

**< RESTful API for Advantech LNS service >
Document v1.0.22**

Modification History

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Authorization

RESTful API Server is using “Digest authentication” to authenticate , default username and password are “root”, And support HTTP(8080 port) and HTTPS(8443 port)

RESTful API

Resource	Methods	Explanation
/api/applications	GET, POST	Supported LoRaWAN applications
/api/applications/123	GET, PUT, POST, DELETE	
/api/gateways	GET, POST	LoRaWAN gateways
/api/gateways/123	GET, PUT, POST, DELETE	Gateway with MAC= 123
/api/networks	GET, POST	Network and regional settings
/api/networks/ABC	GET, PUT, DELETE	Network ABC
/api/profiles	GET, POST	Device profiles
/api/profiles/ABC	GET, PUT, DELETE	Device profile ABC
/api/nodes	GET, POST	Active network nodes, both ABP and activated OTAA
/api/nodes/123	GET, PUT, DELETE	Active network node with DevAddr= 123
/api/ignored_nodes	GET, POST	Nodes ignored by the server

Resource	Methods	Explanation
/api/ignored_nodes/123	GET, PUT, DELETE	Ignored node with DevAddr= 123
/api/txframes	GET,POST	Frames queued for transmission
/api/rxframes	GET	Recent received frames
/api/handlers	GET	Backend handlers
/api/handlers/ABC	GET, DELETE	Backend handler for the Group ABC
/api/connectors	GET	Backend connectors
/api/connectors/ABC	GET, DELETE	Backend connector ABC
/api/events	GET	Recent errors and warnings
/api/radio	GET, PUT	Get or put LoRaWAN Radio setting.
/api/regions	GET	Get the regions supported by the WISE-6610.
/api/channels	GET	Get the channels supported by the region.
/api/appcfg	GET, PUT	Get or put application server setting.
/api/nscfg	GET, PUT	Get or put network server setting.
/api/custom_db	GET	Get custom database list.
/api/custom_db/ABC	GET, PUT	Get or put custom database ABC setting.
/api/custom/ABC	GET	Get custom database ABC frame.
api/advantech/nodes	GET	Get Advantech's node list

Resource	Methods	Explanation
api/advantech/nodes/ ABC	GET	Get ABC detailed data

/api/applications

Value Name	Type	Description
name	string	Application name
app	boolean	Add app value on output
devaddr	boolean	Add devaddr on output
deveui	boolean	Add deveui on output
appargs	boolean	Add appargs on output
battery	boolean	Add battery on output
fcnt	boolean	Add uplink fcnt on output
data	boolean	Add data value on output
datetime	boolean	Add datetime value on output
freq	boolean	Add frequency value on output
datr	boolean	Add data rate on output
mac	boolean	Add gateway MAC on output
lsnr	boolean	Add SNR on output
rsssi	boolean	Add RSSI on output
port	boolean	Add Port number on output
dev_name	string	Device's name
decoder	number	Decoder type 0: disable ; 1:python ; 2:payload engine ;3:javascript
Parse_uplink	string	Python or payload engine pares code

Get all application

Request :

GET /api/application HTTP/1.1

Response:

HTTP/1.1 200 OK

Content-Type: application/json

```
[
  {
    "name": "WISE6610_Handler",
    "app": false,
    "devaddr": true,
    "deveui": false,
    "appargs": true,
    "battery": false,
    "fcnt": true,
    "data": true,
```

```

        "datetime": true,
        "freq": true,
        "datr": false,
        "codr": false,
        "mac": false,
        "lsnr": true,
        "rssi": true,
        "port": true,
        "dev_name": true,
        "decoder": 2,
        "parse_uplink": "{\n\\\\"appname\\\\": \\\\"IR868LR\\\\",\n\\\\"out_topic\\\\": \\\\"IR868LR\\\\",\n\\\\"devaddr\\\\": true,\n\\\\"packet\\\\":\n[{\n\\\\"fport\\\\": 5,\n\\\\"value\\\\": [{\n\\\\"format\\\\": \\\\"uint16\\\\"},\n\\\\"name\\\\": \\\\"freq\\\\"}\n]}\n}\n"
    }
}
]

```

Add application

Request :

POST /api/application HTTP/1.1

Content-Type: application/json

```

{
    "name": "WISE6610_Handler_test",
    "app": false,
    "devaddr": true,
    "deveui": false,
    "appargs": true,
    "battery": false,
    "fcnt": true,
    "data": true,
    "datetime": true,
    "freq": true,
    "datr": false,
    "codr": false,
    "mac": false,
    "lsnr": true,
    "rssi": true,
    "port": true,
    "decoder": 2,
}

```

```
"parse_uplink": "{\n  \"appname\": \"IR868LR\",\n  \"out_topic\": \"IR868LR\",\n  \"devadr\": true,\n  \"packet\": {\n    \"fport\": 5,\n    \"value\": [\n      {\n        \"format\": \"uint16\",\n        \"name\": \"freq\"\n      }\n    ]\n  }\n}
```

Response:

HTTP/1.1 200 OK

Update application

Request :

POST /api/application HTTP/1.1

Content-Type: application/json

```
{\n  \"fcnt\": false,\n  \"data\": true,\n  \"datetime\": false\n}
```

Response:

HTTP/1.1 204 No Content

Delete application

Request :

DELETE /api/application HTTP/1.1

Response:

HTTP/1.1 204 No Content

/api/gateways

Value Name	Type	Description
mac	string	Gateway MAC ID
ipaddres	string	Gateway IP address
version	number	Semtech packet forward version
last_alive	number	Last alive packet timestamp
last_report	number	Last report packet timestamp
latitude	float	Gateway's latitude
longitude	float	Gateway's longitude
altitude	float	Gateway's altitude
temp	float	Gateway's altitude

description	string	description
tx_rfch	number	Tx RF channel
ant_gain	number	Antenna gain
group_name	string	Group name
duty_cycle	float	Tx duty cycle of per hour.

