

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$"
        },
        "sensors": {
          "type": "object",
          "additionalProperties": {
            "type": "object",
            "properties": {
              "dataChannel": {
                "type": "number"
              }
            }
          }
        }
      }
    }
  }
}

```

```

        },
        "value": {
            "type": "number"
        }
    },
    "required": [
        "dataChannel",
        "value"
    ]
}

},
"required": [
    "devEUI",
    "time",
    "sensors"
]
}
},
"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",
"sensors":{
    "Analog input":{
        "dataChannel":3,
        "value":3.35
    },
    "Humidity sensor":{
        "dataChannel":2,
        "value":60
    },
    "Illuminance sensor":{
        "dataChannel":4,
        "value":865
    }
}

```

```
    },  
    "Temperature sensor":{  
      "dataChannel":1,  
      "value":30  
    }  
  },  
  "devAddr":"String",  
  "confirmUplink":true,  
  "__v":0  
}
```

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