Title: **Disclosure of OZWx72 Web Services (API)**

The OZW web server supports a Web Application Programming Interface API. This document describes how this API needs to be used. Different services are supported which are explained herein.

History

Rev	Date	Content
9	27-Nov-2017	Extented description of Portal Web API session timeout
8	05-Sept-2017	Description for test page added
7	05-July-2017	New device variant OCI670 added Remark due to line ending for eca and trend download service Portal Web API service "listextended" added (OZWx72.xx, V07.00)
6	11-Jan-2016	New menu tree services for datapoints New application example for OZW Web API New application example for Portal and OZW Web API (OZWx72.xx, V06.00)
5	4-Nov-2014	Portal Use Cases and Portal Web API added (OZWx72.xx, V05.20)
4	13-May-2013	KNX scheduler- and -calendar write, and ECA- and trending file download added
3	4-Dec-2012	Use cases for integration added New API version supported by OZW772.xx
2	17-July-2012	Expansion in Service "menutree\list" Explanations to "write_datapoint" New Api Version 1.1.0 with enumeration value tag
1	20-March-2012	Initial

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Content

1. Use Cases on integration via OZW Web API

1.1 Description of use case

A central server collect important information from decentralized plants, each equipped with an OZWx72. The information is collected on the server and displayed in the web browser in on an overview page. The page also includes a link to the applicable OZWx72 that allows the operator to go directly to plant operation.

Information to be collected by plant:

- Plant fault state
- Plant energy indication state

Information that is read/write from individual plant devices:

- Read only information from devices, e.g. room temperature actual value
- Read and writeable settings for devices, e.g. room operating mode specification

A web link can be added as a brief introduction on web-based operation of the decentralized plant or OZWx72 with authentication information:

- https://***<ip>***/main.app?user=***<Username>***&pwd=***<Password>***
- For example: https://10.169.10.117/main.app?user=Hauswart&pwd=PMjsuc2r

1.2 Check Web API version

The service version is used to check whether the OZW Web API version is supported (see Section 2.1.2 in this document).

1.3 Query plant fault state

The service “fault / list” can query the plant’s fault list (see Section 2.7.2 in this document).

- The fault list is empty is the plant has not faults.
- The fault list includes a maximum of 10 of the most important plant faults.
- The first entry on the fault list is the most serious plant fault.

1.4 Query plant energy indication state

The service “energyindicator / list” queries the plant’s energy indicator state (See Sec. 2.8.2).

- There are no setpoint outside the monitored limits if the energy indicator list is empty.
- The energy indicator list includes information for both the entire plant as well as individual devices, how much data is monitored, and how many data points exceed the limits.

1.5 Read a device data point

The “menu tree” services accesses individual devices and their data points (see 2.9).

The following two ID features are required for access

- Unique device serial number, e.g. 00FD00FF01F0
- Specific data point attributes "Address" and "DpSubKey" from the disclosure documentation, e.g. 0x2DFE1001 and 0 (See Sec. 2.9)

1.5.1 Variant: Indirect access via the menu tree

The data point is accessed via the menu tree based on the following workflow

- The service “menu tree/device_root” can determine the device-specific entry point in the menu tree (See Sec. 2.9.3)
  → Parameter: Device serial number and submenu tree “Web” or “Mobile”
  → Result: Menu tree “Id” of the device-specific entry point
- The service “menutree / list” must traverse the menu tree (“`MenuItems`”) hierarchically up to the data point (“`DatapointItems`”) until the searched for data point attributes is found (See Sec. 2.9.4)
  → Parameter: Menu tree “Id” (device-specific entry point, hierarchy in menu tree)
  → Result: Data point menu tree “Id”
- The service “menu tree/read_data point” reads the data point value (See Sec. 2.9.5)
  → Parameter: Data point menu tree “Id”
  → Result: Data point value as string

The menu tree “Id” of a data point is not static can change after generating a device web page. The service “device list / list” can query the generation timestamp per device (`“TreeDate”/ “TreeTime”`) to detect a subsequent generation and act accordingly (See Sec. 2.6.2).

1.5.2 Variant: Direct access

The data point is accessed directly via the service "menutree/read_datapoint_direct“ (see Section 2.9.6)
→ Parameter: Device serial number, data point attribute "Address" and "DpSubKey“
→ Result: Data point value as string

The identification attributes "Address” and "DpSubKey“ for data points does not change when generating the device page. Nevertheless, subsequent generation should also be detected (see Section 1.5.1) and handled accordingly (see Section 2.6.2). One possible scenario is to change a device configuration and, with it, available data points.

1.6 Write a device data point

The same ID features are required for access as for “Read device data point” (See Sec. 1.5).

1.6.1 Variant: Indirect access via the menu tree

The data point is accessed based on the following process:

- Identical process as for “Read device data point” until the menu tree “Id” for the data point is found (See Sec. 2.9.9)

- The service “menutree/data point_desc” read the data point description of change (data type, minimum, maximum, setting step, etc.) (See Sec. 2.9.7).
→ Parameter: Data point menu tree “Id”
→ Result: Data point description of change
- A setting dialog box to specify a new data point can be offered in an external application based on data type-based description of change.
- The service “menutree/write_data point” describes the data point using a new value (See Sec. 2.9.9).
→ Parameter: Data point menu tree “Id” and new data point value

1.6.2 Variant: Direct access

The data point is accessed based on the following process

- The service “menutree/data point_desc” read the data point description of change (data type, minimum, maximum, setting step, etc.) (see Section 2.9.8).
→ Parameter: Device serial number, data point attribute "Address" and "DpSubKey"
→ Result: Data point description of change
- A setting dialog box to specify a new data point can be offered in an external application based on data type-based description of change.
- The service “menutree/write_data point” describes the data point using a new value (See Sec. 2.9.10).
→ Parameter: Device serial number, data point attribute "Address" and "DpSubKey", new data point value

2. OZW Web API

2.1 General

The Application Programming Interface (API) is a lean interface to connect HTTP Clients with internal OZW services. All API functions are accessible via the URL /**api**/ and are queried similar to REST via HTTP-GET or POST queries. It must be waited each time after an API function query for the associated response before executing the next query (purely synchronous queries).The entire function query (including parameter name and values) must be URL encoded.

All services are offered encrypted via HTTPS and, as an option, unencrypted via HTTP. We expressly recommend using the encrypted services via HTTPS to transmit data protected against intercepts.

The query can select the desired HTTP response format, similar to the Twitter-API.

Request URI (HTTP GET):
http://mydevice/api/version.format

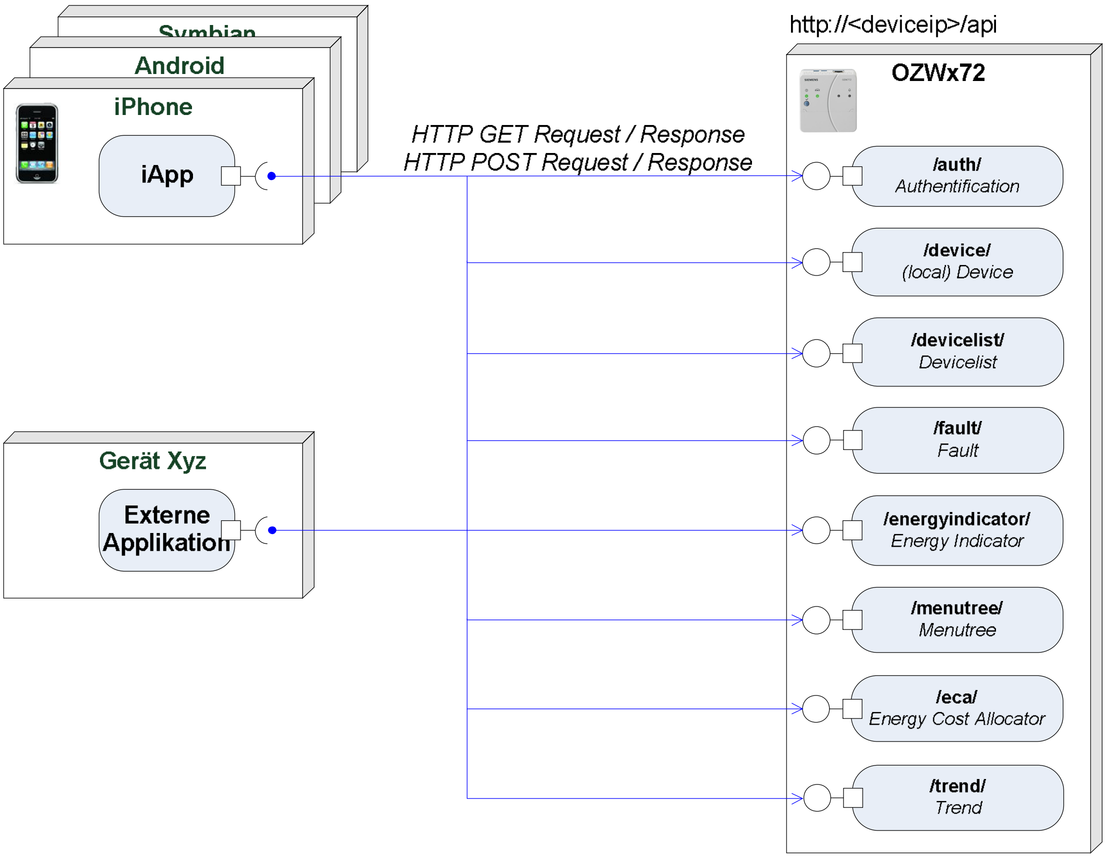
Request examples:

```
http://192.168.251.1/api/version.json
```

```
http://192.168.251.1/api/version.xml
```

Possible applications as users of the API or web services may include, e.g. smart phone apps or the application server.

The following schematic illustrates how OZW web services are structured:



For the device type OCI670/109 applies that only via portal forwarded Web API calls are supported (see Sec. 5 and 6). Direct Web API service calls return with an error (see Sec. 2.1.3).

2.1.1 HTTP response format

Responses in JSON

Response HTTP header for JSON

```
Content-Type: application/json; charset=utf-8; Content-Language: de[1]
```

[1] Corresponds to the (web) language of the authenticated user (see Sec.2.1.4.

Strings are JSON encoded in the responses (reserved JSON characters \, “). The data is based on the JSON data types “string” and “number”.

Responses in XML

Response HTTP header for XML

```
Content-Type: application/xml; charset=utf-8; Content-Language: de[1]
```

[1] Corresponds to the (web) language of the authenticated user (see Sec. 2.1.4).

Response HTTP body for XML

```
<?xml version="1.0" encoding="UTF-8"?>
```

Strings are XML encoded in the responses (reserved XML characters <, >, &, “, ’). The data is based on the (XML) data type “string” and “decimal”.

2.1.2 Interface version /api/…

One service is offered to query the interface version (e.g. /api/auth/version) for each service group (e.g. authentication) and consolidated for the entire APIR or service groups (Web API). The consolidated interface versions is increased accordingly as soon as the interface version is increased on at least one service group. Modifications that are backward and not backward compatible are recognized based on this version.

The interface version is compiled from the major, minor, and patch number; each separated by a period (http://semver.org):

M.N.P	(**M**ajor.Mi**N**or.**P**atch, e.g. 1.4.11)

The major version of the queried client “must be the same as the interface version” for the application as user to be compatible with the interface. The minor and patch versions may be greater than or equal to the client’s.

	$M_{API} = M_{Appl}$	(same major number)
and		
	$N.P_{API} \geq N.P_{Appl}$	(Minor.Patch must be greater than or equal to)

Major: For extensions that are not backward compatible, the major number is incremented. One example is a change to the number or sequence of method arguments.

Minor: For backward compatible extensions, the minor number is incremented. One example are (option) supplemental or new services.

Patch: For corrections that do not impact the interface, only the patch number is incremented. An example is error corrections. The patch number should be increased for each change, unless the change causes an increment to the major or minor number.

2.1.3 Result

The parameter **Success** provides information on whether a service was correctly executed.

Response body in JSON (Service successful):

```
{
         "Result":
                  {
                           "Success": "true"
                  }
}
```

Response body in JSON (Service not successful):

```
{
         "Result":
                  {
                           "Success": "false",
                           "Error":
                                    {
                                             "Txt": "Write failed",
                                             "Nr": "3"
                                    }
                  }
}
```

Response body in XML (Service successful):

```
<Service>
         <Result>
                  <Success>true</Success>
         </Result>
</Service>
```

Response body in XML (Service not successful):

```
<Service>
         <Result>
                  <Success>false</Success>
                  <Error>
                           <Txt>Write failed</Txt>
                           <Nr>3</Nr>
                  </Error>
         <Result>
</Service>
```

Table of all possible errors in all service groups and services

		Error														
	Error Number	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
<ip-addr>/api/	*Error Text*	unknown error	unknown user or wrong password	session not valid	serial number not found	tree name not valid	tree id not found	read failed	write failed	data type not supported	value not valid	unknown service	unknown format	Serial number or tree name not found	No trend defined or trend version not supported	local access denied [1]
…/…/	…/version	(X)	-	-	-	-	-	-	-	-	-	-	-	-	-	(X)
…/auth/	…/login	-	X	-	-	-	-	-	-	-	-	-	-	-	-	(X)
	…/logout	-	-	X	-	-	-	-	-	-	-	-	-	-	-	(X)
…/device/	…/info	-	-	X	-	-	-	-	-	-	-	-	-	-	-	(X)
…/devicelist/	…/list	-	-	X	-	-	-	-	-	-	-	-	-	-	-	(X)
…/fault/	…/status	-	-	X	-	-	-	-	-	-	-	-	-	-	-	(X)
	…/list	-	-	X	-	-	-	-	-	-	-	-	-	-	-	(X)
	…/device	-	-	X	X	-	-	-	-	-	-	-	-	-	-	(X)
…/energyindicator/	…/status	-	-	X	-	-	-	-	-	-	-	-	-	-	-	(X)
	…/list	-	-	X	-	-	-	-	-	-	-	-	-	-	-	(X)
…/menutree/	…/device_root	-	-	X	-	X	-	-	-	-	-	-	-	X	-	(X)
	…/list	-	-	X	-	-	X	-	-	-	-	-	-	-	-	(X)
	…/read_datapoint…	-	-	X	-	-	X	X	-	X	-	-	-	-	-	(X)
	…/datapoint_desc…	-	-	X	-	-	X	X	-	X	-	-	-	-	-	(X)
	…/write_datapoint…	-	-	X	-	-	X	-	X	X	X		-	-	-	(X)
…/trend/	…/status	-	-	X	-	-	-	-	-	-	-	-	-	-	-	(X)
	…/download	-	-	X	-	-	-	-	-	-	-	-	-	-	X	(X)
…/eca/	…/status	-	-	X	-	-	-	-	-	-	-	-	-	-	-	(X)
	…/download	-	-	X	-	-	-	-	-	-	-	-	-	-	-	(X)
…/unknown/	…/…/	-	-	-	-	-	-	-	-	-	-	X	-	-	-	(X)
…/…/	…/unknown	-	-	-	-	-	-	-	-	-	-	X	-	-	-	(X)
…/…/	…/known.unknown	-	-	-	-	-	-	-	-	-	-	-	X	-	-	(X)

[1] For the device type OCI670/109 applies that only via portal forwarded Web API calls are supported (see Sec. 5 and 6). Direct Web API service calls return with an error „local access denied“.

2.1.4 User administration

Web service user administration occurs together with web operation, used as well for administration. The entered web language of the use defines the language of the data queried via web services.

Authentication occurs the first from via the service “login” (see Sec. 2.4.2) and later on other services via the received session ID (e.g. SessionId=de9e76dc-d17a-4735-94f8-4487606f5278). Session administration is separate from web operation. A session is saved non-persistent in OZW and has a relative timeout of 15 minutes for user inactivity and an absolute timeout of 24 hours.

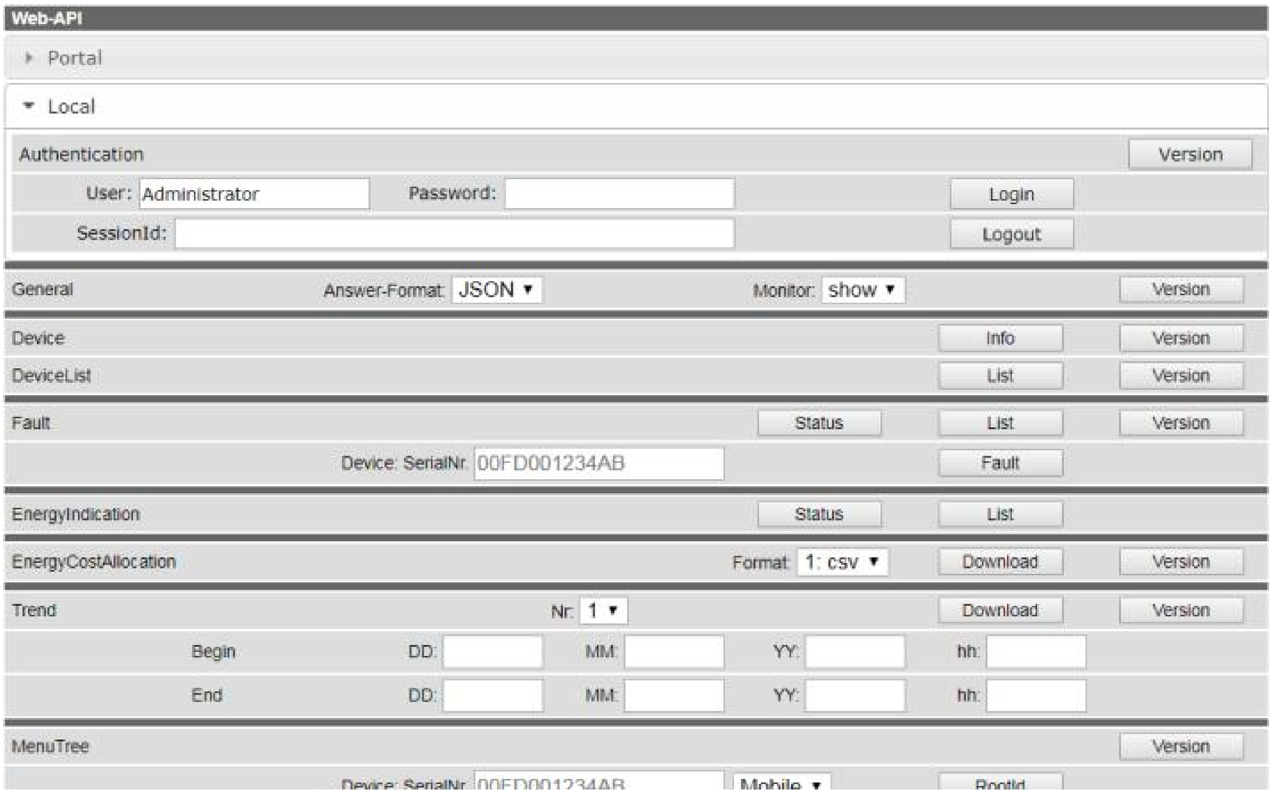
A user is temporarily blocked for security reasons if an incorrect password is entered multiple times for the "login“ service.

2.1.5 Test page for API calls

The OZW provides a web page to try out WEB API calls.

To access this hidden page you have to login via web interface either directly to OZW or to Portal. Via Portal you need to open the OZW web page in new browser tab or window. Change the value of the URL parameter “section” to “webapi”.

Examples:
`https://192.168.251.1/...?SessionId=...&section=`**`popcard`** → `…&section=`**`webapi`**
`https://www.siemens-syncoic.com/.../...?SessionId=...&section=`**`popcard`** → `…&section=`**`webapi`**



User: Administrator

Answer-Format: JSON

Monitor: show

Device: SerialNr: 00FD001234AB

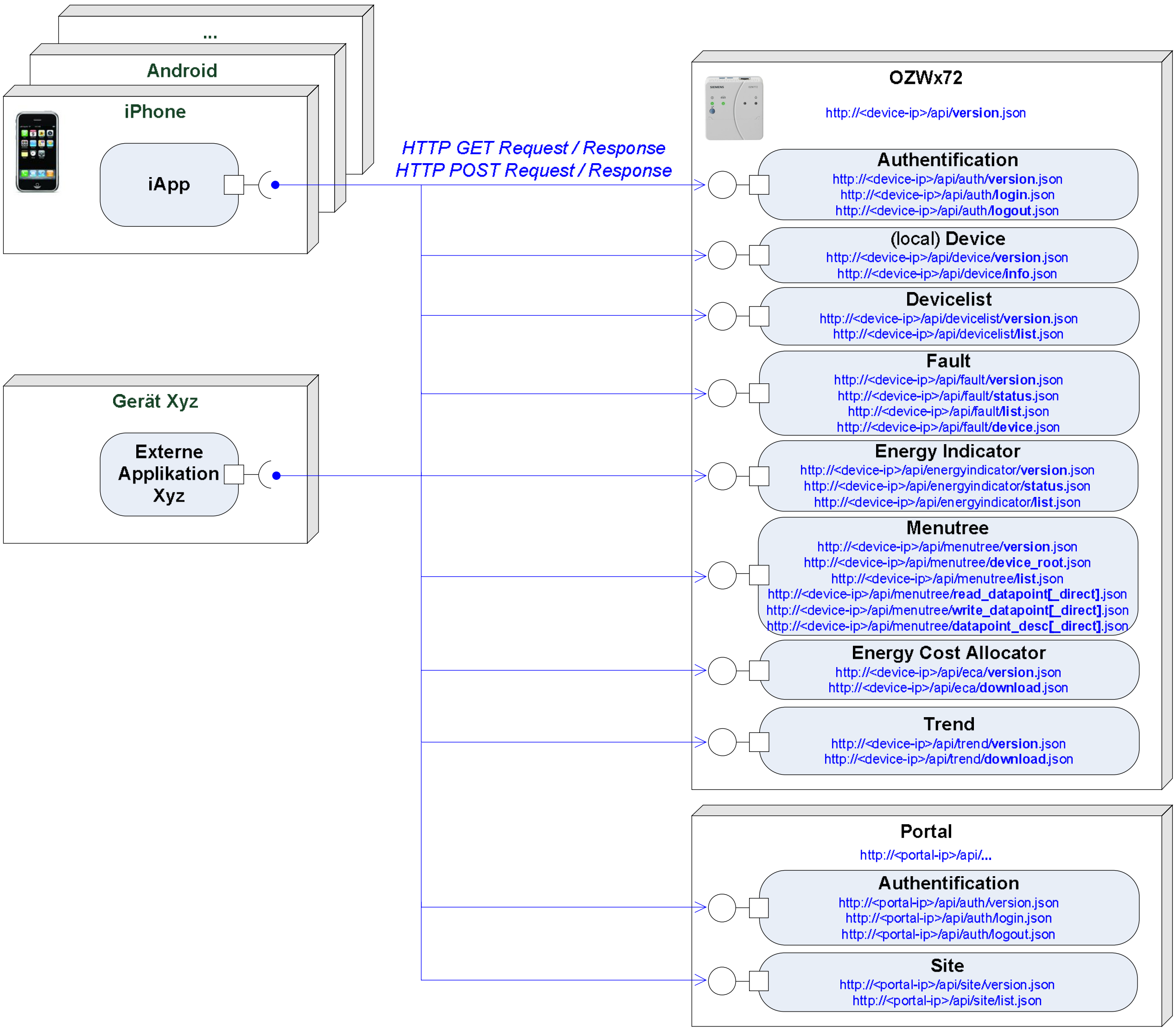
Format: 1: csv

Nr: 1

Device: SerialNr: 00FD001234AB Mobile

The Web API authentification can be done “Local” with OZW credentials or via “Portal” with portal credentials. Follow strictly the procedure for access via portal explained in tool tips. Due to the same-origin-policy all portal responses will be shown in a separate window.

