
SynchroniCity IoT Data Marketplace

Release latest

Jun 18, 2018

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This project is part of the EU H2020 [SynchroniCity](#) project and it is based on the [FIWARE Business API Ecosystem](#).

The [SynchroniCity IoT Data Marketplace](#) is a joint component made up of the FIWARE Business Framework and a set of APIs (and its reference implementations) provided by the TMForum. This component allows the monetization of different kind of assets (both digital and physical) during the whole service life cycle, from offering creation to its charging, accounting and revenue settlement and sharing. The SynchroniCity IoT Data Marketplace exposes its complete functionality through TMForum standard APIs; concretely, it includes the catalog management, ordering management, inventory management, usage management, billing, customer, and party APIs.

The SynchroniCity IoT Data Marketplace is not a single software repository, but it is composed of different projects which work coordinately to provide the complete functionality.

Concretely, the SynchroniCity IoT Data Marketplace is made of the following components:

- *Reference implementations of TM Forum APIs*: Reference implementation of the catalog management, ordering management, inventory management, usage management, billing, customer, and party APIs.
- *Business Ecosystem Charging Backend*: Is the component in charge of processing the different pricing models, the accounting information, and the revenue sharing reports. With this information, the Business Ecosystem Charging Backend is able to calculate amounts to be charged, charge customers, and pay sellers.
- *Business Ecosystem RSS*: Is in charge of distributing the revenues originated by the usage of a given data source among the involved stakeholders. In particular, it focuses on distributing part of the revenue generated by a data source between the SynchroniCity IoT Data Marketplace instance provider and the Data Provider(s) responsible for the data source.
- *Business Ecosystem Logic Proxy*: Acts as the endpoint for accessing the SynchroniCity IoT Data Marketplace. On the one hand, it orchestrates the APIs validating user requests, including authentication, authorization, and the content of the request from a business logic point of view. On the other hand, it serves a web portal that can be used to interact with the system.

Installation and Administration Guide The guide for maintainers that explains how to install it.

User Guide The guide for users that explains how to use it.

1.1 Installation and Administration Guide

1.1.1 Introduction

This installation and administration guide covers the [SynchroniCity IoT Data Marketplace](#) based on the [Business API Ecosystem](#) version 6.4.0, corresponding to FIWARE release 6. Any feedback on this document is highly welcomed, including bugs, typos or things you think should be included but aren't. Please send them by creating an issue at [GitHub Issues](#)

1.1.2 Installation

The SynchroniCity IoT Data Marketplace can be deployed with Docker. For all the components that made up the SynchroniCity IoT Data Marketplace (based on the [Business API Ecosystem](#) it has been provided a Docker image that can be used jointly with docker-compose in order to deploy and configure the ecosystem.

Requirements

The SynchroniCity IoT Data Marketplace is not a single software, but a set of modules that work together for proving business capabilities. In this regard, this section contains the basic dependencies of the different components that made up the SynchroniCity IoT Data Marketplace.

Note: The SynchroniCity IoT Data Marketplace requires instances of MySQL and MongoDB running. In this regard, you have three possibilities:

- You can have your own instances deployed in your machine

- You can manually run docker containers before executing the SynchroniCity IoT Data Marketplace
 - You can use docker-compose to automatically deploy both components
-

OAuth2 Authentication requirements

The SynchroniCity IoT Data Marketplace authenticates with the [FIWARE identity manager](<http://fiware-idm.readthedocs.io/en/latest/>). It is needed to register an application in this portal in order to acquire the OAuth2 credentials.

There you have to use the following info for registering the app:

- Name: The name you want for your instance
- URL: Host and port where you plan to run the instance. [http]https://host:port/
- Callback URL: URL to be called in the OAuth process. [http]https://host:port/auth/fiware/callback

You must also create a new role called 'seller' and assign this role to the user authorized to be seller (data provider) in the marketplace.

Deploying the SynchroniCity IoT Data Marketplace

As stated, it is possible to deploy the SynchroniCity IoT Data Marketplace using the Docker images available for each of its modules with *docker-compose*. In particular, the following images have to be deployed:

- *bae-apis-synchronicity* (<https://hub.docker.com/r/angelocapossele/bae-apis-synchronicity/>): Image including the TMForum APIs
- *biz-ecosystem-rss* (<https://hub.docker.com/r/conwetlab/biz-ecosystem-rss/>): Image Including the BAE RSS module
- *charging-backend-synchronicity* (<https://hub.docker.com/r/angelocapossele/charging-backend-synchronicity/>): Image including the charging backend module
- *logic-proxy-synchronicity* (<https://hub.docker.com/r/conwetlab/angelocapossele/logic-proxy-synchronicity/>): Image including the logic proxy module

For deploying the SynchroniCity IoT Data Marketplace the first step is creating a *docker-compose.yml* file with the following contents (or use the one provided in this GitHub repo):

```
version: '3'
services:
  mongo:
    image: mongo:3.2
    restart: always
    ports:
      - 27017:27017
    networks:
      main:
    volumes:
      - ./mongo-data:/data/db

  mysql:
    image: mysql:latest
    restart: always
    ports:
```

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```

    - 3333:3306
  volumes:
    - ./mysql-data:/var/lib/mysql
  networks:
    main:
  environment:
    - MYSQL_ROOT_PASSWORD=my-secret-pw
    - MYSQL_DATABASE=RSS

charging:
  image: angelocapossele/charging-backend-synchronicity:v6.4.0
  restart: always
  links:
    - mongo
  depends_on:
    - mongo
    - apis
    - rss
  ports:
    - 8006:8006
  networks:
    main:
      aliases:
        - charging.docker
  volumes:
    - ./charging-bills:/business-ecosystem-charging-backend/src/media/bills
    - ./charging-assets:/business-ecosystem-charging-backend/src/media/assets
    - ./charging-plugins:/business-ecosystem-charging-backend/src/plugins
    - ./charging-settings:/business-ecosystem-charging-backend/src/user_
↪ settings
  environment:
    - PAYPAL_CLIENT_ID=client_id_here
    - PAYPAL_CLIENT_SECRET=client_secret_here

proxy:
  image: angelocapossele/logic-proxy-synchronicity:v6.4.0
  restart: always
  links:
    - mongo
  depends_on:
    - mongo
    - apis
  ports:
    - 8004:8004
  networks:
    main:
      aliases:
        - proxy.docker
  volumes:
    - ./proxy-conf:/business-ecosystem-logic-proxy/etc
    - ./proxy-indexes:/business-ecosystem-logic-proxy/indexes
    - ./proxy-themes:/business-ecosystem-logic-proxy/themes
    - ./proxy-static:/business-ecosystem-logic-proxy/static
  environment:
    - NODE_ENV=development

apis:

```

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```
image: angelocapossele/bae-apis-synchronicity:v6.4.0
restart: always
ports:
  - 4848:4848
  - 8080:8080
links:
  - mysql
depends_on:
  - mysql
networks:
  main:
    aliases:
      - apis.docker
volumes:
  - ./apis-conf:/etc/default/tmf/
environment:
  - MYSQL_ROOT_PASSWORD=my-secret-pw
  - MYSQL_HOST=mysql

rss:
image: conwetlab/biz-ecosystem-rss:v6.4.0
restart: always
ports:
  - 9999:8080
  - 4444:4848
  - 1111:8181
links:
  - mysql
depends_on:
  - mysql
networks:
  main:
    aliases:
      - rss.docker
volumes:
  - ./rss-conf:/etc/default/rss

networks:
  main:
    external: true
```

1.1.3 Configuration

The next step is providing all the configuration files required by the different components using the configured volumes. It is possible to find valid configuration files (as well as the *docker-compose.yml*) in this [GitHub repo](#).

As you can see, the different modules include environment variables and volumes. In particular:

Charging

The charging-backend-synchronicity needs the following environment variables:

- **PAYPAL_CLIENT_ID**: the client id of your application PayPal credentials used for charging users (a Sandbox account can be used for testing).

- **PAYPAL_CLIENT_SECRET**: the client secret of your application PayPal credentials used for charging users (a Sandbox account can be used for testing).

Additionally, the `charging-backend-synchronicity` image contains 4 volumes. In particular:

- `/business-ecosystem-charging-backend/src/media/bills`: This directory contains the PDF invoices generated by the Business Ecosystem Charging Backend
- `/business-ecosystem-charging-backend/src/media/assets`: This directory contains the different digital assets uploaded by sellers to the Business Ecosystem Charging Backend
- `/business-ecosystem-charging-backend/src/plugins`: This directory is used for providing asset plugins (see section *Installing the Orion Query Plugin*)
- `/business-ecosystem-charging-backend/src/user_settings`: This directory must include the `settings.py` and `services_settings.py` files with the software configuration.

More specifically, the `services_settings.py` includes:

- **KEYSTONE_PROTOCOL**: http or https
- **KEYSTONE_HOST**: host where is running the IDM (e.g., 'idm.docker')
- **KEYROCK_PORT**: port number where the *Keyrock* instance is listening (e.g., '8000')
- **KEYSTONE_PORT**: port number where the *Keystone* instance is listening (e.g., '5000')
- **KEYSTONE_USER**: admin username of the IDM (e.g., 'idm')
- **KEYSTONE_PWD**: admin password of the IDM (e.g., 'idm')
- **ADMIN_DOMAIN**: admin domain on the IDM (e.g., 'Default')
- **APP_CLIENT_ID**: Client ID of the Orion context broker registered on the IDM
- **APP_CLIENT_SECRET**: Client Secret of the Orion Context Broker registered on the IDM

Logic Proxy

The `logic-proxy-synchronicity` image contains 4 volumes. In particular:

- `/business-ecosystem-logic-proxy/etc`: This directory must include the `config.js` file with the software configuration
- `/business-ecosystem-logic-proxy/indexes`: This directory contains the indexes used by the SynchroniCity IoT Data Marketplace for searching
- `/business-ecosystem-logic-proxy/themes`: This directory contains the themes that can be used to customize the web portal
- `/business-ecosystem-logic-proxy/static`: This directory includes the static files ready to be rendered including the selected theme and js files

Finally, the `logic-proxy-synchronicity` uses the environment variable `NODE_ENV` to determine if the software is being used in *development* or in *production* mode.

Note: The `config.js` file must include an extra setting not provided by default called `config.extPort` that must include the port where the proxy is going to run in the host machine

Once you have created the files, run the following command

```
$ docker-compose up
```

Then, the SynchroniCity IoT Data Marketplace should be up and running in `http://YOUR_HOST:PORT/` replacing `YOUR_HOST` by the host of your machine and `PORT` by the port provided in the Business Ecosystem Logic Proxy configuration

Once the different containers are running, you can stop them using

```
$ docker-compose stop
```

And start them again using

```
$ docker-compose start
```

Additionally, you can terminate the different containers by executing

```
$ docker-compose down
```

Installing the Orion Query Plugin

The SynchroniCity IoT Data Marketplace is intended to support the monetization of different kind of data sources. The different kind of data sources that may be wanted to be monetized will be heterogeneous and potentially very different between them.

Additionally, for each type of data source different validations and activation mechanisms will be required. For example, if the data source is an NGSI entity, it will be required to validate that the provider is the owner of that entity. Moreover, when a customer acquires the access to that entity, it will be required to notify the Identity Management component that a new user has access to it.

The huge differences between the different types of data sources that can be monetized in the SynchroniCity IoT Data Marketplace makes impossible to include its validations and characteristics as part of the core software. For this reason, it has been created a plugin based solution, where all the characteristics of a data source type are implemented in a plugin that can be loaded in the SynchroniCity IoT Data Marketplace.

As you may know, the SynchroniCity IoT Data Marketplace is able to sell NGSI compliant data sources. To support this functionality, it must be installed the Orion Query plugin (also included in this [GitHub repo](#)) as follows

1. Copy the plugin file into the host directory of the volume `/business-ecosystem-charging-backend/src/plugins`
2. Enter the running container

```
$ docker exec -i -t your-container /bin/bash
```

3. Go to the installation directory

```
$ cd /apis/business-ecosystem-charging-backend/src
```

4. Load the plugin

```
$ ./manage.py loadplugin ./plugins/Orion.zip
```

5. Restart Apache

```
$ service apache2 restart
```

Note: For specific details on how to create a plugin and its internal structure, have a look at the [Business API Ecosystem Programmer Guide](#)

1.1.4 Sanity Check Procedures

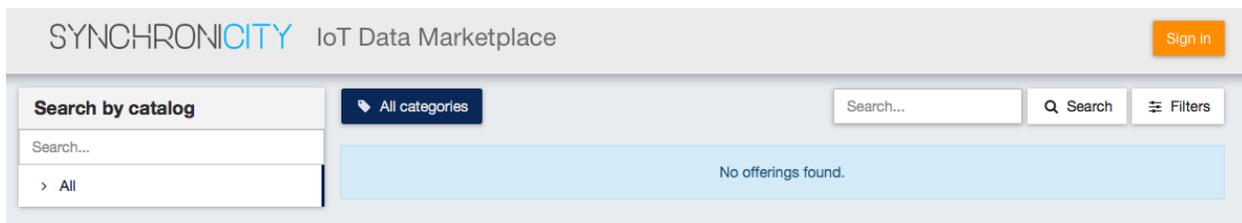
The Sanity Check Procedures are the steps that a System Administrator will take to verify that an installation is ready to be tested. This is therefore a preliminary set of tests to ensure that obvious or basic malfunctioning is fixed before proceeding to unit tests, integration tests and user validation.

End to End Testing

Please note that the following information is required before starting with the process: * The host and port where the Proxy is running * A valid IdM user with the *Seller* role

To Check if the SynchroniCity IoT Data Marketplace is running, follow the next steps:

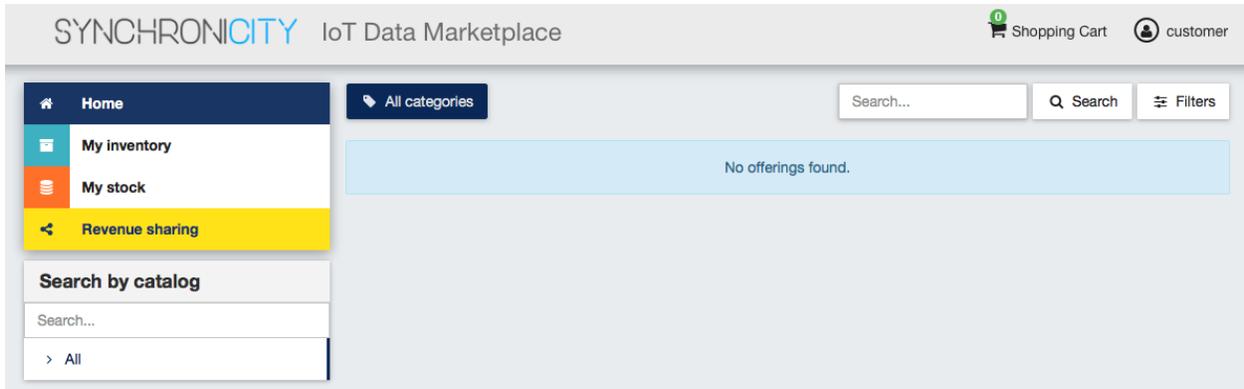
1. Open a browser and enter to the SynchroniCity IoT Data Marketplace
2. Click on the *Sign In* Button



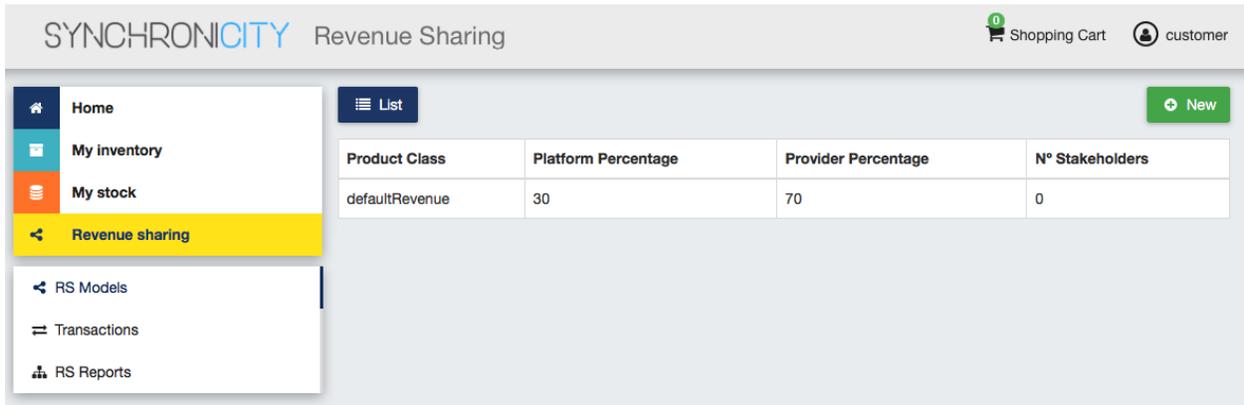
3. Provide your credentials in the IdM page