Get gateway list

Request :

GET /api/gateways HTTP/1.1

Response:

HTTP/1.1 200 OK

Content-Type: application/json

```
[
  {
    "mac": "74FEFEFFFE001122",
    "ipaddress": "192.168.1.1",
    "version": 2,
    "last_alive": 1679379652,
    "last_report": 1679379641,
    "tx_rfch": 0,
    "duty_cycle": 0.0,
    "system_time": 1679379653
  }
]
```

Add gateway

Request :

POST /api/gateways HTTP/1.1

{"mac":"000A14FFFEDEF0A2","tx_rfch": 0}

Response:

HTTP/1.1 204 No Content

Update gateway

Request :

PUT /api/gateways/000A14FFFEDEF0A2 HTTP/1.1

{"mac":"000A14FFFEDEF0A2","tx_rfch": 1}

Response:

HTTP/1.1 204 No Content

Get specific gateway

Request :

GET /api/gateways/74FEFEFFFE001122 HTTP/1.1

Response:

HTTP/1.1 200 OK

Content-Type: application/json

```
{
  "mac": "74FEFEFFFE001122",
  "ipaddress": "192.168.1.1",
  "version": 2,
  "last_alive": 1679380461,
  "last_report": 1679380449,
  "tx_rfch": 0,
  "duty_cycle": 0.0,
  "system_time": 1679380462
}
```

Delete gateway

Request : Delete 74FEFEFFFE001122 gateway

DELETE /api/gateways/74FEFEFFFE001122 HTTP/1.1

Response:

HTTP/1.1 204 No Content

/api/networks

Value Name	Type	Description			
name	string	Name of the network.			
netid	string	NetID of the network. Private networks should use 000000 or 000001.			
region	string	Region that determines the LoRaWAN regional characteristics			
		EU868	US902-[0-7]	AU915-[0-7]	AS923
		KR920	IN925	RU868	
codr	string	Coding Rate is always "4/5"			
join1_delay	number	defines the JOIN_ACCEPT_DELAY1			
join2_delay	number	defines the JOIN_ACCEPT_DELAY2			

rx1_delay	number	defines the RECEIVE_DELAY1	
rx2_delay	number	defines the RECEIVE_DELAY2.	
gw_power	number	defines a default transmission power for downlinks.	
max_eirp	number	used in your region. For each region it is defined in the "Data Rate and End-device Output Power encoding" section.	
max_power	number	defines the first item in the "TX Power Table"	
min_power	number	defines the last item in the "TX Power Table"	
max_datr	number	defines the highest DR (lowest SF) supported by channels in this network. Additional Channels may specify a different value.	
rx1_dr_offset	number	defines the offset between the uplink data rate and the downlink data rate used to communicate with the end-device on the first reception slot (RX1).	
rx2_dr	number	defines the data rate for the second reception slot (RX2). See the "Receive windows" section.	
rx2_freq	number	defines the default frequency in the RX2 receive window.	
init_chans	string	enabled in your devices. This shall include a comma-separated list of intervals, e.g. 0-2 for EU or 0-71 for US.	
cflist	define a list of additional channels sent to the device during Join (CFList)		
	freq	number	defines the channel frequency
	max_datr	number	defines the lowest data rate allowed on this channel. If not specified, equals to 0.
	min_datr	number	defines the highest data rate allowed on this channel. If not specified, equals to the global value on the ADR tab.

Get networks list

Request :

GET /api/networks HTTP/1.1

Response:

HTTP/1.1 200 OK

Content-Type: application/json

```
[
  {
    "name": "AS923",
    "netid": "000000",
    "region": "AS923",
    "codr": "4/5",
    "join1_delay": 5,
    "join2_delay": 6,
    "rx1_delay": 1,
    "rx2_delay": 2,
```

```

        "gw_power": 27,
        "max_eirp": 27,
        "max_power": 0,
        "min_power": 7,
        "max_datr": 5,
        "rx1_dr_offset": 0,
        "rx2_dr": 2,
        "rx2_freq": 923.2,
        "init_chans": "0-2",
        "cflist": [
            {
                "freq": 922000000,
                "max_datr": 5,
                "min_datr": 0
            }
        ]
    },
    {
        "name": "US902",
        "netid": "000000",
        "region": "US902",
        "codr": "4/5",
        "join1_delay": 5,
        "join2_delay": 6,
        "rx1_delay": 1,
        "rx2_delay": 2,
        "gw_power": 27,
        "max_eirp": 27,
        "max_power": 0,
        "min_power": 7,
        "max_datr": 3,
        "rx1_dr_offset": 0,
        "rx2_dr": 8,
        "rx2_freq": 923.3,
        "init_chans": "0-7"
    },
    ...
    ...
]

```

Add networks

Request :

POST /api/networks HTTP/1.1

```
{
  "name": "AS923_test",
  "netid": "000000",
  "region": "AS923",
  "codr": "4/5",
  "join1_delay": 5,
  "join2_delay": 6,
  "rx1_delay": 1,
  "rx2_delay": 2,
  "gw_power": 27,
  "max_eirp": 27,
  "max_power": 0,
  "min_power": 7,
  "max_datr": 5,
  "rx1_dr_offset": 0,
  "rx2_dr": 2,
  "rx2_freq": 923.2,
  "init_chans": "0-2",
  "cflist": [
    {
      "freq": 922000000,
      "max_datr": 5,
      "min_datr": 0
    }
  ]
}
```

Response:

HTTP/1.1 204 No Content

Add specific networks

Request : Get single network profile

GET /api/networks/EU868 HTTP/1.1

Delete specific networks

Request : Delete single network profile

DELETE /api/networks/EU868 HTTP/1.1

Update specific networks

Request : Update single network profile

PUT /api/networks/AS923_test HTTP/1.1

```
{
  "name": "AS923_test",
  "netid": "000000",
  "region": "AS923",
  "codr": "4/5",
  "join1_delay": 5,
  "join2_delay": 6,
  "rx1_delay": 1,
  "rx2_delay": 2,
  "gw_power": 27,
  "max_eirp": 27,
  "max_power": 0,
  "min_power": 7,
  "max_datr": 5,
  "rx1_dr_offset": 0,
  "rx2_dr": 2,
  "rx2_freq": 923.2,
  "init_chans": "0-2",
  "cflist": [
    {
      "freq": 922000000,
      "max_datr": 5,
      "min_datr": 0
    }
  ]
}
```

/api/profiles

Value Name	Type	Description
name	string	Name of the profile.

network	string	Network for which are the devices in this profile configured.
app	string	Application the devices are using.
can_join	boolean	allow join or denied
txwin	number	used for downlinks to this device
adr_mode	number	determines the ADR mechanism for this device: Disabled, Auto-Adjust, or Maintain. 0:Disable;1:Auto;2:Maintain
adr_set_chan	string	defines the set of channels. The channels are given as a comma-separated list of interfaces, e.g. 0-2 for EU, 0-71 for the whole US band, or 0-7,64 for the first US sub-band (see table below).
adr_set_datr	number	defines the data rate
adr_set_power	number	defines the power (in dBm)
max_datr	number	defines the maximal data rate supported by the devices
rx1_dr_offset	number	defines the offset between the uplink and the RX1 slot downlink data rates
rx2_dr	number	defines the data rate for the second reception slot (RX2).
rx2_freq	float	defines the default frequency in the RX2 receive window.
request_devstat	boolean	which can be used to disable the status requests for simple devices that do not support it (by default true).
appid	string	
fcnt_check	number	FCnt Check to be used for this device, default is static 32-bit
downlink_expires	string	"never" means that: All class A downlinks for a device will be queued and eventually delivered. All confirmed downlinks will be retransmitted until acknowledged, even when a new downlink is sent. When Superseded means that: Only the most recent class A downlink will be scheduled for delivery. "superseded" downlinks will be dropped. Unacknowledged downlinks will be dropped when a new downlink (either class A or C) is sent.

Get profile list

Request :

GET /api/profiles HTTP/1.1

Response:

HTTP/1.1 200 OK

Content-Type: application/json

```
[
  {
    "name": "AS923_WISE6610_Handler",
```

```
    "network": "AS923",
    "app": "WISE6610_Handler",
    "can_join": true,
    "txwin": 0,
    "adr_mode": 0,
    "rx1_dr_offset": 0,
    "rx2_dr": 2,
    "rx2_freq": 923.2,
    "request_devstat": true
},
{
    "name": "EU868_WISE6610_Handler",
    "network": "EU868",
    "app": "WISE6610_Handler",
    "can_join": true,
    "txwin": 0,
    "adr_mode": 0,
    "rx1_dr_offset": 0,
    "rx2_dr": 0,
    "rx2_freq": 869.525,
    "request_devstat": true
},
{
    "name": "US902_WISE6610_Handler",
    "network": "US902",
    "app": "WISE6610_Handler",
    "can_join": true,
    "txwin": 0,
    "adr_mode": 0,
    "rx1_dr_offset": 0,
    "rx2_dr": 8,
    "rx2_freq": 923.3,
    "request_devstat": true
},
{
    "name": "AU915_WISE6610_Handler",
    "network": "AU915",
    "app": "WISE6610_Handler",
    "can_join": true,
    "txwin": 0,
    "adr_mode": 0,
    "rx1_dr_offset": 0,
```

```
    "rx2_dr": 8,  
    "rx2_freq": 923.3,  
    "request_devstat": true  
  }  
]
```

Add profile

Request :

POST /api/profiles HTTP/1.1

```
{  
  "name": "AS923_WISE6610_Handler_test",  
  "network": "AS923",  
  "app": "WISE6610_Handler",  
  "can_join": true,  
  "txwin": 1,  
  "adr_mode": 0,  
  "rx1_dr_offset": 0,  
  "rx2_dr": 2,  
  "rx2_freq": 923.2,  
  "request_devstat": true,  
  "downlink_expires": "superseded"  
}
```

Response:

HTTP/1.1 204 No Content

Get specific profile

Request :

GET /api/profiles/{profile_name} HTTP/1.1

Example **GET** /api/profiles/US902_WISE6610_Handler HTTP/1.1

Delete specific profile

Request :

DELETE /api/profiles/{profile_name} HTTP/1.1

Example **DELETE** /api/profiles/US902_WISE6610_Handler HTTP/1.1

Update specific profile

Request :

PUT /api/profiles/{profile_name} HTTP/1.1

Example **PUT** /api/profiles/US902_WISE6610_Handler HTTP/1.1

/api/nodes

Value Name	Type	Description
devaddr	string	DevAddr of the device
nwkskey	string	Network session key
seckey	string	Application session key
profile	string	Profile that this device uses
appargs	string	App Arguments, which is an opaque string with application-specific settings.
fcntup	number	Uplink frame count
fcntdown	number	Downlink frame count
last_rx	number	Last receive frame's timestamp
Last_rest	number	Last node reset timestamp
deveui	string	DevEUI of the device
appeui	string	AppEUI
appkey	string	AppKey
last_join	number	Last Joins is a lost of timestamps of the previous successful Join requests.
adr_flag	number	Node ADR enabled or disable.
gateways	json	Information of latest RX frame
rx1_dr_offset	number	Data rate offset of rx1
rx2_dr	number	Data rate of rx2
rx2_freq	float	Channel frequency of rx2 (MHz)
join_mode	number	1: OTAA , 0:ABP
devstat_req_time	number	Timestamp of latest request dev stat MAC command to node.
devstat_ans_time	number	Timestamp of latest get dev stat response from node.
devstat_fcnt	number	Frame count from latest get dev stat response from node.
devstat_battery	number	Node's battery , this value from dev stat MAC command
devstat_margin	number	Margin , this value from dev stat MAC command
adr_use_chan	string	ADR channel mask of this node is being used.
adr_use_datr	number	ADR data rate of this node is being used.
adr_use_power	number	ADR power of this node is being used.
check_en	number	Enabled or disabled notification function for this node

timeout	number	Timeout for notification function , if the network server does not receive an uplink from this node, and the time between the latest uplink frame and now is greater than the specified timeout, the network server will send an email notification to the user
chan_sync_en	number	Enabled or disabled channel sync function for this node

