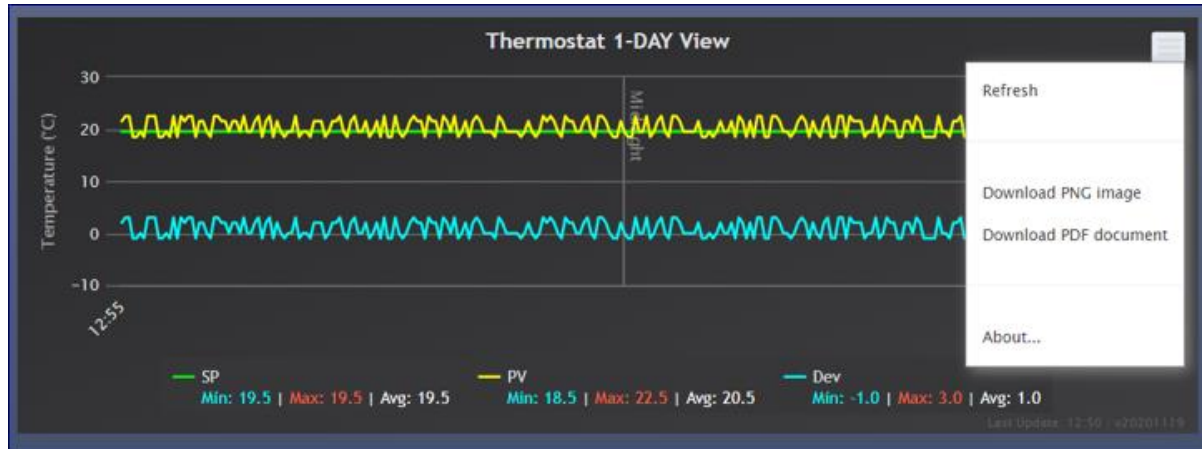# Domoticz
Explore Custom Pages

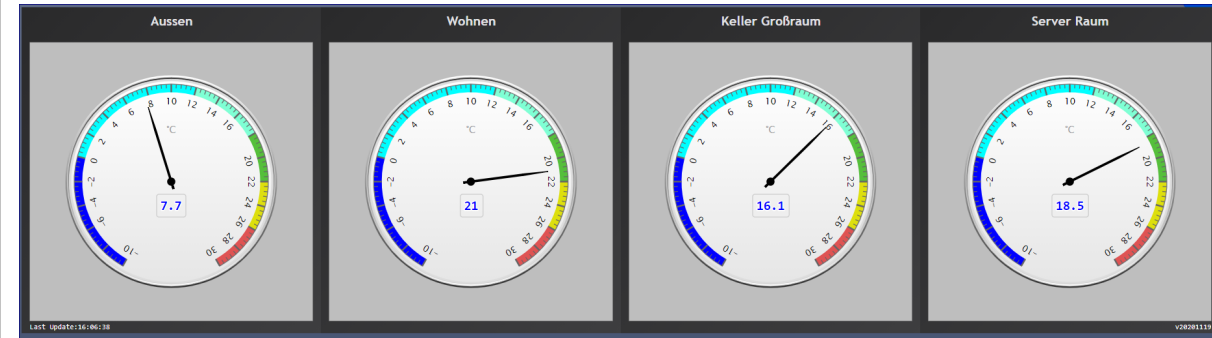## Highcharts & Google Charts

Developed For Personal Use
29.11.2020

Selected Examples Highcharts
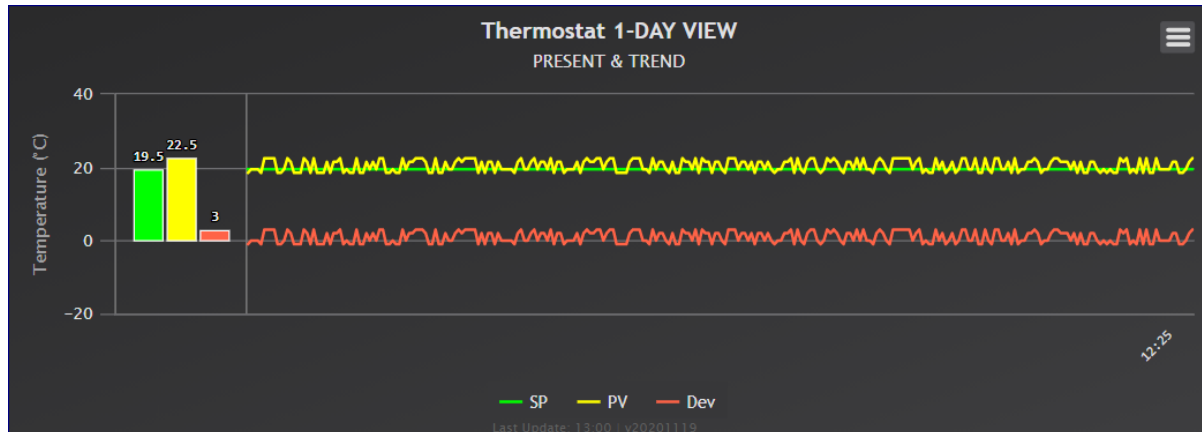
Line Chart

Angular Gauges
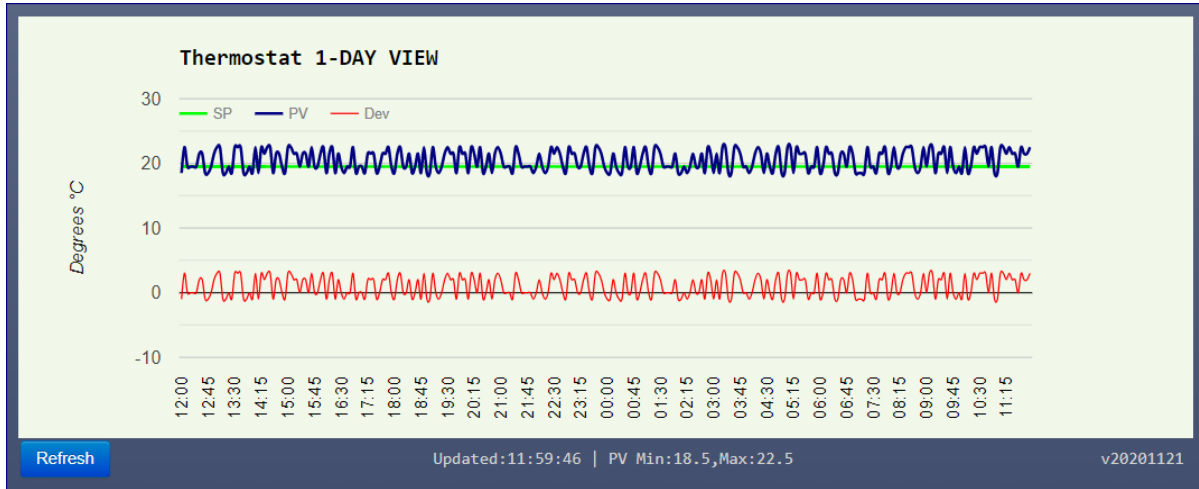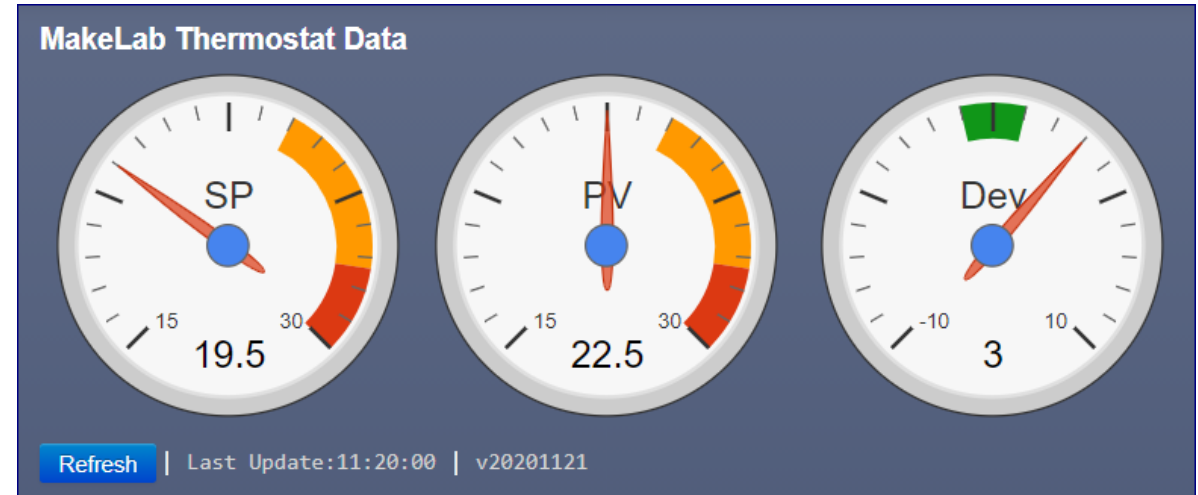

Column & Line Chart

Combined Chart

INFO: More examples in the archive "*explore_custom_pages_charts.zip*".

