打造自己的 LoRaWAN 网关，进阶 3：设参运维

摘要：

运维 LoRaWAN 网关：重定向 server、设置频段和查看日志。

引言

如果您只关心：打造一个 LoRaWAN 网关，请参考《花一个小时，打造自己的 LoRaWAN 网关》https://blog.csdn.net/jiangjunjie_2005/article/details/79758720

如果您感兴趣：如何为 LoRaWAN 网关设置参数和运维诊断，那本文再适合不过了。尽管它需要一点儿 Linux 知识，然而，这是每个“有耐心”的人都可以掌握的。

1 重定向 server

编辑文件：vi packet_forwarder/lora_pkt_fwd/local_conf.json

（切记：修改行尾**保留“英文逗号(半角)”**！）

实例：重定向服务器为 xxxx.yyyy.com

```
{
   "gateway_conf": {
      "gateway_ID": "B827EBFFFE3D6B90",
      "server_address": " xxxx.yyyy.com",
      "serv_port_up": 1700,
      "serv_port_down": 1700,
      …….. …….. …….. …….. …….. ……..
   }
}
```

实例 1 重定向服务器到 lorawan.timeddd.com（锐米云服务器）

```
rime@lorawangw:~/packet_forwarder/lora_pkt_fwd $ cat ./local_conf.json
{
  "gateway_conf": {
    "gateway_ID": "B827EBFFFEA5A63C",
    "server_address": "lorawan.timeddd.com",
    "serv_port_up": 1700,
    "serv_port_down": 1700,
    "serv_enabled": true,
    "ref_latitude": 28.3,
    "ref_longitude": 112.9,
    "ref_altitude": 146,
    "contact_email": "support@rimelink.com",
    "description": "Rime LoraWAN Gateway for CN470"
  }
}
```

实例 2 重定向服务器到 gw01.rimecloud.com（锐米开放服务器）

```
rime@lorawangw:~/packet_forwarder/lora_pkt_fwd $ cat ./local_conf.json
{
  "gateway_conf": {
    "gateway_ID": "B827EBFFFEA5A63C",
    "server_address": "gw01.rimecloud.com",
    "serv_port_up": 1700,
    "serv_port_down": 1700,
    "serv_enabled": true,
    "ref_latitude": 28.3,
    "ref_longitude": 112.9,
    "ref_altitude": 146,
    "contact_email": "support@rimelink.com",
    "description": "Rime LoraWAN Gateway for CN470"
  }
}
```

2 设置频段

编辑文件：vi packet_forwarder/lora_pkt_fwd/global_conf.json

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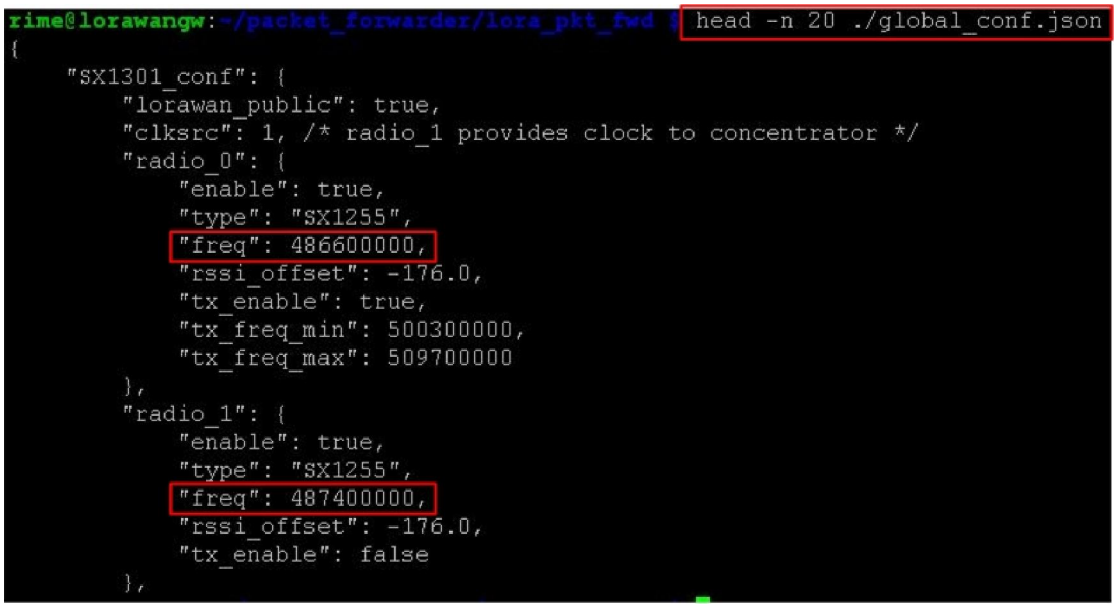
实例 1：设置 CN470-510 80-87 频段

```
{
    "SX1301_conf": {
        "lorawan_public": true,
        "clksrc": 1, /* radio_1 provides clock to concentrator */
        "radio_0": {
            "enable": true,
            "type": "SX1255",
            "freq": 486600000,
            ..................................................
        },
        "radio_1": {
            "enable": true,
            "type": "SX1255",
            "freq": 487400000,
            ..................................................
        },
```