Get node list

Request :

GET /api/nodes HTTP/1.1

Response:

HTTP/1.1 200 OK

Content-Type: application/json

```
[
  {
    "name": "0000000000000777",
    "profile": "AS923_WISE6610_Handler",
    "appargs": "",
    "appkey": "000000000000000000000000000011",
    "fcntdown": 0,
    "deveui": "0000000000000777",
    "chan_sync_en": 0,
    "join_mode": 1,
    "check_en": 0,
    "gen_app_key": "000000000000000000000000000011"
  },
  {
    "name": "11223344",
    "devaddr": "11223344",
    "profile": "US902-0_WISE6610_Handler",
    "appargs": "EVA-Series",
    "nwkskey": "000000000000000000000000000011",
    "seckey": "000000000000000000000000000011",
    "fcntup": 3,
    "fcntdown": 2,
    "last_reset": 1618741034,
    "last_rx": 1618741156,
    "adr_flag": 1,
    "gateways": [
      {
        "mac": "0016C001F1D4210D",
```

```

        "rssi": -74,
        "snr": 9.8,
        "freq": 902.7,
        "datr": "SF10BW125",
        "codr": "4/5"
    }
],
"rx1_dr_offset": 0,
"rx2_dr": 8,
"rx2_freq": 923.3,
"devstat_req_time": 1618740586,
"devstat_ans_time": 1618740643,
"devstat_fcnt": 0,
"devstat_battery": 254,
"devstat_margin": 24,
"adr_use_chan": "0-7",
"adr_use_datr": 0,
"adr_use_power": 0,
"health_alerts": [
    "ok"
],
"packet_loss_start_fcnt": 1,
"packet_loss_frame_cnt": 3,
"packet_loss_rate": 0,
"packet_resend_count": 0,
"packet_resend_rate": 0,
"rssi_0": 0,
"rssi_70": 4,
"rssi_90": 0,
"rssi_110": 0,
"rssi_bad_rate": 0,
"chan_sync_en": 0,
"chan_sync_stat": 0,
"chan_sync_ans": 0,
"join_mode": 0,
"check_en": 1,
"timeout": 300
}

```

Add ABP Node

Request :

POST /api/devices HTTP/1.1

```
{
  "name": "FF000002",
  "devaddr": "FF000002",
  "profile": "AS923_WISE6610_Handler",
  "appargs": "WISE-2200-M",
  "nwkskey": "00000000000000000000000000000011",
  "seckey": "00000000000000000000000000000011",
  "fcntdown": 0,
  "chan_sync_en": 0,
  "join_mode": 0,
  "check_en": 0
}
```

Response:

HTTP/1.1 204 No Content

Add OTAA Node

Request :

POST /api/devices HTTP/1.1

```
{
  "name": "00000000000000778",
  "profile": "AS923_WISE6610_Handler",
  "appargs": "EVA-Series",
  "appkey": "00000000000000000000000000000011",
  "fcntdown": 0,
  "deveui": "00000000000000778",
  "chan_sync_en": 0,
  "join_mode": 1,
  "check_en": 0,
  "gen_app_key": "00000000000000000000000000000011"
}
```

Response:

HTTP/1.1 204 No Content

Get specific node

Request :

GET /api/nodes/{devaddr} HTTP/1.1

Example GET /api/nodes/FF000000 HTTP/1.1

Response:

HTTP/1.1 200 OK

```
{
  "devaddr": "FF000000",
  "profile": "AS923_WISE6610_Handler",
  "appargs": "",
  "nwkskey": "00000000000000000000000000000011",
  "seckey": "00000000000000000000000000000011",
  "fcntup": 5,
  "fcntdown": 1,
  "first_reset": 0,
  "last_reset": 1679448515,
  "reset_count": 0,
  "last_rx": 1679448585,
  "adr_flag": 1,
  "adr_failed": [],
  "gateways": [
    {
      "mac": "533333FEFF48FE74",
      "rssi": -42,
      "snr": -6.8,
      "freq": 911.5,
      "datr": "SF10BW125",
      "codr": "4/5"
    }
  ],
  "rx1_dr_offset": 0,
  "rx2_dr": 2,
  "rx2_freq": 923.2,
  "devstat_req_time": 1679448515,
  "devstat_ans_time": 0,
  "devstat_fcnt": 1,
  "devstat_battery": 0,
  "devstat_margin": 0,
  "adr_use_chan": "0-2",
  "adr_use_datr": 0,
```

```

    "adr_use_power": 0,
    "adr_set_chan": "",
    "adr_set_datr": 0,
    "adr_set_power": 0,
    "deveui": "0000000000000000",
    "health_alerts": [
        "ok"
    ]
}

```

Delete specific node

Request :

DELETE /api/nodes/{devaddr} HTTP/1.1

Example **DELETE** /api/nodes/27002F71 HTTP/1.1

Update specific node

Request : Update node information

PUT /api/nodes/{devaddr} HTTP/1.1

Example **PUT** /api/nodes/27002F71 HTTP/1.1

```

{
    "appskey": "A46847D184323C21C992D8F9EF4B7CEA",
    "devaddr": "F7002F7A",
    "nwkskey": "965F6942F29C9EBE5747E25F07DA5114",
    "profile": "US902_WISE6610_Handler"
}

