

Getting started guide

Functionality

R718N1 series equipment is a current detection device of Netvox Class A type equipment based on LoRaWAN open protocol. It measures single-phase current through external current transformer. It is divided into:

R718N1 Wireless 1-Phase Current Meter with 1 x 30A CT Solid core

R718N13 Wireless 1-Phase Current Meter with 1 x 30A CT Split core

R718N17 Wireless 1-Phase Current Meter with 1 x 75A CT Split core

R718N115 Wireless 1-Phase Current Meter with 1 x 150A CT Split core

R718N125 Wireless 1-Phase Current Meter with 1 x 250A CT Split core

R718N163 Wireless 1-Phase Current Meter with 1 x 630A CT Split core

Install CLI for AWS IoT Things Graph

```
## Install AWS CLI
```

```
https://docs.aws.amazon.com/cli/latest/userguide/cli-chap-install.html
```

```
## Install preview Things Graph API models
```

```
https://docs.aws.amazon.com/cli/latest/reference/configure/add-model.html
```

```
aws configure add-model --service-name iotthingsgraph --service-model file://service-2.json
```

```
## Install jq
```

```
https://stedolan.github.io/jq/
```

```
## Verify preview model installed
```

```
aws iotthingsgraph map-property help
```

```
expected to see help output instead of "Invalid choice" error message
```

Find your desired device

1. Go to AWS device catalog page: <https://devices.amazonaws.com>
2. Locate your desired sensor.
3. For private beta, Things Graph is using API v1. For API v1, use the model file sensor_model.json (device manufacturer enters their model file name). For production, Things Graph will use API v2. For API v2, please use the S3 URL link that you see in the Device catalog page.

Using the device model

The following tests will show the different use cases and binary messages than be used with the model. You can use the binary test data to verify correct functionality of the model.

1. Test name: Report Data Command
 - a. Mapping used: map_R718N17_Uplink
 - b. Use case tested: Report Data
 - c. Payload format: port = 6

Bytes	1	1	1	Var(Fix=8 Bytes)
	Version	DeviceType	ReportType	NetvoxPayloadData

Version: 1 bytes – 0x01—the Version of NetvoxLoRaWAN Application Command Version

DeviceType: 1 byte – Device Type of Device

ReportType: 1 byte—the Presentation of the NetvoxPayloadData, according the devicetype

NetvoxPayloadData: Fixed bytes (Fixed = 8bytes)

Device	DeviceType	ReportType	NetvoxPayloadData			
R718N17	0x49	0x01	Battery (1Byte, unit:0.1V)	Current(2Bytes, Unit:1mA)	Multiplier(1Byte), the real current should convert with Current* Multiplier	Reserved (4Bytes, fixed 0x00)

- d. Input binary data: 01490124000A0100000000
(DeviceType: 0x49, ReportType: 0x01, Battery: 24_{hex} = 36_{dec}, Current:000A_{hex}=10_{dec}, Multiplier:0x01)
- e. API call (V1):

```
aws iotthingsgraph map-property \
  --region us-east-1 \
  --endpoint-url "https://iotthingsgraph.us-east-1.amazonaws.com" \
  --namespace-snapshot file:///path/to/model/json/file \
  --property-value "01490124000A0100000000" \
  --mapping-info '{"mappingId":"urn:tdm:us-east-1/000000000000/default:mapping:map_R718N17_Uplink","mappingDirection": "FORWARD", "contextProvider":{"json": "{\\"port\\":6}"}}'
```

- f. Expected results (V1)

```
{
  "propertyId": "Netvox_R718N17_Uplink/types/UplinkPort6Payload",
  "propertyValue": "{
    \"DeviceType\": \"R718N17\",
    \"Version\": 1,
    \"Battery\": 3.6,
    \"Multiplier\": 1,
    \"Current\": 10,
    \"ReportType\": 1
  }"
```

- 2. Test name: Set and read report configuration
 - a. Mapping used: map_R718N17_Uplink
 - b. Use case tested: Configure and read report parameters
 - c. Payload format: port = 7

Bytes	1	1	Var(Fix =9 Bytes)
	CmdID	DeviceType	NetvoxPayloadData

CmdID– 1 bytes

DeviceType– 1 byte – Device Type of Device

NetvoxPayloadData– var bytes (Max=9 bytes)

