



Milesight Gateway

UG56/UG65/UG67

MQTT API Specification

Date	Applicable Firmware Version	Description
Apr. 28, 2023	60.0.0.42/56.0.0.3	Initial version
Apr. 15, 2024	60.0.0.42-r5/56.0.0.4	Add payload codec enquiry
Apr. 14, 2025	60.0.0.45/56.0.0.6	Add FUOTA
Apr. 15, 2026	60.0.0.49/56.0.0.9	Add payload codec addition, delete and update

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1. Introduction

Milesight gateways provides MQTT API to invoke them to configure the gateway embedded network server settings. It is necessary to add a MQTT integration to an application and subscribe below topics to send requests and get responses.

Data Type	topic	QoS
Uplink data	<input type="text"/>	QoS 0
Downlink data	<input type="text"/>	QoS 0
Multicast downlink data	<input type="text"/>	QoS 0
Join notification	<input type="text"/>	QoS 0
ACK notification	<input type="text"/>	QoS 0
Error notification	<input type="text"/>	QoS 0
Request data	<input type="text"/>	QoS 0
Response data	<input type="text"/>	QoS 0

The request message should be sent via JSON format and the response format is also the JSON format.

Request Format

```
{
  "type": "ns-api",           //The type is fixed as ns-api
  "id": "123",               //Random value
  "method": "GET",          //method
  "url": "/api/urdevices",  //url
  "gatewayEUI": "",         //Type optional
  "body": {
                                //Add contents when method is POST or PUT
  }
}
```

Response Format

```
{
  "id": "123",               //The same as request
  "gatewayEUI": "24E124FFFEF5A6A8", //Point the response source of gateway
  "method": "GET",          //The same as request
  "gatewayEUI": "",
  "url": "/api/urdevices",  //The same as request
  "body": {
                                //Different contents depending on features
  }
}
```

2. Profile

2.1 Add Profile

Method: POST

URL: /api/urprofiles

Request Example

```
{
  "type":"ns-api",
  "id":"1",
  "method":"POST",
  "url":"/api/urprofiles",
  "body":{
    "name":"test",
    "profile":{
      "factoryPresetFreqs":[
      ],
      "macVersion":"1.0.2",
      "maxEIRP":0,
      "regParamsRevision":"B",
      "rxDROffset1":0,
      "rxDataRate2":0,
      "rxFreq2":505300000,
      "supports32bitFCnt":true,
      "supportsClassB":true,
      "supportsClassC":true,
      "supportsJoin":true,
      "pingSlotPeriod":128,
      "pingSlotDR":2,
      "pingSlotFreq":508300000,
      "classBTimeout":10,
      "classCTimeout":10,
      "enableUplinkChannels":[
      ]
    }
  }
}
```

Response Example

```
{
  "id":"1",
  "method":"POST",
  "url":"/api/urprofiles",
  "body":{
```

```

"profileID": "c6686391-55a3-40fe-a347-acd431211c58"
//Return profile ID if success, failure return code see Appendix
}
}

```

Request Parameters

Name	Type & Range	Default	Required	Description
name	string 64	-	Yes	Only allow letters, digits, "-" or "_", the first character must be letter
maxEIRP	int	0	No	0 means max EIRP
supportsJoin	bool	false	No	True: OTAA False: ABP
supportsClassB	bool	false	No	True: support Class B
supportsClassC	bool	false	No	True: support Class C
macVersion	1.0.0/1.0.1/1.0.2/1.1.0	1.0.2	No	
regParamsRevision	A / B	B	No	It's B for Milesight devices
rxDROffset1	0/1/2/3/4/5	0	No	
rxDataRate2	int	Depend on channel plan	No	See details on Appendix
rxFreq2	int	Depend on channel plan	No	See details on Appendix
factoryPresetFreqs	array[int]		No	
enableUplinkChannels	array[int]		No	Blank means all channels are enabled
pingSlotPeriod	32/64/128/256/512/1024/2048/4096	128 (every 4 second)	No	Class B device only, every option matches 1/2/4/8/16/32/64/128 seconds
pingSlotDR	int	Depend on channel plan	No	Class B device only, see details on Appendix
pingSlotFreq	int	Depend on channel plan	No	Class B device only, see details on Appendix
classBTimeout	0-10 (second)	10	No	Class B device ACK timeout
classCTimeout	0-10 (second)	10	No	Class C device ACK timeout

t				
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2.2 Delete Profile

Method: DELETE

URL: /api/urprofiles/{profileID}

Request Example

```
{
  "type": "ns-api",
  "id": "1",
  "method": "DELETE",
  "url": "/api/urprofiles/09c9326b-0fc6-42ce-ae32-808d58306a50"
}
```

Response Example

```
{
  "id": "1",
  "method": "DELETE",
  "url": "/api/urprofiles/09c9326b-0fc6-42ce-ae32-808d58306a50",
  "body": {
    "code": ,
    "error": ""
    //Body is blank if success, failure return code see Appendix
  }
}
```

2.3 Enquire Profile

Method: GET

URL: /api/urprofiles?limit=9999&offset=0

Request Example: enquire all profiles

```
{
  "type": "ns-api",
  "id": "1",
  "method": "GET",
  "url": "/api/urprofiles?limit=9999&offset=0"
}
```

Response Example

```
{
  "id": "1",
  "method": "GET",
  "url": "/api/urprofiles?limit=9999&offset=0",
}
```

```

"body":{
  "totalCount":"1",
  "disable":false,
  "result":[
    {
      "profile":{
        "profileID":"940dcdb-e8d5b-4a1e-b7c6-4e5437162015",
        "supportsClassB":false,
        "classBTimeout":10,
        "pingSlotPeriod":128,
        "pingSlotDR":2,
        "pingSlotFreq":508300000,
        "supportsClassC":false,
        "classCTimeout":10,
        "macVersion":"1.0.2",
        "regParamsRevision":"B",
        "rxDROffset1":0,
        "rxDataRate2":0,
        "rxFreq2":505300000,
        "factoryPresetFreqs":[
        ],
        "maxEIRP":0,
        "maxDutyCycle":0,
        "supportsJoin":true,
        "rfRegion":"China470",
        "supports32bitFCnt":true,
        "enableUplinkChannels":[
        ]
      },
      "name":"ClassA-OTAA",
      "organizationID":"1",
      "networkServerID":"1",
      "using":true
    }
  ],
  "channelPlan":"CN470"
}

```

Request Parameters

Name	Type & Range	Default	Required	Description
limit	int	9999	No	Max amount of enquiring profiles
offset	int	0	No	Enquire from which profile

Response Parameters

Name	Type	Description
totalCount	string	The profile amount of enquiry
disable	bool	Whether Milesight IoT Cloud is enabled
result	array	Profile contents
profileID	string	
supportsClassB	bool	True: support Class B
classBTimeout	int	Class B device ACK timeout
pingSlotPeriod	int	Class B device ping slot period
pingSlotDR	int	Class B device ping slot datarate
pingSlotFreq	int	Class B device ping slot frequency
supportsClassC	bool	True: support Class C
classCTimeout	int	Class C device ACK timeout
macVersion	string	
regParamsRevision	string	It's B for Milesight devices
rxDROffset1	int	
rxDataRate2	int	See details on Appendix
rxFreq2	int	See details on Appendix
factoryPresetFreqs	array[int]	
maxEIRP	int	0 means max EIRP
maxDutyCycle	int	
supportsJoin	bool	True: OTAA False: ABP
rfRegion	string	
enableUplinkChannels	array[int]	Blank means all channels are enabled
name	string	Profile name
organizationID	string	
networkServerID	string	
using	bool	Whether this profile is used
isDefault	bool	Whether this is default profile
channelPlan	string	Frequency channel plan

2.4 Update Profile

Before modifying a profile, it is suggested to enquire this profile first.