```

/api/ignored_nodes

Get ignored node list

Request : Get ignored_nodes list

GET /api/ignored_nodes HTTP/1.1

Response:

HTTP/1.1 200 OK

Content-Type: application/json

```
[
```

```
{
  "devaddr": "FE4E939E",
  "mask": "FFFFFFFF"
}
]
```

Add ignored node

Request :

POST /api/ignored_nodes HTTP/1.1

```
{
  "devaddr": "FE4E939A",
  "mask": "FFFFFFFF"
}
```

Response:

HTTP/1.1 204 No Content

Get ignored node

Request :

GET /api/ignored_nodes/{devaddr} HTTP/1.1

Example **GET** /api/ignored_nodes/FE4E939A HTTP/1.1

Response:

HTTP/1.1 200 OK

Content-Type: application/json

```
{
  "devaddr": "FE4E939A",
  "mask": "FFFFFFFF"
}
```

Delete ignored node

Request :

DELETE /api/ignored_nodes/{devaddr} HTTP/1.1

Example **DELETE** /api/ignored_nodes/FE4E939A HTTP/1.1

Update ignored node

Request :

PUT /api/ignored_nodes/{devaddr} HTTP/1.1

Example **PUT** /api/ignored_nodes/FE4E939A HTTP/1.1

```
{
    "devaddr": "FE4E939A",
    "mask": "FFFFFFFF"
}
```

/api/txframes

Get txframe list

Request :

GET /api/txframes HTTP/1.1

Response:

HTTP/1.1 200 OK

Content-Type: application/json

```
[
  {
    "uuid": "641A9385-493ABB50",
    "devaddr": "FF000001",
    "datetime": 1679463301,
    "data": "BBCC",
    "confirm": false,
    "port": 11
  },
  {
    "uuid": "641A9353-15D843EB",
    "devaddr": "FF000000",
    "datetime": 1679463251,
    "data": "11223344",
    "confirm": false,
    "port": 11
  }
]
```

Add txframe

Request : Add txframes

POST /api/txframes HTTP/1.1

```
{  
  "devaddr": "FF000000",  
  "data": "112233CC",  
  "confirm": false,  
  "port": 11  
}
```

Response:

HTTP/1.1 204 No Content

Send immediately txframe

Request : Add txframes

POST /api/txframes HTTP/1.1

```
{  
  "devaddr": "FF000000",  
  "data": "112233CC",  
  "confirm": false,  
  "port": 11,  
  "immediately": true  
}
```

Response:

HTTP/1.1 204 No Content

/api/rxframes (all traffic)

Request : Get traffic list

GET /api/rxframes HTTP/1.1

Response:

HTTP/1.1 200 OK

Content-Type: application/json

```
[  
  {  
    "uuid": "607C07A4-5A54BEC0",  
    "devaddr": "11223344",  
    "fcnt": 3,  
  },  
]
```

```

    "rssi": -74,
    "snr": 9.8,
    "port": 7,
    "confirm": false,
    "data": "820B003C003C0100640064",
    "gateways": [
        {
            "mac": "0016C001F1D4210D",
            "rssi": -74,
            "snr": 9.8,
            "freq": 902.7,
            "data": "SF10BW125",
            "coder": "4/5"
        }
    ],
    "datetime": 1618741156,
    "dr": 0,
    "freq": 902.7,
    "app": "WISE6610_Handler",
    "devname": "11223344",
    "frametype": "Unconfirmed_Up",
    "ack": false,
    "dr_s": "SF10BW125"
},
{
...
...
..

```

Filtering

To list only some items the REST API accepts the `_filters` query parameter, which shall contain URL encoded JSON. For instance:

```
http://server:81/api/rxframes?_filters={"devaddr":"22222222"}
```

Sorting

The REST API accepts `_sortField` and `_sortDir` query parameters to sort the list. The `_sortDir` can be either ASC or DESC. For instance:

```
http://server:81/api/rxframes?_sortField=datetime&_sortDir=ASC
```

Pagination

The REST API accepts `_page` and `_perPage` query parameters to paginate lists, for instance:
`http://server:8080/api/rxframes?_page=2&_perPage=20`

The server also inserts the HTTP header `X-Total-Count` indicating the total item count.

/api/connectors

Value Name	Type	Description
name	string	Name of the connector
app	string	Handler that this connector uses
enabled	boolean	Enabled or disabled for this connector
Publish_uplink	string	Topic for uplink frame
subsrcibe	string	Subscribe topic for downlink frame
received	string	Topic format for subscribe topic
failed	string	Failed information , if MQTT has connection issues.
url	string	MQTT broker address or URL.
pulish_events	string	Publish topic for events

Get connector list

Request :

`GET /api/connectors HTTP/1.1`

Response:

`HTTP/1.1 200 OK`

`Content-Type: application/json`

```
[
  {
    "name": "WISE6610_Broker",
    "app": "WISE6610_Handler",
    "enabled": true,
    "publish_uplink": "uplink/{devaddr}",
    "subscribe": "downlink/#",
    "received": "downlink/{devaddr}",
    "failed": [],
    "url": "127.0.0.1:1883",
    "publish_events": "event/{devaddr}"
  }
]
```

Get connector

Request :

GET /api/connectors/WISE6610_Broker HTTP/1.1

Response:

HTTP/1.1 200 OK

Content-Type: application/json

```
{
  "name": "WISE6610_Broker",
  "app": "WISE6610_Handler",
  "enabled": true,
  "publish_uplink": "uplink/{devaddr}",
  "subscribe": "downlink/#",
  "received": "downlink/{devaddr}",
  "failed": [],
  "url": "127.0.0.1:1883"
}
```

