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Challenge v2 Documentation

Version: 1.0.0

Introduction

Challenge v2 module is responsible for retrieving and storing energy asset data into database for the purpose of further analyzation and real-time operation.

This document is intended to provide general overview of the module, configuration options, domain model, use cases and it's APIs.

System Configuration

This chapter describes all configuration parameters for the Challenge v2 module.

Environment variables

All properties can be supplied to the module through environment variables.

Environment Variable	Description
DB_HOST	Database host
DB_PORT	Database port
DB_NAME	Database name
RABBITMQ_USERNAME	RabbitMq username
RABBITMQ_PASSWORD	RabbitMq password
RABBITMQ_HOST	RabbitMq host
RABBITMQ_PORT	RabbitMq port
RABBITMQ_VIRTUAL_HOST	RabbitMq virtual host
RABBITMQ_LISTENER_PREFETCH	How many messages to send to each consumer in a single request
RABBITMQ_CONSUMERS_PER_QUEUE	The minimum number of consumers to creat
REDIS_CACHE_NAMES	Redis cache names
REDIS_TTL	Redis key expiration time
SENTINEL_NODES	Redis sentinel nodes IP and port separated by comma
REDIS_SENTINEL_MASTER	Redis master sentinel name
REDIS_PASSWORD	Redis password
REDIS_TIMEOUT	Redis command time-out
REDIS_SHUTDOWN_TIMEOUT	Redis shutdown time-out

Message Queue Configuration

This chapter describes all queues and exchanges for the Challenge v2 module.

Exchanges

Name	Type
TestExchange	direct

Queues

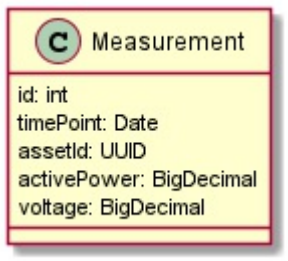
Name	Arguments
challenge.v2.measurement.insert	

Domain Model

Challenge v2 module

This chapter describes the domain model for the Challenge v2 modul. Main building blocks of the domain model are illustrated with the following UML diagrams.

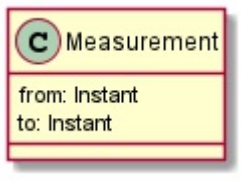
Measurement



An entity representing a measurement from an energy asset.

Field	Description
id	Id of the measurement
timePoint	Date and time of measurement
assetId	Id of the measurement asset
activePower	Power measured
voltage	Voltage measured

MeasurementByRange



An entity representing date and time range to retrieve measurements.

Field	Description
from	From which instant(date and time)
to	To which instant(date and time)

Use Cases

This chapter describes use cases supported by the Challenge v2 module.

Public endpoints

Energy Resource

Get All measurements

Service URL: /public/measurement

HTTP method: **GET**

Other modules have the option to retrieve all measurements.

Request

```
GET /public/measurement?page=0&size=10 HTTP/1.1
Host: api-host
```

Response

```
HTTP/1.1 200 OK
Content-Type: application/json
Content-Length: 661

{
  "status" : 200,
  "data" : [ {
    "id" : 1,
    "timePoint" : "2022-02-27T19:25:46.775+00:00",
    "assetId" : "20ab4bb4-cc68-48ba-9ef3-10ecdd54a369",
    "activePower" : 100,
    "voltage" : 230
  }, {
    "id" : 1,
    "timePoint" : "2022-02-27T19:25:51.775+00:00",
    "assetId" : "a9862f78-52ed-4cba-870e-27b1c1e165b6",
    "activePower" : 100,
    "voltage" : 230
  }, {
    "id" : 1,
    "timePoint" : "2022-02-27T19:25:56.775+00:00",
    "assetId" : "d673425a-73d4-4405-923d-58ff73a30a90",
    "activePower" : 100,
    "voltage" : 230
  } ],
  "pageNumber" : 0,
  "pageSize" : 10,
  "totalElements" : 3,
  "totalPages" : 1
}
```

Get one measurement

Service URL: /public/measurement/{id_of_the_measurement}

HTTP method: **GET**

Other modules have the option to retrieve one measurement by its Id.

Request

```
GET /public/measurement/1 HTTP/1.1
Host: api-host
```

Response

```
HTTP/1.1 200 OK
Content-Type: application/json
Content-Length: 165

{
  "id" : 1,
  "timePoint" : "2022-02-27T19:25:46.815+00:00",
  "assetId" : "dc486bf5-ba0d-4729-af41-34c8602b7ba3",
  "activePower" : 100,
  "voltage" : 230
}
```

Insert one measurement

Service URL: /public/measurement

HTTP method: **POST**

Energy asset has the option to insert one measurement.