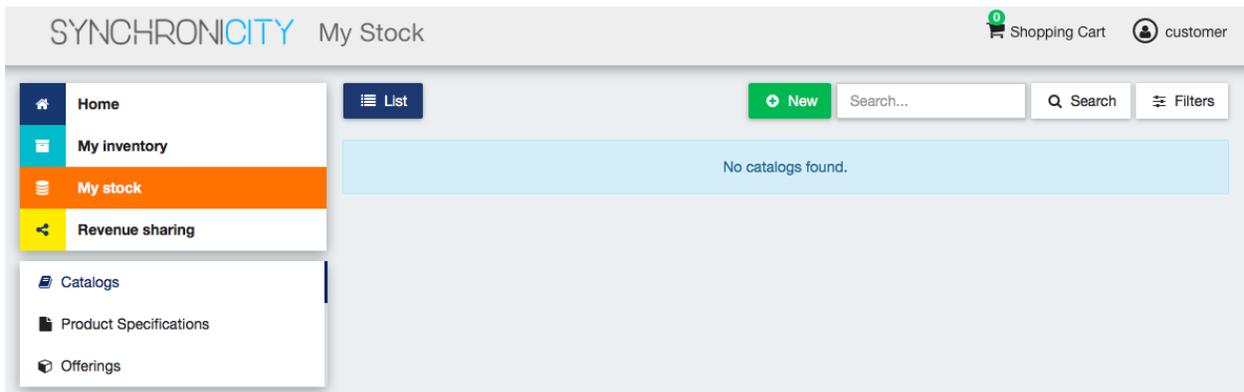
4. Go to the *Revenue Sharing* section



5. Ensure that the default RS Model has been created



6. Go to My Stock section and click on New for creating a new catalog



7. Provide a name and a description and click on Next. Then click on Create

SYNCHRONICITY My Stock Shopping Cart 0 customer

- Home
- My inventory
- My stock
- Revenue sharing
- Catalogs
- Product Specifications
- Offerings

List New

New catalog

- 1 General
- 2 Finish

Step 1: General

Enter a name

Enter a description (optional)

[Next](#)

SYNCHRONICITY My Stock Shopping Cart 0 customer

- Home
- My inventory
- My stock
- Revenue sharing
- Catalogs
- Product Specifications
- Offerings

List New

New catalog

- 1 General
- 2 Finish

Step 2: Finish

Name

Status

Active

Launched

Retired

Obsolete

Description

[Create](#)

SYNCHRONICITY My Stock Shopping Cart 0 customer

- Home
- My inventory
- My stock
- Revenue sharing
- Catalogs
- Product Specifications
- Offerings

List Details

My catalog

About
Parties
Offerings

General

Name

Status

Active

Launched

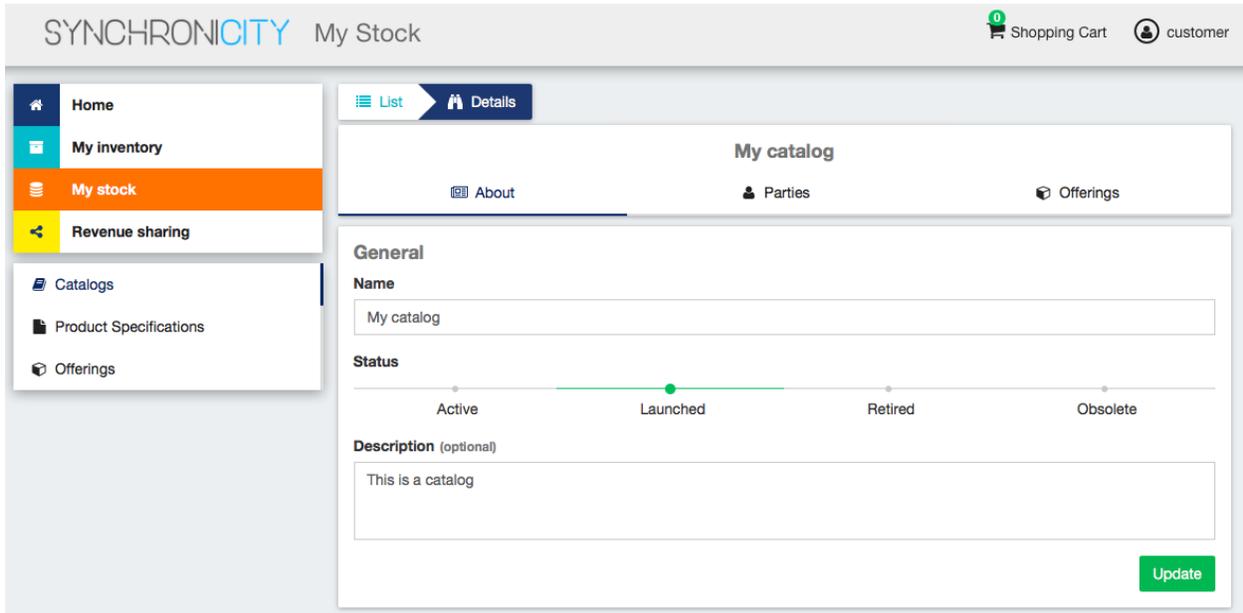
Retired

Obsolete

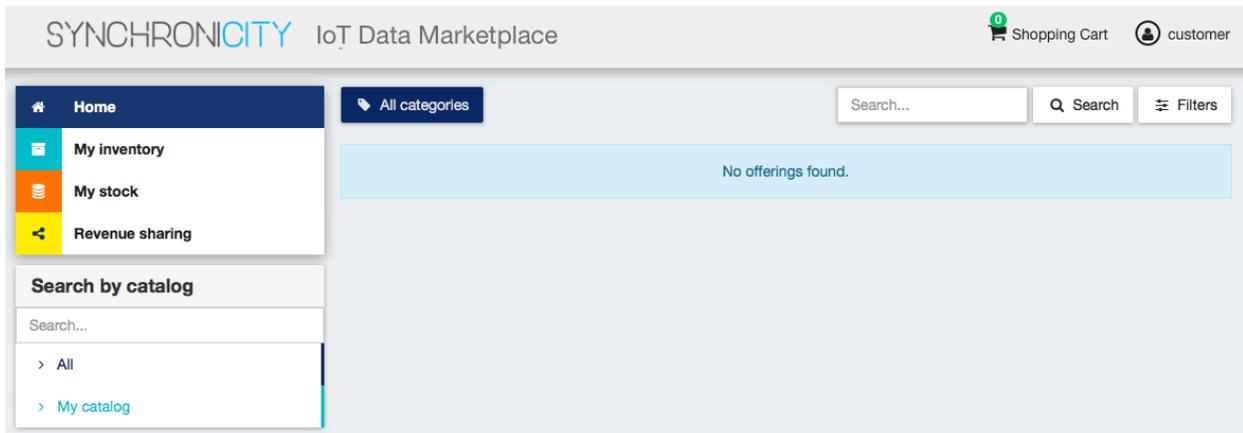
Description (optional)

[Update](#)

8. Click on *Launched*, and then click on *Update*



9. Go to *Home*, and ensure the new catalog appears



List of Running Processes

We need to check that Java for the Glassfish server (APIs and RSS), python (Charging Backend) and Node (Proxy) are running, as well as MongoDB and MySQL databases. If we execute the following command:

```
ps -ewF | grep 'java|mongodb|mysql|python|node' | grep -v grep
```

It should show something similar to the following:

```
mongodb  1014      1  0 3458593 49996 0 sep08 ?           00:22:30 /usr/bin/mongod --
↳config /etc/mongodb.conf
mysql    1055      1  0 598728 64884 2 sep08 ?           00:02:21 /usr/sbin/mysqld
francis+ 15932 27745  0 65187 39668  0 14:53 pts/24 00:00:08 python ./manage.py_
↳runserver 0.0.0.0:8006
francis+ 15939 15932  1 83472 38968  0 14:53 pts/24 00:00:21 /home/user/business-
↳ecosystem-charging-backend/src/virtenv/bin/python ./manage.py runserver 0.0.0.0:8006
```

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```
francis+ 16036 15949 0 330473 163556 0 14:54 pts/25 00:00:08 node server.js
root      1572      1 0 1142607 1314076 3 sep08 ? 00:37:40 /usr/lib/jvm/java-8-
↳oracle/bin/java -cp /opt/biz-ecosystem/glassfish ...
```

Network interfaces Up & Open

To check the ports in use and listening, execute the command:

```
$ sudo netstat -nltp
```

The expected results must be something similar to the following:

```
Active Internet connections (only servers)
Proto Recv-Q Send-Q Local Address           Foreign Address         State       PID/
↳Program name
tcp        0      0 127.0.0.1:8006         0.0.0.0:*               LISTEN     15939/
↳python
tcp        0      0 127.0.0.1:27017       0.0.0.0:*               LISTEN     1014/
↳mongod
tcp        0      0 127.0.0.1:28017       0.0.0.0:*               LISTEN     1014/
↳mongod
tcp        0      0 127.0.0.1:3306        0.0.0.0:*               LISTEN     1055/
↳mysqld
tcp6       0      0 :::80                 :::*                   LISTEN     16036/
↳node
tcp6       0      0 :::8686               :::*                   LISTEN     1572/
↳java
tcp6       0      0 :::4848               :::*                   LISTEN     1572/
↳java
tcp6       0      0 :::8080               :::*                   LISTEN     1572/
↳java
tcp6       0      0 :::8181               :::*                   LISTEN     1572/
↳java
```

Databases

The last step in the sanity check, once we have identified the processes and ports, is to check that MySQL and MongoDB databases are up and accepting queries. We can check that MySQL is working, with the following command:

```
$ mysql -u <user> -p<password>
```

You should see something similar to:

```
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 174
Server version: 5.5.47-0ubuntu0.14.04.1 (Ubuntu)

Copyright (c) 2000, 2015, Oracle and/or its affiliates. All rights reserved.

Oracle is a registered trademark of Oracle Corporation and/or its
affiliates. Other names may be trademarks of their respective
owners.
```

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```
Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.  
mysql>
```

For MongoDB, execute the following command:

```
$ mongo <database> -u <user> -p <password>
```

You should see something similar to:

```
MongoDB shell version: 2.4.9  
connecting to: <database>  
>
```

1.1.5 Diagnosis Procedures

The Diagnosis Procedures are the first steps that a System Administrator will take to locate the source of an error in a GE. Once the nature of the error is identified with these tests, the system admin will very often have to resort to more concrete and specific testing to pinpoint the exact point of error and a possible solution. Such specific testing is out of the scope of this section.

Resource Availability

Memory use depends on the number of concurrent users as well as the free memory available and the hard disk. The SynchroniCity IoT Data Marketplace requires a minimum of 1024 MB of available RAM memory, but 2048 MB of free memory are recommended. Moreover, the SynchroniCity IoT Data Marketplace requires at least 15 GB of hard disk space.

Remote Service Access

N/A

Resource Consumption

Resource consumption strongly depends on the load, especially on the number of concurrent users logged in.

- Glassfish main memory consumption should be between 500 MB and 2048 MB
- MongoDB main memory consumption should be between 30 MB and 500 MB
- Python main memory consumption should be between 30 MB and 200 MB
- Node main memory consumption should be between 30 MB and 200 MB
- MySQL main memory consumption should be between 30 MB and 500 MB

I/O Flows

The only expected I/O flow is of type HTTP, on port defined in the Logic Proxy configuration file

1.2 User Guide

1.2.1 Introduction

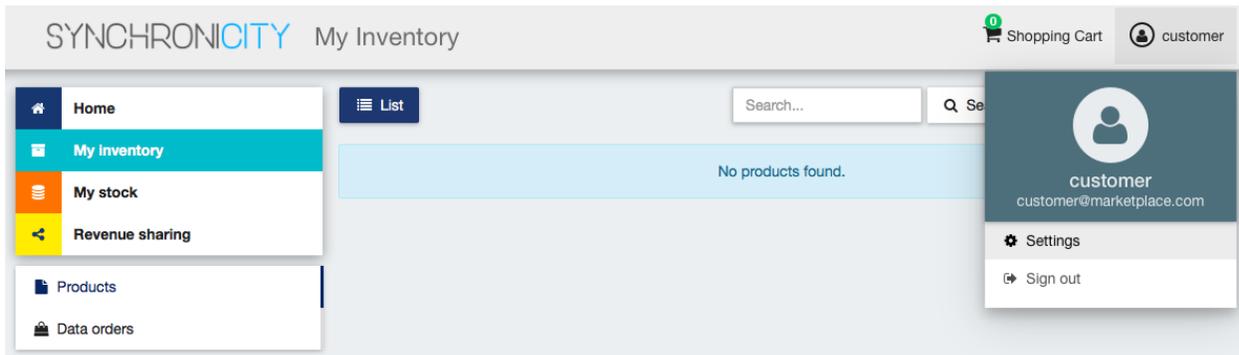
This user guide covers the [SynchroniCity IoT Data Marketplace](#) based on the [Business API Ecosystem](#) version 6.4.0, corresponding to FIWARE release 6. Any feedback on this document is highly welcomed, including bugs, typos or things you think should be included but aren't. Please send them by creating an issue at [GitHub Issues](#)

This user guide contains a description of the different tasks that can be performed in the SynchroniCity IoT Data Marketplace using its web interface. This section is organized so that actions related to a particular user role are grouped together.

1.2.2 Profile Configuration

All the users of the system can configure their profile, so they can configure their personal information as well as their billing addresses and contact mediums.

To configure the user profile, the first step is opening the user *Settings* located in the user menu.



In the displayed view, it can be seen that some information related to the account is already included (*Username*, *Email*, *Access token*). This information is the one provided by the IdM after the login process.

The profile to be updated depends on whether the user is acting on behalf of an organization or himself. In both cases, to update the profile, fill in the required information and click on *Update*.

For users, personal information is provided.

The screenshot shows the 'Settings' page for a user named 'customer'. The page is divided into two main sections: 'Account' and 'Profile'. The 'Account' section contains fields for 'Username' (customer), 'Access token' (MI4pgXBoflITyHjoiOOopDGnMDb88D), and 'Email' (customer@marketplace.com). The 'Profile' section contains a warning that the information is public, followed by fields for 'First name' (customer), 'Last name' (customer), 'Title', 'Marital status', 'Gender', 'Nationality', 'Birth Date' (1970-01-01), 'Country', and 'Place'. An 'Update' button is located at the bottom right of the profile section.

SYNCHRONICITY Settings Shopping Cart customer

[← Back](#)

Personal settings

- General
- Contact mediums

Account

Username
customer

Access token
MI4pgXBoflITyHjoiOOopDGnMDb88D

Email
customer@marketplace.com

Profile

This information is public so it may be viewed by anyone.

First name
customer

Last name
customer

Title
Prefer not to say

Marital status
Prefer not to say

Gender
Prefer not to say

Nationality

Birth

Date
1970-01-01

Country
Prefer not to say

Place

[Update](#)

Note: Only the *First name* and *Last name* fields are mandatory

Once you have created your profile, you can include contact mediums by going to the *Contact mediums* section. In the *Contact Medium* section, there are two different tabs. On the one hand, the *Billing addresses* tab, where you can register the billing addresses you will be able to use when creating orders and purchasing data.

To create a billing address, fill in the fields and click on *Create*

SYNCHRONICITY Settings Shopping Cart customer

[← Back](#)

Personal settings

- General
- Contact mediums

Billing addresses Business addresses

The billing addresses will be used in your orders.

New shipping address

Email address
Email

Postal address
Street

Zip Code **City**

State / Province **Country**

Telephone number
Type **Number**

[Create](#)

Once created, you can edit the address by clicking on the *Edit* button of the specific address, and changing the wanted fields.

