60GHz Fall Detection Radar

Wi-Fi Communication Interfacing Document

Product Manual_version1.7

MicRadar Technology (Shenzhen) Co., LTD

Contents

Format Description for MQTT Communication Data (V1.7)

1. Notes

This document describes mainly the format of 60G Fall Radar MQTT protocol and helps the user to acquire and set radar data for easier development and application. Data is transmitted in json format.

There are 2 topics of 60G Fall Radar as follows:

(1) Topic: /Radar60FL/DeviceID/sys/property/post

The topic of report, through which the radar reports data and sets response messages.

(2) Topic: /Radar60FL/DeviceID/sys/property/set

The topic of issue, through which the customer issues messages to the radar.

2. Attributes and features of radar

Online/offline

Actively reported. Attribute states include: 0 (offline) and 1 (online); and change of states is reported actively.

```
{
        "version":    "1.0",
        "method":    "post",
        "params":    {
                        "online":     "0" //device offline
        }
}
```

Initialization complete

Active report is not supported. Data range: 0 (initialization imcomplete), and 1 (initialization complete).

Queryable is supported for this attribute. Format of query:

```
{
        "version":    "1.0",
        "method":    "get",
        "params":    {
                        "initFinish": "?"
        }
}
```

Format of query result:

```
{
        "version":    "1.0",
```

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```
        "opt":        "get",
        "res":        "success" //either fail or success
        "params":     {
                      "initFinish": "XXXX"
                      }
        }
```

Heartbeat package

Actively reported. Attribute states include: 0 (abnormal), and 1 (normal). Change of status is reported actively.

```
{
        "version":    "1.0",
        "method":     "post",
        "params":     {
                      "heartBeat": "0"
                      }
        }
```

Product model

Active report is not supported.

Queryable is supported for this attribute. Format of query:

```
{
        "version":    "1.0",
        "method":     "get",
        "params":     {
                      "productMode":       "?"
                      }
        }
```

Format of query result:

```
{
        "version":    "1.0",
        "opt":        "get",
        "res":        "success" //either fail or success
        "params":     {
                      "productMode":       "XXXX"
                      }
        }
```

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Product ID

Active report is not supported.

Queryable is supported for this attribute. Format of query:

```
{
        "version":    "1.0",
        "method":    "get",
        "params":    {
                    "productId":"?"
        }
}
```

Format of query result:

```
{
        "version":    "1.0",
        "opt":        "get",
        "res":        "success" //either fail or success
        "params":    {
                    "productId":"XXXX"
        }
}
```

Hardware model

Active report is not supported.

Queryable is supported for this attribute. Format of query:

```
{
        "version":    "1.0",
        "method":    "get",
        "params":    {
                    "hardwareModel":        "?"
        }
}
```

Format of query result:

```
{
        "version":    "1.0",
        "opt":        "get",
        "res":        "success" //either fail or success
        "params":    {
                    "hardwareModel":        "XXXX"
        }
```

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```
        }
```

Wi-Fi Firmware Version

Actively reported when the device is powered on and connected to the server. The detailed format:

```
{
        "version":    "1.0",
        "method":    "post",
        "params":    {
                "firmwareVersionWi-Fi":        "xxxxxxx"
        }
}
```

Queryable is supported for this attribute. Format of query:

```
{
        "version":    "1.0",
        "method":    "get",
        "params":    {
                "firmwareVersionWi-Fi":        "?"
        }
}
```

Format of query result:

```
{
        "version":    "1.0",
        "opt":        "get",
        "res":        "success" //either fail or success
        "params":    {
                "firmwareVersionWi-Fi":        "XXXX"
        }
}
```

Firmware version

Actively reported, and reported when the device is connected to the server.

```
{
        "version":    "1.0",
        "method":    "post",
        "params":    {
                "firmwareVersion":      "xxxx"
        }
}
```

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Queryable is supported for this attribute. Format of query:

```
{
        "version":    "1.0",
        "method":    "get",
        "params":    {
                "firmwareVersion":        "?"
        }
}
```

Format of query result:

```
{
        "version":    "1.0",
        "opt":        "get",
        "res":        "success" //either fail or success
        "params":    {
                "firmwareVersion":        "XXXX"
        }
}
```

