

Anybus[®] Wireless Bolt IoT[™]

REST Commands

REFERENCE GUIDE

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1 Preface

1.1 About This Document

This document describes the available REST commands for Wireless Bolt IoT. The reader of this document is expected to be familiar with the product and have a good knowledge of wireless communication and network technology.

For additional related documentation, file downloads and technical support, please visit the Anybus support website at www.anybus.com/support.

1.2 Trademarks

Anybus® is a registered trademark of HMS Industrial Networks. All other trademarks mentioned in this document are the property of their respective holders.

2 Authentication

All http requests to the REST API need to be authenticated using the "Basic HTTP Authentication Scheme" (RFC7617).

Basic auth is done by adding a header-parameter to the HTTP-request:

`Authorization: Basic <Base64 encoding of user-id:password>`

The user-id is always "admin" and the password is the web password currently in use, either the default password shipped with the product, or if it has been changed, the new password.

Example:

User-id: admin

Password: abc123

String to Base64-encode: admin:abc123

Completed header parameter:

`Authorization: Basic YWRtaW46YWJjMTIz`

3 Public REST Commands

3.1 Read Configuration

Read information from a configuration tree and present as JSON data.

3.1.1 Syntax

```
GET <target_ip>/cgi-bin/readconfigtree.cgi?path=<tree_path>
```

3.1.2 Query Parameters

Name	Description
target_ip	IP address of the Bolt IoT device, e.g. 192.168.0.98
tree_path	A path to the configuration tree or node to read

3.1.3 Return Values

A JSON structure with the requested data.

3.1.4 Examples

Read a single configuration node:

Query:

```
GET http://192.168.0.98/cgi-bin/readconfigtree.cgi?path=web:/settings/lock
```

Response:

```
{"name":"lock","type":"bool","value":true}
```

Read a configuration tree:

Query:

```
GET http://192.168.0.98/cgi-bin/readconfigtree.cgi?path=web:
```

Response:

```
{"name":"","type":"tree","children":  
  [{"name":"settings","type":"stem","children":  
    [{"name":"lock","type":"bool","value":true}]}]}
```

3.2 Write Configuration

Write information to a configuration tree.

3.2.1 Syntax

```
GET <target_ip>/cgi-bin/writeconfigtree.cgi?path=<tree_path>&value=<new_value>&type=<type>
```

3.2.2 Query Parameters

Name	Description
target_ip	IP address of the Bolt IoT device, e.g. 192.168.0.98
tree_path	A path to the tree and node to operate on
new_value	A value to write to the config tree
type	Must be one of bool, int, float, or string

Note: if type is bool, then new_value must be either true or false.

3.2.3 Configuration Paths

The following configuration paths can be modified by the user:

Path	Type	Description
router:/settings/ipAddr	string	IP address
router:/settings/netMask	string	Subnet mask
router:/settings/dhcpEnable	bool	Enable internal DHCP server: true or false
router:/settings/auth	bool	Enable APN authentication: true or false
router:/settings/authUser	string	APN authentication: user
router:/settings/authPass	string	APN authentication: password
router:/settings/dhcpRangeStart	string	DHCP start address: 1..254
router:/settings/dhcpRangeStop	string	DHCP stop address: dhcpRangeStart..254
router:/settings/apn	string	Access Point Name (APN)
router:/settings/rat	string	Radio Access Technology (RAT): auto, lte-m1, lte-nb1 or gsm
web:/settings/lock	bool	Configuration lock: true or false
web:/settings/password	string	Web and REST API password (valid characters a-z, A-Z, 0-9, - and _)

3.2.4 Return Values

```
{"success":<value>}
```

Value	Description
true	Request completed successfully.
false	Request failed or validation error or config locked.

3.2.5 Example

Query:

```
GET http://192.168.0.98/cgi-bin/writeconfigtree.cgi?path=router:/settings/apn&value=my_apn.company.com&type=string
```

Response:

```
{"success":true}
```

3.3 Backup Configuration

Create and return a file with a backup of all settings in the device.

