Pharma-Network

Created By: Soumik Saha

1. **Introduction**

Pharma network is a platform to tackel drug counterfiet. The Network will consist of following participant :

- Maunfacturers
- Distributors
- Retailers
- Consumers
- Transporters

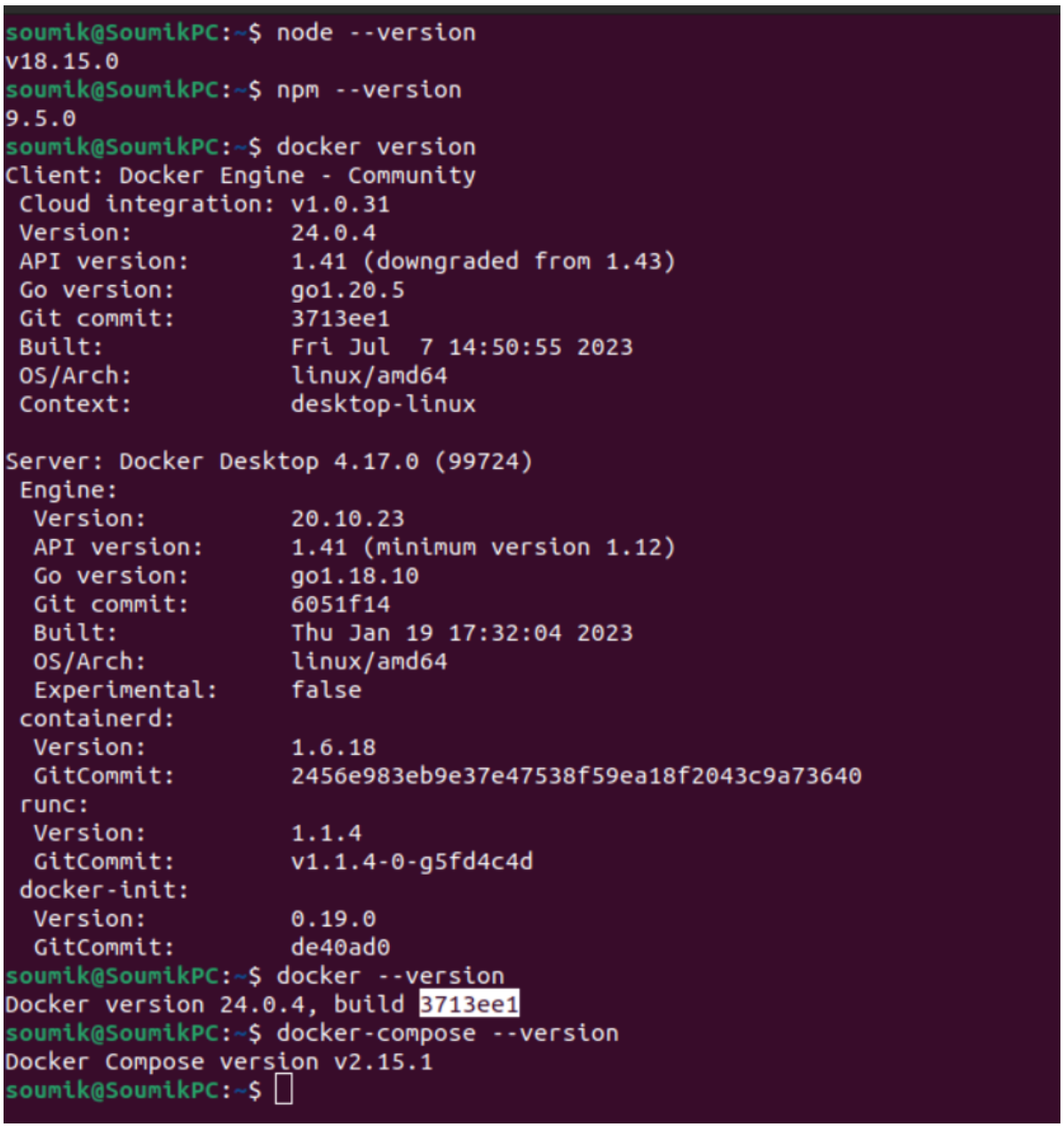
This document will guide you through topics, which will help you to understand various functionalities available in this network.

- Prerequisite
- Installing Libraries
- Starting the Hyperledger fabric based Pharma Network
- Starting the Client Side REST API application
- Running the Test Cases
- Clearing the setup files to re-launch the network

2. **Prerequisite**

   The application was developed using the following version of node, npm, Hyperledger fabric and docker

- Node version : v18.15.0
- NPM version : 9.5.0
- HyperLedger Fabric : 2.4
- Docker Version : 24.0.4 build 3713ee1
- Docker Compose version : v2.15.1



Please ensure that the prerequisite are met before going ahead with the other setup process.

3. **Installing Libraries**

Please Note : Since, the project folder can be different based on where you have placed the project, henceforth the base path till the project folder will be denoted as {Path_to_Project} (this does not include the project folder name).

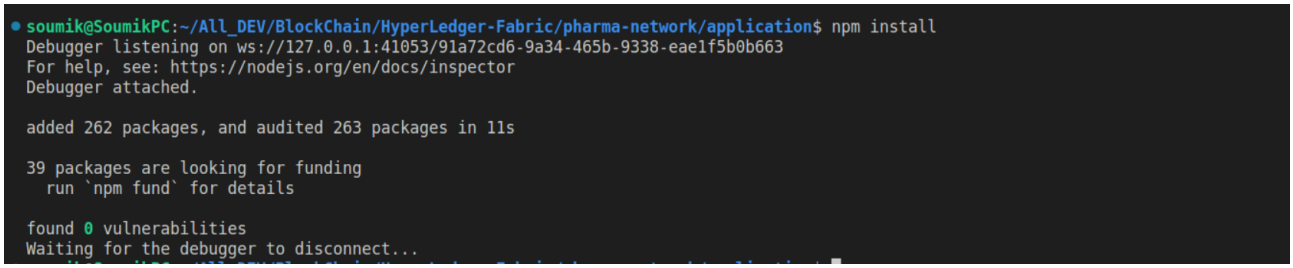
- **Installing the Libraties for Client application :**

  Once the above modules are installed, open terminal and navigate to the project folder {Path_to_Project}/pharma-network/application.

  Run the command : npm install

  This will install all the required libraries for the client side REST API application.

  Please refer to the below image:

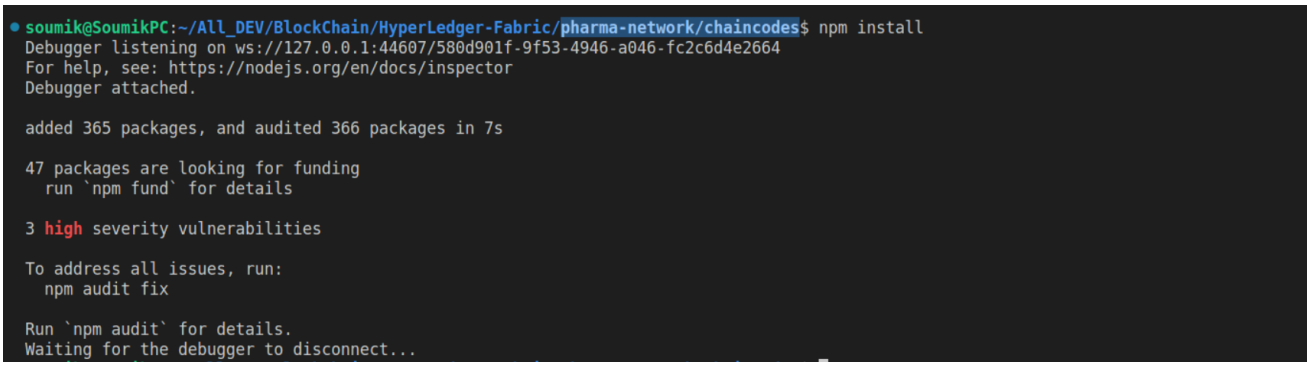


- **Installing the libraries for Chaincodes:**

  To install all the libraries for chaincode, in the same terminal/new terminal, navigate to the path {Path_to_Project}/pharma-network/chaincodes.

  Run the command : npm install

  This will install all the required libraries for chaincodes.



If you have reached till here, you have successfully, installed all the required libraires to run the network.

4. **Starting the Hyperledger fabric based Pharma Network**

To start the hyperledger fabric network, navigate to the folder , {Path_to_Project}/pharma-network/test-network-man

Inside this folder, you will find the following folders :-

- **AnchorPeerScripts** : This folder contains the script to create anchor peers.
- **Configtx** : Contains the configuration details for fabric network
- **Dockers**: Contains the compose files to create the required dockers
- **Organizations**: Contains the crypto libraires to create the required organizations

Also the folder contains multiple .sh scripts which are used to start the network.

Note, before you start to execute the shell script, please make sure that the script are executable. The simple way to do this is :-

- Open File Explorer
- Navigate to {Path_to_Project}/pharma-network/test-network-man
- Right click on the .sh files and select properties
- Select the permission tab
- On the bottom select the checkbox, Allow executing file as program.

Note, the above set of actions need to be done for the following set of files :-

- testFile.sh
- startNetwork.sh
- deployChaincode.sh
- create_join_Channel.sh
- clearSetup.sh

Once the above stpes are completed,we can start the network.

To start the network, please make sure that in the terminal, you are in the folder {Path_to_Project}/pharma-network/test-network-man, and run the script **./startNetwork.sh.**

This script will bring up our entire network, which includes :-

- Creating all the required crypto materials
- Starting the all CA,Orderer,Peers and Chaincode dockers
- Creating channels
- Joining the peer in the channel
- Creating anchor peers
- Initialising Chaincode
- Approving Chaincode
- Deploying Chaincode

Please find the below screenshot :-

```
● soumik@SoumikPC:~/All_DEV/BlockChain/HyperLedger-Fabric/pharma-network/test-network-man$ ./startNetwork.sh
================ Setting Path ================
================ Creating Folders ================
================ Generating crypto Materials================
Consumer.pharma-network.com
Distributor.pharma-network.com
Manufacturer.pharma-network.com
Retailer.pharma-network.com
Transporter.pharma-network.com
================ Setting ConfigTx Path ================
================ Generating Geneis Block for Orderer ================
2023-08-09 15:31:10.011 IST 0001 INFO [common.tools.configtxgen] main -> Loading configuration
2023-08-09 15:31:10.015 IST 0002 INFO [common.tools.configtxgen.localconfig] completeInitialization -> orderer type: solo
2023-08-09 15:31:10.015 IST 0003 INFO [common.tools.configtxgen.localconfig] Load -> Loaded configuration: /home/soumik/All_DEV/BlockChain/HyperLedger-Fabric/pharma-network/test-network-man/configtx/configtx.yaml
2023-08-09 15:31:10.016 IST 0004 INFO [common.tools.configtxgen] doOutputBlock -> Generating genesis block
2023-08-09 15:31:10.016 IST 0005 INFO [common.tools.configtxgen] doOutputBlock -> Creating system channel genesis block
2023-08-09 15:31:10.017 IST 0006 INFO [common.tools.configtxgen] doOutputBlock -> Writing genesis block
================ Generating JSON Output for Genesis Block ================
2023-08-09 15:31:10.033 IST 0001 INFO [common.tools.configtxgen] main -> Loading configuration
2023-08-09 15:31:10.033 IST 0002 INFO [common.tools.configtxgen] doInspectBlock -> Inspecting block
2023-08-09 15:31:10.033 IST 0003 INFO [common.tools.configtxgen] doInspectBlock -> Parsing genesis block
================ Generating PharmaChannel ================
2023-08-09 15:31:10.060 IST 0001 INFO [common.tools.configtxgen] main -> Loading configuration
2023-08-09 15:31:10.066 IST 0002 INFO [common.tools.configtxgen.localconfig] Load -> Loaded configuration: /home/soumik/All_DEV/BlockChain/HyperLedger-Fabric/pharma-network/test-network-man/configtx/configtx.yaml
2023-08-09 15:31:10.066 IST 0003 INFO [common.tools.configtxgen] doOutputChannelCreateTx -> Generating new channel configtx
2023-08-09 15:31:10.068 IST 0004 INFO [common.tools.configtxgen] doOutputChannelCreateTx -> Writing new channel tx
================ Generating JSON Output for the Pharma Channel ================
2023-08-09 15:31:10.084 IST 0001 INFO [common.tools.configtxgen] main -> Loading configuration
2023-08-09 15:31:10.084 IST 0002 INFO [common.tools.configtxgen] doInspectChannelCreateTx -> Inspecting transaction
2023-08-09 15:31:10.084 IST 0003 INFO [common.tools.configtxgen] doInspectChannelCreateTx -> Parsing transaction
================ Updating Anchor Peers ================
2023-08-09 15:31:10.103 IST 0001 INFO [common.tools.configtxgen] main -> Loading configuration
2023-08-09 15:31:10.107 IST 0002 INFO [common.tools.configtxgen.localconfig] Load -> Loaded configuration: /home/soumik/All_DEV/BlockChain/HyperLedger-Fabric/pharma-network/test-network-man/configtx/configtx.yaml
2023-08-09 15:31:10.107 IST 0003 INFO [common.tools.configtxgen] doOutputAnchorPeersUpdate -> Generating anchor peer update
2023-08-09 15:31:10.109 IST 0004 INFO [common.tools.configtxgen] doOutputAnchorPeersUpdate -> Writing anchor peer update
2023-08-09 15:31:10.125 IST 0001 INFO [common.tools.configtxgen] main -> Loading configuration
2023-08-09 15:31:10.129 IST 0002 INFO [common.tools.configtxgen.localconfig] Load -> Loaded configuration: /home/soumik/All_DEV/BlockChain/HyperLedger-Fabric/pharma-network/test-network-man/configtx/configtx.yaml
2023-08-09 15:31:10.129 IST 0003 INFO [common.tools.configtxgen] doOutputAnchorPeersUpdate -> Generating anchor peer update
2023-08-09 15:31:10.131 IST 0004 INFO [common.tools.configtxgen] doOutputAnchorPeersUpdate -> Writing anchor peer update
2023-08-09 15:31:10.147 IST 0001 INFO [common.tools.configtxgen] main -> Loading configuration
2023-08-09 15:31:10.151 IST 0002 INFO [common.tools.configtxgen.localconfig] Load -> Loaded configuration: /home/soumik/All_DEV/BlockChain/HyperLedger-Fabric/pharma-network/test-network-man/configtx/configtx.yaml
2023-08-09 15:31:10.151 IST 0003 INFO [common.tools.configtxgen] doOutputAnchorPeersUpdate -> Generating anchor peer update
2023-08-09 15:31:10.153 IST 0004 INFO [common.tools.configtxgen] doOutputAnchorPeersUpdate -> Writing anchor peer update
2023-08-09 15:31:10.168 IST 0001 INFO [common.tools.configtxgen] main -> Loading configuration
2023-08-09 15:31:10.172 IST 0002 INFO [common.tools.configtxgen.localconfig] Load -> Loaded configuration: /home/soumik/All_DEV/BlockChain/HyperLedger-Fabric/pharma-network/test-network-man/configtx/configtx.yaml
2023-08-09 15:31:10.172 IST 0003 INFO [common.tools.configtxgen] doOutputAnchorPeersUpdate -> Generating anchor peer update
2023-08-09 15:31:10.173 IST 0004 INFO [common.tools.configtxgen] doOutputAnchorPeersUpdate -> Writing anchor peer update
2023-08-09 15:31:10.189 IST 0001 INFO [common.tools.configtxgen] main -> Loading configuration
2023-08-09 15:31:10.193 IST 0002 INFO [common.tools.configtxgen.localconfig] Load -> Loaded configuration: /home/soumik/All_DEV/BlockChain/HyperLedger-Fabric/pharma-network/test-network-man/configtx/configtx.yaml
2023-08-09 15:31:10.193 IST 0003 INFO [common.tools.configtxgen] doOutputAnchorPeersUpdate -> Generating anchor peer update
2023-08-09 15:31:10.194 IST 0004 INFO [common.tools.configtxgen] doOutputAnchorPeersUpdate -> Writing anchor peer update
================ Generating JSON output for Anchor Peers ================
2023-08-09 15:31:10.210 IST 0001 INFO [common.tools.configtxgen] main -> Loading configuration
2023-08-09 15:31:10.210 IST 0002 INFO [common.tools.configtxgen] doInspectChannelCreateTx -> Inspecting transaction
2023-08-09 15:31:10.210 IST 0003 INFO [common.tools.configtxgen] doInspectChannelCreateTx -> Parsing transaction
2023-08-09 15:31:10.226 IST 0001 INFO [common.tools.configtxgen] main -> Loading configuration
2023-08-09 15:31:10.227 IST 0002 INFO [common.tools.configtxgen] doInspectChannelCreateTx -> Inspecting transaction
2023-08-09 15:31:10.227 IST 0003 INFO [common.tools.configtxgen] doInspectChannelCreateTx -> Parsing transaction
2023-08-09 15:31:10.243 IST 0001 INFO [common.tools.configtxgen] main -> Loading configuration
2023-08-09 15:31:10.244 IST 0002 INFO [common.tools.configtxgen] doInspectChannelCreateTx -> Inspecting transaction
2023-08-09 15:31:10.244 IST 0003 INFO [common.tools.configtxgen] doInspectChannelCreateTx -> Parsing transaction
2023-08-09 15:31:10.263 IST 0001 INFO [common.tools.configtxgen] main -> Loading configuration
2023-08-09 15:31:10.263 IST 0002 INFO [common.tools.configtxgen] doInspectChannelCreateTx -> Inspecting transaction
2023-08-09 15:31:10.263 IST 0003 INFO [common.tools.configtxgen] doInspectChannelCreateTx -> Parsing transaction
2023-08-09 15:31:10.279 IST 0001 INFO [common.tools.configtxgen] main -> Loading configuration
2023-08-09 15:31:10.279 IST 0002 INFO [common.tools.configtxgen] doInspectChannelCreateTx -> Inspecting transaction
2023-08-09 15:31:10.279 IST 0003 INFO [common.tools.configtxgen] doInspectChannelCreateTx -> Parsing transaction
================ Generating Informtion on Organizations ================
2023-08-09 15:31:10.295 IST 0001 INFO [common.tools.configtxgen] main -> Loading configuration
2023-08-09 15:31:10.299 IST 0002 INFO [common.tools.configtxgen.localconfig] completeInitialization -> orderer type: solo
2023-08-09 15:31:10.299 IST 0003 INFO [common.tools.configtxgen.localconfig] LoadTopLevel -> Loaded configuration: /home/soumik/All_DEV/BlockChain/HyperLedger-Fabric/pharma-network/test-network-man/configtx/configtx.yaml
2023-08-09 15:31:10.316 IST 0001 INFO [common.tools.configtxgen] main -> Loading configuration
2023-08-09 15:31:10.321 IST 0002 INFO [common.tools.configtxgen.localconfig] completeInitialization -> orderer type: solo
2023-08-09 15:31:10.321 IST 0003 INFO [common.tools.configtxgen.localconfig] LoadTopLevel -> Loaded configuration: /home/soumik/All_DEV/BlockChain/HyperLedger-Fabric/pharma-network/test-network-man/configtx/configtx.yaml
```