Method: PUT

URL: /api/urprofiles/{profileID}

Request Example

```
{
  "type": "ns-api",
  "id": "1",
  "method": "PUT",
  "url": "/api/urprofiles/d11c2c2f-543e-4b6f-b393-3e8e6b0e76e4",
  "body":{
    "name":"test",
    "profile":{
      "supportsClassB":true,
      "classBTimeout":10,
      "pingSlotPeriod":128,
      "pingSlotDR":2,
      "pingSlotFreq":508300000,
      "supportsClassC":true,
      "classCTimeout":10,
      "macVersion":"1.0.2",
      "regParamsRevision":"B",
      "rxDROffset1":0,
      "rxDataRate2":0,
      "rxFreq2":505300000,
      "factoryPresetFreqs":[
      ],
      "maxEIRP":0,
      "supportsJoin":true,
      "supports32bitFCnt":true,
      "enableUplinkChannels":[
      ]
    }
  }
}
```

Response Example

```
{
  "id":"1",
  "method":"PUT",
  "url":"/api/urprofiles/d11c2c2f-543e-4b6f-b393-3e8e6b0e76e4",
  "body": {
    "code": ,
    "error":""
    //Body is blank if success, failure return code see Appendix
  }
}
```

Request Parameters

Name	Type & Range	Required	Description
name	string 64	Yes	Only allow letters, digits, "-" or "_", the first character must be letter
maxEIRP	int	Yes	0 means max EIRP
supportsJoin	bool	Yes	True: OTAA False: ABP
supportsClassB	bool	Yes	True: support Class B
supportsClassC	bool	Yes	True: support Class C
macVersion	1.0.0/1.0.1/1.0.2/1.1.0	Yes	
regParamsRevision	A / B	Yes	It's B for Milesight devices
rxDROffset1	0/1/2/3/4/5	Yes	
rxDataRate2	int	Yes	See details on Appendix
rxFreq2	int	Yes	See details on Appendix
factoryPresetFreqs	array[int]	Yes	
enableUplinkChannels	array[int]	Yes	Blank means all channels are enabled
supports32bitFCnt	bool	Yes	
pingSlotPeriod	32/64/128/256/512/1024/2048/4096	Yes	Class B device only, every option matches 1/2/4/8/16/32/64/128 seconds
pingSlotDR	int	Yes	Class B device only, see details on Appendix
pingSlotFreq	int	Yes	Class B device only, see details on Appendix
classBTimeout	0-10 (second)	Yes	Class B device ACK timeout
classCTimeout	0-10 (second)	Yes	Class C device ACK timeout

3. Device

3.1 Add Device

Method: POST

URL: /api/urdevices

Request Example

```
{
  "type": "ns-api",
  "id": "1",
  "method": "POST",
  "url": "/api/urdevices",
  "body": {
    "name": "EM300",
    "description": "em300",
    "devEUI": "24E124136A456465",
    "profileID": "940dcdbE-8d5b-4a1e-b7c6-4e5437162015",
    "fPort": 1,
    "skipFCntCheck": false,
    "appKey": "5572404c696e6b4c6f52613230313823",
    "applicationID": "1",
    "payloadCodecID": "9"
  }
}
```

Response Example

```
{
  "id": "1",
  "method": "POST",
  "url": "/api/urdevices",
  "body": {
    "code": 200, //Return 200 if success, failure return code see Appendix
    "error": ""
  }
}
```

Request Parameters

Name	Type & Range	Default	Required	Description
devEUI	string 16(HEX)	-	Yes	Device EUI is unique
applicationID	int	-	Yes	Exist application ID
payloadCode cID	int	-	No	Get this ID from Enquire Payload Codec API
name	string 64	DevEUI	No	Unique value on device list
description	string 1024	DevEUI	No	Device description
profileID	string	ClassA-OTAA profile ID	No	Enquire profile ID first
fPort	1-223	1	No	Device application port
skipFCntChec	bool	false	No	Frame counter validation

k				
appKey	string 32(HEX)	5572404c696 e6b4c6f5261 3230313823	No	Necessary to add when join type is OTAA
devAddr	string 8(HEX)	-	Yes	Necessary to add when join type is ABP
nwkSKey	string 32(HEX)	5572404c696 e6b4c6f5261 3230313823	No	Necessary to add when join type is ABP
appSKey	string 32(HEX)	5572404c696 e6b4c6f5261 3230313823	No	Necessary to add when join type is ABP
fCntUp	0~4294967295	0	No	Add when join type is ABP
fCntDown	0~4294967295	0	No	Add when join type is ABP
mbMode	string "tcp"/"rtu"	-	No	tcp: Modbus RTU to TCP rtu: Modbus RTU over TCP
mbFramePort	2-84, 86-223	-	No	Modbus RTU Fport
mbTcpPort	1-65535	-	No	Modbus TCP port

3.2 Delete Device

Method: DELETE

URL: /api/urdevices/{devEUI}

Request Example

```
{
  "type": "ns-api",
  "id": "1",
  "method": "DELETE",
  "url": "/api/urdevices/24E124136A456465",
}
```

Response Example

```
{
  "id": "1",
  "method": "DELETE",
  "url": "/api/urdevices/24E124136A456465",
  "body": {
    "code": 200,
    "error": ""
  }
  //Body is blank if success, failure return code see Appendix
```

```
}  
}
```

3.3 Enquire Device

Method: GET

URL: /api/urdevices?search=&limit=&offset=&applicationID=

Request Example:

1. enquire all devices

```
{  
  "type": "ns-api",  
  "id": "1",  
  "method": "GET",  
  "url": "/api/urdevices?&offset=0&limit=9999"  
}
```

2. enquire all devices under one application

```
{  
  "type": "ns-api",  
  "id": "2",  
  "method": "GET",  
  "url": "/api/urdevices?applicationID=1&offset=0&limit=9999"  
}
```

3. enquire one device

```
{  
  "type": "ns-api",  
  "id": "2",  
  "method": "GET",  
  "url": "/api/urdevices?applicationID=1&offset=0&limit=9999"  
}
```

Response Example

```
{  
  "id": "1",  
  "method": "GET",  
  "url": "/api/urdevices?&offset=0&limit=9999",  
  "body": {  
    "devTotalCount": "1",  
    "deviceResult": [  
      {  
        }  
    ]  
  }  
}
```

```
"devEUI":"24E124136A456465",
"name":"em300-470",
"applicationID":"1",
"appName":"cloud",
"description":"em300",
"profileID":"940dcdbbe-8d5b-4a1e-b7c6-4e5437162015",
"profileName":"ClassA-OTAA",
"fCntUp":0,
"fCntDown":0,
"skipFCntCheck":false,
"appKey":"5572404c696e6b4c6f52613230313823",
"devAddr":"",
"appSKey":"",
"nwksKey":"",
"supportsJoin":true,
"active":false,
"lastSeenAt":"-",
"mbMode":"",
"mbFramePort":"0",
"mbTcpPort":"0",
"lastSeenAtTime":"-",
"fPort":2,
"payloadCodeID":"0",
"payloadName":""
}
],
"appTotalCount":"1",
"appResult":[
{
  "appName":"cloud",
  "applicationID":"1"
}
],
"pfTotalCount":"3",
"profileResult":[
{
  "profileID":"940dcdbbe-8d5b-4a1e-b7c6-4e5437162015",
  "profileName":"ClassA-OTAA",
  "supportsJoin":true
},
{
  "profileID":"321d917c-297a-4d1b-baa1-6329e694a94e",
  "profileName":"ClassB-OTAA",
  "supportsJoin":true
}
```

```

    },
    {
        "profileID":"176d917c-297a-4d0b-baa1-6189e694a94e",
        "profileName":"ClassC-OTAA",
        "supportsJoin":true
    }
],
"channelPlan":"CN470",
"disable":false
}
}

```

Request Parameters

Name	Type & Range	Default	Required	Description
search	string	-	No	Blank means searching for all devices
limit	int	9999	No	Max amount of enquiring devices
offset	int	0	No	Enquire from which device
applicationID	int	0	No	Enquire devices under this application, 0 means enquiring all devices

Response Parameters

Name	Type	Description
devTotalCount	string	The device amount of enquiry
devEUI	string	Device EUI
name	string	Device name
applicationID	string	Application ID
appName	string	Application name
description	string	Device description
profileID	string	Profile ID
profileName	string	Profile name
fCntUp	int	
fCntDown	int	
skipFCntCheck	bool	Frame count validation
appKey	string	
devAddr	string	
nwkSKey	string	
appSKey	string	See details on Appendix
supportsJoin	bool	True: OTAA, False: ABP
active	bool	True: activate, False: De-activate

lastSeenAt	string	
mbMode	string	tcp: Modbus RTU to TCP rtu: Modbus RTU over TCP
mbFramePort	int	Modbus RTU Fport
mbTcpPort	int	Modbus TCP port
lastSeenAtTime	string	
fPort	int	Device application port
payloadCodecID	string	Payload Codec ID
payloadName	string	Payload Codec name
appTotalCount	string	Application total count
pfTotalCount	string	Profile total count
channelPlan	string	Frequency channel plan
disable	bool	Whether Milesight IoT Cloud is enabled

3.4 Update Device

Before modifying a device, it is suggested to enquire this device first.