Delete connector

Request :

DELETE /api/connectors/WISE6610_Broker HTTP/1.1

Response:

HTTP/1.1 204 No Content

/api/events

Request : Get events list

GET /api/events HTTP/1.1

Response:

HTTP/1.1 200 OK

Content-Type: application/json

```
[
  {
    "uuid": "FF556E5E:unknown_devaddr:",
    "severity": "warning",
    "first_time": 1679463984,
    "last_time": 1679463984,
    "count": 1,
  }
]
```

```
    "entity": "node",
    "eid": "FF556E5E",
    "text": "unknown_devaddr"
  },
  {
    "uuid": "FF69094D:unknown_devaddr:",
    "severity": "warning",
    "first_time": 1679463978,
    "last_time": 1679463978,
    "count": 1,
    "entity": "node",
    "eid": "FF69094D",
    "text": "unknown_devaddr"
  }
]
```

/api/regions

Value Name	Type	Description
name	string	Name of the region
size	number	Number of the region list.

Get support regions

Request : Get support regions

GET /api/regions HTTP/1.1

Response:

HTTP/1.1 200 OK

Content-Type: application/json

```
[
  {
    "name": "NorthAmerica",
    "size": 8
  },
  {
    "name": "Australia",
    "size": 8
  },
  {
    "name": "Asia",
    "size": 4
  }
]
```

```
}  
]
```

/api/channels?region={region name}

Get region channel list

Request : Get support regions

GET /api/channels?region=NorthAmerica HTTP/1.1

Response:

HTTP/1.1 200 OK

Content-Type: application/json

```
[  
  {  
    "name": "US902-0",  
    "index": "0",  
    "channel00": 902300000,  
    "channel01": 902500000,  
    "channel02": 902700000,  
    "channel03": 902900000,  
    "channel04": 903100000,  
    "channel05": 903300000,  
    "channel06": 903500000,  
    "channel07": 903700000,  
    "channelSTD": {  
      "freq": 903000000,  
      "bandwidth": 500,  
      "SF": 8  
    },  
    "channelFSK": "Disable"  
  },  
  {  
    "name": "US902-1",  
    "index": "0",  
    "channel00": 903900000,  
    "channel01": 904100000,  
    "channel02": 904300000,  
    ...  
    ...  
    ...  
  }  
]
```

]

/api/radio

Value Name	Type	Description
ns_address	string	Network Server address or URL
up_port	number	Uplink port of Network Server
down_port	number	Downlink port of Network Server
region	string	Please reference API /api/regions
RadioModule[0-1]	Json	LoRaWAN Module 0 or Module 1
radio_en	number	Enabled or disabled for this module.
channel_sel	string	Please reference API /api/channels?region={region name}
status	number	1: running , 0: stop
gw_id	string	LoRaWAN Module Hardware ID.
lbt_en	number	Enabled or disabled for Listen before talk function.
main_freq_[0-1]	number	Main frequency for Radio 0 or Radio 1 (Each module has 2 radio interface)
ch_en_[0-7]	number	Enabled or disabled for this channel.
ch_sel_[0-7]	number	Select main radio for this channel
ch_offset_[0-7]	number	Offset for this channel Example: <pre>"main_freq_0": 902700000, "ch_en_0": 1, "ch_sel_0": 0, "ch_offset_0": -400000,</pre> Channel 0 = 902700000 + (-400000) = 902300000 Hz
std_en	number	Enabled or disabled for standard channel
std_sel	number	Select main radio for standard channel
std_offset	number	Offset for standard channel
std_sf	number	Spreading factor for standard channel (7-12)
std_bw	number	Bandwidth for standard channel (125,250,500) Khz
fsk_en	number	Enabled or disabled for FSK channel
fsk_sel	number	Select main radio for FSK channel
fsk_offset	number	Offset for FSK channel
fsk_dr	number	Data rate for FSK channel
fsk_bw	number	Bandwidth for FSK channel (125,250,500) Khz

Get Radio Settings

Request : Get LoRaWAN Radio setting

GET /api/radio HTTP/1.1

Response:

HTTP/1.1 200 OK

Content-Type: application/json

```
{
  "ns_address": "127.0.0.1",
  "up_port": 1680,
  "down_port": 1680,
  "region": "NorthAmerica",
  "RadioModule0": {
    "radio_en": 1,
    "channel_sel": "US902-0",
    "status": 1,
    "gw_id": "0016c001f1d4210d",
    "lbt_en": 0,
    "main_freq_0": 902700000,
    "main_freq_1": 903400000,
    "ch_en_0": 1,
    "ch_sel_0": 0,
    "ch_offset_0": -400000,
    "ch_en_1": 1,
    "ch_sel_1": 0,
    "ch_offset_1": -200000,
    "ch_en_2": 1,
    "ch_sel_2": 0,
    "ch_offset_2": 0,
    "ch_en_3": 1,
    "ch_sel_3": 0,
    "ch_offset_3": 200000,
    "ch_en_4": 1,
    "ch_sel_4": 1,
    "ch_offset_4": -300000,
    "ch_en_5": 1,
    "ch_sel_5": 1,
    "ch_offset_5": -100000,
    "ch_en_6": 1,
    "ch_sel_6": 1,
    "ch_offset_6": 100000,
    "ch_en_7": 1,
    "ch_sel_7": 1,
    "ch_offset_7": 300000,
    "std_en": 1,
    "std_sel": 0,
  }
}
```

```
        "std_offset": 300000,
        "std_bw": 500,
        "std_sf": 8,
        "fsk_en": 0,
        "fsk_sel": 0,
        "fsk_offset": 0,
        "fsk_bw": 125,
        "fsk_dr": 50000
    }
}
```