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2023-08-09 15:31:10.341 IST 0002 INFO [common.tools.configtxgen.localconfig] completeInitialization -> orderer type: solo
2023-08-09 15:31:10.341 IST 0003 INFO [common.tools.configtxgen.localconfig] LoadTopLevel -> Loaded configuration: /home/soumik/All_DEV/BlockChain/HyperLedger-Fabric/pharma-network/test-network-man/configtx/configtx.yaml
2023-08-09 15:31:10.357 IST 0001 INFO [common.tools.configtxgen] main -> Loading configuration
2023-08-09 15:31:10.361 IST 0002 INFO [common.tools.configtxgen.localconfig] completeInitialization -> orderer type: solo
2023-08-09 15:31:10.361 IST 0003 INFO [common.tools.configtxgen.localconfig] LoadTopLevel -> Loaded configuration: /home/soumik/All_DEV/BlockChain/HyperLedger-Fabric/pharma-network/test-network-man/configtx/configtx.yaml
2023-08-09 15:31:10.377 IST 0001 INFO [common.tools.configtxgen] main -> Loading configuration
2023-08-09 15:31:10.381 IST 0002 INFO [common.tools.configtxgen.localconfig] completeInitialization -> orderer type: solo
2023-08-09 15:31:10.381 IST 0003 INFO [common.tools.configtxgen.localconfig] LoadTopLevel -> Loaded configuration: /home/soumik/All_DEV/BlockChain/HyperLedger-Fabric/pharma-network/test-network-man/configtx/configtx.yaml
================ Starting Dockers ================
[+] Running 19/19
 ⠿ Network pharma-network                                Created
 ⠿ Volume "dockers_orderer.pharma-network.com"           Created
 ⠿ Volume "dockers_peer0.Consumer.pharma-network.com"    Created
 ⠿ Volume "dockers_peer1.Retailer.pharma-network.com"    Created
 ⠿ Volume "dockers_peer0.Manufacturer.pharma-network.com" Created
 ⠿ Volume "dockers_peer1.Consumer.pharma-network.com"    Created
[+] Running 29/29s_peer1.Distributor.pharma-network.com" Created
 ⠿ Network pharma-network                                Created
 ⠿ Volume "dockers_orderer.pharma-network.com"           Created
 ⠿ Volume "dockers_peer0.Consumer.pharma-network.com"    Created
 ⠿ Volume "dockers_peer1.Retailer.pharma-network.com"    Created
 ⠿ Volume "dockers_peer0.Manufacturer.pharma-network.com" Created
 ⠿ Volume "dockers_peer1.Consumer.pharma-network.com"    Created
 ⠿ Volume "dockers_peer1.Distributor.pharma-network.com" Created
[+] Running 23/30s_peer0.Distributor.pharma-network.com" Created
 ⠿ Network pharma-network                                Created
 ⠿ Volume "dockers_orderer.pharma-network.com"           Created
 ⠿ Volume "dockers_peer0.Consumer.pharma-network.com"    Created
 ⠿ Volume "dockers_peer1.Retailer.pharma-network.com"    Created
 ⠿ Volume "dockers_peer0.Manufacturer.pharma-network.com" Created
 ⠿ Volume "dockers_peer1.Consumer.pharma-network.com"    Created
 ⠿ Volume "dockers_peer1.Distributor.pharma-network.com" Created
[+] Running 23/30s_peer0.Distributor.pharma-network.com" Created
 ⠿ Network pharma-network                                Created
 ⠿ Volume "dockers_orderer.pharma-network.com"           Created
 ⠿ Volume "dockers_peer0.Consumer.pharma-network.com"    Created
 ⠿ Volume "dockers_peer1.Retailer.pharma-network.com"    Created
 ⠿ Volume "dockers_peer0.Manufacturer.pharma-network.com" Created
 ⠿ Volume "dockers_peer1.Consumer.pharma-network.com"    Created
 ⠿ Volume "dockers_peer1.Distributor.pharma-network.com" Created
[+] Running 23/30s_peer0.Distributor.pharma-network.com" Created
 ⠿ Network pharma-network                                Created
 ⠿ Volume "dockers_orderer.pharma-network.com"           Created
 ⠿ Volume "dockers_peer0.Consumer.pharma-network.com"    Created
 ⠿ Volume "dockers_peer1.Retailer.pharma-network.com"    Created
 ⠿ Volume "dockers_peer0.Manufacturer.pharma-network.com" Created
 ⠿ Volume "dockers_peer1.Consumer.pharma-network.com"    Created
 ⠿ Volume "dockers_peer1.Distributor.pharma-network.com" Created
[+] Running 23/30s_peer0.Distributor.pharma-network.com" Created
 ⠿ Network pharma-network                                Created
 ⠿ Volume "dockers_orderer.pharma-network.com"           Created
 ⠿ Volume "dockers_peer0.Consumer.pharma-network.com"    Created
 ⠿ Volume "dockers_peer1.Retailer.pharma-network.com"    Created
 ⠿ Volume "dockers_peer0.Manufacturer.pharma-network.com" Created
 ⠿ Volume "dockers_peer1.Consumer.pharma-network.com"    Created
 ⠿ Volume "dockers_peer1.Distributor.pharma-network.com" Created
[+] Running 23/30s_peer0.Distributor.pharma-network.com" Created
 ⠿ Network pharma-network                                Created
 ⠿ Volume "dockers_orderer.pharma-network.com"           Created
 ⠿ Volume "dockers_peer0.Consumer.pharma-network.com"    Created
 ⠿ Volume "dockers_peer1.Retailer.pharma-network.com"    Created
 ⠿ Volume "dockers_peer0.Manufacturer.pharma-network.com" Created
 ⠿ Volume "dockers_peer1.Consumer.pharma-network.com"    Created
 ⠿ Volume "dockers_peer1.Distributor.pharma-network.com" Created
[+] Running 26/30s_peer0.Distributor.pharma-network.com" Created
 ⠿ Network pharma-network                                Created
 ⠿ Volume "dockers_orderer.pharma-network.com"           Created
 ⠿ Volume "dockers_peer0.Consumer.pharma-network.com"    Created
 ⠿ Volume "dockers_peer1.Retailer.pharma-network.com"    Created
 ⠿ Volume "dockers_peer0.Manufacturer.pharma-network.com" Created
 ⠿ Volume "dockers_peer1.Consumer.pharma-network.com"    Created
 ⠿ Volume "dockers_peer1.Distributor.pharma-network.com" Created
[+] Running 27/30s_peer0.Distributor.pharma-network.com" Created
 ⠿ Network pharma-network                                Created
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 ⠿ Volume "dockers_peer1.Consumer.pharma-network.com"      Created
 ⠿ Volume "dockers_peer1.Distributor.pharma-network.com"   Created
[+] Running 27/30s_peer0.Distributor.pharma-network.com"   Created
 ⠿ Network pharma-network                                  Created
 ⠿ Volume "dockers_orderer.pharma-network.com"             Created
 ⠿ Volume "dockers_peer0.Consumer.pharma-network.com"      Created
 ⠿ Volume "dockers_peer1.Retailer.pharma-network.com"      Created
 ⠿ Volume "dockers_peer0.Manufacturer.pharma-network.com"  Created
 ⠿ Volume "dockers_peer1.Consumer.pharma-network.com"      Created
 ⠿ Volume "dockers_peer1.Distributor.pharma-network.com"   Created
[+] Running 28/30s_peer0.Distributor.pharma-network.com"   Created
 ⠿ Network pharma-network                                  Created
 ⠿ Volume "dockers_orderer.pharma-network.com"             Created
 ⠿ Volume "dockers_peer0.Consumer.pharma-network.com"      Created
 ⠿ Volume "dockers_peer1.Retailer.pharma-network.com"      Created
 ⠿ Volume "dockers_peer0.Manufacturer.pharma-network.com"  Created
 ⠿ Volume "dockers_peer1.Consumer.pharma-network.com"      Created
 ⠿ Volume "dockers_peer1.Distributor.pharma-network.com"   Created
[+] Running 20/30s_peer0.Distributor.pharma-network.com"   Created
 ⠿ Network pharma-network                                  Created
 ⠿ Volume "dockers_orderer.pharma-network.com"             Created
 ⠿ Volume "dockers_peer0.Consumer.pharma-network.com"      Created
 ⠿ Volume "dockers_peer1.Retailer.pharma-network.com"      Created
 ⠿ Volume "dockers_peer0.Manufacturer.pharma-network.com"  Created
 ⠿ Volume "dockers_peer1.Consumer.pharma-network.com"      Created
 ⠿ Volume "dockers_peer1.Distributor.pharma-network.com"   Created
[+] Running 20/30s_peer0.Distributor.pharma-network.com"   Created
 ⠿ Network pharma-network                                  Created
 ⠿ Volume "dockers_orderer.pharma-network.com"             Created
 ⠿ Volume "dockers_peer0.Consumer.pharma-network.com"      Created
 ⠿ Volume "dockers_peer1.Retailer.pharma-network.com"      Created
 ⠿ Volume "dockers_peer0.Manufacturer.pharma-network.com"  Created
 ⠿ Volume "dockers_peer1.Consumer.pharma-network.com"      Created
 ⠿ Volume "dockers_peer1.Distributor.pharma-network.com"   Created
[+] Running 20/30s_peer0.Distributor.pharma-network.com"   Created
 ⠿ Network pharma-network                                  Created
 ⠿ Volume "dockers_orderer.pharma-network.com"             Created
 ⠿ Volume "dockers_peer0.Consumer.pharma-network.com"      Created
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 ⠿ Volume "dockers_peer0.Manufacturer.pharma-network.com"  Created
 ⠿ Volume "dockers_peer1.Consumer.pharma-network.com"      Created
 ⠿ Volume "dockers_peer1.Distributor.pharma-network.com"   Created
[+] Running 20/30s_peer0.Distributor.pharma-network.com"   Created
 ⠿ Network pharma-network                                  Created
 ⠿ Volume "dockers_orderer.pharma-network.com"             Created
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 ⠿ Volume "dockers_peer1.Retailer.pharma-network.com"      Created
 ⠿ Volume "dockers_peer0.Manufacturer.pharma-network.com"  Created
 ⠿ Volume "dockers_peer1.Consumer.pharma-network.com"      Created
 ⠿ Volume "dockers_peer1.Distributor.pharma-network.com"   Created
[+] Running 21/30s_peer0.Distributor.pharma-network.com"   Created
 ⠿ Network pharma-network                                  Created
 ⠿ Volume "dockers_orderer.pharma-network.com"             Created
 ⠿ Volume "dockers_peer0.Consumer.pharma-network.com"      Created
 ⠿ Volume "dockers_peer1.Retailer.pharma-network.com"      Created
 ⠿ Volume "dockers_peer0.Manufacturer.pharma-network.com"  Created
 ⠿ Volume "dockers_peer1.Consumer.pharma-network.com"      Created
 ⠿ Volume "dockers_peer1.Distributor.pharma-network.com"   Created
[+] Running 24/30s_peer0.Distributor.pharma-network.com"   Created
 ⠿ Network pharma-network                                  Created
 ⠿ Volume "dockers_orderer.pharma-network.com"             Created
 ⠿ Volume "dockers_peer0.Consumer.pharma-network.com"      Created
 ⠿ Volume "dockers_peer1.Retailer.pharma-network.com"      Created
 ⠿ Volume "dockers_peer0.Manufacturer.pharma-network.com"  Created
 ⠿ Volume "dockers_peer1.Consumer.pharma-network.com"      Created
 ⠿ Volume "dockers_peer1.Distributor.pharma-network.com"   Created
[+] Running 24/30s_peer0.Distributor.pharma-network.com"   Created
 ⠿ Network pharma-network                                  Created
 ⠿ Volume "dockers_orderer.pharma-network.com"             Created
 ⠿ Volume "dockers_peer0.Consumer.pharma-network.com"      Created
 ⠿ Volume "dockers_peer1.Retailer.pharma-network.com"      Created
 ⠿ Volume "dockers_peer0.Manufacturer.pharma-network.com"  Created
 ⠿ Volume "dockers_peer1.Consumer.pharma-network.com"      Created
 ⠿ Volume "dockers_peer1.Distributor.pharma-network.com"   Created
```

```
 ⠿ Volume "dockers_peer0.Manufacturer.pharma-network.com"  Created
 ⠿ Volume "dockers_peer1.Consumer.pharma-network.com"      Created
 ⠿ Volume "dockers_peer1.Distributor.pharma-network.com"   Created
[+] Running 26/30s_peer0.Distributor.pharma-network.com"   Created
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 ⠿ Volume "dockers_peer0.Manufacturer.pharma-network.com"  Created
 ⠿ Volume "dockers_peer1.Consumer.pharma-network.com"      Created
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 ⠿ Volume "dockers_peer1.Retailer.pharma-network.com"      Created
 ⠿ Volume "dockers_peer0.Manufacturer.pharma-network.com"  Created
 ⠿ Volume "dockers_peer1.Consumer.pharma-network.com"      Created
 ⠿ Volume "dockers_peer1.Distributor.pharma-network.com"   Created
[+] Running 29/30s_peer0.Distributor.pharma-network.com"   Created
 ⠿ Network pharma-network                                  Created
 ⠿ Volume "dockers_orderer.pharma-network.com"             Created
 ⠿ Volume "dockers_peer0.Consumer.pharma-network.com"      Created
 ⠿ Volume "dockers_peer1.Retailer.pharma-network.com"      Created
 ⠿ Volume "dockers_peer0.Manufacturer.pharma-network.com"  Created
 ⠿ Volume "dockers_peer1.Consumer.pharma-network.com"      Created
 ⠿ Volume "dockers_peer1.Distributor.pharma-network.com"   Created
[+] Running 29/30s_peer0.Distributor.pharma-network.com"   Created
 ⠿ Network pharma-network                                  Created
 ⠿ Volume "dockers_orderer.pharma-network.com"             Created
 ⠿ Volume "dockers_peer0.Consumer.pharma-network.com"      Created
 ⠿ Volume "dockers_peer1.Retailer.pharma-network.com"      Created
 ⠿ Volume "dockers_peer0.Manufacturer.pharma-network.com"  Created
 ⠿ Volume "dockers_peer1.Consumer.pharma-network.com"      Created
 ⠿ Volume "dockers_peer1.Distributor.pharma-network.com"   Created
[+] Running 30/30s_peer0.Distributor.pharma-network.com"   Created
 ⠿ Network pharma-network                                  Created
 ⠿ Volume "dockers_orderer.pharma-network.com"             Created
 ⠿ Volume "dockers_peer0.Consumer.pharma-network.com"      Created
 ⠿ Volume "dockers_peer1.Retailer.pharma-network.com"      Created
 ⠿ Volume "dockers_peer0.Manufacturer.pharma-network.com"  Created
 ⠿ Volume "dockers_peer1.Consumer.pharma-network.com"      Created
 ⠿ Volume "dockers_peer1.Distributor.pharma-network.com"   Created
 ⠿ Volume "dockers_peer0.Distributor.pharma-network.com"   Created
 ⠿ Volume "dockers_peer0.Retailer.pharma-network.com"      Created
 ⠿ Volume "dockers_peer1.Manufacturer.pharma-network.com"  Created
 ⠿ Volume "dockers_peer1.Transporter.pharma-network.com"   Created
 ⠿ Volume "dockers_peer0.Transporter.pharma-network.com"   Created
 ⠿ Container ca_Manufacturer                               Started
 ⠿ Container ca_Orderer                                    Started
 ⠿ Container ca_Distributor                                Started
 ⠿ Container ca_Transporter                                Started
 ⠿ Container ca_Retailer                                   Started
 ⠿ Container ca_Consumer                                   Started
 ⠿ Container orderer.pharma-network.com                    Started
 ⠿ Container peer0.Distributor.pharma-network.com          Started
 ⠿ Container peer1.Consumer.pharma-network.com             Started
 ⠿ Container peer0.Transporter.pharma-network.com          Started
 ⠿ Container peer0.Manufacturer.pharma-network.com         Started
 ⠿ Container peer1.Transporter.pharma-network.com          Started
 ⠿ Container peer0.Retailer.pharma-network.com             Started
 ⠿ Container peer1.Manufacturer.pharma-network.com         Started
 ⠿ Container peer0.Consumer.pharma-network.com             Started
 ⠿ Container peer1.Retailer.pharma-network.com             Started
 ⠿ Container peer1.Distributor.pharma-network.com          Started
 ⠿ Container cli                                           Started
================ Creating Channel on Orderer ================
2023-08-09 15:31:27.746 IST 0001 INFO [channelCmd] InitCmdFactory -> Endorser and orderer connections initialized
2023-08-09 15:31:27.764 IST 0002 INFO [cli.common] readBlock -> Received block: 0
================ Setting Block File ================
================ Joinning peer0 of Manufacturer ================
2023-08-09 15:31:27.787 IST 0001 INFO [channelCmd] InitCmdFactory -> Endorser and orderer connections initialized
2023-08-09 15:31:27.807 IST 0002 INFO [channelCmd] executeJoin -> Successfully submitted proposal to join channel
================ Joinning peer1 of Manufacturer ================
```

