**Registration process:**

Upon initial connection to the server, the device sends its registration information, basic capabilities, metrics metadata and configuration to the /server/registration topic. This step is used to inform the server of what the services it will require and how to attach it to server supported services. In case of services or metrics that have been made available after registration a re-registration message should be sent from the device to the server.

1. Registration is published to /server/registration
2. Response sent to /server/registration\_status
3. Mandatory fields for message are:
   1. *protocol\_version* – currently use 1
   2. *timestamp* – in miliseconds from EPOCH
   3. *sender\_id* – the gatewayid – usually MAC address
   4. *msg\_type* – possible values:
      1. *device\_registration\_msg* – for new device or no change
      2. *device\_capability\_registration\_msg* – for all type of changes (property, metric, service, etc…)
   5. The following 2 properties:
      1. *hardware\_vendor*
      2. *hardware\_model*
4. Each registration must contain at least one peripheral that is the gateway; identified by:
   1. *uuid* – ‘self’
   2. *type* – ‘gateway’
5. Each peripheral can have one or more services – key is name & version
6. service metadata contains device capabilities and metrics
   1. mandatory fields are:
      1. *loaded*, *enabled*
7. Metrics contain 4 mandatory fields:
   1. *units*
   2. *data\_type*
      1. Possible values: *float, boolean, integer, string*
   3. *items*
      1. Always use 1
   4. *name*

**Registration example**

{

"protocol\_version": "1.0",

"timestamp": "<timestamp in miliseconds>",

"sender\_id": "<device\_id>",

"msg\_type": "device\_registration\_msg",

"properties": {

"hardware\_vendor": "vendor",

"hardware\_model": "hardware",

"Model Name": "Outside Sensor",

"Firmware Version": "1.0.0.1"

},

"peripherals": [

{

"uuid": "self",

"type": "gateway",

"properties": {},

"services": [

{

"name": "service1",

"version": "1.0"

}

]

}

],

"service\_metadata": [

{

"loaded": true,

"capabilities": [],

"enabled": true,

"name": "service1",

"version": "1.0",

"metrics": [

{

"units": "Celsius",

"data\_type": "float",

"items": 1,

"name": "Temperature"

},

{

"units": "%",

"data\_type": "float",

"items": 1,

"name": "Humidity"

}

]

}

]

}

**Metrics messages**

Topic format: /server/metric/<account\_id>/<device\_id> (example: */server/metric/intel\_aa/ 00-21-CC-62-AA-B4)*

JSON input format as follows:

1. Msg\_type: metrics\_msg
2. 1 gateway per message
3. Supports multiple: *data\_source, metric, values* in 3 different arrays

**Current format example:**

{

"msg\_type": "metrics\_msg",

"sender\_id": "<GatewayID>",

"account\_id": "<ACCOUNT NAME>",

"timestamp": "<milliseconds from EPOCH>",

"data\_source": [

{

"name": "<Data source1>",

"metrics": [

{

"name": "<Metric Name1>",

"sample": [

{

"value": "<Value>",

"timestamp": "<milliseconds from EPOCH>"

}

]

},

{

"name": "<Metric Name2>",

"sample": [

{

"value": "<Value>",

"timestamp": "<milliseconds from EPOCH>"

}

]

},

{

"name": "<Metric Name3>",

"sample": [

{

"value": "<Value>",

"timestamp": "<milliseconds from EPOCH>"

}

]

}

]

}

]

}