Selected Examples Google Charts

Line Chart

Thermostat 1-DAY VIEW

Degrees °C

— SP — PV — Dev

30
20
10
0
-10

12:00 12:45 13:30 14:15 15:00 15:45 16:30 17:15 18:00 18:45 19:30 20:15 21:00 21:45 22:30 23:15 00:00 00:45 01:30 02:15 03:00 03:45 04:30 05:15 06:00 06:45 07:30 08:15 09:00 09:45 10:30 11:15

Refresh   Updated:11:59:46 | PV Min:18.5,Max:22.5   v20201121

Gauges

MakeLab Thermostat Data

SP — 19.5
PV — 22.5
Dev — 3

Refresh | Last Update:11:20:00 | v20201121

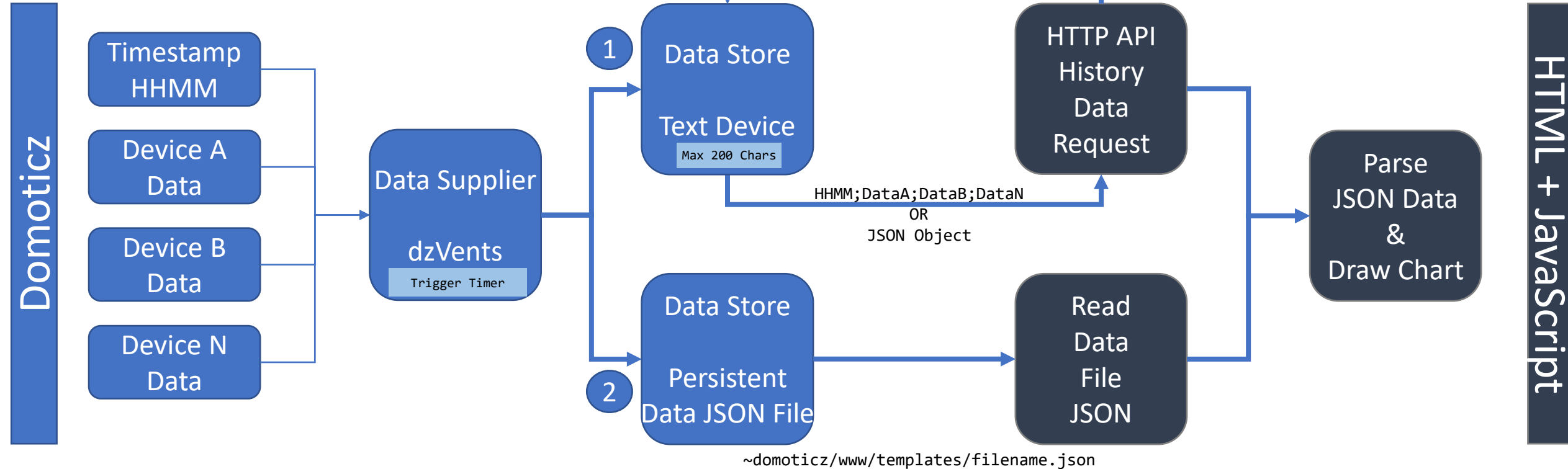
INFO: More examples in the archive "*explore_custom_pages_charts.zip*".

Multiple Devices Chart Concept

Domoticz

Timestamp HHMM

Device A Data

Device B Data

Device N Data

Data Supplier

dzVents

Trigger Timer

json.htm?type=textlog&idx=IDX

① Data Store

Text Device

Max 200 Chars

HTTP API History Data Request

HHMM;DataA;DataB;DataN
OR
JSON Object

② Data Store

Persistent Data JSON File

~domoticz/www/templates/filename.json

Read Data File JSON

Parse JSON Data & Draw Chart

HTML + JavaScript

Two Data Source Solutions:
1. Domoticz Text Device
2. External Data File

Test Scenario

Test Scenario Devices

	Idx	Hardware	ID	Unit	Name	Type	SubType	Data
	30	VirtualSensors	001406E	1	MakeLab Thermostat Setpoint	Thermostat	SetPoint	21.5
	31	VirtualSensors	1406F	1	MakeLab Temperature	Temp	LaCrosse TX3	24.5 C
	32	VirtualSensors	00082032	1	MakeLab Thermostat Battery	General	Percentage	30%
	42	VirtualSensors	00082042	1	MakeLab Thermostat Data	General	Text	1025;21.5;20.5
	43	VirtualSensors	00082043	1	MakeLab Thermostat JSON	General	Text	{"timestamp":"1235", "devices": [{"name":"MakeLab Thermostat Setpoint", "data":17.5}, {"name":"MakeLab Temperature", "data":19.5}]}

```
Test Scenario Value Flow with dzVents device attributes

IDX 30 setPoint + IDX 31 temperature = IDX 42 HHMM;setPoint;temperature

IDX 30 Name & setPoint + IDX 31 Name & temperature = IDX 43 JSON Object
{"timestamp": "HHMM", "devices":[
  {"name":"name", "data":setPoint}, {"name":"name", "data":temperature}
]}

IDX 30 setPoint + IDX 31 temperature = External File JSON Object
{
  "result" : [
    {"pv":setPoint,"sp":temperature,"time":"12:38"},
    ...
  ],
  "status":"OK",
  "title":"Thermostat Data"
}
```
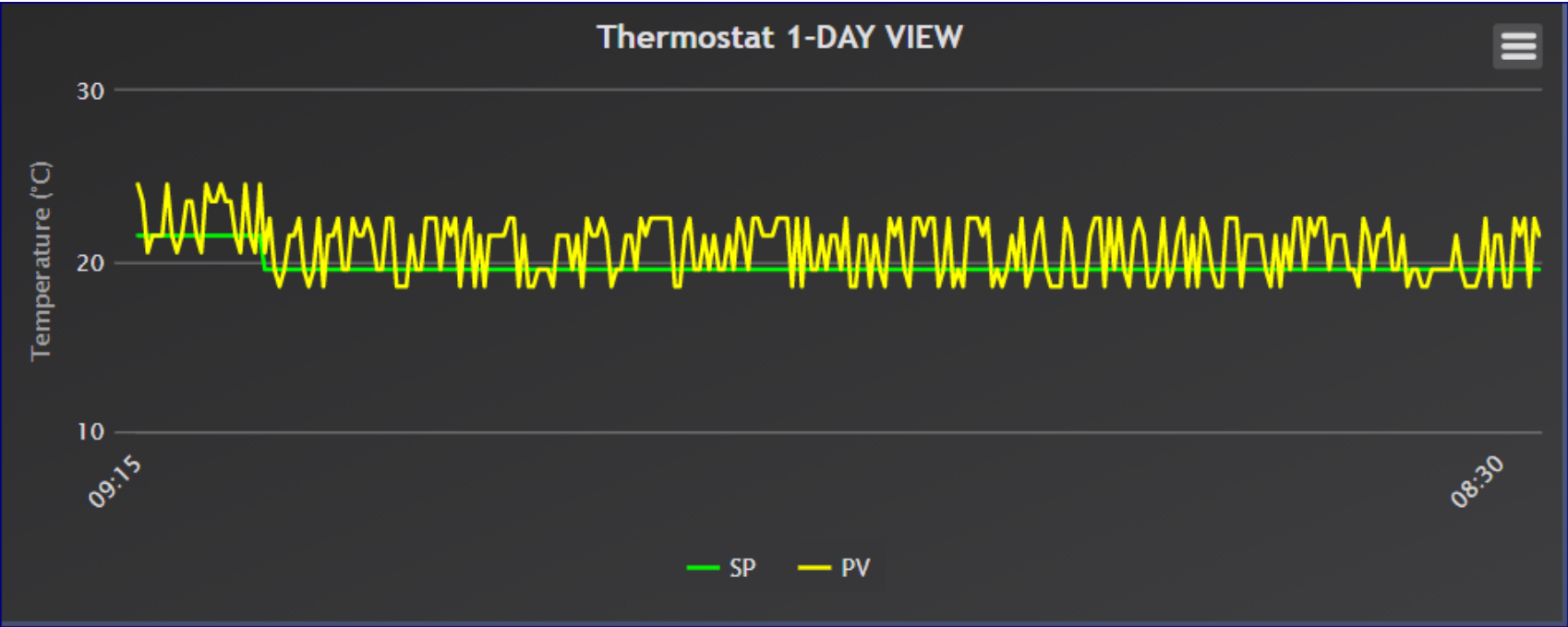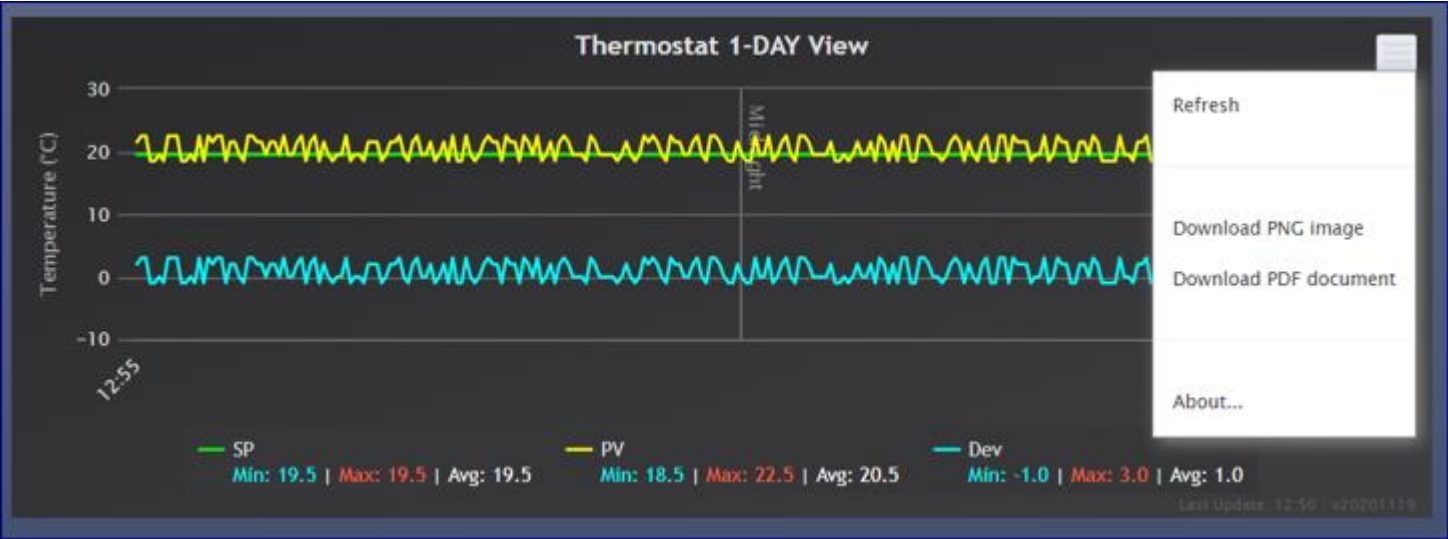
Highcharts