```
================ Creating Channel on Orderer ================
2023-08-09 15:31:27.746 IST 0001 INFO [channelCmd] InitCmdFactory -> Endorser and orderer connections initialized
2023-08-09 15:31:27.764 IST 0002 INFO [cli.common] readBlock -> Received block: 0
================ Setting Block File ================
================ Joinning peer0 of Manufacturer ================
2023-08-09 15:31:27.787 IST 0001 INFO [channelCmd] InitCmdFactory -> Endorser and orderer connections initialized
2023-08-09 15:31:27.807 IST 0002 INFO [channelCmd] executeJoin -> Successfully submitted proposal to join channel
================ Joinning peer1 of Manufacturer ================
2023-08-09 15:31:27.829 IST 0001 INFO [channelCmd] InitCmdFactory -> Endorser and orderer connections initialized
2023-08-09 15:31:27.851 IST 0002 INFO [channelCmd] executeJoin -> Successfully submitted proposal to join channel
================ Joinning peer0 of Consumer ================
2023-08-09 15:31:27.874 IST 0001 INFO [channelCmd] InitCmdFactory -> Endorser and orderer connections initialized
2023-08-09 15:31:27.893 IST 0002 INFO [channelCmd] executeJoin -> Successfully submitted proposal to join channel
================ Joinning peer1 of Consumer ================
2023-08-09 15:31:27.913 IST 0001 INFO [channelCmd] InitCmdFactory -> Endorser and orderer connections initialized
2023-08-09 15:31:27.932 IST 0002 INFO [channelCmd] executeJoin -> Successfully submitted proposal to join channel
================ Joinning peer0 of Distributor ================
2023-08-09 15:31:27.954 IST 0001 INFO [channelCmd] InitCmdFactory -> Endorser and orderer connections initialized
2023-08-09 15:31:27.973 IST 0002 INFO [channelCmd] executeJoin -> Successfully submitted proposal to join channel
================ Joinning peer1 of Distributor ================
2023-08-09 15:31:27.994 IST 0001 INFO [channelCmd] InitCmdFactory -> Endorser and orderer connections initialized
2023-08-09 15:31:28.015 IST 0002 INFO [channelCmd] executeJoin -> Successfully submitted proposal to join channel
================ Joinning peer0 of Retailer ================
2023-08-09 15:31:28.038 IST 0001 INFO [channelCmd] InitCmdFactory -> Endorser and orderer connections initialized
2023-08-09 15:31:28.057 IST 0002 INFO [channelCmd] executeJoin -> Successfully submitted proposal to join channel
================ Joinning peer1 of Retailer ================
2023-08-09 15:31:28.079 IST 0001 INFO [channelCmd] InitCmdFactory -> Endorser and orderer connections initialized
2023-08-09 15:31:28.097 IST 0002 INFO [channelCmd] executeJoin -> Successfully submitted proposal to join channel
================ Joinning peer0 of Transporter ================
2023-08-09 15:31:28.119 IST 0001 INFO [channelCmd] InitCmdFactory -> Endorser and orderer connections initialized
2023-08-09 15:31:28.136 IST 0002 INFO [channelCmd] executeJoin -> Successfully submitted proposal to join channel
================ Joinning peer1 of Transporter ================
2023-08-09 15:31:28.157 IST 0001 INFO [channelCmd] InitCmdFactory -> Endorser and orderer connections initialized
2023-08-09 15:31:28.180 IST 0002 INFO [channelCmd] executeJoin -> Successfully submitted proposal to join channel
================ Updating Anchor Peers : Manufacturers ================
2023-08-09 15:31:28.199 IST 0001 INFO [channelCmd] InitCmdFactory -> Endorser and orderer connections initialized
2023-08-09 15:31:28.209 IST 0002 INFO [channelCmd] update -> Successfully submitted channel update
================ Updating Anchor Peers : Consumer ================
2023-08-09 15:31:28.237 IST 0001 INFO [channelCmd] InitCmdFactory -> Endorser and orderer connections initialized
2023-08-09 15:31:28.248 IST 0002 INFO [channelCmd] update -> Successfully submitted channel update
================ Updating Anchor Peers : Distributor ================
2023-08-09 15:31:28.278 IST 0001 INFO [channelCmd] InitCmdFactory -> Endorser and orderer connections initialized
2023-08-09 15:31:28.287 IST 0002 INFO [channelCmd] update -> Successfully submitted channel update
================ Updating Anchor Peers : Retailer ================
2023-08-09 15:31:28.314 IST 0001 INFO [channelCmd] InitCmdFactory -> Endorser and orderer connections initialized
2023-08-09 15:31:28.325 IST 0002 INFO [channelCmd] update -> Successfully submitted channel update
================ Updating Anchor Peers : Transporter ================
2023-08-09 15:31:28.360 IST 0001 INFO [channelCmd] InitCmdFactory -> Endorser and orderer connections initialized
2023-08-09 15:31:28.370 IST 0002 INFO [channelCmd] update -> Successfully submitted channel update
================ Packging the chancode================
================ Deploying the chancode on peer0 of Manufacturer ================
2023-08-09 15:31:53.397 IST 0001 INFO [cli.lifecycle.chaincode] submitInstallProposal -> Installed remotely: response:<status:200 payload:"\nNpharmanet_1.0:14c69ae942869e9b2e8a6a3fc7114dc43daeff63b99669c5826e9c20b3486741\022\rpharm
2023-08-09 15:31:53.397 IST 0002 INFO [cli.lifecycle.chaincode] submitInstallProposal -> Chaincode code package identifier: pharmanet_1.0:14c69ae942869e9b2e8a6a3fc7114dc43daeff63b99669c5826e9c20b3486741
================ Deploying the chancode on peer1 of Manufacturer ================
2023-08-09 15:32:03.224 IST 0001 INFO [cli.lifecycle.chaincode] submitInstallProposal -> Installed remotely: response:<status:200 payload:"\nNpharmanet_1.0:14c69ae942869e9b2e8a6a3fc7114dc43daeff63b99669c5826e9c20b3486741\022\rpharm
2023-08-09 15:32:03.224 IST 0002 INFO [cli.lifecycle.chaincode] submitInstallProposal -> Chaincode code package identifier: pharmanet_1.0:14c69ae942869e9b2e8a6a3fc7114dc43daeff63b99669c5826e9c20b3486741
================ Deploying the chancode on peer0 of Consumer ================
2023-08-09 15:32:12.207 IST 0001 INFO [cli.lifecycle.chaincode] submitInstallProposal -> Installed remotely: response:<status:200 payload:"\nNpharmanet_1.0:14c69ae942869e9b2e8a6a3fc7114dc43daeff63b99669c5826e9c20b3486741\022\rpharm
2023-08-09 15:32:12.207 IST 0002 INFO [cli.lifecycle.chaincode] submitInstallProposal -> Chaincode code package identifier: pharmanet_1.0:14c69ae942869e9b2e8a6a3fc7114dc43daeff63b99669c5826e9c20b3486741
================ Deploying the chancode on peer1 of Consumer ================
2023-08-09 15:32:21.745 IST 0001 INFO [cli.lifecycle.chaincode] submitInstallProposal -> Installed remotely: response:<status:200 payload:"\nNpharmanet_1.0:14c69ae942869e9b2e8a6a3fc7114dc43daeff63b99669c5826e9c20b3486741\022\rpharm
2023-08-09 15:32:21.745 IST 0002 INFO [cli.lifecycle.chaincode] submitInstallProposal -> Chaincode code package identifier: pharmanet_1.0:14c69ae942869e9b2e8a6a3fc7114dc43daeff63b99669c5826e9c20b3486741
================ Deploying the chancode on peer0 of Distributor ================
2023-08-09 15:32:30.431 IST 0001 INFO [cli.lifecycle.chaincode] submitInstallProposal -> Installed remotely: response:<status:200 payload:"\nNpharmanet_1.0:14c69ae942869e9b2e8a6a3fc7114dc43daeff63b99669c5826e9c20b3486741\022\rpharm
2023-08-09 15:32:30.431 IST 0002 INFO [cli.lifecycle.chaincode] submitInstallProposal -> Chaincode code package identifier: pharmanet_1.0:14c69ae942869e9b2e8a6a3fc7114dc43daeff63b99669c5826e9c20b3486741
================ Deploying the chancode on peer1 of Distributor ================
2023-08-09 15:32:40.029 IST 0001 INFO [cli.lifecycle.chaincode] submitInstallProposal -> Installed remotely: response:<status:200 payload:"\nNpharmanet_1.0:14c69ae942869e9b2e8a6a3fc7114dc43daeff63b99669c5826e9c20b3486741\022\rpharm
2023-08-09 15:32:40.029 IST 0002 INFO [cli.lifecycle.chaincode] submitInstallProposal -> Chaincode code package identifier: pharmanet_1.0:14c69ae942869e9b2e8a6a3fc7114dc43daeff63b99669c5826e9c20b3486741
================ Deploying the chancode on peer0 of Retailer ================
2023-08-09 15:32:48.822 IST 0001 INFO [cli.lifecycle.chaincode] submitInstallProposal -> Installed remotely: response:<status:200 payload:"\nNpharmanet_1.0:14c69ae942869e9b2e8a6a3fc7114dc43daeff63b99669c5826e9c20b3486741\022\rpharm
2023-08-09 15:32:48.822 IST 0002 INFO [cli.lifecycle.chaincode] submitInstallProposal -> Chaincode code package identifier: pharmanet_1.0:14c69ae942869e9b2e8a6a3fc7114dc43daeff63b99669c5826e9c20b3486741
================ Deploying the chancode on peer1 of Retailer ================
2023-08-09 15:32:58.324 IST 0001 INFO [cli.lifecycle.chaincode] submitInstallProposal -> Installed remotely: response:<status:200 payload:"\nNpharmanet_1.0:14c69ae942869e9b2e8a6a3fc7114dc43daeff63b99669c5826e9c20b3486741\022\rpharm
2023-08-09 15:32:58.324 IST 0002 INFO [cli.lifecycle.chaincode] submitInstallProposal -> Chaincode code package identifier: pharmanet_1.0:14c69ae942869e9b2e8a6a3fc7114dc43daeff63b99669c5826e9c20b3486741
```

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================ Joinning peer0 of Transporter ================
2023-08-09 15:31:28.119 IST 0001 INFO [channelCmd] InitCmdFactory -> Endorser and orderer connections initialized
2023-08-09 15:31:28.136 IST 0002 INFO [channelCmd] executeJoin -> Successfully submitted proposal to join channel
================ Joinning peer1 of Transporter ================
2023-08-09 15:31:28.157 IST 0001 INFO [channelCmd] InitCmdFactory -> Endorser and orderer connections initialized
2023-08-09 15:31:28.180 IST 0002 INFO [channelCmd] executeJoin -> Successfully submitted proposal to join channel
================ Updating Anchor Peers : Manufacturers ================
2023-08-09 15:31:28.199 IST 0001 INFO [channelCmd] InitCmdFactory -> Endorser and orderer connections initialized
2023-08-09 15:31:28.209 IST 0002 INFO [channelCmd] update -> Successfully submitted channel update
================ Updating Anchor Peers : Consumer ================
2023-08-09 15:31:28.237 IST 0001 INFO [channelCmd] InitCmdFactory -> Endorser and orderer connections initialized
2023-08-09 15:31:28.248 IST 0002 INFO [channelCmd] update -> Successfully submitted channel update
================ Updating Anchor Peers : Distributor ================
2023-08-09 15:31:28.278 IST 0001 INFO [channelCmd] InitCmdFactory -> Endorser and orderer connections initialized
2023-08-09 15:31:28.287 IST 0002 INFO [channelCmd] update -> Successfully submitted channel update
================ Updating Anchor Peers : Retailer ================
2023-08-09 15:31:28.314 IST 0001 INFO [channelCmd] InitCmdFactory -> Endorser and orderer connections initialized
2023-08-09 15:31:28.325 IST 0002 INFO [channelCmd] update -> Successfully submitted channel update
================ Updating Anchor Peers : Transporter ================
2023-08-09 15:31:28.360 IST 0001 INFO [channelCmd] InitCmdFactory -> Endorser and orderer connections initialized
2023-08-09 15:31:28.370 IST 0002 INFO [channelCmd] update -> Successfully submitted channel update
================ Packging the chancode================
================ Deploying the chancode on peer0 of Manufacturer ================
2023-08-09 15:31:53.397 IST 0001 INFO [cli.lifecycle.chaincode] submitInstallProposal -> Installed remotely: response:<status:200 payload:"\nNpharmanet_1.0:14c69ae942869e9b2e8a6a3fc7114dc43daeff63b99669c5826e9c20b3486741\022\rpharm
2023-08-09 15:31:53.397 IST 0002 INFO [cli.lifecycle.chaincode] submitInstallProposal -> Chaincode code package identifier: pharmanet_1.0:14c69ae942869e9b2e8a6a3fc7114dc43daeff63b99669c5826e9c20b3486741
================ Deploying the chancode on peer1 of Manufacturer ================
2023-08-09 15:32:03.224 IST 0001 INFO [cli.lifecycle.chaincode] submitInstallProposal -> Installed remotely: response:<status:200 payload:"\nNpharmanet_1.0:14c69ae942869e9b2e8a6a3fc7114dc43daeff63b99669c5826e9c20b3486741\022\rpharm
2023-08-09 15:32:03.224 IST 0002 INFO [cli.lifecycle.chaincode] submitInstallProposal -> Chaincode code package identifier: pharmanet_1.0:14c69ae942869e9b2e8a6a3fc7114dc43daeff63b99669c5826e9c20b3486741
================ Deploying the chancode on peer0 of Consumer ================
2023-08-09 15:32:12.207 IST 0001 INFO [cli.lifecycle.chaincode] submitInstallProposal -> Installed remotely: response:<status:200 payload:"\nNpharmanet_1.0:14c69ae942869e9b2e8a6a3fc7114dc43daeff63b99669c5826e9c20b3486741\022\rpharm
2023-08-09 15:32:12.207 IST 0002 INFO [cli.lifecycle.chaincode] submitInstallProposal -> Chaincode code package identifier: pharmanet_1.0:14c69ae942869e9b2e8a6a3fc7114dc43daeff63b99669c5826e9c20b3486741
================ Deploying the chancode on peer1 of Consumer ================
2023-08-09 15:32:21.745 IST 0001 INFO [cli.lifecycle.chaincode] submitInstallProposal -> Installed remotely: response:<status:200 payload:"\nNpharmanet_1.0:14c69ae942869e9b2e8a6a3fc7114dc43daeff63b99669c5826e9c20b3486741\022\rpharm
2023-08-09 15:32:21.745 IST 0002 INFO [cli.lifecycle.chaincode] submitInstallProposal -> Chaincode code package identifier: pharmanet_1.0:14c69ae942869e9b2e8a6a3fc7114dc43daeff63b99669c5826e9c20b3486741
================ Deploying the chancode on peer0 of Distributor ================
2023-08-09 15:32:30.431 IST 0001 INFO [cli.lifecycle.chaincode] submitInstallProposal -> Installed remotely: response:<status:200 payload:"\nNpharmanet_1.0:14c69ae942869e9b2e8a6a3fc7114dc43daeff63b99669c5826e9c20b3486741\022\rpharm
2023-08-09 15:32:30.431 IST 0002 INFO [cli.lifecycle.chaincode] submitInstallProposal -> Chaincode code package identifier: pharmanet_1.0:14c69ae942869e9b2e8a6a3fc7114dc43daeff63b99669c5826e9c20b3486741
================ Deploying the chancode on peer1 of Distributor ================
2023-08-09 15:32:40.029 IST 0001 INFO [cli.lifecycle.chaincode] submitInstallProposal -> Installed remotely: response:<status:200 payload:"\nNpharmanet_1.0:14c69ae942869e9b2e8a6a3fc7114dc43daeff63b99669c5826e9c20b3486741\022\rpharm
2023-08-09 15:32:40.029 IST 0002 INFO [cli.lifecycle.chaincode] submitInstallProposal -> Chaincode code package identifier: pharmanet_1.0:14c69ae942869e9b2e8a6a3fc7114dc43daeff63b99669c5826e9c20b3486741
================ Deploying the chancode on peer0 of Retailer ================
2023-08-09 15:32:48.822 IST 0001 INFO [cli.lifecycle.chaincode] submitInstallProposal -> Installed remotely: response:<status:200 payload:"\nNpharmanet_1.0:14c69ae942869e9b2e8a6a3fc7114dc43daeff63b99669c5826e9c20b3486741\022\rpharm
2023-08-09 15:32:48.822 IST 0002 INFO [cli.lifecycle.chaincode] submitInstallProposal -> Chaincode code package identifier: pharmanet_1.0:14c69ae942869e9b2e8a6a3fc7114dc43daeff63b99669c5826e9c20b3486741
================ Deploying the chancode on peer1 of Retailer ================
2023-08-09 15:32:58.324 IST 0001 INFO [cli.lifecycle.chaincode] submitInstallProposal -> Installed remotely: response:<status:200 payload:"\nNpharmanet_1.0:14c69ae942869e9b2e8a6a3fc7114dc43daeff63b99669c5826e9c20b3486741\022\rpharm
2023-08-09 15:32:58.324 IST 0002 INFO [cli.lifecycle.chaincode] submitInstallProposal -> Chaincode code package identifier: pharmanet_1.0:14c69ae942869e9b2e8a6a3fc7114dc43daeff63b99669c5826e9c20b3486741
================ Deploying the chancode on peer0 of Transporter ================
2023-08-09 15:33:08.129 IST 0001 INFO [cli.lifecycle.chaincode] submitInstallProposal -> Installed remotely: response:<status:200 payload:"\nNpharmanet_1.0:14c69ae942869e9b2e8a6a3fc7114dc43daeff63b99669c5826e9c20b3486741\022\rpharm
2023-08-09 15:33:08.129 IST 0002 INFO [cli.lifecycle.chaincode] submitInstallProposal -> Chaincode code package identifier: pharmanet_1.0:14c69ae942869e9b2e8a6a3fc7114dc43daeff63b99669c5826e9c20b3486741
================ Deploying the chancode on peer1 of Transporter ================
2023-08-09 15:33:17.017 IST 0001 INFO [cli.lifecycle.chaincode] submitInstallProposal -> Installed remotely: response:<status:200 payload:"\nNpharmanet_1.0:14c69ae942869e9b2e8a6a3fc7114dc43daeff63b99669c5826e9c20b3486741\022\rpharm
2023-08-09 15:33:17.017 IST 0002 INFO [cli.lifecycle.chaincode] submitInstallProposal -> Chaincode code package identifier: pharmanet_1.0:14c69ae942869e9b2e8a6a3fc7114dc43daeff63b99669c5826e9c20b3486741
Package ID: pharmanet_1.0:14c69ae942869e9b2e8a6a3fc7114dc43daeff63b99669c5826e9c20b3486741
Package ID stored in PACKAGE_ID environment variable: pharmanet_1.0:14c69ae942869e9b2e8a6a3fc7114dc43daeff63b99669c5826e9c20b3486741
================ Approving the Chaincode for the Org : Manufacturer ================
2023-08-09 15:33:39.086 IST 0001 INFO [chaincodeCmd] ClientWait -> txid [ada753c1d8904bed5d0a314d805765c41e9ad3470a1a6a535ef5ba67c9e120e0] committed with status (VALID) at localhost:11051
================ Approving the Chaincode for the Org : Consumer ================
2023-08-09 15:33:41.159 IST 0001 INFO [chaincodeCmd] ClientWait -> txid [705a6199124197eece05039118c8702e3cdbc25b8a1fd5751dc34a64b94c95a0] committed with status (VALID) at localhost:7051
================ Approving the Chaincode for the Org : Distributor ================
2023-08-09 15:33:43.236 IST 0001 INFO [chaincodeCmd] ClientWait -> txid [55a96a3de83bf48087ae5bde36fbe681384ad583534326f4747553227c37e6a7] committed with status (VALID) at localhost:9051
================ Approving the Chaincode for the Org : Retailer ================
2023-08-09 15:33:45.310 IST 0001 INFO [chaincodeCmd] ClientWait -> txid [6aa8dc94b043dfb40e4fbe5f017482178dadd9090485c66728e0bf22cad7cdc9] committed with status (VALID) at localhost:13051
================ Approving the Chaincode for the Org : Transporter ================
2023-08-09 15:33:47.399 IST 0001 INFO [chaincodeCmd] ClientWait -> txid [c7e77cc7e24d06b8a65ef6d8977d3938fbb3909f0ca11f008e0b92c01391bd39] committed with status (VALID) at localhost:15051
================ Commiting Chaincode ================
2023-08-09 15:34:09.483 IST 0001 INFO [chaincodeCmd] ClientWait -> txid [8c62ee7d6c9ee6114558a1cbff92e9ed35a370a8ee5c979e23c54cfa86831c28] committed with status (VALID) at localhost:9051
2023-08-09 15:34:09.484 IST 0002 INFO [chaincodeCmd] ClientWait -> txid [8c62ee7d6c9ee6114558a1cbff92e9ed35a370a8ee5c979e23c54cfa86831c28] committed with status (VALID) at localhost:13051
2023-08-09 15:34:09.486 IST 0004 INFO [chaincodeCmd] ClientWait -> txid [8c62ee7d6c9ee6114558a1cbff92e9ed35a370a8ee5c979e23c54cfa86831c28] committed with status (VALID) at localhost:15051
2023-08-09 15:34:09.486 IST 0003 INFO [chaincodeCmd] ClientWait -> txid [8c62ee7d6c9ee6114558a1cbff92e9ed35a370a8ee5c979e23c54cfa86831c28] committed with status (VALID) at localhost:7051
2023-08-09 15:34:09.488 IST 0005 INFO [chaincodeCmd] ClientWait -> txid [8c62ee7d6c9ee6114558a1cbff92e9ed35a370a8ee5c979e23c54cfa86831c28] committed with status (VALID) at localhost:11051
Committed chaincode definition for chaincode 'pharmanet' on channel 'pharmachannel':
Version: 1.0, Sequence: 1, Endorsement Plugin: escc, Validation Plugin: vscc, Approvals: [ConsumerMSP: true, DistributorMSP: true, ManufacturerMSP: true, RetailerMSP: true, TransporterMSP: true]
2023-08-09 15:34:24.545 IST 0001 INFO [chaincodeCmd] chaincodeInvokeOrQuery -> Chaincode invoke successful. result: status:200
soumik@SoumikPC:~/All_DEV/BlockChain/HyperLedger-Fabric/pharma-network/test-network-man$
```