Set Radio Settings

```
Request : Set LoRaWAN Radio setting
PUT /api/radio HTTP/1.1
{
    "region": "NorthAmerica",
    "RadioModule0": {
        "radio_en": 1,
        "channel_sel": "US902-3"
    }
}
```

Response:

HTTP/1.1 204 No Content

/api/nscfg

Value Name	Type	Description
rx_clean_interval	number	Receive frame clean interval
rx_remain	number	Remain number of after clean for each node.
rx_clean_mode	number	0:ALL 1:Each Node
event_life	number	Event lifetime
tx_life	number	Tx frame lifetime
auto_add_gw	number	Enabled of auto add unknown gateway
drop_unknown_gw	string	Enabled of drop unknown gateway frame
history	number	Enabled or disable for History Record function
adr_count	number	ADR count number for auto ADR mode. How many uplink frames need to be sent ADR command to Node?
notification_en	number	Enabled or disable for Notification function
notif_interval	number	Interval for Notification function

pk_loss_rate	number	Package loss rate is used by the notification function. (unit:0.01%)
dup_rate	number	Duplication rate is used by the notification function. (unit:0.01%)
bad_sig_rate	number	Bad signal rate is used by the notification function. (unit:0.01%) Bad signal is when the uplink frame RSSI is smaller than -110 dBm
smtp_server	string	SMTP server's address
smtp_port	number	SMTP server's port
smtp_username	string	SMTP username
smtp_password	string	SMTP password
smtp_method	number	SMTP Authentication method 0: NONE 1: SSL 2: STARTTLS
smtp_recipient[1-5]	string	Recipient mail address.

Get Network Server Settings

Request :

GET /api/nscfg HTTP/1.1

Response:

```
{
  "rx_clean_interval": 3600,
  "rx_clean_mode": 0,
  "rx_remain": 50,
  "adr_count": 50,
  "event_life": 21600,
  "tx_life": 21600,
  "auto_add_gw": 1,
  "history": 1,
  "drop_unknown_gw": 0,
  "adr_count": 20,
  "pk_loss_rate": 1000,
  "dup_rate": 1000,
  "bad_sig_rate": 2000,
  "notification_en": 0,
  "notif_interval": 3600,
  "smtp_port": 587,
  "smtp_server": "smtp.advantech.com",
  "smtp_password": "123456789",
  "smtp_username": "12345@advantech.com",
  "smtp_method": 2,
  "smtp_recipient1": "12345@advantech.com"
```

```
}
```

Set Network Server Settings

Request :

```
PUT /api/nscfg HTTP/1.1
```

```
{  
  "drop_unknown_gw": 1  
}
```

Response:

```
HTTP/1.1 204 No Content
```

/api/appcfg

Value Name	Type	Description
app_en	number	Application enabled
heart_en	number	MQTT Heartbeat message enabled
heart_interval	number	Heartbeat message interval
mqtt_address	string	MQTT Server address
mqtt_port	number	MQTT Server address port number
mqtt_user	string	MQTT username
mqtt_pwd	string	MQTT password
uplink_topic	string	Application subscribe uplink topic
downlink_topic	string	Application send downlink topic
mqtt_retain	number	MQTT retain enable
mqtt_qos	number	MQTT QoS
time_sync	number	Enable of auto time sync with WISE LoRaWAN Node
modbus_en	number	Application Modbus server enabled
modbus_port	number	Application Modbus port
modbus_timeout	number	Application Modbus timeout
modbus_idle	number	Application Modbus idle time
cnf_mgmt	number	Enable of Modbus Confirmed Management

Get Advantech Application Server Settings

Request :

```
GET /api/appcfg HTTP/1.1
```

Response:

```
HTTP/1.1 200 OK
```

```
{
  "app_en": 1,
  "cnf_mgmt": 0,
  "heart_en": 1,
  "heart_interval": 120,
  "mqtt_address": "127.0.0.1",
  "mqtt_port": 1883,
  "mqtt_user": null,
  "mqtt_pwd": null,
  "uplink_topic": "uplink/#",
  "downlink_topic": "downlink/",
  "mqtt_retain": 0,
  "mqtt_qos": 0,
  "time_sync": 0,
  "modbus_en": 1,
  "modbus_port": 502,
  "modbus_timeout": 2,
  "modbus_idle": 720,
  "lorawan_id": "0016c001f1d4210d"
}
```

Set Advantech Application Server Settings

Request :

```
PUT /api/ appcfg HTTP/1.1
```

```
{
  "modbus_en": 1
}
```

Response:

```
HTTP/1.1 204 No Content
```

/api/custom_db

Value Name	Type	Description
name	string	Custom database name
enabled	number	Enable of this custom database.
lifetime	number	Custom database lifetime
v[N]_type	number	Value type(1: Integer,2: Unsigned Integer,3: Floating Point)
v[N]_name	number	Value Name
N	number	0-4

* This feature must to match decode on handler page.

Get custom database list

Request :

`GET /api/custom_db HTTP/1.1`

Response:

`HTTP/1.1 200 OK`

```
[
  {
    "name": "r718a",
    "enabled": 1,
    "lifetime": 3600,
    "v0_name": "battery",
    "v0_type": 1,
    "v1_name": "temperature",
    "v1_type": 3,
    "v2_name": "humidity",
    "v2_type": 3,
    "v3_type": 1,
    "v4_type": 1
  }
]
```

Get specific custom database

Request :

`GET /api/custom_db/{custom database name} HTTP/1.1`

Example `GET /api/nodes/FF000000 HTTP/1.1`

Response:

`HTTP/1.1 200 OK`

```
{
  "name": "r718a",
  "enabled": 1,
  "lifetime": 3600,
  "v0_name": "battery",
  "v0_type": 1,
  "v1_name": "temperature",
  "v1_type": 3,
  "v2_name": "humidity",
  "v2_type": 3,