Method: PUT

URL: /api/urdevices/{devEUI}

Request Example

```
{
  "type": "ns-api",
  "id": "1",
  "method": "PUT",
  "url": "/api/urdevices/24E124136A456465",
  "body": {
    "name": "EM300",
    "applicationID": "1",
    "description": "em300",
    "profileID": "fa8215d4-4b5a-4054-b6ba-5658609861d1",
    "fCntUp": 0,
    "fCntDown": 0,
    "skipFCntCheck": false,
    "appKey": "5572404c696e6b4c6f52613230313823",
    "devAddr": "",
    "appSKey": "",
    "nwksKey": "",
    "mbMode": "",
    "mbFramePort": 0,
    "mbTcpPort": 0,
  }
}
```

```

    "fPort":1,
    "payloadCodecID":"9"
  }
}

```

Response Example

```

{
  "id":"1",
  "method":"PUT",
  "url":"/api/urdevices/24E124136A456467",
  "body":{
    //Return 200 if success, failure return code see Appendix
    "code":200,
    "error":""
  }
}

```

Request Parameters

Name	Type & Range	Required	Description
name	string 64	No	Unique value on device list
description	string 1024	No	
profileID	string	No	Enquire profile ID first
applicationID	int	Yes	Exist application ID
payloadCode cID	int	No	Get this ID from Enquire Payload Codec API
fPort	1-223	No	Device application port
skipFCntChec k	bool	No	Frame counter validation
appKey	string 32(HEX)	No	Support to modify when join type is OTAA
devAddr	string 8(HEX)	Yes	Support to modify when join type is ABP
nwkSKey	string 32(HEX)	No	Support to modify when join type is ABP
appSKey	string 32(HEX)	No	Support to modify when join type is ABP
fCntUp	0~4294967295	No	Support to modify when join type is ABP
fCntDown	0~4294967295	No	Support to modify when join type is ABP
mbMode	string "tcp"/"rtu"	No	tcp: Modbus RTU to TCP rtu: Modbus RTU over TCP
mbFramePor t	2-84, 86-223	No	Modbus RTU Fport
mbTcpPort	1-65535	No	Modbus TCP port

4. Multicast

4.1 Add Multicast Group

Method: POST

URL: /api/multicast-groups

Request Example

```
{
  "type":"ns-api",
  "id":"1",
  "method":"POST",
  "url":"/api/multicast-groups",
  "body":{
    "multicastGroup":{
      "mcAddr":"11111111",
      "name":"group1",
      "mcNwkSKey":"5572404c696e6b4c6f52613230313823",
      "mcAppSKey":"5572404c696e6b4c6f52613230313823",
      "groupType":"CLASS_C",
      "fCnt":0,
      "dr":0,
      "pingSlotPeriod":128,
      "frequency":505300000
    }
  }
}
```

Response Example

```
{
  "id":"1",
  "method":"POST",
  "url":"/api/multicast-groups",
  "body":{
    "id":"03881b5e-9af0-4a38-860c-bdc25347f739"
    //Return multicast ID if success, failure return code see Appendix
  }
}
```

Request Parameters

Name	Type & Range	Default	Required	Description
name	string 128	-	Yes	Name is unique
mcAddr	string 8(HEX)	11111111	No	Multicast address
mcNwkSKey	string 32(HEX)	5572404c696e6b4c6f52613230313823	No	Multicast NetworkSKey

mcAppSKey	string 32(HEX)	5572404c696e6b4c6f52613230313823	No	Multicast ApplicationSKey
fCnt	0-4294967295	0	No	Frame-counter validation
groupType	string "CLASS_B"/"CLASS_C"	CLASS_C	No	The device type should be class B or class C
dr	int	Depend on channel plan	No	See details on Appendix
frequency	int	Depend on channel plan	No	See details on Appendix
pingSlotPeriod	32/64/128/256/512/1024/2048/4096	128	No	Class B device only, every option matches 1/2/4/8/16/32/64/128 seconds

4.2 Add Device to Multicast Group

Method: POST

URL: /api/multicast-groups/{multicastGroupID}/devices

Request Example

```
{
  "type": "ns-api",
  "id": "1",
  "method": "POST",
  "url": "/api/multicast-groups/03881b5e-9af0-4a38-860c-bdc25347f739/devices",
  "body": {
    "devEUIs": [
      "24E124136A456467",
      "24E124136A456465"
    ]
  }
}
```

Response Example

```
{
  "id": "1",
  "method": "POST",
  "url": "/api/multicast-groups/03881b5e-9af0-4a38-860c-bdc25347f739/devices",
  "body": {
    //body is blank if success
  }
}
```

Request Parameters

Name	Type & Range	Default	Required	Description
devEUIs	Array [string 16](HEX)	-	No	The devices should be added to device list

4.3 Delete Multicast Group

Method: DELETE

URL: /api/multicast-groups/{multicastGroupID}

Request Example

```
{
  "type": "ns-api",
  "id": "1",
  "method": "DELETE",
  "url": "/api/multicast-groups/8cc84500-9587-4256-bd7e-4f265c56f8ee"
}
```

Response Example

```
{
  "id":"1",
  "method":"DELETE",
  "url":"/api/multicast-groups/8cc84500-9587-4256-bd7e-4f265c56f8ee",
  "body":{
    "code": , //Body is blank if success, failure return code see Appendix
    "error":""
  }
}
```

Request Parameters

Name	Type	Default	Required	Description
multicastGroupID	string	-	Yes	The multicast group ID can be searched by API

4.4 Delete Device from Multicast Group

Method: POST

URL: /api/multicast-groups/{multicastGroupID}/deletedevices

Request Example

```
{
  "type": "ns-api",
```

```

    "id": "1",
    "method": "POST",
    "url": "/api/multicast-groups/0663aff7-3223-4874-ad6a-b306c63a38e7/deleteddevices",
    "body":{
      "devEUIs":[
        "24E124136A456467"
      ]
    }
  }
}

```

Response Example

```

{
  "id":"1",
  "method":"POST",
  "url":"/api/multicast-groups/0663aff7-3223-4874-ad6a-b306c63a38e7/deleteddevices",
  "body":{
    //Body is blank if success, failure return code see Appendix
    "code":,
    "error":""
  }
}

```

Request Parameters

Name	Type	Default	Required	Description
multicastGroupID	string	-	Yes	The multicast group ID can be searched by API
devEUIs	Array [string 16](HEX)	-	No	The devices should be existed to device list

4.5 Enquire Multicast Group

Method: GET

URL: /api/multicast-groups?search=&limit=&offset=

Request Example:

1. enquire all groups

```

{
  "type": "ns-api",
  "id": "1",
  "method": "GET",
  "url": "/api/multicast-groups?search=&order=asc&offset=0&limit=9999"
}

```

2. enquire one group

```
{
  "type": "ns-api",
  "id": "2",
  "method": "GET",
  "url": "/api/multicast-groups?search=group1&offset=0&limit=9999"
}
```

Response Example

```
{
  "id": "1",
  "method": "GET",
  "url": "/api/multicast-groups?search=&order=asc&offset=0&limit=9999",
  "body": {
    "totalCount": "1",
    "result": [
      {
        "id": "0663aff7-3223-4874-ad6a-b306c63a38e7",
        "name": "group1",
        "mcAddr": "11111111",
        "mcNwkSKey": "5572404c696e6b4c6f52613230313823",
        "mcAppSKey": "5572404c696e6b4c6f52613230313823",
        "fCnt": 0,
        "groupType": "CLASS_C",
        "dr": 0,
        "frequency": 505300000,
        "pingSlotPeriod": 128,
        "createdAt": "2023-02-02 01:18:10",
        "updatedAt": "2023-02-02 01:27:10",
        "devices": [
          {
            "devEUI": "24E124136A456467",
            "name": "em300-470",
            "applicationID": "1",
            "description": "em300",
            "deviceProfileID": "940dcdbe-8d5b-4a1e-b7c6-4e5437162015",
            "deviceProfileName": "ClassA-OTAA",
            "deviceStatusBattery": 0,
            "deviceStatusMargin": 0,
            "lastSeenAt": ""
          }
        ]
      }
    ]
  }
}
```

```
}

```

Request Parameters

Name	Type	Default	Required	Description
search	string	-	No	Blank means searching for all groups
limit	int	9999	No	Max amount of enquiring groups
offset	int	0	No	Enquire from which group

Return Parameters

Name	Type	Description
id	string	Multicast ID
name	string	Name is unique
mcAddr	string	Multicast address
mcNwkSKey	string	Multicast NetworkSKey
mcAppSKey	string	Multicast ApplicationSKey
fCnt	int	Frame-counter validation
groupType	string	Class B or class C
dr	int	See details on Appendix
frequency	int	See details on Appendix
pingSlotPeriod	int	Class B device only, every option matches 1/2/4/8/16/32/64/128 seconds
createdAt	string	Create time
updatedAt	string	Configuration update time
devEUI	string	Device EUI of devices on this group
name	string	Device name
applicationID	string	applicationID
description	string	Device description
deviceProfileID	string	Device Profile ID
deviceProfileName	string	Device Profile name
deviceStatusBattery	int	Battery level
deviceStatusMargin	int	
lastSeenAt	string	

4.6 Update Group

Before modifying a group, it is suggested to enquire this group first.