图 2-1 查看 CN470-510 80-87 频段：head –n 20 ./global_conf.json



实例 2：设置 CN470-510 0-7 频段

```
{
    "SX1301_conf": {
        "lorawan_public": true,
        "clksrc": 1, /* radio_1 provides clock to concentrator */
        "radio_0": {
            "enable": true,
            "type": "SX1255",
            "freq": 470600000,
            .....................................................
        },
        "radio_1": {
            "enable": true,
            "type": "SX1255",
            "freq": 471400000,
            .....................................................
        },
```

图 2-2 查看 CN470-510 0-7 频段：head –n 20 ./global_conf.json

```
rime@lorawangw:~/packet_forwarder/lora_pkt_fwd $ head -n 20 ./global_conf.json
{
    "SX1301_conf": {
        "lorawan_public": true,
        "clksrc": 1, /* radio_1 provides clock to concentrator */
        "radio_0": {
            "enable": true,
            "type": "SX1255",
            "freq": 470600000,
            "rssi_offset": -176.0,
            "tx_enable": true,
            "tx_freq_min": 500300000,
            "tx_freq_max": 509700000
        },
        "radio_1": {
            "enable": true,
            "type": "SX1255",
            "freq": 471400000,
            "rssi_offset": -176.0,
            "tx_enable": false
        },
```

3 查看日志

LoRaWAN 网关的日志是一个宝库，它为诊断故障和管理 LoRaWAN 网络提供了便捷。日志文件一般存放在：/tmp 下；grep（正则表达式匹配）是搜索信息的利器。