Radar fault

Actively reported. Range of attribute values: 0 - 255. Change of states is reported actively.

```
{
        "version":    "1.0",
        "method":    "post",
        "params":    {
                "radarFault":            "100"
        }
}
```

Working duration

Actively reported. Length of attribute value: 4 bytes. Range: 0x3C – 0xffffffff. Unit: s. Data is reported periodically.

```
{
        "version":    "1.0",
        "method":    "post",
        "params":    {
                "workDuration":          "100"
        }
}
```

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Queryable is supported for this attribute. Format of query:

```
{
        "version":    "1.0",
        "method":    "get",
        "params":    {
                "workDuration":            "?"
        }
}
```

Format of query result:

```
{
        "version":    "1.0",
        "opt":        "get",
        "res":        "success" //either fail or success
        "params":    {
                "workDuration":            "100"        //Working status
        }
}
```

Report frequency of work duration

Active report is not supported. Range of attribute: 0-60. Unit: min. 0 - function disabled.

Queryable is supported for this attribute. Format:

```
{
        "version":    "1.0",
        "method":    "get",
        "params":    {
                "workDurationReportFrequency":      "?"
        }
}
```

Format of query result:

```
{
        "version":    "1.0",
        "opt":        "get",
        "res":        "success" //either fail or success
        "params":    {
                "workDurationReportFrequency":      "1"
        }
}
```

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Settable is supported for this attribute. Format:

```
{
        "version":    "1.0",
        "method":    "set",
        "params":    {
                "workDurationReportFrequency":    "2"
        }
}
```

Format of setting result:

```
{
        "version":            "1.0",
        "opt":            "set",
        "res":        "success" //either fail or success
        "params":    {
                "workDurationReportFrequency":    "2"
        }
}
```

Work mode

Active report is not supported. Range of attribute: 1 (work mode), 2 (standby mode), and 3 (test mode).

Queryable is supported for this attribute. Format:

```
{
        "version":    "1.0",
        "method":    "get",
        "params":    {
                "workMode":            "?"
        }
}
```

Format of query result:

```
{
        "version":    "1.0",
        "opt":        "get",
        "res":        "success" //either fail or success
        "params":    {
                "workMode":            "1"            //Working status
        }
}
```

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Settable is supported for this attribute. Format:

```
{
        "version":    "1.0",
        "method":    "set",
        "params":    {
                "workMode":            "2" //Set as standby mode
        }
}
```

Format of setting result:

```
{
        "version":            "1.0",
        "opt":            "set",
        "res":        "success" //either fail or success
        "params":    {
                "workMode":            "2" //Set as standby mode
        }
}
```

Scene mode

Active report is not supported. Range of attribute: 1 - 7, in which 1 - living room, 2 - bedroom, 3 - bathroom, and the rest are reserved;

Queryable is supported for this attribute. Format:

```
{
        "version":    "1.0",
        "method":    "get",
        "params":    {
                "sceneMode":            "?"
        }
}
```

Format of query result:

```
{
        "version":    "1.0",
        "opt":        "get",
        "res":        "success" //either fail or success
        "params":    {
                "sceneMode":            "1"
        }
}
```

Settable is supported for this attribute. Format:

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```
{
    "version":    "1.0",
    "method":    "set",
    "params":    {
            " sceneMode ":            "2"
    }
}
```

Format of setting result:

```
{
    "version":            "1.0",
    "opt":                "set",
    "res":        "success" //either fail or success
    "params":    {
            "sceneMode":            "2"
    }
}
```

Installation angle

Active report is not supported. Range of attribute: -180° ~ 180°. 0° and 45° are supported for now.

Queryable is supported for this attribute. For now, simultaneous query of x, y and z is supported only, i.e. the format as described below:

```
{
    "version":    "1.0",
    "method":    "get",
    "params":    {
            "installAngle": {"x":"?", "y":"?", "z":"?"}
    }
}
```

Format of query result:

```
{
    "version":    "1.0",
    "opt":        "get",
     "res":        "success" //either fail or success
    "params":    {
            "installAngle":    {
                    "x":    "xxx",
                    "y":    "xxx",
                    "z":    "xxx"
```

```
                }
            }
        }
```

Settable is supported for this attribute. Format:

```
{
        "version":    "1.0",
        "method":    "set",
        "params":    {
                "installAngle": {
                        "x":    "xxx",
                        "y":    "xxx",
                        "z":    "xxx"
                }
        }
}
```

Format of setting result:

```
{
        "version":              "1.0",
        "opt":                  "set",
        "res":          "success" // either fail or success
        "params":    {
                "installAngle": {
                        "x": "xxx",
                        "y": "xxx",
                        "z": "xxx"
                }
        }
}
```

Installation height

Active report is not supported. Range of attribute: 170 ~ 310. Unit: cm

Queryable is supported for this attribute. Format:

```
{
        "version":    "1.0",
        "method":    "get",
        "params":    {
                "installHeight":            "?"
        }
```

```
        }
```

Format of query result:

```
    {
            "version":    "1.0",

            "opt":        "get",

            "res":        "success" //either fail or success

            "params":    {

                        "installHeight":        "1"

            }

    }
```

Settable is supported for this attribute. Format:

```
    {
            "version":    "1.0",

            "method":    "set",

            "params":    {

                        "installHeight":        "2"

            }

    }
```

Format of setting result:

```
    {
            "version":        "1.0",

            "opt":                "set",

            "res":        "success" //either fail or success

            "params":    {

                        "installHeight":        "2"

            }

    }
```

Max. distance detectable of moving target

Active report is not supported. Range of attribute: 0-65535. Unit: cm. Step length: 1cm

Queryable is supported for this attribute. Format:

```
    {
            "version":    "1.0",

            "method":    "get",

            "params":    {

                        "movingTargetDetectionMaxDistance":            "?"

            }

    }
```

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Format of query result:

```
{
        "version":    "1.0",
        "opt":        "get",
         "res":       "success" //either fail or success
        "params":     {
                        "movingTargetDetectionMaxDistance":          "1"
        }
}
```

Settable is supported for this attribute. Format:

```
{
        "version":    "1.0",
        "method":     "set",
        "params":     {
                        "movingTargetDetectionMaxDistance":          "2"
        }
}
```

Format of setting result:

```
{
        "version":            "1.0",
        "opt":                "set",
         "res":       "success" //either fail or success
        "params":     {
                        "movingTargetDetectionMaxDistance":          "2"
        }
}
```

Max. distance detectable of static target

Active report is not supported. Range of attribute: 0-65535, in cm. Step length: 1cm

Queryable is supported for this attribute. Format:

```
{
        "version":    "1.0",
        "method":     "get",
        "params":     {
                        "staticTargetDetectionMaxDistance": "?"
        }
}
```

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Format of query result:

```
{
        "version":    "1.0",
        "opt":        "get",
         "res":       "success" //either fail or success
        "params":    {
                        "staticTargetDetectionMaxDistance": "1"
        }
}
```

Settable is supported for this attribute. Format:

```
{
        "version":    "1.0",
        "method":    "set",
        "params":    {
                        "staticTargetDetectionMaxDistance": "2"
        }
}
```

Format of setting result:

```
{
        "version":              "1.0",
        "opt":                  "set",
         "res":       "success" //either fail or success
        "params":    {
                        "staticTargetDetectionMaxDistance": "2"
        }
}
```

Out-of-bound state

Actively reported. Range of attribute values: 0 (out of bounds), and 1 (within the bounds). Report on status changes.

```
{
        "version":    "1.0",
        "method":    "post",
        "params":    {
                        "locationOutOfBounds": "0"
        }
}
```

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Queryable is supported for this attribute. Format of query:

```
{
        "version":   "1.0",
        "method":   "get",
        "params":   {
                "locationOutOfBounds": "?"
        }
}
```

Format of query result:

```
{
        "version":   "1.0",
        "opt":       "get",
        "res":       "success" //either fail or success
        "params":   {
                "locationOutOfBounds": "1"
        }
}
```

Human function switc

Active report is not supported. Range of attribute values: 1 (function enabled), and 0 (function disabled).

Queryable is supported for this attribute. Format:

```
{
        "version":   "1.0",
        "method":   "get",
        "params":   {
                "humanSwitch":          "?"
        }
}
```

Format of query result:

```
{
        "version":   "1.0",
        "opt":       "get",
        "res":       "success" //either fail or success
        "params":   {
                "humanSwitch":          "1"
        }
}
```

Settable is supported for this attribute. Format:

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```
{
        "version":    "1.0",
        "method":    "set",
        "params":    {
                "humanSwitch":            "1"
        }
    }
```