5. **Starting the Client Side REST API application**

   To start the Client Side Rest API application, navigate to the path, {Path_to_Project}/pharma-network/application and run the command : **npm start**

   This will bring up the Client side REST API application.

   This application can be accessed in the port 3000

   Pleae find the screenshot below :-

6. **Running the Test Cases**

   This project contains a postman collection which contains all the necessary details to access the client side rest api and in turn interact with the underlying fabric network.

   To postman collections can be found under the folder, {Path_to_Project}/pharma-network/PostMan-Collections

   Please import this collection into postman.

   Note, Output of the responses can be see from both the POSTMAN as well as in the terminal/console.

   The following step will provide an walkthough on the Test Case execution :-

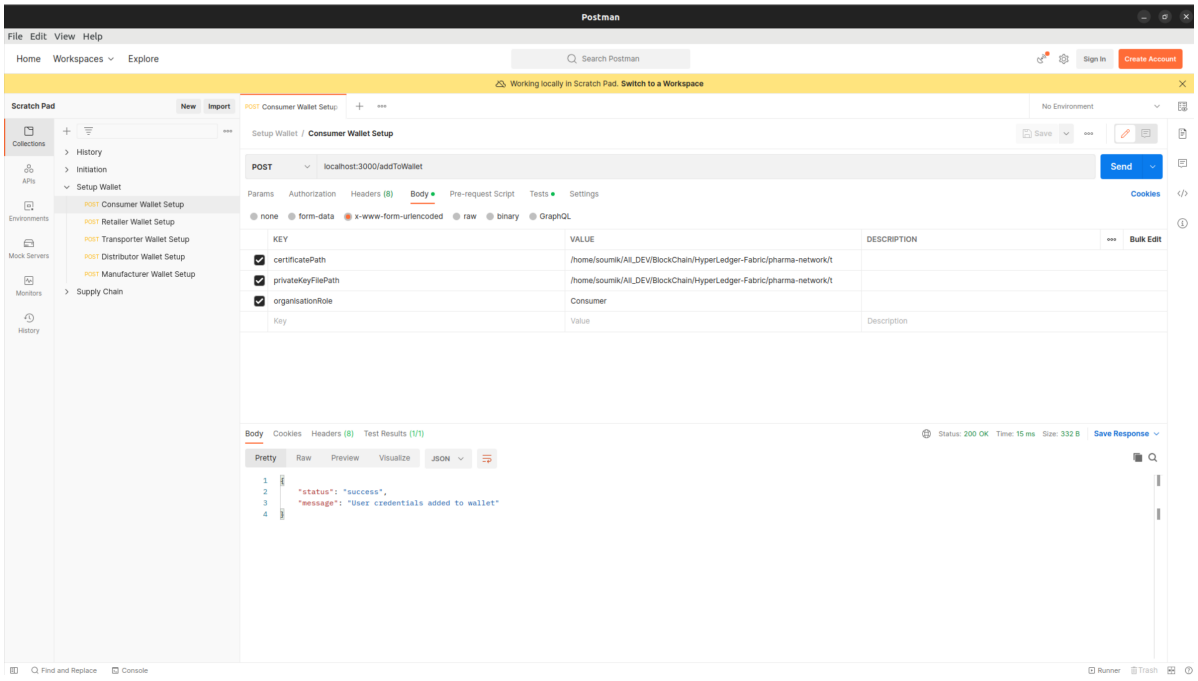
- Open the Setup Wallet Collection and execute the API call inside. Please note that we need to change the path of the following keys to the path present on the current system for each of the calls.

  For Consumer Wallet Setup

  - **certificatePath**:{Path_to_Project}/pharma-network/test-network-man/organizations/peerOrganizations/Consumer.pharma-network.com/users/Admin@Consumer.pharma-network.com/msp/signcerts/Admin@Consumer.pharma-network.com-cert.pem

  - **privateKeyFilePath**:{Path_to_Project}/pharma-network/test-network-man/organizations/peerOrganizations/Consumer.pharma-network.com/users/Admin@Consumer.pharma-network.com/msp/keystore/priv_sk

  Screenshots : Postman



Screenshots : Console

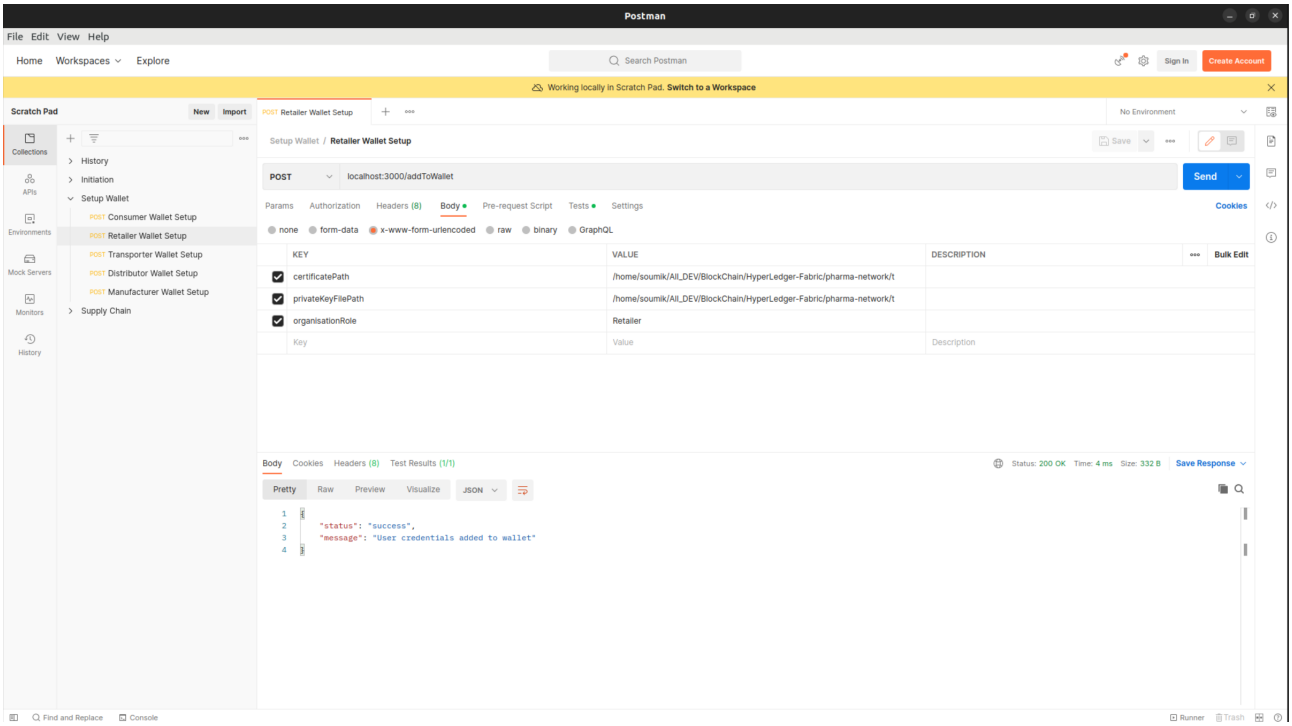
```
soumik@SoumikPC:~/All_DEV/BlockChain/HyperLedger-Fabric/pharma-network/application$ npm start
Debugger listening on ws://127.0.0.1:40247/659b6324-37b2-4999-81ae-ffc506b88287
For help, see: https://nodejs.org/en/docs/inspector
Debugger attached.

> pharma_network@1.0.0 start
> nodemon index.js

Debugger listening on ws://127.0.0.1:39239/e0ea41a6-4510-46ec-8395-29cc7771f62e
For help, see: https://nodejs.org/en/docs/inspector
Debugger attached.
[nodemon] 3.0.1
[nodemon] to restart at any time, enter `rs`
[nodemon] watching path(s): *.*
[nodemon] watching extensions: js,mjs,cjs,json
[nodemon] starting `node index.js`
Debugger listening on ws://127.0.0.1:33981/6dd2cab6-ca2c-47ea-ab6f-13719f1f940a
For help, see: https://nodejs.org/en/docs/inspector
Debugger attached.
Pharma Network is running on port 3000
Successfully added user to wallet
```

For Retailer Wallet Setup

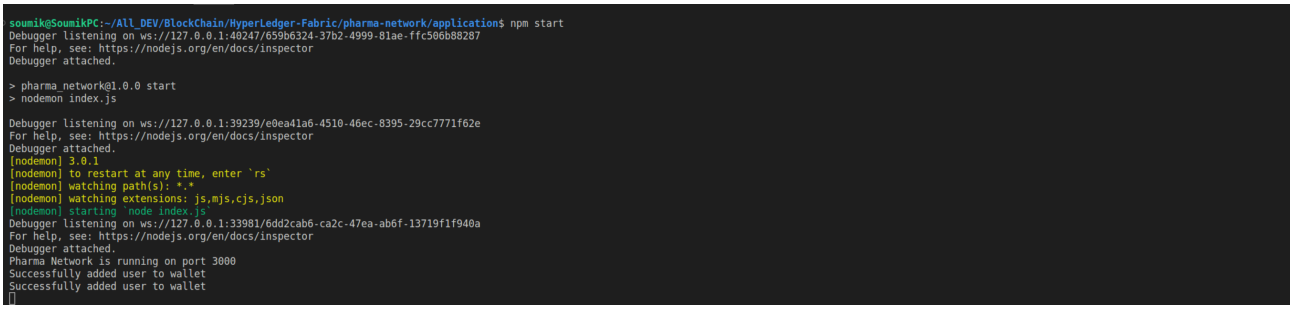
- **certificatePath**:{Path_to_Project}/pharma-network/test-network-man/organizations/peerOrganizations/Retailer.pharma-network.com/users/Admin@Retailer.pharma-network.com/msp/signcerts/Admin@Retailer.pharma-network.com-cert.pem

- **privateKeyFilePath**:{Path_to_Project}/pharma-network/test-network-man/organizations/peerOrganizations/Retailer.pharma-network.com/users/Admin@Retailer.pharma-network.com/msp/keystore/priv_sk

Screenshots : Postman



Screenshots : Console

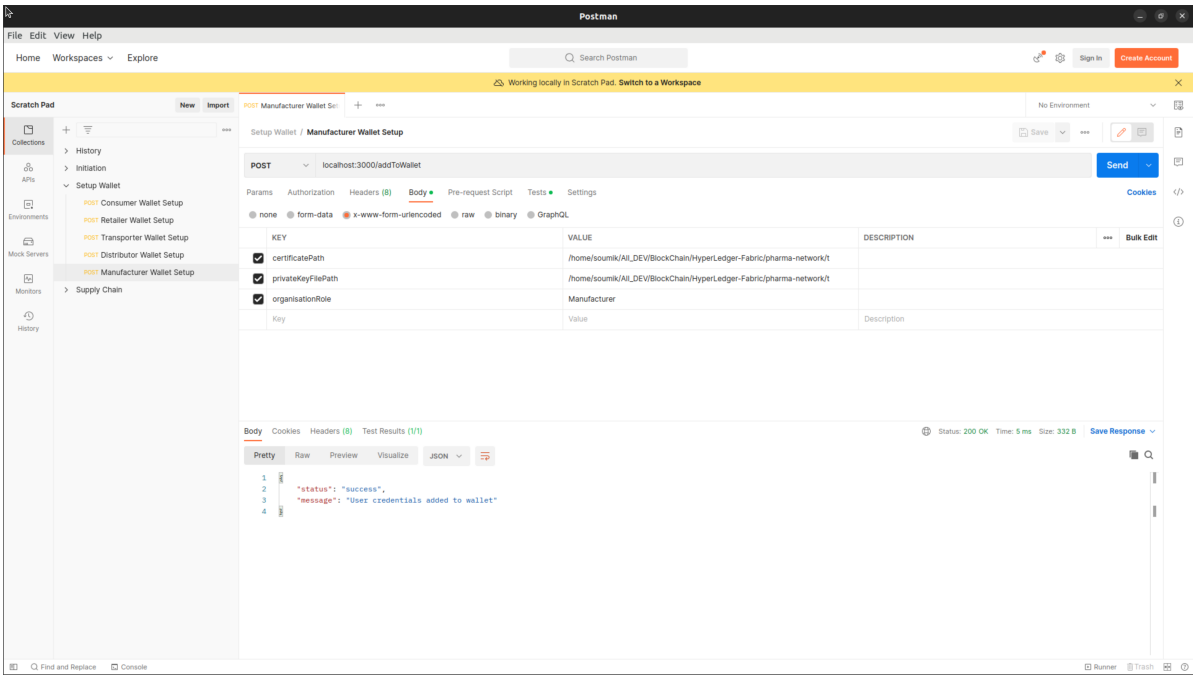


For Manufacturer Wallet Setup

- **certificatePath**:{Path_to_Project}/pharma-network/test-network-man/organizations/peerOrganizations/Manufacturer.pharma-network.com/users/Admin@Manufacturer.pharma-network.com/msp/signcerts/Admin@Manufacturer.pharma-network.com-cert.pem

- **privateKeyFilePath**:{Path_to_Project}/pharma-network/test-network-man/organizations/peerOrganizations/Manufacturer.pharma-network.com/users/Admin@Manufacturer.pharma-network.com/msp/keystore/priv_sk