Method: PUT

URL: /api/multicast-groups/{multicastGroupID}

Request Example

```
{

```

```

"type":"ns-api",
"id":"1",
"method":"PUT",
"url":"/api/multicast-groups/0663aff7-3223-4874-ad6a-b306c63a38e7",
"body":{
  "multicastGroup":{
    "name":"group2",
    "mcAddr":"11111111",
    "mcNwkSKey":"5572404c696e6b4c6f52613230313823",
    "mcAppSKey":"5572404c696e6b4c6f52613230313823",
    "fCnt":0,
    "groupType":"CLASS_C",
    "dr":0,
    "frequency":505300000,
    "pingSlotPeriod":128
  }
}

```

Response Example

```

{
  "id":"1",
  "method":"PUT",
  "url":"/api/multicast-groups/0663aff7-3223-4874-ad6a-b306c63a38e7",
  "body":{ //Body is blank if success, failure return code see Appendix
  }
}

```

Request Parameters

Name	Type & Range	Required	Description
name	string 128	Yes	Name is unique
mcAddr	string 8(HEX)	Yes	Multicast address
mcNwkSKey	string 32(HEX)	Yes	Multicast NetworkSKey
mcAppSKey	string 32(HEX)	Yes	Multicast ApplicationSKey
fCnt	Int 0-4294967295	Yes	Frame-counter validation
groupType	string "CLASS_B"/"CLASS_C"	Yes	The device type should be class B or class C
dr	int	Yes	See details on Appendix
frequency	int	Yes	See details on Appendix
pingSlotPeriod	32/64/128/256/512/1024/2048/4096	Yes	Class B device only, every option matches 1/2/4/8/16/32/64/128 seconds

5. Payload Codec

5.1 Create a Custom Payload Codec

Method: POST

URL: /api/payloadcodecs

Request Example:

```
{
  "type": "ns-api",
  "method": "POST",
  "url": "/api/payloadcodec",
  "body": {
    "name": " ",
    "description": "",
    "templateID": 0,
    "encoderScript": "test",
    "decoderScript": "test",
    "testEnabled": false,
    "fPort": 85,
    "codecJson": ""
  }
}
```

Response Example

```
{
  "id": "1",
  "gatewayEUI": "0242ACFFFE160007",
  "method": "POST",
  "url": "/api/payloadcodecs",
  "body": {
    "id": "285", //Payload codec ID
    "error": "",
    "code": 200 //Return 200 if success, failure return code see Appendix
  }
}
```

Request Parameters

Name	Type & Range	Default	Required	Description
------	--------------	---------	----------	-------------

name	string	-	Yes	Payload codec name
description	string	-	No	
templateID	int	0	No	The template ID of the payload codec, 0=None
encoderScript	string	-	No	Encoder content
decoderScript	string	-	No	Decoder content
testEnabled	bool	-	No	Whether to enable test
fPort	int	-	No	
codecJson	string	-	No	Object mapping function (JSON)

5.2 Delete a Custom Payload Codec

Before updating a payload codec, it is suggested to enquire this codec ID first.

Method: DELETE

URL: /api/payloadcodecs/{id}

Request Example

```
{
  "type": "ns-api",
  "method": "DELETE",
  "url": "/api/payloadcodecs/285",
}
```

Response Example

```
{
  "id": "1",
  "method": "DELETE",
  "url": "/api/payloadcodecs/285",
  "body": {
    "code": 200,
    "error": "" //Body is blank if success, failure return code see Appendix
  }
}
```

Request Parameters

Parameter	Type	Required	Description
id	Integer	Yes	Payload codec ID to delete

5.3 Enquire Payload Codec

Enquire All Information

Method: GET

URL: /api/payloadcodecs/?type=&search=&limit=&offset=

Request Example:

```
{
  "type": "ns-api",
  "id": "1",
  "method": "GET",
  "url": "/api/payloadcodecs?limit=10&offset=0&type=custom"
}
```

Response Example

```
{
  "id": "1",
  "gatewayEUI": "0242ACFFFE160007",
  "method": "GET",
  "url": "/api/payloadcodecs?limit=10/offset=0/type=custom",
  "body": {
    "totalCount": "1",
    "result": [
      {
        "id": "285",
        "name": "test",
        "description": "",
        "templateID": "0",
        "devEUIPrefix": "",
        "encoderScript": "test",
        "decoderScript": "test",
        "testEnabled": false,
        "fPort": 1
      }
    ]
  }
}
```

Request Parameters

Name	Type & Range	Default	Required	Description
type	default, custom	default	No	Default: inbuilt payload codec library Custom: custom payload codec
search	string	-	No	Blank means searching for all payload codec
limit	int	9999	No	Max amount of queries
offset	int	0	No	Enquire from which payload codec

Response Parameters

Name	Type	Description
totalCount	int	The amount of enquiry
result	array	Payload codec content
name	string	Payload codec name
description	string	
templateID	int	The template ID used in this custom payload codec
devEUIPrefix	string	
encoderScript	string	Encoder content
decoderScript	int	Decoder content
testEnabled	bool	
fPort	int	fPort in test

Enquire Codec ID and Name

Method: GET

URL: /api/payloadcodecs-short/?type=&search=&limit=&offset=

Request Example:

```
{
  "type": "ns-api",
  "id": "1",
  "method": "GET",
  "url": "/api/payloadcodecs-short?limit=10&offset=0&type=custom"
}
```

Response Example

```
{
  "id": "1",
  "gatewayEUI": "0242ACFFFE160007",
```

```

"method": "GET",
"url": "/api/payloadcodecs?limit=10/offset=0/type=custom",
"body": {
  "totalCount": "1",
  "result": [
    {
      "id": "285",
      "name": "test"
    }
  ]
}

```

Request Parameters

Name	Type & Range	Default	Required	Description
type	default, custom	default	No	Default: inbuilt payload codec library Custom: custom payload codec
search	string	-	No	Blank means searching for all payload codec
limit	int	9999	No	Max amount of queries
offset	int	0	No	Enquire from which payload codec

Response Parameters

Name	Type	Description
totalCount	int	The amount of enquiry
result	array	Payload codec content
name	string	Payload codec name
templateID	int	The template ID used in this custom payload codec

5.4 Update a Custom Payload Codec

Before updating a payload codec, it is suggested to enquire this codec ID first.

Method: PUT

URL: /api/payloadcodecs/{id}

Request Example:

```

{
  "type": "ns-api",
  "method": "PUT",
  "url": "/api/payloadcodec/285",

```

```

"body": {
  "name": " ",
  "description": "",
  "templateID": 0,
  "encoderScript": "test",
  "decoderScript": "test",
  "testEnabled": false,
  "fPort": 85,
  "codecJson": ""
}
}

```

Response Example

```

{
  "id": "1",
  "gatewayEUI": "0242ACFFFE160007",
  "method": "PUT",
  "url": "/api/payloadcodecs/{id}",
  "body": {
    "error": "",
    "code": 200 //Return 200 if success, failure return code see Appendix
  }
}

```

Request Parameters

Name	Type & Range	Required	Description
name	string	Yes	Payload codec name
description	string	No	
templateID	int	No	The template ID of the payload codec, 0=None
encoderScript	string	No	Encoder content
decoderScript	string	No	Decoder content
testEnabled	bool	No	Whether to enable test
fPort	int	No	
codecJson	string	No	Object mapping function (JSON)

6. FUOTA

6.1 Add FUOTA Task

Method: POST

URL: /api/fuota/task

Request Example:

Add a local Firmware Task:

```
{
  "type": "ns-api",
  "id": "1",
  "method": "POST",
  "url": "/api/fuota/task",
  "body": {
    "fuotaTask": {
      "name": "Test",
      "startedAt": "2025-04-15T00:50:00.000Z",
      "description": "test",
      "deveui": [
        "24e1247151234568",
        "24e124715123456b"
      ],
      "firmwareInfo": {
        "fileContent": "aaaaaaaaaaaaaaaaaaaaaaaaaaaa",
        "firmwareName": "WT101.0000.0100.0101.bin"
      },
      "isOfficialFirmware": false,
      "fragmentInfo": {
        "fragmentSize": 88,
        "fragmentInterval": 5000,
        "fragmentRedundancy": 30
      },
      "tmpMcInfo": {
        "dr": 3,
        "frequency": 505300000
      }
    }
  }
}
```

Add an Official Firmware Task:

```
{
```

```
"type": "ns-api",
"id": "1",
"method": "POST",
"url": "/api/fuota/task",
"body": {
  "fuotaTask": {
    "name": "test",
    "startedAt": "2025-04-15T00:26:00.000Z",
    "description": "test",
    "deveui": [
      "24e1247151234569",
      "24e124715123456a"
    ],
    "officialFirmwareInfo": {
      "id": "1888828394920153089",
      "model": "CT303",
      "name": "CT303 v1.4",
      "firmwareVersion": "v1.4",
      "hardwareVersion": "v1.0",
      "supportMinHardwareVersion": "v1.0",
      "supportMinFirmwareVersion": "v1.3",
      "url":
"https://milesight-msc-cn-test-new.s3.cn-north-1.amazonaws.com.cn/firmware/system/280
137a5-27d1-4c45-981e-96cf932ed5b1-1739166276.bin",
      "md5": "8f5c6beaf3ac56d829b178203fa9d610",
      "crc32": "d67cf42e",
      "size": "182581",
      "frequencyBands": [
        "ALL"
      ],
      "firmwareNotesCn": "",
      "firmwareNotesEn": ""
    },
    "isOfficialFirmware": true,
    "fragmentInfo": {
      "fragmentSize": 88,
      "fragmentInterval": 5000,
      "fragmentRedundancy": 30
    },
    "tmpMcInfo": {
      "dr": 3,
      "frequency": 505300000
    }
  }
}
```

```
}
}
```

Response Example:

```
{
  "id": "1",
  "method": "POST",
  "url": "/api/fuota/tasks",
  "body": {
    "id": 1
  }
  //Return task ID if success, failure return code see 6.11
}
```

Request Parameters

Parameter	Type	Required	Description
fuotaTask	Object[]	Yes	FUOTA task information
name	String	Yes	Task name, length limit: 127
startedAt	String	Yes	The time to start this task
description	String	No	Task description
deveui	String[]	Yes	Device EUI list
firmwareInfo	Object[]	Yes	Firmware information
firmwareName	String	Yes	Firmware name
description	String	No	
fileContent	String	Yes	Firmware content (base64)
officialFirmwareUrl	String	No	Official firmware URL
fragmentInfo	Object[]	Yes	Firmware fragment info
fragmentSize	Integer	yes	Fragment size, range: 1-250, unit: byte
fragmentInterval	Integer	yes	Fragment interval, range: 1000-10000, unit: ms
fragmentRedundancy	Integer	yes	Fragment redundancy, range: 0-100, unit:%
tmpMcInfo	Object[]	Yes	Temperary multicast info
groupType	Integer	yes	0: class C
dr	Integer	yes	Datarate, See details on Appendix
frequency	Integer	yes	Downlink frequency, unit: Hz See details on Appendix
isOfficialFirmware	bool	No	Whether is official firmware
officialFirmwarInfo	Object[]	No	Get these info from API 6.10
id	String	Yes	Firmware ID
model	String	Yes	Product model

name	String	Yes	Firmware name
firmwareVersion	String	Yes	Firmware version
hardwareVersion	String	Yes	Hardware version
supportMinHardwareVersion	String	Yes	Supported min hardware version
supportMinFirmwareVersion	String	Yes	Supported min firmware version
url	String	Yes	Download url
md5	String	Yes	
crc32	String	Yes	
size	String	Yes	Firmware size
frequencyBands	String[]	Yes	Supported frequency
firmwareNotesCn	String	Yes	English note
firmwareNotesEn	String	Yes	Chinese note

6.2 Get FUOTA Task List

Method: GET

URL: /api/fuota/task

Request Example:

```
{
  "type": "ns-api",
  "id": "1",
  "method": "GET",
  "url": "/api/fuota/task?limit=10&offset=0"
}
```

Response Example:

```
{
  "id": 1,
  "method": "GET",
  "url": "/api/fuota/task",
  "body": {
    "total": 1,
    "tasks": [
      {
        "id": 184,
        "name": "test",
        "description": "test",
        "status": 0,
        "startedAt": "2025-04-15T01:13:00+01:00",
        "stoppedAt": "",
        "createdAt": "2025-04-15T07:17:40+01:00",
      }
    ]
  }
}
```

```
"updatedAt": "2025-04-15T07:17:40+01:00",
"firmwareName": "CT305 v1.4",
"doneDevices": 0,
"totalDevices": 2,
"deveui": [
  "24e1247151234568",
  "24e1247151234569"
],
"firmwareInfo": {
  "firmwareName": "CT305 v1.4",
  "description": "",
  "fileContent": "",
  "productModel": "CT305",
  "firmwareVersion": "v1.4",
  "supportHardwareVersion": "v1.0",
  "supportFirmwareVersion": "v1.3",
  "officialFirmwareUrl": ""
},
"fragmentInfo": {
  "fragmentSize": 88,
  "fragmentInterval": 5000,
  "fragmentRedundancy": 30
},
"tmpMcInfo": {
  "sessionTimeDelay": 0,
  "sessionTimeOut": 0,
  "status": 0,
  "groupType": 0,
  "dr": 3,
  "frequency": 505300000
},
"officialFirmwareInfo": {
  "id": "",
  "model": "CT305",
  "name": "CT305 v1.4",
  "firmwareVersion": "v1.4",
  "hardwareVersion": "v1.0",
  "supportMinHardwareVersion": "v1.0",
  "supportMinFirmwareVersion": "v1.3",
  "url":
  "https://milesight-msc-cn.com.cn/firmware/system/280137a5-27d1-4c45-981e-96cf932ed5
  b1-1739166276.bin",
  "md5": "",
  "crc32": "d67cf42e",
```

```

        "size": "0",
        "frequencyBands": [],
        "firmwareNotesCn": "",
        "firmwareNotesEn": ""
    },
    "isOfficialFirmware": true
}
]
}
}

```

Request Parameters

Parameter	Type	Required	Description
limit	Integer	No	Max number of every page.
offset	Integer	No	Offset in the result-set (for pagination).
search	String	No	keyword

Response Parameters

Parameter	Type	Description
total	Integer	Total number of tasks
tasks	Array[]	Every task info
id	Integer	Task ID
name	String	Task name
description	String	Task description
status	Integer	0: pending, 1: waiting, 2: executing, 3: upgrade success, 4: upgrade failed
startedAt	String	The time to start this task
stoppedAt	String	The time to stop this task
createdAt	String	The time to create this task
updatedAt	String	The time to complete this task
firmwareName	String	Upgraded firmware name
doneDevices	Integer	The device number to complete the upgrade
totalDevices	Integer	Total device number to upgrade the firmware
deveui	String[]	Device EUI list
firmwareInfo	Object	Firmware information
firmwareName	String	Firmware name
description	String	Firmware description
fileContent	String	Firmware content (base64)
productModel	String	Product model
firmwareVersion	String	Firmware version
supportHardwareVersion	String	Supported hardware version
supportFirmwareVersion	String	Supported firmware version
officialFirmwareUrl	String	Official firmware URL

fragmentInfo	Object	Firmware fragment info
fragmentSize	Integer	Fragment size, unit: byte
fragmentInterval	Integer	Fragment interval,unit: ms
fragmentRedundancy	Integer	Fragment redundancy, unit:%
tmpMcInfo	Object	Temporary multicast info
sessionTimeDelay	Integer	
sessionTimeOut	Integer	
status	Integer	
groupType	Integer	0: class C
dr	Integer	Datarate
frequency	Integer	Downlink frequency, unit: Hz
isOfficialFirmware	Bool	Whether is official firmware
officialFirmwareInfo	Object	Official firmware info
id	String	Firmware ID
model	String	Product model
name	String	Firmware name
firmwareVersion	String	Firmware version
hardwareVersion	String	Hardware version
supportMinHardwareVersion	String	Supported min hardware version
supportMinFirmwareVersion	String	Supported min firmware version
url	String	Download url
md5	String	
crc32	String	
size	String	Firmware size
frequencyBands	String[]	Supported frequency
firmwareNotesCn	String	English note
firmwareNotesEn	String	Chinese note