Format of setting result:

```
{
        "version":              "1.0",
        "opt":              "set",
         "res":        "success" // either fail or success
        "params":    {
                "humanSwitch":            "1"
        }
    }
```

Human presence state

Actively reported. Range of attribute values: 0 (no people), and 1 (someone present) Report on status changes.

```
{
        "version":    "1.0",
        "method":    "post",
        "params":    {
                "someoneExists":          "1"      //Someone is present in current environment
        }
    }
```

Queryable is supported for this attribute. Format:

```
{
        "version":    "1.0",
        "method":    "get",
        "params":    {
                "someoneExists":          "?"
        }
    }
```

Format of query result:

```
{
        "version":    "1.0",
        "opt":        "get",
```

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```
        "res":      "success" //either fail or success

        "params":   {

                "someoneExists":        "1"

        }

    }
```

Motion status

Actively reported. Range of attribute values: 0 (none), 1 (static), and 2 (active). Report on status changes.

```
    {

        "version":  "1.0",

        "method":   "post",

        "params":   {

                "motionStatus":         "1"      //Static status

        }

    }
```

Queryable is supported for this attribute. Format:

```
    {

        "version":  "1.0",

        "method":   "get",

        "params":   {

                "motionStatus":         "?"

        }

    }
```

Format of query result:

```
    {

        "version":  "1.0",

        "opt":      "get",

        "res":      "success" //either fail or success

        "params":   {

                "motionStatus":         "1"

        }

    }
```

Movement signs

Actively reported. Range of attribute values: 0 - 100. The data is reported periodically.

```
    {

        "version":  "1.0",

        "method":   "post",

        "params":   {
```

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```
                "movementSigns":        "100"
        }
    }
```

Human distance

Actively reported. Range of attribute values: 0 - 65535, in cm. The data is reported periodically.

```
    {
        "version":    "1.0",
        "method":    "post",
        "params":    {
                "humanDistance":        "100"
        }
    }
```

Queryable is supported for this attribute. Format:

```
    {
        "version":    "1.0",
        "method":    "get",
        "params":    {
                "humanDistance":        "?"
        }
    }
```

Format of query result:

```
    {
        "version":    "1.0",
        "opt":        "get",
        "res":        "success" //either fail or success
        "params":    {
                "humanDistance":        "1"
        }
    }
```

Human position

Actively reported. Range of attribute values: x-axis: 0-65535, y-axis: 0-65535, z-axis: 0-65535. Data is reported periodically.

```
    {
        "version":    "1.0",
        "method":    "post",
        "params":    {
                "humanPosition":    {
                        "x":    "xxx",
```

```
                    "y":  "xxx",

                    "z":  "xxx"

                }

            }

    }
```

Queryable is supported for this attribute. For now, simultaneous query of x, y and z is supported only, i.e. the format as described below:

```
{

        "version":   "1.0",

        "method":   "get",

        "params":   {

                "humanPosition": {"x":"?", "y":"?", "z":"?"}

        }

    }
```

Format of query result:

```
{

        "version":   "1.0",

        "opt":        "get",

         "res":        "success" //either fail or success

        "params":   {

                "humanPosition":   {

                        "x":   "xxx",

                        "y":   "xxx",

                        "z":   "xxx"

                }

        }

    }
```

Fall detection switch

Active report is not supported. Range of attribute values: 1 (function enabled), and 0 (function disabled).

Queryable is supported for this attribute. Format:

```
{

        "version":   "1.0",

        "method":   "get",

        "params":   {

                "fallSwitch":               "?"

        }

    }
```

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Format of query result:

```
{
        "version":    "1.0",
        "opt":        "get",
         "res":        "success" //either fail or success
        "params":    {
                "fallSwitch":            "1"
        }
}
```

Settable is supported for this attribute. Format:

```
        {
        "version":    "1.0",
        "method":    "set",
        "params":    {
                "fallSwitch":            "1" //Set as enabled
        }
}
```

Format of setting result:

```
{
        "version":            "1.0",
        "opt":            "set",
         "res":        "success" //either fail or success
        "params":    {
                "fallSwitch":            "1"
        }
}
```