2.1.6 Overview of web services


...
Android
iPhone
iApp
HTTP GET Request / Response
HTTP POST Request / Response
Gerät Xyz
Externe Applikation Xyz
OZWx72
http://<device-ip>/api/version.json
Authentification
http://<device-ip>/api/auth/version.json
http://<device-ip>/api/auth/login.json
http://<device-ip>/api/auth/logout.json
(local) Device
http://<device-ip>/api/device/version.json
http://<device-ip>/api/device/info.json
Devicelist
http://<device-ip>/api/devicelist/version.json
http://<device-ip>/api/devicelist/list.json
Fault
http://<device-ip>/api/fault/version.json
http://<device-ip>/api/fault/status.json
http://<device-ip>/api/fault/list.json
http://<device-ip>/api/fault/device.json
Energy Indicator
http://<device-ip>/api/energyindicator/version.json
http://<device-ip>/api/energyindicator/status.json
http://<device-ip>/api/energyindicator/list.json
Menutree
http://<device-ip>/api/menutree/version.json
http://<device-ip>/api/menutree/device_root.json
http://<device-ip>/api/menutree/list.json
http://<device-ip>/api/menutree/read_datapoint[_direct].json
http://<device-ip>/api/menutree/write_datapoint[_direct].json
http://<device-ip>/api/menutree/datapoint_desc[_direct].json
Energy Cost Allocator
http://<device-ip>/api/eca/version.json
http://<device-ip>/api/eca/download.json
Trend
http://<device-ip>/api/trend/version.json
http://<device-ip>/api/trend/download.json
Portal
http://<portal-ip>/api/...
Authentification
http://<portal-ip>/api/auth/version.json
http://<portal-ip>/api/auth/login.json
http://<portal-ip>/api/auth/logout.json
Site
http://<portal-ip>/api/site/version.json
http://<portal-ip>/api/site/list.json

2.2 API interface versions

2.2.1 API Version 1.0.0

Service group	API	Interface version	OZW772 as of	OZW672 as of
API	***/api/***	***1.0.0***	V04.04	
Authentication	…/auth/	1.0.0	V04.04	
(Local) Device	…/device/	1.0.0	V04.04	
DeviceList	…/devicelist/	1.0.0	V04.04	
Fault	…/fault/	1.0.0	V04.04	
Energy Indicator	…/energyindicator/	1.0.0	V04.04	
Menu tree	…/menutree/	1.0.0	V04.04	

2.2.2 API Version 1.1.0

Service group	API	Interface version	OZW772 as of	OZW672 as of
API	***/api/***	***1.1.0***	V04.06	V04.05
Authentication	…/auth/	1.0.0	V04.06	V04.05
(Local) Device	…/device/	1.0.0	V04.06	V04.05
DeviceList	…/devicelist/	1.0.0	V04.06	V04.05
Fault	…/fault/	1.0.0	V04.06	V04.05
Energy Indicator	…/energyindicator/	1.0.0	V04.06	V04.05
Menu tree	…/menutree/	1.1.0	V04.06	V04.05

2.2.3 API Version 1.2.0

Service group	API	Interface version	OZW772 as of	OZW672 as of
API	***/api/***	***1.2.0***	V04.06	V04.05
Authentication	…/auth/	1.0.0	V04.06	V04.05
(Local) Device	…/device/	1.0.0	V04.06	V04.05
DeviceList	…/devicelist/	1.0.0	V04.06	V04.05
Fault	…/fault/	1.0.0	V04.06	V04.05
Energy Indicator	…/energyindicator/	1.0.0	V04.06	V04.05
Menu tree	…/menutree/	1.1.0	V04.06	V04.05
Trend	…/trend/	1.0.0	V05.00	V05.00
Eca	…/eca/	1.0.0	V05.00	-

2.2.4 API Version 1.3.0

Servicegruppe	API	Interfaceversion	OZW772 as of	OZW672 as of
API	***/api/***	***1.3.0***	V06.00	V06.00
Authentification	…/auth/	1.0.0	V04.06	V04.05
(Local) Device	…/device/	1.1.0	V06.00	V06.00
DeviceList	…/devicelist/	1.0.0	V04.06	V04.05
Fault	…/fault/	1.0.0	V04.06	V04.05
Energy Indicator	…/energyindicator/	1.0.0	V04.06	V04.05
Menutree	…/menutree/	1.2.0	V06.00	V06.00
Trend	…/trend/	1.0.0	V05.00	V05.00
Eca	…/eca/	1.0.0	V05.00	-

2.3 Common services

Function name	Application
version	Version information of all API services

2.3.1 version - /api/version

Request URI (HTTP GET):
http://mydevice/api/version.format

Request example:

```
http://192.168.251.1/api/version.json
```

Response body in JSON:

```
{
         "Version": "1.1.9",
         "Result": ...
}
```

Response body in XML:

```
<Service>
         <Version>1.1.9</Version>
         <Result>...</Result>
</Service>
```

2.4 Authentication services

Function name	Application
version	Version information of authentication services
login	Authentication and resolving a SessionID
logout	Ending a session

2.4.1 version - /api/auth/version

Request URI (HTTP GET):
http://mydevice/api/auth/version.format

Request example:

```
http://192.168.251.1/api/auth/version.json
```

The response content is the same as for service version - /api/version (Sec. 2.3.1).

2.4.2 login - /api/auth/login

Request URI (HTTP GET):
http://mydevice/api/auth/login.format

Example:

```
http://192.168.251.1/api/auth/login.json?user=HansMuster&pwd=MyPassword
```

Request parameter:

Parameter	Example	Default value	Description
user	HansMuster	(none)	User name
pwd	MyPassword	(none)	Password

Response body in JSON:

```
{
         "SessionId": "0bc991a1-04eb-4a7c-8371-4ab648ec8a88",
         "Result": ...
}
```

Response body in XML:

```
<Service>
         <SessionId>0bc991a1-04eb-4a7c-8371-4ab648ec8a88</SessionId>
         <Result>...</Result>
</Service>
```

2.4.3 logout - /api/auth/logout

Request URI (HTTP GET):
http://mydevice/api/auth/logout.format

Request example:

```
http://192.168.251.1/api/auth/logout.json?SessionId=0bc991a1-04eb-4a7c-8371-4ab648ec8a88
```

Request parameter:

Parameter	Example	Default value	Description
SessionId	0bc991a1-04eb-4a7c-…	(none)	SessionId of the current session

Response body in JSON:

```
{
         "Result": ...
}
```

Response body in XML:

```
<Service>
         <Result>...</Result>
</Service>
```

2.5 (Local) Device Services

Function name	Application
version	Device services version information
info	General information on the local OZW device

2.5.1 version - /api/device/version

Request URI (HTTP GET):
http://mydevice/api/device/version.format

Request example:

```
http://192.168.251.1/api/device/version.json
```

The response content is the same as for service version - /api/version (Sec. 2.3.1).

2.5.2 info - /api/device/info

Request URI (HTTP GET):
http://mydevice/api/device/info.format

Request example:

```
http://192.168.251.1/api/device/info.json?SessionId=0bc991a1-04eb-4a7c-8371-4ab648ec8a88
```

Request parameter:

Parameter	Example	Default value	Description
SessionId	0bc991a1-04eb-4a7c-…	(none)	SessionId of the current session

Response body in JSON:

```
{
        "Device":
                {
                        "Name": "My Web control unit",
                        "Addr": "0.2.33",
                        "Type": "OZW772.16",
                        "FabNr": "531",
                        "SerialNr": "00FD00FF01F0",
                        "FwVersion": "4.1.2",
                        "SysDefVersion": "2.11.1"
                }
        "Result": ...
}
```

Response body in XML:

```
<Service>
        <Device>
                <Name>My web control unit</Name>
                <Addr>0.2.33</Addr>
                <Type>OZW772.16</Type>
                <FabNr>531</FabNr>
                <SerialNr>00FD00FF01F0</SerialNr>
                <FwVersion>4.1.2</SwVersion>
                <SysDefVersion>2.11.1</SysDefVersion>
        </Device>
        <Result>...</Result>
</Service>
```

2.6 Device list services

Function name	Application
version	Device list services version information
list	List of centralized logged devices for monitoring and operation[1]

[1] The list is not sorted

2.6.1 version - /api/devicelist/version

Request URI (HTTP GET):
http://mydevice/api/devicelist/version.format

Request example:

```
http://192.168.251.1/api/devicelist/version.json
```

The response content is the same as for service version - /api/version (Sec. 2.3.1).

2.6.2 list - /api/devicelist/list

Request URI (HTTP GET):
http://mydevice/api/devicelist/list.format

Request example:

```
http://192.168.251.1/api/devicelist/list.json?SessionId=0bc991a1-04eb-4a7c-8371-4ab648ec8a88
```

Request parameter:

Parameter	Example	Default value	Description
SessionId	0bc991a1-04eb-4a7c-…	(none)	SessionId of the current session

Response body in JSON:

```
{
          "Devices":
                    [
                              {
                                        "Name": "My web control unit",
                                        "Addr": "0.2.150",
                                        "Type" : OZW772.16
                                        "SerialNr"[1]: "00FD00FF01F0",
                                        "TreeDate": "23.05.2011"
                                        "TreeTime": "12:36",
                                        "TreeGenerated": "true"
                              },
                              {
                                        "Name": "My central apartment unit",
                                        "Addr": "0.2.33",
                                        "Type": "QAX910"
                                        "SerialNr"[1]: "00FD00015C88",
                                        "TreeDate": "23.05.2011",
                                        "TreeTime": "12:37",
                                        "TreeGenerated": "false"
                              }
                    ],
          "Result": ...
}
```

Response body in XML:

```
<Service>
          <Devices>
                    <Device>
                              <Name>My web control unit</Name>
                              <Addr>0.2.150</Addr>
                              <Type>OZW772.16</Type>
                              <SerialNr>00FD00FF01F0</SerialNr>[1]
                              <TreeDate>23.05.2011</TreeDate>
```

```
                             <TreeTime>12:36</TreeTime>
                             <TreeGenerated>true</TreeGenerated>[2]
                    </Device>
                    <Device>
                             <Name>My central apartment unit</Name>
                             <Addr>0.2.33</Addr>
                             <Type>QAX910</Type>
                             <SerialNr>00FD00015C88</SerialNr>[1]
                             <TreeDate>23.05.2011</TreeDate>
                             <TreeTime>12:37</TreeTime>
                             <TreeGenerated>false</TreeGenerated>[2]
                    </Device>
          <Devices>
          <Result>...</Result>
</Service>
```

[1] A device can be uniquely identified based on the parameter “SerialNr”.

[2] Status as to whether a menu tree is generated for this device.

2.7 Fault services

Function name	Application
version	Fault services version information
status	Plant alarm state
list	List of plant faults [1]
device	Worst fault on a device

[1] List with a maximum of 10 device faults sorted by fault relevance. Per device is maximal one device fault listed.

2.7.1 version - /api/fault/version

Request URI (HTTP GET):
http://mydevice/api/fault/version.format

Request example:

```
http://192.168.251.1/api/fault/version.json
```

The response content is the same as for service version - /api/version (Sec. 2.3.1).

2.7.2 status - /api/fault/status

Request URI (HTTP GET):
http://mydevice/api/fault/status.format

Request example:

```
http://192.168.251.1/api/fault/status.json?SessionId=0bc991a1-04eb-4a7c-8371-4ab648ec8a88
```

Request parameter:

Parameter	Example	Default value	Description
SessionId	0bc991a1-04eb-4a7c-…	(none)	SessionId of the current session

Response body in JSON (without plant fault):

```
{
         "HasFault": "false",
         "Result": ...
}
```

Response body in JSON (with plant faults):

```
{
         "HasFault": "true",
         "Result": ...
}
```

Response body in XML (without plant fault):

```
<Service>
         <HasFault>false</HasFault>
         <Result>...</Result>
</Service>
```

Response body in XML (with plant faults):

```
<Service>
         <HasFault>true</HasFault>
         <Result>...</Result>
</Service>
```

2.7.3 list - /api/fault/list

Request URI (HTTP GET):
http://mydevice/api/fault/list.format

Request example:

```
http://192.168.251.1/api/fault/list.json?SessionId=0bc991a1-04eb-4a7c-8371-4ab648ec8a88
```

Request parameter:

Parameter	Example	Default value	Description
SessionId	0bc991a1-04eb-4a7c-…	(none)	SessionId of the current session

Response body in JSON (without plant fault):

```
{
          "Faults":
                    [
                    ],
          "FaultsText": "Plant OK[1]"
          "Result": ...
}
```

[1] Text “Plant OK” in the language of the authenticated user.

Response body in JSON (with plant faults):

```
{
          "Faults":
                    [
                              {
                                        "Text": "TA sensor fault",
                                        "Date": "06.04.2011",
                                        "Time": "14:33",
                                        "Id": "10"
                                        "Device":
                                        {
                                                  "Name": "My central apartment unit",
                                                  "Addr": "0.2.33",
                                                  "Type": "QAX910",
                                        }
                              },
                              {

                                        "Text": "Device failure",
                                        "Date": "20.04.2011",
                                        "Time": "18:11",
                                        "Id": "5012"
                                        "Device":
                                        {
                                                  "Name": "My web control unit",
                                                  "Addr": "0.2.150",
                                                  "Type": "OZW772.16",
                                        }
                              }
                    ],
          "FaultsText": "Fault[1]"
          "Result": ...
}
```

[1] Text “Fault” in the language of the authenticated user.

Response body in XML (without plant fault):

```
<Service>
          <Faults>
          </Faults>
          <FaultsText>Plant OK[1]</FaultsText>
          <Result>...</Result>
</Service>
```

[1] Text “Plant OK” in the language of the authenticated user.

Response body in XML (with plant faults):

```
<Service>
        <Faults>
                <Fault>
                        <Text>TA sensor fault</Text>
                        <Date>06.04.2011</Date>
                        <Time>14:33</Time>
                        <Id>10</Id>
                        <Device>
                                <Name>My central apartment unit</Name>
                                <Addr>0.2.33</Addr>
                                <Type>QAX910</Type>
                        </Device>
                </Fault>
                <Fault>
                        <Text>Device failure</Text>
                        <Date>20.04.2011</Date>
                        <Time>18:11</Time>
                        <Id>5012</Id>
                        <Device>
                                <Name>My web control unit</Name>
                                <Addr>0.2.150</Addr>
                                <Type>OZW772.16</Type>
                        </Device>
                </Fault>
        </Faults>
        <FaultsText>Fault[1]</FaultsText>
        <Result>...</Result>
</Service>
```

[1] Text “Fault” in the language of the authenticated user.

2.7.4 device - /api/fault/device

Request URI (HTTP GET):
http://mydevice/api/fault/device.format

Request example:

```
http://192.168.251.1/api/fault/device.json?SessionId=0bc991a1-04eb-4a7c-8371-4ab648ec8a88
&SerialNumber=00FD00FF01F0
```

Request parameter:

Parameter	Example	Default value	Description
SessionId	0bc991a1-04eb-4a7c-…	(none)	SessionId of the current session
SerialNumber	00FD00FF01F0	(none)	Unique device serial number

Response body in JSON (without device fault):

```
{
        "Result": ...
}
```

Response body in JSON (with device fault):

```
{
        "Fault":
                {
                        "Text": "TA sensor fault",
                        "Date": "06.04.2011",
                        "Time": "14:33",
                        "Id": "10"
                        "Device":
                        {
                                "Name": "My central apartment unit",
                                "Addr": "0.2.33",
                                "Type": "QAX910",
                        }
                },
          "Result": ...
}
```

Response body in XML (without device fault):

```
<Service>
          <Result>...</Result>
</Service>
```

Response body in XML (with device fault):

```
<Service>
          <Fault>
                    <Text>TA sensor fault</Text>
                    <Date>06.04.2011</Date>
                    <Time>14:33</Time>
                    <Id>10</Id>
                    <Device>
                              <Name>My central apartment unit</Name>
                              <Addr>0.2.33</Addr>
                              <Type>QAX910</Type>
                    </Device>
          </Fault>
          <Result>...</Result>
</Service>
```

2.8 Energy indicator services

Function name	Application
version	Energy Indicator Service version info
status	Plant energy indication state
list	List of plant energy indication messages[1]

[1] List of max. 10 energy indication messages sorted by message relevance.

2.8.1 version - /api/energyindicator/version

Request URI (HTTP GET):
http://mydevice/api/energyindicator/version.format

Request example:

```
http://192.168.251.1/api/energyindicator/version.json
```

The response content is the same as for service version - /api/version (Sec. 2.3.1).

2.8.2 status - /api/energyindicator/status

Request URI (HTTP GET):
http://mydevice/api/energyindicator/status.format

Request example:

```
http://192.168.251.1/api/energyindicator/status.json?SessionId=0bc991a1-04eb-4a7c-8371-
4ab648ec8a88
```

Request parameter:

Parameter	Example	Default value	Description
SessionId	0bc991a1-04eb-4a7c-…	(none)	SessionId of the current session

Response body in JSON (Energy Indicator not activated):

```
{
         "IsIndicationActive"[1]: "false",
         "HasIndication"[2]: "false",
         "Result": ...
}
```

[1] Status on whether the function energy indicator is active or at least 1 plant data point is being monitored.

[2] Status as to whether at least one indication message exists.

Response body in JSON (Energy indicator is activated, without energy indication messages):

```
{
         "IsIndicationActive": "true",
         "HasIndication": "false",
         "Result": ...
}
```

Response body in JSON (Energy indicator activated, with energy indication messages):

```
{
         "IsIndicationActive": "true",
         "HasIndication": "true",
         "Result": ...
}
```

Response body in XML (Energy indicator not activated):

```
<Service>
         <IsIndicationActive>false</IsIndicationActive>[1]
```

```
        <HasIndication>false</HasIndication>[2]
        <Result>...</Result>
</Service>
```

[1] Status whether the function energy indicator is activated.

[2] Status whether at least one indication message exists.

Response body in XML (Energy indicator activated, without energy indication messages):

```
<Service>
        <IsIndicationActive>true</IsIndicationActive>
        <HasIndication>false</HasIndication>
        <Result>...</Result>
</Service>
```

Response body in XML (Energy indicator activated, with energy indication messages):

```
<Service>
        <IsIndicationActive>true</IsIndicationActive>
        <HasIndication>true</HasIndication>
        <Result>...</Result>
</Service>
```

2.8.3 list - /api/energyindicator/list

Request URI (HTTP GET):
http://mydevice/api/energyindicator/list.format

Request example:

```
http://192.168.251.1/api/energyindicator/list.json?SessionId=0bc991a1-04eb-4a7c-8371-4ab648ec8a88
```

Request parameter:

Parameter	Example	Default value	Description
SessionId	0bc991a1-04eb-4a7c-…	(none)	SessionId of the current session

Response body in JSON (without energy indication messages):

```
{
        "Indications":
                [
                ],
        "IndicationsText": "Plant OK[1]"
        "Result": ...
}
```

[1] Text “Plant OK” in the language of the authenticated user.

Response body in JSON (with energy indication messages):

```
{
        "Indications":
                [
                        {
                                "Text": "2 setpoints from 5 monitored setpoints …"
                                "Device":
                                {
                                        "Name": "My central apartment unit",
                                        "Addr": "0.2.33",
                                        "Type": "QAX910",
                                }
                        },
                        {
                                "Text": "2 setpoints from 5 monitored setpoints …"
                                "Device":
                                {
                                        "Name": "My universal controlled",
                                        "Addr": "0.2.55",
                                        "Type": "RMU730B",
                                }
                        }
                ],
        "IndicationsText": "5 of 23 monitored setpoints exceed a limit[1]"
        "Result": ...
}
```

[1] Text "x setpoints of y monitored setpoints exceed a limit" in the language of the authenticated user.

Response body in XML (without energy indication messages):

```
<Service>
        <Indications>
        </Indications>
        <IndicationsText>Plant OK[1]</IndicationsText>
        <Result>...</Result>
</Service>
```

[1] Text “Plant OK” in the language of the authenticated user.

Response body in XML (with Energy Indication messages):

```
<Service>
        <Indications>
                <Indication>
                        <Text>2 of 5 monitored values have exceeded your green limits…</Text>
                        <Device>
                                <Name>My central apartment unit</Name>
                                <Addr>0.2.33</Addr>
                                <Type>QAX910</Type>
                        </Device>
                </Indication>
                <Indication>
                        <Text>2 of 5 monitored values have exceeded your green limits…</Text>
                        <Device>
                                <Name>My universal controller</Name>
                                <Addr>0.2.55</Addr>
                                <Type>RMU730</Type>
                        </Device>
                </Indication>
        </Indications>
        <IndicationsText>5 of 23 monitored values have exceeded your green
limits…[1]</IndicationsText>
        <Result>...</Result>
</Service>
```

[1] Text "x of y monitored values have exceeded your Green Limits" in the language of the authenticated user.

2.9 Menu tree services

Function name	Application
version	Menu tree services version information
device_root	Query the entry point in the menu tree of a defined device and a defined sub-menu tree (mobile, SMS, etc.)
list	Query the menu and data point item list at a defined location.
	Indirect identification of a data point via the menu tree ID
read_datapoint	Read a data point value
write_datapoint	Write a data point value
datapoint_desc	Data point description of change (minimum, maximum, adjustment step, etc.)
	Direct identification of a data point via device serial number, data point address and SubKey
read_datapoint_direct	Read a data point value
write_datapoint_direct	Write a data point value
datapoint_desc_direct	Data point description of change (minimum, maximum, adjustement step, etc.)

The services “read_datapoint…”, “write_datapoint…” and “datapoint_desc…” can access individual devices and their data points. A data point can be uniquiely identified based on parameters “Address” and "DpSubKey". The two parameters are included in the disclosure document for the applicable device.

The disclosure documents can be order as per the "Non-Disclosure & Confidentiality License Agreement" from regional Siemens representatives.

2.9.1 Data types

An overview of supported data types:

Data type	Application	Data type in internal data model
String	String	LSTRING, NEWSTRING, STRING20, VALMV[1]
Numeric	Numerical values	VALA16/32, VALIT32, VALI8/16/32, VALN8/16/32, VALMN8/16/32, VALCNT[1]
Enumeration	Enumerations	VALME8/16
CheckBox	Checkboxes	VALS/S8
RadioButton	Radio buttons	VALB, VALSB8/SB
DateTime	Time & date	VALDATE, VALDAYDATE
TimeOfDay	Time of day (relative)	LVALT, VALTOD_RELATIVE
TimeOfDay	Time of day (absolute)	LVALTOD, VALTOD
Scheduler	Daily scheduler (field bus LPB)	LTSPRG
Scheduler	Daily scheduler (field bus KNX)	SWITCHPOINT
Calendar	Holiday/exception day programs (field bus KNX)	EXCEPTIONPERIODS
AlarmInfo[1]	Alarm information	ALARMINFO[1]

[1] These data types can only be read system-wide. Services write_data point & data point_desc are not supported.

