USER MANUAL

10070
Anura Base Hub

Revibe Energy AB 2024 ver.24.9.1

INTRODUCTION

The Anura Base Hub enables long-term monitoring of industrial equipment using Anura sensors.

The Base Hub collects, buffers and transfers data captured by the sensors. It is capable of uploading to remote or local servers.

The Base Hub also enables remote configuration of sensors, making it possible to adjust measurement-related parameters in the sensors via an internet-accessible API.

DATA DESTINATIONS

The gateway can forward the sensor data it receives from sensors to local or internet-accessible destinations. There are three types of configurable data destinations; **secured MQTT with certificate-based authentication**, **unsecured MQTT** and **local disk**. The available data formats are **Protobuf** (see detailed docs here https://github.com/ReVibe-Energy/anura-data-model) and **CSV**.

BUFFERING

If a data destination is not reachable from the gateway, the gateway buffers sensor data on disk for that data destination.

It is possible to change config for a data destination without losing the buffered data, as long as the `destination_name` is unchanged. This is useful if e.g. the MQTT broker is assigned a new hostname/IP in operation.

The buffered data is stored on disk until it has been successfully sent, even if the gateway is powered off. This means that it is possible to perform and store measurements without access to the internet. The gateway will upload this data the next time it is connected to the internet.

CONFIGURATION

Data destinations

Data destinations are configured using the API endpoint `/gateways/{gateway_id}/data_destinations`. Multiple data destinations can be active simultaneously. A data destination is configured with the following structure:

```
{
```

```
      "destination_name": "your-destination-name",
      "destination_type": "destination-type",
      "config": {
            "data_formats": [
                  …
            ],
            ...
      }
}
```

`destination_name` is a user-chosen identifier for the data destination in question.

Destination types

Secured (TLS) MQTT

This is the recommended option for systems that communicate over the internet

`destination_type == mqtt-ca`

To set up the system for authenticated and encrypted communication, the MQTT broker must be configured to trust certificates from a certificate authority (CA) that you control. The first time the gateway starts, it generates a certificate signing request (CSR) that it exposes over the API in the endpoint `/gateways/{gateway_id}`. The receiving system must download this CSR, sign it using the CA, and then send the resulting certificate back to the gateway over the API in the data destinations configuration. Additionally, the broker's hostname and the port at which it is accessible must also be set.

Unsecured MQTT

This is not recommended for use outside a well-secured and delimited local network

`destination_type == mqtt`

To configure an unsecured MQTT data destination, you will need the broker's hostname and the port at which it is accessible.

Local disk

`destination_type == disk`

To be documented

Data formats

All data destination types require the `data_formats` config attribute to be set. This is used to activate transmission of different types of data. The available data formats are:

* `aggregated_protobuf`
* `aggregated_json`
* `scheduled_protobuf`
* `scheduled_csv`
* `node_health_protobuf`

The `aggregated` data are frequently-transmitted, low-data values that are derived from the raw acceleration data e.g. RMS, max acceleration and dominating frequency. Please see the user manual for more details about the values themselves.

`scheduled` data is raw time-domain acceleration data, regularly recorded according to the schedule specified in the node settings.

`node_health` contains meta-information about the nodes - e.g. battery level, signal strength and time sync statistics.

`protobuf` formats are described in the anura-data-model repository: https://github.com/ReVibe-Energy/anura-data-model.

Node settings

* To be documented *

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