Screenshots :Postman



Screenshots :Console

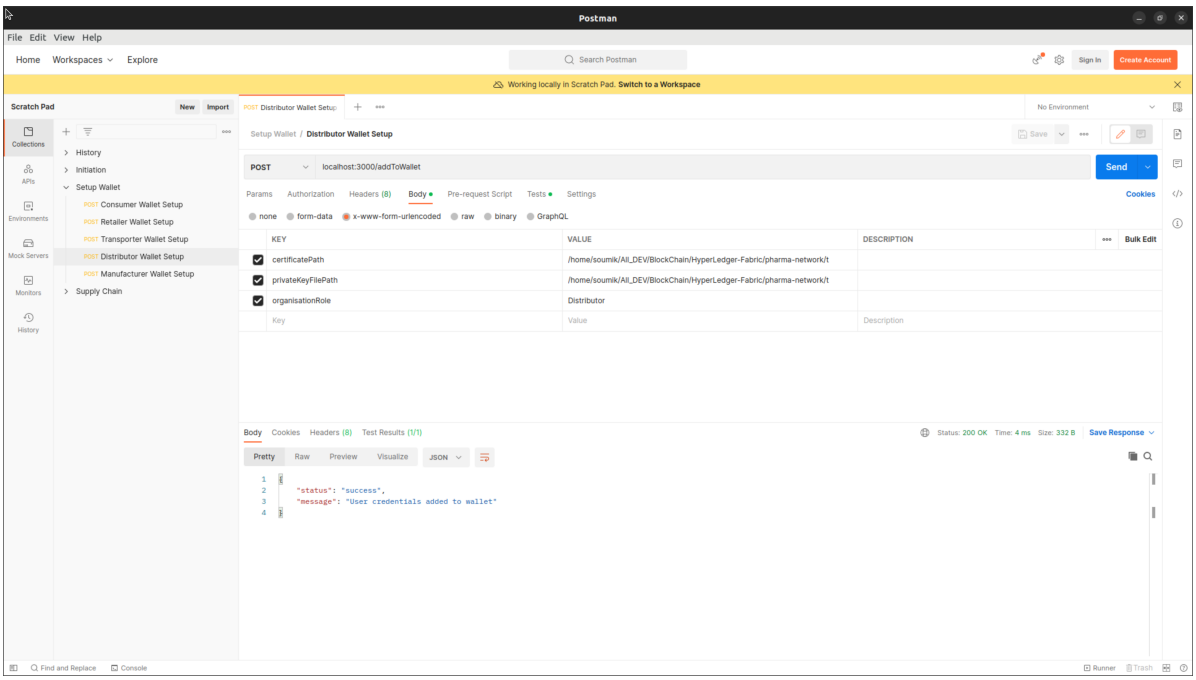
```
soumik@SoumikPC:~/All_DEV/BlockChain/HyperLedger-Fabric/pharma-network/application$ npm start
Debugger listening on ws://127.0.0.1:40247/659b6324-37b2-4999-81ae-ffc506b88287
For help, see: https://nodejs.org/en/docs/inspector
Debugger attached.

> pharma_network@1.0.0 start
> nodemon index.js

Debugger listening on ws://127.0.0.1:39239/e0ea41a6-4510-46ec-8395-29cc7771f62e
For help, see: https://nodejs.org/en/docs/inspector
Debugger attached.
[nodemon] 3.0.1
[nodemon] to restart at any time, enter `rs`
[nodemon] watching path(s): *.*
[nodemon] watching extensions: js,mjs,cjs,json
[nodemon] starting `node index.js`
Debugger listening on ws://127.0.0.1:33981/6dd2cab6-ca2c-47ea-ab6f-13719f1f940a
For help, see: https://nodejs.org/en/docs/inspector
Debugger attached.
Pharma Network is running on port 3000
Successfully added user to wallet
Successfully added user to wallet
Successfully added user to wallet
```

For Distributor Wallet Setup

- **certificatePath**:{Path_to_Project}/pharma-network/test-network-man/organizations/peerOrganizations/Distributor.pharma-network.com/users/Admin@Distributor.pharma-network.com/msp/signcerts/Admin@Distributor.pharma-network.com-cert.pem

- **privateKeyFilePath**:{Path_to_Project}/pharma-network/test-network-man/organizations/peerOrganizations/Distributor.pharma-network.com/users/Admin@Distributor.pharma-network.com/msp/keystore/priv_sk

Screenshots : Postman



Screenshots : Console

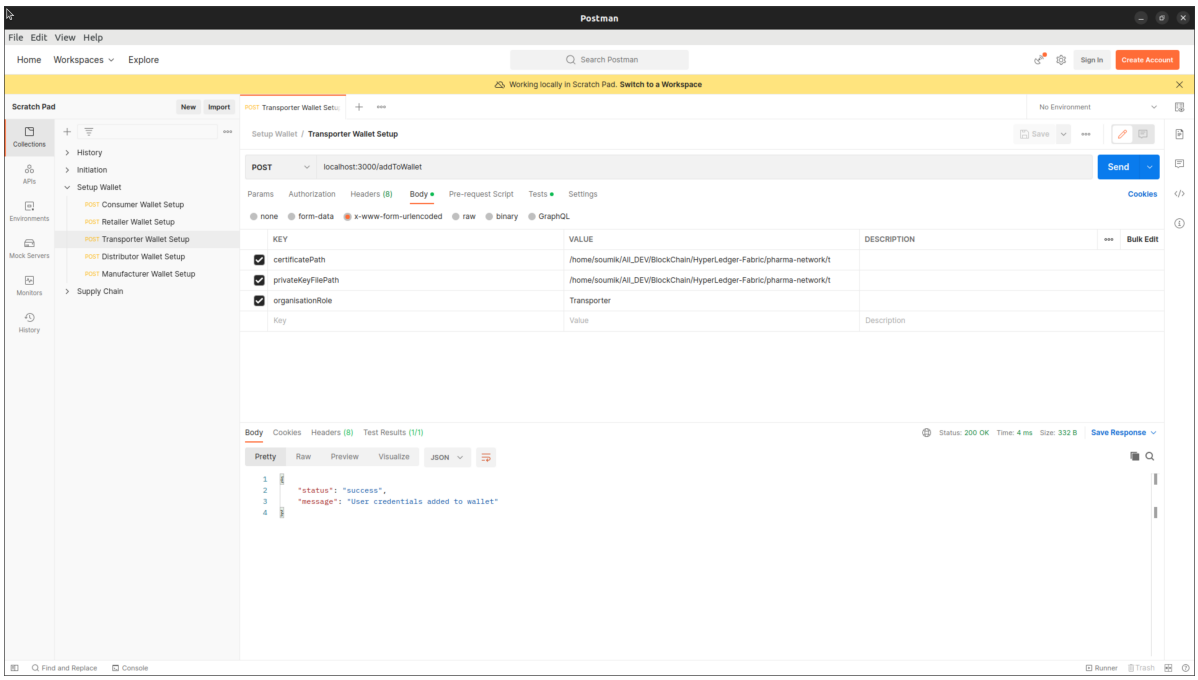
```
Debugger listening on ws://127.0.0.1:40247/659b6324-37b2-4999-81ae-ffc506b88287
For help, see: https://nodejs.org/en/docs/inspector
Debugger attached.

> pharma_network@1.0.0 start
> nodemon index.js

Debugger listening on ws://127.0.0.1:39239/e0ea41a6-4510-46ec-8395-29cc7771f62e
For help, see: https://nodejs.org/en/docs/inspector
Debugger attached.
[nodemon] 3.0.1
[nodemon] to restart at any time, enter `rs`
[nodemon] watching path(s): *.*
[nodemon] watching extensions: js,mjs,cjs,json
[nodemon] starting `node index.js`
Debugger listening on ws://127.0.0.1:33981/6dd2cab6-ca2c-47ea-ab6f-13719f1f940a
For help, see: https://nodejs.org/en/docs/inspector
Debugger attached.
Pharma Network is running on port 3000
Successfully added user to wallet
Successfully added user to wallet
Successfully added user to wallet
Successfully added user to wallet
```

For Transporter Wallet Setup

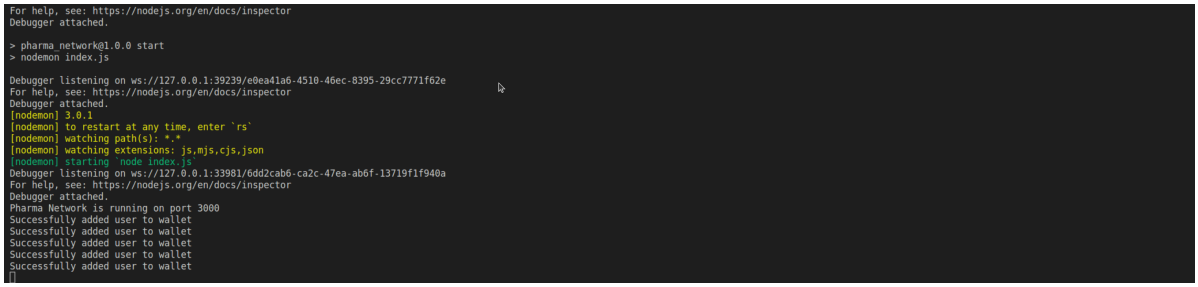
- **certificatePath**:{Path_to_Project}/pharma-network/test-network-man/organizations/peerOrganizations/Transporter.pharma-network.com/users/Admin@Transporter.pharma-network.com/msp/signcerts/Admin@Transporter.pharma-network.com-cert.pem

- **privateKeyFilePath**:{Path_to_Project}/pharma-network/test-network-man/organizations/peerOrganizations/Transporter.pharma-network.com/users/Admin@Transporter.pharma-network.com/msp/keystore/priv_sk

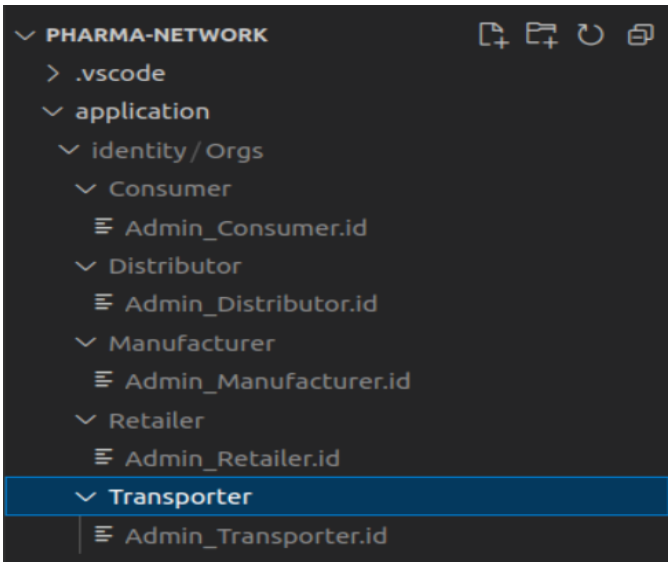
Screenshots : Postman



Screenshots : Console



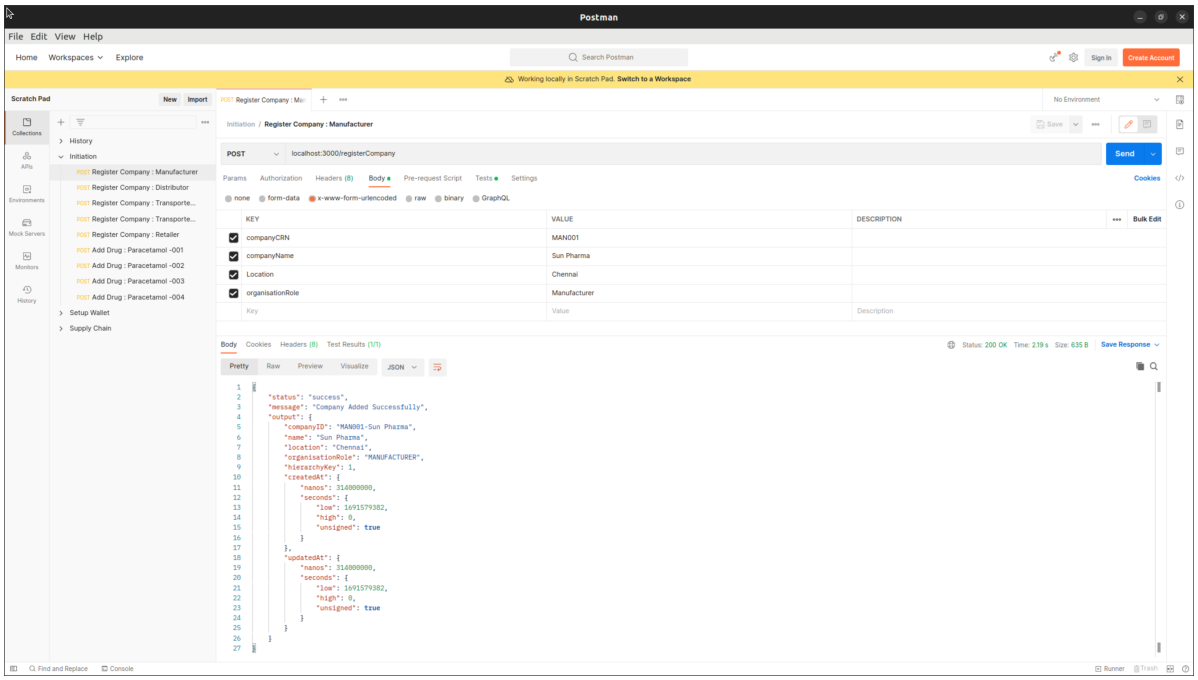
Once all the wallet transactions are completed, you can view the identity files created in the system under the folder {Path_to_Project}/pharma-network/application/identity/Orgs



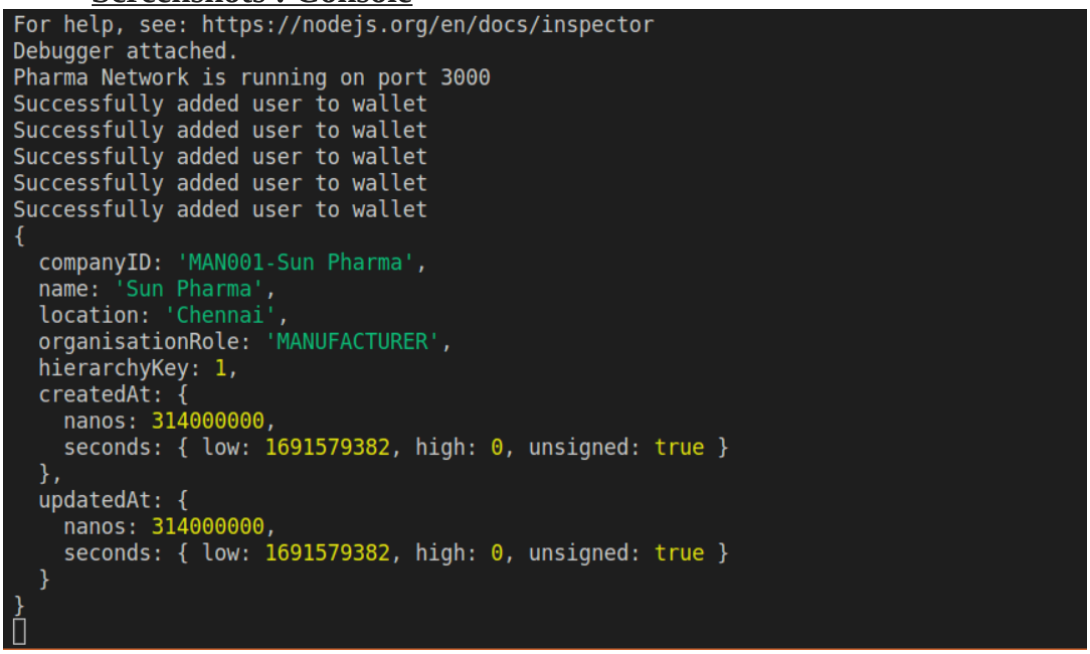
- Once the wallet creation is completed, we can move forward to register the companies and the drug. Open the Collection Initiation. This collection contains all the API call to register company and drug