2.9.2 version - /api/menutree/version

Request URI (HTTP GET):
http://mydevice/api/menutree/version.format

Request example:

```
http://192.168.251.1/api/menutree/version.json
```

The response content is the same as for service version - /api/version (Sec. 2.3.1).

2.9.3 device_root - /api/menutree/device_root

Request URI (HTTP GET):
http://mydevice/api/menutree/device_root.format

Request example:

```
http://192.168.251.1/api/menutree/device_root.json?SessionId=0bc991a1-04eb-4a7c-8371-4ab648ec8a88
&SerialNumber=00FD00FF01F0&TreeName=Mobile
```

Request parameter:

Parameter	Example	Default value	Description
SessionId	0bc991a1-04eb-4a7c-…	(none)	SessionId of the current session
SerialNumber	00FD00FF01F0	(none)	Unique device serial number
TreeName[1]	Mobile	(none)	Sub-menu tree (Web, Mobile, SMS, …)[1] of a device

[1] Currently, only sub-menu trees “Web” (menu tree for web operation) and “Mobile” (optimized device status pages for smartphone Apps) are supported.

Response body in JSON:

```
{
         "TreeItem":
                  {
                           "Id": "922"
                  }
         "Result": ...
}
```

Response body in XML:

```
<Service>
         <TreeItem>
                  <Id>922</Id>
         </TreeItem>
         <Result>...</Result>
</Service>
```

2.9.4 list - /api/menutree/list

Request URI (HTTP GET):
http://mydevice/api/menutree/list.format

Request example:

```
http://192.168.251.1/api/menutree/list.json?SessionId=0bc991a1-04eb-4a7c-8371-4ab648ec8a88&Id=922
```

Request parameter:

Parameter	Example	Default value	Description
SessionId	0bc991a1-04eb-4a7c-…	(none)	SessionId of the current session
Id	922	(none)	Father menu in the menu tree

Response body in JSON:

```
{
        "MenuItems":
                [
                        {
                                "Id": 1015,
                                "Text" :
                                {
                                        "CatId"[1]: "1",
                                        "GroupId"[1]: "4",
                                        "Id"[1]: "134",
                                        "Long": “Room operating mode”,
                                        "Short": "Room op mode",
                                }
                        }
                ],

        "DatapointItems":
                [
                        {
                                "Id": "45",
                                "Address"[3]: "0x102F1001",
                                "DpSubKey"[3]: "0",
                                "WriteAccess": "true"
                                "Text" :
                                {
                                        "CatId"[1]: "1",
                                        "GroupId"[1]: "2",
                                        "Id"[1]: "1949",
                                        "Long": "Overshoot time",
                                        "Short": "Overshoot time",
                                }
                        },
                        {

                                "Id": "1020",
                                "Address"[3]: "0x102F2001",
                                "DpSubKey"[3]: "0",
                                "WriteAccess": "false",
                                "Text" :
                                {
                                        "CatId"[1]: "1",
                                        "GroupId"[1]: "2",
                                        "Id"[1]: "319",
                                        "Long": "Comfort heating setpoint",
                                        "Short": "Comf. heating setpoint",
                                }
                        }
                ]

        "WidgetItems"[2]:
                [
                        {
                                "Id": "45",
                                "Area": "1",
                                "Type": "0",
                                "WidgetId": "1",
                                "Priority": "2",
                                "IconNr": "14",
                                "PressedValue": "0",
                                "Data point" :
                                {
                                        "Id": "46",
                                        "GroupTxtId"[1]: "542",
                                },
                                "Text" :
                                {
                                        "CatId"[1]: "1",
                                        "GroupId"[1]: "2",
                                        "Id"[1]: "319",
                                        "Long": "Comfort heating setpoint",
                                        "Short": "Comf. heating setpoint",
                                }
                        },
                        {
                                "Id": "47",
                                "Area": "2",
                                "Type": "3",
                                "WidgetId": "1",
                                "Priority": "2",
                                "IconNr": "33",
                                "PressedValue": "0",
                                "Datapoint" :
                                {
                                        "Id": "48",
                                        "GroupTxtId"[1]: "543"
                                },
                                "DatapointFeedback"[4]:
                                {
                                        "Id": "49",
                                        "GroupTxtId"[1]: "335"
                                },

                                "Text" :
                                {
                                        "CatId"[1]: "1",
                                        "GroupId"[1]: "2",
                                        "Id"[1]: "320",
                                        "Long": "Comfort heating setpoint",
                                        "Short": "Comf. heating setpoint",
                                }

                        }
                ]

        "Result": ...
}
```

[1] (Text-) CatId, GroupId and Id result together in a unique reference to a text.

[2] Widget information is only available in the sub-menu tree “Mobile”. A widget item represents a data point that is visualized on a smartphone App as widget. The WidgetId is a unique reference within a device menu tree.

[3] Inside a device can a data point be uniquely identified based on parameters "Address" and "DpSubKey". The two parameters are included in the disclosure document on the device.

[4] Parameters for feedback data point are available even if a corresponding feedback data point is defined.

Response body in XML:

```
<Service>
        <MenuItems>
                <MenuItem>
                        <Id>1015</Id>,
                        <Text>
                                <CatId>1</CatId>
                                <GroupId>4</GroupId>
                                <Id>134</Id>
                                <Long>Room operating mode</Long>
                                <Short>Room op mode</Short>
                        </Text>
                </MenuItem>
        <MenuItems>
        <DatapointItems>
                <DatapointItem>
                        <Id>45</Id>,
                        <Address>0x102F1001</Address>
                        <DpSubKey>0</DpSubKey>
                        <WriteAccess>true<WriteAccess>
                        <Text>
                                <CatId>1</CatId>
                                <GroupId>2</GroupId>
                                <Id>1949</Id>
                                <Long>Overshoot time</Long>
                                <Short>Overshoot time</Short>
                        </Text>
                </DatapointItem>
                <DatapointItem>
```

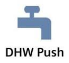
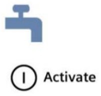
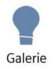
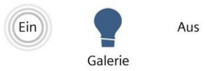
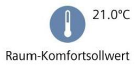
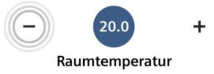
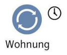
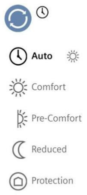
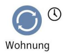
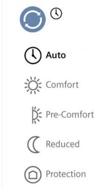
```
                        <Id>1020</Id>
                        <Address>0x102F2001</Address>
                        <DpSubKey>0</DpSubKey>
                        <WriteAccess>false<WriteAccess>
                        <Text>
                                <CatId>1</CatId>
                                <GroupId>2</GroupId>
                                <Id>319</Id>
                                <Long>Comfort heating setpoint</Long>
                                <Short>Comf. heating setp.</Short>
                        </Text>
                </DatapointItem>
        <DatapointItems>
        <WidgetItems>
                <WidgetItem>
                        <Id>45</Id>
                        <Area>1</Area>
                        <Type>0</Type>
                        <WidgetId>1</WidgetId>
                        <Priority>2</Priority>
                        <IconNr>14</IconNr>
                        <PressedValue>0</PressedValue>
                        <Datapoint>
                                <Id>46</Id>
                                <GroupTxtId>542</GroupTxtId>
                        </Datapoint>
                        <Text>
                                <CatId>1</CatId>
                                <GroupId>2</GroupId>
                                <Id>319</Id>
                                <Long>Comfort heating setpoint</Long>
                                <Short>Comf. heating setp.</Short>
                        </Text>
                </WidgetItem>
                <WidgetItem>
                        <Id>47</Id>
                        <Area>2</Area>
                        <Type>3</Type>
                        <WidgetId>2</WidgetId>
                        <Priority>1</Priority>
                        <IconNr>33</IconNr>
                        <PressedValue>0</PressedValue>
                        <Datapoint>
                                <Id>48</Id>
                                <GroupTxtId>543</GroupTxtId>
                        </Datapoint>
                        <DatapointFeedback>
                                <Id>49</Id>
                                <GroupTxtId>335</GroupTxtId>
                        </DatapointFeedback>
                        <Text>
                                <CatId>1</CatId>
                                <GroupId>2</GroupId>
                                <Id>320</Id>
                                <Long>PreComfort heating setpoint</Long>
                                <Short>PreComf. heating setp.</Short>
                        </Text>
                </WidgetItem>
        </WidgetItems>
        <Result>...</Result>
</Service>
```

Widget item parameters:

Parameter	Example	Description
Id	47	Widget item in the menu tree
Area	0, 1, 2	Display area of the widget item 0 (Status), 1 (Basic), 2 (Work area)
Type	3	Widget item type: 0 (Common), 1 (PushButton), 2 (PushButtonDual), 3 (Range), 4 (List)
WidgetId	2	Unique, static Id within a device
Priority	1	Priority among all a device’s widget item. Value “0”

		is reserved for “not defined”.
IconNr	33	Icon to widget item
PressedValue	0, 1, …	*Only for widget type “PushButton”:* Value of activated element
Data point: Id	48	Data point referenced by widget in the menu tree
Data point: GroupTxtId	543	*Only for widget type “List”, “PushButton” or “PushButtonDual:* Text group of values enumeration to referenced data point.
Data point feedback: Id	59	*Only for widget type “List”:* Feedback data point referenced by widget in the menu tree
Data point feedback: GroupTxtId	335	*For only widget type “List”:* Text group of value enumeration to referenced feedback data point
Text: CatId	1	System catalog of widget item text
Text: GroupId	2	Text group of the widget item text
Text: Id	320	TextId of widget item text
Text: Long	PreComfort heating setpoint	Long widget item text
Text: Short	PreComf. heating setp.	Short widget item text

Dialog example of widget items in work area of a smartphone App:

Widget item type	**Widget item inactive**	**Widget item active**	**Description**
1, PushButton			Operation for an event trigger
2, PushButtonDual			Operating for two-event triggers
3, Range			Operation for value with setting range
4, List			Operation with selection list (with feedback data point)
4, List			Operating with selection list (without feedback data point)

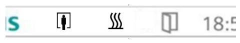
Dialog example for widget item in basic are[1] of a smartphone App:

Widget item type	**Display**		**Description**
(2, PushButtonDual)[1] (3, Range)[1] (4, List)[1]			Display for value

[1] In the basic area, widget items are read only and cannot be edited.

Dialog example of widget items in the status area[1] of a smartphone App:

Widget items type	**Display**		**Description**

(2, PushButtonDual)[1] (4, List)[1]			Display for value symbols

[1] In the status area, widget items are read only and cannot be edited.

Relationship of widget items and data types for the referenced data points:

Widget item type	Data types
1, PushButton	RadioButton
2, PushButtonDual	RadioButton, Enumeration
3, Range	Numeric or TimeOfDay
4, List	Enumeration

2.9.5 read_datapoint - /api/menutree/read_datapoint

Request URI (HTTP GET):
http://mydevice/api/menutree/read_datapoint.format

Request example:

```
http://192.168.251.1/api/menutree/read_datapoint.json?SessionId=0bc991a1-04eb-4a7c-8371-
4ab648ec8a88&Id=878
```

Request parameter:

Parameter	Example	Default value	Description
SessionId	0bc991a1-04eb-4a7c-…	(none)	SessionId of the current session
Id	878	(none)	Data point in the menu tree

Response body in JSON:

```
{
        "Data":
                {
                        "Type": "Numeric"[1],
                        "Value": "28.0",[2]
                        "Unit": "°C",
                        "EnumValue": "10"[3]
                }
        "Result": ...
}
```

Response body in XML:

```
<Service>
        <Data>
                <Type>Numeric</Type>[1],
                <Value>28.0</Value>[2]
                <Unit>°C</Unit>
                <EnumValue>10</EnumValue>[3]
        </Data>
        <Result>...</Result>
</Service>
```

[1] All data types are supported

[2] The value is always returned as a string regardless of data type. The strings are UTF8 and JSON encoded.

[3] In addition, the current enumeration is always returned during an enumeration as of version 1.1.0.

2.9.6 read_datapoint_direct - /api/menutree/read_datapoint_direct

Request URI (HTTP GET):
http://mydevice/api/menutree/read_datapoint_direct.format

Request example:

```
http://192.168.251.1/api/menutree/read_datapoint_direct.json?SessionId=0bc991a1-04eb-4a7c-8371-
4ab648ec8a88&SerialNumber=00FD00FF01F0&Address=0x102F1001&DpSubKey=0
```

Request parameter:

Parameter	Example	Default value	Description
SessionId	0bc991a1-04eb-4a7c-…	(none)	SessionId of a current session
SerialNumber	00FD00FF01F0	(none)	Unique device serial number
Address[1]	0x102F1001	(none)	Data point address
DpSubKey[1]	0	0	Supplement data point identification

[1] Inside a device can a data point be uniquely identified based on the parameters "Address" and "DpSubKey". The two parameters are included in the disclosure document for the device.

Response Body in JSON / XML:
The same as for service read_datapoint - /api/menutree/read_datapoint im Sec. 2.9.5.

2.9.7 datapoint_desc - /api/menutree/datapoint_desc

Request URI (HTTP GET):
http://mydevice/api/menutree/datapoint_desc.format

Request example:

```
http://192.168.251.1/api/menutree/datapoint_desc.json?SessionId=0bc991a1-04eb-4a7c-8371-
4ab648ec8a88&Id=878
```

Request parameter:

Parameter	Example	Default value	Description
SessionId	0bc991a1-04eb-4a7c-…	(none)	SessionId of the current session
Id	878	(none)	Data point in the menu tree

Response body in JSON:

```
{
        "Description":
                {
                        "Type": "..."[1],
                        ...
                }
        "Result": ...
}
```

Response body in XML:

```
<Service>
        <Description>
                <Type>...</Type>[1]
                ...
        </Description>
        <Result>...</Result>
</Service>
```

[1] Possible data types include String, Numeric, Enumeration, CheckBox, RadioButton, DateTime, TimeOfDay and Scheduler.

2.9.7.1 *Data type String*

Parameter in the data point description:

Parameter	Example	Description
Type	String	Data type
Value	MyPlant	Present value
Name	Plant name	Data point name
DialogType [1]	Normal, Password [1]	Sub-dialog type
MaxLength	21	Maximum string length (including end characters)

[1] Passwords are displayed using the placeholder "•" per character.

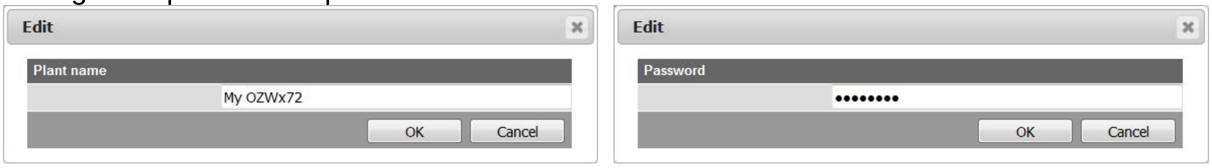
Response body in JSON for data type string:

```
{
         "Description":
                  {
                           "Type": "String",
                           "Value": "MyPlant",
                           "Name": "Plant name",
                           "DialogType": "Normal",
                           "MaxLength": "21",
                  }
         "Result": ...
}
```

Response body in XML for data type string:

```
<Service>
         <Description>
                  <Type>String</Type>
                  <Value>MyPlant</Value>
                  <Name>Plant name</Name>
                  <DialogType>Normal</DialogType>
                  <MaxLength>21</MaxLength>
         </Description>
         <Result>...</Result>
</Service>
```

Dialog example of web operation:



Edit

Plant name: My OZWx72

Edit

Password: ••••••••

2.9.7.2 *Data type: Numeric*

Parameter in the data point description:

Parameter	Example	Description
Type	Numeric	Data point data type
Value	39.5	Present value
Unit	°C	Data point unit
Name	Comfort	Data point name
Min	24.0	Minimum value limitation
Max	67.4	Maximum value limitation
Resolution	0.5	Value resolution
FieldWitdh	5	Maximum characters in the value (including prefixes or commas)
DecimalsDigits	1	Number of decimal points following the period
HasValid [1]	false	Data point has validity info
IsValid [1]	true	Data point validity info

[1] A data point can also be “invalid” in addition to the normal setting range. The actual data point is not longer relevant if “invalid”.

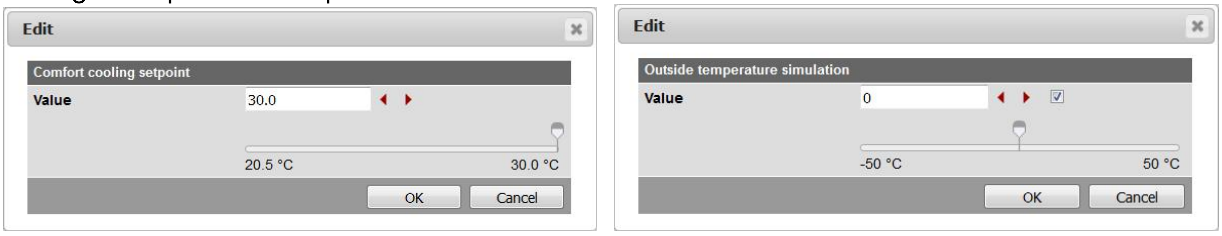
Response body in JSON for data type: Numeric:

```
{
         "Description":
                  {
                           "Type": "Numeric",
                           "Value": "39.5",
                           "Unit": "°C",
                           "Name": "Cooling setpoint comfort",
                           "Min": "24.0",
                           "Max": "67.4",
                           "Resolution": "0.5",
                           "FieldWitdh": "5",
                           "DecimalsDigits": "5",
                           "HasValid": "false",
                           "IsValid": "true",
                  }
         "Result": ...
}
```

Response body in XML for data type: Numeric:

```
<Service>
         <Description>
                  <Type>Numeric</Type>
                  <Value>39.5</Value>
                  <Unit>°C</Unit>
                  <Name>Cooling setpoint comfort</Name>
                  <Min>24.0</Min>
                  <Max>67.4</Max>
                  <Resolution>0.5</Resolution>
                  <FieldWitdh>5</FieldWitdh>
                  <DecimalsDigits>5</DecimalsDigits>
                  <HasValid>false</HasValid>
                  <IsValid>true</IsValid>
         </Description>
         <Result>...</Result>
</Service>
```

Dialog example of web operation



2.9.7.3 *Data type: Emumeration*

Parameter in the data point description:

Parameter	**Example**	**Description**
Type	Enumeration	Data point data type
Name	Weekday	Data point name
Pro Enumeration value - Text - Value [1] - IsCurrentValue [2]	 ---, Monday, Wednesday, Sunday 0, 1, 3, 7 true, false	*Pro Enumeration value* - Enumeration text - Enumeration value - Labeling of present value

[1] Gaps in enumeration values permitted.

[2] Labeling whether this enumeration value corresponds to the currently set value.

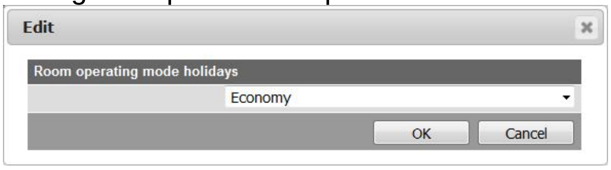
Response body in JSON for data type: Enumeration:

```
{
         "Description":
                  {
                           "Type": "Enumeration",
                           "Name": "Weekday",
                           "Enums" :
                           [
                                    {
                                             "Text": "---",
                                             "Value": "0",
                                             "IsCurrentValue": "false"
                                    },
                                    {
                                             "Text": "Monday",
                                             "Value": "1",
                                             "IsCurrentValue": "true"
                                    },
                                    ...
                           ]
                  }
         "Result": ...
}
```

Response body in XML for data type: Enumeration:

```
<Service>
         <Description>
                  <Type>Enumeration</Type>
                  <Name>Weekday</Name>
                  <Enums>
                           <Enum>
                                    <Text>---</ValueText>
                                    <Value>0</Value>
                                    <IsCurrentValue>false</IsCurrentValue>
                           </Enum>
                           <Enum>
                                    <Text>Monday</ValueText>
                                    <Value>1</Value>
                                    <IsCurrentValue>true</IsCurrentValue>
                           </Enum>
                           ...
                  </Enums>
         </Description>
         <Result>...</Result>
</Service>
```

Dialog example of web operation:



Room operating mode holidays

Economy

2.9.7.4 *Data type: CheckBox*

Parameter in the data point description:

Parameter	Example	Description
Type	CheckBox	Data point data type
Name	Active rooms	Data point name
Per each visible checkbox [1] - Text - Significance - IsActive	 Option1, Option2, Option3 2, 8, 32 true, false	*Per each visible checkbox* - Checkbox text - Checkbox valence - Checkbox state

[1] Gaps in valence of the boxes are permitted

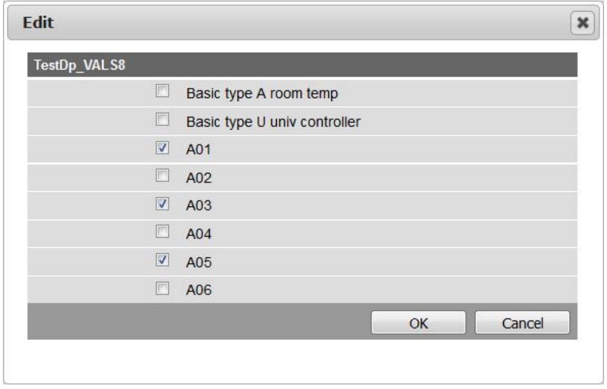
Response body in JSON for data type: CheckBox:

```
{
          "Description":
                    {
                              "Type": "CheckBox",
                              "Name": "Active rooms",
                              "Boxes" :
                              [
                                        {
                                                  "Text": "Room 1",
                                                  "Significance": "1",
                                                  "IsActive": "true"
                                        },
                                        {
                                                  "Text": "Room 2",
                                                  "Significance": "2",
                                                  "IsActive": "false"
                                        },
                                        ...
                              ]
                    }
          "Result": ...
}
```

Response body in XML for Data type CheckBox:

```
<Service>
          <Description>
                    <Type>CheckBox</Type>
                    <Name>Active rooms</Name>
                    <Boxes>
                              <Box>
                                        <Text>Room 1</Text>
                                        <Significance>1</Significance>
                                        <IsActive>true</IsActive>
                              </Box>
                              <Box>
                                        <Text>Room 2</Text>
                                        <Significance>2</Significance>
                                        <IsActive>false</IsActive>
                              </Box>
                              ...
                    </Boxes>
          </Description>
          <Result>...</Result>
</Service>
```

Dialog example of web operation:



TestDp_VALS8

☐ Basic type A room temp
☐ Basic type U univ controller
☑ A01
☐ A02
☑ A03
☐ A04
☑ A05
☐ A06

2.9.7.5 *Data type: RadioButton*

Parameter in data point description:

Parameter	Example	Description
Type	RadioButton	Data point data type

Name	Active rooms	Data point name
Per visible Radiobutton [1] - TextOpt0 - TextOpt1 - Significance - IsOpt1Active [2]	 OptionA, Off OptionB, On 2, 8, 32 true, false	*Per visible Radiobutton* - Button text for Option0 - Button text for Option1 - Valence of button Option1 - Current state on Option1

[1] Gaps in button valence is permitted.

