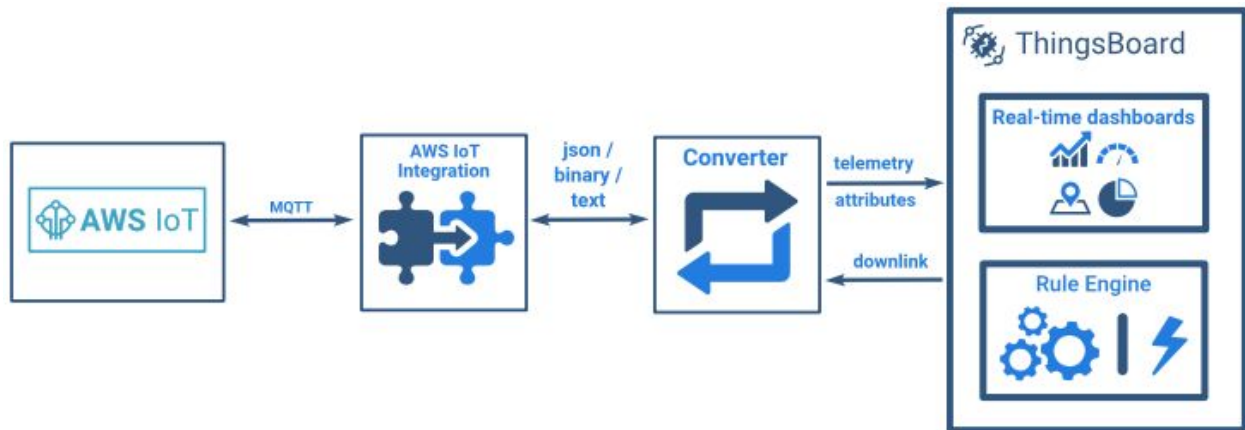


Step by step how to connect SensiEDGE SensorBoard to ThingsBoard



The process of connection is described on the next page (there is a video instruction):

<https://thingsboard.io/docs/user-guide/integrations/aws-iot/>

The uplink data converter is :

```

// Decode an uplink message from a buffer
// payload - array of bytes
// metadata - key/value object

/** Decoder */

// decode payload to string
var payloadStr = decodeToString(payload);

// decode payload to JSON
var data = decodeToJson(payload);

// Result object with device/asset attributes/telemetry data
var result = {};

var topic = metadata['topic'].split('/');
result.deviceName = topic[0];

if (topic[1] == 'accelerometer')
{
    result.deviceType = 'Motion sensor';
}
  
```

```

        result.telemetry = {Accelerometer: {X:(data.X*0.001), Y:(data.Y*0.001),
Z:(data.Z*0.001)}};
    } else if (topic[1] == 'magnetometer')
    {
        result.deviceType = 'Magnetic sensor';
        result.telemetry = {Magnetometer: {X:(data.X*0.001), Y:(data.Y*0.001),
Z:(data.Z*0.001)}};
    } else if (topic[1] == 'pressure')
    {
        result.deviceType = 'Pressure sensor';
        result.telemetry = {Pressure: data.Pressure};
    } else if (topic[1] == 'humidity')
    {
        result.deviceType = 'humidity sensor';
        result.telemetry = {Humidity: data.Humidity};
    } else if (topic[1] == 'temperature')
    {
        result.deviceType = 'thermostat';
        result.telemetry = {Temperature: data.Temperature};
    } else if (topic[1] == 'luminosity')
    {
        result.deviceType = 'lux sensor';
        result.telemetry = {Luminosity: data.Luminosity};
    } else if (topic[1] == 'co_sensor')
    {
        result.deviceType = 'UV sensor';
        result.telemetry = {UV: data["CO Concentration"]};
    } else if (topic[1] == 'battery')
    {
        var batStat = { 0:'LOW_BATTERY', 1:'DISCHARGING',
2:'PLUGGED_NOT_CHARGING', 3:'CHARGING', 4:'UNKNOWN', 0xFF:'ERROR' };

        result.deviceType = 'Battery details';
        result.telemetry = {Battery: {SOC:data.Level, Voltage:data.Voltage,
Status:batStat[data.Status]}};
    } else if (topic[1] == 'mic_level')
    {
        result.deviceType = 'Noise level';
        result.telemetry = {Noize:data.Mic};
    } else if (topic[1] == 'accelerometer_events')
    {
        var AccEvtCode =
        {
            0x0000: "No Event",
            0x0001: "Orient Top Right",

