物联网接入平台

通用协议说明

(2021-03-06 v1.0)

### 概述

原则: 无状态 (每一个报文包含完整信息, 不需要依赖另一条报文)

格式: 使用JSON格式

协议: mqtt

方向: 双向并行通讯

保活: mqtt遗愿保活

重发: 原则上应用层不做ack，通过mqtt协议栈qos1来保障

报文的分割符:0x0d,0x0a (Windows下换行+回车) 报文内部不应该同时出现0x0d,0x0a

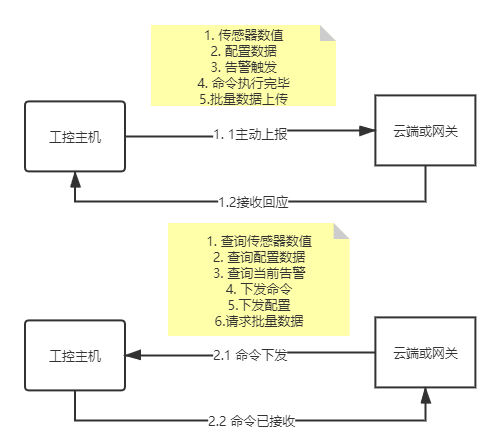
顺序传输.

数据主动上报场景:

|  |
| --- |
| 1.定时上报传感器及网关、终端工作状态和模式 |

云端下发命令场景:

|  |
| --- |
| 1. 控制方案 |



### 1数据上报和命令下发

**数据上报**

网关上报格式为 {cls=’’,sn=’’,ts=’’,key1=’’,key2=’’ ... keyn=’’}, 所有的key不能重复

cls消息类型 Report表示状态上报 Command表示下行控制

rpt 消息子类型分为

1. Login 网关登录 （Report）
2. GwState 网关状态 （Report）
3. NodeState 终端状态 （Report）
4. Config 自定义模式参数 （Report/ Command）
5. RfState 雨雾状态参数 （Report/ Command）
6. Mode 模式切换 （Report /Command）
7. Strategy策略时间设置 （Report /Command）
8. Query查询(Command)
9. Control

|  |  |  |  |
| --- | --- | --- | --- |
| key | Value | 类型 | 说明 |
| cls | 消息类型 | 字符串 | Report |
| sn | 序列号 | Uint32数值 | 唯一序列号 |
| ts | 时间戳 | Uin64数值 | 采集时间, 毫秒 |
| id | 设备编号 | Uint32数值 | 设备ID号 |
| rpt | 子类型 | 字符串 | 消息子类型 |
| data | 上报内容 | Json对象 | 由key和value对组成{},{} |

1. **登录**

Data:

1. 硬件全球唯一id（16位） 字符串
2. 软件版本号 字符串
3. 硬件版本号 字符串
4. …待扩展

{

"cls":"Report",

"sn":13451,

"ts":1590411960662,

"id":100002,

"rpt":" Login ",

"data":{

"uid":" 01234565789123456",

"software":" 1.0.0 ",,

"hardware":" 1.0.0",

}

}

1. **网关状态**

Data:

* 1. 经度 double
  2. 纬度 double
  3. 电压 uint16
  4. 能见度 uint16
  5. Devid uint32

{

"cls":"Report",

"sn":13451,

"ts":1590411960662,

"Id":100002,

"rpt":" GwState ",

"data":{

"long":120.3,

"lat":30.5,

"vol":220，

"vision"：1289，

"devid"：2483711

}

}

1. **终端状态**

Data:

1. 所属网关ID uint32
2. 电压 uint16
3. 电池电压 uint16

{

"cls":"Report",

"sn":13451,

"ts":1590411960662,

"Id":100002,

"rpt":" NodeState",

"data":{

"devid":1001,

"vol":200,

"svol":220，

}

}

**3.自定义配置（Report/Command）**

1. 车检器开关 字符串 on off
2. 灯配置（黄灯在预警模式下变还是不变，黄灯频率、占空比、亮度，红灯频率、占空比、亮度）uin32 double uint32
3. 尾迹模式（开关） 字符串
4. 尾迹长度 uint32
5. 预警时间 uint32
6. 尾迹预警时间 int32