3.3.1 Syntax

GET <target_ip>/cgi-bin/backup.cgi

3.3.2 Query Parameters

None

3.3.3 Examples

Query:
GET http://192.168.0.98/cgi-bin/backup.cgi
Response:
<octet stream containing the backup>

3.4 Restore Configuration

Restore all settings in the device from a file.

3.4.1 Syntax

POST <target_ip>/cgi-bin/restore.cgi

3.4.2 Query Parameters

None

3.4.3 Post Data

The backup file contents.

3.4.4 Return Values

```
{"success":<value>}
```

Value	Description
true	Request completed successfully.
false	Request failed or validation error or config locked.

3.4.5 Examples

Query:
POST http://192.168.0.98/cgi-bin/restore.cgi
Response:
{"success":true}

3.5 Factory Reset

Restore all settings in the device to factory default values.

3.5.1 Syntax

GET <target_ip>/cgi-bin/factoryreset.cgi

3.5.2 Query Parameters

None

3.5.3 Return Values

```
{"success":<value>}
```

Value	Description
true	Request completed successfully.
false	Request failed or config locked.

3.5.4 Examples

Query:

GET http://192.168.0.98/cgi-bin/factoryreset.cgi

Response:

```
{"success":true}
```

3.6 Info

Get runtime information.

3.6.1 Syntax

GET <target_ip>/cgi-bin/info.cgi

3.6.2 Query Parameters

None

3.6.3 Return Values

A JSON structure with the following information.

Value	Description
uptime	Device uptime in seconds
time	System time (UTC)
radio_power	Radio module power state
	0: Off
	1: On
sim	SIM card status
signal_quality	Signal quality (0..5)
signal_strength	Signal strength (dBm)
cell_id	Serving Cell Identifier
lac	Location Area Code of the serving cell
tac	Tracking Area Code of the serving cell (LTE only)
rat	Currently used Radio Access Technology
	0: Unknown
	1: GSM

Value	Description
	4: LTE
operator	Currently used operator
status	Network registration status
	0: Not registered and not searching
	1: Registered to home network
	2: Searching for new operator
	3: Registration denied
	4: Registered to roaming network
	5: Unknown state
amplifier_temp	Amplifier temperature in degrees Celcius
controller_temp	Controller temperature in degrees Celcius
connection_state	Data session state
	0: Disconnected
	1: Authenticating
	2: Connected
	3: Suspending
	4: Incoming (MT-PDP context request)
voltage	Voltage (mV)
iotbolt_version	Bolt IoT version
modem_version	Modem FW version
pri	Carrier name and version
apn	Currently used APN
rat_specific	Access technology of the serving cell
	0: GSM
	7: CAT-M1
	9: NB-IoT
imsi	International Mobile Subscriber Identity
imei	International Mobile Equipment Identity

3.6.4 Examples

Query:

```
GET http://192.168.0.98/cgi-bin/info.cgi
```

Response:

```
{ "uptime": "4287", "time": "2019-11-19 13:35:48", "radio_
power": "1", "sim": "2", "signal_quality": "1", "signal_strength": "-
109", "cell_
id": "26269452", "lac": "4294967295", "tac": "0x85", "rat": "4", "opera-
tor": "TELIA S", "status": "4", "amplifier_temp": "35", "controller_
temp": "35", "connection_state": "2", "voltage": "3807", "iotbolt_
version": "1.00.20-dev", "modem_version": "SWI9X06Y
02.16.06.00", "pri": "GENERIC_001.028_001", "apn": "", "rat_
specific": "9", "imsi": "238208700452254", "imei": "352653090129735" }
```

3.7 Log

Get system log.

3.7.1 Syntax

```
GET <target_ip>/cgi-bin/log.cgi
```

3.7.2 Query Parameters

None

3.7.3 Return Values

Plain text log file.