6.3 Update FUOTA Task

Method: PUT

URL: /api/fuota/task

Request Example:

Update a local Firmware Task:

```
{
  "type": "ns-api",
  "id": "1",
  "method": "PUT",
```

```
"url": "/api/fuota/task",
"body": {
  "fuotaTask": {
    "id": 184,
    "name": "Test",
    "startedAt": "2025-04-15T00:50:00.000Z",
    "description": "test",
    "deveui": [
      "24e1247151234568",
      "24e124715123456b"
    ],
    "firmwareInfo": {
      "fileContent": "aaaaaaaaaaaaaaaaaaaaaaaaaaaa",
      "firmwareName": "WT101.0000.0100.0101.bin"
    },
    "isOfficialFirmware": false,
    "fragmentInfo": {
      "fragmentSize": 88,
      "fragmentInterval": 5000,
      "fragmentRedundancy": 30
    },
    "tmpMcInfo": {
      "dr": 3,
      "frequency": 505300000
    }
  }
}
}
```

Update an Official Firmware Task:

```
{
  "type": "ns-api",
  "id": "1",
  "method": "PUT",
  "url": "/api/fuota/task",
  "body": {
    "fuotaTask": {
      "id": 184,
      "name": "test",
      "startedAt": "2025-04-15T00:26:00.000Z",
      "description": "test",
      "deveui": [
        "24e1247151234569",
        "24e124715123456a"
      ]
    }
  }
}
```

```

    ],
    "officialFirmwareInfo": {
      "id": "1888828394920153089",
      "model": "CT303",
      "name": "CT303 v1.4",
      "firmwareVersion": "v1.4",
      "hardwareVersion": "v1.0",
      "supportMinHardwareVersion": "v1.0",
      "supportMinFirmwareVersion": "v1.3",
      "url":
"https://milesight-msc-cn-test-new.s3.cn-north-1.amazonaws.com.cn/firmware/system/280
137a5-27d1-4c45-981e-96cf932ed5b1-1739166276.bin",
      "md5": "8f5c6beaf3ac56d829b178203fa9d610",
      "crc32": "d67cf42e",
      "size": "182581",
      "frequencyBands": [
        "ALL"
      ],
      "firmwareNotesCn": "",
      "firmwareNotesEn": ""
    },
    "isOfficialFirmware": true,
    "fragmentInfo": {
      "fragmentSize": 88,
      "fragmentInterval": 5000,
      "fragmentRedundancy": 30
    },
    "tmpMcInfo": {
      "dr": 3,
      "frequency": 505300000
    }
  }
}
}

```

Response Example:

```

{
  "id": "1",
  "method": "PUT",
  "url": "/api/fuota/task",
  "body": { //Return 200 if success, failure return code see 6.11
    "code": 200,
    "error": ""
  }
}

```

}

Request Parameters

Parameter	Type	Required	Description
fuotaTask	Object[]	Yes	FUOTA task information
id	Integer	Yes	Task ID, this can be searched by API 6.2
name	String	Yes	Task name, length limit: 127
startedAt	String	Yes	The time to start this task
description	String	No	Task description
deveui	String[]	Yes	Device EUI list
firmwareInfo	Object[]	Yes	Firmware information
firmwareName	String	Yes	Firmware name
description	String	No	
fileContent	String	Yes	Firmware content (base64)
officialFirmwareUrl	String	No	Official firmware URL
fragmentInfo	Object[]	Yes	Firmware fragment info
fragmentSize	Integer	yes	Fragment size, range: 1-250, unit: byte
fragmentInterval	Integer	yes	Fragment interval, range: 1000-10000, unit: ms
fragmentRedundancy	Integer	yes	Fragment redundancy, range: 0-100, unit:%
tmpMcInfo	Object[]	Yes	Temperary multicast info
groupType	Integer	yes	0: class C
dr	Integer	yes	Datarate, refer to Default RX2/PingSlot Settings
frequency	Integer	yes	Downlink frequency, unit: Hz refer to Default RX2/PingSlot Settings
isOfficialFirmware	bool	No	Whether is official firmware
officialFirmwarInfo	Object[]	No	Get these info from API 12.10
id	String	Yes	Firmware ID
model	String	Yes	Product model
name	String	Yes	Firmware name
firmwareVersion	String	Yes	Firmware version
hardwareVersion	String	Yes	Hardware version
supportMinHardwareVersion	String	Yes	Supported min hardware version
supportMinFirmwareVersion	String	Yes	Supported min firmware version
url	String	Yes	Download url
md5	String	Yes	
crc32	String	Yes	

size	String	Yes	Firmware size
frequencyBands	String[]	Yes	Supported frequency
firmwareNotesCn	String	Yes	English note
firmwareNotesEn	String	Yes	Chinese note

6.4 Delete FUOTA Task

Method: POST

URL: /api/fuota/task/delete

Request Example:

```
{
  "type": "ns-api",
  "id": "1",
  "method": "POST",
  "url": "/api/fuota/task/delete",
  "body": {
    "ids": [1, 2, 3]
  }
}
```

Response Example:

```
{
  "id": "1",
  "method": "POST",
  "url": "/api/fuota/task/delete",
  "body": { //Return 200 if success, failure return code see 6.11
    "code": 200,
    "error": ""
  }
}
```

Request Parameters

Parameter	Type	Required	Description
ids	Integer[]	Yes	Task IDs to delete

6.5 Retry FUOTA Task

Method: POST

URL: /api/fuota/task/retry

Request Example:

```
{
  "type": "ns-api",
  "id": "1",
  "method": "POST",
  "url": "/api/fuota/task/retry",
  "body": {
    "ids": [1, 2, 3]
  }
}
```

Response Example:

```
{
  "id": "1",
  "method": "POST",
  "url": "/api/fuota/task/retry",
  "body": { //Return 200 if success, failure return code see 6.11
    "code": 200,
    "error": ""
  }
}
```

Request Parameters

Parameter	Type	Required	Description
ids	Integer[]	Yes	Task IDs to retry

6.6 Get Payload Size of Datarate

Method: GET

URL: /api/fuota/task/payloadsize

Request Example:

```
{
  "type": "ns-api",
  "id": "1",
  "method": "GET",
  "url": "/api/fuota/task/payloadsize"
}
```

Response Example:

```
{
  "id": "1",
```

```
"method": "GET",
"url": "/api/fuota/task/payloadsize",
"body": {
  "maxPayloadSizeMap": [
    {
      "dr": 0,
      "maxPayloadSize": 46
    },
    {
      "dr": 1,
      "maxPayloadSize": 46
    }
  ],
  {
    "dr": 2,
    "maxPayloadSize": 46
  }
  {
    "dr": 3,
    "maxPayloadSize": 110
  }
  {
    "dr": 4,
    "maxPayloadSize": 237
  }
  {
    "dr": 5,
    "maxPayloadSize": 237
  }
  ]
}
```

Request Parameters

No

Response Parameters

Parameter	Type	Description
maxPayloadSizeMap	Array	
dr	UInteger	datarate
maxPayloadSize	UInteger	Max payload size

6.7 Get Device List from FUOTA Task

Method: GET

URL: /api/fuota/devices

Request Example:

```
{
  "type": "ns-api",
  "id": "1",
  "method": "GET",
  "url": "/api/fuota/devices?taskId=1&limit=10&offset=0"
}
```

Response Example:

```
{
  "id": "1",
  "method": "GET",
  "url": "/api/fuota/devices",
  "body": {
    "total": 2,
    "devices": [
      {
        "devEui": "24e1247151234568",
        "name": "WT201-1",
        "profileId": "a98f2ea4-b4d8-42a4-bf0c-5dbb6e4617ff",
        "profileName": "ClassC-OTAA",
        "hardwareVersion": "",
        "firmwareVersion": "",
        "fragmentSessionStatus": 0,
        "multicastSessionStatus": 0,
        "status": 0,
        "productModel": "WT201",
        "taskId": 183
      },
      {
        "devEui": "24e1247151234569",
        "name": "WT201-2",
        "profileId": "a98f2ea4-b4d8-42a4-bf0c-5dbb6e4617ff",
        "profileName": "ClassC-OTAA",
        "hardwareVersion": "",
        "firmwareVersion": "",
        "fragmentSessionStatus": 0,
        "multicastSessionStatus": 0,
        "status": 0,

