CLU->ElectroValve_COLD->SwitchOff(0)
        SYSTEM.Wait(500)
        CLU->ElectroValve_HOT->SwitchOn(0)
    end
end

```

² Remember that instructions may differ regarding on the modules’ or objects’ names

14. Add script "TemperatureCounting":

```
CLU->temp_diff = math.abs(CLU->SMARTPANEL_SENSTEMP->Value - CLU->Thermostat_LivingRoom->TargetTemp)
```

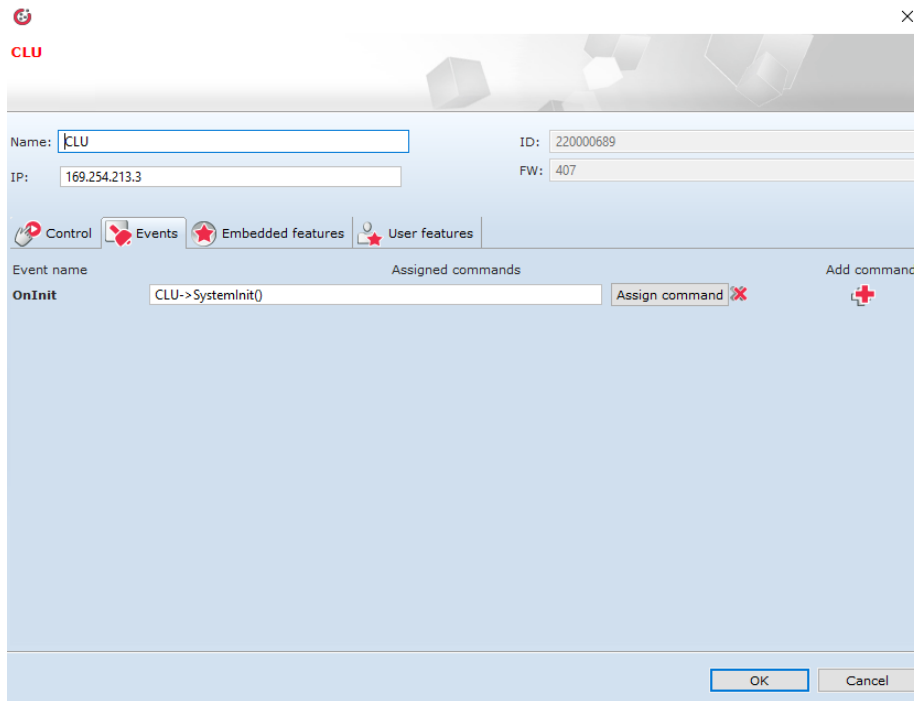
15. Add script "ElectrovalveMode":

```
if(CLU->Thermostat_LivingRoom->ControlOutValue == 1) then
  if(CLU->Thermostat_LivingRoom->ControlDirection == 1) then
    CLU->ElectroValve_HOT->SwitchOff(0)
    SYSTEM.Wait(500)
    CLU->ElectroValve_COLD->SwitchOn(0)
  else
    CLU->ElectroValve_COLD->SwitchOff(0)
    SYSTEM.Wait(500)
    CLU->ElectroValve_HOT->SwitchOn(0)
  end
end
```

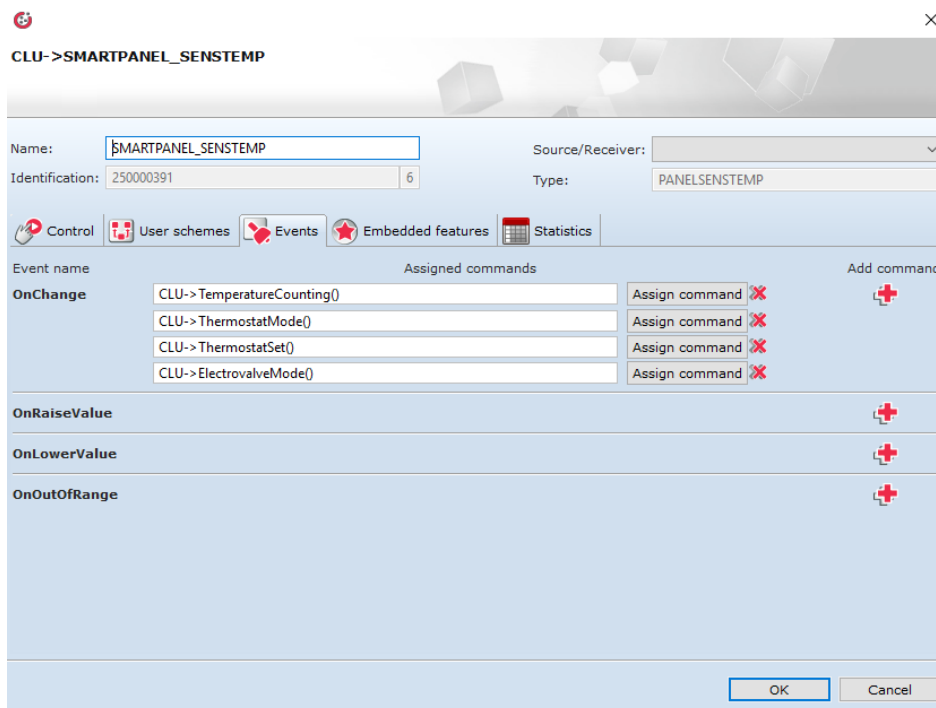
16. Add third script with the name "SystemInit" with following instructions:

```
CLU->Thermostat_LivingRoom->Start()
SYSTEM.Wait(1000)
CLU->TemperatureCounting()
SYSTEM.Wait(1000)
CLU->ElectrovalveMode()
if(CLU->Thermostat_LivingRoom->ControlOutValue == 1) then
  CLU->FAN_2->SwitchOff(0)
  CLU->FAN_3->SwitchOff(0)
  SYSTEM.Wait(500)
  CLU->FAN_1->SwitchOn(0)
end
```

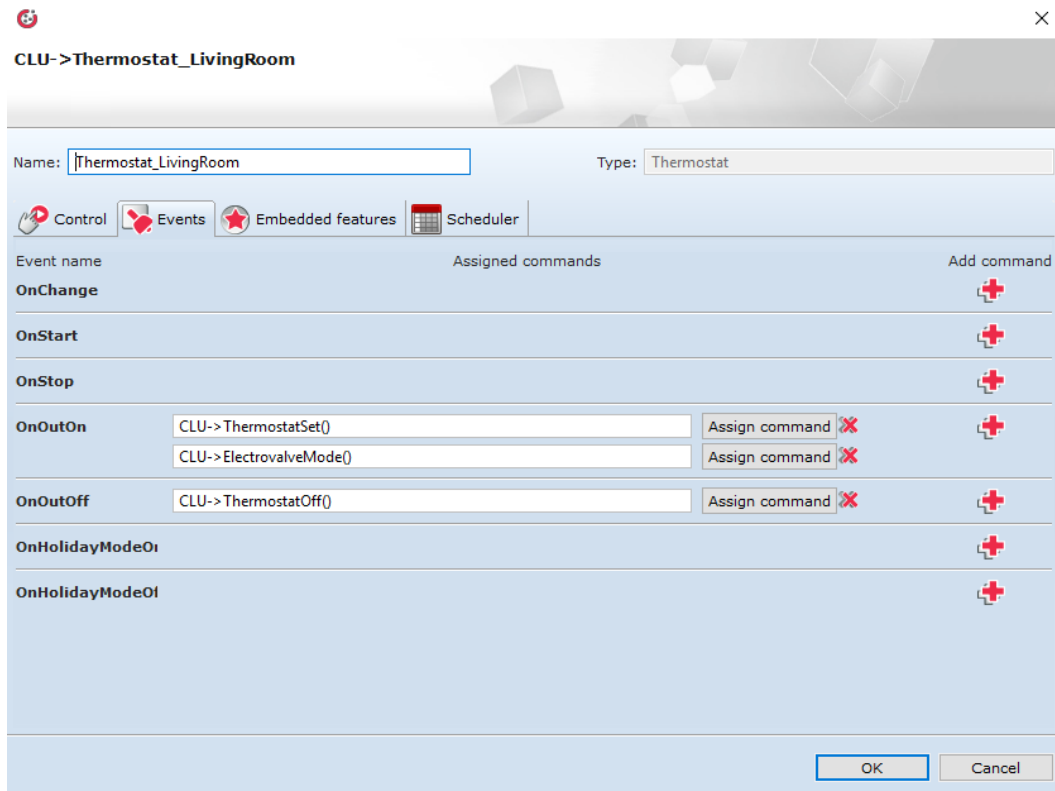
17. Assign script "SystemInit" to OnInit CLU's event



18. Assign scripts "TemperatureCounting" and "ThermostatMode" to temperature sensor's OnChange event



19. Assign scripts "ThermostatSet" and "ElectrovalveMode" to Thermostat's *OnOutOn* event and "ThermostatOff" to Thermostat's *OnOutOff* event – to do so use double click on Thermostat on object's list on left side, go to *Events* tab and use *plus* button defining chosen actions (to choose script, you need to mark CLU on left column and in the middle one, choose script, which you would like to add as an action).



20. Save project and send configuration to CLU