3.7.4 Examples

```
Query:
GET http://192.168.0.98/cgi-bin/log.cgi
Response:
Oct 9 10:03:18 Legato: INFO | Version: 1.00.18-dev
Oct 9 10:03:18 Legato: INFO | Boot reason: Power-on
Jan 6 00:00:23 Legato: INFO | eth0 IP address: 192.168.0.98 - netmask:
255.255.254.0
Jan 6 00:00:23 Legato: INFO | eth0 DHCP server: on
Jan 6 00:00:23 Legato: INFO | APN auth is: off
Jan 6 00:00:23 Legato: INFO | DHCP range start - stop: 192.168.0.100 -
192.168.0.200
Jan 6 00:00:24 Legato: INFO | IP address/netmask set to: 192.168.0.98/
255.255.254.0
Jan 6 00:00:24 Legato: INFO | Setting no auth for APN
Jan 6 00:00:24 Legato: INFO | Setting configured RAT: "gsm": 0x01
Jan 6 00:00:24 Legato: INFO | Data connection requested
Oct 17 12:02:43 Legato: INFO | Data connected, interface 'rmnet_data0'
Oct 17 12:02:43 Legato: INFO | Restarting DHCP/DNS services
```

3.8 SysLogInfo

Create and return an archive of all system logs.

3.8.1 Syntax

```
GET <target_ip>/cgi-bin/sysloginfo.cgi
```

3.8.2 Query Parameters

None

3.8.3 Examples

```
Query:
GET http://192.168.0.98/cgi-bin/sysloginfo.cgi
Response:
<octet stream containing the archive>
```

3.9 Reboot

Reboot the device.

3.9.1 Syntax

GET <target_ip>/cgi-bin/reboot.cgi

3.9.2 Query Parameters

None

3.9.3 Return Values

```
{"success":<value>}
```

Value	Description
true	Request completed successfully.
false	Request failed

3.9.4 Examples

Query:

```
GET http://192.168.0.98/cgi-bin/reboot.cgi
```

Response:

```
{"success":true}
```

3.10 Ultra Low Power Mode

Put the device in Ultra Low Power Mode for a specified duration.

3.10.1 Syntax

GET <target_ip>/cgi-bin/ulpm.cgi?duration=<time in seconds>

3.10.2 Query Parameters

Name	Description
duration	Number of seconds (60-86400) to remain in ULPM before waking up again

3.10.3 Return Values

```
{"success":<value>,"message":"<additional info>"}
```

Value	Description
true	Request completed successfully.
false	Request failed or validation error

3.10.4 Examples

Enter ULPM and sleep for 300 seconds (5 minutes):

Query:

```
GET http://192.168.0.98/cgi-bin/ulpm.cgi?duration=300
```

Response:

```
{"success":true,"message":"sleeping for 300 s"}
```

3.11 Firmware Update

Update the device firmware.

3.11.1 Syntax

POST <target_ip>/cgi-bin/update.cgi

3.11.2 Query Parameters

None

3.11.3 Post Data

The contents of a firmware (.fws) file.

3.11.4 Return Values

Raw HTML output of the firmware update process. Searching this for the strings "SUCCESS" or "FAILED" will give the result.

3.11.5 Examples

Query:
POST http://192.168.0.98/cgi-bin/update.cgi
Response:
Trying to update...
Unpacking: 0%
FAILED: error code 2

3.12 DHCP Leases

Return a list of active DHCP leases.

3.12.1 Syntax

GET <target_ip>/cgi-bin/dhcpleases.cgi

3.12.2 Query Parameters

None

3.13 Return Values

Raw text output with DHCP leases in dnsmasq.leases format.

3.13.1 Examples

Query:
GET http://192.168.0.98/cgi-bin/dhcpleases.cgi
Response:
1573275080 00:e0:4c:34:92:e9 192.168.0.168 LT-5Q1XWT2 01:00:
e0:4c:34:92:e9

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