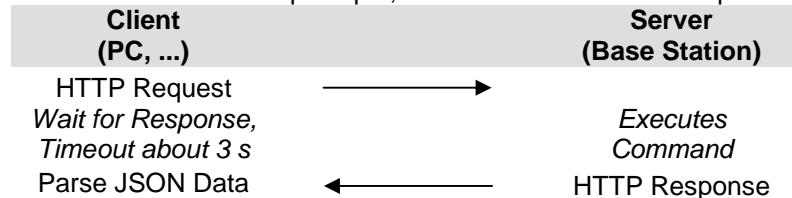


EE24x WebService Protocol Description

Based on *JavaScript Object Notation (JSON)*¹

Communication follows the Client/Server principle; the EE24x Base Station represents the Server:



For HTTP Requests, remember to encode special characters inside data fields, i.e. ampersand ('&') contained in a Transmitter name ("R&D dept.") must be encoded as "R%26D dept." See tables for *URL Encoding* or *Percent Encoding*².

Ready-to-use libraries to parse JSON Data are available, i.e. JSON .NET (<http://json.codeplex.com>).

Command *Get System Information (getsi.json)*

Fetches system information about the Base Station.

Request: getsi.json

Parameters:
none

Example:
<http://192.168.0.64/getsi.json> ... get System Information

Response: System Information structure.

Example:

```
{
  "serNrBase": "gh1005_BASE_00B1",
  "model": "EE242",
  "webSrvFW": "1.04",
  "controlFW": "1.10",
  "upTimeSecs": 53,
  "alertCodeTM": 0,
  "alertCodeOutputs": 2,
  "numberTM": 2,
  "numberRT": 0
}
```

System Information:

serNrBase	Serial number of Base Station
model	Model code of Base Station, i.e. "EE242"
webSrvFW	Webserver Firmware Version
controlFW	Microcontroller Firmware Version
upTimeSecs	Seconds since device was powered
alertCodeTM	Transmitter Status: 0 = OK (green), 1 = warning (yellow), 2 = error (red)
alertCodeOutputs	Analog Output Status: 0 = OK (green), 1 = warning (yellow), 2 = error (red)
numberTM	Number of connected Transmitters
numberRT	Number of connected Routers

¹ JavaScript Object Notation (JSON): <http://en.wikipedia.org/wiki/JSON>

² URL or Percent Encoding: <http://en.wikipedia.org/wiki/Percent-encoding>

Command *Get Transmitters* (gettm.json)

Fetches a list of Transmitters. Results can be filtered using optional parameters.

Request: `gettm.json[?[serial=...]&[name=...]&[serialRE=...]&[nameRE=...]]`

Parameters:

serial	Serial number filter (Wildcards: *, ?)
name	Transmitter name filter (Wildcards: *, ?)
serialRE	Serial number filter (<i>Regular Expression</i> ³)
nameRE	Transmitter name filter (<i>Regular Expression</i>)

Examples:

<http://192.168.0.64/gettm.json> ... get all Transmitters

http://192.168.0.64/gettm.json?name=Lab* ... get Transmitters where name starts with "Lab"

Response: Dictionary (Map) with pairs of **Transmitter serial numbers** and **Transmitter Details**.

Example:

```
{
  "gh1003_0001_2346": {
    "alertCode": 1,
    "versionHW": 1,
    "versionFWMajor": 1,
    "versionFWMinor": 8,
    "versionRadio": "2864",
    "devType": 1,
    "voltBattery": 0.0160746,
    "voltE2Bus": 4.94442,
    "upTime": 977,
    "rssiPct": 100,
    "rssiVal": 39,
    "ataiRetries": 1,
    "totalTxDur": 1401,
    "age": 2147483647,
    "updateIntervalSecs": 3,
    "updateIntervalSecsNew": 0,
    "probes": [
      "09340500005178"
    ]
  },
  "gh1003_0001_2347": {
    "alertCode": 2,
    "versionHW": 1,
    "versionFWMajor": 1,
    "versionFWMinor": 6,
    "versionRadio": "2264",
    "devType": 2,
    "voltBattery": 0.0144671,
    "voltE2Bus": 5.5125,
    "upTime": 1275,
    "rssiPct": 85,
    "rssiVal": 41,
    "ataiRetries": 1,
    "totalTxDur": 1460,
    "age": 2147483647,
    "updateIntervalSecs": 3,
    "updateIntervalSecsNew": 0,
    "probes": [
      "09020500017727"
    ]
  }
}
```