Set Point (SP) & Temperature (PV) 24 hour data (sample rate 5 mins)


```
Data Content HTTP API Response
{
  "result" : [
  {
    "Data" : "0913;18.5;21.5",
    "Date" : "2020-11-05 09:13:00",
    "User" : "",
    "idx" : "4"
  },
  ... ],
  "status" : "OK",
  "title" : "TextLog"
}
```

Item	Description
File Source	highcharts\linechart\datatextcsv\thermostat-1dayview.html (archive: explore_custom_pages_charts.zip)
Data Source	Domoticz virtual sensor Text Device History Log with 1 day setting (datatextcsv)
Data Source Location	Domoticz HTTP API Request: *http://domoticz-ip:port/*json.htm?type=textlog&idx=IDX Text Device
Data Content	CSV string: HHMM;SP;PV from the HTTP API Response key Data
Chart Additions	xAxis labels first & last only; Credit information disabled

Set Point (SP) & Temperature (PV) 24 hour data (sample rate 5 mins) with chart additions.



```
Data Content HTTP API Response
{
  "result" : [
  {
    "Data" : "0913;18.5;21.5",
    "Date" : "2020-11-05 09:13:00",
    "User" : "",
    "idx" : "4"
  },
  ... ],
  "status" : "OK",
  "title" : "TextLog"
}
```

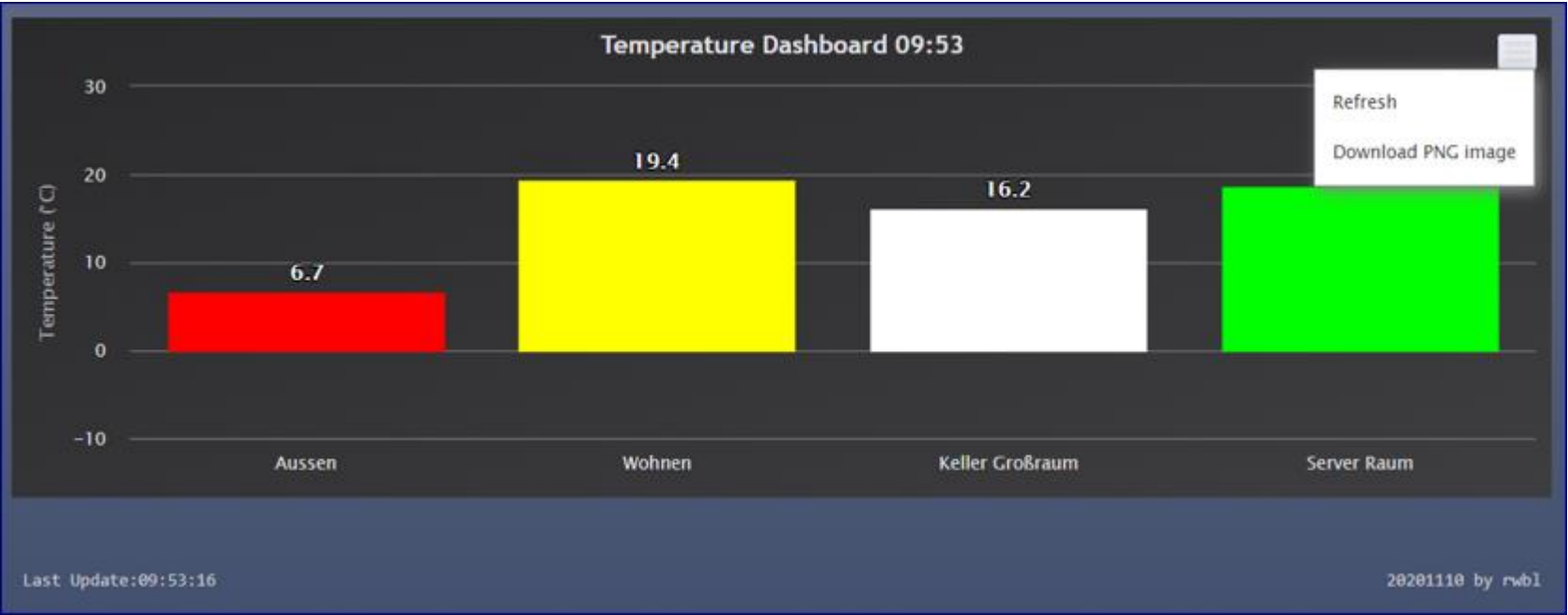| Item	Description
File Source	highcharts\linechart\datatextcsv\thermostat-1dayview-advanced.html (archive: explore_custom_pages_charts.zip)
Data Source	Domoticz virtual sensor Text Device History Log with 1 day setting (datatextcsv)
Data Source Location	Domoticz HTTP API Request: *http://domoticz-ip:port/*json.htm?type=textlog&idx=IDX Text Device
Data Content	CSV string: HHMM;SP;PV from the HTTP API Response key Data
Chart Additions	• Data series as array with device name, datapoints, line color • Chart series legend with Min, Max, Avg • Plot line at midnight • Chart credits with last update and link to view the log of the text device with datapoints • Customized context menu with own function Refresh, two standard menu items (Download …) and About Dialog (Bootbox)

Set Point (SP) & Temperature (PV) (sample rate 5 mins)