```

```

        "productModel": "WT201",
        "taskId": 184
    }
]
}
}

```

Request Parameters

Parameter	Type	Required	Description
taskId	Integer	Yes	The task ID to search devices
limit	Integer	No	Max number of every page.
offset	Integer	No	Offset in the result-set (for pagination).
search	String	No	keyword

Response Parameters

Parameter	Type	Description
total	Integer	Total number of devices in this task
devices	Array[]	Every device info in this task
devEui	String	Device EUI
name	String	Device name
profileId	String	Profile ID
profileName	String	Profile name
hardwareVersion	String	Supported hardware version
firmwareVersion	String	Supported firmware version
fragmentSessionStatus	Integer	See Fragment Session Status
multicastSessionStatus	Integer	See Multicast Session Status
status	Integer	Device status
productModel	String	Product model of this device
taskId	Integer	Task ID which the device belongs to

6.8 Get Device List from Firmware Info

Method: POST

URL: /api/fuota/devices/firmware

Request Example:

Get device list from a local Firmware info:

```

{
  "type": "ns-api",
  "id": "1",
  "method": "POST",
  "url": "/api/fuota/devices/firmware",
  "body": {

```

```

    "firmwareName": "test_firmware",
    "fileContent":
    "d2e1z6LXgt3N7UqWllpkKMnlqBfH4VQgcl74+5cu0AKfdp5r9BHrWBCMyOSpi0Ekn3aea/QR6
    1gQjMjkq.....",
    "limit": 10,
    "offset": 0,
    "taskId": 0,
    "search": ""
  }
}

```

Get device list from an official Firmware info:

```

{
  "type": "ns-api",
  "id": "1",
  "method": "POST",
  "url": "/api/fuota/devices/firmware",
  "body": {
    "limit": 10,
    "offset": 0,
    "taskId": 0,
    "search": "",
    "officialFirmwareInfo": {
      "0": true,
      "id": "1888828394920153089",
      "model": "CT303",
      "name": "CT303 v1.4",
      "firmwareVersion": "v1.4",
      "hardwareVersion": "v1.0",
      "supportMinHardwareVersion": "v1.0",
      "supportMinFirmwareVersion": "v1.3",
      "url":
      "https://milesight-msc-cn-test-new.s3.cn-north-1.amazonaws.com.cn/firmware/system/280
      137a5-27d1-4c45-981e-96cf932ed5b1-1739166276.bin",
      "md5": "8f5c6beaf3ac56d829b178203fa9d610",
      "crc32": "d67cf42e",
      "size": "182581",
      "frequencyBands": [
        "ALL"
      ],
      "firmwareNotesCn": "",
      "firmwareNotesEn": ""
    }
  }
}
}

```

Response Example:

```

{
  "id": "1",
  "method": "POST",
  "url": "/api/fuota/devices/firmware",
  "body": {
    "total": 1,
    "devices": [
      {
        "devEui": "24E124136A456465",
        "name": "test_device",
        "profileId": "profile1",
        "profileName": "ClassA",
        "hardwareVersion": "1.0.0",
        "firmwareVersion": "1.0.0",
        "fragmentSessionStatus": 0,
        "multicastSessionStatus": 0,
        "status": 0,
        "productModel": "model1",
        "taskId": 1
      }
    ]
  }
}

```

Request Parameters

Parameter	Type	Required	Description
firmwareName	String	Yes	Firmware name
fileContent	String	Yes	Firmware file content (base64)
limit	Integer	No	Max number of every page.
offset	Integer	No	Offset in the result-set (for pagination).
officialFirmwareInfo	Object	No	Official firmware info
taskId	Integer	No	Task ID
search	String	No	keyword

Response Parameters

Parameter	Type	Description
total	Integer	Total number of devices in this task
devices	Array[]	Every device info in this task
devEui	String	Device EUI
name	String	Device name
profileId	String	Profile ID

profileName	String	Profile name
hardwareVersion	String	Supported hardware version
firmwareVersion	String	Supported firmware version
fragmentSessionStatus	Integer	See Fragment Session Status
multicastSsessionStatus	Integer	See Multicast Session Status
status	Integer	Device status
productModel	String	Product model of this device
taskId	Integer	Task ID which the device belongs to

6.9 Get Official Firmware Model List

Method: GET

URL: /api/fuota/official/models

Request Example:

```
{
  "type": "ns-api",
  "id": "1",
  "method": "GET",
  "url": "/api/fuota/official/models?dateCenter=sg"
}
```

Response Example:

```
{
  "id": "1",
  "method": "GET",
  "url": "/api/fuota/official/models",
  "body": {
    "models": ["WT201", "WT101"]
  }
}
```

Request Parameters

Parameter	Type	Required	Description
dateCenter	string	Yes	eu, us, cn, sg

Response Parameters

Parameter	Type	Description
models	String[]	Model list

6.10 Get Official Firmware Info

Method: GET

URL: /api/fuota/official/firmware

Request Example:

```
{
  "type": "ns-api",
  "id": "1",
  "method": "GET",
  "url": "/api/fuota/official/firmware?model=model1&limit=10&offset=0"
}
```

Response Example:

```
{
  "id": "1",
  "method": "GET",
  "url": "/api/fuota/official/firmware",
  "body": {
    "total": 1,
    "data": [
      {
        "id": "1",
        "model": "model1",
        "name": "test_firmware",
        "firmwareVersion": "1.0.0",
        "hardwareVersion": "1.0.0",
        "supportMinHardwareVersion": "1.0.0",
        "supportMinFirmwareVersion": "1.0.0",
        "url": "http://example.com/firmware",
        "md5": "md5_value",
        "crc32": "crc32_value",
        "size": 1024,
        "frequencyBands": ["CN470"],
        "firmwareNotesCn": "中文说明",
        "firmwareNotesEn": "English notes"
      }
    ]
  }
}
```

Request Parameters

Parameter	Type	Required	Description
model	string	Yes	Product model

limit	Integer	No	Max number of every page.
offset	Integer	No	Offset in the result-set (for pagination).
search	String	No	keyword

Response Parameters

Parameter	Type	Description
total	Integer	Total firmware amount
data	Array	Firmware list
id	String	Firmware ID
model	String	Product model
name	String	Firmware name
firmwareVersion	String	Firmware version
hardwareVersion	String	Hardware version
supportMinHardwareVersion	String	Supported min hardware version
supportMinFirmwareVersion	String	Supported min firmware version
url	String	Download url
md5	String	
crc32	String	
size	Integer	Firmware size
frequencyBands	String[]	Supported frequency
firmwareNotesCn	String	English note
firmwareNotesEn	String	Chinese note

6.11 Return Code List

Error Code

Code	Description
10310001	Not able to delete devices since it belongs to a FUOTA task
10310002	Not able to delete devices since they belong to FUOTA tasks
10310003	Task name is blank or too long
10310004	Task start time format invalid
10310005	Miss fragment info
10310006	Miss tmp_mc_info
10310007	Miss firmware info
10310008	Miss official firmware info
10310009	Miss custom firmware info
10310010	Fragment size invalid
10310011	Fragment interval invalid
10310012	Redundancy percent invalid
10310013	Over the maximum task amount
10310014	Not able to execute due to current task status
10310015	Failed to get official firmware information from server

Multicast Session Status

Code	Description
0	Multicast session has not started yet
1	Trying to set up temp. Multicast group
2	Temp. Multicast group is confirmed
3	Multicast session is ready
4	Multicast session is processing
5	Multicast session completes
6	Multicast group set up timeout: the device does not respond to the setting command from gateway
7	Multicast ID does not match
8	Multicast session request timeout: the device does not respond to the gateway
9	Multicast ID is not defined
10	Frequency error: The device does not support this frequency
11	Datarate error: The device does not support this datarate
12	Multicast ID does not match
13	Unknown error

Fragment Session Status

Code	Description
0	Fragment has not started yet
1	Trying to set up fragment session
2	Fragment session is ready
3	Fragment session is processing
4	Fragment session set up timeout: the device does not respond to the setting command from gateway
5	Fragment descriptor mismatch
6	Not supporting fragment session search
7	Low device memory
8	The device does not support fragment coding mode
9	Lack of fragments
10	Upgrade failed
11	Fragment session error
12	Fragment session complete
13	Upgrade complete
14	Upgrade timeout
15	Status report timeout: the device does not report status within the timeout
16	Unknown error

Appendix

Return Code List

Code	Description
200	Success
2	Unknown error
3	Parameter exceptions
5	Data not found
6	Already exists
9	Failed precondition
20	Parse json failed
21	Type or url not supported
22	Method not supported
23	Internal server error
24	Request timeout
25	Gateway EUI not matched