Fall status

Actively reported. Range of attribute values: 0 (no fall), and 1 (fall). Change of states is reported.

```
{
        "version":    "1.0",
        "method":    "post",
        "params":    {
                "fallStatus": "100"
        }
}
```

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Queryable is supported for this attribute. Format:

```
{
        "version":    "1.0",
        "method":    "get",
        "params":    {
                    "fallStatus": "?"
        }
}
```

Format of query result:

```
{
        "version":    "1.0",
        "opt":        "get",
         "res":        "success" //either fail or success
        "params":    {
                    "fallStatus": "1"           //Fall state
        }
}
```

Fall position

Actively reported. Range of attribute values: x and y when the fall occurs (0 - 65535). Reported when the fall occurs.

```
{
        "version":    "1.0",
        "method":    "post",
        "params":    {
                    "fallPosition": {"x": "xxx", "y":    "xxx"}
        }
}
```

Queryable is supported for this attribute. Format:

```
{
        "version":    "1.0",
        "method":    "get",
        "params":    {
                    "fallPosition": {"x": "?","y": "?"}
        }
}
```

Format of query result:

```
{
        "version":    "1.0",
```

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```
        "opt":        "get",
        "res":        "success" //either fail or success
        "params":    {
                "fallPosition": {"x": "xxx","y": "xxx"}
        }
    }
```

Stay-still status

Actively reported. Range of attribute values: 0 (no residence), and 1 (resident). Reported when the state changes.

```
{
        "version":    "1.0",
        "method":    "post",
        "params":    {
                "residentStatus":            "1" //Stay-still status occurs
        }
    }
```

Queryable is supported for this attribute. Format:

```
{
        "version":    "1.0",
        "method":    "get",
        "params":    {
                "residentStatus":            "?"
        }
    }
```

Format of query result:

```
{
        "version":    "1.0",
        "opt":        "get",
        "res":        "success" //either fail or success
        "params":    {
                "residentStatus":            "1"
        }
    }
```

Stay-still duration

Active report is not supported. Range of attribute: 0-65535. Unit: s.

Queryable is supported for this attribute. Format:

```
{
```

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```
        "version":    "1.0",

        "method":    "get",

        "params":    {

                "residentWarningDuration":            "?"

        }

    }
```

Format of query result:

```
    {

        "version":    "1.0",

        "opt":        "get",

        "res":        "success" //either fail or success

        "params":    {

                "residentWarningDuration":            "1"

        }

    }
```

Settable is supported for this attribute. Format:

```
    {
        "version":    "1.0",

        "method":    "set",

        "params":    {

                "residentWarningDuration":            "2"

        }

    }
```

Format of setting result:

```
    {
        "version":            "1.0",

        "opt":            "set",

         "res":        "success" //either fail or success

        "params":    {

                "residentWarningDuration":            "2"

        }

    }
```

Stay-still switch

Active report is not supported. Range of attribute values: 1 (function enabled), and 0 (function disabled).

Queryable is supported for this attribute. Format:

```
    {

        "version":    "1.0",
```

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```
        "method":    "get",

        "params":    {

                "residentWarningDurationSwitch":    "?"

        }

    }
```

Format of query result:

```
    {

        "version":    "1.0",

        "opt":        "get",

        "res":        "success" //失败时为 fail,成功为 success

        "res":        "success" //either fail or success

        "params":    {

                "residentWarningDurationSwitch":    "1"

        }

    }
```

Settable is supported for this attribute. Format:

```
    {
    "version":    "1.0",

    "method":    "set",

    "params":    {

                "residentWarningDurationSwitch":    "1" //设置为开

                "residentWarningDurationSwitch":    "1" //Set as enabled

        }

    }
```

Format of setting response result:

```
    {

        "version":            "1.0",

        "opt":            "set",

        "res":        "success" //either fail or success

        "params":    {

                "residentWarningDurationSwitch":    "1"

        }

    }
```

Fall duration

Active report is not supported. Range of attribute: 0-65535. Unit: s.

Queryable is supported for this attribute. Format:

```
    {
```

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```
        "version":    "1.0",

        "method":    "get",

        "params":    {

                "fallDuration":            "?"

        }

    }
}
```