Create Company : Manufacturer

Screenshots : Postman

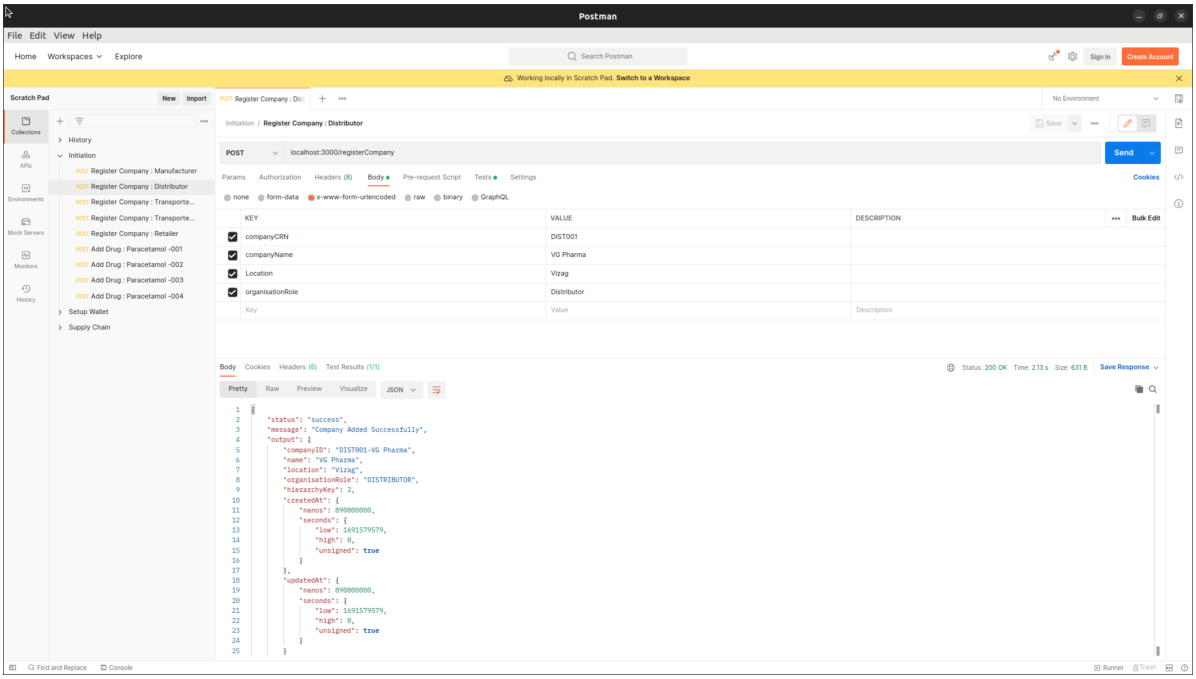


Screenshots : Console

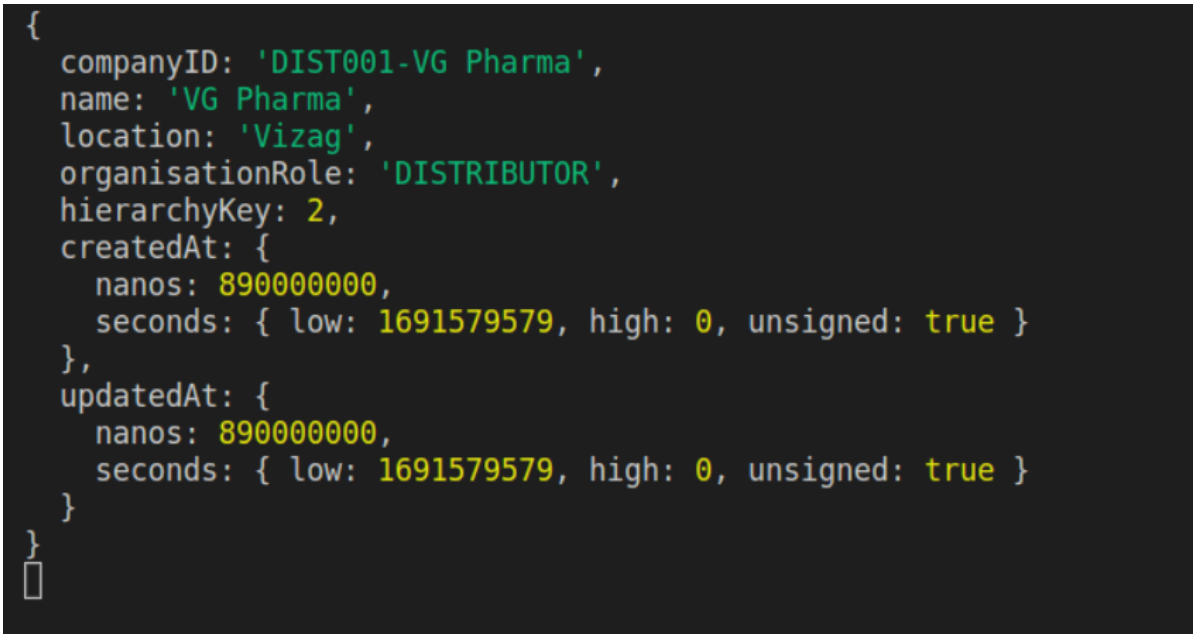


Create Company : Distributor

Screenshots : Postman

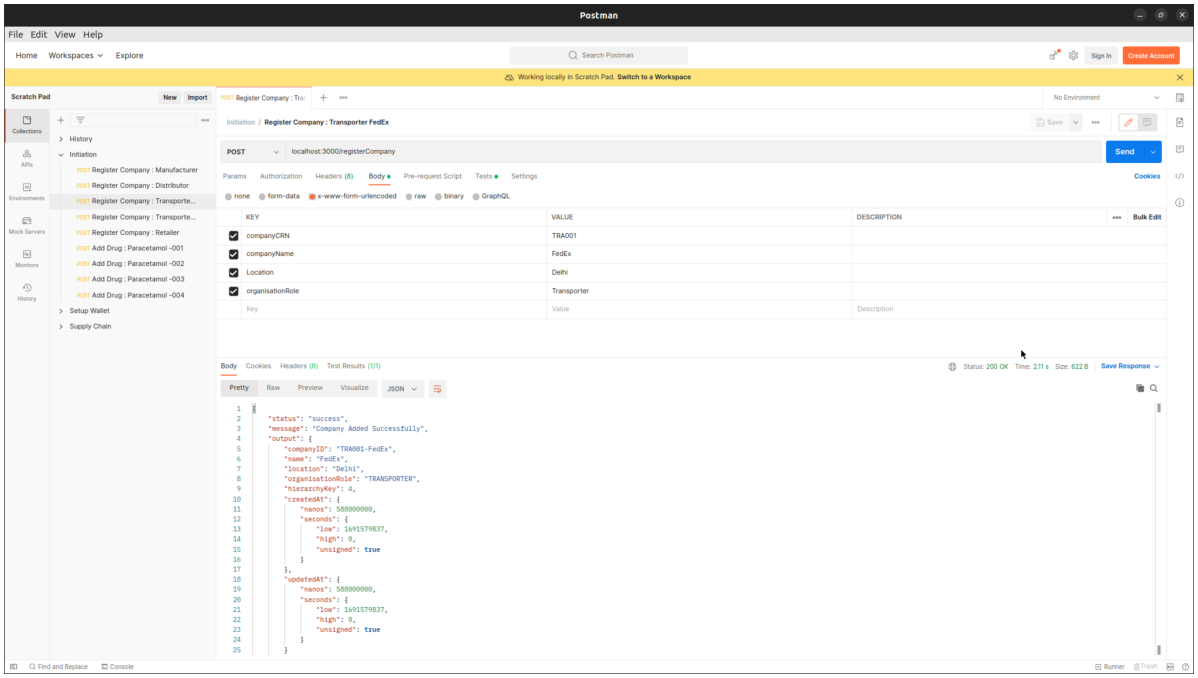


Screenshots : Console

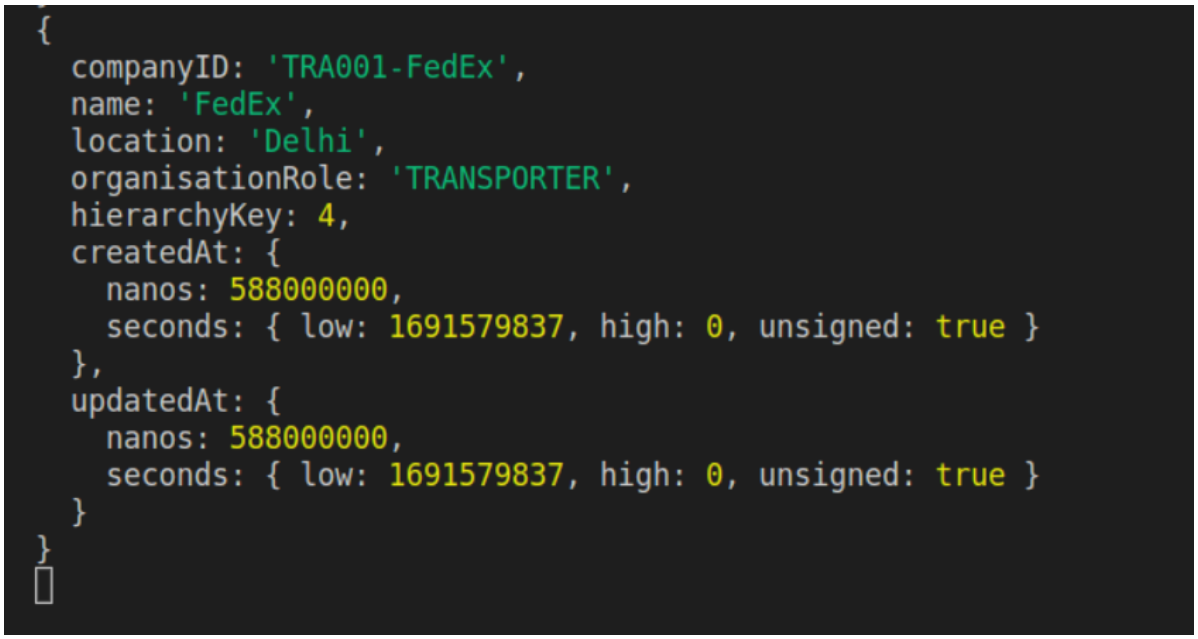


Create Company : Transporter – FedEX

Screenshots : Postman

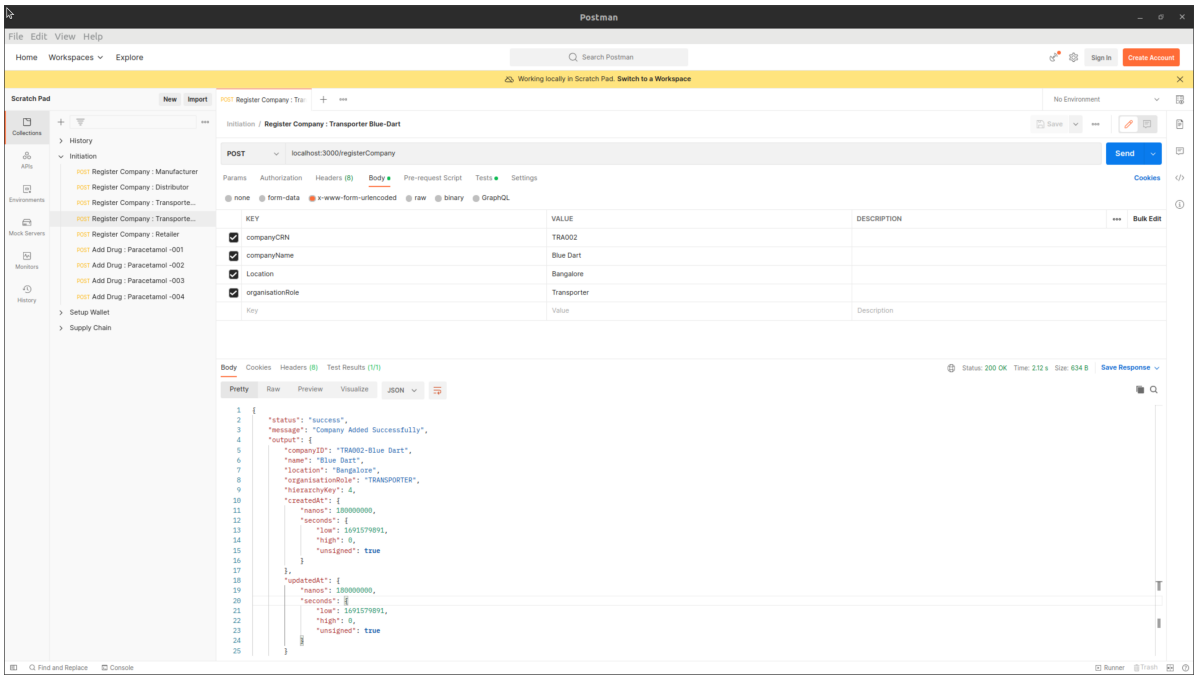


Screenshots : Console



Create Company : Transporter – Blue Dart

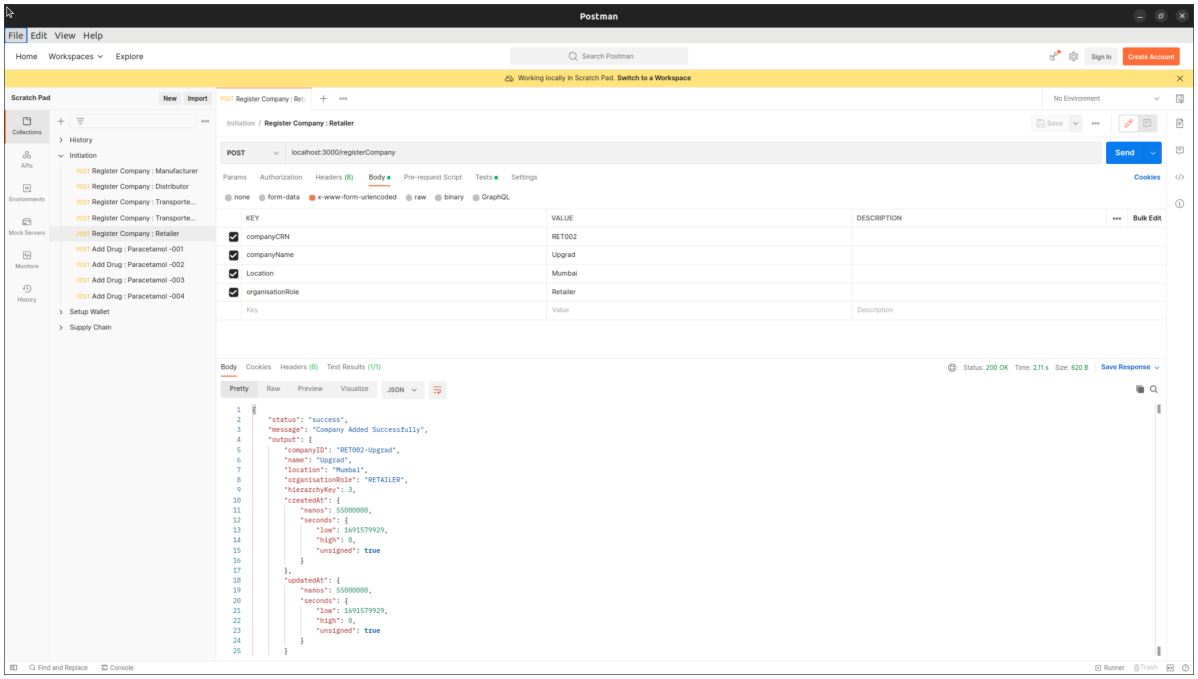
Screenshots : Postman



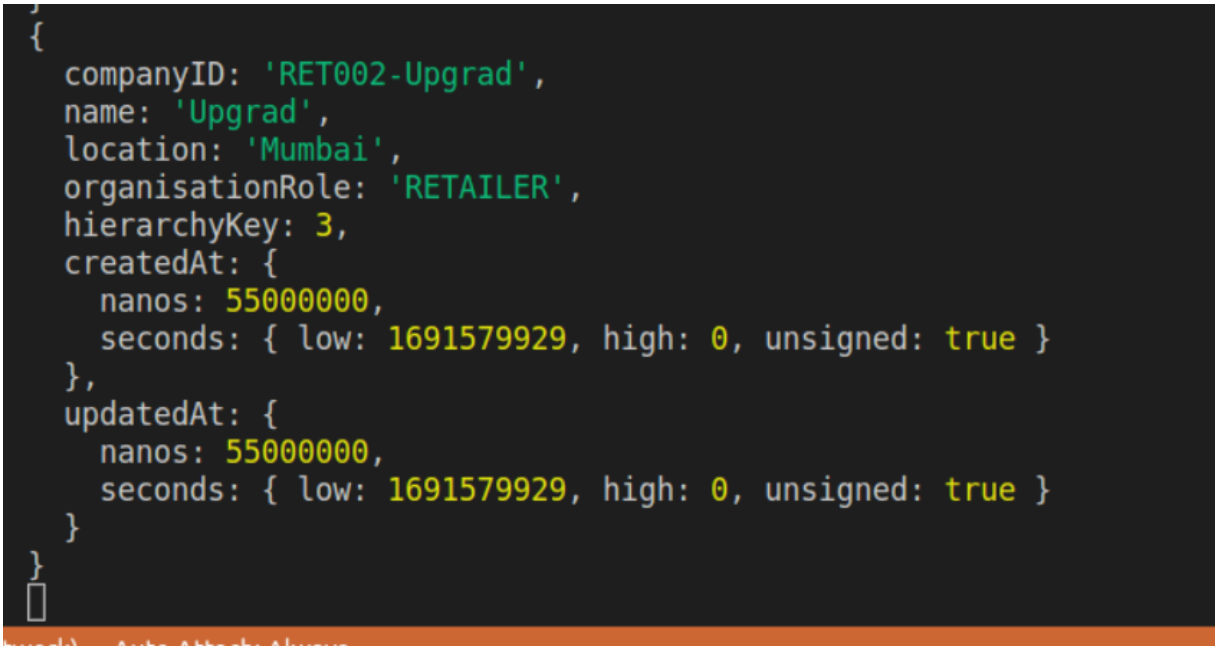
Screenshots : Console

Create Company : Retailer

Screenshots : Postman

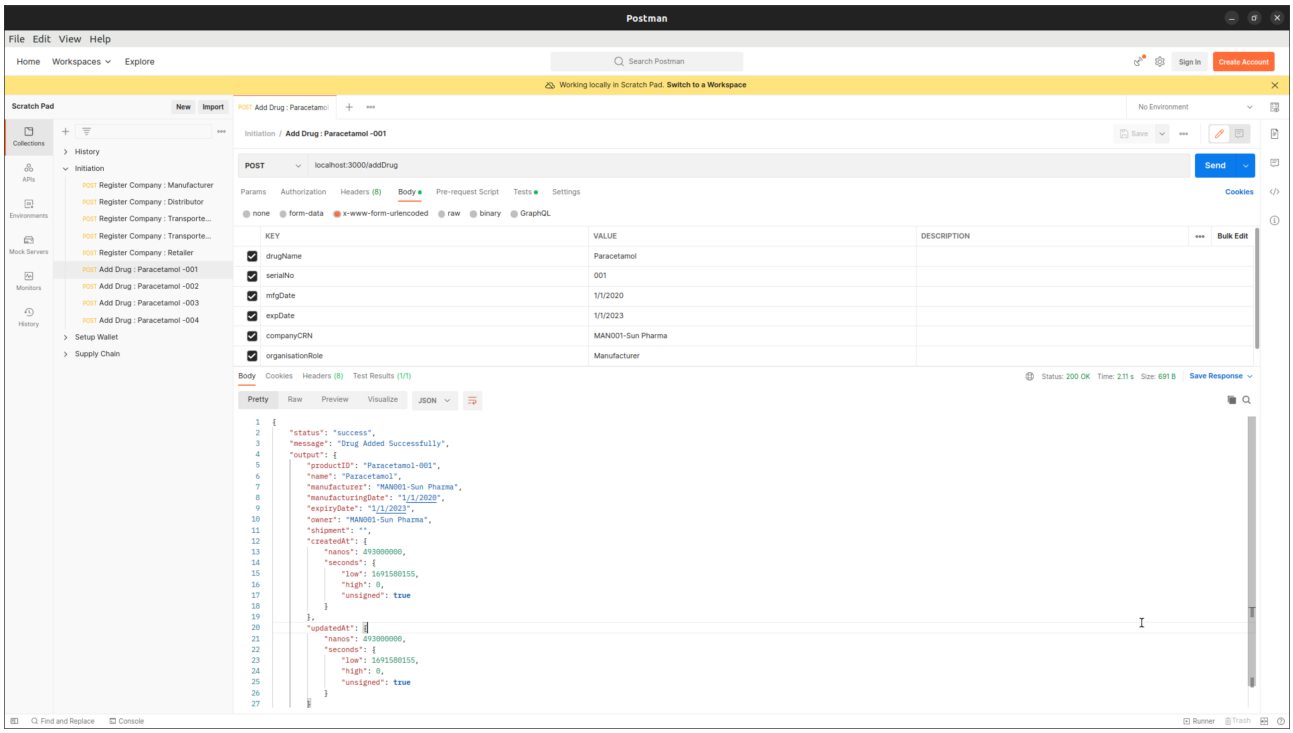


Screenshots : Console



Add Drug: 001

Screenshot: Postman

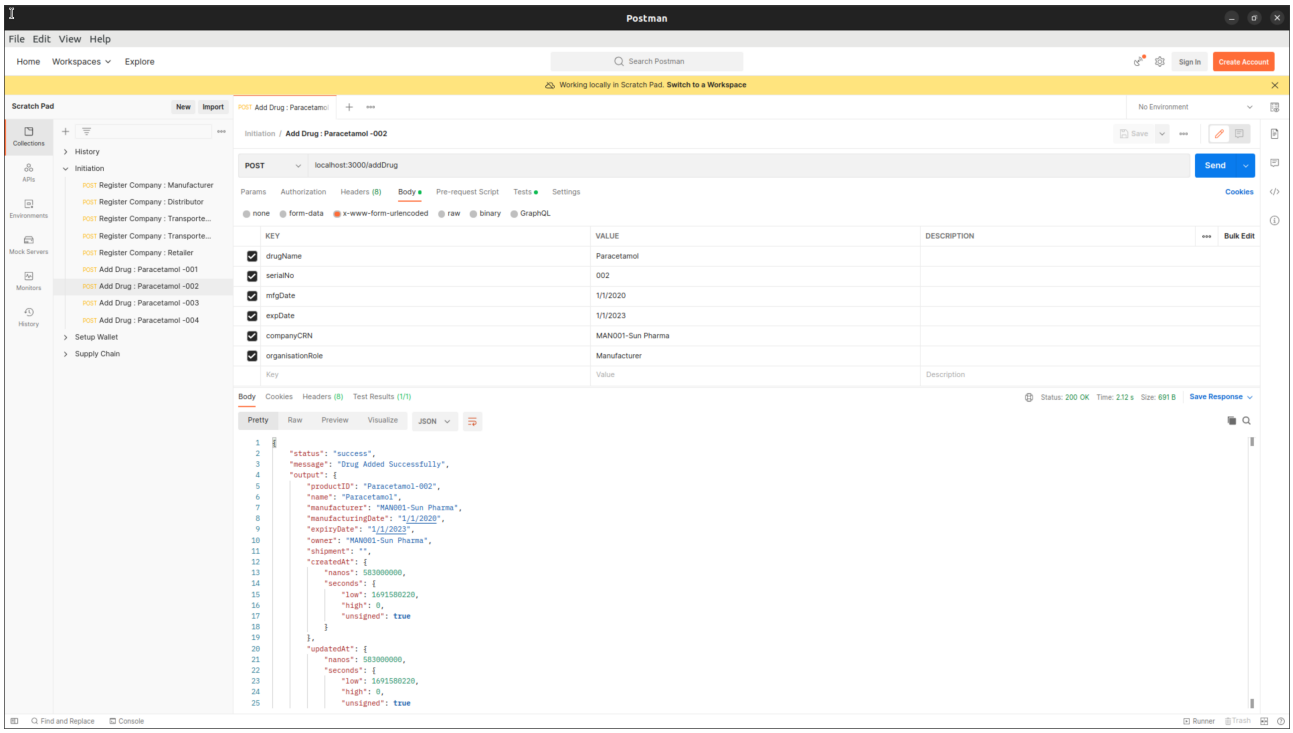


Screenshot: Console

```
{
  productID: 'Paracetamol-001',
  name: 'Paracetamol',
  manufacturer: 'MAN001-Sun Pharma',
  manufacturingDate: '1/1/2020',
  expiryDate: '1/1/2023',
  owner: 'MAN001-Sun Pharma',
  shipment: '',
  createdAt: {
    nanos: 493000000,
    seconds: { low: 1691580155, high: 0, unsigned: true }