```

```

        0x0002: "Orient Bottom Right",
        0x0003: "Orient Bottom Left",
        0x0004: "Orient Top Left",
        0x0005: "Orient Up",
        0x0006: "Orient Down",
        0x0008: "Tilt",
        0x0010: "Free Fall",
        0x0020: "Single Tap",
        0x0040: "Double Tap",
        0x0080: "Wake Up",
        0x0100: "Pedometer"
    };

    result.deviceType = 'Accelerometer Event';
    result.telemetry =
    {Event:{Description:AccEvtCode[data.Event],Steps:data.nSteps}};
    } else if (topic[1] == 'compass')
    {
        result.deviceType = 'Angle to North';
        result.telemetry = {Azimuth:data.Angle};
    }

    result.attributes = {integrationName: metadata['integrationName']};

    /** Helper functions */

    function decodeToString(payload) {
        return String.fromCharCode.apply(String, payload);
    }

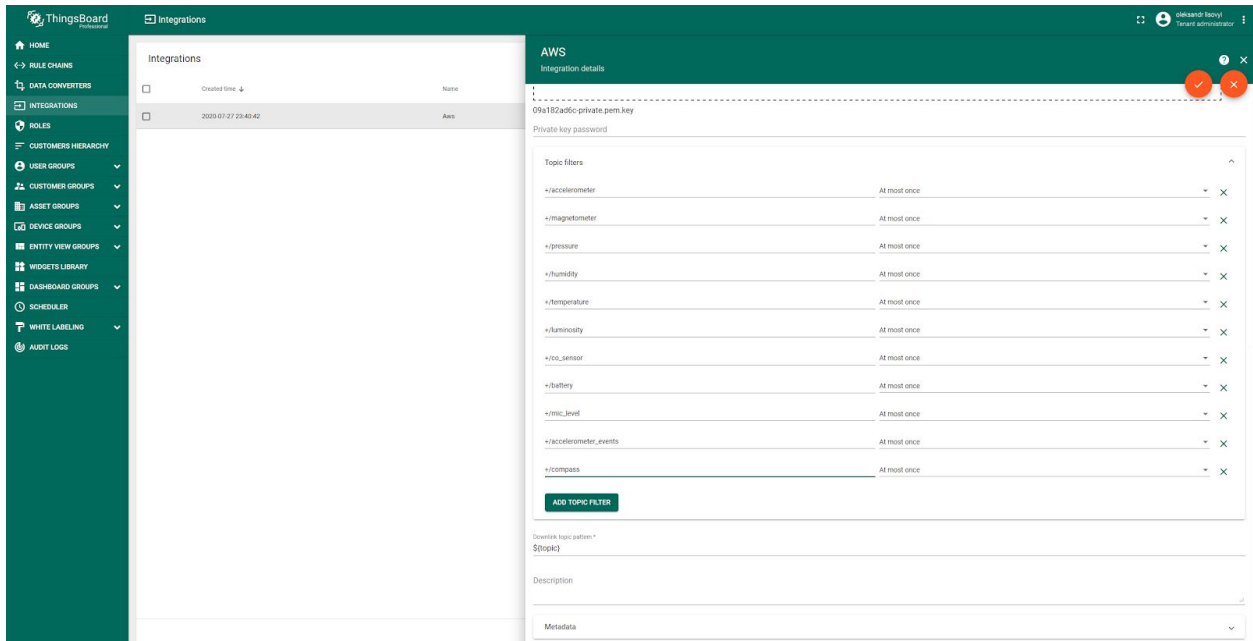
    function decodeToJson(payload) {
        // covert payload to string.
        var str = decodeToString(payload);

        // parse string to JSON
        var data = JSON.parse(str);
        return data;
    }

    return result;

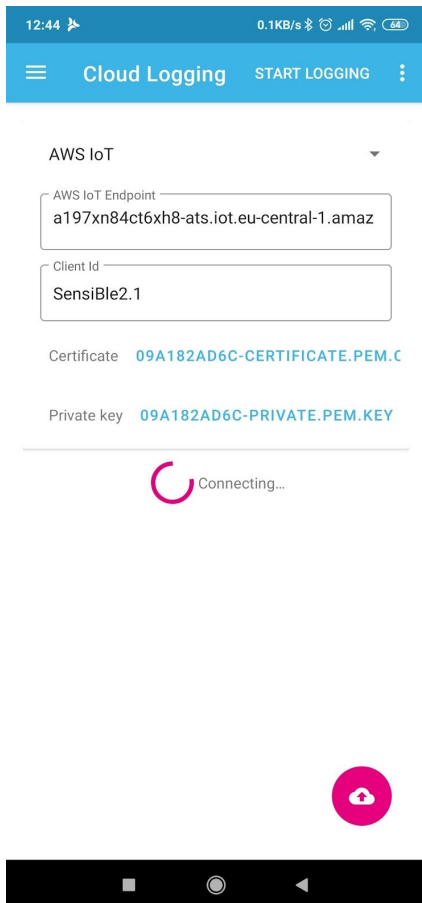
```

