Co2 Emission Sensor Interface Specification Document

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1. Introduction

This document provides detailed description of APIs regarding sensor data of c02 emissions. Request and response structure are provided with examples. Potential errors in each communication set are also listed for understanding end to end aspects of emission APIs.

1. Co2 concentration Module

It enables the local city hall to keep track of the levels of CO across several city districts. In order to do so, the CO2 sensors installed throughout the city to provide CO concentration readings for each district to a given endpoint of server. Each city hall can check CO concentration historical data per district. The data model is designed in order to store and provide these data effectively. A report of CO concentrations grouped by district needs to be created and save as a file. This module APIs are available in both XML and JSON format.

# API end points

|  |  |  |
| --- | --- | --- |
| **#** | **Description** | **Message URL** |
| **1** | **List of all emission details per customer(Get sensor data)** | **Eg :**  <http://192.168.0.105:8080/api/customer/> |
| **2** | **List the details against a specific customer (Get sensor details by customer)** | **Eg :**  <http://192.168.0.105:8080/api/customer/>{customerid} |
| **3** | **List the details against a specific city (Get sensor details by city)** | **Eg :**  <http://192.168.0.105:8080/api/customer/>{customerid}/city/{cityid} |
| **4** | **List the details against a specific district (Get sensor details by district)** | **Eg :**  <http://192.168.0.105:8080/api/customer/>{customerid}/city/{cityid}/district/{districtid} |
| **5** | **Save or update the customer, city, district, sensor details(Create or update by customer)** | **Eg :**  http://192.168.0.105:8080/api/customer |
| **6** | **View the endpoints and documentation in swagger UI** | **Eg:**  http://192.168.0.105:8080/api/swagger-ui.html |
| **7** | **Access to h2 DB console** | **Eg:**  http://192.168.0.105:8080/api/h2 |

# Get all sensor data

To list all co2 emission details per customer.

URL : <http://192.168.0.105:8080/api/customer/>

**Response**

**Sample Message response:**

|  |
| --- |
| <List>      <item>          <id>1</id>          <firstName>custfn1</firstName>          <lastName>custln1</lastName>          <email>custln1@gmail.com</email>          <city>              <id>1</id>              <name>city1</name>                  <districts>                      <id>3</id>                      <name>dist3</name>                      <sensors>                          <sensors>                              <id>4</id>                              <sensorName>sensor4</sensorName>                              <co2EmissionLevel>66</co2EmissionLevel>                              <createdAt>2020-08-09 17:40:14</createdAt>                          </sensors>                          <sensors>                              <id>5</id>                              <sensorName>sensor5</sensorName>                              <co2EmissionLevel>28</co2EmissionLevel>                              <createdAt>2020-08-10 10:00:14</createdAt>                          </sensors>                          <sensors>                              <id>6</id>                              <sensorName>sensor6</sensorName>                              <co2EmissionLevel>22</co2EmissionLevel>                              <createdAt>2020-08-10 10:00:14</createdAt>                          </sensors>                      </sensors>                  </districts>              </districts>          </city>      </item>  </List> |

# Get details against a customer

To list all details against a customer.

URL : <http://192.168.0.105:8080/api/customer/>1

**Request:**

**Parameter**:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Parameter | Type | Description | Default | Mandatory/Optional |
| Customer\_id | Integer | Unique customer id |  | Mandatory |

**Sample message response**:

|  |
| --- |
| <Customer>      <id>2</id>      <firstName>custln2</firstName>      <lastName>custln2</lastName>      <email>custln2@email.com</email>      <city>          <id>2</id>          <name>city2</name>          <districts>              <districts>                  <id>5</id>                  <name>dist5</name>                  <sensors>                      <sensors>                          <id>9</id>                          <sensorName>sensor9</sensorName>                          <co2EmissionLevel>54</co2EmissionLevel>                          <createdAt>2020-08-10 10:00:14</createdAt>                      </sensors>                  </sensors>              </districts>              <districts>                  <id>6</id>                  <name>dist6</name>                  <sensors>                      <sensors>                          <id>10</id>                          <sensorName>sensor10</sensorName>                          <co2EmissionLevel>44</co2EmissionLevel>                          <createdAt>2020-08-10 10:00:14</createdAt>                      </sensors>                  </sensors>              </districts>          </districts>      </city>  </Customer> |

# Get details against a city

To list all details against a city.