SYNCHRONICITY Settings Shopping Cart customer

[← Back](#)

Personal settings

- General
- Contact mediums

Billing addresses Business addresses

The billing addresses will be used in your orders.

My billing addresses

Email address	Postal address	Telephone number	Actions
customer@marketplace.com	Street 012345 City (State) Aruba	Mobile, +447400000000	

Billing address

Email address
Email
customer@marketplace.com

Postal address
Street
Street

Zip Code 012345 **City** City

State / Province State **Country** Aruba

Telephone number
Type Mobile **Number** +44 7400000000

Update Cancel

On the other hand, if you have the *Seller* role you can create *Business Addresses*, which can be used by your customers in order to allow them to contact you. In the *Business Addresses* tab you can create, different kind of contact mediums, including emails, phones, and addresses. To create a contact medium, fill in the fields and click on *Create*

Business addresses

This information is public so it may be viewed by anyone.

New business address

Medium
Email address

Email
business@address.com

Create

SYNCHRONICITY Settings Shopping Cart customer

[Back](#) **Billing addresses** Business addresses

This information is public so it may be viewed by anyone.

My business addresses

Medium	Details	Actions
Email address	business@address.com	 

New business address

Medium: Telephone number

Type: Mobile

Number:

[Create](#)

SYNCHRONICITY Settings Shopping Cart customer

[Back](#) **Billing addresses** Business addresses

This information is public so it may be viewed by anyone.

My business addresses

Medium	Details	Actions
Email address	business@address.com	 
Telephone number	Mobile, +447400000000	 

New business address

Medium: Postal address

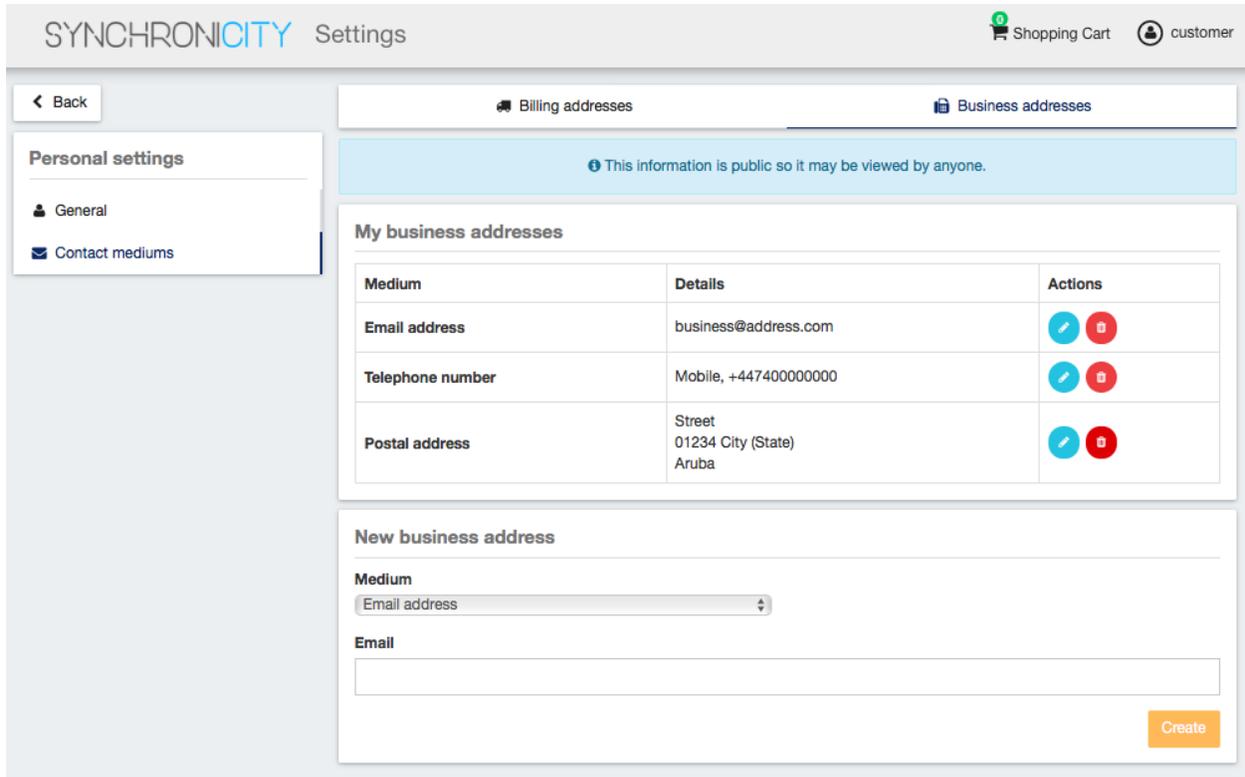
Street:

Zip Code: City:

State / Province: Country:

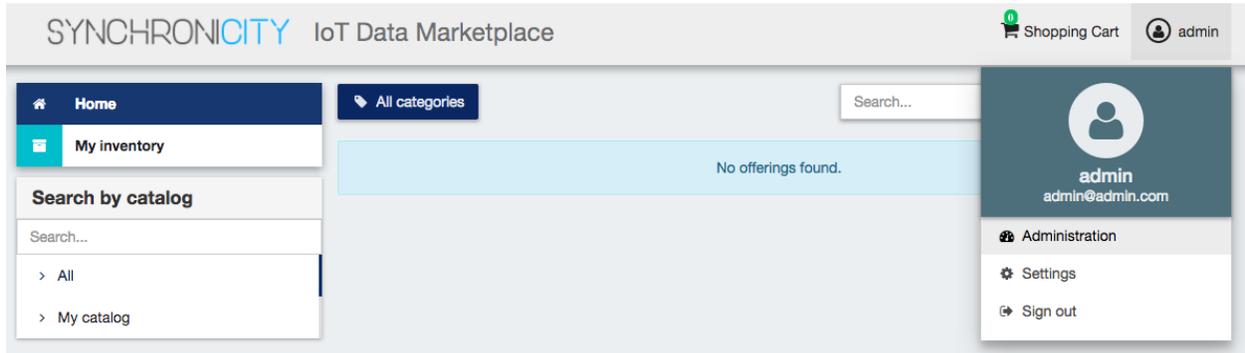
[Create](#)

You can *Edit* or *Remove* the contact medium by clicking on the corresponding button



1.2.3 Admin

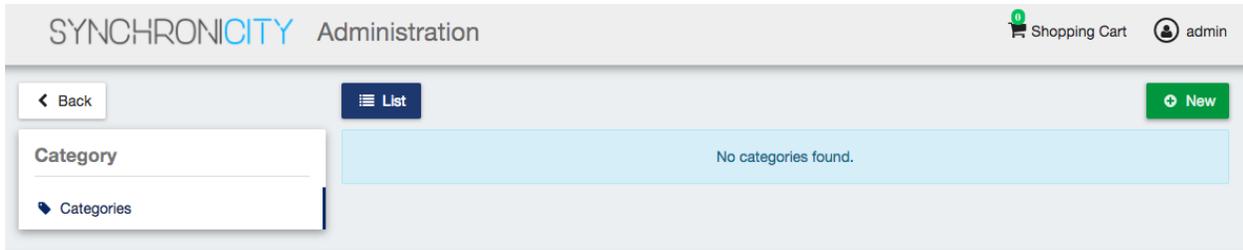
If the user of the SynchroniCity IoT Data Marketplace is an admin, he will be able to access the *Administration* section of the web portal. This section is located in the user menu.



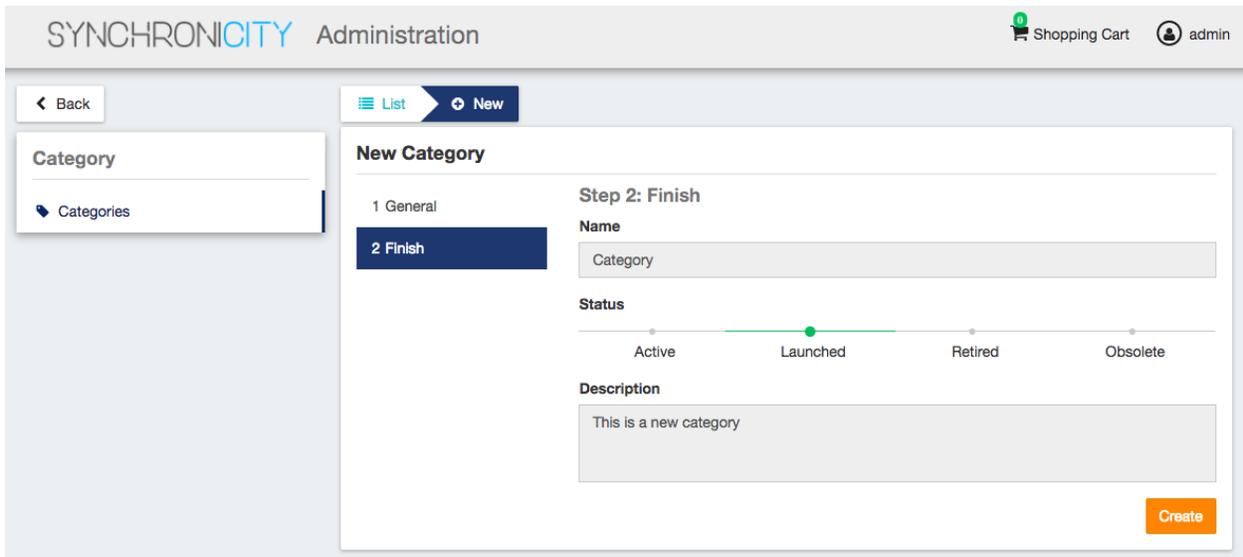
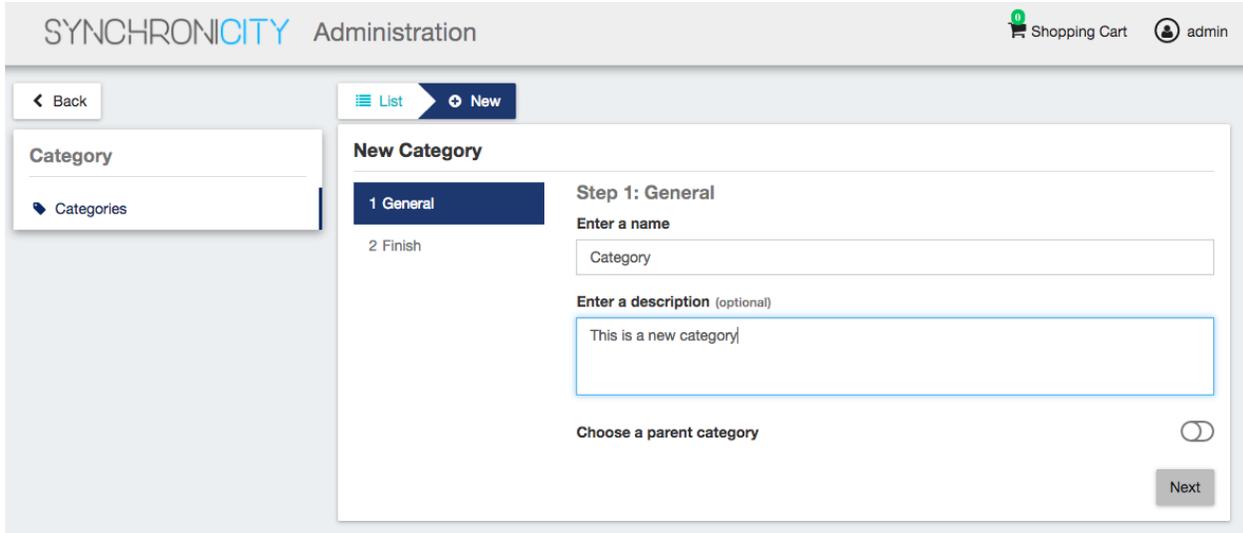
Manage Categories

Admin users are authorized to create the system categories that can be used by *Sellers* to categorize their catalogs, data sources, and offerings.

To create categories, go to the *Administration* section, and click on *New*



Then, provide a name and an optional description for the category. Once the information has been included, click on *Next*, and then on *Create*



Categories in the SynchroniCity IoT Data Marketplace can be nested, so you can choose a parent category if you want while creating.

SYNCHRONICITY Administration Shopping Cart admin

[Back](#) [List](#) [New](#)

Category

- Categories

New Category

1 General

2 Finish

Step 1: General

Enter a name
Sub category

Enter a description (optional)
This is a sub category

Choose a parent category

Name	Last Updated
Category	a minute ago

[Next](#)

Existing categories can be updated. To edit a category click on the category name.

SYNCHRONICITY Administration Shopping Cart admin

[Back](#) [List](#) [New](#)

Category

- Categories

Status	Name	Last Updated
Launched	Category	a minute ago
Launched	Category / Sub category	a few seconds ago

Then edit the corresponding fields and click on *Update*.

SYNCHRONICITY Administration Shopping Cart admin

[Back](#) [List](#) [Detail](#)

Category

- Categories

General

Name
Sub category

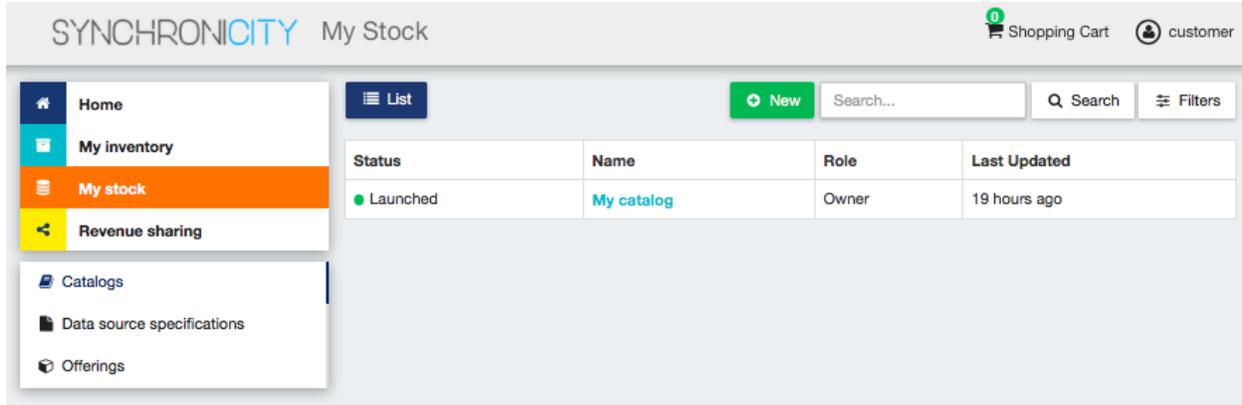
Status
 Active Launched Retired Obsolete

Description (optional)
This is a sub category

[Update](#)

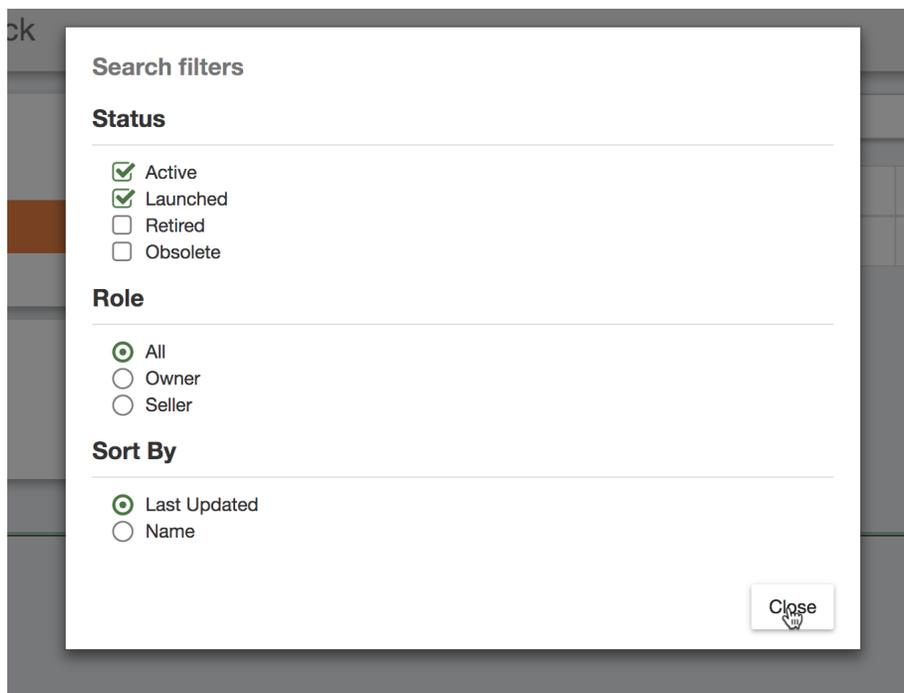
1.2.4 Seller

If the user of the SynchroniCity IoT Data Marketplace has the *Seller* role, he will be able to share and monetize his data sources by creating catalogs, data source specifications and offerings. All these objects are managed accessing *My Stock* section.