Thermostat 1-DAY View
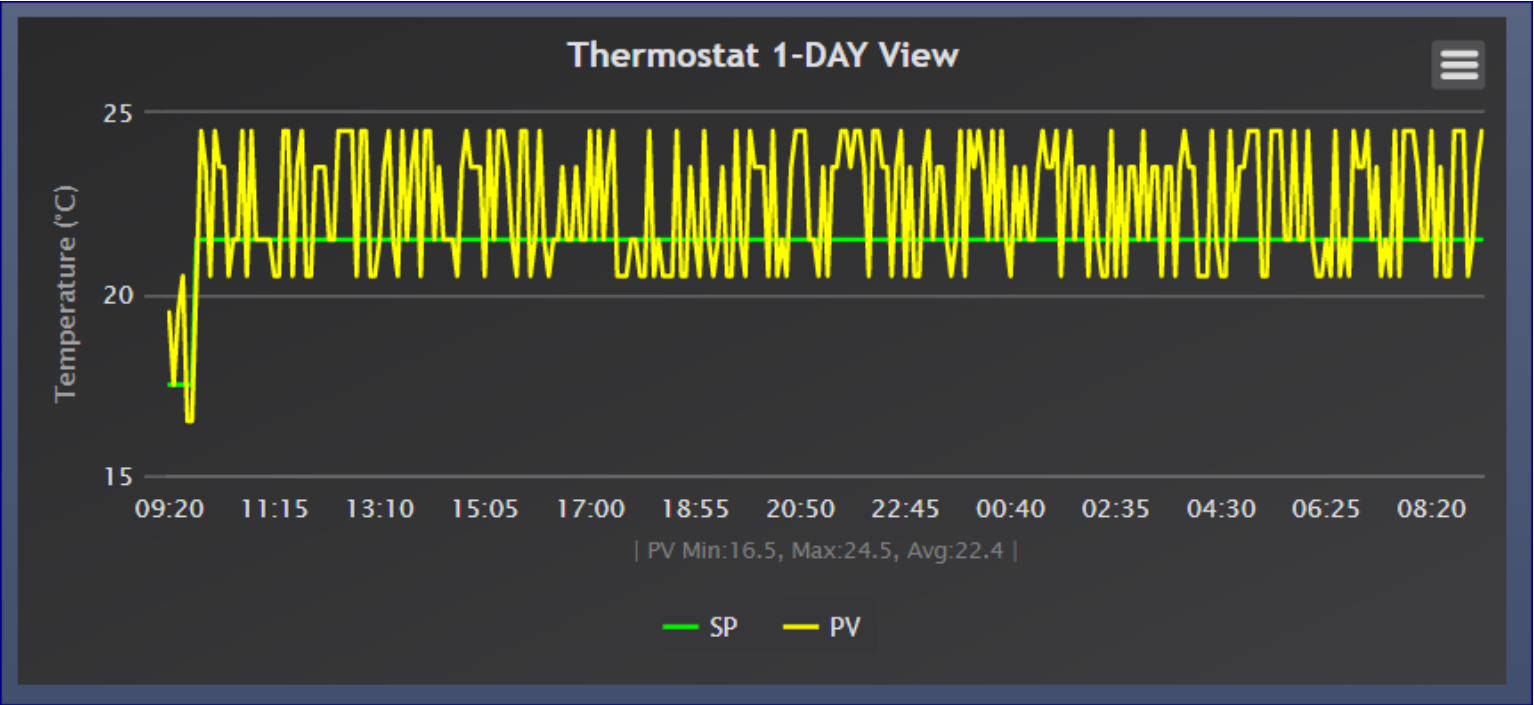
```
Data Content File with JSON Object
{
  "result" : [
    {"pv":16.5,"sp":17.5,"time":"12:38"},
    ...
  ],
  "status":"OK",
  "title":"Thermostat Data"
}
```

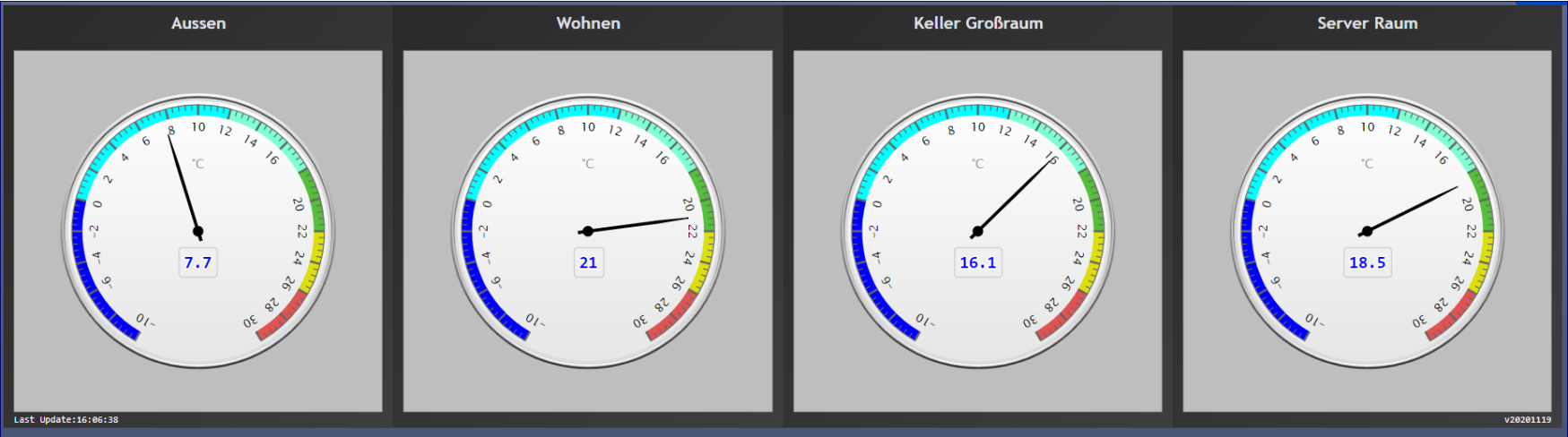| Item	Description
File Source	highcharts\linechart\datafilejson\thermostat-1dayview.html (archive: explore_custom_pages_charts.zip)
Data Source	External file with JSON object created in regular intervals by dzVents using persistent data (datafilejson)
Data Source Location	~domoticz/www/templates/thermostat_1dayview_data.json
Data Content	JSON array "result" with key:value pairs = "pv": NN.N, "sp": NN.N, "time": HH:MM
Chart Additions	xAxis title with PV Min, Max, Avg

Four Devices selected from Domoticz Room Plan


```
Data Content HTTP API Response
{
  "ServerTime" : "2020-11-09 19:28:40",
  "result" :
  [
  {"Name" : "Aussen",
   "Temp" : 7.7,
   "idx" : "344",},
  {"Name" : "Wohnen",
   "Temp" : 21,
   "idx" : "350",},
  {"Name" : "Server Raum",
   "Temp" : 16.1,
   "idx" : "351",},
  {"Name" : "Keller Gro\u00dfraum",
   "Temp" : 18.5,
   "idx" : "356",},
  ],
  "status" : "OK",
  "title" : "Devices"
}
```

Item	Description
File Source	highcharts\columnchart\datahttpplan\temperature-dashboard.html (archive: explore_custom_pages_charts.zip)
Data Source	Temperature Devices data (datahttpplan)
Data Source Location	Domoticz HTTP API Request: *http://domoticz-ip:port/*json.htm?type=devices&plan=IDX ROOMPLAN
Data Content	JSON array "result" with key:value pairs
Chart Additions	Custom menu; Footer as HTML table outside chart area