  },
  updatedAt: {
    nanos: 493000000,
    seconds: { low: 1691580155, high: 0, unsigned: true }
  }
}
```

Add Drug: 002

Screenshot: Postman

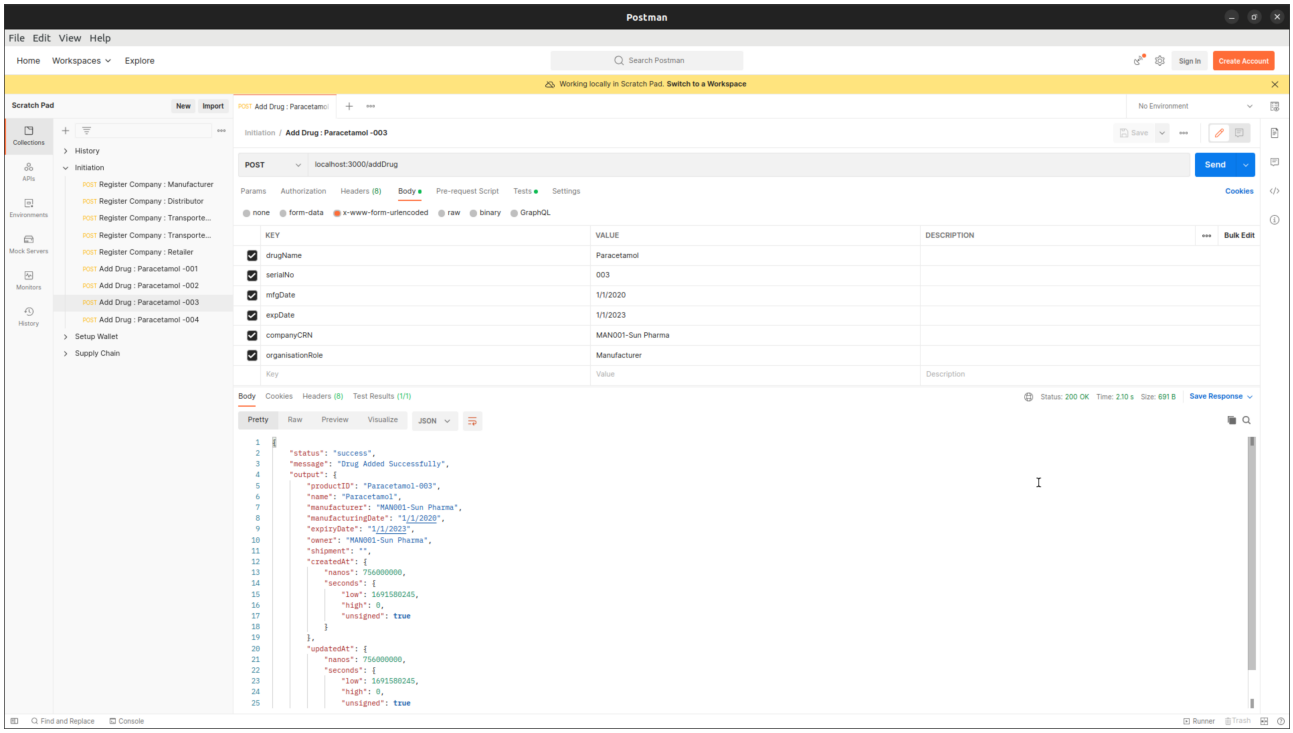


Screenshot: Console

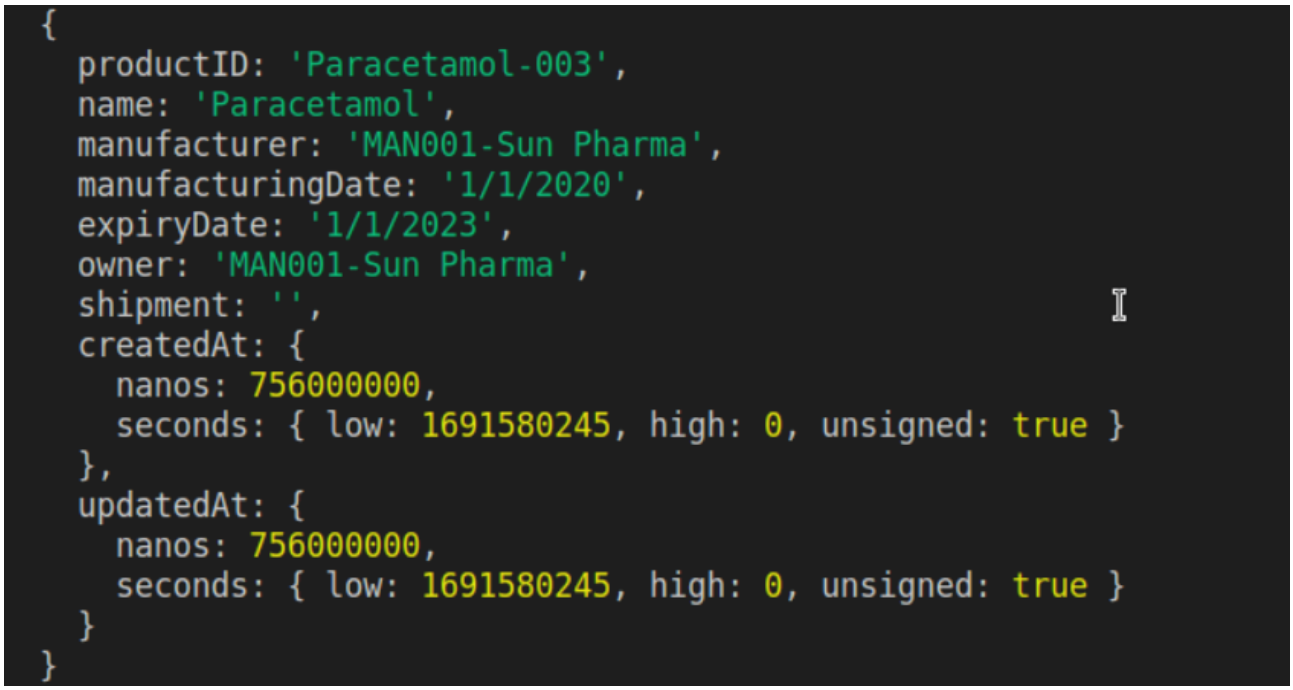

```
{
  productID: 'Paracetamol-002',
  name: 'Paracetamol',
  manufacturer: 'MAN001-Sun Pharma',
  manufacturingDate: '1/1/2020',
  expiryDate: '1/1/2023',
  owner: 'MAN001-Sun Pharma',
  shipment: '',
  createdAt: {
    nanos: 583000000,
    seconds: { low: 1691580220, high: 0, unsigned: true }
  },
  updatedAt: {
    nanos: 583000000,
    seconds: { low: 1691580220, high: 0, unsigned: true }
  }
}
```

Add Drug: 003

Screenshot: Postman

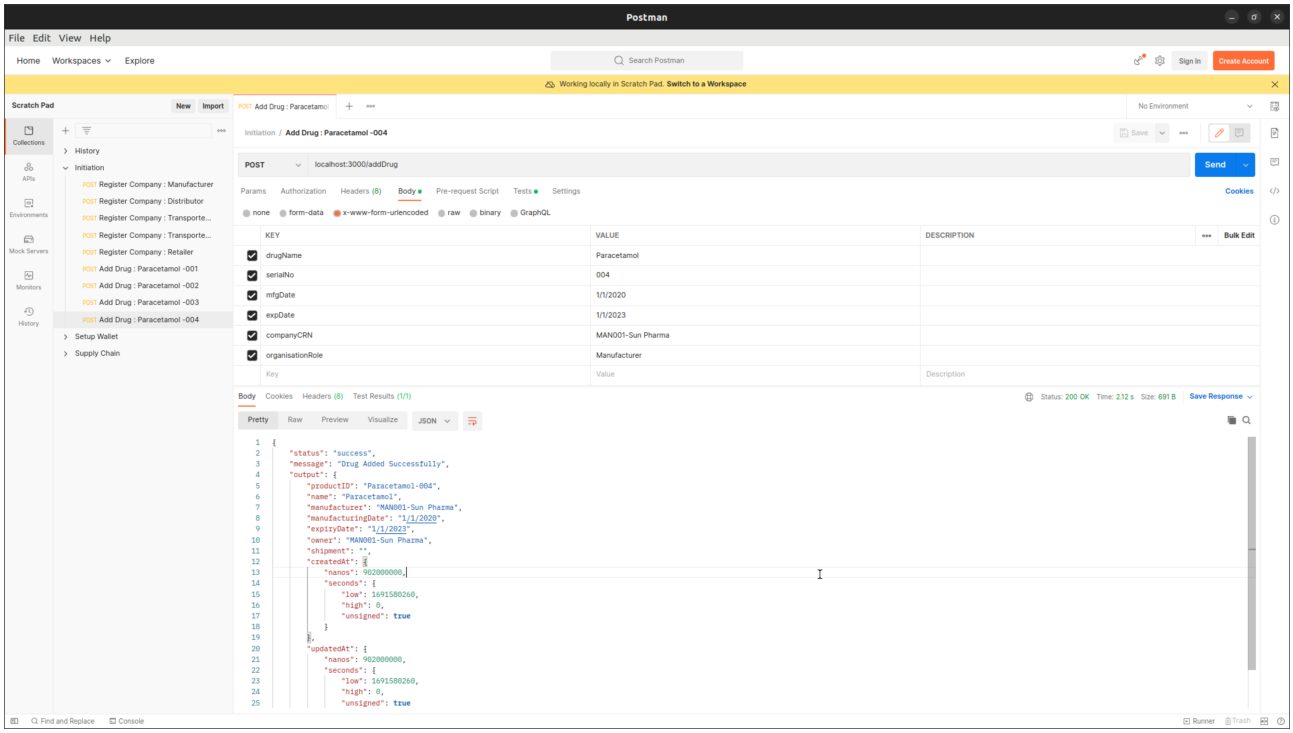


Screenshot: Console

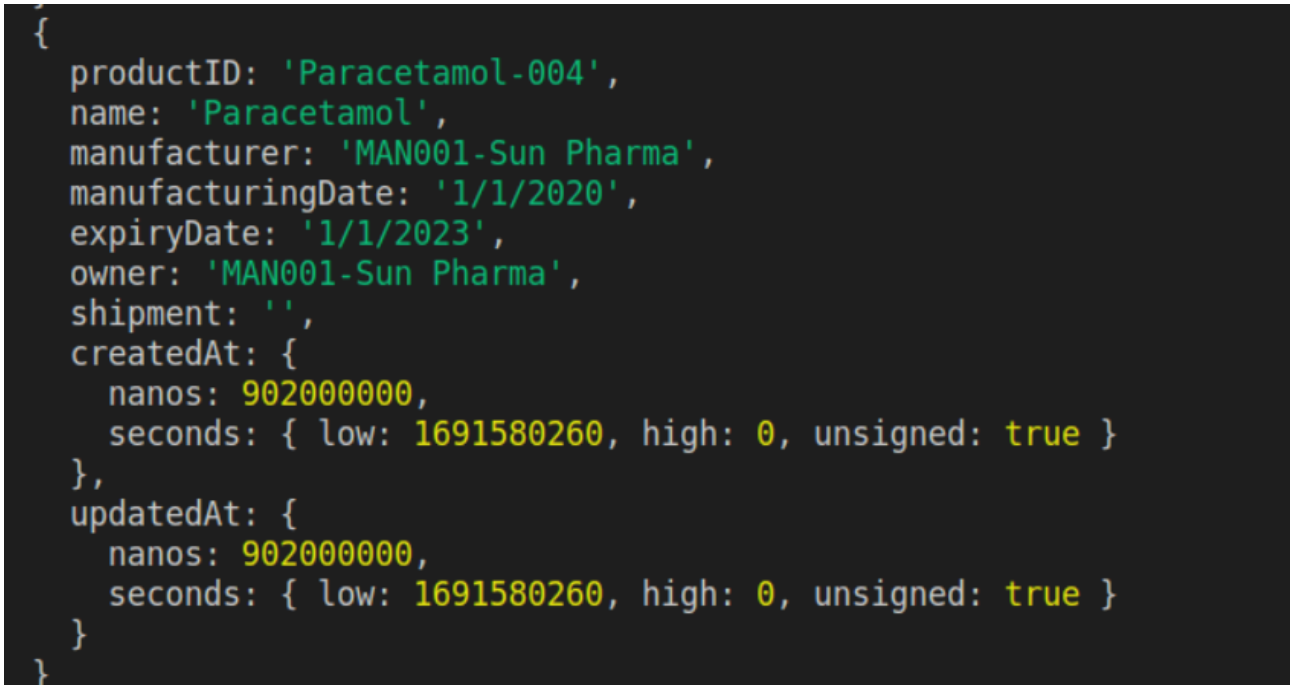


Add Drug: 004

Screenshot: Postman



Screenshot: Console

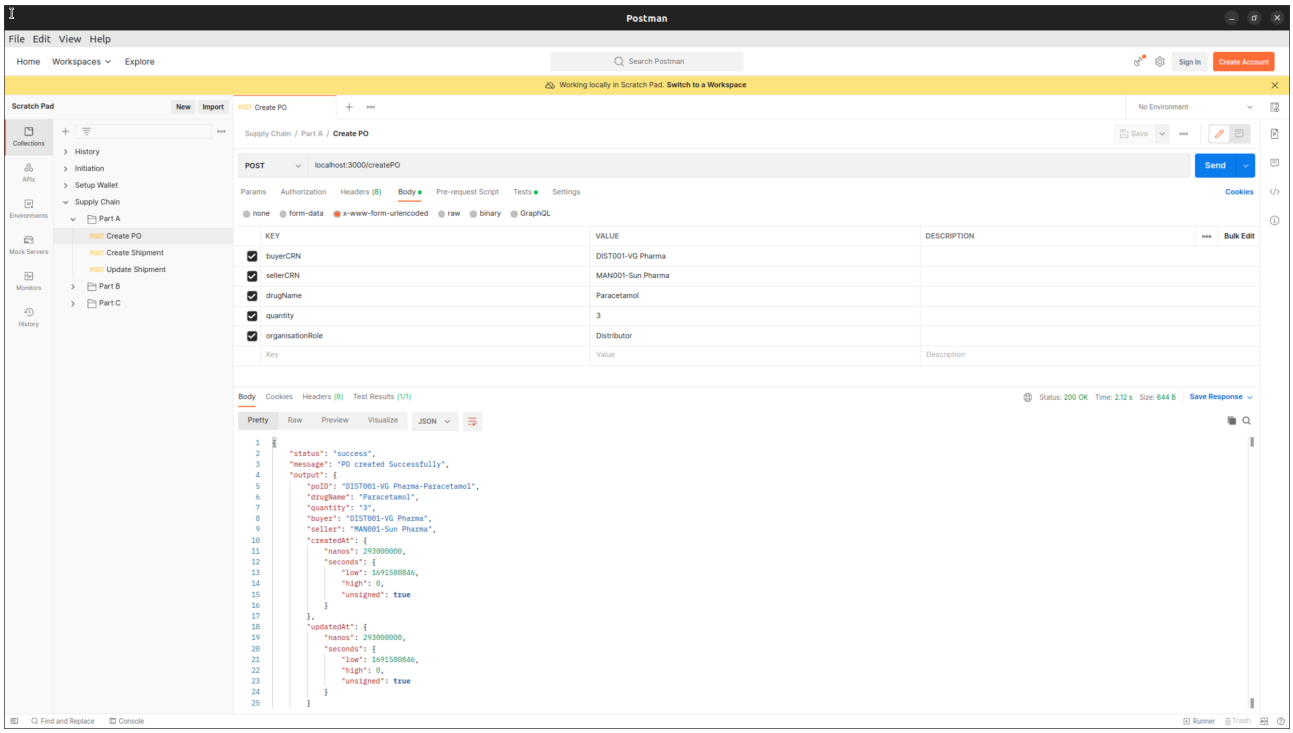


- Once the durg creation is completed we can move forward to perform the supply chain Test Case. The supply chain TC are split into three parts. Open the Supply Chain collection to access the Rest API Calls