Topics for AWS Integration configuration for SensiEDGE support:



The screenshot shows the ThingsBoard web interface. On the left is a navigation menu with options like HOME, RULE CHAINS, DATA CONVERTERS, INTEGRATIONS, ROLES, CUSTOMERS HIERARCHY, USER GROUPS, CUSTOMER GROUPS, ASSET GROUPS, DEVICE GROUPS, ENTITY VIEW GROUPS, WIDGETS LIBRARY, DASHBOARD GROUPS, SCHEDULER, WHITE LABELING, and AUDIT LOGS. The main content area is titled 'Integrations' and contains a table with columns for 'Created time' and 'Name'. Below the table, the 'AWS' integration details are shown. The details include the integration name '09a182ad6c-private.pem.key', a 'Private key password' field, and a list of 'Topic filters' with their respective frequencies. The filters are: +accelerometer (At most once), +magnetometer (At most once), +pressure (At most once), +humidity (At most once), +temperature (At most once), +illumintaty (At most once), +vico_sensor (At most once), +battery (At most once), +misc_level (At most once), +accelerometer_events (At most once), and +compass (At most once). There is an 'ADD TOPIC FILTER' button below the list. At the bottom, there are fields for 'Downlink topic pattern' (containing '\$\${topic}'), 'Description', and 'Metadata'.

Screenshot with connecting to AWS using ST BLE Sensor app:



The screenshot shows the ST BLE Sensor app interface. At the top, the status bar displays the time 12:44, data usage 0.1KB/s, and signal strength. Below the status bar is a blue header with a menu icon, the text 'Cloud Logging', and a 'START LOGGING' button. The main content area is titled 'AWS IoT' and contains several input fields: 'AWS IoT Endpoint' with the value 'a197xn84ct6xh8-ats.iot.eu-central-1.amaz', 'Client Id' with the value 'SensiBle2.1', 'Certificate' with the value '09A182AD6C-CERTIFICATE.PEM.C', and 'Private key' with the value '09A182AD6C-PRIVATE.PEM.KEY'. Below these fields is a 'Connecting...' indicator with a circular progress icon. At the bottom of the screen, there is a red circular button with a white cloud icon and a standard Android navigation bar.

Received SensiBLE2 data on the ThingsBoard side:

The screenshot displays the ThingsBoard web interface. On the left is a dark green sidebar with navigation options: HOME, RULE CHAINS, DATA CONVERTERS, INTEGRATIONS, ROLES, CUSTOMERS HIERARCHY, USER GROUPS, CUSTOMER GROUPS, ASSET GROUPS, DEVICE GROUPS, and a search bar. The main content area is split into two panels. The left panel, titled 'All Devices', shows a table with one device: 'sensible2.1' with a 'Created time' of '2020-07-28 12:48:46'. The right panel, titled 'SENSIBLE2.1 Device details', has tabs for DETAILS, ATTRIBUTES, LATEST TELEMETRY (selected), ALARMS, EVENTS, RELATIONS, and AUDIT LOGS. Below the tabs is a 'Latest telemetry' table with columns for 'Last update time', 'Key', and 'Value'. The table contains 11 rows of sensor data.

Last update time	Key	Value
2020-07-28 12:50:53	Accelerometer	{\"X\":-0.96,\"Y\":0.14,\"Z\":1.81}
2020-07-28 12:54:18	Azimuth	129.3200072421875
2020-07-28 12:53:50	Battery	{\"SOC\":\"100\",\"Voltage\":\"4.26\",\"Current\":\"98364256\",\"Status\":\"DISCHARGED\"}
2020-07-28 12:54:03	Event	{\"Description\":\"Orient Up\"}
2020-07-28 12:53:05	Humidity	63.7000007629345
2020-07-28 12:53:39	Luminosity	187
2020-07-28 12:51:13	Magnetometer	{\"X\":-0.17,\"Y\":0.18,\"Z\":-0.456}
2020-07-28 12:53:34	Noise	50
2020-07-28 12:58:10	Pressure	987.15000044140625
2020-07-28 12:53:29	Temperature	31.7000007629345

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