# Metalica – FSD Assignment

**Components set up and configuration**

I am using various open source component in Metalica solution. All the components need to be hosted locally at defined port.

**Database**

I have used NoSQL – MongoDB database as persistence layer.

Install MongoDB community server 3.x <https://www.mongodb.com/download-center#community> and any client to visualize data. MongoDB compass is a good visualizer tool. <https://www.mongodb.com/products/compass>

Success installation would bring DB server at port **27017**.

Data set up in mongodb

All collections is available at ~RefDataService\collections

Step 1) Create database “metallica”

Step 2) Change path to ~RefDataService\collections and run below import statements

mongoimport --db metallica --collection commodities --file commodities.json --jsonArray

mongoimport --db metallica --collection counterparties --file counterparties.json --jsonArray

mongoimport --db metallica --collection locations --file locations.json --jsonArray

mongoimport --db metallica --collection trades --file trades.json --jsonArray

**Message broker**

I have used RabbitMQ as message broker. Install rabbitmq-server-3.7.0.exe from <http://www.rabbitmq.com/install-windows.html>. It has dependency on Erlang, install it from <http://www.rabbitmq.com/which-erlang.html>.

**Producer Client**

I have created a producer client that will push the messages into queue whenever Trade Service or Market Data Service will post their data to exposed URIs :-

=>Market data posted to http://localhost:3000/api/addMarketDataToQueue

=>Trade data posted to http://localhost:3000/api/addTradeToQueue

**Service registry**

Eureka is being used as a Service registry and discovery tool.

Go to eureka-server folder under API Gateway

Run following command:-

java -jar Eureka.jar

This will start a server accessible at:- <http://localhost:8761/>

Service registry from Node micro services can be done using the sample code below (Reference Data Service example):-



**API gateway**

Zuul is used as a Front door to all the incoming service calls and Eureka is being called for service discovery.

Go to Metallica-api-gateway directory which is under ~API Gateway

Run following command:-

java -jar MetallicaApiGateway.jar

**UI**

UI is developed on ReactJS.

**Services**

**Trade Service**

NodeJS micro service that offer API to get/delete/update trade data

**Notification Service**

This service also acts as a consumer to message broker.

Whenever it consumes a message, it emits that message to all the subscribed channels. Web sockets are used to achieve this.

**Reference data service**

NodeJS micro service to return data for all reference entities.

**Market data service**

NodeJS micro service to return live market price.

**Ports**

|  |  |  |
| --- | --- | --- |
| **Service/Component** | **Port** | **Comment** |
| Eureka | 8761 | Hosted on local host |
| Zuul(API Gateway) | 8079 | Hosted on local host |
| MongoDB | 27017 | Hosted on local host |
| UI | 8080 | Hosted on local host |
| Notification Service | 3030 | Hosted on local host |
| Producer Client | 3000 | Hosted on local host |
| Message Broker (RabbitMQ) | 5672 | Hosted on local host |
| Trade Service | 8999 | Hosted on local host |
| Reference data service | 9998 | Hosted on local host |
| Market data service | 9898 | Hosted on local host |