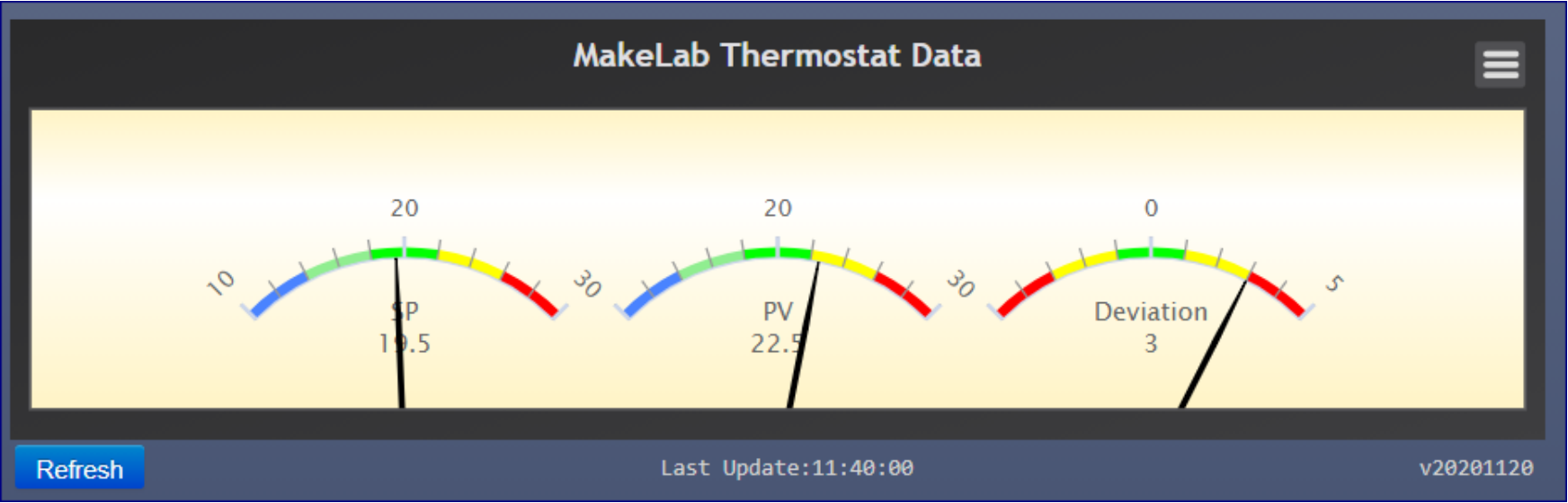Four Temperature Devices selected from Domoticz Room Plan


```
Data Content HTTP API Response
{
  "ServerTime" : "2020-11-09 19:28:40",
  "result" :
  [
  {"Name" : "Aussen",
   "Temp" : 7.7,
   "idx" : "344",},
  {"Name" : "Wohnen",
   "Temp" : 21,
   "idx" : "350",},
  {"Name" : "Server Raum",
   "Temp" : 16.1,
   "idx" : "351",},
  {"Name" : "Keller Gro\u00dfraum",
   "Temp" : 18.5,
   "idx" : "356",},
  ],
  "status" : "OK",
  "title" : "Devices"
}
```

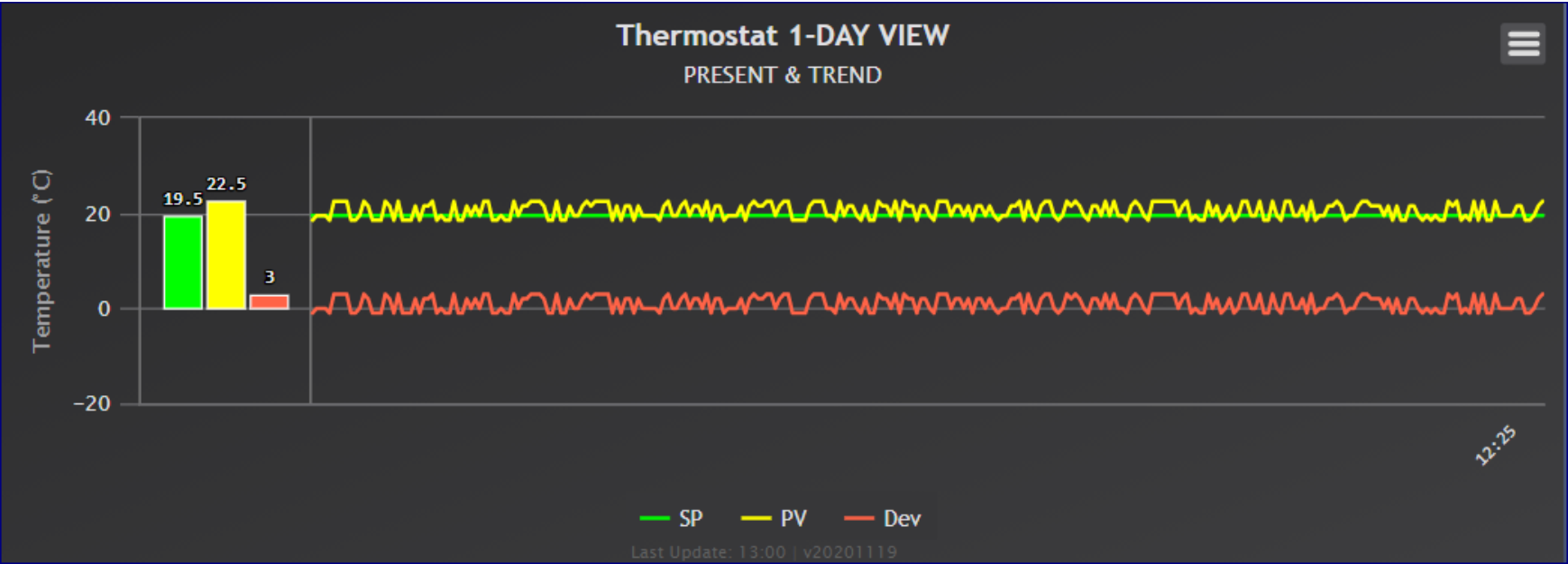| Item	Description
File Source	highcharts\angulargaugeschart\datahttpplan\temperature-dashboard.html (archive: explore_custom_pages_charts.zip)
Data Source	Temperature Devices data (datahttpplan)
Data Source Location	Domoticz HTTP API Request: *http://domoticz-ip:port/*json.htm?type=devices&plan=IDX ROOMPLAN
Data Content	JSON array "result" with key:value pairs
Chart Additions	4 Gauges as individual Highcharts Angular Gauges charts added to HTML DIV container as child

Set Point (SP), Temperature (PV), Deviation (Dev)

MakeLab Thermostat Data

20   20   0

10   30   10   30   5

SP
19.5

PV
22.5

Deviation
3

Refresh   Last Update:11:40:00   v20201120

```
Data Content HTTP API Response
{
  "app_version" : "2020.2 (build 12554)",
  "result" : [
    {
      ...
      "Data" : "0913;21.0;24.0",
      "Name" : "MakeLab Thermostat Data",
      ...,
      "idx" : "42"
    }
  ],
  "status" : "OK",
  "title" : "Devices"
}
```

Item	Description
File Source	highcharts\angulargaugeschart\datahttprid\thermostat-dashboard-vu.html (archive: explore_custom_pages_charts.zip)
Data Source	Temperature Devices data (datahttprid)
Data Source Location	Domoticz HTTP API Request: *http://domoticz-ip:port/*json.htm?type=devices&rid=IDX THERMOSTAT
Data Content	CSV string: HHMM;SP;PV from the HTTP API Response key result[0].Data
Chart Additions	Footer with refresh button, Last Update & Version information

Set Point (SP), Temperature (PV) & Deviation (Dev) 24 hour data (sample rate 5 mins)


```
Data Content HTTP API Response
{
  "result" : [
  {
    "Data" : "0913;19.5;21.5",
    "Date" : "2020-11-05 09:13:00",
    "User" : "",
    "idx" : "4"
  },
  ... ],
  "status" : "OK",
  "title" : "TextLog"
}
```

Item	Description
File Source	highcharts\columnlinechart\datatextcsv\thermostat-1dayview.html (archive: explore_custom_pages_charts.zip)
Data Source	Domoticz virtual sensor Text Device History Log with 1 day setting (datatextcsv)
Data Source Location	Domoticz HTTP API Request: *http://domoticz-ip:port/*json.htm?type=textlog&idx=IDX Text Device
Data Content	CSV string: HHMM;SP;PV from the HTTP API Response key result[NNN].Data
Chart Additions	Credits bottom centre Last Update + Version; xAxis plot lines to built box around column chart; xAxis label last value only

Weather forecast data at the hours 0,6,12,18 - sample rate every hour (Weather forecast delivered by the Norwegian Meteorological Institute met.no).

