BLE网关

> **警告**
>
> 我们强烈建议使用白名单（见下文），以便仅从您的设备收集数据，而不是从其他 MAC 地址收集数据。默认情况下，网关使用其 MAC 地址扫描附近的广告 BLE 设备。根据您所在的国家/地区，监控网络的 MAC 地址可能是非法的，尤其是在您不拥有的网络上。请查看您所在国家/地区的法律（适用于美国第 18 条美国法典 § 2511）-在此处讨论.

从 BLE 信标设备接收信号以进行存在检测

使用 mosquitto 订阅所有消息或打开您的 MQTT 客户端软件：

```
sudo mosquitto_sub -t +/# -v
```

注意：如果您不使用 ESP32，则需要 HM-10 或 HM-11 模块；配置在 `User_config.h`

OpenMQTTGateway 的 BT 网关模块可以检测 BLE 信标及其信号强度。通常，如果 BLE 设备已配对，它们将不会广播，因此您可能需要确保您的信标未配对，然后网关才能看到它。

如果检测到信标，网关将定期向 MQTT 发布消息（信标不得配对，见上文）：

```
1 home/OpenMQTTGateway/BTtoMQTT/45E174126E00 {"id":"45:e1:74:12:6e:00","rssi":-8
```

```
1 home/OpenMQTTGateway/BTtoMQTT/C7FaaD132C00 {"id":"c7:fa:ad:13:2c:00","rssi":-6
```

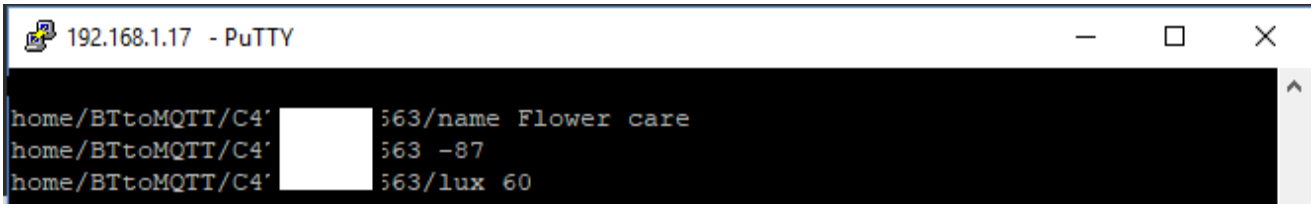
后面的子主题 `home/BTtoMQTT/` 是蓝牙低功耗信标的 MAC 地址。rssi 值是**RSSI 信号电平** 您可以从中推断出与设备的相对距离。将距离视为 beta 特征，因为目前我们没有检索信标的发射功率以使其更准确。

请注意，您可以找到模拟信标的应用程序并进行一些测试，例如信标模拟器

接收来自 BLE 设备 Mi Flora、Mi jia、LYWDS02、LYWSD03MMC、ClearGrass、Mi scale 等的信号

为了接收 BLE 传感器数据，您需要一个简单的 ESP32 或一个 ESP8266/arduino + HM10/11，固件 >= v601 支持 mi 菌群的固件 >3.1.8

验证您的传感器是否与该应用程序一起使用，并使用最新的软件版本对其进行更新。您应该在 MQTT 代理中看到以下数据：



注意网关每次返回一个或两个测量值。取决于设备的不同措施是：

- 勒克斯
- 温度
- 水分
- 施肥
- 湿度
- 压力
- 脚步
- 重量
- 阻抗
- 电池
- 电压
- 打开
- 在场

这些信息将在您的 MQTT 代理上显示如下：

```
 home/OpenMQTTGateway/BTtoMQTT/4C33A6603C79
{"hum":"52.6","tempc":"19.2","tempf":"66.56"}
```