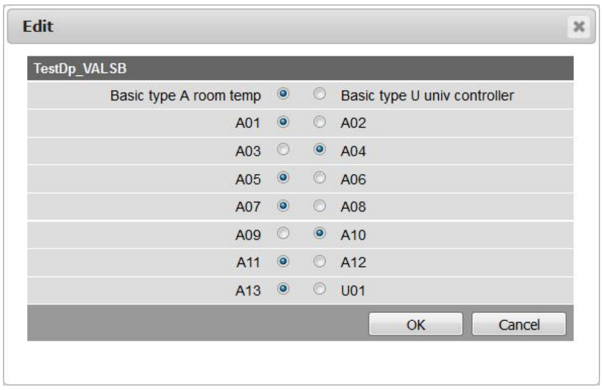
Response body in JSON for data type: RadioButton:

```
{
        "Description":
                {
                        "Type": "RadioButton",
                        "Name": "Active rooms",
                        "Buttons" :
                        [
                                {
                                        "TextOpt0": "Room 1 inactive",
                                        "TextOpt1": "Room 1 active",
                                        "Significance": "1",
                                        "IsActive": "true"
                                },
                                {
                                        "TextOpt0": "Room 2 inactive",
                                        "TextOpt1": "Room 2 active",
                                        "Significance": "2",
                                        "IsActive": "false"
                },
                ...
        ]
        "Result": ...
}
```

Response body in XML for Data type RadioButton:

```
<Service>
        <Description>
                <Type>RadioButton</Type>
                <Name>Active rooms</Name>
                <Buttons>
                        <Button>
                                <TextOpt0>Room 1 inactive</TextOpt0>
                                <TextOpt1>Room 1 active</TextOpt1>
                                <Significance>1</Significance>
                                <IsActive>true</IsActive>
                        </Button>
                        <Button>
                                <TextOpt0>Room 2 inactive</TextOpt0>
                                <TextOpt1>Room 2 active</TextOpt1>
                                <Significance>2</Significance>
                                <IsActive>false</IsActive>
                        </Button>
                        ...
                </Buttons>
        </Description>
        <Result>...</Result>
</Service>
```

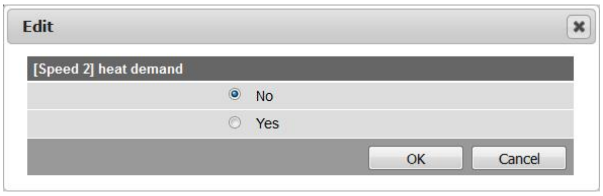
Dialog example of web operation:



Edit

TestDp_VALSB

Basic type A room temp	●	○	Basic type U univ controller
A01	●	○	A02
A03	○	●	A04
A05	●	○	A06
A07	●	○	A08
A09	○	●	A10
A11	●	○	A12
A13	●	○	U01



Edit

[Speed 2] heat demand

● No

○ Yes

2.9.7.6 *Data type: DateTime*

Parameter in the data point description:

Parameter	Example	Description
Type	DateTime	Data point data type
Name	Time & date	Data point name
Time [1,2] - Value_hh - Value_mm	 22 15	 Hours Minutes
Date [1,2] - Value_DD - Value_MM	 30 04	 Day of month Month
Year [1,2] - Value_YY	 11	 Year
HasValid [3]	false	Data point has validity info
IsValid [3]	true, false	Data point validity info

[1] All partial values are always two-digit and restricted by standard limits for time or date.

[2] The partial ranges “Time”, “Date” or “Year” may be invalid. Only valid partial values are mapped to the response.

[3] A data point can also be “invalid” as an option in addition to the normal setting range. The actual data point value is no longer relevant if the data point is “invalid”.

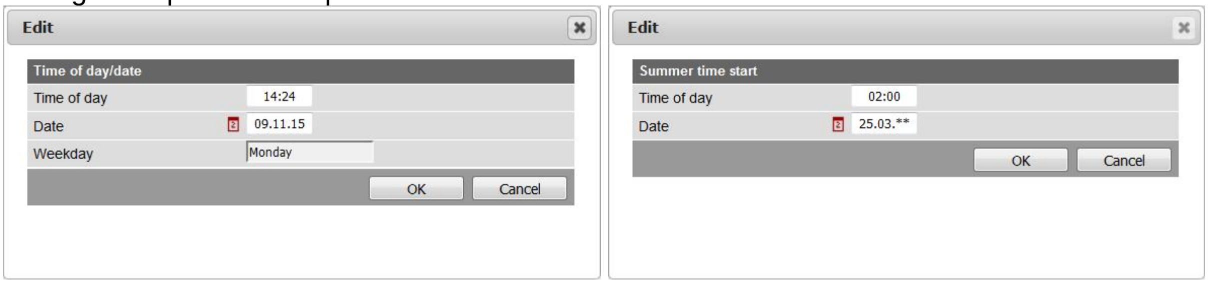
Response body in JSON for data type: DateTime:

```
{
          "Description":
                   {
                             "Type": "DateTime",
                             "Name": "Time & date",
                             "Time":
                             {
                                      "Value_hh": "22",
                                      "Value_mm": "15"
                             },
                             "Date":
                             {
                                      "Value_DD": "30",
                                      "Value_MM": "04"
                             },
                             "Year":
                             {
                                      "Value_YY": "11"
                             },
                             "HasValid": "false",
                             "IsValid": "false",
                    }
          "Result": ...
}
```

Response body in XML for data type: DateTime:

```
<Service>
         <Description>
                  <Type>DateTime</Type>
                  <Name>Time & date</Name>
                  <Time>
                           <Value_hh>22</Value_hh>
                           <Value_mm>15</Value_mm>
                  </Time>
                  <Date>
                           <Value_DD>30</Value_DD>
                           <Value_MM>04</Value_MM>
                  </Date>
                  <Year>
                           <Value_YY>11</Value_YY>
                  </Year>
                  <HasValid>false</HasValid>
                  <IsValid>false</IsValid>
         </Description>
         <Result>...</Result>
</Service>
```

Dialog example of web operation:



Edit

Time of day/date

Time of day	14:24
Date	09.11.15
Weekday	Monday

Edit

Summer time start

Time of day	02:00
Date	25.03.**

2.9.7.7 *Data type: TimeOfDay*

Parameter in the data point description:

Parameter	Example	Description
Type	TimeOfDay	Data point data type
Name	Overshoot time	Data point name
Unit	m:s	Unit
Days [1,2,4,5]		
- Value_DD	6	Partial value days
- Min	0	Minimum limitation
- Max	19	Maximum limitation
- Resolution	0	Value resolution
Hour [1,2,4,5]		
- Value_hh	22	Partial value Hours
- Min	0	Minimum limitation
- Max	23	Maximum limitation
- Resolution	0	Value resolution
Minutes [1,2,4,5]		
- Value_mm	33	Partial value minutes
- Min	0	Minimum limitation
- Max	59	Maximum limitation
- Resolution	0	Value resolution
Seconds [1,2,4,5]		
- Value_ss	55	Partial value Seconds
- Min	0	Minimum limitation
- Max	55	Maximum limitation

- Resolution	5	Value resolution
IsAbsolut	false	Time of day is absolute
HasValid [3]	false	Data point has validity info
IsValid [3]	true, false	Data point validity info

[1] A maximum of 2 partial values can be displayed.

[2] The individual partial values ““Days”, “Hour”, “Minutes” or “Seconds” may be invalid. Only valid partial values are mapped to the response.

[3] A data point may also be “invalid” in addition to the optional, normal setting range. The actual data point value is no longer relevant is the data point is “invalid”.

[4] The setting range of the data point is derived from the compiled partial value limitations. Using the example data above and assumed validity of “Minutes” and “Seconds”, results, for example, in a setting range of 00:00 to 59:55 (mm:ss).

[5] The data point resolution is derived from the compiled partial value resolutions. Using the example data above that the assumed validity of “Minutes” and “Seconds”, results, for example, in a resolution of 00:05 (mm:ss).

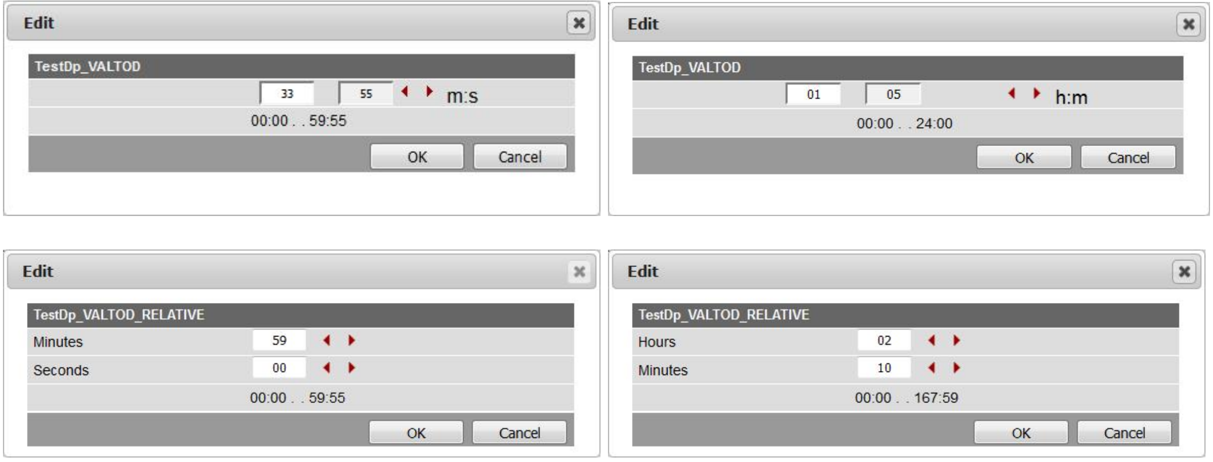
Response body in JSON for data type TimeOfDay:

```
{
        "Description":
                {
                        "Type": "TimeOfDay",
                        "Name": "Overshoot time",
                        "Unit": "m:s",
                        "Minutes":
                                {
                                        "Value_mm": "33",
                                        "Min": "0",
                                        "Max": "59",
                                        "Resolution": "0",
                                },
                        "Seconds":
                                {
                                        "Value_ss": "55",
                                        "Min": "0",
                                        "Max": "55",
                                        "Resolution": "5",
                                },
                        "IsAbsolut": "false",
                        "HasValid": "false",
                        "IsValid": "false"
                }
        "Result": ...
}
```

Response body in XML for data type TimeOfDay:

```
<Service>
        <Description>
                <Type>TimeOfDay</Type>
                <Name>Overshoot time</Name>
                <Unit>m:s</Unit>
                <Minutes>
                        <Value_mm>33</Value_mm>
                        <Min>0</Min>
                        <Max>59</Max>
                        <Resolution>0</Resolution>
                </Minutes>
                <Seconds>
                        <Value_ss>55</Value_ss>
                        <Min>0</Min>
                        <Max>55</Max>
                        <Resolution>5</Resolution>
                </Seconds>
                <IsAbsolut>false</IsAbsolut>
                <HasValid>false</HasValid>
                <IsValid>false</IsValid>
        </Description>
        <Result>...</Result>
</Service>
```

Dialog example of web operation:



Edit

TestDp_VALTOD

33 : 55 m:s

00:00 . . 59:55

Edit

TestDp_VALTOD

01 : 05 h:m

00:00 . . 24:00

Edit

TestDp_VALTOD_RELATIVE

Minutes 59

Seconds 00

00:00 . . 59:55

Edit

TestDp_VALTOD_RELATIVE

Hours 02

Minutes 10

00:00 . . 167:59

2.9.7.8 *Data type: Scheduler*

Parameter in the data point description:

Parameter	**Example**	**Description**
Type	Scheduler	Data point data type
Name	Scheduler program	Data point name
SchedulerType	5	Time switch type: 1: Domestic Hot Water (Field bus KNX) 2: On/Off (Field bus KNX) 3: HVAC (Field bus KNX) 4: Event (Field bus KNX) 5: Common (Field bus LPB)
EnumId	271	Time switch version
Pro Enumeration value - Text - Value [1]	 Comfort, PreComfort, Economy, Protection 0, 1, 2, 3	*Pro Enumeration value* - Enumeration text - Enumeration value
Switchpoint1 [1,3] - Sw1_IsValid [2] - Sw1_hh - Sw1_mm - Sw1_Mode[4]	 true 06 10 1	 Switching point validity info (hours) Switching point time (minutes) Switching point time Switching point operating mode
Switchpoint2 [1,3] - Sw2_IsValid [2] - Sw2_hh - Sw2_mm - Sw2_Mode[4]	 true 07 10 0	 Switching point validity info (hours) Switching point time (minutes) Switching point time Switching point operating mode
Switchpoint3 [1,3] - Sw3_IsValid [2] - Sw3_hh - Sw3_mm - Sw3_Mode[4]	 true 08 30 1	 Switching point validity info (hours) Switching point time (minutes) Switching point time Switching point operating mode
Switchpoint4 [1,3] - Sw4_IsValid [2]	 true	 Switching point validity info

- Sw4_hh - Sw4_mm - Sw4_Mode[4]	09 30 0	(hours) Switching point time (minutes) Switching point time Switching point operating mode
Switchpoint5 [1,3] - Sw5_IsValid [2] - Sw5_hh - Sw5_mm - Sw5_Mode[4]	 true 15 30 1	 Switching point validity info (hours) Switching point time (minutes) Switching point time Switching point operating mode
Switchpoint6 [1,3] - Sw6_IsValid [2] - Sw6_hh - Sw6_mm - Sw6_Mode[4]	 true 19 30 0	 Switching point validity info (hours) Switching point time (minutes) Switching point time Switching point operating mode
Switchpoint7 [1,3] - Sw7_IsValid [2] - Sw7_hh - Sw7_mm - Sw7_Mode[4]	 false 00 00 0	 Switching point validity info (hours) Switching point time (minutes) Switching point time Switching point operating mode
Switchpoint8 [1,3] - Sw8_IsValid [2] - Sw8_hh - Sw8_mm - Sw8_Mode[4]	 false 00 00 0	 Switching point validity info (hours) Switching point time (minutes) Switching point time Switching point operating mode

[1] Partial values are always two digits and restricted by standard limits for time of day.

[2] A switching point can also be invalid. In this case, the associated attribute time and operating mode are irrelevant.

[3] Only the number of switching points are mapped that the actual device is capable of supporting.

[4] Operating mode encoding is based on EnumId and the actual device.

Response body in JSON for data type: Scheduler:

```
{
        "Description":
                {
                        "Type": "Scheduler",
                        "Name": " Monday",
                        "SchedulerType": 3,
                        "EnumId": "241",
                        "Enums":
                        [
                        {
                                "Text": "Comfort",
                                "Value": "0"
                        },
                        {
                                "Text": "Precomfort",
                                "Value": "1"
                        },
                        {
                                "Text": "Economy",
                                "Value": "2"
                        }
                        ],
                        "Switchpoint1":
                        {
                                "Sw1_IsValid": "true",
                                "Sw1_hh": "06",
                                "Sw1_mm": "10",
                                "Sw1_Mode": "1"
```

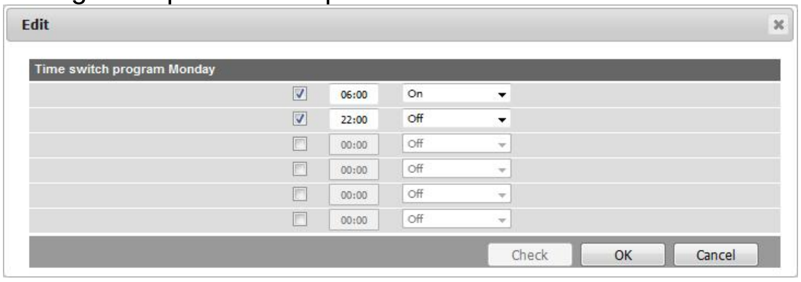
```
                                        },
                              "Switchpoint2":
                              {
                                        "Sw2_IsValid": "true",
                                        "Sw2_hh": "07",
                                        "Sw2_mm": "10",
                                        "Sw2_Mode": "0"
                              },
                              "Switchpoint3":
                              {
                                        "Sw3_IsValid": "true",
                                        "Sw3_hh": "08",
                                        "Sw3_mm": "30",
                                        "Sw3_Mode": "1"
                              },
                              "Switchpoint4":
                              {
                                        "Sw4_IsValid": "true",
                                        "Sw4_hh": "09",
                                        "Sw4_mm": "30",
                                        "Sw4_Mode": "0"
                              },
                              "Switchpoint5":
                              {
                                        "Sw5_IsValid": "true",
                                        "Sw5_hh": "15",
                                        "Sw5_mm": "30",
                                        "Sw5_Mode": "1"
                              },
                              "Switchpoint6":
                              {
                                        "Sw6_IsValid": "true",
                                        "Sw6_hh": "19",
                                        "Sw6_mm": "30",
                                        "Sw6_Mode": "0"
                              },
                              "Switchpoint7":
                              {
                                        "Sw7_IsValid": "false",
                                        "Sw7_hh": "00",
                                        "Sw7_mm": "00",
                                        "Sw7_Mode": "0"
                              },
                              "Switchpoint8":
                              {
                                        "Sw8_IsValid": "false",
                                        "Sw8_hh": "00",
                                        "Sw8_mm": "00",
                                        "Sw8_Mode": "0"
                              }
                     }
          "Result": ...
}
```

Response body in XML for data type: Scheduler:

```
<Service>
          <Description>
                    <Type>Scheduler</Type>
                    <Name>Monday</Name>
                    <SchedulerType>3</SchedulerType>
                    <EnumId>241</EnumId>
                    <Enums>
                              <Enum>
                                        <Text>Comfort</Text>
                                        <Value>0</Value>
                              </Enum>
                              <Enum>
                                        <Text>Precomfort</Text>
                                        <Value>1</Value>
                              </Enum>
                              <Enum>
                                        <Text>Economy</Text>
                                        <Value>2</Value>
                              </Enum>
                    </Enums>            <Switchpoint1>
```

```
                             <Sw1_IsValid>true</Sw1_IsValid>
                             <Sw1_hh>06</Sw1_hh>
                             <Sw1_mm>10</Sw1_mm>
                             <Sw1_Mode>1</Sw1_Mode>
                   </Switchpoint1>
                   <Switchpoint2>
                             <Sw2_IsValid>true</Sw2_IsValid>
                             <Sw2_hh>07</Sw2_hh>
                             <Sw2_mm>10</Sw2_mm>
                             <Sw2_Mode>0</Sw2_Mode>
                   </Switchpoint2>
                   <Switchpoint3>
                             <Sw3_IsValid>true</Sw3_IsValid>
                             <Sw3_hh>08</Sw3_hh>
                             <Sw3_mm>30</Sw3_mm>
                             <Sw3_Mode>1</Sw3_Mode>
                   </Switchpoint3>
                   <Switchpoint4>
                             <Sw4_IsValid>true</Sw4_IsValid>
                             <Sw4_hh>09</Sw4_hh>
                             <Sw4_mm>30</Sw4_mm>
                             <Sw4_Mode>0</Sw4_Mode>
                   </Switchpoint4>
                   <Switchpoint5>
                             <Sw5_IsValid>true</Sw5_IsValid>
                             <Sw5_hh>15</Sw5_hh>
                             <Sw5_mm>30</Sw5_mm>
                             <Sw5_Mode>1</Sw5_Mode>
                   </Switchpoint5>
                   <Switchpoint6>
                             <Sw6_IsValid>true</Sw6_IsValid>
                             <Sw6_hh>19</Sw6_hh>
                             <Sw6_mm>30</Sw6_mm>
                             <Sw6_Mode>0</Sw6_Mode>
                   </Switchpoint6>
                   <Switchpoint7>
                             <Sw7_IsValid>false</Sw7_IsValid>
                             <Sw7_hh>00</Sw7_hh>
                             <Sw7_mm>00</Sw7_mm>
                             <Sw7_Mode>0</Sw7_Mode>
                   </Switchpoint7>
                   <Switchpoint8>
                             <Sw8_IsValid>false</Sw8_IsValid>
                             <Sw8_hh>00</Sw8_hh>
                             <Sw8_mm>00</Sw8_mm>
                             <Sw8_Mode>0</Sw8_Mode>
                   </Switchpoint8>
          </Description>
          <Result>...</Result>
</Service>
```

Dialog example of web operation:



Edit

Time switch program Monday

☑ 06:00 On

☑ 22:00 Off

□ 00:00 Off

□ 00:00 Off

□ 00:00 Off

□ 00:00 Off

Rules for type "5" time switch / Common (Field bus LPB):

- A time switch can have up to 8 switching points. The scheduler subtype is "0".
- Switching points are always in pairs. The first switching point is always the switch-on and the second, the switch-off time.
- The time for the switching point must be within the range 00:00 – 24:00 and be within the typical resolution of 00:10. The operating device corrects times outside the resolution.

- The operating mode is not transferred among the daily time switches. Each daily time switch begins by default with operating mode "0"/Off.
- A switching point can be invalid. If all switching points on a time switch are invalid, the operating mode "0/Off" applies to the entire day.
- The switching points must be sorted chronologically in ascending order with invalid switching points at the end of the list. When writing via API, the sorting order is verified and corrected as needed.

Rules for type "1-4" time switch (Field bus KNX):

- A daily time switch can have 0 to 6 switching points.
- The switching points must be sorted chronologically in ascending order with invalid switching points at the very end.
- The time of the switching point must be within a range of 00:00 – 23:59.
- The operating mode is transferred between daily time switches.
- The operating mode of the last switching point from the previous day applies until the first switching point of the day (days 1-7, after day 7, returns to day 1). The special day program (8th day) is its own previous day.

Possible Enumerations Id:

- EnumId Default (0)
  - Off (0)
  - On (1)

- EnumId BW (215)

~~Auto (0)~~	~~Auto (0)~~
Normal (1)	Normal (1)
Reduziert (2)	Reduced (2)
~~Schutzbetrieb (3)~~	~~Protection (3)~~

- EnumId On/Off (235)
  - Off (0)
  - On (1)

- EnumId HVAC (241)

Komfort (0)	Comfort (0)
Prekomfort (1)	Precomfort (1)
Economy (2)	Economy (2)
Schutzbetrieb (3)	Protection (3)

- EnumId On/Off (273)

Aus (0)	Off (0)
Ein (1)	On (1)

- EnumId Jalousie (511)

Ab (0)	Down (0)
Auf (1)	Up (1)

- EnumId Szene (563)

Szene A (0)	Scene A (0)

- Szene B (1) Scene B (1)

All enumeration texts are listed in the user language.