Description	CmdID	Device Type	NetvoxPayloadData			
Config ReportReq	0x01	0x49	MinTime (2bytes Unit:s)	MaxTime (2bytes Unit:s)	CurrentChange (2byte Unit:1mA)	Reserved (3 Bytes, Fixed 0x00)
Config ReportRsp	0x81		Status (0x00:success)	Reserved (8Bytes, Fixed 0x00)		
ReadConfig ReportReq	0x02		Reserved (9Bytes, Fixed 0x00)			
ReadConfig ReportRsp	0x82		MinTime (2bytes Unit:s)	MaxTime (2bytes Unit:s)	CurrentChange (2byte Unit:1mA)	Reserved (3 Bytes, Fixed 0x00)

d. Input binary data:

i. **Set Report Configuration**

MinTime = 5min(300s), MaxTime = 15min(900s), CurrentChange = 1mA,

Downlink: 0149012C0384000A000000 012C_{hex} = 300_{dec}, 0384_{hex} = 900_{dec}, 000A_{hex} = 10_{dec}

Response: 814900000000000000000000 (Configuration success)

814901000000000000000000 (Configuration failure)

ii. **Read Report Configuration**

Downlink: 024900000000000000000000

Response: 8249012C0384000A000000 (Current configuration)

e. API call (Set report configuration):

```
aws iotthingsgraph map-property \  
  --region us-east-1 \  
  --endpoint-url "https://iotthingsgraph.us-east-1.amazonaws.com" \  
  --namespace-snapshot file:///path/to/model/json/file \  
  --property-value "0149012C0384000A000000" \  
  --mapping-info '{"mappingId":"urn:tdm:us-east-1/000000000000/default:mapping:map_R718N17_Uplink","mappingDirection": "FORWARD",  
"contextProvider":{"json": {"\port\":"7"}}}'
```

f. Expected results

```
{  
  "propertyId":{"  
    "DeviceType":"Netvox_R718N17_Uplink/types/DeviceTypeEnum",  
    "CmdId":"Netvox_R718N17_Uplink/types/CmdIdEnum",  
    "Payload":"Netvox_R718N17_Uplink/types/ConfigureCmdPayload"  
  }},  
  "propertyValue":{"  
    "DeviceType":"R718N17",  
    "CmdId":"ConfigReportReq",  
    "Payload":{"  
      "MaxTime":900,  
      "MinTime":300,  
      "CurrentChange":10  
    }  
  }  
}
```

g. Expected results (input data: 8149000000000000000000)

```
{  
  "propertyId":{"  
    "DeviceType":"Netvox_R718N17_Uplink/types/DeviceTypeEnum",  
    "CmdId":"Netvox_R718N17_Uplink/types/CmdIdEnum",  
    "Payload":"Netvox_R718N17_Uplink/types/ConfigureCmdPayload"  
  }},  
  "propertyValue":{"  
    "DeviceType":"R718N17",  
    "CmdId":"ConfigReportRsp",  
    "Payload":{"  
      "Status":"Success"  
    }  
  }  
}
```

h. API call (Read report configuration):

```
aws iotthingsgraph map-property \  
  --region us-east-1 \  
  --endpoint-url "https://iotthingsgraph.us-east-1.amazonaws.com" \  
  --namespace-snapshot file:///path/to/model/json/file \  
  --property-value "02490000000000000000" \  
  --mapping-info '{"mappingId":"urn:tdm:us-east-1/000000000000/default:mapping:map_R718N17_Uplink","mappingDirection": "FORWARD",  
"contextProvider":{"json": {"\"port\":7}}}'
```

i. Expected results

```
{  
  "propertyId":{"  
    "DeviceType":"Netvox_R718N17_Uplink/types/DeviceTypeEnum",  
    "CmdId":"Netvox_R718N17_Uplink/types/CmdIdEnum"  
  }},  
  "propertyValue": "{  
    "DeviceType":"R718N17",  
    "CmdId":"ReadConfigReportReq"  
  }"  
}
```

j. Expected results (input data: 8249012C0384000A000000)

```
{  
  "propertyId":{"  
    "DeviceType":"Netvox_R718N17_Uplink/types/DeviceTypeEnum",  
    "CmdId":"Netvox_R718N17_Uplink/types/CmdIdEnum",  
    "Payload":"Netvox_R718N17_Uplink/types/ConfigureCmdPayload"  
  }},  
  "propertyValue":{"  
    "DeviceType":"R718N17",  
    "CmdId":"ReadConfigReportRsp",  
    "Payload":{"  
      "MaxTime":900,  
      "MinTime":300,  
      "CurrentChange":10  
    }  
  }  
}
```

Support

For questions on this model, please contact: support@netvox.com.tw