Format of query result:

```
{
        "version":    "1.0",

        "opt":        "get",

        "res":        "success" //either fail or success

        "params":    {

                "fallDuration":            "1"

        }

    }
}
```

Settable is supported for this attribute. Format:

```
{
        "version":    "1.0",

        "method":    "set",

        "params":    {

                "fallDuration":            "2"

        }

    }
}
```

Format of setting result:

```
{
        "version":            "1.0",

        "opt":            "set",

         "res":        "success" //either fail or success

        "params":    {

                "fall Duration":            "2"

        }

    }
}
```

Height proportion over a period of time

Actively reported. Attribute value, 1B: Total quantity of height, high 8 digit

2B: Total quantity of height, low 8 digit

3B: 0 - 0.5 m height proportion 4B: 0.5 m - 1.0 m height proportion 5B: 1.0 - 1.5 m height proportion 6B: 1.5 m - 2.0 m height proportion

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```
{
        "version":   "1.0",
        "method":   "post",
        "params":   {
                "proportionOfHeight":   "100"
        }
}
```

Queryable is supported for this attribute. Format:

```
{
        "version":   "1.0",
        "method":   "get",
        "params":   {
                "proportionOfHeight":   "?"
        }
}
```

Format of query result:

```
{
        "version":   "1.0",
        "opt":        "get",
         "res":        "success" //either fail or success
        "params":   {
                "proportionOfHeight":   "1"            //Fall state
        }
}
```

Fall detection sensitivity

Active report is not supported. Range of attribute values: 0-3.

Queryable is supported for this attribute. Format:

```
{
        "version":   "1.0",
        "method":   "get",
        "params":   {
                "fallSensitivity":            "?"
        }
}
```

Format of query result:

```
{
        "version":   "1.0",
```

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```
        "opt":         "get",

        "res":         "success" //either fail or success

        "params":      {

                "fallSensitivity":        "1"

        }

}
```

Settable is supported for this attribute. Format:

```
{

        "version":    "1.0",

        "method":    "set",

        "params":     {

                "fallSensitivity":        "1"

        }

}
```

Format of setting response result:

```
{

        "version":            "1.0",

        "opt":              "set",

        "res":         "success"

        "params":     {

                "fallSensitivity":        "1"

        }

}
```

Height cumulation time

Active report is not supported. The value: 4 bytes in size.

Queryable is supported for this attribute. Format:

```
{

        "version":    "1.0",

        "method":    "get",

        "params":     {

                "heightAccumulativeTime":             "?"

        }

}
```

Format of query result:

```
{

        "version":    "1.0",
```

```
            "opt":        "get",

            "res":        "success" //失败时为 fail,成功为 success

            "res":        "success" //either fail or success

            "params":    {

                    "heightAccumulativeTime":            "1"

            }

    }
```

Settable is supported for this attribute. Format:

```
    {

            "version":    "1.0",

            "method":    "set",

            "params":    {

                    "heightAccumulativeTime":            "1"

            }

    }
```

Format of setting response result:

```
    {

            "version":                "1.0",

            "opt":                "set",

            "res":        "success"

            "params":    {

                    "heightAccumulativeTime":            "1"

            }

    }
```

3. Limiting attribute reporting

This function is mainly designed for function attributes that are frequently reported among the data of active report. This function forbids the report of these attributes, or screens certain attributes to prevent their reporting.

Set the corresponding value of the attribute as 1/0 to forbid/permit the reporting.

Setting command whose method is "limit_set" or "limit_get" can work for multiple attributes.

Format of **querying** "Data banned from reporting":

```
    {

            "version":    "1.0",

            "method":    "limit_get",

            "params":    {

                    "workDuration":            "?",
```

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```
                "locationOutOfBounds": "?",

                "someoneExists":          "?",

                "motionStatus":           "?",

                "movementSigns":          "?",

                "humanDistance":          "?",

                "humanPosition":          "?",

                "heartBeat": "?",

                "proportionOfHeight":     "?"