{

"cls":"Report/Command",

"sn":13451,

"ts":1590411960662,

"Id":100002,

"rpt":" Config ",

"data":{

"cardetect":"on",

"tailmode":"on",

"taillenth":5,

"alarmtime":10,

"led":{

"change":1,

"redfreq":10,

"redduty":0.25,

"redlight":8,

"yellowfreq":10,

"yellowduty":0.25,

"yellowlight":8,

}

}

}

**4.能见度配置（Report/Command）**

data：

1. 视野 uint32 1代表大于1000米 2代表500-1000米 3代表250-500米 4代表低于250米
2. 时间 字符串 day/night
3. 达到阈值的灯配置 字符串

{

"cls":"Report/Command",

"sn":13451,

"ts":1590411960662,

"Id":100002,

"rpt":" RfState ",

"data":{

"vision":1,

"time":"day",

"led":{

"change":1,

"redfreq":10,

"redduty":0.25,

"redlightness":8,

"redfreq":10,

"redduty":0.25,

"redlightness":8,

}

}

}

**5．模式切换配置（Report/Command）**

data：mode 1 – 3自动工作模式 ，4 自定义工作模式 5 临时工作模式

rf on 降雨量因素开 off降雨量因素关闭

1. 模式类型：uint8

{

"cls":"Command/Report",

"sn":13451,

"ts":1590411960662,

"gwId":100002,

"rpt":" Mode ",

"data":{

"mode":1,

"rf":"on"

}

}

1. **策略配置（Report/Command）**

data：

1. 星历是否开启：字符串
2. 开时间：字符串
3. 关时间：字符串
4. 模式类型：int32

{

"cls":"Command/Report",

"sn":13451,

"ts":1590411960662,

"gwId":100002,

"rpt":" Strategy ",

"data":{

"eph"："on"

"online":"0900",

"offline":"1600"

}

}

1. **查询（Command）**

data：

1.查询类型 字符串

{

"cls":"Command",

"sn":13451,

"ts":1590411960662,

"gwId":100002,

"rpt":" Query ",

"data":{

"type":" GwState/ NodeState/ Config/ RfState/ Mode/ strategy",

}

}

1. **开关（Command）**

data：开关信号 字符串

{

"cls":"Command/Report",

"sn":13451,

"ts":1590411960662,

"gwId":100002,

"rpt":" SysControl ",

"data":{

"type":"on",

}

}

可能需要加一条数据 系统状态：雨量、能见度属性、当前工作状态，开关否等

{"cls":"CmdResp","sn":0,"ts":52045,"id":2147483649,"rpt":"RfState","data":{"vision":0,"time":"","led":{"change":0,"redfreq":0,"redduty":0,"redlight":0,"yellowfreq":0,"yellowduty":0,"yellowlight":0}}}

{"cls":"Command","sn":0,"ts":50546,"id":2147483649,"rpt":"Query","data":{"type":"RfState"}}

{"cls":"Command","sn":133,"ts":52595,"id":2147483649,"rpt":"Config","data":{"cardetect":"on","taillenth":3,"alarmtime":5,"led":{"change":1,"redfreq":1,"redduty":1,"redlight":1,"yellowfreq":1,"yellowduty":1,"yellowlight":1}}}

{"cls":"Command","sn":0,"ts":52045,"id":2147483649,"rpt":"RfState","data":{"vision":1,"time":"night","led":{"change":0,"redfreq":0,"redduty":0,"redlight":0,"yellowfreq":0,"yellowduty":0,"yellowlight":0}}}

{"cls":"Command","sn":0,"ts":50242,"id":2147483649,"rpt":"SysControl ","data":{"type":"off"}}