³ Regular Expression: http://en.wikipedia.org/wiki/Regular_expression

Transmitter Details:

alertCode	0 = OK (green), 1 = warning (yellow), 2 = error (red)
versionHW	Hardware revision, currently 1
versionFWMajor	Firmware version, major number (i.e. 1.02, left side of dot = 1)
versionFWMinor	Firmware version, minor number (i.e. 1.02, right side of dot = 02)
versionRadio	Four character radio module version, i.e. 2264
devType	Device type: 1 = Transmitter, 2 or 3 = Router
voltBattery	Battery voltage [V], < 0.05 Volts with external power supply attached
voltE2Bus	E2 Interface bus voltage [V] (Probe supply)
upTime	Seconds since device was powered
rsiPct	Radio signal strength [%]
rsiVal	Radio signal strength (internal representation)
ataiRetries	<i>reserved</i>
totalTxDur	Total transmission duration of previous transmission [msec]
age	Seconds since these values where updated LONG_MAX (2147483647) means infinite/outdated
updateIntervalSecs	Send/Update interval [sec]
updateIntervalSecsNew	New send interval to set, 0 if no change pending
probes	List of Probe serial numbers attached to this Transmitter

Command *Get Probes* (getpr.json)

Fetches a list of Probes and measurement values. Results can be filtered using optional parameters.

Request: getpr.json[?[serial=...]&[serialRE=...]]

Parameters:

serial	Serial number filter (Wildcards: *, ?)
serialRE	Serial number filter (<i>Regular Expression</i> ⁴)

Examples:

<http://192.168.0.64/getpr.json> ... get all Probes

http://192.168.0.64/getpr.json?serial=*5178 ... get Probes where serial number ends with "5178"

Response: Dictionary (Map) with pairs of **Probe serial numbers** and **Probe Details**.

Example:

```
{
  "09340500005178": {
    "alertCode": 2,
    "nE2PortPos": 1,
    "probeType": 7,
    "probeSubType": 9,
    "serNrTransmitter": "gh1003_0001_2346",
    "age": 40,
    "updateIntervalSecs": 3,
    "measVals": {
      "1": {
        "value": 29.87,
        "age": 40
      },
      "10": {
        "value": 61.95,
        "age": 40
      }
    }
  }
}
```

Probe Details:

alertCode	0 = OK (green), 1 = warning (yellow), 2 = error (red)
nE2PortPos	Transmitter Probe port, 1 = leftmost, 2 = next to the right, ...
probeType	Probe type, i.e. 7 → EE07
probeSubType	Probe sub type
serNrTransmitter	Serial number of Transmitter where this Probe is connected
age	Seconds since these values where updated LONG_MAX (2147483647) means infinite/outdated
updateIntervalSecs	Send/Update interval [sec]
measVals	Dictionary (Map) with pairs of Measurand Codes and Measured values

⁴ Regular Expression: http://en.wikipedia.org/wiki/Regular_expression

Measurand Codes:

#	Measurand and Unit
1	Temperature [°C]
2	Temperature [°F]
4	Temperature [°K]
10	Relative Humidity [% rH]
20	(Air) Velocity [m/sec]
21	(Air) Velocity [ft/min]
30	CO ₂ mean value [ppm]
31	CO ₂ raw value [ppm]
50	Water vapour partial pressure e [mbar]
51	Water vapour partial pressure e [psi]
52	Dew point Td [°C]
53	Dew point Td [°F]
54	Wet bulb Tw [°C]
55	Wet bulb Tw [°F]
56	dv [g/m ³]
57	dv [g/ft ³]
65	Dew point or Frost point Td/Tf [°C]
66	Dew point or Frost point Td/Tf [°F]
67	Water activity Aw [1]
100	Air pressure [mbar]

	Date	Signature
created:	2010-07-20	Helmut Giritzer
checked:		
approved:		