        }

    }
```

Format of response result data:

```
    {

        "version":    "1.0",

        "opt":        "limit_get",

        "res":        "success" // either fail or success

        "params":     {

                "workDuration":           "0",

                "locationOutOfBounds": "0",

                "someoneExists":          "0",

                "motionStatus":           "0",

                "movementSigns":          "0",

                "humanDistance":          "0",

                "humanPosition":          "0",

                "heartBeat": "0",

                "proportionOfHeight":     "0"

        }

    }
```

Format of **setting** "Data banned from reporting":

```
    {

        "version":    "1.0",

        "method":    "limit_set",

        "params":     {

                "workDuration":           "0",

                "locationOutOfBounds": "0",

                "someoneExists":          "0",

                "motionStatus":           "0",

                "movementSigns":          "0",

                "humanDistance":          "0",
```

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```
                    "humanPosition":        "0",

                    "heartBeat": "0",

                    "proportionOfHeight":    "0"


            }

    }
```

Format of response result data:

```
{
        "version":    "1.0",

        "opt":        "limit_set",

        "res":        "success" //either fail or success

        "params":    {

                    "workDuration":        "0",

                    "locationOutOfBounds": "0",

                    "someoneExists":        "0",

                    "motionStatus":        "0",

                    "movementSigns":        "0",

                    "humanDistance":        "0",

                    "humanPosition":        "0",

                    "heartBeat": "0",

                    "proportionOfHeight":    "0"


            }

    }
```

4. Set Qos (quality of service)

The default value of Qos is Qos1. The value 0/1/2 indicates Qos0/Qos1/Qos2 respectively.

To **query** the function of Qos:

```
{
        "version":    "1.0",

        "method":    "qos_get",

        "params":    {

                    "Qos_post": "?"

        }

    }
```

Format of query response result data:

```
{
        "version":    "1.0",
```

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```
        "opt":          "qos_set",

        "res":          "success" //失败时为 fail,成功为 success

        "res":          "success" // either fail or success

        "params":       {

                        "Qos_post": "0"

        }

    }
```

To **set** the function of Qos:

```
    {

        "version":    "1.0",

        "method":    "qos_set",

        "params":    {

                        "Qos_post": "0"

        }

    }
```

Format of response result data:

```
    {

        "version":    "1.0",

        "opt":          "qos_set",

        "res":          "success" //either fail or success

        "params":    {

                        "Qos_post": "0"

        }

    }
```

5.OTA Upgrade

Upgrade module

This attribute requires issuing a command to identify the module of upgrading. 0 indicates the Wi-Fi module, and 1 the radar module. The default value is 0. Issue of control change command is required prior to each OTA upgrade.

```
    {

        "version":    "1.0",

        "method":    "ota_set",

        "params":    {

                        "module":    "0"

        }

    }
```

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Upgrade information (OTA Inform)

The upgrade information issued includes firmware address and port no. When receiving the data, the device acquires upgrade firmware from the specified url and port no., and commences upgrading. A fail is returned if the upgrade fails. Upon success, the module will reboot and report the new version no. The customer is required to build up a web server on their own.

```
{
        "version":    "1.0",
        "method":    "ota_set",
        "params":    {
                "otaInform":    {
                        "firmwareUrl":    "http://192.168.31.88/app.rbl",
                        "port": "8090"    //port number
                }
        }
}
```

Format of return upon upgrade failure:

```
{
        "version":    "1.0",
        "opt":        "otaInform",
        "res":    "fail",
        "msg":     "ota failed!"
}
```

Upgrade progress

Upgrade progress is actively reported in the range of 0 - 100. The detailed format:

```
{
        "version":    "1.0",
        "method":    "ota_post",
        "params":    {
                "downloadProgress":      "0"
        }
}
```

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6.Updates history

Revision	Release Date	Summary
V1.0	~	First version
V1.1	2022/3/28	Fall position protocol was revised.
V1.2	2022/3/30	1. Change was made to attribute reporting limiting. Query function was added. 2. Format of Qos report protocol was changed, and query function was added.
V1.3	2022/5/24	OTA feature was added for Wi-Fi module.
V1.4	2022/5/29	OTA feature was added for the radar.
V1.5	2022/8/1	Human presence query was added.
V1.6	2022/8/30	1. Query function was added for motion state, human distance, and human position. 2. Report and query functions were added for completion of initialization. 3. Wi-Fi version no. query was added.
V1.7	2022/12/4	1. Report and limiting were added for heartbeat package 2. Report, query and limiting were added for the height proportion over a period of time 3. Fall detection sensitivity and height cumulation time were added.

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