Manage Catalogs

The *Catalogs* section is the one that is open by default when the seller accesses *My Stock* section. This section contains the catalogs the seller has created. Additionally, it has been defined several mechanisms for searching and filtering the list of catalogs displayed. On the one hand, it is possible to search catalogs by keyword using the search input provided in the menu bar. On the other hand, it is possible to specify how catalog list should be sorted or filter the shown catalogs by status and the role you are playing. To do that, click on *Filters*, choose the required parameters, and click on *Close*.



To create a new catalog click on the *New* button. Then, provide a name and an optional description for the catalog. Once you have filled the fields, click on *Next*, and then on *Create*

Sellers can also update their catalogs. To do that, click on the name of the catalog to open the update view.

Status	Name	Role	Last Updated
Launched	My catalog	Owner	19 hours ago
Active	New catalog	Owner	a minute ago

Then, update the fields you want to modify and click on *Update*. In this view, it is possible to change the *Status* of the catalog. To start monetizing the catalog, and make it appear in the *Home* you have to change its status to *Launched*

SYNCHRONICITY My Stock Shopping Cart 0 customer

Home | My inventory | **My stock** | Revenue sharing

Catalogs | Data source specifications | Offerings

New catalog

About | Parties | Offerings

General

Name
New catalog

Status

Active | **Launched** | Retired | Obsolete

Description (optional)
This is a new catalog

Update

SYNCHRONICITY My Stock Shopping Cart 0 customer

Home | My inventory | **My stock** | Revenue sharing

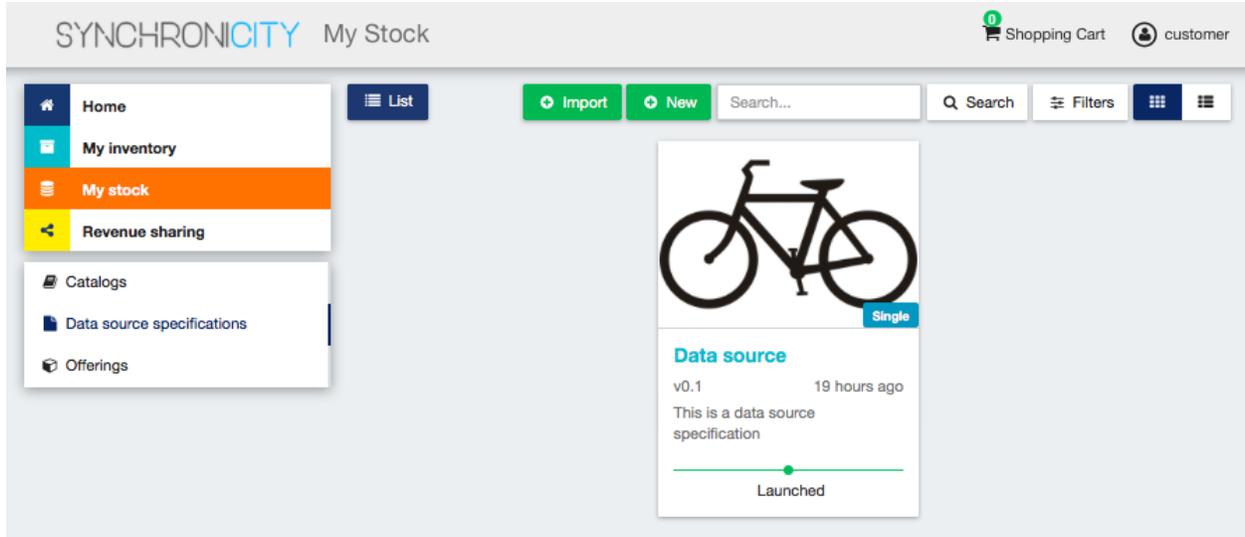
Catalogs | Data source specifications | Offerings

List New Search... Search Filters

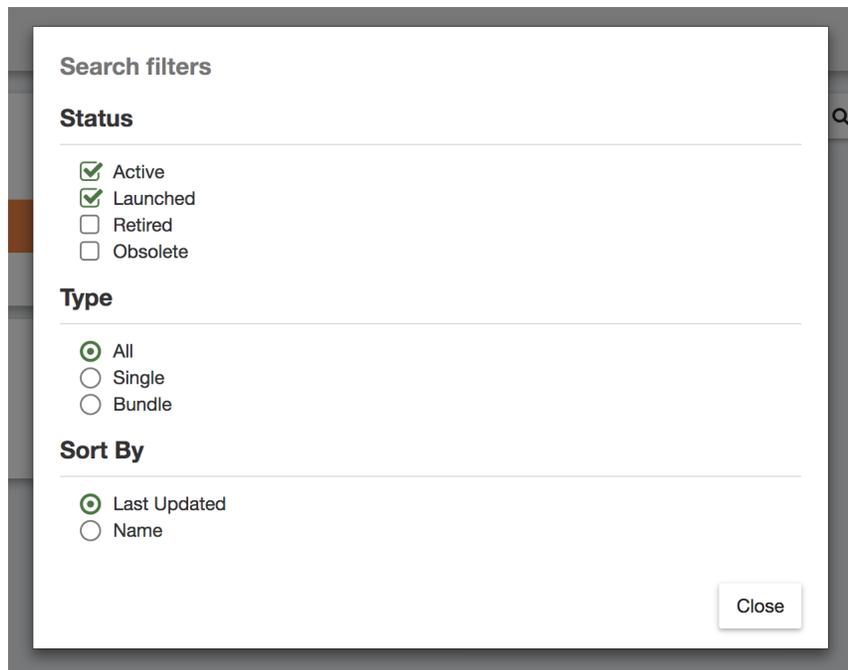
Status	Name	Role	Last Updated
Launched	My catalog	Owner	19 hours ago
Launched	New catalog	Owner	a few seconds ago

Manage Data Source Specifications

Data Source Specifications represent the data source being offered. To list your data source specifications go to *My Stock* section and click on *Data source specifications*.



In the same way as catalogs, data source specifications can be searched by keyword, sorted, or filtered by status and whether they are bundles or not. To filter or sort data source specifications, click on *Filters*, choose the appropriate properties, and click on *Close*



Additionally, it is possible to switch between the grid view and the tabular view using the provided buttons.

The screenshot shows the 'My Stock' page in the SynchroniCity IoT Data Marketplace. The page header includes the SynchroniCity logo, 'My Stock', a shopping cart icon with '0' items, and a user profile icon labeled 'customer'. A left sidebar contains navigation options: Home, My inventory, My stock (highlighted), Revenue sharing, Catalogs, Data source specifications, and Offerings. The main content area features a 'List' button, 'Import' and 'New' buttons, and a search bar. Below these is a table with the following data:

Status	Name	ID	Brand	Type	Last Updated
● Launched	Data source	101	My brand	Single	19 hours ago

To create a new data source specification click on *New*. In the displayed view, provide the general information of the data source spec. including its name, version, and an optional description. In addition, you have to include the data source brand (Your brand), and an ID number which identifies the data source in your environment. Then, click on *Next*.

The screenshot shows the 'New product' form in the SynchroniCity IoT Data Marketplace. The page header is the same as the previous screenshot. The left sidebar is also the same. The main content area shows the 'New product' form with a 'List' button and a 'New' button. The form is titled 'New product' and has a progress indicator showing '1 General' selected. The form fields are as follows:

- Step 1: General**
 - Enter a name**: Air quality
 - Enter a version**: 0.1
 - Enter a brand**: My brand
 - Enter an ID Number**: 123
 - Enter a description (optional)**: This is an air quality data source

A 'Next' button is located at the bottom right of the form.

In the next step you will be required to provide the asset.

For providing the asset, you have to choose between the available asset types, choose how to provide the asset between the available options, provide the asset, and include all the required information.

SYNCHRONICITY My Stock Shopping Cart customer

Home My inventory My stock Revenue sharing Catalogs Data source specifications Offerings

List New

New product

- General
- Assets**
- Characteristics
- Attachments
- Finish

Step 2: Assets

Digital Asset Type: Orion Query How to provide?: URL

Asset URL:

Media Type: NGSiv2

Application ID (Orion ID registered on the IDM, e.g., c0fc8c23f7044861ad2e941d9774729e):

Fiware-Service (e.g., TenantRZ1):

Next

Note: *Application ID* has to be the same application ID of the *Orion Context Broker* instance registered on the *IdM* where your data source belongs. *Fiware-Service* is the header used to register your data source as an entity on the *Orion Context Broker*. If your user does not have a provider role for that specific *Fiware-Service* (e.g., *TenantRZ1:provider*) you will not be allowed to publish data source specification for that entity.

The next step in the creation of a data source spec. is including its characteristics. For including a new characteristic click on *New Characteristic*

SYNCHRONICITY My Stock Shopping Cart customer

Home My inventory My stock Revenue sharing Catalogs Data source specifications Offerings

List New

New product

- General
- Assets
- Characteristics**
- Attachments
- Finish

Step 3: Characteristics

No characteristic included.

+ New Characteristic

Next

In the form, include the name, the type (string or number) and an optional description. Then create the values of the characteristic by filling the *Create a value* input and clicking on +.

SYNCHRONICITY My Stock Shopping Cart 0 customer

Home
My inventory
My stock
Revenue sharing
Catalogs
Data source specifications
Offerings

List New

New product

1 General
2 Assets
3 Characteristics
4 Attachments
5 Finish

Step 3: Characteristics

No characteristic included.

Enter a name **Choose a type**

New characteristic string

Enter a description (optional)

This is a new characteristic

Values

Must be at least one value for each characteristic.

Create a value

Characteristic value +

Create

Next

Once you have included all the characteristic info, save it clicking on *Create*

SYNCHRONICITY My Stock Shopping Cart 0 customer

Home
My inventory
My stock
Revenue sharing
Catalogs
Data source specifications
Offerings

List New

New product

1 General
2 Assets
3 Characteristics
4 Attachments
5 Finish

Step 3: Characteristics

No characteristic included.

Enter a name **Choose a type**

New characteristic string

Enter a description (optional)

This is a new characteristic

Values

Default Characteristic value ✖

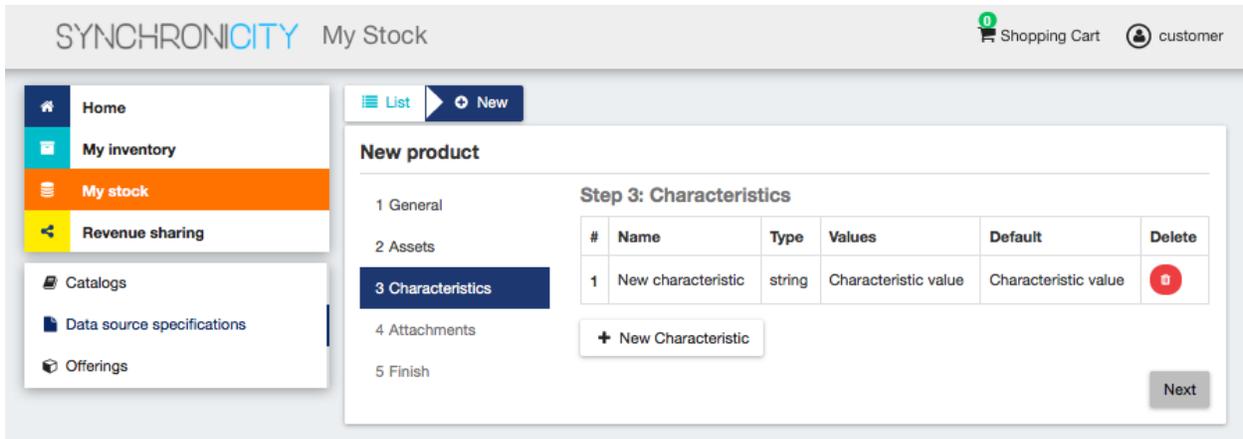
Create a value

+

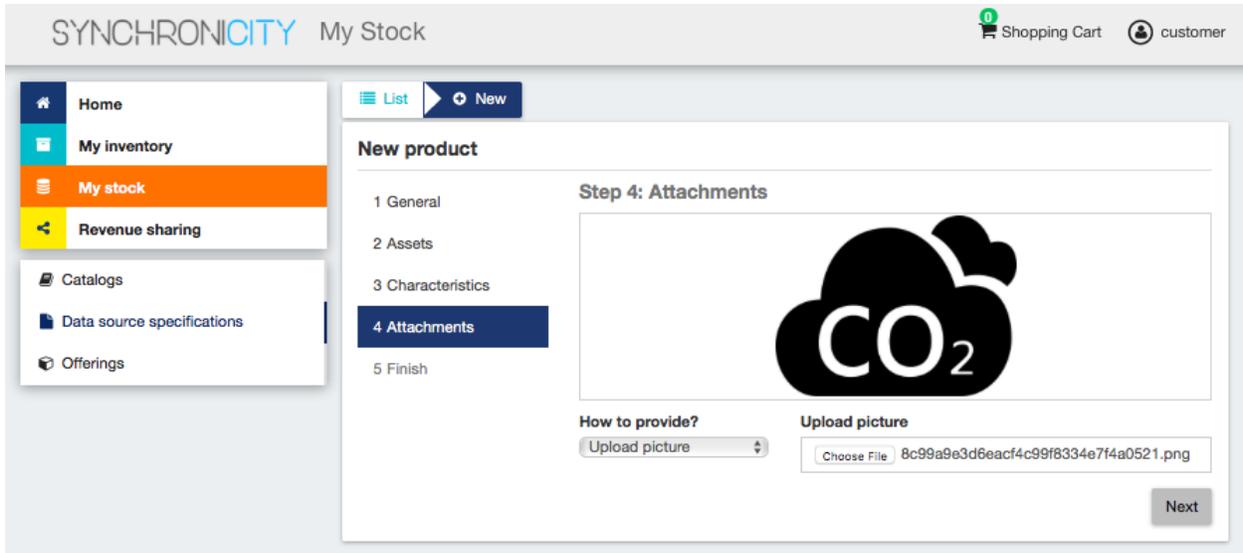
Create

Next

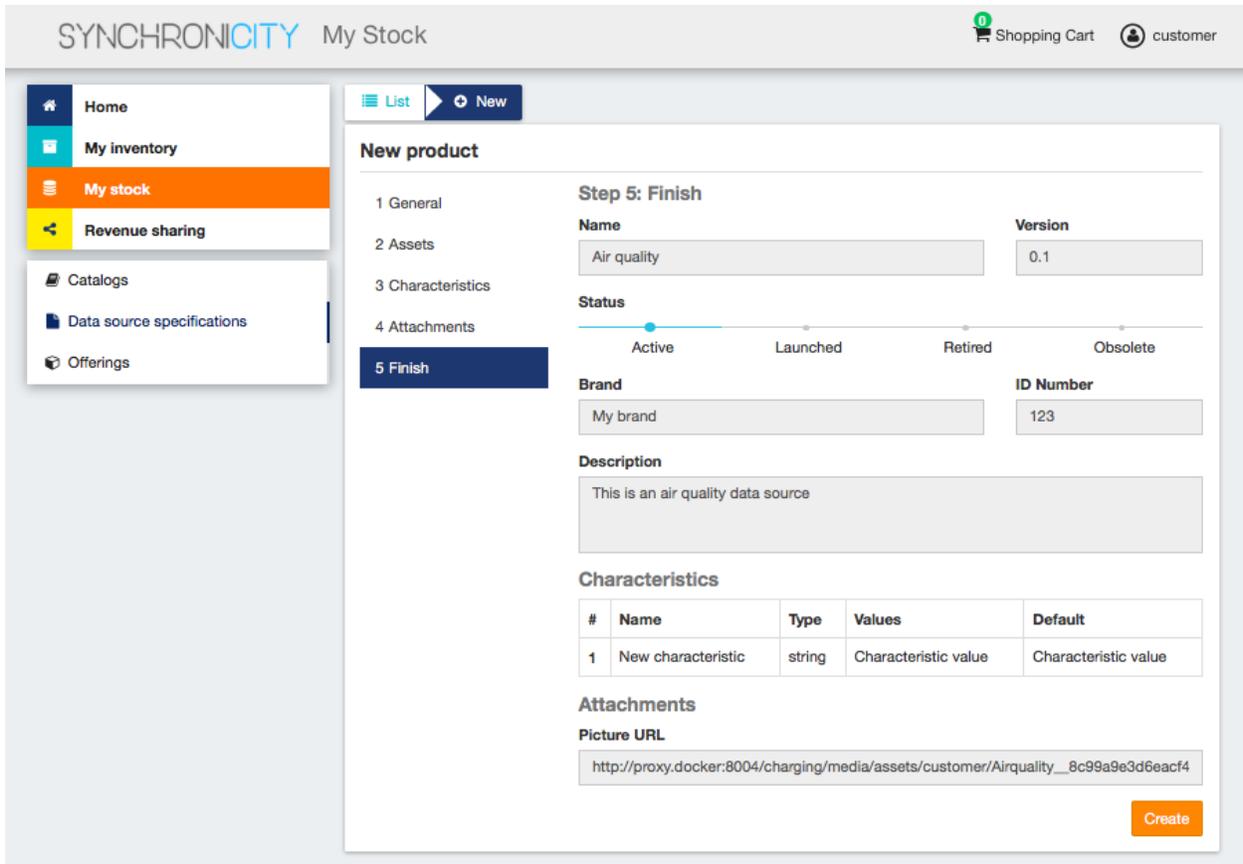
Once you have included all the required characteristics click on *Next*