更多信息可在我的博客上找到（尤其是关于它是如何用 HM10 实现的）

提示

> servicedata 字段，如果设备未被识别，则使用 HM10 与 ESP32 相比，此字段可能更长。

设置白名单或黑名单

黑名单是OMG永远不会发布设置黑名单的mac地址列表 `mosquitto_pub -t home/OpenMQTTGateway/commands/MQTTtoBT/config -m '{"black-list":["01:23:14:55:16:15","4C:65:77:88:9C:79","4C:65:A6:66:3C:79"]}'`

白名单是允许OMG发布设置白名单的mac地址列表 `mosquitto_pub -t home/OpenMQTTGateway/commands/MQTTtoBT/config -m '{"white-list":["01:23:14:55:16:15","4C:65:77:88:9C:79","4C:65:A6:66:3C:79"]}'`

注意：如果您想过滤（白名单或黑名单）自动发现的 BLE 传感器，您需要等待发现，然后再应用白名单或黑名单

> **提示**
>
> 为了保持白/黑名单的持久性，您可以使用 MQTT 的保留选项发布它（-r 与 mosquitto_pub 或保留 MQTT Explorer 的复选框） `mosquitto_pub -r -t home/OpenMQTTGateway/commands/MQTTtoBT/config -m '{"white-list":["01:23:14:55:16:15","4C:65:77:88:9C:79","4C:65:A6:66:3C:79"]}'`

设置 BLE 扫描之间的时间并强制扫描

如果要更改读数之间的时间，可以通过 MQTT 更改间隔。例如，如果您希望 BLE 每 66 秒扫描一次：

```
mosquitto_pub -t home/OpenMQTTGateway/commands/MQTTtoBT/config -m '{"interval":66000}'
```

您还可以通过以下命令强制执行扫描：

```
mosquitto_pub -t home/OpenMQTTGateway/commands/MQTTtoBT/config -m '{"interval":0}'
```

> **提示**

Once the forced scan has completed, the previous scan interval value will be restored. Forcing a scan command trigger also a BLE connect process after the scan (see below).

The default value `TimeBtwRead` is set into config_BT.h or into your .ini file for platformio users.

If you want to scan continuously for BLE devices, for example for beacon location you can set the interval to 1ms:

```
mosquitto_pub -t home/OpenMQTTGateway/commands/MQTTtoBT/config -m '{"interval":1}'
```

In this case you should deactivate the BLE connection mechanism to avoid concurrency between scan and connections (see chapter below, bleconnect).

> **TIP**
>
> For certain devices like LYWSD03MMC OpenMQTTGateway use a connection (due to the fact that the advertized data are encrypted), this connection mechanism is launched after every `ScanBeforeConnect` per default, you can modify it by following the procedure below.

Setting the number of scans between connection attempts

If you want to change the number of BLE scans that are done before a BLE connect you can change it by MQTT, if you want the BLE connect to be every 30 scans:

```
mosquitto_pub -t home/OpenMQTTGateway/commands/MQTTtoBT/config -m '{"scanbcnct":30}'
```

The BLE connect will be done every 30 * (`TimeBtwRead` + `Scan_duration`), 30 * (55000 + 10000) = 1950000ms

Setting if the gateway publishes all the BLE devices scanned or only the detected sensors

If you want to change this characteristic:

> **TIP**
>
> With Home Assistant, this command is directly avalaible through MQTT auto discovery as a switch into the HASS OpenMQTTGateway device entities list.

The gateway will publish only the detected sensors like Mi Flora, Mi jia, LYWSD03MMC... and not the other BLE devices. This is usefull if you don't use the gateway for presence detection but only to retrieve sensors data.

Setting if the gateway connects to BLE devices eligibles on ESP32

If you want to change this characteristic:

```
 mosquitto_pub -t home/OpenMQTTGateway/commands/MQTTtoBT/config -m
'{"bleconnect":false}'
```

> **TIP**
>
> With Home Assistant, this command is directly avalaible through MQTT auto discovery as a switch into the HASS OpenMQTTGateway device entities list.