3.1 启动网关

搜索日志：grep -B 40 "concentrator started" /tmp/start_gateway.sh.log

实例如下图：

① 中心频点（SX1255 x 2）分别为：486600000 和 487400000

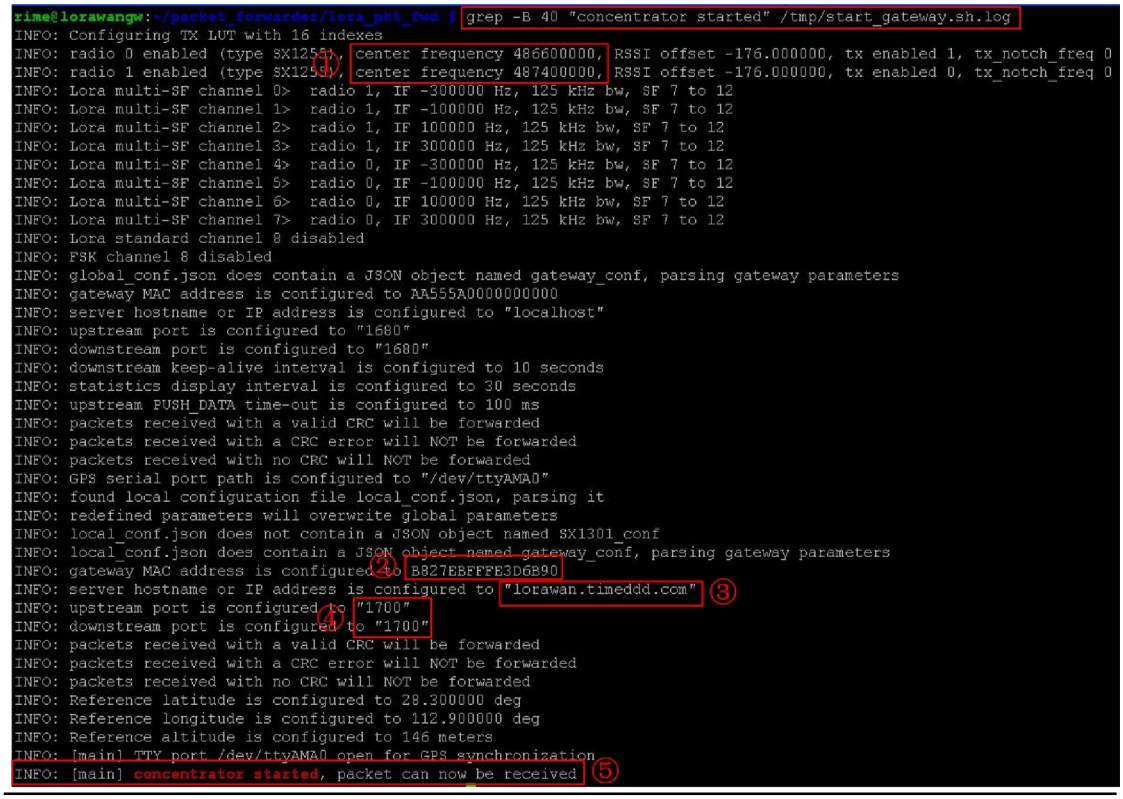
② 网关 EUI = B827EBFFFE3D6B90

③ 定向服务器到：lorawan.timeddd.com

④ 上行和下行端口均为 1700

⑤ 启动成功：INFO: [main] concentrator started, packet can now be received

图 3-1 网关启动日志

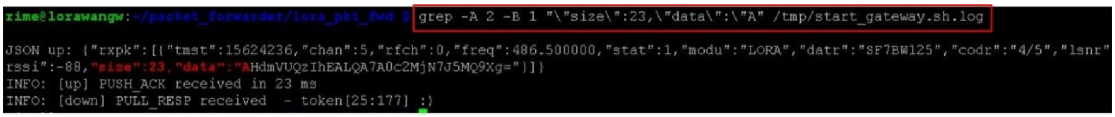


3.2 node 入网

3.2.1 Join-Request

搜索日志：grep -A 2 -B 1 "\"size\":23,\"data\":\"A" /tmp/start_gateway.sh.log

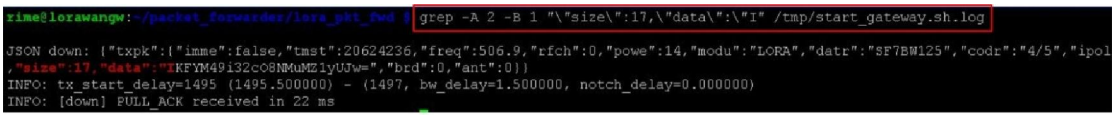
解释：Join-Request 报文长度 = 23，第一个字节数据=A(Base64 编码)



3.2.1 Join-Response

搜索日志：grep -A 2 -B 1 "\"size\":17,\"data\":\"I" /tmp/start_gateway.sh.log

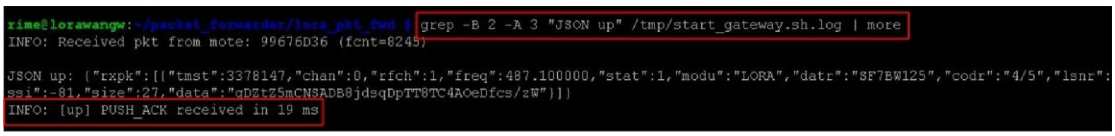
解释：Join-Response 报文长度 = 17，第一个字节数据=I(Base64 编码)



3.3 node 上报

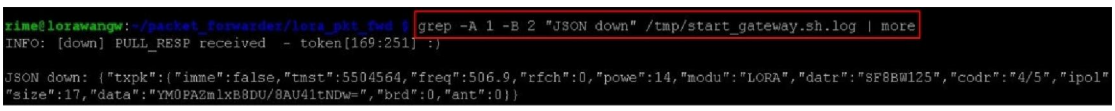
搜索日志：grep -B 2 -A 3 "JSON up" /tmp/start_gateway.sh.log | more

解释：INFO: [up] PUSH_ACK received in 19 ms (Server->Gateway 通信延时)



3.4 server 下行

搜索日志：grep -A 1 -B 2 "JSON down" /tmp/start_gateway.sh.log | more



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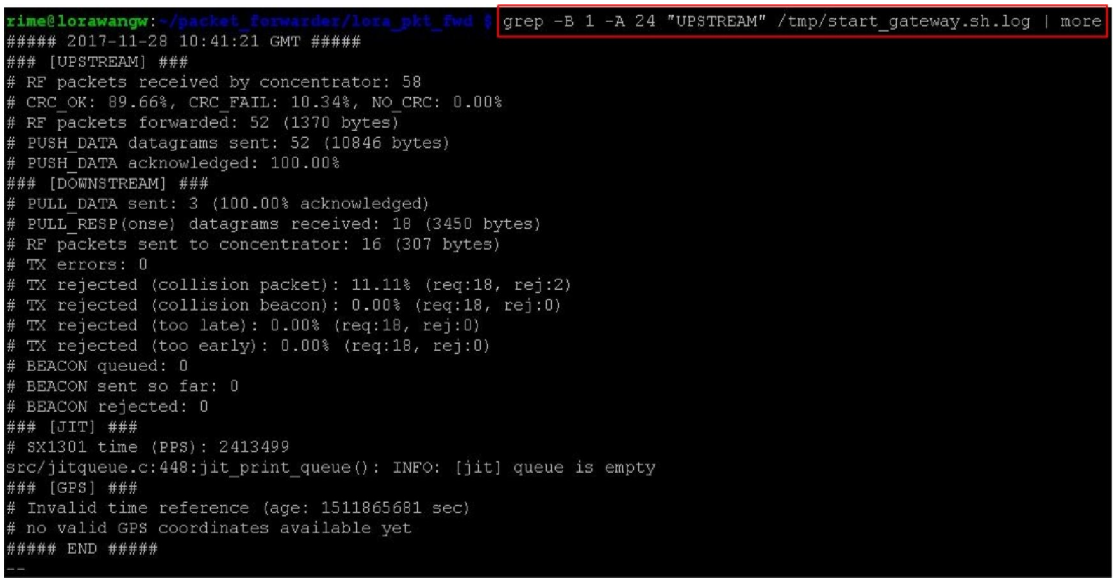
3.5 统计日志

搜索日志：grep -B 1 -A 24 "UPSTREAM" /tmp/start_gateway.sh.log | more



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