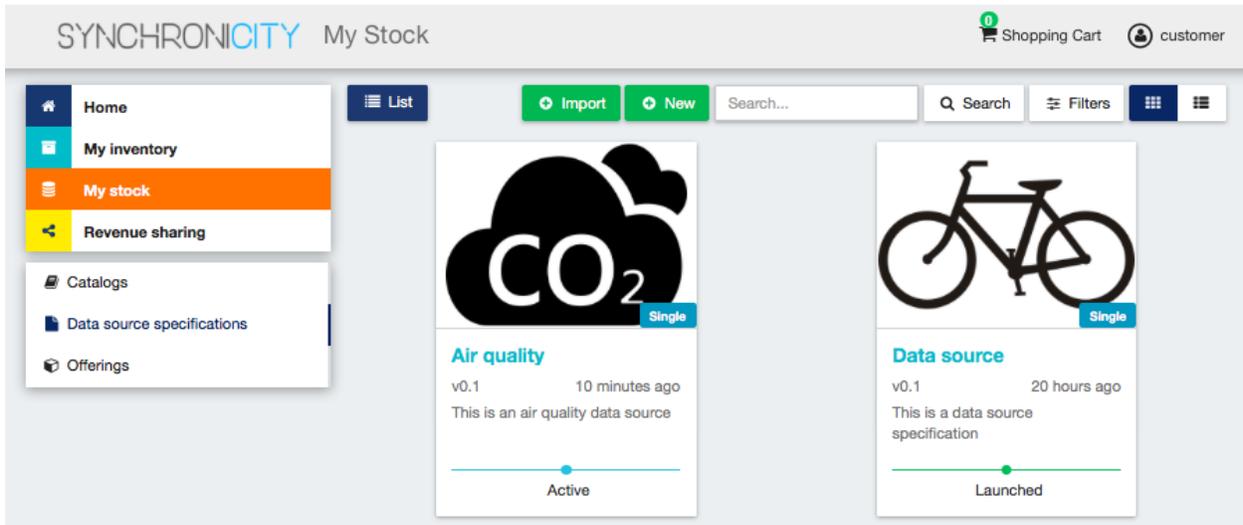
In the next step you can include a picture for your data source spec. You have two options, providing an URL pointing to the picture or directly uploading it. Once provided click *Next* (Image credit for this example: [oNLine Web Fonts](#))



Once done click on *Next* and then on *Create*



Sellers can update their data source. To do that click on the data source specification to be updated.



Update the required values and click on *Update*. Note that for start selling an offering that includes the data source specification you will be required to change its status to *Launched*

The screenshot shows the 'My Stock' page for 'Air quality'. The left sidebar contains navigation options: Home, My inventory, My stock (selected), Revenue sharing, Catalogs, Data source specifications, and Offerings. The main content area has a 'List' and 'Details' tab, with 'Details' selected. The 'Air quality' data source is displayed with a large CO₂ icon. Below the icon, there are tabs for 'About', 'Characteristics', 'Attachments', and 'Relationships'. An 'Upgrade' button is visible in the top right. The 'General' section contains the following information:

Name	Air quality	Version	0.1
Status	<p>Active Launched Retired Obsolete</p>		
Brand	My brand	ID Number	123
Description (optional)	This is an air quality data source		

An 'Update' button is located at the bottom right of the 'General' section.

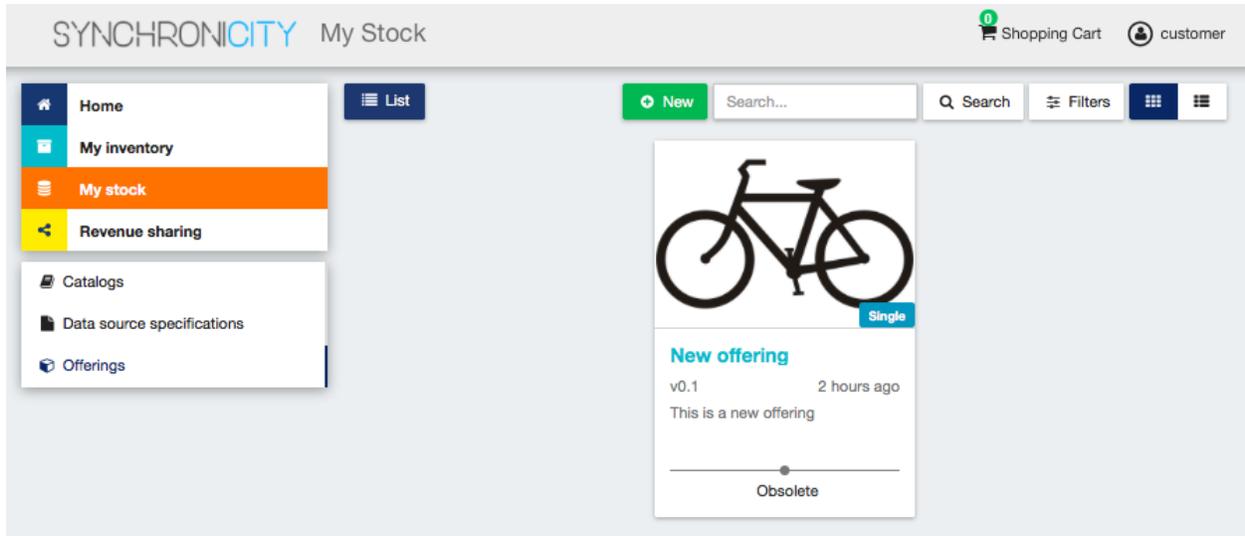
The screenshot shows the 'My Stock' page with a list of data offerings. The left sidebar is the same as in the previous screenshot. The main content area has a 'List' tab selected. At the top, there are buttons for 'Import' and 'New', a search bar, and a 'Search' button. Below the search bar, there are two data source cards:

- Air quality** (v0.1, a few seconds ago): This is an air quality data source. Status: Launched.
- Data source** (v0.1, 20 hours ago): This is a data source specification. Status: Launched.

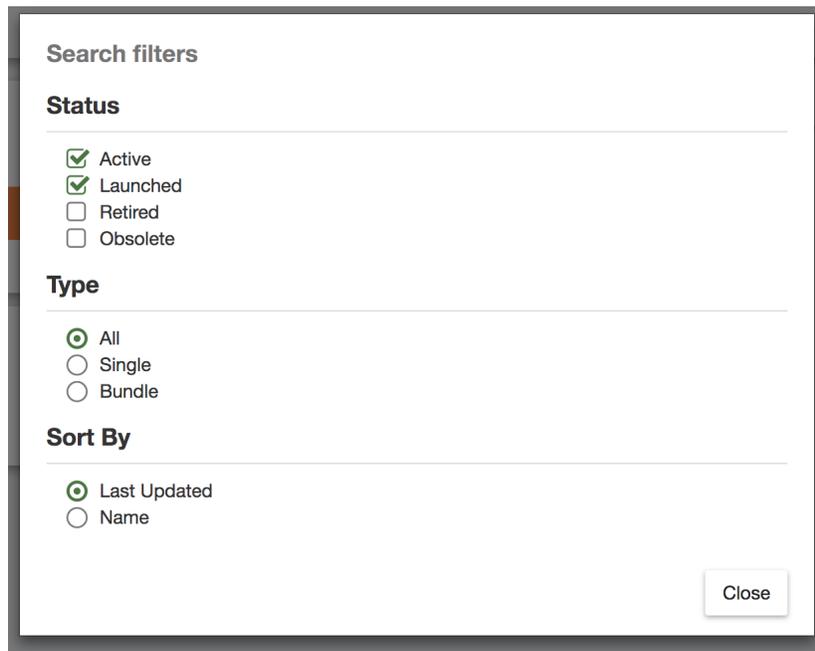
Each card includes a 'Single' button and a progress indicator showing the status as 'Launched'.

Manage Data Offerings

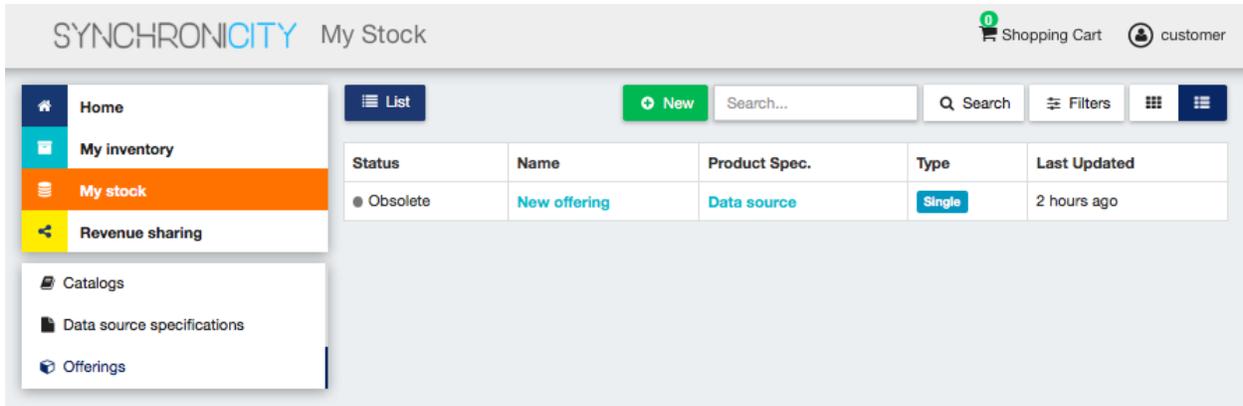
Data Offerings are the entities that contain the license, pricing models and revenue sharing info used to monetize a data source specification. To list your data offerings, go to *My Stock* section and click on *Offerings*



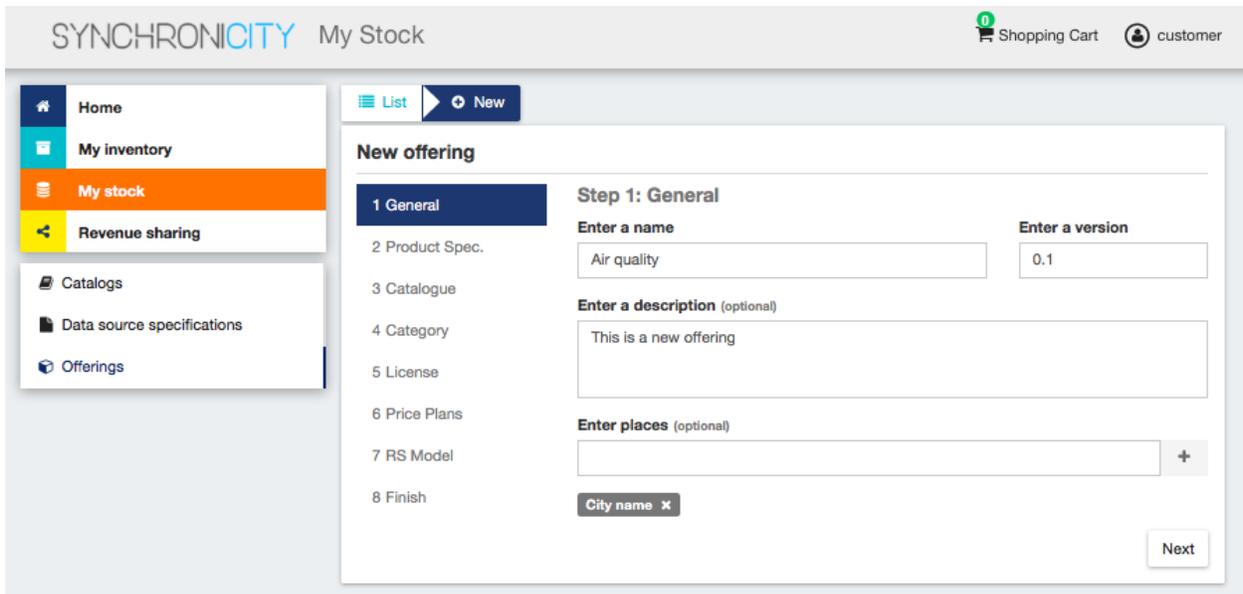
The existing data source offerings can be searched by keyword, sorted, or filtered by status and whether they are bundles or not. To filter or sort data offerings, click on *Filters*, choose the appropriate properties, and click on *Close*



Additionally, it is possible to switch between the grid view and the tabular view by clicking on the specific button.



To create a new offering click on *New*. In the displayed form, include the basic info of the offering. Including, its name, version, an optional description, and an optional set of places where the offering is available. Once the information has been provided click on *Next*



In the next step, you can choose whether your offering is a bundle or not. In this case, offering bundles are logical containers that allow you to provide new pricing models when a set of offerings are acquired together. If you want to create a bundle you will be required to include at least two bundled offerings.

SYNCHRONICITY My Stock Shopping Cart customer

Home
My inventory
My stock
Revenue sharing
Catalogs
Data source specifications
Offerings

List New

New offering

1 General
2 Product Spec.
3 Catalogue
4 Category
5 License
6 Price Plans
7 RS Model
8 Finish

Step 2: Product Spec.

Is a new bundle of products?

Status	Name	ID	Brand	Type	Updated
Launched	Air quality	123	My brand	Single	43 minutes ago
Launched	Data source	101	My brand	Single	21 hours ago

Next

In the next step you have to select the data source specification that is going to be monetized in the current offering. Once selected click on *Next*.

SYNCHRONICITY My Stock Shopping Cart customer

Home
My inventory
My stock
Revenue sharing
Catalogs
Data source specifications
Offerings

List New

New offering

1 General
2 Product Spec.
3 Catalogue
4 Category
5 License
6 Price Plans
7 RS Model
8 Finish

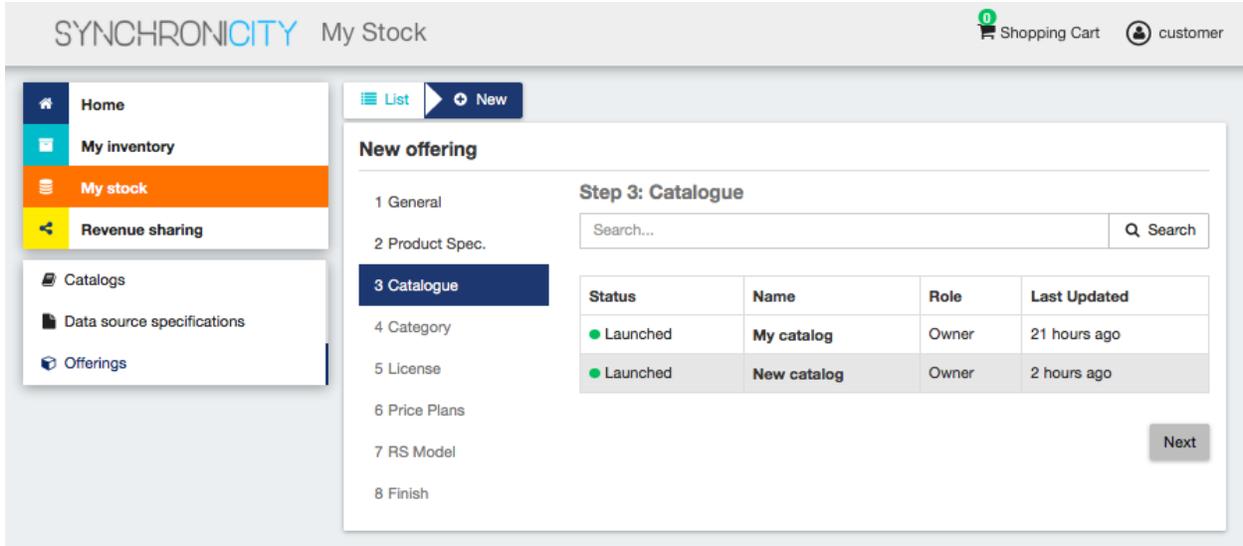
Step 2: Product Spec.