Default RX2/Ping Slot Settings

Channel Plan	RX2 Frequency/Hz	RX2 Datarate	Ping Slot Frequency/Hz	Ping Slot Datarate
CN470	Default: 505300000 Range: 470400000~509700000	Default:0 Range: 0: DR0(SF12,125kHz) 1: DR1(SF11,125kHz) 2: DR2(SF10,125kHz) 3: DR3(SF9,125kHz) 4: DR4(SF8,125kHz) 5: DR5(SF7,125kHz) 6: DR6(SF7,500KHz)	Default: 508300000 Range: 470400000~509700000	Default:2 Range: 0: DR0(SF12,125kHz) 1: DR1(SF11,125kHz) 2: DR2(SF10,125kHz) 3: DR3(SF9,125kHz) 4: DR4(SF8,125kHz) 5: DR5(SF7,125kHz) 6: DR6(SF7,500KHz)
EU868	Default: 869525000 Range: 863000000~870000000	Default: 0 Range: 0: DR0(SF12,125kHz) 1: DR1(SF11,125kHz) 2: DR2(SF10,125kHz) 3: DR3(SF9,125kHz) 4: DR4(SF8,125kHz) 5: DR5(SF7,125kHz) 6: DR6(SF7,250KHz)	Default: 869525000 Range: 863000000~870000000	Default: 3 Range: 0: DR0(SF12,125kHz) 1: DR1(SF11,125kHz) 2: DR2(SF10,125kHz) 3: DR3(SF9,125kHz) 4: DR4(SF8,125kHz) 5: DR5(SF7,125kHz) 6: DR6(SF7,250KHz)
IN865	Default: 866550000 Range: 863000000~870000000	Default: 2 Range: 0: DR0(SF12,125kHz) 1: DR1(SF11,125kHz) 2: DR2(SF10,125kHz)	Default: 866550000 Range: 863000000~870000000	Default: 4 Range: 0: DR0(SF12,125kHz) 1: DR1(SF11,125kHz) 2: DR2(SF10,125kHz)

		3: DR3(SF9,125kHz) 4: DR4(SF8,125kHz) 5: DR5(SF7,125kHz)		3: DR3(SF9,125kHz) 4: DR4(SF8,125kHz) 5: DR5(SF7,125kHz)
RU864	Default: 869100000 Range: 864000000~870000000	Default: 0 Range: 0: DR0(SF12,125kHz) 1: DR1(SF11,125kHz) 2: DR2(SF10,125kHz) 3: DR3(SF9,125kHz) 4: DR4(SF8,125kHz) 5: DR5(SF7,125kHz) 6: DR6(SF7,250KHz)	Default: 868900000 Range: 864000000~870000000	Default: 3 Range: 0: DR0(SF12,125kHz) 1: DR1(SF11,125kHz) 2: DR2(SF10,125kHz) 3: DR3(SF9,125kHz) 4: DR4(SF8,125kHz) 5: DR5(SF7,125kHz) 6: DR6(SF7,250KHz)
KR920	Default: 921900000 Range: 920900000~923300000	Default: 0 Range: 0: DR0(SF12,125kHz) 1: DR1(SF11,125kHz) 2: DR2(SF10,125kHz) 3: DR3(SF9,125kHz) 4: DR4(SF8,125kHz) 5: DR5(SF7,125kHz)	Default: 923100000 Range: 920900000~923300000	Default: 3 Range: 0: DR0(SF12,125kHz) 1: DR1(SF11,125kHz) 2: DR2(SF10,125kHz) 3: DR3(SF9,125kHz) 4: DR4(SF8,125kHz) 5: DR5(SF7,125kHz)
US915	Default: 923300000 Range: 923300000~927500000	Default: 8 Range: 0: DR0(SF10,125kHz) 1: DR1(SF9,125kHz) 2: DR2(SF8,125kHz) 3: DR3(SF7,125kHz) 4: DR4(SF8,500kHz) 8: DR8(SF12,500kHz) 9: DR9(SF11,500kHz) 10: DR10(SF10,500kHz) 11: DR11(SF9,500kHz) 12: DR12(SF8,500kHz) 13: DR13(SF7,500kHz)	Default: 923300000 Range: 923300000~927500000	Default: 8 Range: 0: DR0(SF10,125kHz) 1: DR1(SF9,125kHz) 2: DR2(SF8,125kHz) 3: DR3(SF7,125kHz) 4: DR4(SF8,500kHz) 8: DR8(SF12,500kHz) 9: DR9(SF11,500kHz) 10: DR10(SF10,500kHz) 11: DR11(SF9,500kHz) 12: DR12(SF8,500kHz) 13: DR13(SF7,500kHz)
AU915	Default: 923300000 Range: 923300000~927500000	Default: 8 Range: 0: DR0(SF10,125kHz) 1: DR1(SF9,125kHz) 2: DR2(SF8,125kHz) 3: DR3(SF7,125kHz) 4: DR4(SF8,500kHz) 8: DR8(SF12,500kHz) 9: DR9(SF11,500kHz) 10: DR10(SF10,500kHz)	Default: 923300000 Range: 923300000~927500000	Default: 8 Range: 0: DR0(SF10,125kHz) 1: DR1(SF9,125kHz) 2: DR2(SF8,125kHz) 3: DR3(SF7,125kHz) 4: DR4(SF8,500kHz) 8: DR8(SF12,500kHz) 9: DR9(SF11,500kHz) 10:

		11:DR11(SF9,500kHz) 12: DR12(SF8,500kHz) 13: DR13(SF7,500kHz)		DR10(SF10,500kHz) 11:DR11(SF9,500kHz) 12: DR12(SF8,500kHz) 13: DR13(SF7,500kHz)
AS923-1	Default: 923200000 Range: 915000000~92 8000000	Default: 2 Range: 0: DR0(SF12,125kHz) 1: DR1(SF11,125kHz) 2: DR2(SF10,125kHz) 3: DR3(SF9,125kHz) 4: DR4(SF8,125kHz) 5: DR5(SF7,125kHz) 6: DR6(SF7,250KHz)	Default: 923400000 Range: 915000000~92 8000000	Default: 3 Range: 0: DR0(SF12,125kHz) 1: DR1(SF11,125kHz) 2: DR2(SF10,125kHz) 3: DR3(SF9,125kHz) 4: DR4(SF8,125kHz) 5: DR5(SF7,125kHz) 6: DR6(SF7,250KHz)
AS923-2	Default: 921400000 Range: 915000000~92 8000000	Default: 2 Range: 0: DR0(SF12,125kHz) 1: DR1(SF11,125kHz) 2: DR2(SF10,125kHz) 3: DR3(SF9,125kHz) 4: DR4(SF8,125kHz) 5: DR5(SF7,125kHz) 6: DR6(SF7,250KHz)	Default: 921600000 Range: 915000000~92 8000000	Default: 2 Range: 0: DR0(SF12,125kHz) 1: DR1(SF11,125kHz) 2: DR2(SF10,125kHz) 3: DR3(SF9,125kHz) 4: DR4(SF8,125kHz) 5: DR5(SF7,125kHz) 6: DR6(SF7,250KHz)
AS923-3	Default: 916600000 Range: 915000000~92 8000000	Default: 2 Range: 0: DR0(SF12,125kHz) 1: DR1(SF11,125kHz) 2: DR2(SF10,125kHz) 3: DR3(SF9,125kHz) 4: DR4(SF8,125kHz) 5: DR5(SF7,125kHz) 6: DR6(SF7,250KHz)	Default: 916800000 Range: 915000000~92 8000000	Default: 2 Range: 0: DR0(SF12,125kHz) 1: DR1(SF11,125kHz) 2: DR2(SF10,125kHz) 3: DR3(SF9,125kHz) 4: DR4(SF8,125kHz) 5: DR5(SF7,125kHz) 6: DR6(SF7,250KHz)
AS923-4	Default: 917300000 Range: 915000000~92 8000000	Default: 2 Range: 0: DR0(SF12,125kHz) 1: DR1(SF11,125kHz) 2: DR2(SF10,125kHz) 3: DR3(SF9,125kHz) 4: DR4(SF8,125kHz) 5: DR5(SF7,125kHz) 6: DR6(SF7,250KHz)	Default: 917500000 Range: 915000000~92 8000000	Default: 2 Range: 0: DR0(SF12,125kHz) 1: DR1(SF11,125kHz) 2: DR2(SF10,125kHz) 3: DR3(SF9,125kHz) 4: DR4(SF8,125kHz) 5: DR5(SF7,125kHz) 6: DR6(SF7,250KHz)

-End-