URL : <http://192.168.0.105:8080/api/customer/>1/city/1

**Request:**

**Parameter**:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Parameter | Type | Description | Default | Mandatory/Optional |
| customer\_id | Integer | Unique customer id |  | Mandatory |
| City\_id | Integer | Unique city id |  | Mandatory |

**Sample message response**:

|  |
| --- |
| <City>      <id>2</id>      <name>city2</name>      <districts>          <districts>              <id>5</id>              <name>dist5</name>              <sensors>                  <sensors>                      <id>9</id>                      <sensorName>sensor9</sensorName>                      <co2EmissionLevel>54</co2EmissionLevel>                      <createdAt>2020-08-10 10:00:14</createdAt>                  </sensors>              </sensors>          </districts>          <districts>              <id>6</id>              <name>dist6</name>              <sensors>                  <sensors>                      <id>10</id>                      <sensorName>sensor10</sensorName>                      <co2EmissionLevel>44</co2EmissionLevel>                      <createdAt>2020-08-10 10:00:14</createdAt>                  </sensors>              </sensors>          </districts>      </districts>  </City> |

# Get details against a district

To list all details against a district.

URL : <http://192.168.0.105:8080/api/customer/>1/city/2/district/5

**Request:**

**Parameter**:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Parameter | Type | Description | Default | Mandatory/Optional |
| customer\_id | Integer | Unique customer id |  | Mandatory |
| city\_id | Integer | Unique city id |  | Mandatory |
| district\_id | Integer | Unique city id |  | Mandatory |

**Sample message response**:

|  |
| --- |
| <District>      <id>5</id>      <name>dist5</name>      <sensors>          <sensors>              <id>9</id>              <sensorName>sensor9</sensorName>              <co2EmissionLevel>54</co2EmissionLevel>              <createdAt>2020-08-10 10:00:14</createdAt>          </sensors>      </sensors>  </District> |

# Create or update customer

To create or update new customer, city, district and sensor.

URL : <http://192.168.0.105:8080/api/customer>

**Sample message request:**

|  |
| --- |
| {  "firstName": "John",  "lastName": "Snow",  "email": "snow@gmail.com",  "city":  {  "name": "West",  "districts":  [  {  "name": "mkm",  "sensors":  [  {  "sensorName": "mkm-sens",  "co2EmissionLevel": "22",  "createdAt": "2020-3-12 15:20:11.222"  },  {  "sensorName": "mkm-sensor2",  "co2EmissionLevel": "32",  "createdAt": "2019-7-15 15:30:14.332"  }  ]  }  ]  }    } |

# Potential errors

Potential errors that could occur along with error codes are described in the table below.

|  |  |  |
| --- | --- | --- |
| # | Error code | Description |
| 1 | 40 | Bad Credentials |
| 2 | 41 | Invalid Token |
| 3 | 50 | Invalid ship code |
| 4 | 51 | Ship code mandatory |
| 5 | 52 | Date mandatory |
| 6 | 53 | Invalid date |
| 7 | 54 | Restaurant code mandatory |
| 8 | 55 | Invalid restaurant code |
| 9 | 56 | Cruise mandatory |
| 10 | 57 | Invalid cruise |
| 11 | 58 | Channel code mandatory |
| 12 | 59 | Invalid channel code |
| 13 | 60 | Guest count mandatory |
| 14 | 61 | Invalid guest count |
| 15 | 62 | Slot Id mandatory |
| 16 | 63 | Invalid slot Id |
| 17 | 64 | Passenger Id mandatory |
| 18 | 65 | Invalid passenger Id |
| 19 | 66 | Status mandatory |
| 20 | 67 | Invalid status |
| 21 | 69 | Invalid guest code |
| 22 | 70 | Guest count mandatory |
| 23 | 71 | Invalid guest count |
| 24 | 72 | Reservation exist for this passenger |
| 25 | 73 | Reservation Id mandatory |
| 26 | 74 | Invalid Reservation Id |
| 27 | 75 | No Availability |
| 28 | 76 | No Reservation |
| 29 | 77 | Lead passenger can't be changed |
| 30 | 78 | Invalid meal type |
| 31 | 79 | Meal code mandatory |
| 32 | 80 | Passenger details mandatory |
| 33 | 81 | First name mandatory |
| 34 | 82 | Last name mandatory |
| 35 | 83 | Booking number mandatory |
| 36 | 84 | Booking status mandatory |
| 37 | 85 | Nationality mandatory |
| 38 | 86 | Cabin number mandatory |
| 39 | 87 | Title mandatory |
| 40 | 88 | Lead passenger mandatory |
| 41 | 90 | Action mandatory |
| 42 | 91 | Invalid action |