Setting if the gateway publish into Home Assistant Home presence topic

If you want to publish to Home Assistant presence topic, you can activate this function by the HASS interface (this command is auto discovered), **here is a yaml example**. Or by an MQTT command.

```
 mosquitto_pub -t home/OpenMQTTGateway/commands/MQTTtoBT/config -m
'{"hasspresence":true}'
```

Setting the minimum RSSI accepted to publish device data

If you want to change the minimum RSSI value accepted for a device to be published, you can change it by MQTT. For example if you want to set -80

```
mosquitto_pub -t home/OpenMQTTGateway/commands/MQTTtoBT/config -m '{"minrssi":-80}'
```

you can also accept all the devices by the following command:

```
mosquitto_pub -t home/OpenMQTTGateway/commands/MQTTtoBT/config -m '{"minrssi":-200}'
```

The default value is set into config_BT.h

Read/write BLE characteristics over MQTT (ESP32 only)

The gateway can read and write BLE characteristics from devices and provide the results in an MQTT message.

> **TIP**
>
> These actions will be taken on the next BLE connection, which occurs after scanning and after the scan count is reached, **see above to set this.**
> This can be overridden by providing an (optional) parameter `"immediate": true` within the command. This will cause the BLE scan to stop if currently in progress, allowing the command to be immediately processed. All other connection commands in queue will also be processed for the same device, commands for other devices will be deferred until the next normally scheduled connection.
>
> **Note** Some devices need to have the mac address type specified. You can find this type by checking the log/mqtt data and looking for "mac_type". By default the type is 0 but some devices use different type values. You must specify the correct type to connect successfully.
> To specify the MAC address type add the parameter `"mac_type"` to the command. For example `"mac_type": 1` to connect with a device with the MAC address type of 1.

Example write command

```
mosquitto_pub -t home/OpenMQTTGateway/commands/MQTTtoBT/config -m '{
  "ble_write_address":"AA:BB:CC:DD:EE:FF",
  "ble_write_service":"cba20d00-224d-11e6-9fb8-0002a5d5c51b",
  "ble_write_char":"cba20002-224d-11e6-9fb8-0002a5d5c51b",
  "ble_write_value":"TEST",
  "value_type":"STRING",
  "ttl":4,
  "immediate":true }'
```

Response:

```
{
  "id":"AA:BB:CC:DD:EE:FF",
  "service":"cba20d00-224d-11e6-9fb8-0002a5d5c51b",
  "characteristic":"cba20002-224d-11e6-9fb8-0002a5d5c51b",
  "write":"TEST",
  "success":true
}
```

Example read command

```
mosquitto_pub -t home/OpenMQTTGateway/commands/MQTTtoBT/config -m '{
  "ble_read_address":"AA:BB:CC:DD:EE:FF",
  "ble_read_service":"cba20d00-224d-11e6-9fb8-0002a5d5c51b",
  "ble_read_char":"cba20002-224d-11e6-9fb8-0002a5d5c51b",
  "value_type":"STRING",
  "ttl": 2 }'
```

Response:

```
{
  "id":"AA:BB:CC:DD:EE:FF",
  "service":"cba20d00-224d-11e6-9fb8-0002a5d5c51b",
  "characteristic":"cba20002-224d-11e6-9fb8-0002a5d5c51b",
  "read":"TEST",
```

> **TIP**
>
> The `ttl` parameter is the number of attempts to connect (defaults to 1), which occur after the BLE scan completes.
> `value_type` can be one of: STRING, HEX, INT, FLOAT. Default is STRING if omitted in the message.

Other

To check your hm10 firmware version upload a serial sketch to the nodemcu (this will enable communication directly with the hm10) and launch the command: `AT+VERR?`

More info about HM-10 is **available here**

编辑这个页面

最后更新时间： 2022 年 2 月 8 日，上午 12 时 42 分 37 秒

← 射频网关 (433mhz/315mhz) 红外网关 →