Weather Forecast Hamburg
SOURCE: MET.NO

Rainfall = precipitation_amount
Sea-Level Pressure = air_pressure_at_sea_level
Temperature = air_temperature
xAxis Label = time – date extracted from DD-MM HH:MM
Not used: probability_of_precipitation, wind_speed

Credits
The solution is based on this example.
Thanks a lot to the developer(s).

```
Data Content File JSON Object
{
"result" :
   [
   {
      "air_pressure_at_sea_level":1013.5,
      "air_temperature":17.8,
      "precipitation_amount":0.9,
      "probability_of_precipitation":0,
      "time":"26-11 12:00",
      "wind_speed":10.4
   },
   ...
   ],
   "status":"OK",
   "title":"Weather Forecast",
   "location":"Hamburg",
   "updated":"26-11 08:47"
}
```

Item	Description
File Source	highcharts\weatherforecast\datajsonfile\weather-forecast.html (archive: explore_custom_pages_charts.zip)
Data Source	External file with JSON object created in regular intervals by dzVents weather_forecast.dzVents (datafilejson)
Data Source Location	~domoticz/www/templates/weather_forecast_data.json
Data Content	JSON Object with result array holding selective weather data over 9-DAYS. Note: *Not all weather data used for the chart.*
Chart Additions	xAxis date labels first + day at 00:00 + last; Credits bottom right update + version

Selector Switch enabling to select a Weather Forecast Location (Weather Location Selector Switch).

Idx	Hardware	ID	Unit	Name	Type	SubType	Data
50	VirtualSensors	00014082	1	Weather Forecast Location	Light/Switch	Selector Switch	Set Level: 20 %

Idx: 50
Name: Weather Forecast Location
Switch Type: Selector
Switch Icon: Default — Default icon

On Delay: 0 (Seconds) 0 = Disabled
Off Delay: 0 (Seconds) 0 = Disabled
Protected:
Selector Style: ● Button set ○ Select menu
Hide Off level: ✓

Selector Levels:

Level	Level name		Order
0	Off		
10	Hamburg,53.551086,9.993682		
20	Arrecife,28.9630,-13.5477		
30	Domburg,51.567,3.500		

Level name: [ ] Add

Selector actions:

Level	Action
0	
10	
20	
30	

Description:

Save Delete Replace

Weather Forecast Location
Arrecife,28.9630,-13.5477

Weather Forecast Arrecife,28.9630,-13.5477
Last Seen: 2020-11-27 09:21:06
Type: Light/Switch, Selector Switch, Selector
Arrecife,28.9630,-13.5477
Log Edit Timers Notifications

Notes Selector Switch
Selector levels contains CSV string:
Location,Lat,Lon

Off level is hidden.

There are no selector actions.

The Selector Switch Widget title shows the selected level Location,Lat,Lon. If the Selector Switch name is long the text of the name & selected level override. To avoid, give the Selector Switch a shorter name or use technical abbreviation, i.e. WXFX (see below).

Be Aware
If the Custom Page is not updated after selecting another location, clear the browser cache!

WXFX **Hamburg,53.551086,9.993682**
Last Seen: 2020-11-27 13:52:16
Type: Light/Switch, Selector Switch, Selector
Hamburg,53.551086,9.993682
Hamburg,53.551086,9.993682
Arrecife,28.9630,-13.5477
Domburg,51.567,3.500

Custom icon for the Weather Location Selector Switch Widget (48x48px) and Dashboard (16x16px).

Custom Icons

AirPollution
Air Pollution

Weatherforecast
Weather Forecast

Choose File CustomIcons.zip   Upload

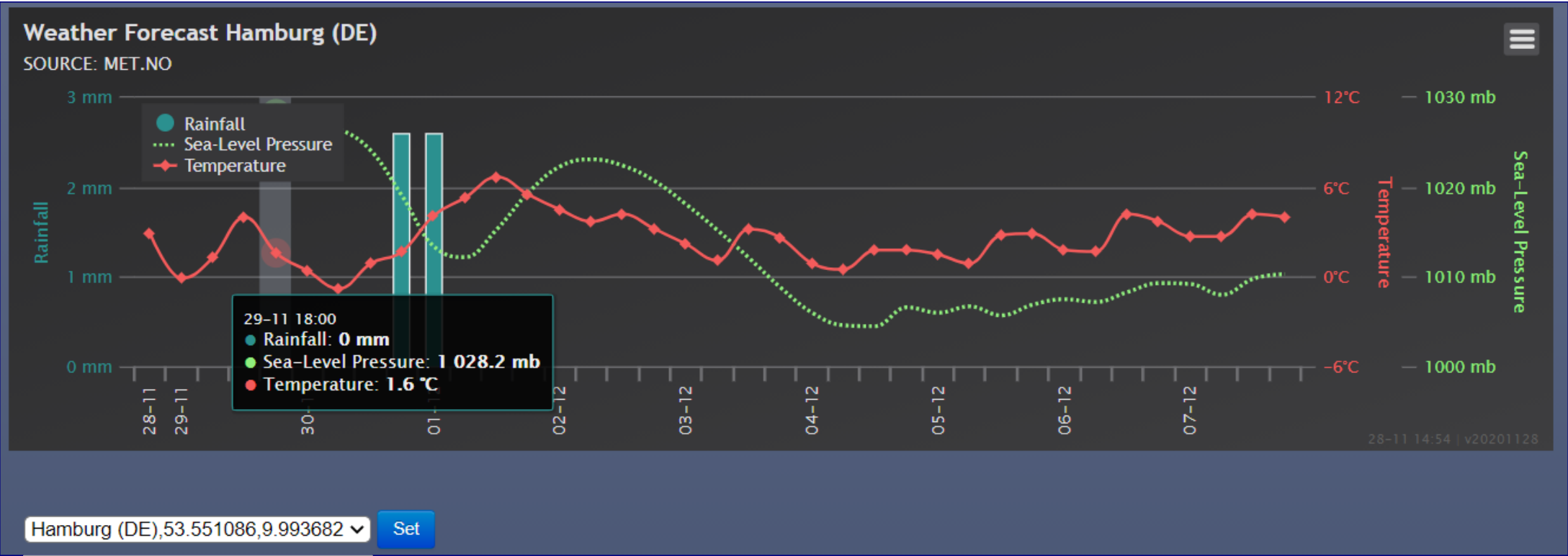|	
CustomIcons	zip
icons	txt
Weatherforecast	png
Weatherforecast48_Off	png
Weatherforecast48_On	png
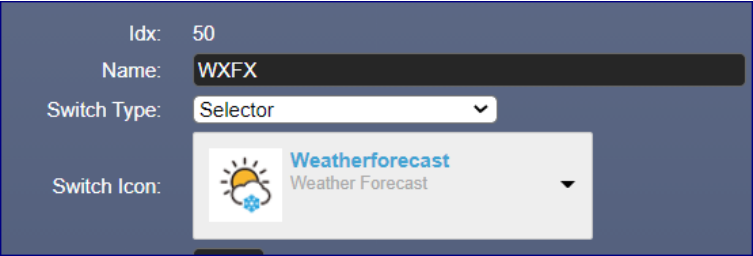
Notes
The file icons.txt contains a line entry for the icon.

There are 3 icons with size 16px (Weatherforecast.png) & 48px (Weatherforecast48_On & Off.png)

The icon has been selected as free icon from iconfinder.

Idx: 50
Name: WXFX
Switch Type: Selector
Switch Icon: **Weatherforecast** Weather Forecast

WXFX   **Arrecife,28.9630,-13.5477**

Last Seen: 2020-11-27 09:21:06
Type: Light/Switch, Selector Switch, Selector

Arrecife,28.9630,-13.5477

Log Edit Timers Notifications

Dropdown list to select & set the location.

