**How to implement Node-red flow heatdemand processing  
within Home Assistant.  
  
  
The heat demand flow is able to decide if a heat demand for a boiler / heatpump is there by reading thermostat entities (actual vs. settemp) and using parameters to switch a heating circuit on/off depending on heatdemand.**

**The following technical prerequisites are needed:**

1. **Node-Red addon is installed and active.**
2. **MQTT Broker is installed and discovery prefix is set to standard “homeassistant”**
3. **additional “axios” module is configured within NR as additional npm package**
4. **Add axios function using the file editor to functionGlobalContext within settings.js**

**And restart node-js addon. (the other functions are not needed) for heatdemand)**

**Ein Bild, das Text, Screenshot, Schrift, Display enthält.

Automatisch generierte Beschreibung**

1. **Generate a long term api access token in HA**

**With these prerequisites the km200 data processing flow consists of:  
1. The Node-Red flow for heat demand:  
Ein Bild, das Diagramm enthält.

Automatisch generierte Beschreibung**

**A configuration file hd.yaml has to exist in the config directory of HA.  
The following entries within hd.yaml:**

1. **server local ha api access**
2. **the longterm access token generated**
3. **outdoor temp entity**
4. **outdoortemp\_threshold: hd active if outdoortemp is above threshold**
5. **thermostats per room with entity, settemp and actualtemp  
   deltam: defining minimum delta temp for heatdemand  
   hc: heating circuit (hc1 to hc4)  
   weight: weight of this thermostat**
6. **heatingcircuits  
   hc: hc1 to hc4  
   weigthon and weigthoff**

**state: for mqtt write  
entity: entity within HA**

**on /off: writing values for hc on/off (-1= auto ; 0 = off)**

**savesettemp: saving previous settemp for floorheating when overwritten by 0 (off):   
 true/false**

**Example hd.yaml:**

- server: http://localhost:8123/api/

- token: xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx

- outdoortemp\_entity: sensor.boiler\_outdoortemp

- outdoortemp\_threshold: 4

- thermostats:

  - room: WZ

    entity: climate.wohnzimmer\_thermostat

    settemp: temperature

    actualtemp: current\_temperature

    deltam: 0.25

    hc: hc1

    weight: 3

  - room: WG

    entity: climate.wintergarten\_thermostat

    settemp: temperature

    actualtemp: current\_temperature

    deltam: 0.25

    hc: hc1

    weight: 3

- heatingcircuits:

  - hc: hc1

    weighton: 3

    weightoff: 2

    state: ems-esp/thermostat/hc1/tempautotemp

    entity: number.thermostat\_hc1\_tempautotemp

    on: -1

    off: 0

    savesettemp: false

  - hc: hc2

    weighton: 5

    weightoff: 0

    state: ems-esp/thermostat/hc2/tempautotemp

    entity: number.thermostat\_hc2\_tempautotemp

    on: -1

    off: 0

    savesettemp: true

**Flow Logic:**

**Once on Start the heat demand entities are created by using mqtt discovery api calls.**

**These entities are grouped under the device “Heatdemand” within mqtt integration:**

**Ein Bild, das Text, Screenshot, Monitor, Bildschirm enthält.

Automatisch generierte Beschreibung**

**Please note that entities are not automatically deleted when you change names. This has to be done using mqtt explorer or a similar tool.**

**The heatdemand logic is described by:**

**For each thermostat actualtemp is compared to settemp. If (settemp-actualtemp) > deltam then there is a heatdemand for this thermostat / climatate entity. The demand is given by the weight.  
  
All demands for all thermostats of one heating circuit (hc1 to hc2) is aggregated and compared to the parameters of the heating circuit.   
If sum(weigths) >= weigthon then hc will be switched on using the on value.   
Otherwise the hc will be switched off using the value for off.  
  
For floorheating the change of settemp to off will overwrite the former settemp.   
For floorheating savesettemp could be be then set to true.   
Then the former settemp will be stored and used for comparison of temperatures.**

**NR Flows:**

**The following flow can be copied and imported to node-red from file flownr.txt.**

**Please deactivate the flow until you have defined the hd.yaml file.**