Request

```
POST /public/measurement HTTP/1.1
Content-Type: application/json
Content-Length: 165
Host: api-host

{
  "id" : 0,
  "timePoint" : "2022-02-27T19:25:46.746+00:00",
  "assetId" : "dcb5077a-6681-44f6-8918-8c38aebca56f",
  "activePower" : 100,
  "voltage" : 230
}
```

Response

```
HTTP/1.1 200 OK
Content-Type: application/json
Content-Length: 165

{
  "id" : 1,
  "timePoint" : "2022-02-27T19:25:46.746+00:00",
  "assetId" : "3cb4b45b-c460-4e7c-8ee2-9fa4a2dc2bcb",
  "activePower" : 100,
  "voltage" : 230
}
```

Get latest measurement

Service URL: /public/measurement/latest

HTTP method: **GET**

Other modules have the option to retrieve latest measurement.

Request

```
GET /public/measurement/latest HTTP/1.1
Host: api-host
```

Response

```
HTTP/1.1 200 OK
Content-Type: application/json
Content-Length: 165

{
  "id" : 1,
  "timePoint" : "2022-02-27T19:25:46.596+00:00",
  "assetId" : "4c857f09-7124-4be9-a3bf-75f83d7f113d",
  "activePower" : 100,
  "voltage" : 230
}
```

Get measurements by date and time range

Service URL: /public/measurement/byRange

HTTP method: **POST**

Other modules have the option to retrieve latest measurement.

Request

```
POST /public/measurement/byRange HTTP/1.1
Content-Type: application/json
Content-Length: 93
Host: api-host

{
  "from" : "2022-02-27T19:25:49.702924300Z",
  "to" : "2022-02-27T19:25:58.702924300Z"
}
```

Response

```
HTTP/1.1 200 OK
Content-Type: application/json
Content-Length: 396

{
  "status" : 200,
  "data" : [ {
    "id" : 1,
    "timePoint" : "2022-02-27T19:25:51.702+00:00",
    "assetId" : "da10f6da-16fc-40b7-bcdd-dcbda76c201e",
    "activePower" : 100,
    "voltage" : 230
  }, {
    "id" : 1,
    "timePoint" : "2022-02-27T19:25:56.702+00:00",
    "assetId" : "1e263df1-852c-447f-bbfa-12bd03d859b2",
    "activePower" : 100,
    "voltage" : 230
  } ]
}
```

Insure Listener

Insurance document created

A message is received when energy asset sends a message with measurement data as content. After receiving and deserializing the message content into Java Object it inserts the measurement in the database.

Message example:


```
{
  "exchange" : "TestExchange",
  "queue" : "challenge.v2.measurement.insert",
  "body" : {
    "id" : 1,
    "timePoint" : 1645989943359,
    "assetId" : "819902e2-bd41-4377-8878-ce23e11ea075",
    "activePower" : 100,
    "voltage" : 230
  },
  "messageProperties" : {
    "headers" : { },
    "contentType" : "application/json",
    "contentLength" : 0,
    "deliveryMode" : "PERSISTENT",
    "priority" : 0,
    "deliveryTag" : 0,
    "finalRetryForMessageWithNoId" : false,
    "publishSequenceNumber" : 0,
    "lastInBatch" : false,
    "projectionUsed" : false
  }
}
```

MeasurementResourceApi

All URIs are relative to *https://localhost:8200*

Method	HTTP request	Description
getAllMeasurementUsingGET	**GET** /public/measurement	getAllMeasurement
getLatestMeasurementUsingGET	**GET** /public/measurement/latest	getLatestMeasurement
getMeasurementUsingGET	**GET** /public/measurement/{id}	getMeasurement
getMeasurementsByTimeRangeUsingPOST	**POST** /public/measurement/byRange	getMeasurementsByTimeRange
insertMeasurementUsingPOST	**POST** /public/measurement	insertMeasurement

getAllMeasurementUsingGET

> WebApiResponseListMeasurement getAllMeasurementUsingGET(page, size)

getAllMeasurement

Example

```
// Import classes:
//import io.swagger.client.ApiException;
//import io.swagger.client.api.MeasurementResourceApi;


MeasurementResourceApi apiInstance = new MeasurementResourceApi();
Integer page = 56; // Integer | page
Integer size = 56; // Integer | size
try {
    WebApiResponseListMeasurement result = apiInstance.getAllMeasurementUsingGET(page, size);
    System.out.println(result);
} catch (ApiException e) {
    System.err.println("Exception when calling MeasurementResourceApi#getAllMeasurementUsingGET");
    e.printStackTrace();
}
```

Parameters

Name	Type	Description	Notes
page	**Integer**	page	[optional]
size	**Integer**	size	[optional]

Return type

WebApiResponseListMeasurement

Authorization

No authorization required

HTTP request headers

- **Content-Type**: Not defined
- **Accept**: application/json

getLatestMeasurementUsingGET

> Measurement getLatestMeasurementUsingGET()

getLatestMeasurement

Example

```
// Import classes:
//import io.swagger.client.ApiException;
//import io.swagger.client.api.MeasurementResourceApi;


MeasurementResourceApi apiInstance = new MeasurementResourceApi();
try {
    Measurement result = apiInstance.getLatestMeasurementUsingGET();
    System.out.println(result);
} catch (ApiException e) {
    System.err.println("Exception when calling MeasurementResourceApi#getLatestMeasurementUsingGET");
    e.printStackTrace();
}
```

Parameters

This endpoint does not need any parameter.