```

```
"v3_type": 1,  
"v4_type": 1  
}
```

Delete specific custom database

Request :

```
DELETE /api/custom_db/{custom database name} HTTP/1.1
```

Example `DELETE /api/custom_db/{custom database name} HTTP/1.1`

/api/custom

Get custom database frame

Request :

```
GET /api/custom/{custom database name} HTTP/1.1
```

Response:

```
HTTP/1.1 200 OK
```

```
[  
  {  
    ....  
  }  
]
```

Example

Request :

```
GET /api/custom/r718a HTTP/1.1
```

Response:

```
HTTP/1.1 200 OK
```

```
[  
  {  
    "devaddr": "00018CAF",  
    "time": 1684118425,  
    "battery": 36,  
    "temperature": 25.42,  
    "humidity": 56.65  
  },  
  {
```

```
    "devaddr": "00018CAF",
    "time": 1684118455,
    "battery": 36,
    "temperature": 25.46,
    "humidity": 56.45
  }
]
```

/api/advantech/nodes

Request : Get Advantech's node list

GET /api/advantech/node HTTP/1.1

Response:

HTTP/1.1 200 OK

```
[
  {
    "devaddr": "27002F71",
    "model": "BB-WSW2C42000",
    "datetime": "2000-01-01T04:29:13Z",
    "fcnt": 1,
    "rssi": -30,
    "packet_loss": 0,
    "bat": 0
  },
  {
    "devaddr": "FF19D133",
    "model": "WISE4610-S614",
    "datetime": "2000-01-01T04:29:46Z",
    "fcnt": 1,
    "rssi": -30,
    "packet_loss": 0,
    "bat": 100
  }
]
```

/api/advantech/nodes/ABC

GET /api/advantech/nodes/27002F71 HTTP/1.1

Response:

HTTP/1.1 200 OK

```
{
  "info": {
    "devaddr": "27002F71",
    "model": "BB-WSW2C42000",
    "datetime": "2000-01-01T04:29:13Z",
    "fcnt": 1,
    "rssi": -30,
    "packet_loss": 0,
    "bat": 0
  },
  "data": {
    "AI1": {
      "RAW": 65281,
      "Mode": "0~10V",
      "Value": 9.96,
      "Unit": "V"
    },
    "AI2": {
      "RAW": 1,
      "Mode": "Disable",
      "Value": 0,
      "Unit": " "
    },
    "AI3": {
      "RAW": 43981,
      "Mode": "0~20mA",
      "Value": 13.42,
      "Unit": "mA"
    },
    "AI4": {
      "RAW": 513,
      "Mode": "+-20mA",
      "Value": -19.69,
      "Unit": "mA"
    },
    "DI1": {
      "Value": 1,
      "EN": 1
    },
    "DI2": {
      "Value": 1,
```

```
        "EN": 1
    },
    "DO": {
        "Value": 1,
        "EN": 1
    }
}
}
```

GET /api/advantech/nodes/FF19D133 HTTP/1.1

Response:

HTTP/1.1 200 OK

```
{
  "info": {
    "devaddr": "FF19D133",
    "model": "WISE4610-S614",
    "datetime": "2000-01-01T04:29:46Z",
    "fcnt": 1,
    "rssi": -30,
    "packet_loss": 0,
    "bat": 100
  },
  "data": {
    "DIO": {
      "value": 0,
      "status": {
        "Signal Logic": 0,
        "Start Counter": 1,
        "Get/Clean Counter Overflow": 0,
        "Get/Clean L2H Latch": 0,
        "Get/Clean H2L Latch": 0,
        "DI Change": 0
      }
    },
    "DI1": {
      "value": 0,
      "status": {
        "Signal Logic": 0,
        "Start Counter": 1,
        "Get/Clean Counter Overflow": 0,
        "Get/Clean L2H Latch": 0,
        "Get/Clean H2L Latch": 0,

```

```
        "DI Change": 0
    }
},
"DI2": {
    "value": 0,
    "status": {
        "Signal Logic": 0,
        "Start Counter": 1,
        "Get/Clean Counter Overflow": 0,
        "Get/Clean L2H Latch": 0,
        "Get/Clean H2L Latch": 0,
        "DI Change": 0
    }
},
"DI3": {
    "value": 0,
    "status": {
        "Signal Logic": 0,
        "Start Counter": 1,
        "Get/Clean Counter Overflow": 0,
        "Get/Clean L2H Latch": 0,
        "Get/Clean H2L Latch": 0,
        "DI Change": 0
    }
},
"AIO": {
    "Range": 4,
    "Raw Data": 32774,
    "Event": 0,
    "MaxVal": 32775,
    "MinVal": 32762,
    "status": {
        "Low Alarm": 0,
        "High Alarm": 0
    }
},
"AI1": {
    "Range": 9,
    "Raw Data": 0,
    "Event": 0,
    "MaxVal": 2,
    "MinVal": 0,
```

```
    "status": {
      "Low Alarm": 1,
      "High Alarm": 0
    }
  },
  "AI2": {
    "Range": 11,
    "Raw Data": 32767,
    "Event": 0,
    "MaxVal": 32768,
    "MinVal": 32767,
    "status": {
      "Low Alarm": 1,
      "High Alarm": 0
    }
  },
  "AI3": {
    "Range": 5,
    "Raw Data": 2,
    "Event": 0,
    "MaxVal": 18,
    "MinVal": 0,
    "status": {
      "Low Alarm": 0,
      "High Alarm": 0
    }
  },
  "AI4": {
    "Range": 0,
    "Raw Data": 0,
    "Event": 0,
    "MaxVal": 0,
    "MinVal": 0,
    "status": {
      "Low Alarm": 0,
      "High Alarm": 0
    }
  },
  "GNSS": {
    "Latitude": "0.000000 N",
    "Longitude": "0.000000 E"
  }
}
```

}
}