

# API JSON schema proposition

## Current data format

we can see here that the data format between the two following devices is not consistent, this is why we need to propose a new data format.

## Temperature, Humidity, Luminosity device example

Request : POST api.vngalaxy.vn/api/uplink

Bearer token : eyJhbGciOiJIUzI1NiIsInR5cCI6IkpXVCJ9.eyJkZXZlbnVkiOiI2MjdkMmVjOWNhZDgxN2EyIiwiaXBwSUQiOiIzIiwiaWF0Ijoi

```
{
  "err": 0,
  "msg": "Get uplink data successfully",
  "data": [
    {
      "_id": "64c09867600db3ad9ee288cd",
      "appID": "3",
      "devEUI": "627d2ec9cad817a2",
      "rxInfo": [
        {
          "gatewayID": "ac1f09fffe06fcf2",
          "time": "2023-07-26T03:51:42.832844Z",
          "rssi": -54,
          "loRaSNR": 10.5,
          "location": {
            "longitude": 108.15388,
            "latitude": 16.07513,
            "altitude": -33
          },
          "uplinkID": "0038a792-1e6b-4de1-b7df-7f44b8b07cff"
        },
        {
          "gatewayID": "ac1f09fffe00ab0a",
          "time": "2023-07-26T03:51:42.832844Z",
          "rssi": -109,
          "loRaSNR": -1,
          "location": {
            "longitude": 108.15341,
            "latitude": 16.07524,
            "altitude": 66
          },
          "uplinkID": "d09715cc-4e10-4bcb-8031-7f3035eb660a"
        },
        {
          "gatewayID": "a840411ef5b04150",
          "time": "2023-07-26T03:51:42.839438Z",
          "rssi": -48,
          "loRaSNR": 10,
          "location": {
            "longitude": 108.15205,
```



```

    {
      "gatewayID": "ac1f09fffe06fcf2",
      "time": "2023-07-26T04:13:24.805253Z",
      "rssi": -40,
      "loRaSNR": 8.3,
      "location": {
        "longitude": 108.15404,
        "latitude": 16.07518,
        "altitude": 7
      },
      "uplinkID": "0d62c1c5-919f-488e-9d82-6c7ec3d8866a"
    },
    {
      "gatewayID": "ac1f09fffe00ab0a",
      "time": "2023-07-26T04:13:24.805251Z",
      "rssi": -107,
      "loRaSNR": 3,
      "location": {
        "longitude": 108.15341,
        "latitude": 16.07524,
        "altitude": 66
      },
      "uplinkID": "9bee554d-fa98-46aa-a26b-7df943f94313"
    },
    {
      "gatewayID": "a840411ef5b04150",
      "time": "2023-07-26T04:13:24.809137Z",
      "rssi": -34,
      "loRaSNR": 9.8,
      "location": {
        "longitude": 108.15205,
        "latitude": 16.07482,
        "altitude": 10
      },
      "uplinkID": "5900146a-a3dd-4559-988f-220229e22b10"
    }
  ],
  "txInfo": {
    "frequency": 922700000,
    "loRaModulationInfo": {
      "bandwidth": 0,
      "spreadingFactor": 0,
      "codeRate": "String"
    }
  },
  "fCnt": 4591,
  "fPort": 1,
  "data": "Cw0N",
  "objectJSON": {
    "data": {
      "pm10_ug/m3": 13,
      "pm1_ug/m3": 11,

```

```

        "pm25_ug/m3": 13
      }
    },
    "devAddr": "String",
    "confirmUplink": true,
    "__v": 0
  }
]
}

```

## Proposition for new data format

Data we will input manually in our software `openhlab_config_gen` :

- deviceEUI
- JWT token
- deviceName (optional ?)
- group (or subgroups) ex : “building\_S/4th\_floor/room\_404”
- sensors
  - sensorType
  - unit

## JSON schema validation file

```

{
  "type": "object",
  "properties": {
    "err": {
      "type": "integer"
    },
    "msg": {
      "type": "string"
    },
    "data": {
      "type": "object",
      "properties": {
        "devEUI": {
          "type": "string"
        },
        "time": {
          "type": "string",
          "pattern": "^[0-9]{4}-[0-9]{2}-[0-9]{2}T[0-9]{2}:[0-9]{2}:[0-9]{2}(. [0-9]{1,9})?Z$"
        },
        "objectJSON": {
          "type": "object",
          "additionalProperties": {
            "type": "object",
            "properties": {
              "value": {
                "type": "number"
              }
            }
          }
        }
      }
    }
  }
}

```

```

        },
        "unit":{
            "type": "string"
        }
    },
    "required": [
        "value",
        "unit"
    ]
}

},
"required": [
    "devEUI",
    "time",
    "objectJSON"
]
}
},
"required": [
    "err",
    "msg",
    "data"
]
}

```

the new `time` value is a string representing the time when the device sent its data to the LoRa gateway. the `objectJSON` field is renamed to `sensors` and is now an object containing the data of the different sensors of the device.

### Example API response JSON

This is an example of the response of the API we would expect for Temperature, Humidity, Luminosity device

```

{
  "err":0,
  "msg":"Get uplink data successfully",
  "data":{
    "_id":"64c09867600db3ad9ee288cd",
    "appID":"3",
    "devEUI":"627d2ec9cad817a2",
    "time":"2023-07-26T03:51:42.832844Z",
    "rxInfo":[
      {
        "gatewayID":"ac1f09fffe06fcf2",
        "time":"2023-07-26T03:51:42.832844Z",
        "rssi":-54,
        "loRaSNR":10.5,
        "location":{
          "longitude":108.15388,

```

```

        "latitude":16.07513,
        "altitude":-33
    },
    "uplinkID":"0038a792-1e6b-4de1-b7df-7f44b8b07cff"
},
{
    "gatewayID":"ac1f09fffe00ab0a",
    "time":"2023-07-26T03:51:42.832844Z",
    "rssi":-109,
    "loRaSNR":-1,
    "location":{
        "longitude":108.15341,
        "latitude":16.07524,
        "altitude":66
    },
    "uplinkID":"d09715cc-4e10-4bcb-8031-7f3035eb660a"
},
{
    "gatewayID":"a840411ef5b04150",
    "time":"2023-07-26T03:51:42.839438Z",
    "rssi":-48,
    "loRaSNR":10,
    "location":{
        "longitude":108.15205,
        "latitude":16.07482,
        "altitude":10
    },
    "uplinkID":"d9d0dbfd-165b-4c5a-bc0a-c5768509069b"
}
],
"txInfo":{
    "frequency":923100000,
    "loRaModulationInfo":{
        "bandwidth":0,
        "spreadingFactor":0,
        "codeRate":"String"
    }
},
"fCnt":11001,
"fPort":1,
"data":"AWcBLAJoeAMCAU8EZQNh",
"objectJSON":{
    "Analog input":{
        "dataChannel":3,
        "value":3.35,
        "unit": "V"
    },
    "Humidity sensor":{
        "dataChannel":2,
        "value":60,
        "unit": "%"
    },
    "Illuminance sensor":{

```

```
    "dataChannel":4,  
    "value":865,  
    "unit": "lux"  
  },  
  "Temperature sensor":{  
    "dataChannel":1,  
    "value":30,  
    "unit": "°C"  
  }  
},  
"devAddr":"String",  
"confirmUplink":true,  
"__v":0  
}  
}
```

Note that the `data` field is now an object and not an array containing 1 object.