Return type

Measurement

Authorization

No authorization required

HTTP request headers

- **Content-Type**: Not defined
- **Accept**: application/json

getMeasurementUsingGET

> Measurement getMeasurementUsingGET(id)

getMeasurement

Example

```
// Import classes:
//import io.swagger.client.ApiException;
//import io.swagger.client.api.MeasurementResourceApi;

MeasurementResourceApi apiInstance = new MeasurementResourceApi();
Long id = 789L; // Long | id
try {
    Measurement result = apiInstance.getMeasurementUsingGET(id);
    System.out.println(result);
} catch (ApiException e) {
    System.err.println("Exception when calling MeasurementResourceApi#getMeasurementUsingGET");
    e.printStackTrace();
}
```

Parameters

Name	Type	Description	Notes
id	**Long**	id	

Return type

Measurement

Authorization

No authorization required

HTTP request headers

- **Content-Type**: Not defined
- **Accept**: application/json

getMeasurementsByTimeRangeUsingPOST

> WebApiResponseListMeasurement getMeasurementsByTimeRangeUsingPOST(measurementByRange)

getMeasurementsByTimeRange

Example

```
// Import classes:
//import io.swagger.client.ApiException;
//import io.swagger.client.api.MeasurementResourceApi;

MeasurementResourceApi apiInstance = new MeasurementResourceApi();
MeasurementByRange measurementByRange = new MeasurementByRange(); // MeasurementByRange | measurementByRange
try {
    WebApiResponseListMeasurement result = apiInstance.getMeasurementsByTimeRangeUsingPOST(measurementByRange);
    System.out.println(result);
} catch (ApiException e) {
    System.err.println("Exception when calling MeasurementResourceApi#getMeasurementsByTimeRangeUsingPOST");
    e.printStackTrace();
}
```

Parameters

Name	Type	Description	Notes
measurementByRange	**MeasurementByRange**	measurementByRange	

Return type

WebApiResponseListMeasurement

Authorization

No authorization required

HTTP request headers

- **Content-Type**: application/json
- **Accept**: application/json

insertMeasurementUsingPOST

> Measurement insertMeasurementUsingPOST(measurement)

insertMeasurement

Example

```
// Import classes:
//import io.swagger.client.ApiException;
//import io.swagger.client.api.MeasurementResourceApi;


MeasurementResourceApi apiInstance = new MeasurementResourceApi();
Measurement measurement = new Measurement(); // Measurement | measurement
try {
    Measurement result = apiInstance.insertMeasurementUsingPOST(measurement);
    System.out.println(result);
} catch (ApiException e) {
    System.err.println("Exception when calling MeasurementResourceApi#insertMeasurementUsingPOST");
    e.printStackTrace();
}
```

Parameters

Name	Type	Description	Notes
measurement	**Measurement**	measurement	

Return type

Measurement

Authorization

No authorization required

HTTP request headers

- **Content-Type**: application/json
- **Accept**: application/json

Measurement

Properties

Name	Type	Description	Notes
activePower	BigDecimal	Power measured	[optional]
assetId	UUID	Id of the measurement asset	[optional]
id	**Integer**	Id of the measurement	[optional]
timePoint	OffsetDateTime	Date and time of measurement	[optional]
voltage	BigDecimal	Voltage measured	[optional]

MeasurementByRange

Properties

Name	Type	Description	Notes
from	OffsetDateTime		[optional]
to	OffsetDateTime		[optional]

WebApiResponseListMeasurement

Properties

Name	Type	Description	Notes
data	**List<Measurement>**	Content	[optional]
displayMessage	**String**	Display message for client	[optional]
errorCode	**String**	Error code	[optional]
message	**String**	Error message	[optional]
pageNumber	**Integer**	Page number	[optional]
pageSize	**Integer**	Page size	[optional]
status	**Integer**	Http status code	[optional]
totalElements	**Long**	Total number of elements	[optional]
totalPages	**Integer**	Total number of pages	[optional]

Release Notes

v1.0.0 (27.2.2022)

- Initial functionality implemented.
- Configuration through environment variables is supported.