Is a new bundle of products?

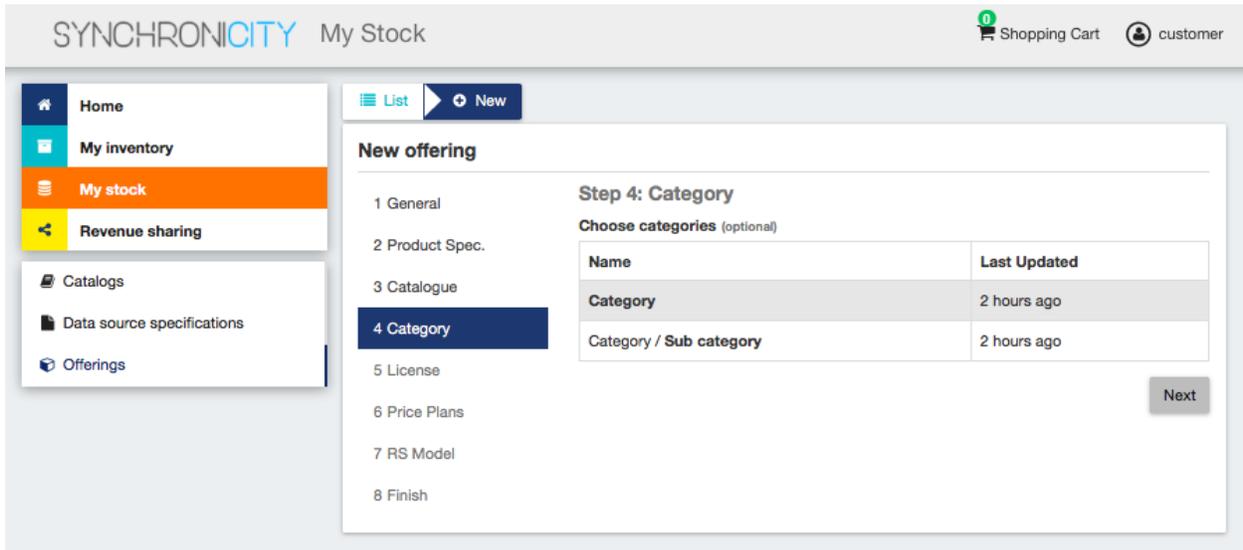
Status	Name	ID	Brand	Type	Updated
Launched	Air quality	123	My brand	Single	42 minutes ago
Launched	Data source	101	My brand	Single	21 hours ago

Next

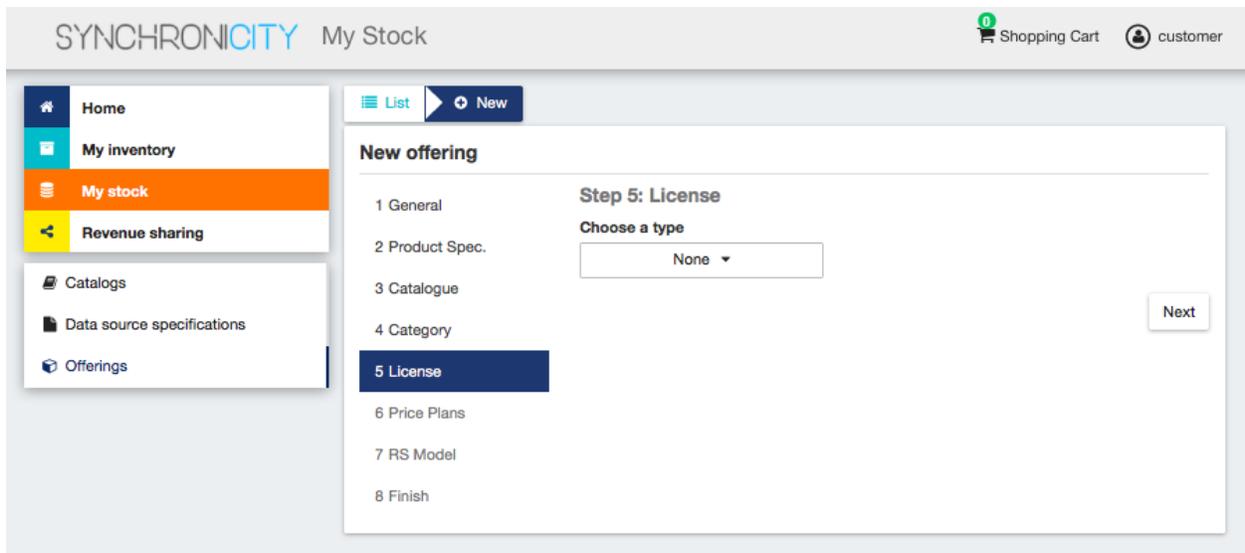
Then, you have to select the catalog where you want to publish you offering and click on *Next*



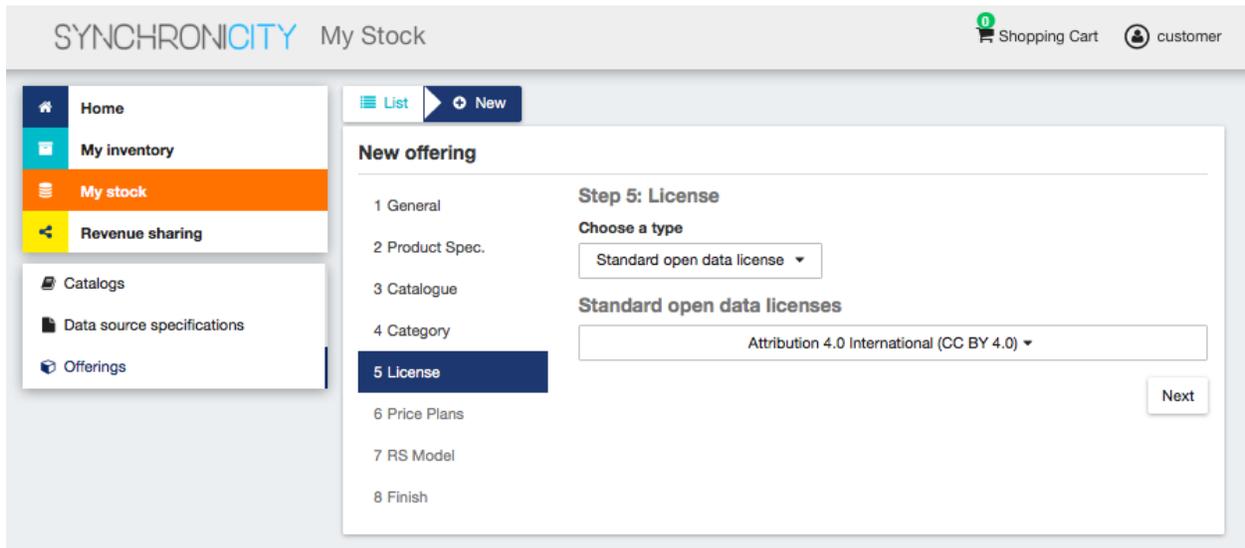
In the next step, you can optionally choose categories for your offering. Once done, click on *Next*



In the next step, you can specify the terms and conditions that apply to your offering and that must be accepted by those customers who want to acquire it. Note that the terms and conditions are not mandatory.



You have 3 options. You can select a standard open data license among the ones available



Or you can customize your license by using the wizard menu

SYNCHRONICITY My Stock Shopping Cart customer

Home
My inventory
My stock
Revenue sharing
Catalogs
Data source specifications
Offerings

List New

New offering

- 1 General
- 2 Product Spec.
- 3 Catalogue
- 4 Category
- 5 License**
- 6 Price Plans
- 7 RS Model
- 8 Finish

Step 5: License

Choose a type
Custom license (wizard)

Custom license (wizard)

Title
Custom license

Enter a description (optional)
This is a custom license

Exclusivity
Non-exclusive

Region
United Kingdom

Purpose
All purposes

Sector
All sectors

Timeframe
1 year

Transferability
No sublicensing right

Next

Or you can describe your license by using the free-text form

SYNCHRONICITY My Stock Shopping Cart customer

Home
My inventory
My stock
Revenue sharing
Catalogs
Data source specifications
Offerings

List New

New offering

- 1 General
- 2 Product Spec.
- 3 Catalogue
- 4 Category
- 5 License**
- 6 Price Plans
- 7 RS Model
- 8 Finish

Step 5: License

Choose a type
Custom license (free-text)

Custom license (free-text)

Title
Custom license

Enter a description
This is a custom license|

Next

Once you have defined your license click on *Next*

The next step is the most important for the offering. In the displayed form you can create different price plans for your offering, which will be selectable by customers when acquiring the offering. If you do not include any price plan the offering is considered free.

To include a new price plan the first step is clicking on *New Price Plan*

SYNCHRONICITY My Stock Shopping Cart customer

Home
My inventory
My stock
Revenue sharing
Catalogs
Data source specifications
Offerings

List New

New offering

1 General
2 Product Spec.
3 Catalogue
4 Category
5 License
6 Price Plans
7 RS Model
8 Finish

Step 6: Price Plans

No price plans included.

New price plan

Next

For creating the price plan, you have to provide a name, and an optional description. Then, you have to choose the type of price plan between the provided options.

The available types are: *one time* for payments that are made once when purchasing the offering, *recurring* for charges that are made periodically (e.g a monthly payment), and *usage* for charges that are calculated applying the pricing model to the actual usage made of the acquired service.

If you choose *one time*, you have to provide the price and the currency.

SYNCHRONICITY My Stock Shopping Cart customer

Home
My inventory
My stock
Revenue sharing
Catalogs
Data source specifications
Offerings

List New

New offering

1 General
2 Product Spec.
3 Catalogue
4 Category
5 License
6 Price Plans
7 RS Model
8 Finish

Step 6: Price Plans

No price plans included.

New price plan

Enter a name Choose a type
New price plan ONE TIME ▾

Enter a price
10 EUR ▾

Enter a description (optional)
This is a new price plan

Create

Next

Once you have created your pricing model click on *Next*

The screenshot shows the 'New offering' process at Step 6: Price Plans. On the left is a navigation menu with 'My stock' selected. The main content area has a progress list on the left with '6 Price Plans' highlighted. The main panel shows a table with one row: 'New price plan' with a description 'This is a new price plan' and a price of '10 EUR'. There are edit and delete icons in the 'Actions' column. A 'New price plan' button is below the table, and a 'Next' button is at the bottom right.

Name	Description	Price	Actions
New price plan	This is a new price plan	10 EUR	

In the last step of the process, you have to choose the revenue sharing model to be applied to you offering between the available ones. Once done, click on *Next* and then on *Create*.

The screenshot shows the 'New offering' process at Step 7: RS Model. The navigation menu and progress list are similar to the previous step, but '7 RS Model' is now highlighted. The main panel shows a table with one row: 'defaultRevenue' with a platform percentage of 30, a provider percentage of 70, and 0 stakeholders. A 'Next' button is located at the bottom right of the table area.

Product Class	Platform Percentage	Provider Percentage	N° Stakeholders
defaultRevenue	30	70	0

SYNCHRONICITY My Stock 0 Shopping Cart customer

Home My inventory My stock Revenue sharing Catalogs Data source specifications Offerings

List New

New offering

1 General Step 8: Finish
General

2 Product Spec. Name Version
Air quality 0.1

3 Catalogue

4 Category

5 License

6 Price Plans

7 RS Model

8 Finish

Status
Active Launched Retired Obsolete

Description
This is a new offering

Places
City name

Product Spec.

Status	Name	Type	Last Updated
● Launched	Air quality	Single	an hour ago

Catalogue

Status	Name	Role	Last Updated
● Launched	New catalog	Owner	2 hours ago

Categories

Name	Last Updated
Category	2 hours ago

Revenue Sharing Model

Product Class	Platform Percentage	Provider Percentage	N° Stakeholders
defaultRevenue	30	70	0

Create

Sellers can also edit their offerings. To do that click on the offering to be updated. In the displayed form, change the fields you want to edit and click on *Update*. Note that for start selling you offering you have to update its status to *Launched*

The screenshot shows the 'My Stock' page for the 'Air quality' offering. The top navigation bar includes the SynchroniCity logo, 'My Stock', a shopping cart icon with '0' items, and a user profile icon labeled 'customer'. A left sidebar contains navigation links: Home, My inventory, My stock (highlighted), Revenue sharing, Catalogs, Data source specifications, and Offerings. The main content area has tabs for 'List' and 'Detail' (selected). The offering card features a large 'CO₂' icon, the title 'Air quality', and links for 'About', 'Price plans', and 'Categories'. Below the card is a 'General' section with fields for Name ('Air quality'), Version ('0.1'), Product Spec. (a link to 'Air quality'), and Last Updated ('Today at 1:43 PM'). A 'Status' progress bar shows the offering is 'Launched'. A 'Description' field contains the text 'This is a new offering'. A 'Places' section has a 'City name' input field. An 'Update' button is located at the bottom right.

The screenshot shows the 'My Stock' page with a list view. The top navigation bar is identical to the previous screenshot. The left sidebar is also present. The main content area has a 'List' tab selected. At the top of the list view are buttons for 'New', a search bar, and 'Search', 'Filters', and view toggle icons. A single offering card is displayed, featuring the 'CO₂' icon, the title 'Air quality', version 'v0.1', and a timestamp 'a few seconds ago'. The description 'This is a new offering' and a 'Launched' status indicator are also visible.

1.2.5 Customer

All of the users of the system have by default the *Customer* role. Customers are able to create orders for acquiring offerings.

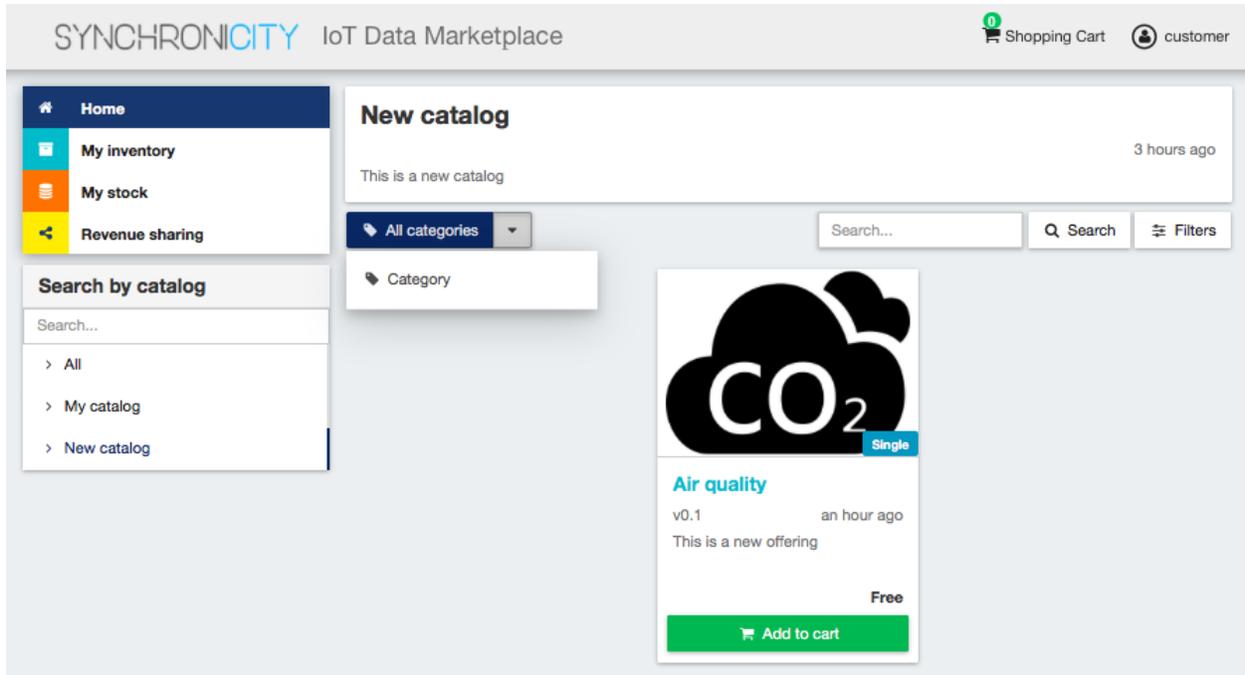
List Available Offerings

All the available (*Launched*) offerings appear in the *Home* page of the SynchroniCity IoT Data Marketplace, so they can be seen by customers. Additionally, customers can select a specific catalog of offerings by clicking on it.