Weather Forecast Hamburg (DE)
SOURCE: MET.NO

Rainfall
Sea-Level Pressure
Temperature

29-11 18:00
● Rainfall: 0 mm
● Sea-Level Pressure: 1 028.2 mb
● Temperature: 1.6 °C

Hamburg (DE),53.551086,9.993682 ⌄   Set

List is populated from the
Domoticz Location Selector
Switch

Event trigger Selector Switch or Timer (every hour)


```
On   Off    weather_forecast

176    if triggeredItem.isTimer then
177        -- Check if there is a location selector and select actual levelName as location
178        if IDX_FORECAST_LOCATOR > 0 then
179            domoticz.data.forecastLocation = domoticz.devices(IDX_FORECAST_LOCATOR).levelName
180        else
181            -- Set the default location name,lat,lon from the domoticz settings
182            domoticz.data.forecastLocation = string.format('%s,%s,%s',
183                    domoticz.settings.location.name,
184                    domoticz.settings.location.latitude,
185                    domoticz.settings.location.longitude)
186        end
187        requestForecast(domoticz, HTTPRESPONSE, domoticz.data.forecastLocation)
188    end
189
190    -- HTTP response trigger. check on trigger in case more http triggers used (future)
191    if triggeredItem.isHTTPResponse and triggeredItem.trigger == HTTPRESPONSE then
192        -- domoticz.log(string.format('Data: %s', triggeredItem.data))
193
194        -- Convert the http json response data to a Lua table
195        local jsonData = domoticz.utils.fromJSON(triggeredItem.data)
196
197        -- Log the number of timeseries
198        domoticz.log(string.format(
199            'Timeseries Count: %d',
200            #jsonData.properties.timeseries))
201
```
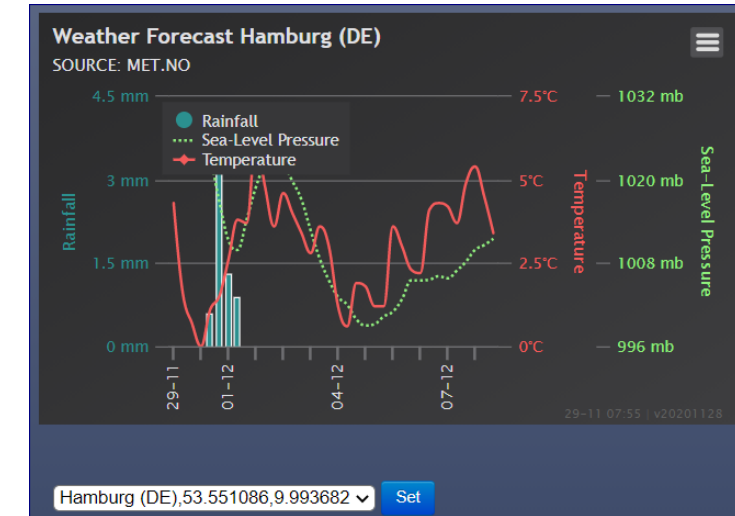

Custom Page
~domoticz/www/templates/weather-forecast.html

Data File
~domoticz/www/templates/weather_forecast_data.json
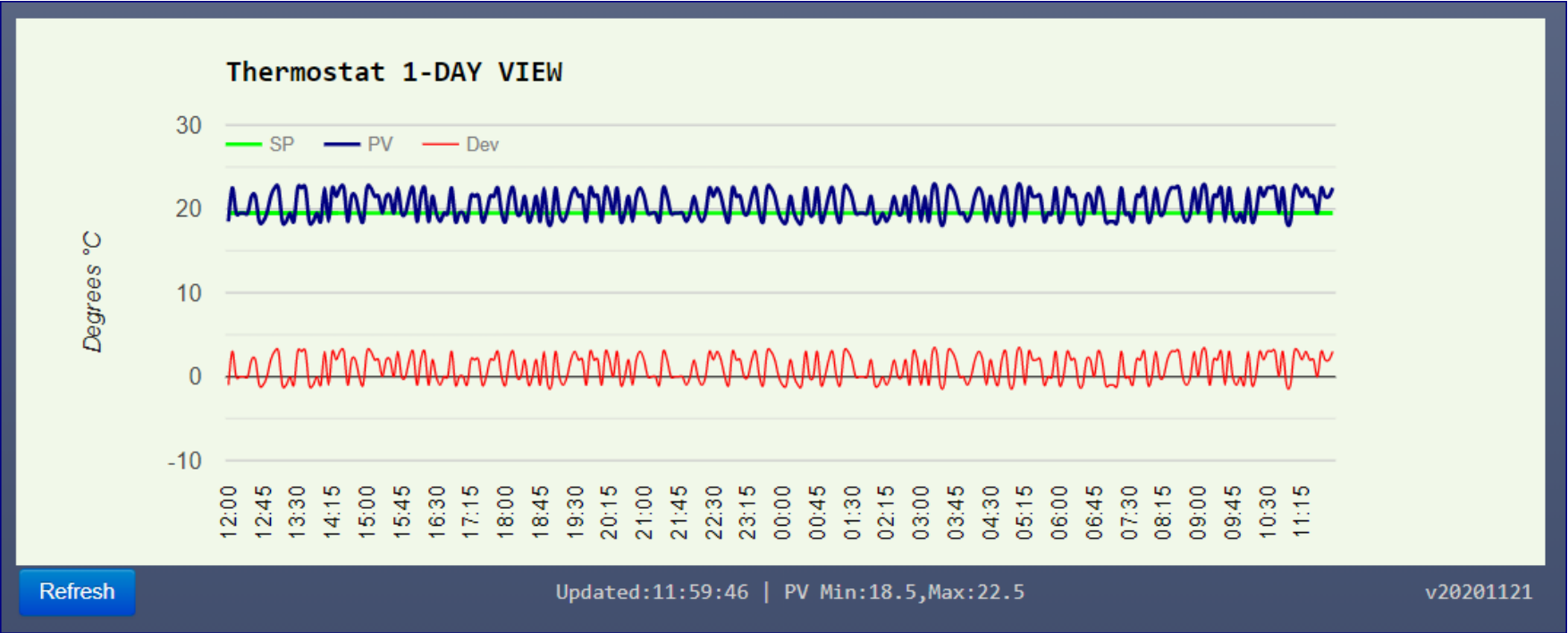
```
{
  "result" : [
    {
      "air_pressure_at_sea_level":1028.0,
      "air_temperature":4.3,
      "precipitation_amount":0.0,
      "time":"29-11 12:00",
      "probability_of_precipitation":0.0,
      "wind_speed":1.4
    },
    ...
  ],
  "status":"OK",
  "title":"Weather Forecast",
  "location":"Hamburg (DE)",
  "updated":"29-11 07:55"
}
```
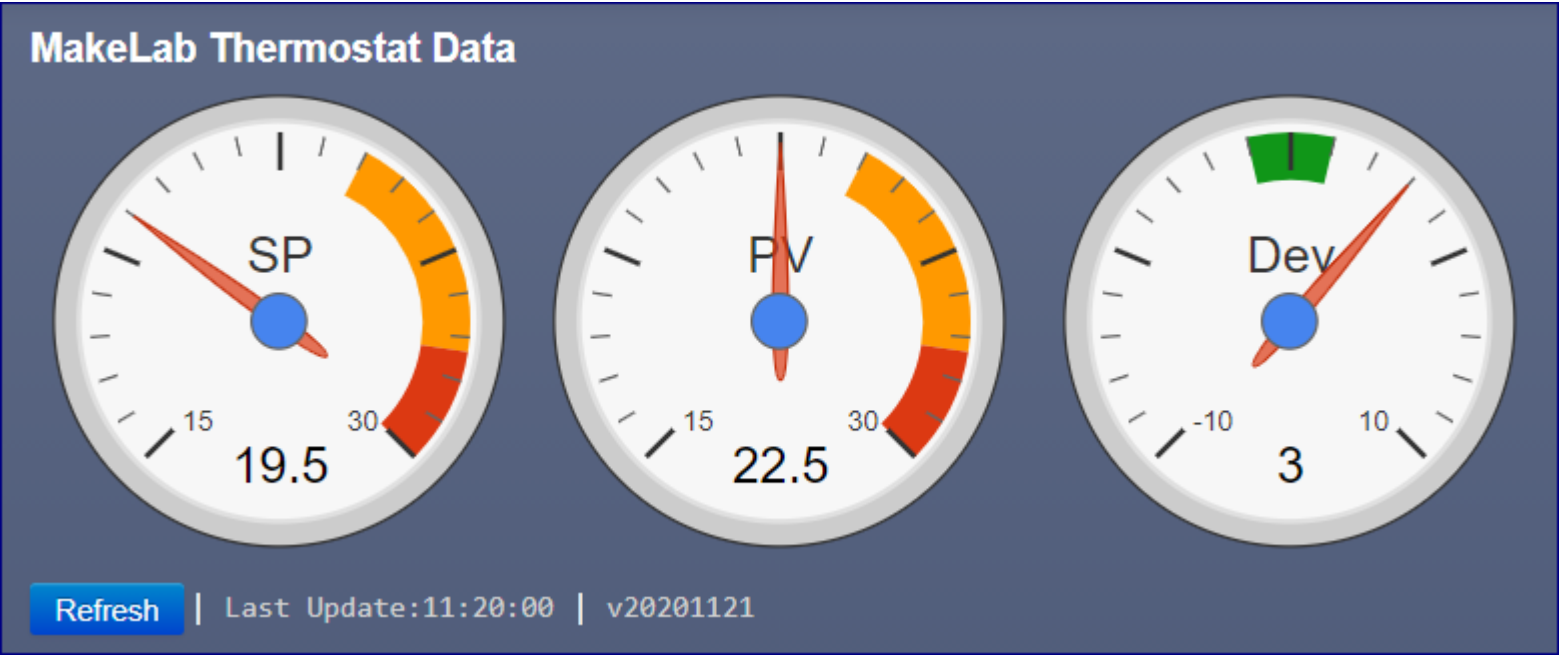
Google Charts