2.9.7.9 Data type: Calendar

Parameter in the data point description:

Parameter	**Example**	**Description**
Type	Calendar	Data point data type
Name	Calendar program	Data point name
Calendar01[1,3]		
- Ca01_IsValid[2]	true	Calendar entry validity info
- Ca01_IsYearly[4]	true	Annual, repeating
- Ca01_Mode	1	Holiday (0) or special day (1)
- Ca01_1_DD	01	Period start: Day of month
- Ca01_1_MM	02	Period start: Month
- Ca01_1_YY	13	Period start: Year
- Ca01_1_hh	00	Period start: Hours
- Ca01_1_mm	00	Period start: Minutes
- Ca01_2_DD	01	Period end: Day of month
- Ca01_2_MM	03	Period end: Month
- Ca01_2_YY	13	Period end: Year
- Ca01_2_hh	23	Period end: Hours
- Ca01_2_mm	59	Period end: Minutes
Calendar02[1,3]		
- Ca02_IsValid[2]	true	Calendar entry validity info
- Ca02_IsYearly[4]	true	Annual, repeating
- Ca02_Mode	0	Holiday (0) or special day (1)
- Ca02_1_DD	01	Period start: Day of month
- Ca02_1_MM	02	Period start: Month
- Ca02_1_YY	13	Period start: Year
- Ca02_1_hh	00	Period start: Hours
- Ca02_1_mm	00	Period start: Minutes
- Ca02_2_DD	01	Period end: Day of month
- Ca02_2_MM	03	Period end: Month
- Ca02_2_YY	13	Period end: Year
- Ca02_2_hh	23	Period end: Hours
- Ca02_2_mm	59	Period end: Minutes
Calendar03[1,3]		
- Ca03_IsValid[2]	true	Calendar entry validity info
- Ca03_IsYearly[4]	false	Annual, repeating
- Ca03_Mode	1	Holiday (0) or special day (1)
- Ca03_1_DD	01	Period start: Day of month
- Ca03_1_MM	02	Period start: Month
- Ca03_1_YY	13	Period start: Year
- Ca03_1_hh	00	Period start: Hours
- Ca03_1_mm	00	Period start: Minutes
- Ca03_2_DD	01	Period end: Day of month
- Ca03_2_MM	03	Period end: Month
- Ca03_2_YY	13	Period end: Year
- Ca03_2_hh	23	Period end: Hours
- Ca03_2_mm	59	Period end: Minutes
Calendar04[1,3]		
- Ca04_IsValid[2]	true	Calendar entry validity info

- Ca04_IsYearly[4]	false	Annual, repeating
- Ca04_Mode	1	Holiday (0) or special day (1)
- Ca04_1_DD	01	Period start: Day of month
- Ca04_1_MM	02	Period start: Month
- Ca04_1_YY	13	Period start: Year
- Ca04_1_hh	00	Period start: Hours
- Ca04_1_mm	00	Period start: Minutes
- Ca04_2_DD	01	Period end: Day of month
- Ca04_2_MM	03	Period end: Month
- Ca04_2_YY	13	Period end: Year
- Ca04_2_hh	23	Period end: Hours
- Ca04_2_mm	59	Period end: Minutes
Calendar05[1,3]		
- Ca05_IsValid[2]	true	Calendar entry validity info
- Ca05_IsYearly[4]	false	Annual, repeating
- Ca05_Mode	1	Holiday (0) or special day (1)
- Ca05_1_DD	01	Period start: Day of month
- Ca05_1_MM	02	Period start: Month
- Ca05_1_YY	13	Period start: Year
- Ca05_1_hh	00	Period start: Hours
- Ca05_1_mm	00	Period start: Minutes
- Ca05_2_DD	01	Period end: Day of month
- Ca05_2_MM	03	Period end: Month
- Ca05_2_YY	13	Period end: Year
- Ca05_2_hh	23	Period end: Hours
- Ca05_2_mm	59	Period end: Minutes
Calendar06[1,3]		
- Ca06_IsValid[2]	true	Calendar entry validity info
- Ca06_IsYearly[4]	true	Annual, repeating
- Ca06_Mode	1	Holiday (0) or special day (1)
- Ca06_1_DD	01	Period start: Day of month
- Ca06_1_MM	02	Period start: Month
- Ca06_1_YY	13	Period start: Year
- Ca06_1_hh	00	Period start: Hours
- Ca06_1_mm	00	Period start: Minutes
- Ca06_2_DD	01	Period end: Day of month
- Ca06_2_MM	03	Period end: Month
- Ca06_2_YY	13	Period end: Year
- Ca06_2_hh	23	Period end: Hours
- Ca06_2_mm	59	Period end: Minutes
Calendar07[1,3]		
- Ca07_IsValid[2]	true	Calendar entry validity info
- Ca07_IsYearly[4]	false	Annual, repeating
- Ca07_Mode	1	Holiday (0) or special day (1)
- Ca07_1_DD	01	Period start: Day of month
- Ca07_1_MM	02	Period start: Month
- Ca07_1_YY	13	Period start: Year
- Ca07_1_hh	00	Period start: Hours
- Ca07_1_mm	00	Period start: Minutes
- Ca07_2_DD	01	Period end: Day of month
- Ca07_2_MM	03	Period end: Month
- Ca07_2_YY	13	Period end: Year
- Ca07_2_hh	23	Period end: Hours
- Ca07_2_mm	59	Period end: Minutes
Calendar08[1,3]		
- Ca08_IsValid[2]	true	Calendar entry validity info

- Ca08_IsYearly[4]	false	Annual, repeating
- Ca08_Mode	1	Holiday (0) or special day (1)
- Ca08_1_DD	01	Period start: Day of month
- Ca08_1_MM	02	Period start: Month
- Ca08_1_YY	13	Period start: Year
- Ca08_1_hh	00	Period start: Hours
- Ca08_1_mm	00	Period start: Minutes
- Ca08_2_DD	01	Period end: Day of month
- Ca08_2_MM	03	Period end: Month
- Ca08_2_YY	13	Period end: Year
- Ca08_2_hh	23	Period end: Hours
- Ca08_2_mm	59	Period end: Minutes
Calendar09[1,3]		
- Ca09_IsValid[2]	true	Calendar entry validity info
- Ca09_IsYearly[4]	false	Annual, repeating
- Ca09_Mode	1	Holiday (0) or special day (1)
- Ca09_1_DD	01	Period start: Day of month
- Ca09_1_MM	02	Period start: Month
- Ca09_1_YY	13	Period start: Year
- Ca09_1_hh	00	Period start: Hours
- Ca09_1_mm	00	Period start: Minutes
- Ca09_2_DD	01	Period end: Day of month
- Ca09_2_MM	03	Period end: Month
- Ca09_2_YY	13	Period end: Year
- Ca09_2_hh	23	Period end: Hours
- Ca09_2_mm	59	Period end: Minutes
Calendar10[1,3]		
- Ca10_IsValid[2]	true	Calendar entry validity info
- Ca10_IsYearly[4]	false	Annual, repeating
- Ca10_Mode	0	Holiday (0) or special day (1)
- Ca10_1_DD	01	Period start: Day of month
- Ca10_1_MM	02	Period start: Month
- Ca10_1_YY	13	Period start: Year
- Ca10_1_hh	00	Period start: Hours
- Ca10_1_mm	00	Period start: Minutes
- Ca10_2_DD	01	Period end: Day of month
- Ca10_2_MM	03	Period end: Month
- Ca10_2_YY	13	Period end: Year
- Ca10_2_hh	23	Period end: Hours
- Ca10_2_mm	59	Period end: Minutes
Calendar11[1,3]		
- Ca11_IsValid[2]	true	Calendar entry validity info
- Ca11_IsYearly[4]	false	Annual, repeating
- Ca11_Mode	1	Holiday (0) or special day (1)
- Ca11_1_DD	01	Period start: Day of month
- Ca11_1_MM	02	Period start: Month
- Ca11_1_YY	13	Period start: Year
- Ca11_1_hh	00	Period start: Hours
- Ca11_1_mm	00	Period start: Minutes
- Ca11_2_DD	01	Period end: Day of month
- Ca11_2_MM	03	Period end: Month
- Ca11_2_YY	13	Period end: Year
- Ca11_2_hh	23	Period end: Hours
- Ca11_2_mm	59	Period end: Minutes
Calendar12[1,3]		
- Ca12_IsValid[2]	true	Calendar entry validity info

- Ca12_IsYearly[4]	false	Annual, repeating
- Ca12_Mode	1	Holiday (0) or special day (1)
- Ca12_1_DD	01	Period start: Day of month
- Ca12_1_MM	02	Period start: Month
- Ca12_1_YY	13	Period start: Year
- Ca12_1_hh	00	Period start: Hours
- Ca12_1_mm	00	Period start: Minutes
- Ca12_2_DD	01	Period end: Day of month
- Ca12_2_MM	03	Period end: Month
- Ca12_2_YY	13	Period end: Year
- Ca12_2_hh	23	Period end: Hours
- Ca12_2_mm	59	Period end: Minutes
Calendar13[1,3]		
- Ca13_IsValid[2]	true	Calendar entry validity info
- Ca13_IsYearly[4]	false	Annual, repeating
- Ca13_Mode	1	Holiday (0) or special day (1)
- Ca13_1_DD	01	Period start: Day of month
- Ca13_1_MM	02	Period start: Month
- Ca13_1_YY	13	Period start: Year
- Ca13_1_hh	00	Period start: Hours
- Ca13_1_mm	00	Period start: Minutes
- Ca13_2_DD	01	Period end: Day of month
- Ca13_2_MM	03	Period end: Month
- Ca13_2_YY	13	Period end: Year
- Ca13_2_hh	23	Period end: Hours
- Ca13_2_mm	59	Period end: Minutes
Calendar14[1,3]		
- Ca14_IsValid[2]	true	Calendar entry validity info
- Ca14_IsYearly[4]	false	Annual, repeating
- Ca14_Mode	1	Holiday (0) or special day (1)
- Ca14_1_DD	01	Period start: Day of month
- Ca14_1_MM	02	Period start: Month
- Ca14_1_YY	13	Period start: Year
- Ca14_1_hh	00	Period start: Hours
- Ca14_1_mm	00	Period start: Minutes
- Ca14_2_DD	01	Period end: Day of month
- Ca14_2_MM	03	Period end: Month
- Ca14_2_YY	13	Period end: Year
- Ca14_2_hh	23	Period end: Hours
- Ca14_2_mm	59	Period end: Minutes
Calendar15[1,3]		
- Ca15_IsValid[2]	true	Calendar entry validity info
- Ca15_IsYearly[4]	false	Annual, repeating
- Ca15_Mode	1	Holiday (0) or special day (1)
- Ca15_1_DD	01	Period start: Day of month
- Ca15_1_MM	02	Period start: Month
- Ca15_1_YY	13	Period start: Year
- Ca15_1_hh	00	Period start: Hours
- Ca15_1_mm	00	Period start: Minutes
- Ca15_2_DD	01	Period end: Day of month
- Ca15_2_MM	03	Period end: Month
- Ca15_2_YY	13	Period end: Year
- Ca15_2_hh	23	Period end: Hours
- Ca15_2_mm	59	Period end: Minutes
Calendar16[1,3]		
- Ca16_IsValid[2]	true	Calendar entry validity info

- Ca16_IsYearly[4]	true	Annual, repeating
- Ca16_Mode	1	Holiday (0) or special day (1)
- Ca16_1_DD	01	Period start: Day of month
- Ca16_1_MM	02	Period start: Month
- Ca16_1_YY	13	Period start: Year
- Ca16_1_hh	00	Period start: Hours
- Ca16_1_mm	00	Period start: Minutes
- Ca16_2_DD	01	Period end: Day of month
- Ca16_2_MM	03	Period end: Month
- Ca16_2_YY	13	Period end: Year
- Ca16_2_hh	23	Period end: Hours
- Ca16_2_mm	59	Period end: Minutes

[1] Partial values are always two digit and restricted by standard limits for time-of-day.

[2] A calendar entry can also be invalid. The associated attributes are irrelevant in this case.

[3] Only as many calendar entries are mapped as the actual device supports.

[4] If a calendar entry is repeated annual, the entries with years are not valid.

Response body in JSON for data type Calendar:

```
{
        "Description":
                {
                        "Type": "Calendar",
                        "Name": "Holiday/special day",

                        "Calendar01":
                        {
                                "Ca01_IsValid": "true",
                                "Ca01_IsYearly": "true",
                                "Ca01_Mode": "0",
                                "Ca01_1_DD": "21",
                                "Ca01_1_MM": "01",
                                "Ca01_1_YY": "55",
                                "Ca01_1_hh": "00",
                                "Ca01_1_mm": "00",
                                "Ca01_2_DD": "23",
                                "Ca01_2_MM": "01",
                                "Ca01_2_YY": "55",
                                "Ca01_2_hh": "23",
                                "Ca01_2_mm": "59"
                        },
                        "Calendar02":
                        {
                                "Ca02_IsValid": "true",
                                "Ca02_IsYearly": "false",
                                "Ca02_Mode": "1",
                                "Ca02_1_DD": "15",
                                "Ca02_1_MM": "02",
                                "Ca02_1_YY": "15",
                                "Ca02_1_hh": "20",
                                "Ca02_1_mm": "30",
                                "Ca02_2_DD": "23",
                                "Ca02_2_MM": "03",
                                "Ca02_2_YY": "15",
                                "Ca02_2_hh": "22",
                                "Ca02_2_mm": "59"
                        },
                        "Calendar03":
                        {
                                "Ca03_IsValid": "false",
                                "Ca03_IsYearly": "false",
                                "Ca03_Mode": "0",
                                "Ca03_1_DD": "01",
                                "Ca03_1_MM": "01",
                                "Ca03_1_YY": "00",
                                "Ca03_1_hh": "00",
                                "Ca03_1_mm": "00",
                                "Ca03_2_DD": "01",
                                          "Ca03_2_MM": "01",
                                          "Ca03_2_YY": "00",
                                          "Ca03_2_hh": "23",
                                          "Ca03_2_mm": "59"
                                },
                                "Calendar04":
                                {
                                          "Ca04_IsValid": "false",
                                          "Ca04_IsYearly": "false",
                                          "Ca04_Mode": "0",
                                          "Ca04_1_DD": "01",
                                          "Ca04_1_MM": "01",
                                          "Ca04_1_YY": "00",
                                          "Ca04_1_hh": "00",
                                          "Ca04_1_mm": "00",
                                          "Ca04_2_DD": "01",
                                          "Ca04_2_MM": "01",
                                          "Ca04_2_YY": "00",
                                          "Ca04_2_hh": "23",
                                          "Ca04_2_mm": "59"
                                },
                                "Calendar05":
                                {
                                          "Ca05_IsValid": "false",
                                          "Ca05_IsYearly": "false",
                                          "Ca05_Mode": "0",
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                      }
   }
             "Result": ...
   }
```

Response body in XML for data type Calendar:

```
<Service>
       <Description>
              <Type>Calendar</Type>
              <Name>Holidays/special days</Name>
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```

```
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                <Success>true</Success>
        </Result>
</Service>
```
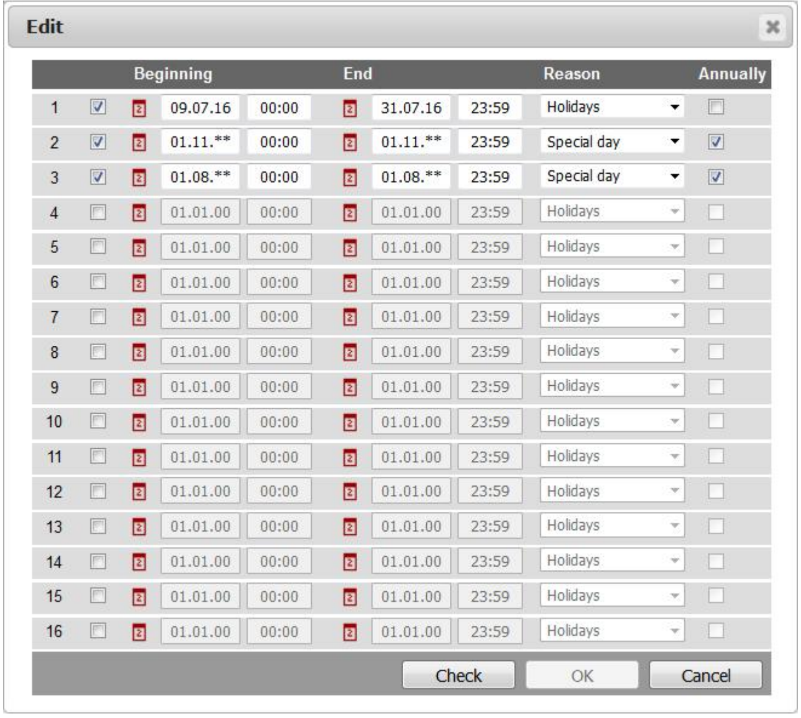

Dialog example of web operation:



		Beginning		End		Reason	Annually
1	☑	09.07.16	00:00	31.07.16	23:59	Holidays	□
2	☑	01.11.**	00:00	01.11.**	23:59	Special day	☑
3	☑	01.08.**	00:00	01.08.**	23:59	Special day	☑
4	□	01.01.00	00:00	01.01.00	23:59	Holidays	□
5	□	01.01.00	00:00	01.01.00	23:59	Holidays	□
6	□	01.01.00	00:00	01.01.00	23:59	Holidays	□
7	□	01.01.00	00:00	01.01.00	23:59	Holidays	□
8	□	01.01.00	00:00	01.01.00	23:59	Holidays	□
9	□	01.01.00	00:00	01.01.00	23:59	Holidays	□
10	□	01.01.00	00:00	01.01.00	23:59	Holidays	□
11	□	01.01.00	00:00	01.01.00	23:59	Holidays	□
12	□	01.01.00	00:00	01.01.00	23:59	Holidays	□
13	□	01.01.00	00:00	01.01.00	23:59	Holidays	□
14	□	01.01.00	00:00	01.01.00	23:59	Holidays	□
15	□	01.01.00	00:00	01.01.00	23:59	Holidays	□
16	□	01.01.00	00:00	01.01.00	23:59	Holidays	□

Calendar rules

- A calendar can have 0 to 16 entries.
- Overlapping entries in the calendar is not actively prevented.
- The complete calendar must be written at one time so that a sort on the device does not restart each time there is a change. Otherwise, possible entries are not overwritten.

2.9.8 datapoint_desc_direct - /api/menutree/datapoint_desc_direct

Request URI (HTTP GET):
http://mydevice/api/menutree/datapoint_desc_direct.format

Request example:

```
http://192.168.251.1/api/menutree/datapoint_desc_direct.json?SessionId=0bc991a1-04eb-4a7c-8371-
4ab648ec8a88&SerialNumber=00FD00FF01F0&Address=0x102F1001&DpSubKey=0
```

Request Parameter:

Parameter	Example	Default value	Description
SessionId	0bc991a1-04eb-4a7c-…	(none)	SessionId of the current session
SerialNumber	00FD00FF01F0	(none)	Unique device serial number

Address[1]	0x102F1001	(none)	Data point address
DpSubKey[1]	0	0	Supplemental data point identification

[1] Within a device can a data point e uniquely identified on a device based on parameter "Address" and "DpSubKey“. These two parameters are included in the disclosure document for the device.

Response Body in JSON / XML:
The same as for service datapoint_desc - /api/menutree/datapoint_desc in Sec. 2.9.7.

2.9.9 write_datapoint - /api/menutree/write_datapoint

Request URI (HTTP GET):
http://mydevice/api/menutree/write_datapoint.format

Request example:

```
http://192.168.251.1/api/menutree/write_datapoint.json?SessionId=0bc991a1-04eb-4a7c-8371-
4ab648ec8a88&Id=878&Type=Numeric&Value=49.0
```

Request parameter:

Parameter	Example	Default value	Description
SessionId	0bc991a1-04eb-4a7c-…	(none)	SessionId of the current session
Id	878	(none)	Data point in the menu tree
Type[1]	Numeric	(none)	The data point type for write
Value[1]	49.0, …	(none)	The data point value for write

[1] The parameter value or its coding is based on the applicable data type. Possible data types include String, Numeric, Enum, CheckBox, RadioButton, DateTime, TimeOfDay and Scheduler.

Data points may only be written as needed and never periodically, since the number of write cycles to the memory blocks is limited on the operated devices.

Value encoding based on data type

Data type	Value fields	Example Value	Example query
String	Value	MyText [1]	Value=MeinText[1]
Numeric	Value, IsValid[2]	49.0[5], true	Value=49.0[5]&IsValid=true[2]
Enumeration	Value	7	Value=7
CheckBox	Value	535[3]	Value=535[3]
RadioButton	Value	3534[3]	Value=3534[3]
DateTime	Value_hh[4], Value_mm[4], Value_DD[4], Value_MM[4], Value_YY[4], IsValid[2]	22, 15, 30, 12, 12, true (22:15[5], 30.12.12[5], true)	Value_hh=22&Value_mm=15&Value_DD=30&Value_MM=04&Value_YY=12&IsValid=true[2,5]
TimeOfDay	Day[4], Hour[4], Minutes[4], Seconds[4], IsValid[2]	28, 13, 45, 58, true (28[5], 13::45::58[5])	Value_DD=28&Value_hh=13&Value_mm=45&Value_ss=58&IsValid=true[2,5]

Scheduler[6]	Sw1_IsValid
	Sw1_hh, Sw1_mm
	Sw1_Mode
	Sw2_IsValid
	Sw2_hh, Sw2_mm
	Sw2_Mode
	Sw3_IsValid
	Sw3_hh, Sw3_mm
		true
		06, 00
		1
		true
		07, 00
		0
		true
		08, 30
			Sw1_IsValid=true& Sw1_hh=06&Sw1_mm=00&Sw1_Mode=1&
			Sw2_IsValid=true& Sw2_hh=07&Sw2_mm=00&Sw2_Mode=0&
			Sw3_IsValid=true& Sw3_hh=08&Sw3_mm=30&Sw3_Mode=1&
			Sw4_IsValid=true& Sw4_hh=09&Sw4_mm=30&Sw4_Mode=0&
			Sw5_IsValid=false&

	Sw3_Mode
	Sw4_IsValid
	Sw4_hh, Sw4_mm
	Sw4_Mode
	Sw5_IsValid
	Sw5_hh, Sw5_mm
	Sw5_Mode
	Sw6_IsValid
	Sw6_hh, Sw6_mm
	Sw6_Mode
		1
		true
		09, 30
		0
		false
		15, 30
		1
		false
		19, 30
		0
			Sw5_hh=15&Sw5_mm=30&Sw5_Mode=1&
			Sw6_IsValid=false&
			Sw6_hh=19&Sw6_mm=30&Sw6_Mode=0

Calendar[7]	Ca01_IsValid
	Ca01_IsYearly
	Ca01_Mode
	Ca01_1_DD
	Ca01_1_MM
	Ca01_1_YY
	Ca01_1_hh
	Ca01_1_mm
	Ca01_2_DD
	Ca01_2_MM
	Ca01_2_YY
	Ca01_2_hh
	Ca01_2_mm
	
	Ca02_IsValid
	Ca02_IsYearly
	Ca02_Mode
	Ca02_1_DD
	Ca02_1_MM
	Ca02_1_YY
	Ca02_1_hh
	Ca02_1_mm
	Ca02_2_DD
	Ca02_2_MM
	Ca02_2_YY
	Ca02_2_hh
	Ca02_2_mm
	
	Ca03_IsValid
	Ca03_IsYearly
	Ca03_Mode
	Ca03_1_DD
	Ca03_1_MM
	Ca03_1_YY
	Ca03_1_hh
	Ca03_1_mm
	Ca03_2_DD
	Ca03_2_MM
	Ca03_2_YY
	Ca03_2_hh
	Ca03_2_mm
	
	Ca04_IsValid
	Ca04_IsYearly
	Ca04_Mode
		true
		true
		0
		21
		01
		13
		00
		00
		23
		01
		13
		23
		59
		
		true
		false
		1
		15
		02
		15
		20
		30
		23
		03
		15
		22
		59
		
		False
		False
		0
		00
		00
		00
		00
		00
		00
		00
		00
		00
		00
		
		False
		False
		0
			Ca01_IsValid=true&Ca01_IsYearly=true&
			Ca01_Mode=0&Ca01_1_DD=21&
			Ca01_1_MM=01&Ca01_1_YY=14&
			Ca01_1_hh=00&Ca01_1_mm=00&
			Ca01_2_DD=23&Ca01_2_MM=01&
			Ca01_2_YY=14&Ca01_2_hh=23&
			Ca01_2_mm=59&
			
			Ca02_IsValid=true&Ca02_IsYearly=false&
			Ca02_Mode=1&Ca02_1_DD=15&
			Ca02_1_MM=02&Ca02_1_YY=15&
			Ca02_1_hh=20&Ca02_1_mm=30&
			Ca02_2_DD=23&Ca02_2_MM=03&
			Ca02_2_YY=15&Ca02_2_hh=22&
			Ca02_2_mm=59&
			
			Ca03_IsValid=false&Ca03_IsYearly=false&
			Ca03_Mode=0&Ca03_1_DD=00&
			Ca03_1_MM=02&Ca03_1_YY=00&
			Ca03_1_hh=00&Ca03_1_mm=00&
			Ca03_2_DD=00&Ca03_2_MM=00&
			Ca03_2_YY=00&Ca03_2_hh=00&
			Ca03_2_mm=00&
			
			Ca04_IsValid=false&Ca04_IsYearly=false&
			Ca04_Mode=0&Ca04_1_DD=00&
			Ca04_1_MM=02&Ca04_1_YY=00&
			Ca04_1_hh=00&Ca04_1_mm=00&
			Ca04_2_DD=00&Ca04_2_MM=00&
			Ca04_2_YY=00&Ca04_2_hh=00&
			Ca04_2_mm=00&
			
			Ca05_IsValid=false&Ca05_IsYearly=false&
			Ca05_Mode=0&Ca05_1_DD=00&
			Ca05_1_MM=02&Ca05_1_YY=00&
			Ca05_1_hh=00&Ca05_1_mm=00&
			Ca05_2_DD=00&Ca05_2_MM=00&
			Ca05_2_YY=00&Ca05_2_hh=00&

	Ca04_1_DD
	Ca04_1_MM
	Ca04_1_YY
	Ca04_1_hh
	Ca04_1_mm
	Ca04_2_DD
	Ca04_2_MM
	Ca04_2_YY
	Ca04_2_hh
	Ca04_2_mm
	
	Ca05_IsValid
	Ca05_IsYearly
	Ca05_Mode
	Ca05_1_DD
	Ca05_1_MM
	Ca05_1_YY
	Ca05_1_hh
	Ca05_1_mm
	Ca05_2_DD
	Ca05_2_MM
	Ca05_2_YY
	Ca05_2_hh
	Ca05_2_mm
	
	Ca06_IsValid
	Ca06_IsYearly
	Ca06_Mode
	Ca06_1_DD
	Ca06_1_MM
	Ca06_1_YY
	Ca06_1_hh
	Ca06_1_mm
	Ca06_2_DD
	Ca06_2_MM
	Ca06_2_YY
	Ca06_2_hh
	Ca06_2_mm
	
	Ca07_IsValid
	Ca07_IsYearly
	Ca07_Mode
	Ca07_1_DD
	Ca07_1_MM
	Ca07_1_YY
	Ca07_1_hh
	Ca07_1_mm
	Ca07_2_DD
	Ca07_2_MM
	Ca07_2_YY
	Ca07_2_hh
	Ca07_2_mm
	
	Ca08_IsValid
	Ca08_IsYearly
	Ca08_Mode
		00
		00
		00
		00
		00
		00
		00
		00
		00
		00
		
		False
		False
		0
		00
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		00
		00
		
		False
		False
		0
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		00
		00
		00
		00
		00
		
		False
		False
		0
		00
		00
		00
		00
		00
		00
		00
		00
		00
		00
		
		False
		False
		0
			Ca05_2_mm=00&
			
			Ca06_IsValid=false&Ca06_IsYearly=false&
			Ca06_Mode=0&Ca06_1_DD=00&
			Ca06_1_MM=02&Ca06_1_YY=00&
			Ca06_1_hh=00&Ca06_1_mm=00&
			Ca06_2_DD=00&Ca06_2_MM=00&
			Ca06_2_YY=00&Ca06_2_hh=00&
			Ca06_2_mm=00&
			
			Ca07_IsValid=false&Ca07_IsYearly=false&
			Ca07_Mode=0&Ca07_1_DD=00&
			Ca07_1_MM=02&Ca07_1_YY=00&
			Ca07_1_hh=00&Ca07_1_mm=00&
			Ca07_2_DD=00&Ca07_2_MM=00&
			Ca07_2_YY=00&Ca07_2_hh=00&
			Ca07_2_mm=00&
			
			Ca08_IsValid=false&Ca08_IsYearly=false&
			Ca08_Mode=0&Ca08_1_DD=00&
			Ca08_1_MM=02&Ca08_1_YY=00&
			Ca08_1_hh=00&Ca08_1_mm=00&
			Ca08_2_DD=00&Ca08_2_MM=00&
			Ca08_2_YY=00&Ca08_2_hh=00&
			Ca08_2_mm=00&
			
			Ca09_IsValid=false&Ca09_IsYearly=false&
			Ca09_Mode=0&Ca09_1_DD=00&
			Ca09_1_MM=02&Ca09_1_YY=00&
			Ca09_1_hh=00&Ca09_1_mm=00&
			Ca09_2_DD=00&Ca09_2_MM=00&
			Ca09_2_YY=00&Ca09_2_hh=00&
			Ca09_2_mm=00&
			
			Ca10_IsValid=false&Ca10_IsYearly=false&
			Ca10_Mode=0&Ca10_1_DD=00&
			Ca10_1_MM=02&Ca10_1_YY=00&
			Ca10_1_hh=00&Ca10_1_mm=00&
			Ca10_2_DD=00&Ca10_2_MM=00&
			Ca10_2_YY=00&Ca10_2_hh=00&
			Ca10_2_mm=00&
			
			Ca11_IsValid=false&Ca11_IsYearly=false&
			Ca11_Mode=0&Ca11_1_DD=00&
			Ca11_1_MM=02&Ca11_1_YY=00&
			Ca11_1_hh=00&Ca11_1_mm=00&
			Ca11_2_DD=00&Ca11_2_MM=00&
			Ca11_2_YY=00&Ca11_2_hh=00&

	Ca08_1_DD
	Ca08_1_MM
	Ca08_1_YY
	Ca08_1_hh
	Ca08_1_mm
	Ca08_2_DD
	Ca08_2_MM
	Ca08_2_YY
	Ca08_2_hh
	Ca08_2_mm
	
	Ca09_IsValid
	Ca09_IsYearly
	Ca09_Mode
	Ca09_1_DD
	Ca09_1_MM
	Ca09_1_YY
	Ca09_1_hh
	Ca09_1_mm
	Ca09_2_DD
	Ca09_2_MM
	Ca09_2_YY
	Ca09_2_hh
	Ca09_2_mm
	
	Ca10_IsValid
	Ca10_IsYearly
	Ca10_Mode
	Ca10_1_DD
	Ca10_1_MM
	Ca10_1_YY
	Ca10_1_hh
	Ca10_1_mm
	Ca10_2_DD
	Ca10_2_MM
	Ca10_2_YY
	Ca10_2_hh
	Ca10_2_mm
	
	Ca11_IsValid
	Ca11_IsYearly
	Ca11_Mode
	Ca11_1_DD
	Ca11_1_MM
	Ca11_1_YY
	Ca11_1_hh
	Ca11_1_mm
	Ca11_2_DD
	Ca11_2_MM
	Ca11_2_YY
	Ca11_2_hh
	Ca11_2_mm
	
	Ca12_IsValid
	Ca12_IsYearly
	Ca12_Mode
		00
		00
		00
		00
		00
		00
		00
		00
		00
		00
		
		False
		False
		0
		00
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		False
		False
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		00
		
		False
		False
		0
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		00
		00
		00
		00
		00
		00
		00
		00
		
		False
		False
		0
			Ca11_2_mm=00&
			
			Ca12_IsValid=false&Ca12_IsYearly=false&Ca12_Mode=0&Ca12_1_DD=00&Ca12_1_MM=02&Ca12_1_YY=00&Ca12_1_hh=00&Ca12_1_mm=00&Ca12_2_DD=00&Ca12_2_MM=00&Ca12_2_YY=00&Ca12_2_hh=00&Ca12_2_mm=00&
			
			Ca13_IsValid=false&Ca13_IsYearly=false&Ca13_Mode=0&Ca13_1_DD=00&Ca13_1_MM=02&Ca13_1_YY=00&Ca13_1_hh=00&Ca13_1_mm=00&Ca13_2_DD=00&Ca13_2_MM=00&Ca13_2_YY=00&Ca13_2_hh=00&Ca13_2_mm=00&
			
			Ca14_IsValid=false&Ca14_IsYearly=false&Ca14_Mode=0&Ca14_1_DD=00&Ca14_1_MM=02&Ca14_1_YY=00&Ca14_1_hh=00&Ca14_1_mm=00&Ca14_2_DD=00&Ca14_2_MM=00&Ca14_2_YY=00&Ca14_2_hh=00&Ca14_2_mm=00&
			
			Ca15_IsValid=false&Ca15_IsYearly=false&Ca15_Mode=0&Ca15_1_DD=00&Ca15_1_MM=02&Ca15_1_YY=00&Ca15_1_hh=00&Ca15_1_mm=00&Ca15_2_DD=00&Ca15_2_MM=00&Ca15_2_YY=00&Ca15_2_hh=00&Ca15_2_mm=00&
			
			Ca16_IsValid=false&Ca16_IsYearly=false&Ca16_Mode=0&Ca16_1_DD=00&Ca16_1_MM=02&Ca16_1_YY=00&Ca16_1_hh=00&Ca16_1_mm=00&Ca16_2_DD=00&Ca16_2_MM=00&Ca16_2_YY=00&Ca16_2_hh=00&Ca16_2_mm=00

	Ca12_1_DD	00	
	Ca12_1_MM	00	
	Ca12_1_YY	00	
	Ca12_1_hh	00	
	Ca12_1_mm	00	
	Ca12_2_DD	00	
	Ca12_2_MM	00	
	Ca12_2_YY	00	
	Ca12_2_hh	00	
	Ca12_2_mm	00	
	Ca13_IsValid	False	
	Ca13_IsYearly	False	
	Ca13_Mode	0	
	Ca13_1_DD	00	
	Ca13_1_MM	00	
	Ca13_1_YY	00	
	Ca13_1_hh	00	
	Ca13_1_mm	00	
	Ca13_2_DD	00	
	Ca13_2_MM	00	
	Ca13_2_YY	00	
	Ca13_2_hh	00	
	Ca13_2_mm	00	
	Ca14_IsValid	False	
	Ca14_IsYearly	False	
	Ca14_Mode	0	
	Ca14_1_DD	00	
	Ca14_1_MM	00	
	Ca14_1_YY	00	
	Ca14_1_hh	00	
	Ca14_1_mm	00	
	Ca14_2_DD	00	
	Ca14_2_MM	00	
	Ca14_2_YY	00	
	Ca14_2_hh	00	
	Ca14_2_mm	00	
	Ca15_IsValid	False	
	Ca15_IsYearly	False	
	Ca15_Mode	0	
	Ca15_1_DD	00	
	Ca15_1_MM	00	
	Ca15_1_YY	00	
	Ca15_1_hh	00	
	Ca15_1_mm	00	
	Ca15_2_DD	00	
	Ca15_2_MM	00	
	Ca15_2_YY	00	
	Ca15_2_hh	00	
	Ca15_2_mm	00	
	Ca16_IsValid	False	
	Ca16_IsYearly	False	
	Ca16_Mode	0	

	Ca16_1_DD Ca16_1_MM Ca16_1_YY Ca16_1_hh Ca16_1_mm Ca16_2_DD Ca16_2_MM Ca16_2_YY Ca16_2_hh Ca16_2_mm	00 00 00 00 00 00 00 00 00 00	

[1] Strings must be URL encoded at handover.

[2] The value “IsValid” need only be set if the data point description sets the field to “HasValid”.

[3] The value corresponds to the sum of valence of all active checkboxes or radio buttons.

[4] All visible partial fields of the data point must be set.

[5] The values must be on the grid of the resolution. This is once again in API verified and the values for write are corrected as needed.

[6] All attributes of existing switching points must be set. As an exception, undefined switching points are considered “invalid” and the associated attributes are set to value “0”.

[7] The entire calendar must be once again written to prevent restarting sort on the devices for each change. Otherwise, possible entries may be overwritten. As an exception, undefined switching points are considered “invalid” and the associated attributes are set to value “0”.

Prior to writing a data point, the following checks are conducted. The data point is not described if a minimum of one check is unsuccessful, and a corresponding exception is returned.

Overview of checks

Data type	**Checks**
All data types	- Correct data type
String	- String is URL encoded
Numeric	- Value is within the (dynamic and status) limits - Value is numeric - “IsValid” value exists, if needed
Enumeration	- Value is within static limits - Value is numeric
CheckBox	- Value is numeric - All visible boxes are set
RadioButton	- Value is numeric - All visible boxes are set
DateTime	- Partial values are numeric - Partial values are within the static limits - “IsValid” value exists, if needed
TimeOfDay	- Partial values are numeric - Partial values are within static limits - “IsValid” value exists, if needed
Scheduler	- Partial values are numeric - Time of partial values are within the day limits 00:00 – 24:00
Calendar	- Partial values are numeric - Time of partial values are within the day limits 00:00 – 23:59

Response body in JSON, if the value could be written:

```
{
        "Result":
                {
                        "Success": "true"
                }
}
```

Response body in XML, if the value could be written:

```
<Service>
        <Result>
                <Success>true</Success>
        </Result>
</Service>
```

Response body in JSON, if the value could not be written:

```
{
        "Result":
                {
                        "Success": "false",
                        "Error":
                                {
                                        "Txt": "Write failed",
                                        "Nr": "3"
                                }
                }
}
```

Response body in XML, if the value could not be written:

```
<Service>
        <Result>
                <Success>false</Success>
                <Error>
                        <Txt>Write failed</Txt>
                        <Nr>3</Nr>
                </Error>
        <Result>
</Service>
```

2.9.10 write_datapoint_direct - /api/menutree/write_datapoint_direct

Request URI (HTTP GET):
http://mydevice/api/menutree/write_datapoint_direct.format

Request Example:

```
http://192.168.251.1/api/menutree/write_datapoint_direct.json?SessionId=0bc991a1-04eb-4a7c-8371-
4ab648ec8a88&SerialNumber=00FD00FF01F0&Address=0x102F1001&DpSubKey=0&Type=Numeric&Value=49.0
```

Request Parameter:

Parameter	Example	Default value	Description
SessionId	0bc991a1-04eb-4a7c-…	(none)	SessionId of the current session
SerialNumber	00FD00FF01F0	(none)	Unique device serial number
Address[1]	0x102F1001	(none)	Data point address
DpSubKey[1]	0	0	Supplemental data point identification
Type[2]	Numeric	(none)	Data point type for write
Value[2]	49.0, …	(none)	Data point value for write

[1] Within a device can a data point be uniquely identified on a device based on parameter "Address" and "DpSubKey“. These two parameters are included in the disclosure document for the device.

[2] The parameter value or its coding depends on the applicable data type. Possible data types include String, Numeric, Enumeration, CheckBox, RadioButton, DateTime, TimeOfDay and Scheduler.

Data points may only be described as needed and never periodically, since the number of write cycles is limited on the storage blocks of the operated devices.

Response Body in JSON / XML:
The same as for service write_datapoint - /api/menutree/write_datapoint in Sec. 2.9.9.

2.10 Energy cost allocater services

Function name	Application
version	Eca services version information
download	File download energy cost report

2.10.1 version - /api/eca/version

Request URI (HTTP GET):
http://mydevice/api/eca/version.format

Request example:

```
http://192.168.251.1/api/eca/version.json
```

The response content is the same as for service version - /api/version (Sec. 2.3.1).

2.10.2 download - /api/eca/download

Request URI (HTTP GET):
http://mydevice/api/eca/download.format

Request Example:

```
http://192.168.251.1/api/eca/download.json?SessionId=0bc991a1-04eb-4a7c-8371-4ab648ec8a88&Type=CSV
```

Request parameter:

Parameter	Example	Default value	Description
SessionId	0bc991a1-04eb-4a7c-…	(none)	SessionId of the current session of user group service or administrator
Type	xml, csv	xml	File type for download

Response body in JSON:

```
{
         "Download": {
                            "Content-Type": "application/vnd.ms-excel",
                            "Content-Disposition": "attachment",
                            "filename": "consumption_data_20130305.csv",
                            "Data":
";;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;
Plant information;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;
;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;
Plant name;Device address;Device type;Serial number;IP address;File created on;;File
version;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;
OZW772.250;0.2.150;OZW772.250;00FD00FEFF00;192.168.251.1;12:27;05.03.2013;1.00;;;;;;;;;;;;;;;;;;;;;
;;;;;;;;;;;;;;;;;;
;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;
Meter data;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;
;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;
Device information;;;Meter information;;;;Current values;;;Meter state;;;Last due day;;Last but
one due day;;Calendar monthly values;;;;;;;;;;;;;;;;;;;;;;;;Start value Web server;;
Device name;Device address;Device type;Serial number;Meter name;Medium;Production
number;Identification number;Unit;Current value;Time of day;Date;Operating hours;Meter state;Time
of
day;Date;Value;Date;Value;Date;Value;Date;Value;Date;Value;Date;Value;Date;Value;Date;Value;Date;Va
lue;Date;Value;Date;Value;Date;Value;Date;Value;Date;Value;Date;Current value;Time of day;Date

;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;
Meter replacement;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;
;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;
Device information;;;Meter information;;;;Last values;;;Meter state;;;Last due day;;Last but one
due day;;Calendar monthly values;;;;;;;;;;;;;;;;;;;;;;;;Start value Web server;;
Device name;Device address;Device type;Serial number;Meter name;Medium;Production
number;Identification number;Unit;Current value;Time of day;Date;Operating hours;Meter state;Time
of
day;Date;Value;Date;Value;Date;Value;Date;Value;Date;Value;Date;Value;Date;Value;Date;Value;Date;Va
lue;Date;Value;Date;Value;Date;Value;Date;Value;Date;Value;Date;Current value;Time of day;Date

;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;

;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;
;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;"
},
	"Result": {
		"Success": "true"
	}
}
```

Response body in XML:

```
<Service>
	<Download>
		<Content-Type>application/vnd.ms-excel</Content-Type>
		<Content-Disposition>attachment</Content-Disposition>
		<Content-Encoding/>
		<Filename>consumption_data_20130312.csv</Filename>
		<Data>
;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;; ;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;; Plant
information;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;
;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;; Plant name;Device address;Device type;Serial
number;IP address;File created on;;File version;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;
OZW772.250;0.2.150;OZW772.250;00FD00FEFF00;192.168.251.1;13:28;12.03.2013;1.00;;;;;;;;;;;;;;;;;;;;;
;;;;;;;;;;;;;;;;;; ;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;; Meter
data;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;; ;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;
Device information;;;;Meter information;;;;;Current values;;;;Meter state;;;Last due day;;Last but
one due day;;Calendar monthly values;;;;;;;;;;;;;;;;;;;;;;;;Start value Web server;; Device
name;Device address;Device type;Serial number;Meter name;Medium;Production number;Identification
number;Unit;Current value;Time of day;Date;Operating hours;Meter state;Time of
day;Date;Value;Date;Value;Date;Value;Date;Value;Date;Value;Date;Value;Date;Value;Date;Value;Date;Va
lue;Date;Value;Date;Value;Date;Value;Date;Value;Date;Value;Date;Current value;Time of day;Date
;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;; Meter
replacement;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;
;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;; Device information;;;;Meter information;;;;;Last
values;;;;Meter state;;;Last due day;;Last but one due day;;Calendar monthly
values;;;;;;;;;;;;;;;;;;;;;;;;Start value Web server;; Device name;Device address;Device
type;Serial number;Meter name;Medium;Production number;Identification number;Unit;Current
value;Time of day;Date;Operating hours;Meter state;Time of
day;Date;Value;Date;Value;Date;Value;Date;Value;Date;Value;Date;Value;Date;Value;Date;Value;Date;Va
lue;Date;Value;Date;Value;Date;Value;Date;Value;Date;Value;Date;Current value;Time of day;Date
;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;; ;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;
;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;
		</Data>
	</Download>
	<Result>
		<Success>true</Success>
	</Result>
</Service>
```

Remark:

OZW version V07.00 uses Unix-style line endings with line feed (LF). Earlier OZW versions ≤ V06.00 used Windows style line endings with line feed (LF) and carriage return (CR).

2.11 Trend services

Function name	Application
version	Trend services version information
download	Download of a trend

2.11.1 version - /api/trend/version

Request URI (HTTP GET):
http://mydevice/api/trend/version.format

Request example:

```
http://192.168.251.1/api/trend/version.json
```

The response content is the same as for service version - /api/version (Sec. 2.3.1).

2.11.2 download - /api/trend/download

Request URI (HTTP GET):
http://mydevice/api/trend/download.format

Request example:

```
http://192.168.251.1/api/trend/download.json?SessionId=0bc991a1-04eb-4a7c-8371-
4ab648ec8a88&TrendNr=1&Start_Value_DD=16&Start_Value_MM=04&Start_Value_YY=13&Start_Value_hh=00
&End_Value_DD=17&End_Value_MM=04&End_Value_YY=13&End_Value_hh=00
```

Request parameter:

Parameter	Example	Default value	Description
SessionId	0bc991a1-04eb-4a7c-…	(none)	SessionId of the current session of user group service or administrator
TrendNr	1	1	TrendNO. Of available trend
Start_Value_DD, Start_Value_MM, Start_Value_YY, Start_Value_hh	Start_Value_DD=30&Start_Value_MM=04&Start_Value_YY=12&Start_Value_hh=00	Current date, 00:00	Trend start time and date[1]
End_Value_DD, End_Value_MM, End_Value_YY, End_Value_hh	End_Value_DD=30&End_Value_MM=05&End_Value_YY=12&End_Value_hh=00	Current date, current time	Trend end time and date[1]

[1] If only one point in time is defined via parameter, then are default values used for both points in time

Response body in JSON:

```
{
          Download : {
                    "Content-Type": "application/vnd.ms-excel",
                    "Content-Disposition": "attachment",
                    "Content-Encoding": "",
                    "Filename": "trend_data_1_20130312.csv",
                    "Data": "Plant name:OZW772.250;\r\nTrend channel 1:test;\r\nQuery
interval:30s;\r\nDate;Time of day;Home > 0.2.150 OZW772.250 > Message receiver: Message
inhibition;\r\n06.03.2013;07:10:10;On;\r\n06.03.2013;07:11:31;On;\r\n06.03.2013;07:13:19;On;\r\n06.
03.2013;07:28:18;On;\r\n06.03.2013;07:28:44;On;\r\n06.03.2013;07:44:30;On;\r\n06.03.2013;07:58:43;O
n;\r\n06.03.2013;09:52:44;On;\r\n06.03.2013;10:07:43;On;\r\n06.03.2013;11:19:02;On;\r\n06.03.2013;1
1:22:38;On;\r\n06.03.2013;11:26:29;On;\r\n06.03.2013;11:29:21;On;\r\n06.03.2013;11:35:39;On;\r\n06.
03.2013;11:45:37;On;\r\n06.03.2013;12:00:36;On;\r\n06.03.2013;12:07:14;On;\r\n06.03.2013;12:09:03;O
n;\r\n06.03.2013;12:12:26;On;\r\n06.03.2013;12:16:24;On;\r\n06.03.2013;12:31:23;On;\r\n06.03.2013;1
2:45:47;On;\r\n06.03.2013;13:00:46;On;\r\n06.03.2013;13:09:46;On;\r\n06.03.2013;13:16:41;On;\r\n06.
03.2013;13:31:40;On;\r\n06.03.2013;13:32:09;On;\r\n06.03.2013;13:40:38;On;\r\n06.03.2013;13:55:37;O
n;\r\n06.03.2013;14:14:10;On;\r\n06.03.2013;15:18:59;On;\r\n06.03.2013;15:29:09;On;\r\n06.03.2013;1
5:38:52;On;\r\n06.03.2013;15:53:52;On;\r\n06.03.2013;16:08:51;On;\r\n06.03.2013;16:23:51;On;\r\n06.
03.2013;16:38:51;On;\r\n06.03.2013;16:53:51;On;\r\n06.03.2013;17:08:51;On;\r\n06.03.2013;17:23:51;O
n;\r\n06.03.2013;17:24:43;On;\r\n06.03.2013;17:27:37;On;\r\n06.03.2013;17:29:28;On;\r\n06.03.2013;1
7:32:25;On;\r\n06.03.2013;17:38:52;On;\r\n06.03.2013;17:53:51;On;\r\n06.03.2013;18:08:51;On;\r\n06.
03.2013;18:23:51;On;\r\n06.03.2013;18:38:51;On;\r\n06.03.2013;18:53:51;On;\r\n06.03.2013;19:08:51;O
n;\r\n06.03.2013;19:23:51;On;\r\n06.03.2013;19:38:51;On;\r\n06.03.2013;19:53:51;On;\r\n06.03.2013;2
0:08:51;On;\r\n06.03.2013;20:23:51;On;\r\n06.03.2013;20:38:51;On;\r\n06.03.2013;20:53:52;On;\r\n06.
03.2013;21:08:51;On;\r\n06.03.2013;21:23:51;On;\r\n06.03.2013;21:38:51;On;\r\n06.03.2013;21:53:51;O
n;\r\n06.03.2013;22:08:51;On;\r\n06.03.2013;22:23:51;On;\r\n06.03.2013;22:38:51;On;\r\n06.03.2013;2
2:53:51;On;\r\n06.03.2013;23:08:51;On;\r\n06.03.2013;23:23:51;On;\r\n06.03.2013;23:38:51;On;\r\n06.
03.2013;23:53:51;On;\r\n07.03.2013;00:08:52;On;\r\n07.03.2013;00:23:51;On;\r\n07.03.2013;00:38:51;O
n;\r\n07.03.2013;00:53:51;On;\r\n07.03.2013;01:08:51;On;\r\n07.03.2013;01:23:51;On;\r\n07.03.2013;0
1:38:51;On;\r\n07.03.2013;01:53:51;On;\r\n07.03.2013;02:08:51;On;\r\n07.03.2013;02:23:51;On;\r\n07.
03.2013;02:38:51;On;\r\n07.03.2013;02:53:51;On;\r\n07.03.2013;03:08:51;On;\r\n07.03.2013;03:23:51;O
n;\r\n07.03.2013;03:38:51;On;\r\n07.03.2013;03:53:51;On;\r\n07.03.2013;04:08:51;On;\r\n07.03.2013;0
4:23:51;On;\r\n07.03.2013;04:38:51;On;\r\n07.03.2013;04:53:52;On;\r\n07.03.2013;05:08:51;On;\r\n07.
03.2013;05:23:51;On;\r\n07.03.2013;05:38:51;On;\r\n07.03.2013;05:53:51;On;\r\n07.03.2013;06:08:51;O
n;\r\n07.03.2013;06:23:51;On;\r\n07.03.2013;06:38:51;On;\r\n07.03.2013;06:53:51;On;\r\n07.03.2013;0
6:57:20;On;\r\n07.03.2013;07:25:40;On;\r\n07.03.2013;07:40:39;On;\r\n07.03.2013;07:43:28;On;\r\n07.
03.2013;07:58:27;On;\r\n07.03.2013;08:13:27;On;\r\n07.03.2013;08:28:27;On;\r\n07.03.2013;08:43:27;O
n;\r\n07.03.2013;08:58:27;On;\r\n07.03.2013;09:13:27;On;\r\n07.03.2013;09:28:27;On;\r\n07.03.2013;0
9:43:27;On;\r\n07.03.2013;09:58:27;On;\r\n07.03.2013;10:13:27;On;\r\n07.03.2013;10:28:27;On;\r\n07.
03.2013;10:43:27;On;\r\n07.03.2013;10:58:27;On;\r\n07.03.2013;11:13:27;On;\r\n07.03.2013;11:28:27;O
n;\r\n07.03.2013;11:43:27;On;\r\n07.03.2013;11:58:27;On;\r\n07.03.2013;12:12:25;On;\r\n07.03.2013;1
2:16:47;On;\r\n07.03.2013;12:31:46;On;\r\n07.03.2013;12:46:46;On;\r\n07.03.2013;13:01:46;On;\r\n07.
03.2013;13:16:46;On;\r\n07.03.2013;13:31:46;On;\r\n07.03.2013;13:46:46;On;\r\n07.03.2013;14:01:46;O
n;\r\n07.03.2013;14:16:46;On;\r\n07.03.2013;14:31:46;On;\r\n07.03.2013;14:32:48;On;\r\n07.03.2013;1
4:51:45;On;\r\n07.03.2013;15:01:18;On;\r\n07.03.2013;15:16:17;On;\r\n07.03.2013;15:19:20;On;\r\n07.
03.2013;15:28:15;On;\r\n07.03.2013;15:41:50;On;\r\n07.03.2013;15:45:34;On;\r\n07.03.2013;15:52:15;O
n;\r\n07.03.2013;15:58:18;On;\r\n07.03.2013;16:02:39;On;\r\n07.03.2013;16:02:51;On;\r\n07.03.2013;1
6:06:56;On;\r\n07.03.2013;16:14:10;On;\r\n07.03.2013;16:21:53;On;\r\n07.03.2013;16:23:19;On;\r\n07.
03.2013;16:25:37;On;\r\n11.03.2013;14:15:14;On;\r\n11.03.2013;14:30:13;On;\r\n11.03.2013;14:45:13;O
n;\r\n11.03.2013;15:00:13;On;\r\n11.03.2013;15:15:13;On;\r\n11.03.2013;15:30:13;On;\r\n11.03.2013;1
5:45:13;On;\r\n11.03.2013;16:00:13;On;\r\n11.03.2013;16:15:13;On;\r\n11.03.2013;16:30:13;On;\r\n11.
03.2013;16:45:13;On;\r\n11.03.2013;17:00:13;On;\r\n11.03.2013;17:15:13;On;\r\n11.03.2013;17:30:13;O
n;\r\n11.03.2013;17:45:13;On;\r\n11.03.2013;18:00:13;On;\r\n11.03.2013;18:15:13;On;\r\n11.03.2013;1
8:30:13;On;\r\n11.03.2013;18:45:13;On;\r\n11.03.2013;19:00:13;On;\r\n11.03.2013;19:15:13;On;\r\n11.
03.2013;19:30:13;On;\r\n11.03.2013;19:45:13;On;\r\n11.03.2013;20:00:13;On;\r\n11.03.2013;20:15:13;O
n;\r\n11.03.2013;20:30:13;On;\r\n11.03.2013;20:45:13;On;\r\n11.03.2013;21:00:13;On;\r\n11.03.2013;2
1:15:13;On;\r\n11.03.2013;21:30:14;On;\r\n11.03.2013;21:45:13;On;\r\n11.03.2013;22:00:13;On;\r\n11.
03.2013;22:15:13;On;\r\n11.03.2013;22:30:13;On;\r\n11.03.2013;22:45:13;On;\r\n11.03.2013;23:00:13;O
n;\r\n11.03.2013;23:15:13;On;\r\n11.03.2013;23:30:13;On;\r\n11.03.2013;23:45:13;On;\r\n12.03.2013;0
0:00:13;On;\r\n12.03.2013;00:15:13;On;\r\n12.03.2013;00:30:13;On;\r\n12.03.2013;00:45:13;On;\r\n12.
03.2013;01:00:13;On;\r\n12.03.2013;01:15:13;On;\r\n12.03.2013;01:30:13;On;\r\n12.03.2013;01:45:13;O
n;\r\n12.03.2013;02:00:13;On;\r\n12.03.2013;02:15:13;On;\r\n12.03.2013;02:30:13;On;\r\n12.03.2013;0
2:45:13;On;\r\n12.03.2013;03:00:13;On;\r\n12.03.2013;03:15:13;On;\r\n12.03.2013;03:30:13;On;\r\n12.
03.2013;03:45:13;On;\r\n12.03.2013;04:00:13;On;\r\n12.03.2013;04:15:14;On;\r\n12.03.2013;04:30:13;O
n;\r\n12.03.2013;04:45:13;On;\r\n12.03.2013;05:00:13;On;\r\n12.03.2013;05:15:13;On;\r\n12.03.2013;0
5:30:13;On;\r\n12.03.2013;05:45:13;On;\r\n12.03.2013;06:00:13;On;\r\n12.03.2013;06:15:13;On;\r\n12.
03.2013;06:30:13;On;\r\n12.03.2013;06:45:13;On;\r\n12.03.2013;13:15:55;On;\r\n12.03.2013;13:30:54;O
n;\r\n"
},
          "Result": {
                    "Success": "true"
          }
}
```

Response body in XML:

```
<Service>
        <Download>
                <Content-Type>application/vnd.ms-excel</Content-Type>
                <Content-Disposition>attachment</Content-Disposition>
                <Content-Encoding/>
                <Filename>trend_data_1_20130312.csv</Filename>
                <Data>
Plant name:OZW772.250; Trend channel 1:test; Query interval:30s; Date;Time of day;Home > 0.2.150
OZW772.250 > Message receiver: Message inhibition; 06.03.2013;07:10:10;On; 06.03.2013;07:11:31;On;
06.03.2013;07:13:19;On; 06.03.2013;07:28:18;On; 06.03.2013;07:28:44;On; 06.03.2013;07:44:30;On;
06.03.2013;07:58:43;On; 06.03.2013;09:52:44;On; 06.03.2013;10:07:43;On; 06.03.2013;11:19:02;On;
06.03.2013;11:22:38;On; 06.03.2013;11:26:29;On; 06.03.2013;11:29:21;On; 06.03.2013;11:35:39;On;
06.03.2013;11:45:37;On; 06.03.2013;12:00:36;On; 06.03.2013;12:07:14;On; 06.03.2013;12:09:03;On;
06.03.2013;12:12:26;On; 06.03.2013;12:16:24;On; 06.03.2013;12:31:23;On; 06.03.2013;12:45:47;On;
06.03.2013;13:00:46;On; 06.03.2013;13:09:46;On; 06.03.2013;13:16:41;On; 06.03.2013;13:31:40;On;
06.03.2013;13:32:09;On; 06.03.2013;13:40:38;On; 06.03.2013;13:55:37;On; 06.03.2013;14:14:10;On;
06.03.2013;15:18:59;On; 06.03.2013;15:29:09;On; 06.03.2013;15:38:52;On; 06.03.2013;15:53:52;On;
06.03.2013;16:08:51;On; 06.03.2013;16:23:51;On; 06.03.2013;16:38:51;On; 06.03.2013;16:53:51;On;
```

```
06.03.2013;17:08:51;On; 06.03.2013;17:23:51;On; 06.03.2013;17:24:43;On; 06.03.2013;17:27:37;On;
06.03.2013;17:29:28;On; 06.03.2013;17:32:25;On; 06.03.2013;17:38:52;On; 06.03.2013;17:53:51;On;
06.03.2013;18:08:51;On; 06.03.2013;18:23:51;On; 06.03.2013;18:38:51;On; 06.03.2013;18:53:51;On;
06.03.2013;19:08:51;On; 06.03.2013;19:23:51;On; 06.03.2013;19:38:51;On; 06.03.2013;19:53:51;On;
06.03.2013;20:08:51;On; 06.03.2013;20:23:51;On; 06.03.2013;20:38:51;On; 06.03.2013;20:53:52;On;
06.03.2013;21:08:51;On; 06.03.2013;21:23:51;On; 06.03.2013;21:38:51;On; 06.03.2013;21:53:51;On;
06.03.2013;22:08:51;On; 06.03.2013;22:23:51;On; 06.03.2013;22:38:51;On; 06.03.2013;22:53:51;On;
06.03.2013;23:08:51;On; 06.03.2013;23:23:51;On; 06.03.2013;23:38:51;On; 06.03.2013;23:53:51;On;
07.03.2013;00:08:52;On; 07.03.2013;00:23:51;On; 07.03.2013;00:38:51;On; 07.03.2013;00:53:51;On;
07.03.2013;01:08:51;On; 07.03.2013;01:23:51;On; 07.03.2013;01:38:51;On; 07.03.2013;01:53:51;On;
07.03.2013;02:08:51;On; 07.03.2013;02:23:51;On; 07.03.2013;02:38:51;On; 07.03.2013;02:53:51;On;
07.03.2013;03:08:51;On; 07.03.2013;03:23:51;On; 07.03.2013;03:38:51;On; 07.03.2013;03:53:51;On;
07.03.2013;04:08:51;On; 07.03.2013;04:23:51;On; 07.03.2013;04:38:51;On; 07.03.2013;04:53:52;On;
07.03.2013;05:08:51;On; 07.03.2013;05:23:51;On; 07.03.2013;05:38:51;On; 07.03.2013;05:53:51;On;
07.03.2013;06:08:51;On; 07.03.2013;06:23:51;On; 07.03.2013;06:38:51;On; 07.03.2013;06:53:51;On;
07.03.2013;06:57:20;On; 07.03.2013;07:25:40;On; 07.03.2013;07:40:39;On; 07.03.2013;07:43:28;On;
07.03.2013;07:58:27;On; 07.03.2013;08:13:27;On; 07.03.2013;08:28:27;On; 07.03.2013;08:43:27;On;
07.03.2013;08:58:27;On; 07.03.2013;09:13:27;On; 07.03.2013;09:28:27;On; 07.03.2013;09:43:27;On;
07.03.2013;09:58:27;On; 07.03.2013;10:13:27;On; 07.03.2013;10:28:27;On; 07.03.2013;10:43:27;On;
07.03.2013;10:58:27;On; 07.03.2013;11:13:27;On; 07.03.2013;11:28:27;On; 07.03.2013;11:43:27;On;
07.03.2013;11:58:27;On; 07.03.2013;12:12:25;On; 07.03.2013;12:16:47;On; 07.03.2013;12:31:46;On;
07.03.2013;12:46:46;On; 07.03.2013;13:01:46;On; 07.03.2013;13:16:46;On; 07.03.2013;13:31:46;On;
07.03.2013;13:46:46;On; 07.03.2013;14:01:46;On; 07.03.2013;14:16:46;On; 07.03.2013;14:31:46;On;
07.03.2013;14:32:48;On; 07.03.2013;14:51:45;On; 07.03.2013;15:01:18;On; 07.03.2013;15:16:17;On;
07.03.2013;15:19:20;On; 07.03.2013;15:28:15;On; 07.03.2013;15:41:50;On; 07.03.2013;15:45:34;On;
07.03.2013;15:52:15;On; 07.03.2013;15:58:18;On; 07.03.2013;16:02:39;On; 07.03.2013;16:02:51;On;
07.03.2013;16:06:56;On; 07.03.2013;16:14:10;On; 07.03.2013;16:21:53;On; 07.03.2013;16:23:19;On;
07.03.2013;16:25:37;On; 11.03.2013;14:15:14;On; 11.03.2013;14:30:13;On; 11.03.2013;14:45:13;On;
11.03.2013;15:00:13;On; 11.03.2013;15:15:13;On; 11.03.2013;15:30:13;On; 11.03.2013;15:45:13;On;
11.03.2013;16:00:13;On; 11.03.2013;16:15:13;On; 11.03.2013;16:30:13;On; 11.03.2013;16:45:13;On;
11.03.2013;17:00:13;On; 11.03.2013;17:15:13;On; 11.03.2013;17:30:13;On; 11.03.2013;17:45:13;On;
11.03.2013;18:00:13;On; 11.03.2013;18:15:13;On; 11.03.2013;18:30:13;On; 11.03.2013;18:45:13;On;
11.03.2013;19:00:13;On; 11.03.2013;19:15:13;On; 11.03.2013;19:30:13;On; 11.03.2013;19:45:13;On;
11.03.2013;20:00:13;On; 11.03.2013;20:15:13;On; 11.03.2013;20:30:13;On; 11.03.2013;20:45:13;On;
11.03.2013;21:00:13;On; 11.03.2013;21:15:13;On; 11.03.2013;21:30:14;On; 11.03.2013;21:45:13;On;
11.03.2013;22:00:13;On; 11.03.2013;22:15:13;On; 11.03.2013;22:30:13;On; 11.03.2013;22:45:13;On;
11.03.2013;23:00:13;On; 11.03.2013;23:15:13;On; 11.03.2013;23:30:13;On; 11.03.2013;23:45:13;On;
12.03.2013;00:00:13;On; 12.03.2013;00:15:13;On; 12.03.2013;00:30:13;On; 12.03.2013;00:45:13;On;
12.03.2013;01:00:13;On; 12.03.2013;01:15:13;On; 12.03.2013;01:30:13;On; 12.03.2013;01:45:13;On;
12.03.2013;02:00:13;On; 12.03.2013;02:15:13;On; 12.03.2013;02:30:13;On; 12.03.2013;02:45:13;On;
12.03.2013;03:00:13;On; 12.03.2013;03:15:13;On; 12.03.2013;03:30:13;On; 12.03.2013;03:45:13;On;
12.03.2013;04:00:13;On; 12.03.2013;04:15:14;On; 12.03.2013;04:30:13;On; 12.03.2013;04:45:13;On;
12.03.2013;05:00:13;On; 12.03.2013;05:15:13;On; 12.03.2013;05:30:13;On; 12.03.2013;05:45:13;On;
12.03.2013;06:00:13;On; 12.03.2013;06:15:13;On; 12.03.2013;06:30:13;On; 12.03.2013;06:45:13;On;
12.03.2013;13:15:55;On; 12.03.2013;13:30:54;On;
               </Data>
       </Download>
       <Result>
               <Success>true</Success>
       </Result>
</Service>
```

Remark:
OZW version V07.00 uses Unix-style line endings with line feed (LF). Earlier OZW versions ≤ V06.00 used Windows style line endings with line feed (LF) and carriage return (CR).

3. Application example for OZW Web API

Following a simple application example to read out the local device list in OZW. The OZW is directly accessed via Ethernet (e.g. a router with explicit port forwarding).

3.1 Authentification: login to OZW

Login to get a new SessionID with local OZWx72 credentials

Request:

```
https://192.168.250.1/api/auth/login.json?user=Administrator&pwd=Password.1
```

Response:

```
{
          "SessionId": "c83f5091-17ff-44b4-a62f-ba592ef3ee59",
          "Result":
          {
              "Success": "true"
          }
}
```

3.2 Device list: read list

Query the local device list in OZW

Request:

```
https://192.168.250.1/api/devicelist/list.json?SessionId=c83f5091-17ff-44b4-a62f-ba592ef3ee59
```

Response:

```
{
          "Devices":
          [
              {
                "Name": "OZW772.16",
                "Addr": "0.2.150",
                "Type": "OZW772.16",
                "SerialNr": "00FD00FF0A00",
                "TreeDate": "18.11.2015",
                "TreeTime": "12:49",
                "TreeGenerated": "true"
              },
              …
          ],
          "Result":
          {
              "Success": "true"
          }
}
```

3.3 Authentification: logout from OZW

Do a logout for the SessionID

Request:

```
https://192.168.250.1/api/auth/logout.json?SessionId=c83f5091-17ff-44b4-a62f-ba592ef3ee59
```

Response:

```
{
          "Result":
          {
              "Success": "true"
          }
}
```

4. Use cases for integration via Portal Web API

4.1 Description of use case

In contrast to use case from Section 1.1, the decentralized plants or OZWx72s should now be accessed via the portal.

4.2 Portal Web API: Check version

Checks, based on the services “version”, whether this portal Web API version is supported (see 5.4.1 in this document).

4.3 Portal Web API: List of sites

The service “site/list” can query a list of all plants (See Sec. 5.5.2). An individual plant can be identified via a unique OZWx72 device serial number.

- Query all plants with service “site/list”
- Identification of plant via “SerialNr” of OZWx72
- As an option, the service “site/info” can read other detailed plant information (alarm state, connection state, etc.)
- You can access the web server on the OZW with parameter “Uri” (See Sec. 5.5.4).

4.4 OZW Web API: Availability

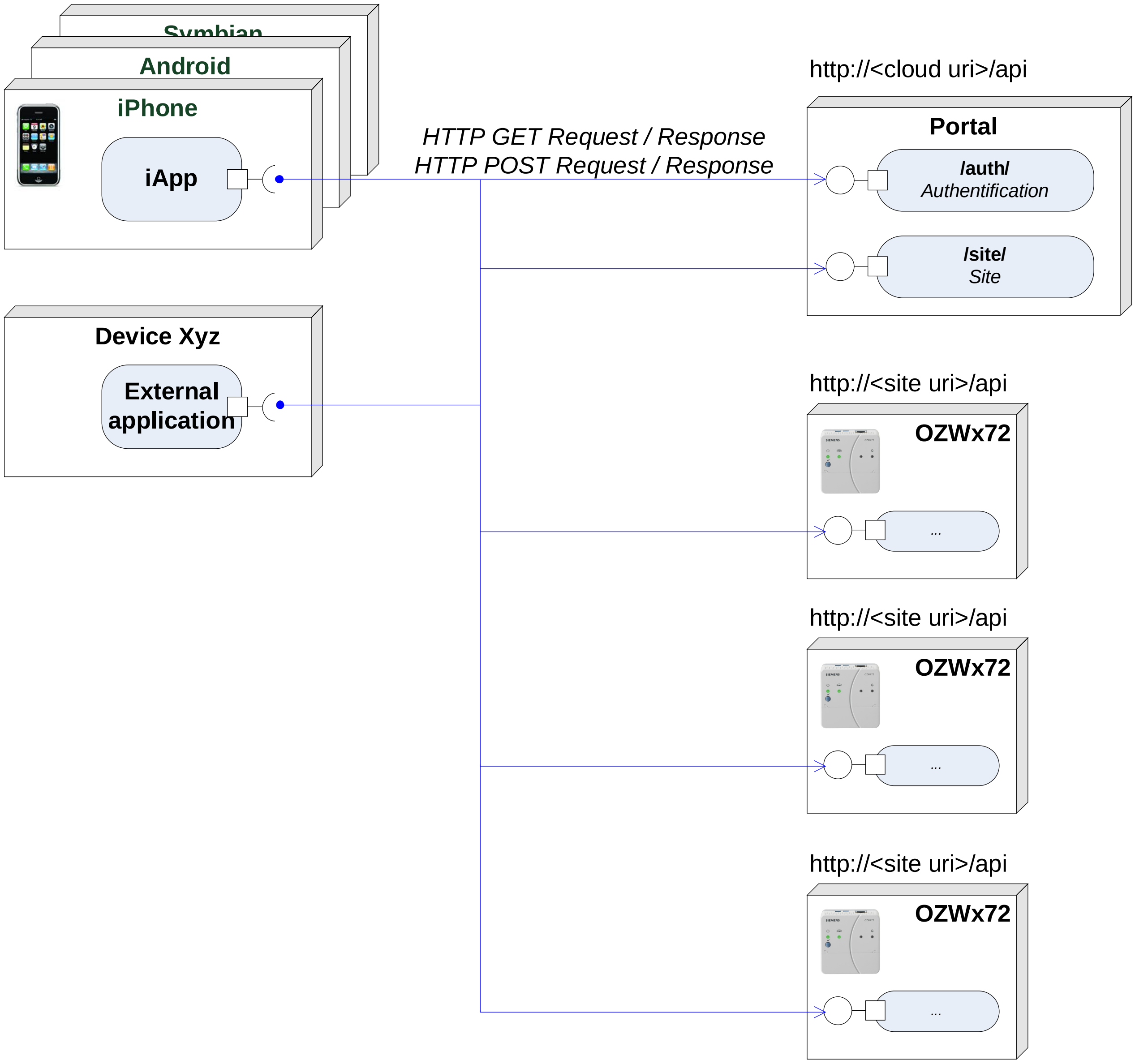
You can access the (local) web server OZW using parameter “Uri” (e.g. the web API or web pages). When accessing the OZW Web API, consider the same framework conditions are for the direct OZW Web API Application (See Sec. 1).

5. Portal Web API

5.1 General

The Portal Web API is based on the same principles as the OZW Web API. In contrast, the portal Web API provides a cloud-based infrastructure.

All services are offered encrypted HTTPS. The diagram below illustrates how the portal web services is structured:



5.1.1 HTTP response format

The same of OZW Web API (Section 2.1.1).

5.1.2 Interface version /api/…

The same of OZW Web API (Section 2.1.2).

5.1.3 Result

The response is the same in principle as for OZW Web API (Section 2.1.3).

Table of all possible errors on all service groups and services

		Error													
	Error Number	0	1	2	3	4	5	6	7	8	9	10	11	12	13
<ip-addr>/api/	*Error Text*	unknown error	unknown user or wrong password	session not valid	serial number not found	tree name not valid	tree id not found	read failed	write failed	data type not supported	value not valid	unknown service	unknown format	Serial number or tree name not found	No trend defined or trend version not supported
…/…/	…/version	(X)	-	-	-	-	-	-	-	-	-	-	-	-	-
…/auth/	…/login	-	X	-	-	-	-	-	-	-	-	-	-	-	-
	…/logout	-	-	X	-	-	-	-	-	-	-	-	-	-	-
…/site	…/info	-	-	X	-	-	-	-	-	-	-	-	-	-	-
	…/list	-	-	X	-	-	-	-	-	-	-	-	-	-	-
	…/listextended	-	-	X	-	-	-	-	-	-	-	-	-	-	-
…/unknown/	…/…/	-	-	-	-	-	-	-	-	-	-	X	-	-	-
…/…/	…/unknown	-	-	-	-	-	-	-	-	-	-	X	-	-	-
…/…/	…/known.unknown	-	-	-	-	-	-	-	-	-	-	-	X	-	-

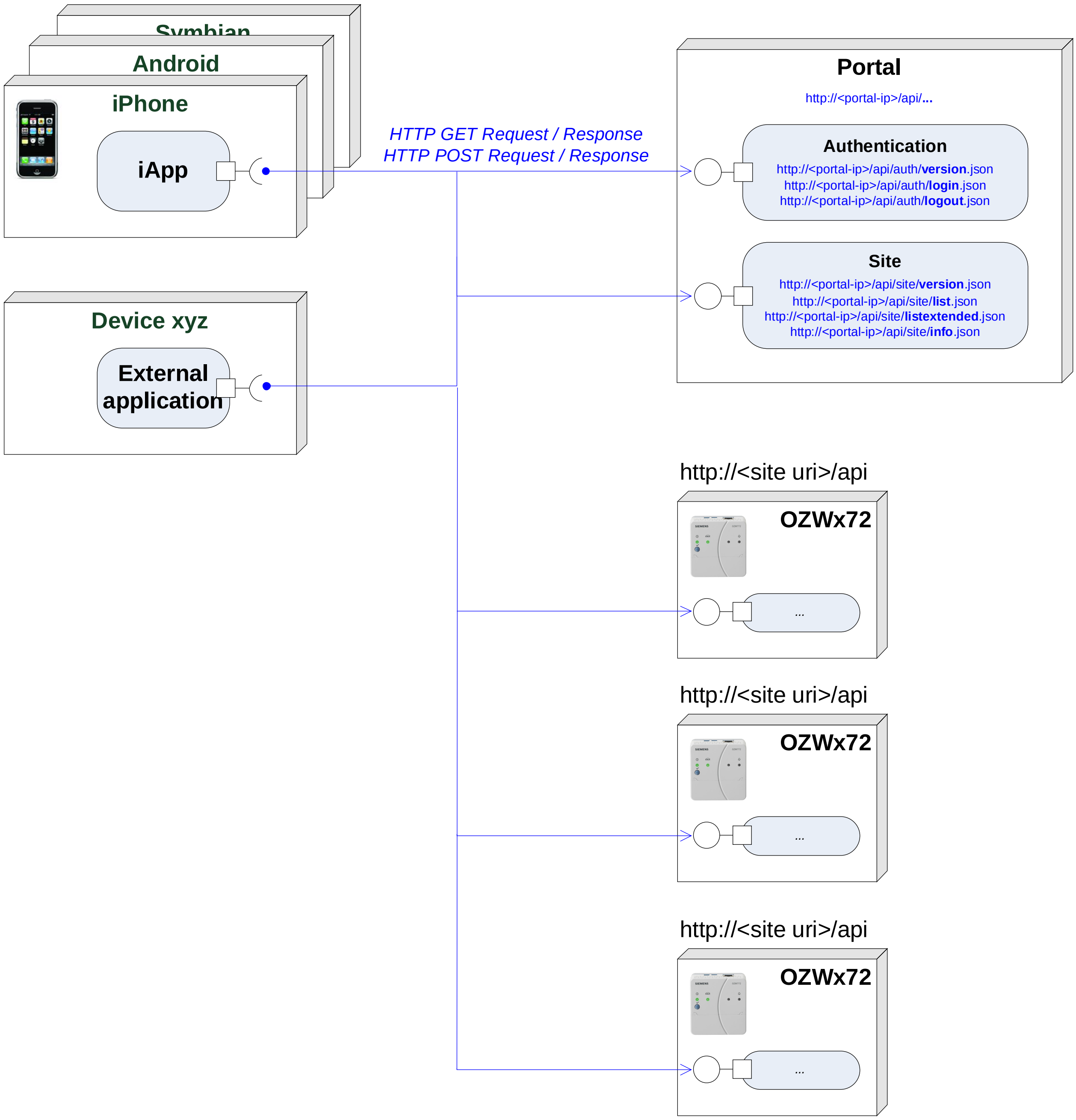
5.1.4 User administration

The port services user administration occurs together with the user administration on the portal (e.g. www.siemens-syncoic.com or www.climatixic.com). The user administration also occurs on to the portal. The entered portal language of a user also defines the languages of data queried via web services.

Authentication occurs the first time on service “login” (see Sec. 5.4.2) and later for other services via the received (portal) SessionId (e.g. SessionId= nXjrw7DY1ikcDhK9vaRwbu). The session is managed together with the portal. A session is not persistent saved on the portal and has a relative timeout of 10 minutes for inactivity.

When using the Portal Web API to call OZW Web API services it is recommended to periodically call the Portal service “site\info” to reset the relative timeout. Alternatively, if only OZW services are used, minimal every 50 seconds a service has to be called.

5.1.5 Overview of web services


Symbian
Android
iPhone
iApp
HTTP GET Request / Response
HTTP POST Request / Response
Device xyz
External application
Portal
http://<portal-ip>/api/...
Authentication
http://<portal-ip>/api/auth/version.json
http://<portal-ip>/api/auth/login.json
http://<portal-ip>/api/auth/logout.json
Site
http://<portal-ip>/api/site/version.json
http://<portal-ip>/api/site/list.json
http://<portal-ip>/api/site/listextended.json
http://<portal-ip>/api/site/info.json
http://<site uri>/api
OZWx72
...
http://<site uri>/api
OZWx72
...
http://<site uri>/api
OZWx72
...

5.2 API interface versions

5.2.1 Portal API version 1.0.2

Service group	API	Interface version
API	***/api/***	***1.0.2***
Authentication	…/auth/	1.0.2
Site	…/site/	1.0.2

5.3 Common services

Function name	Application
version	Version information of all API services

5.3.1 version - /api/version

Request URI (HTTP GET):
https://portal/api/version.format

Request example:

```
http://www.siemens-syncoic.com/api/version.json
```

Response body in JSON:

```
{
         "Version": "1.1.9",
         "Result": ...
}
```

Response body in XML:

```
<Service>
         <Version>1.1.9</Version>
         <Result>...</Result>
</Service>
```

5.4 Authentication services

Function name	Application
version	Version information of (portal) authentication service
login	Authentication and resolution of a (portal) SessionID
logout	Concluding a (portal) session

5.4.1 version - /api/auth/version

Request URI (HTTP GET):
https://portal/api/auth/version.format

Request example:

```
https://www.siemens-syncoic.com/api/auth/version.json
```

The response content is the same as for service version - /api/version (Sec. 2.3.1).

5.4.2 login - /api/auth/login

Request URI (HTTP GET):
https://portal/api/auth/login.format

Example:

```
https://www.siemens-syncoic.com/api/auth/login.json?user=HansMuster&pwd=MyPassword
```

Request parameter:

Parameter	Example	Default value	Description
user	HansMuster@abcd.ch	(none)	(Portal) User name
pwd	MyPassword	(none)	(Portal) Password

Response body in JSON:

```
{
          "SessionId": "nXjrw7DY1ikcDhK9vaRwbu",
          "HasSiteServices"[1]: "true",
          "Result": ...
}
```

Response body in XML:

```
<Service>
          <SessionId>nXjrw7DY1ikcDhK9vaRwbu</SessionId>
          <HasSiteServices>true</HasSiteServices>[1]
          <Result>...</Result>
</Service>
```

[1] The parameter “HasSiteServices” indicates whether the portal Web API also offers the service group “site”. The parameter “HasSiteServices” can also be used to distinguish from OZW Web API.

5.4.3 logout - /api/auth/logout

Request URI (HTTP GET):
https://portal/api/auth/logout.format

Request example:

```
https://www.siemens-syncoic.com/api/auth/logout.json?SessionId=nXjrw7DY1ikcDhK9vaRwbu
```

Request parameter:

Parameter	Example	Default value	Description
SessionId	nXjrw7DY1ikcDhK9va…	(none)	SessionId of current (portal) session

Response body in JSON:

```
{
          "Result": ...
}
```

Response body in XML:

```
<Service>
          <Result>...</Result>
</Service>
```

5.5 Site services

Function name	Application
version	Site services version info
list	List of all sites in the portal [1]
listextended	Extended list of all sites in the portal [1]
info	Info on a site (e.g. Connection Status, URI, etc.)

[1] The list is not sorted

5.5.1 version - /api/site/version

Request URI (HTTP GET):
https://portal/api/site/version.format

Request example:

```
https://www.siemens-syncoic.com/api/site/version.json
```

The response content is the same as for service version - /api/version (Sec. 2.3.1).

5.5.2 list - /api/site/list

Request URI (HTTP GET):
https://portal/api/site/list.format

Request example:

```
http://www.siemens-syncoic.com/api/site/list.json?SessionId=nXjrw7DY1ikcDhK9vaRwbu
```

Request parameter:

Parameter	Example	Default value	Description
SessionId	nXjrw7DY1ikcDhK9va…	(none)	(Portal) SessionId of the current session

Response body in JSON:

```
{
        "Sites":
                [
                        {
                                "Name": "Museum",
                                "Description": "Historical museum Zurich",
                                "Distributor": "Siemens Proxy",
                                "SerialNr": "00FD00FF01F0",
                                "Type": "OZW772.16",
                                "Uri"[2]: "https://www.siemens-syncoic.com/Site/…/web/",
                                "SiteId"[1]: "b08173af-ead5-e311-b5bf-00a003fd08e8"
                        },
                        {
                                "Name": "Museum",
                                "Description": "Natural museum Lucerne",
                                "Distributor": "Siemens Proxy",
                                "SerialNr": "00FD00FF033A",
                                "Type": "OZW672.16",
                                "Uri"[2]: "https://www.siemens-syncoic.com/Site/…/web/",
                                "SiteId"[1]: "64aa9cec-caad-e311-baaf-00a003fd51d8"
                        }
                        {
                                …
                        }
                ],
        "Result": ...
}
```

Response body in XML:

```
<Service>
        <Sites>
                <Site>
                        <Name>Museum</Name>
                        <Description>Historical museum Zurich</Description>
                        <Distributor>Siemens Proxy</Distributor>
                        <SerialNr>00FD00FF01F0</SerialNr>
                        <Type>OZW772.16</Type>
                        <Uri>https://www.siemens-syncoic.com/Site/…/web/</Uri>[2]
                        <SiteId>b08173af-ead5-e311-b5bf-00a003fd08e8</SiteId>[1]
                </Site>
                <Site>
                        <Name>Museum</Name>
                        <Description>Natural museum Lucerne</Description>
                        <Distributor>Siemens Proxy</Distributor>
                        <SerialNr>00FD00FF033A</SerialNr>
                        <Type>OZW672.16</Type>
                        <Uri>https://www.siemens-syncoic.com/Site/…/web/</Uri>[2]
                        <SiteId>64aa9cec-caad-e311-baaf-00a003fd51d8</SiteId>[1]    </Site>
        <Sites>
        <Result>...</Result>
</Service>
```

[1] A site can be clearly identified based on parameter “SerialNr”.

[2] You can access the (local) web server on the OZW via the portal with parameter “Uri” (e.g. of Web API). When accessing via the portal, the (portal) SessionID as parameter must always be provided).

5.5.3 listextended - /api/site/listextended

Request URI (HTTP GET):
https://portal/api/site/listextended.format

Request example:

```
http://www.siemens-syncoic.com/api/site/listextended.json?SessionId=nXjrw7DY1ikcDhK9vaRwbu
```

Request parameter:

Parameter	Example	Default value	Description
SessionId	nXjrw7DY1ikcDhK9va…	(none)	(Portal) SessionId of the current session

Response body in JSON:

```
{
         "Sites":
                  [
                           {
                                    "TenantId": "0346c600-8ad0-4b30-914d-7dd3fcfee610",
                                    "Address": "Abbay Road",
                                    "City": "London",
                                    "Country": "England",
                                    "State": "England",
                                    "ZipCode": "EC2R 6AB",
                                    "AccessCode": "5afbdda1-f79a-4e78-82c3-25da2a563454",
                                    "Connection": true,
                                    "Alarm": true,
                                    "Rta": false,
                                    "Name": "Museum",
                                    "Description": "Historical museum",
                                    "Distributor": "Siemens Proxy",
                                    "SerialNr": "00FD00FF01F0",
                                    "Type": "OZW772.16",
                                    "Uri"[2]: "https://www.siemens-syncoic.com/Site/…/web/",
                                    "SiteId"[1]: "b08173af-ead5-e311-b5bf-00a003fd08e8"
                           },
                           {
                                    "TenantId": "0346c600-8ad0-4b30-914d-7dd3fcfee610",
                                    "Address": "Abbay Road",
                                    "City": "London",
                                    "Country": "England",
                                    "State": "England",
                                    "ZipCode": "EC2R 6AB",
                                    "AccessCode": "285379e6-be03-46a0-8ed0-b745d323e36b",
                                    "Connection": true,
                                    "Alarm": true,
                                    "Rta": false,
                                    "Name": "Museum",
                                    "Description": "Natural museum",
                                    "Distributor": "Siemens Proxy",
                                    "SerialNr": "00FD00FF033A",
                                    "Type": "OZW672.16",
                                    "Uri"[2]: "https://www.siemens-syncoic.com/Site/…/web/",
                                    "SiteId"[1]: "64aa9cec-caad-e311-baaf-00a003fd51d8"
                           }
                           {
                                    …
                           }
                  ],
         "Result": ...
}
```

Response body in XML:

```
<Service>
         <Sites>
                  <Site>
                           <TenantId>0346c600-8ad0-4b30-914d-7dd3fcfee610</TenantId>
                           <Address>Abbay Road</Address>
                           <City>London</City>
                           <Country>England</Country>
                           <State>England</State>
                           <ZipCode>EC2R 6AB</ZipCode>
                           <AccessCode>5afbdda1-f79a-4e78-82c3-25da2a563454</AccessCode>
                           <Connection>true</Connection>
                           <Alarm>true</Alarm>
                           <Rta>false</Rta>
                           <Name>Museum</Name>
                           <Description>Historical museum</Description>
                           <Distributor>Siemens Proxy</Distributor>
                           <SerialNr>00FD00FF01F0</SerialNr>
                           <Type>OZW772.16</Type>
                           <Uri>https://www.siemens-syncoic.com/Site/…/web/</Uri>[2]
                           <SiteId>b08173af-ead5-e311-b5bf-00a003fd08e8</SiteId>[1]
                  </Site>
                  <Site>
                           <TenantId>0346c600-8ad0-4b30-914d-7dd3fcfee610</TenantId>
                           <Address>Abbay Road</Address>
                           <City>London</City>
                           <Country>England</Country>
                           <State>England</State>
                           <ZipCode>EC2R 6AB</ZipCode>
                           <AccessCode>285379e6-be03-46a0-8ed0-b745d323e36b </AccessCode>
                           <Connection>true</Connection>
                           <Alarm>false</Alarm>
                           <Rta>true</Rta>
                           <Name>Museum</Name>
                           <Description>Natural museum</Description>
                           <Distributor>Siemens Proxy</Distributor>
                           <SerialNr>00FD00FF033A</SerialNr>
                           <Type>OZW672.16</Type>
                           <Uri>https://www.siemens-syncoic.com/Site/…/web/</Uri>[2]
                           <SiteId>64aa9cec-caad-e311-baaf-00a003fd51d8</SiteId>[1]    </Site>
         <Sites>
         <Result>...</Result>
</Service>
```

[1] A site can be clearly identified based on parameter “SerialNr”.

[2] You can access the (local) web server on the OZW via the portal with parameter “Uri” (e.g. of Web API). When accessing via the portal, the (portal) SessionID as parameter must always be provided).

5.5.4 info - /api/site/info

Request URI (HTTP GET):
https://portal/api/site/info.format

Request Example:

```
http://www.siemens-syncoic.com/api/site/info.json?SessionId=nXjrw7DY1ikcDhK9vaRwbu
&SerialNr=00FD00FF033A&Type=OZW672.16&Distributor=Siemens%20Proxy
```

Request parameter:

Parameter	Example	Default value	Description
SessionId	nXjrw7DY1ikcDhK9va…	(none)	(Portal) SessionId of the current session
SerialNr	00FD00FF033A	(none)	Device serial number
Type	OZW672.16	(none)	ASN
Distributor	Siemens Proxy	(none)	Distributor

Response body in JSON:

```
{
          "Uri": "https://www.siemens-syncoic.com/Site/…/web/",
          "Connection": true[1],
          "Alarm": true,
          "Result": ...
}
```

Response body in XML:

```
<Service>
          <Uri>"https://www.siemens-syncoic.com/Site/…/web/"</Uri>
          <Connection>true</Connection>
          <Alarm>true</Alarm>[1]
          <Result>...</Result>
</Service>
```

[1] The parameter “Connection” indicate the connection state to site (“true” = connected, “false” = disconnected)

[2] The (local) web server can access the OZW via the portal using parameter “Uri” (e.g. to Web API). When accessing via portal, the (portal) SessionID must always be provided as parameter.

6. Application example for Portal and OZW Web API

Following a simple application example to read out the local device list in OZW. The OZW is connected to Climatix IC / Synco IC.

6.1 Authentification: login to Climatix / Synco IC

Login to get a new cloud SessionID (with Climatix IC / Synco IC credentials)

Request:

```
https://www.climatixic.com/api/auth/login.json?user=name@company.com&pwd=Password.1
```

Response:

```
{
         "SessionId": "HvwuXtmm-U6yxbobQFCpwg",
         "HasSiteService": true,
         "Result":
         {
             "Success": true
         }
}
```

6.2 Site: list of sites

Query the list of availables sites in Climatix IC / Synco IC and the correspondings site-specific URIs

Request:

```
https://www.climatixic.com/api/site/list.json?SessionId=HvwuXtmm-U6yxbobQFCpwg
```

Response:

```
{
         "Sites":
         [
             {
               "Name": "Site name in Cloud",
               "Description": "",
               "Distributor": "Siemens Proxy",
               "SerialNr": "00FD00FEFE01",
               "Type": "OZW672.16",
               "Uri": "https://www.climatixic.com/Site/RemoteWeb/8cce4498-1013-46f9-a1a2-
                847406cc6280/web/",
               "SiteId": "d0472ab7-9adb-e311-b3e6-00a003fd1713"
              },
              …
         ],
}
```

6.3 Device list: read list

Query the local OZW device list via Climatix IC / Synco IC.

Request:

```
https://www.climatixic.com/Site/RemoteWeb/8cce4498-1013-46f9-a1a2-
847406cc6280/web/api/devicelist/list.json?SessionId=HvwuXtmm-U6yxbobQFCpwg
```

Response:

```
{
         "Devices":
         [
             {
               "Name": "OZW772.16",
               "Addr": "0.2.150",
                "Type": "OZW772.16",
                "SerialNr": "00FD00FF0A00",
                "TreeDate": "18.11.2015",
                "TreeTime": "12:49",
                "TreeGenerated": "true"
              }
          ],
          "Result":
          {
              "Success": "true"
          }
}
```

6.4 Authentification: logout from Climatix / Synco IC

Do a logout for the cloud SessionID

Request:

```
https://www.climatixic.com/api/auth/logout.json?SessionId=HvwuXtmm-U6yxbobQFCpwg
```

Response:

```
{
          "Result":
          {
              "Success": "true"
          }
}
```