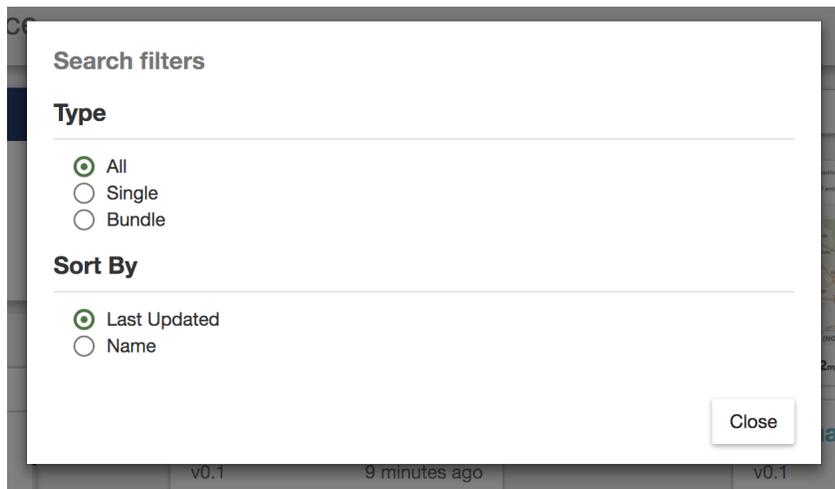
The screenshot shows the SynchroniCity IoT Data Marketplace Home page. The header includes the logo and navigation links for 'Shopping Cart' and 'customer'. A left sidebar contains navigation options: 'Home', 'My inventory', 'My stock', and 'Revenue sharing'. Below this is a 'Search by catalog' section with a search bar and a list of options: 'All', 'My catalog', and 'New catalog'. The main content area features a 'All categories' dropdown, a search bar, and a search button. A prominent offering card for 'Air quality' is displayed, featuring a CO2 icon, version 'v0.1', a 'Single' tag, and a price of 'Free'. An 'Add to cart' button is at the bottom of the card.

This screenshot is similar to the previous one but includes a 'New catalog' notification banner at the top of the main content area. The banner states 'This is a new catalog' and '3 hours ago'. The 'All categories' dropdown is now set to 'All categories'. The 'Air quality' offering card remains visible below the notification.

Moreover, customers can filter the shown offerings by category using the categories dropdown and choosing the wanted one.



Customers can also filter bundle or single offerings using the *Filters* modal as well as choosing its sorting.



Customers can open the details of an offering by clicking on it. In the displayed view, it is shown the general info about the offering and its included data source, the characteristics of the data source, and the price plans of the offering.

SYNCHRONICITY IoT Data Marketplace Shopping Cart 0 customer

[← Back](#) [Details](#)



Air quality

Category

Free

[Add to cart](#)

[About](#) [Characteristics](#) [Price plans](#) [Relationships](#)

City name

This is a new offering

Extra Info

Offering Version 0.1	Last Updated Friday, April 6th 2018, 1:44 pm
Product Name Air quality	Product Version 0.1
Brand My brand	ID Number 123

Create Order

Customers can create orders for acquiring offerings. The different offerings to be included in an order are managed using the *Shopping Cart*.

To include an offering in the shopping cart there are two possibilities. You can click on the *Add to Cart* button located in the offering panel when searching, or you can click on the *Add to Cart* button located in the offering details view.

SYNCHRONICITY IoT Data Marketplace Shopping Cart 0 customer

[Home](#) [All categories](#) [Search](#) [Filters](#)

- My inventory
- My stock
- Revenue sharing

Search by catalog

Search...

- > All
- > My catalog
- > New catalog



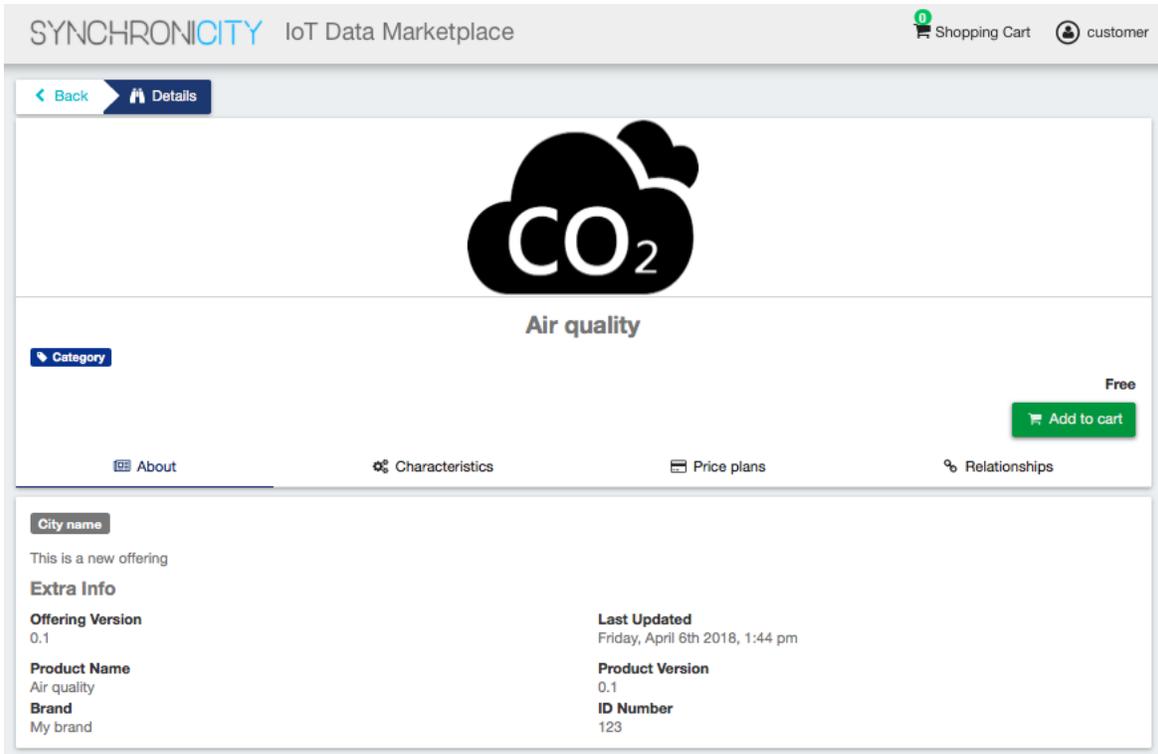
Air quality Single

v0.1 2 hours ago

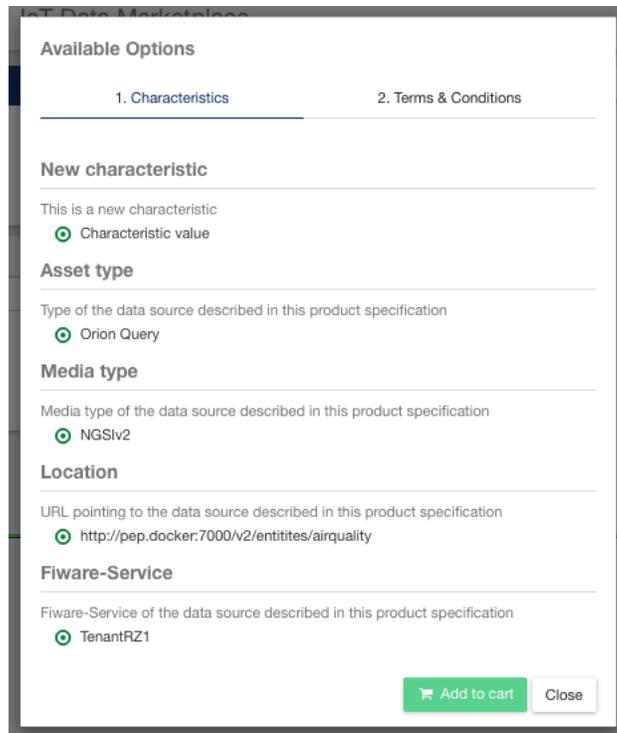
This is a new offering

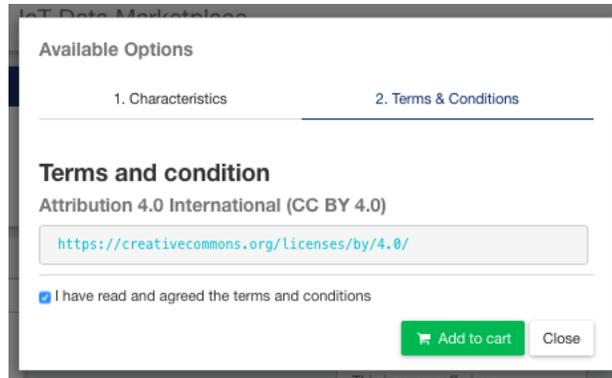
Free

[Add to cart](#)

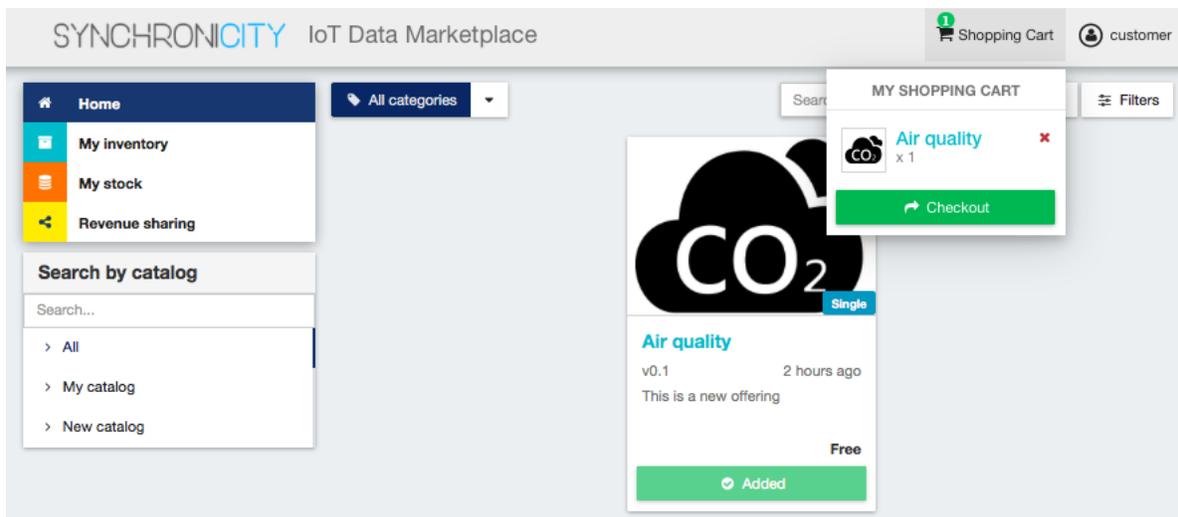


If the offering has configurable characteristics, multiple price plans or terms and conditions, a modal will be displayed where you can select your preferred options



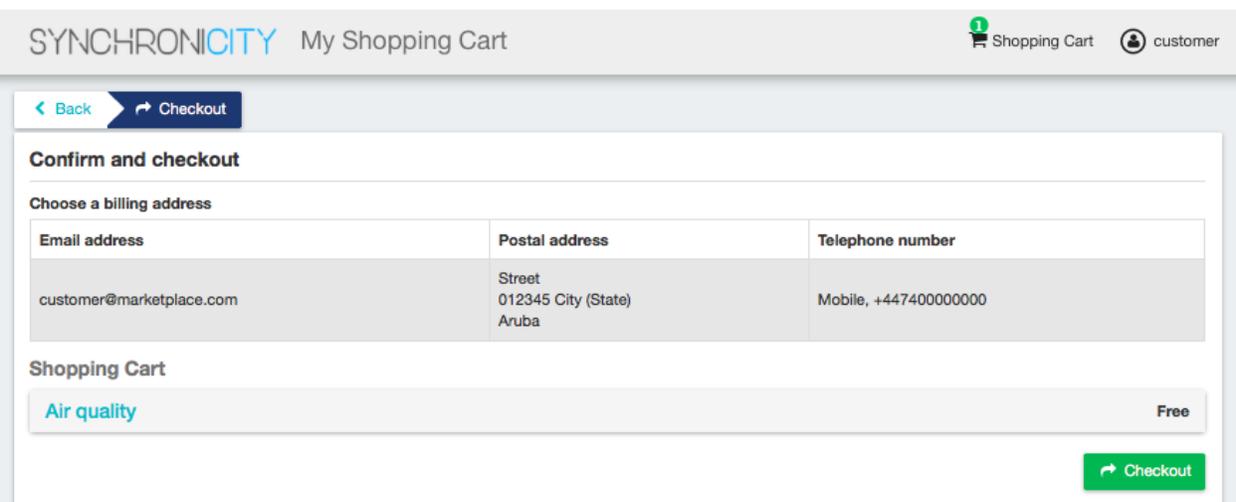


Once you have included all the offerings you want to acquire to the shopping cart, you can create the order clicking on *Shopping Cart*, and then on *Checkout*



Then, you have to select one of your billing addresses.

