

# LoRa Gateway HTTP Protocol - v1.2

## 1. Protocol Framework

Request:

```
{  
  "msgtype": 0, //Type to determine different data  
  "hw": "0406", //Hardware model",  
  "fw": "", //Firmware version (format: 0.0.0.0)",  
  "imei": "", //Uniquely identifies (those are IMEI, SN, ID)",  
  "data": "", //Data area",  
  "rtc": 181225235410, //Year, month, day, hour, minute, second  
  "sn": //Data serial number, -1 represents empty  
}
```

Response:

```
{  
  "sta": 0, //Status number, 0 represents normal; 1 represents wrong  
  "data": "", //Return data area",  
  "error": "" //If wrong, you can return the error details"  
}
```

## 2. Get Server Time (MsgType:1)

Request:

```
{  
  "msgtype": 1,  
  "hw": "0406" //Hardware mode",  
  "fw": //Firmware version (format: 0.0.0.0)",  
  "imei": //Uniquely identifies (those are IMEI, SN, ID)",  
  "sn":  
}
```

Example: {"msgtype":1,"hw":"0406","fw":"1.0.0.1","imei":"861234567891234","sn":1}

Response:

```
{  
  "sta": 0,  
  "data": {  
    "servertime": 20201012101516  
  },  
  "error": ""  
}
```

### 3. Standard Data Protocol (MsgType:3)

Request:

```
{
  "msgtype": 3,
  "hw": "0406", // "Hardware mode",
  "fw": "", // "Firmware version (format: 0.0.0.0)",
  "imei": "", // "Uniquely identifies (those are IMEI, SN, ID)",
  "data": {
    "mcc": 460, // Mobile country code
    "mnc": 1, // Mobile network coding
    "lac": "", // Area code
    "cell": "", // Base station code
    "alert": "AA", // Alert type, AA-normal data, 10-low voltage alarm, 60-external plug,
    61-external disconnect
    "gsm": {
      "csq": 10, // Signal strength
      "sta": "37", // bit5-Whether the http connection is established; bit4-Whether the gprs
      network is ok; bit3-Whether to roam
      // bit2-Whether the gsm network is ok; bit1-Whether the SIM card is detected;
      bit0-Whether to boot
    },
    "bat ": 3.6, // battery voltage
    "exvol ": 3.6, // External voltage
    "tag07": [
      {
        "id": "12345678", // Tag ID
        "sta": "00", // bit7-Whether low pressure; bit6-Whether temperature and humidity alarm
        "temp": -15, // Temperature. When the value does not exist or the value is -1000, it is empty
        "humi": 0.6, // Humidity. When the value does not exist or the value is -1000, it is empty
        "rsi": -65, // Signal strength. When the value does not exist or the value is -1000, it is empty
        "bat": 3.6, // Battery voltage. When the value does not exist or the value is -1000, it is empty
        "rtc": "181226201254" // rtc time-year, month, day, hour, minute, second
      }, {
        "id": 81234567,
        "sta": "00", // bit7-Whether low pressure; bit6-Whether temperature and humidity alarm
        "temp": 25.2,
        "humi": 0.5,
        "rsi": -61,
        "bat ": 3.1,
        "rtc": "181226201254" // rtc time-year, month, day, hour, minute, second
      }
    ]
  }
  "tag09": [
```

```

    {
      "id": "12345678", //Tag ID
      "sta": "00", //bit7-Whether low pressure; bit6-Whether temperature and humidity alarm
      "temp": -15, //Temperature. When the value does not exist or the value is -1000, it is empty
      "temp2": 0.6, //Temperature2. When the value does not exist or the value is -1000, it is
empty
      "rssi": -65, //Signal strength. When the value does not exist or the value is -1000, it is empty
      "bat": 3.6, //Battery voltage. When the value does not exist or the value is -1000, it is empty
      "rtc": "181226201254" //rtc time-year, month, day, hour, minute, second
    }, {
      "id": 81234567,
      "sta": 00, //bit7-Whether low pressure; bit6-Whether temperature and humidity alarm
      "temp": 25.2,
      "temp2": 0.5,
      "rssi": -61,
      "bat ": 3.1,
      "rtc": "181226201254" //rtc time-year, month, day, hour, minute, second
    }
  ]

  },
  "rtc": 181224122548,
  "sn": 1
}
Response:
{
  "sta": 0,
  "error": ""
}

```

**Example:**

```

{"msgtype":3,"hw":"0406","fw":"02.02.00.00","imei":"865473033618318","data":{"lac":"2793","cell":"0FA1","alert":"AA","gsm":{"csq":26,"sta":"37"},"bat":4.09,"exvol":11.88,"tag07":[{"id":"72180310","sta":"00","temp":-21.8,"humi":59,"rssi":-108,"bat":2.89,"rtc":"090101000637"}, {"id":"72170040","sta":"00","temp":22.1,"humi":67,"rssi":-111,"bat":3.67,"rtc":"090101000736"}]}, "rtc":"090101000737","sn":3}

```

4. Downward Command. When the server receives the data, if there is a downward command, it will bring the downward command in the reply.

Server downward format:

```

{
  "sta": 0, //Status number, 0 represents normal; 1 represents wrong
  "data": {
    "downcmd": "" //Downward command, such as*000000,008,0000001#
  }
}

```

```

    }, "error": "" //If wrong, you can return the error details"
  }
  LoRa Gateway reply format after receiving the downward command
  {
    "msgtype": 4, //Type to determine different data
    "hw": "0406", //Hardware mode",
    "fw": "", //Firmware version (format: 0.0.0.0)",
    "imei": "", //Uniquely identifies (those are IMEI, SN, ID)",
    "data": {
      "resdowncmd": {
        "cmd": "", //Received commands, such as*000000,008,0000001#
        "cmdtype": "", //Command type; set is to set command; read is to read
        command (reservation is not implemented yet)
        "sta": "", //Set the command execution result
        "par": "" //Read command result
      }
    },
  }
}

```

Example:

Downward:

```
{"sta":0,"data":{"downcmd":"*000000,008,0000001#"},"error":""}
```

Reply:

```
{"msgtype":4,"hw":"0406","fw":"02.02.00.00","imei":"866050033901164","data":{"resdowncmd":{"cmd":"*000000,008,0000001#","cmdtype":"set","sta":"OK"}}}
```

Downward:

```
{"sta":0,"data":{"downcmd":"*000000,008,00000011#"},"error":""}
```

Reply:

```
{"msgtype":4,"hw":"0406","fw":"02.02.00.00","imei":"866050033901164","data":{"resdowncmd":{"cmd":"*000000,008,00000011#","cmdtype":"set","sta":"Err"}}}
```

## 5. Machine Version Information (MsgType:5)

Request:

```

{
  "msgtype": 5,
  "hw": "0406" //Hardware mode",
  "fw": //Firmware version (format: 0.0.0.0)",
  "imei": //c",
  "data": {
    "gsmversion": ""
  }
}

```

Response:

```
{  
  "sta": 0,  
  "error": ""  
}
```

Example:

```
{"msgtype":5,"hw":"0406","fw":"02.02.00.00","imei":"865473033618318","data":{"gsmversion":  
"1418B05SIM800C24"}}
```