Set Point (SP) & Temperature (PV) 24 hour data (sample rate 5 mins)


```
Data Content HTTP API Response
{
  "result" : [
  {
    "Data" : "0913;19.5;21.5",
    "Date" : "2020-11-05 09:13:00",
    "User" : "",
    "idx" : "4"
  },
  ... ],
  "status" : "OK",
  "title" : "TextLog"
}
```

Item	Description
File Source	googlecharts\linechart\datatextcsv\thermostat-1dayview.html (archive: explore_custom_pages_charts.zip)
Data Source	Domoticz virtual sensor Text Device History Log with 1 day setting (datatextcsv)
Data Source Location	Domoticz HTTP API Request: *http://domoticz-ip:port/*json.htm?type=textlog&idx=IDX Text Device
Data Content	CSV string: HHMM;SP;PV from the HTTP API Response key Data
Chart Additions	Table footer with refresh button, update & PV min/max/avg and version information

Set Point (SP), Temperature (PV) & Deviation (Dev)


```
Data Content HTTP API Response
{
    "app_version" : "2020.2 (build 12554)",
    "result" : [
    { ...
      "Data" : "0913;21.0;24.0",
      "Name" : "MakeLab Thermostat Data",
      ...,
      "idx" : "42"
    }
    ],
    "status" : "OK",
    "title" : "Devices"
}
```

Item	Description
File Source	googlecharts\gaugeschart\datahttprid\thermostat_dashboard.html (archive: explore_custom_pages_charts.zip)
Data Source	Domoticz virtual sensor Text Device Status (datahttprid)
Data Source Location	Domoticz HTTP API Request: *http://domoticz-ip:port/*json.htm?type=devices&rid=IDX Text Device
Data Content	CSV string: HHMM;SP;PV from the HTTP API Response key Data
Chart Additions	Chart device name; Table footer with refresh button, update & PV min/max/avg and version information

Set Point (SP), Temperature (PV) & Deviation (Dev) & line chart 24 hours data (sample rate 5 mins)
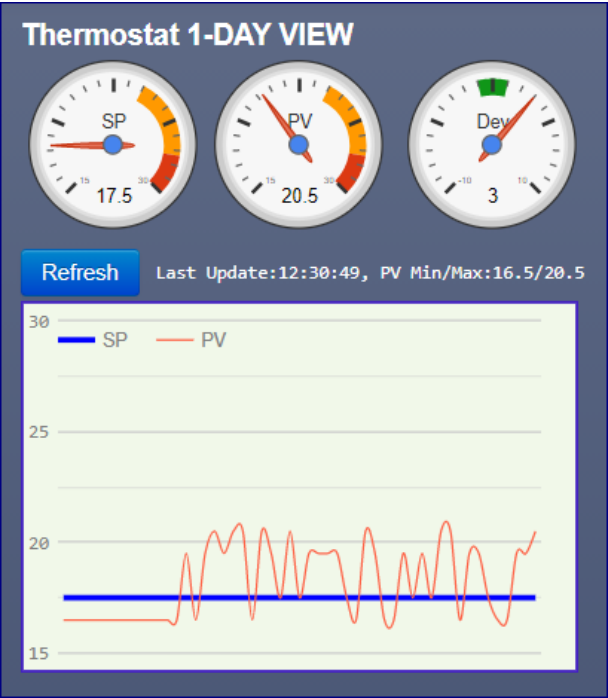
```
Data Content JSON File
{
  "result" : [
  {"pv":22.0,"sp":22.0,"time":"11:17"},
  {"pv":25.0,"sp":22.0,"time":"11:16"},
  ...],
  "status":"OK",
  "title":"Thermostat Data"
}
```

Item	Description
File Source	googlecharts\gaugeslinechart\datajsonfile\thermostat_1dayview.html (archive: explore_custom_pages_charts.zip)
Data Source	External file with JSON object created in regular intervals by dzVents using persistent data (datajsonfile)
Data Source Location	~domoticz/www/templates/thermostat_1dayview_data.json
Data Content	JSON array "result" with JSON data in key result.Data
Chart Additions	Table with row gauges; row refresh button + info; row table 1 day view

Automation Scripts dzVents

Automation Scripts dzVents

dzVents - CSV String

Example Text Device Value CSV String HHMM;Value1;ValueN
0913;18.5;21.5

```
Example snippet dzVents timer trigger to create the CSV string & update the text device
local IDX_SP = 30    -- Thermostat Temperature SetPoint (SP); Device: Thermostat, SetPoint
local IDX_PV = 31    -- Thermostat Temperature Process Value (PV); Device: Temp, LaCrosse TX3
local IDX_TS = 42    -- Text device holding the data as CSV string; Device: General, Text

return
{
  on = {
    timer = {
      'every 5 minutes at 00:00-23:59'
    },
  },
  logging = {
    level = domoticz.LOG_INFO, marker = 'THERMOSTATDATA',
  },
  execute = function(domoticz)
    -- Store the new data in the virtual text sensor as CSV string (max length 200): hhmm,sp,pv
    domoticz.devices(IDX_TS).updateText(("%s%s;%.1f;%.1f"):format(
      string.format("%02d", domoticz.time.hour),
      string.format("%02d", domoticz.time.minutes),
      domoticz.utils.round(domoticz.devices(IDX_SP).setPoint, 1),
      domoticz.utils.round(domoticz.devices(IDX_PV).temperature, 1)
  ));
    -- Log the value
    domoticz.log(domoticz.devices(IDX_TS).text)
  end
}
```

Date	
2020-11-22 09:10:00	0910;19.5;22.5
2020-11-22 09:05:00	0905;19.5;18.5
2020-11-22 09:00:00	0900;19.5;18.5

dzVents - JSON Object

Example Text Device JSON Object – each datapoint has a JSON object with in this case 2 devices

```
{
  "result" :
    [{"Data":"SEE BELOW","Date":"2020-11-13 18:00:00","User":"","idx":"1999"}, ... ],
  "status":"OK","title":"TextLog"
}
The Data key is a JSON string:
"Data" : "{
    "timestamp":"1800","devices":[
    {"name":"MakeLab Thermostat Setpoint", "data":17.5},
    {"name":"MakeLab Temperature", "data":16.5}]
  }"
```

Example snippet dzVents timer trigger to create the JSON object & update the text device

```
local IDX_SP = 30    -- Thermostat Temperature SetPoint (SP); Device: Thermostat, SetPoint
local IDX_PV = 31    -- Thermostat Temperature Process Value (PV); Device: Temp, LaCrosse TX3
local IDX_JSON = 43   -- Text device holding the data JSON string; Device: General, Text

local jsonData = (
  '{"timestamp":"%s%s", "devices":[{"name":"%s", "data":%.1f}, {"name":"%s", "data":%.1f}]}'):format(
  string.format("%02d", domoticz.time.hour),
  string.format("%02d", domoticz.time.minutes),
  domoticz.devices(IDX_SP).name,
  domoticz.utils.round(domoticz.devices(IDX_SP).setPoint, 1),
  domoticz.devices(IDX_PV).name,
  domoticz.utils.round(domoticz.devices(IDX_PV).temperature, 1)
)
domoticz.devices(IDX_JSON).updateText(("%s"):format(jsonData))
```

Date	Data
2020-11-21 18:45:00	{"timestamp":"1845", "devices":[{"name":"MakeLab Thermostat Setpoint", "data":19.5}, {"name":"MakeLab Temperature", "data":21.5}]}
2020-11-21 18:40:00	{"timestamp":"1840", "devices":[{"name":"MakeLab Thermostat Setpoint", "data":19.5}, {"name":"MakeLab Temperature", "data":22.5}]}
2020-11-21 18:35:00	{"timestamp":"1835", "devices":[{"name":"MakeLab Thermostat Setpoint", "data":19.5}, {"name":"MakeLab Temperature", "data":22.5}]}