Once you have provided all the required information you can start the order creation clicking on *Checkout*



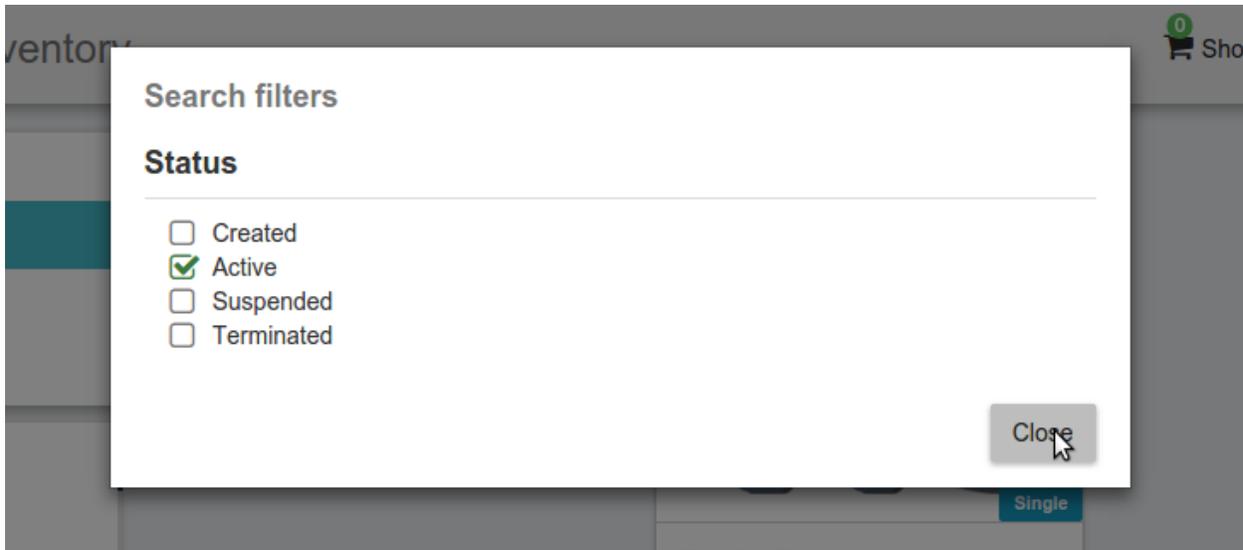
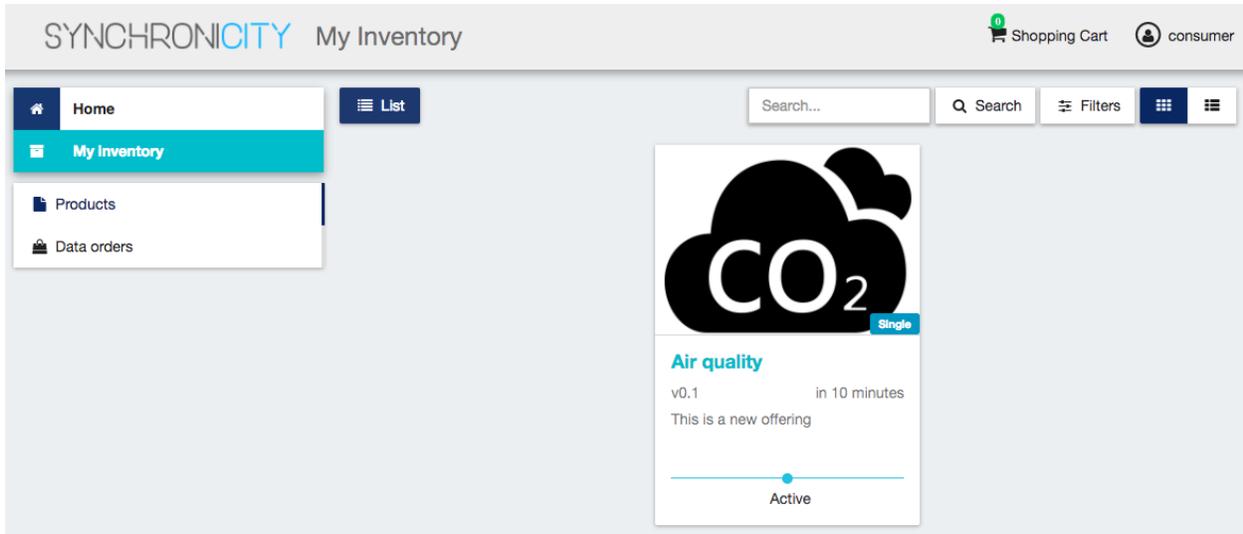
If the offering has a price plan, you will be redirected to *PayPal* so you can pay for the offerings according to their pricing models

Store account's Test Store

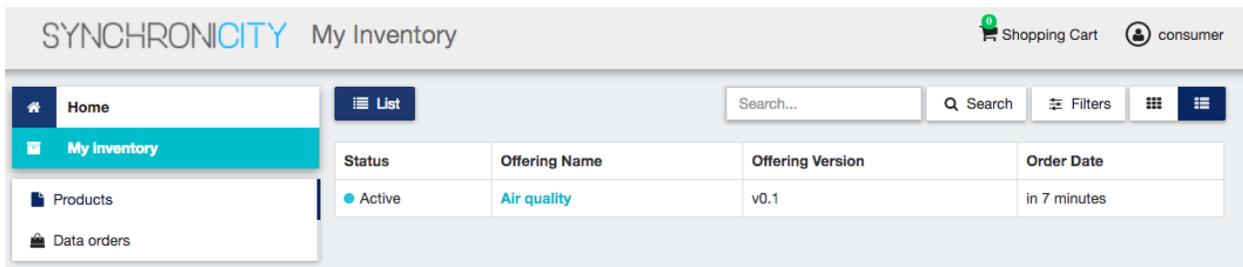
The screenshot shows a PayPal checkout interface. At the top left is the PayPal logo. Below it is a green notification bar with a checkmark icon and the text "Sesión iniciada con One Touch™ de PayPal". Underneath, it says "Bienvenido(a) de nuevo, Aitor. ¿No es usted?". The main section is titled "Enviar a" and lists the recipient's name "Aitor Magan" and address "calle Vilamar 76993- 17469, 02001, Albacete, Albacete España". To the right of this section is a "Cambiar >" link. Below the recipient information is the "Pagar con" section, which has a radio button selected for "Saldo de PayPal". A large blue "Continuar" button is centered below the payment method. To the right of the main form is a graphic of shopping bags with a shield in front of them, and the text "Una forma más segura de pagar". Below this graphic is a security message: "No importa dónde compre, su información está más segura con PayPal: no compartimos sus datos con el vendedor." At the bottom of the page, there is a link "Cancelar y volver a Store account's Test Store." and footer text: "Acuerdos legales Privacidad Opinión © 1999 - 2016".

Manage Acquired Data Offerings

The data you have acquired are located in *My Inventory*, there you can list them, check their status, or retrieve the access token required to access them. In this view, it is possible to filter you data by its status. To do that click on *Filters*, select the related statuses, and click on *Close*



It is also possible to switch between the grid and tabular views using the related buttons



You can manage a specific acquired data source clicking on it. In the displayed view, you can see the general info of the acquired data source, and the characteristics and pricing you have selected.

SYNCHRONICITY My Inventory Shopping Cart consumer

Home My Inventory Products Data orders

List Details



Air quality

About Characteristics Access Price plan Charges

General

Description
No description provided.

Offering
[Air quality](#)

Start date
in 10 minutes

Terms and condition
Attribution 4.0 International (CC BY 4.0)
<https://creativecommons.org/licenses/by/4.0/>

The screenshot displays the SynchroniCity IoT Data Marketplace interface. At the top, the logo 'SYNCHRONICITY' is followed by 'My Inventory'. On the right, there is a 'Shopping Cart' icon with a '0' and a user profile icon labeled 'consumer'. A left sidebar contains navigation links: 'Home', 'My inventory' (highlighted), 'Products', and 'Data orders'. The main content area has a 'List' and 'Details' tab, with 'Details' selected. The product title is 'Air quality', accompanied by a large 'CO₂' icon. Below the title are tabs for 'About', 'Characteristics' (selected), 'Access', 'Price plan', and 'Charges'. The 'Characteristics' section includes several fields, each with a description and a selected radio button:

- New characteristic:** This is a new characteristic. Selected: Characteristic value
- Asset type:** Type of the data source described in this product specification. Selected: Orion Query
- Media type:** Media type of the data source described in this product specification. Selected: NGSiv2
- Location:** URL pointing to the data source described in this product specification. Selected: <http://pep.docker:7000/v2/entities/airquality>
- Fiware-Service:** Fiware-Service of the data source described in this product specification. Selected: TenantRZ1

Additionally, you can generate an access token for the data source accessing to the *Access* tab. To generate a new access token insert your IdM password and press the *Token* button.

SYNCHRONICITY My Inventory Shopping Cart consumer

Home
My Inventory
Products
Data orders

List Details

CO₂

Air quality

About Characteristics Access Price plan Charges

Access

To generate an access token insert your password and press Token.

Token

Password

Generate Token

SYNCHRONICITY My Inventory Shopping Cart consumer

Home
My Inventory
Products
Data orders

List Details

CO₂

Air quality

About Characteristics Access Price plan Charges

Access

To generate an access token insert your password and press Token.

Token

us4Yaioyg71oky6um4bX9ZQRLhVmc

Password

Generate Token

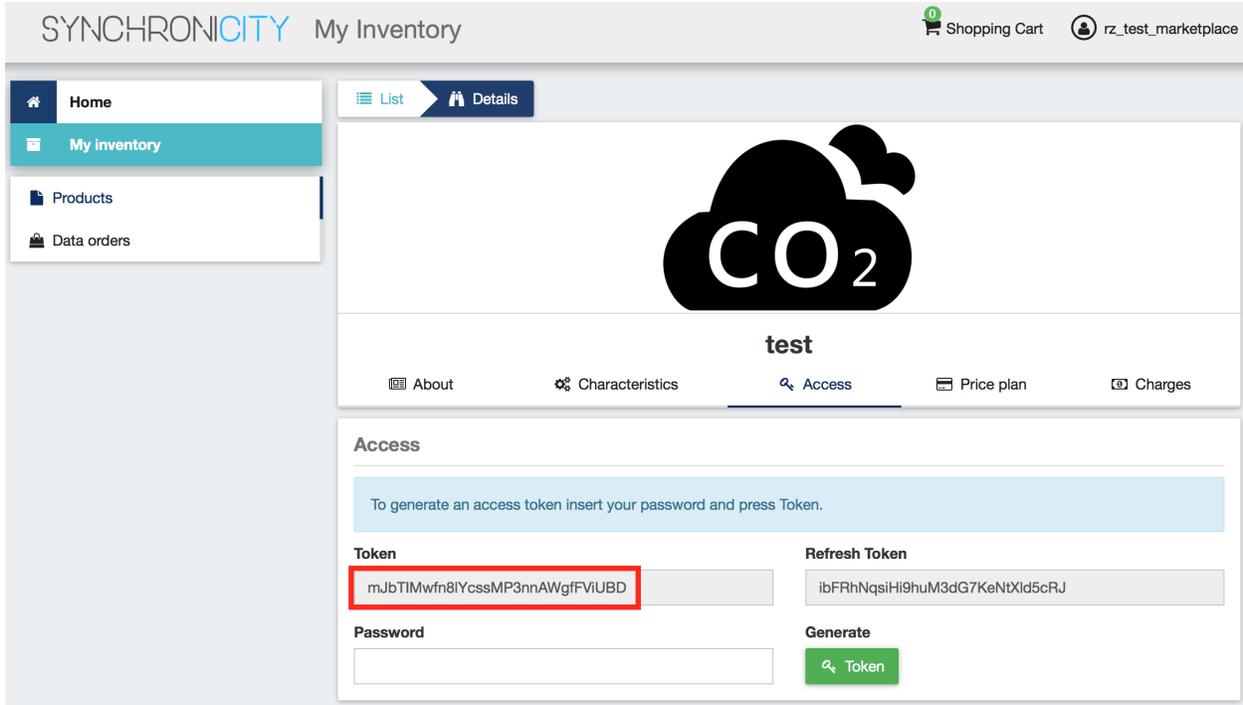
Access Acquired Data Offerings

To access and consume the data you have acquired, you first need to locate on the characteristic of your data source, the *url* pointing to that data and the *Fiware-Service*, if available, related to that data.

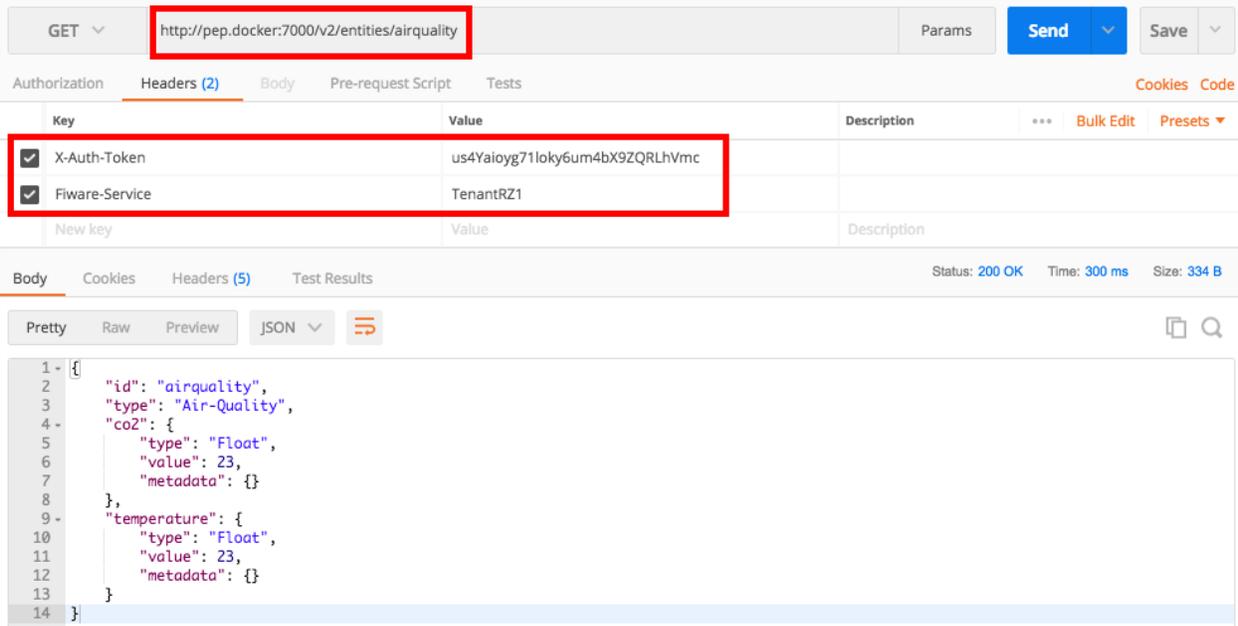
The screenshot shows the 'My Inventory' page for 'Air quality' in the SynchroniCity IoT Data Marketplace. The page features a navigation menu on the left with 'Home', 'My inventory', 'Products', and 'Data orders'. The main content area has a 'List' and 'Details' tab, with 'Details' selected. A large 'CO₂' logo is displayed above the 'Air quality' title. Below the title are tabs for 'About', 'Characteristics', 'Access', 'Price plan', and 'Charges', with 'Characteristics' selected. The 'Characteristics' section contains several fields, each with a radio button selection:

- New characteristic:** This is a new characteristic. Characteristic value
- Asset type:** Type of the data source described in this product specification. Orion Query
- Media type:** Media type of the data source described in this product specification. NGSiv2
- Location:** URL pointing to the data source described in this product specification. <http://pep.docker:7000/v2/entities/airquality>
- Fiware-Service:** Fiware-Service of the data source described in this product specification. TenantRZ1

You will also need to retrieve or generate a new token as shown in the previous section.



Once you have these information you can use them to create your *request*. In this example we are using these information, specifically the *url*, the *X-Auth-Token*, and the *Fiware-Service* to build a *GET* request by using *Postman*. Note that the *Fiware-Service* might be optional if not present in the characteristic of your data source.



To generate a new access token without accessing to the marketplace you can use the *Refresh Token*

SYNCHRONICITY My Inventory Shopping Cart rz_test_marketplace

Home My inventory Products Data orders

List Details

CO₂

test

About Characteristics Access Price plan Charges

Access

To generate an access token insert your password and press Token.

Token mJbTIMwfn8lYcssMP3nnAWgfFVIUBD

Refresh Token ibFRhNqsiHi9huM3dG7KeNtXld5cRJ

Password

Generate Token

You will also need to retrieve the *appId* related to the data source that you wish to access. You can find the *appId* on the characteristic of your data source

The screenshot shows the 'My Inventory' page for a product named 'test'. The page layout includes a sidebar with 'Home', 'My inventory', 'Products', and 'Data orders'. The main content area has tabs for 'List' and 'Details'. Below the product name, there are tabs for 'About', 'Characteristics', 'Access', 'Price plan', and 'Charges'. The 'Characteristics' tab is active, showing several fields: 'Asset type' (Orion Query), 'Media type' (NGSiv2), 'Location' (http://test.com/v2/entities?type=type224), and 'appId' (53626045d3bd4f8c84487f77944fa586). The 'appId' field is highlighted with a red box.

Once you have these information you can use them to generate a new access token by performing a *POST* request on this API

```
http://[marketplace_url]:[marketplace_port]/charging/api/token/refresh
```

with header *Content-Type: application/json* and body

```
{
  "refresh_token": "ibFRhNqsiHi9huM3dG7KeNtXld5cRJ",
  "appId": "53626045d3bd4f8c84487f77944fa586"
}
```

POST proxy.docker:8004/charging/api/token/refresh Params Send Save

Authorization Headers (1) Body Pre-request Script Tests Cookies Code

form-data x-www-form-urlencoded raw binary JSON (application/json)

```
1- {
2  "refresh_token": "lbFRhNqsiIH19huM3dg7KeNtX1d5cRj",
3  "appId": "53626045d3bd4f8c84487f77944fa586"
4 }
```

Body Cookies (1) Headers (11) Test Results Status: 200 OK Time: 778 ms Size: 729 B

Pretty Raw Preview JSON

```
1- {
2  "access_token": "CLUqgmFYfxTNupaSuNfy9PHX7BGJSp",
3  "token_type": "Bearer",
4  "expires_in": 3600,
5  "refresh_token": "oQKQULVCMxf5gWtrn3FiTWOA3mhd6u",
6  "scope": "all_info"
7 }
```