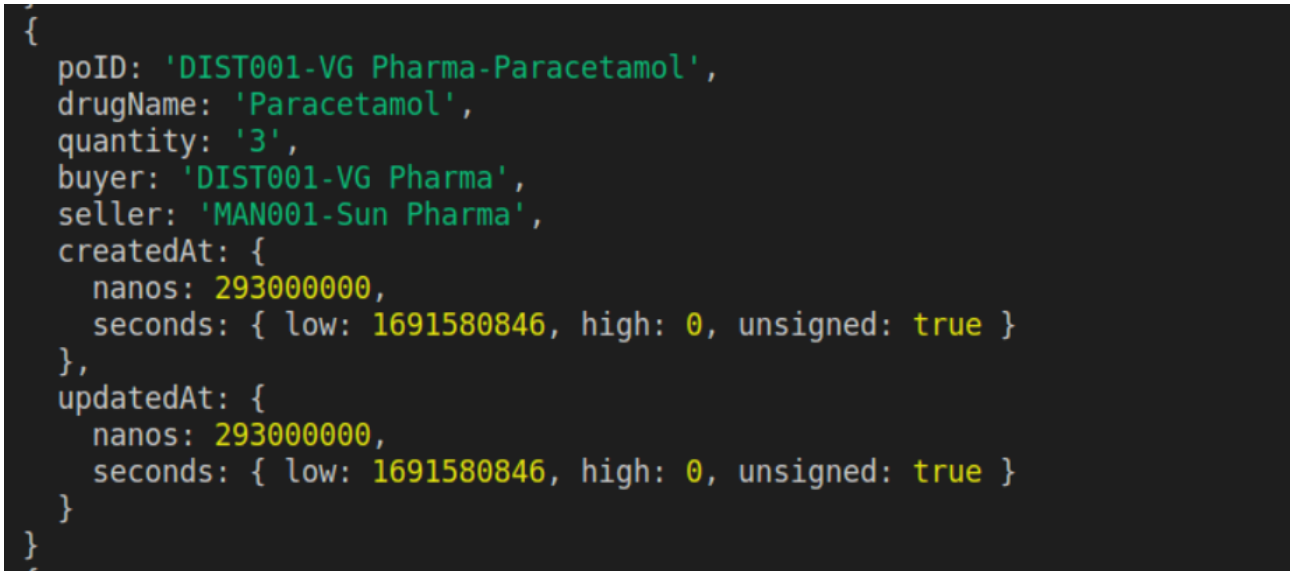
    - PART A

Create PO : Distributor to Manufacturer

Postman :

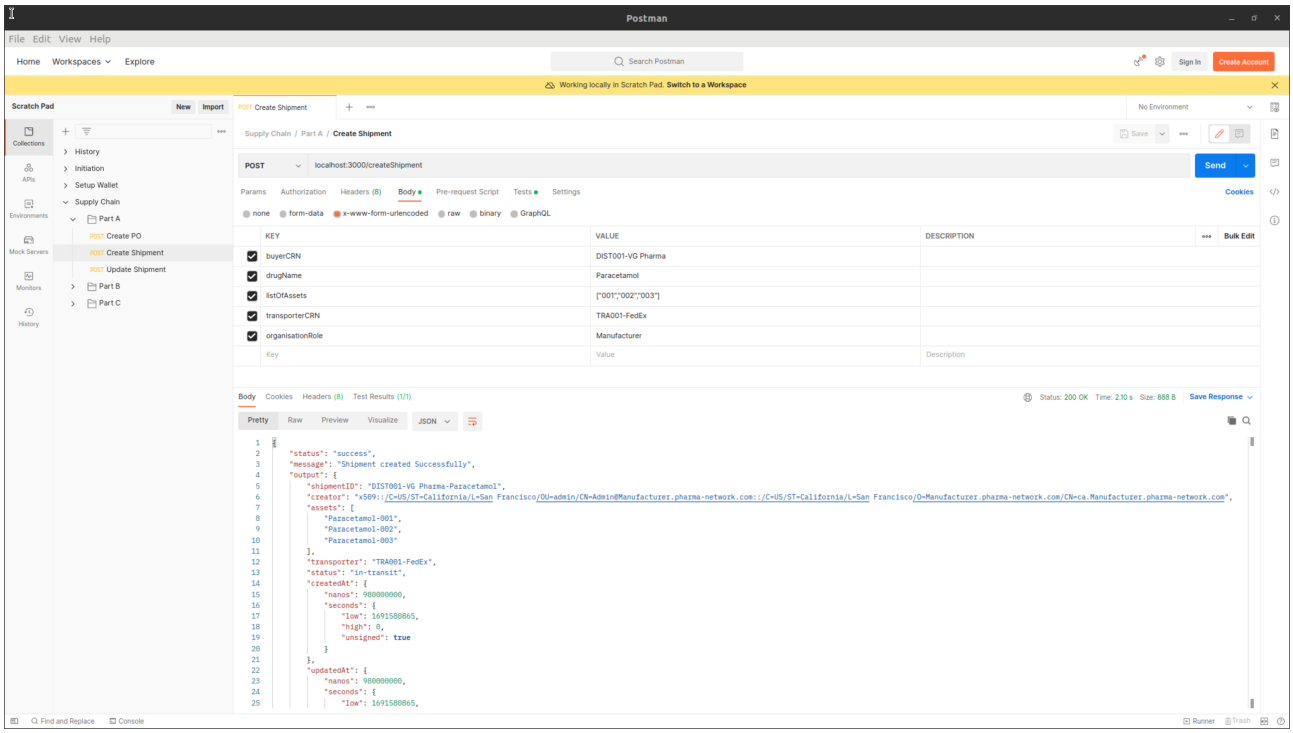


Console:



Create Shipment : Distributor to Manufacturer

Postman :

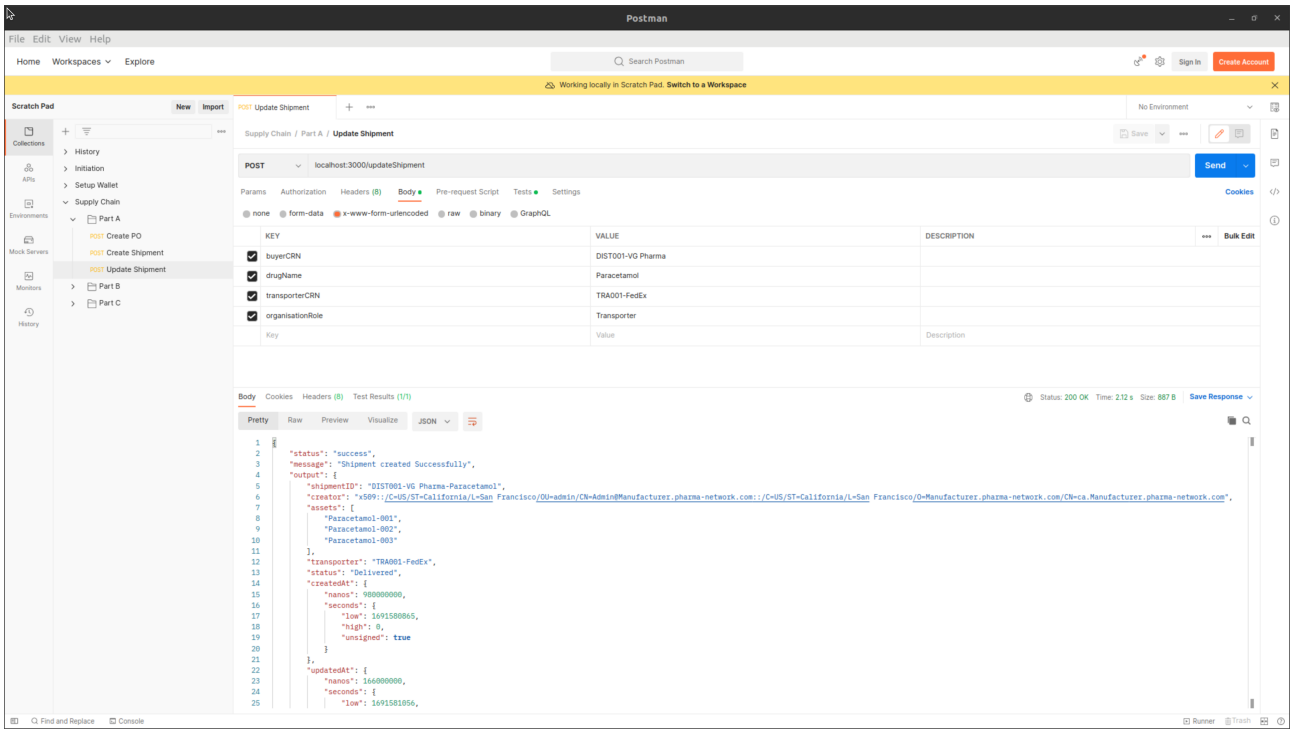


Console :

```
{
  shipmentID: 'DIST001-VG Pharma-Paracetamol',
  creator: 'x509::/C=US/ST=California/L=San Francisco/OU=admin/CN=Admin@Manufacturer.pharma-network.com::/C=US/ST=California/L=San Francisco/O=Manufacturer.pharma-network.com/CN=ca.Manufacturer.pharma-network.com',
  assets: [ 'Paracetamol-001', 'Paracetamol-002', 'Paracetamol-003' ],
  transporter: 'TRA001-FedEx',
  status: 'in-transit',
  createdAt: {
    nanos: 980000000,
    seconds: { low: 1691580865, high: 0, unsigned: true }
  },
  updatedAt: {
    nanos: 980000000,
    seconds: { low: 1691580865, high: 0, unsigned: true }
  }
}
```

Create Shipment : Update Shipment

Postman :



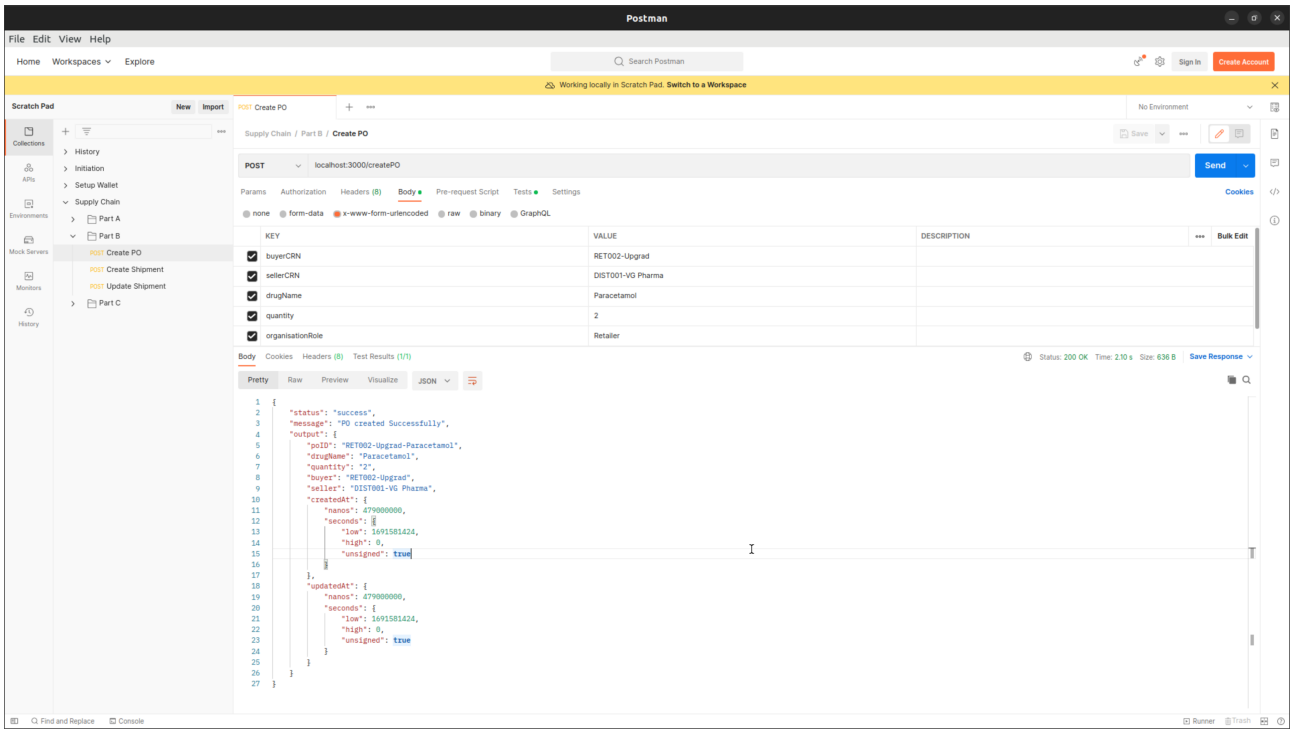
Console

```
{
  shipmentID: 'DIST001-VG Pharma-Paracetamol',
  creator: 'x509::/C=US/ST=California/L=San Francisco/OU=admin/CN=Admin@Manufacturer.pharma-network.com::/C=US/ST=California/L=San Francisco/O=Manufacturer.pharma-network.com/CN=ca.Manufacturer.pharma-network.com',
  assets: [ 'Paracetamol-001', 'Paracetamol-002', 'Paracetamol-003' ],
  transporter: 'TRA001-FedEx',
  status: 'Delivered',
  createdAt: {
    nanos: 980000000,
    seconds: { low: 1691580865, high: 0, unsigned: true }
  },
  updatedAt: {
    nanos: 166000000,
    seconds: { low: 1691581056, high: 0, unsigned: true }
  }
}
```

- Part B

Create PO : Retailer to Distributor

Postman :

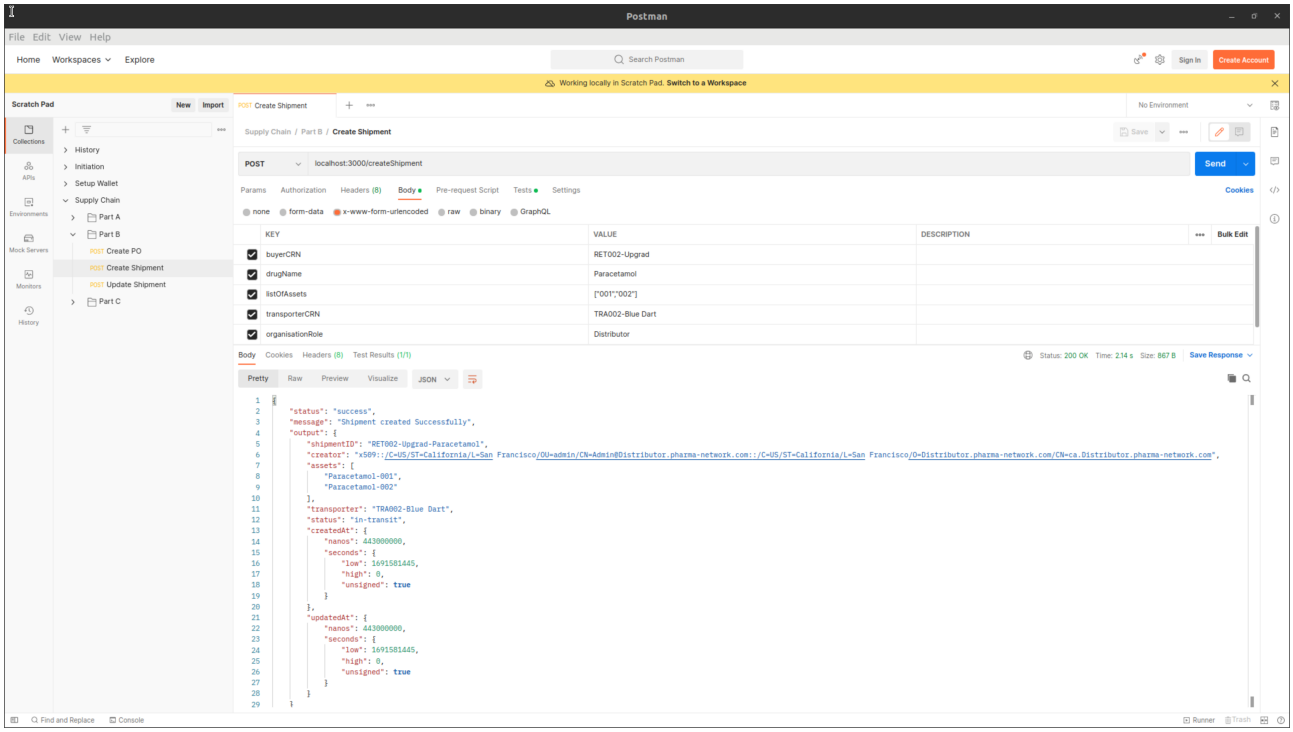


Console:

```
{
  poID: 'RET002-Upgrad-Paracetamol',
  drugName: 'Paracetamol',
  quantity: '2',
  buyer: 'RET002-Upgrad',
  seller: 'DIST001-VG Pharma',
  createdAt: {
    nanos: 479000000,
    seconds: { low: 1691581424, high: 0, unsigned: true }
  },
  updatedAt: {
    nanos: 479000000,
    seconds: { low: 1691581424, high: 0, unsigned: true }
  }
}
```

Create Shipment : Distributor to Retailer

Postman :

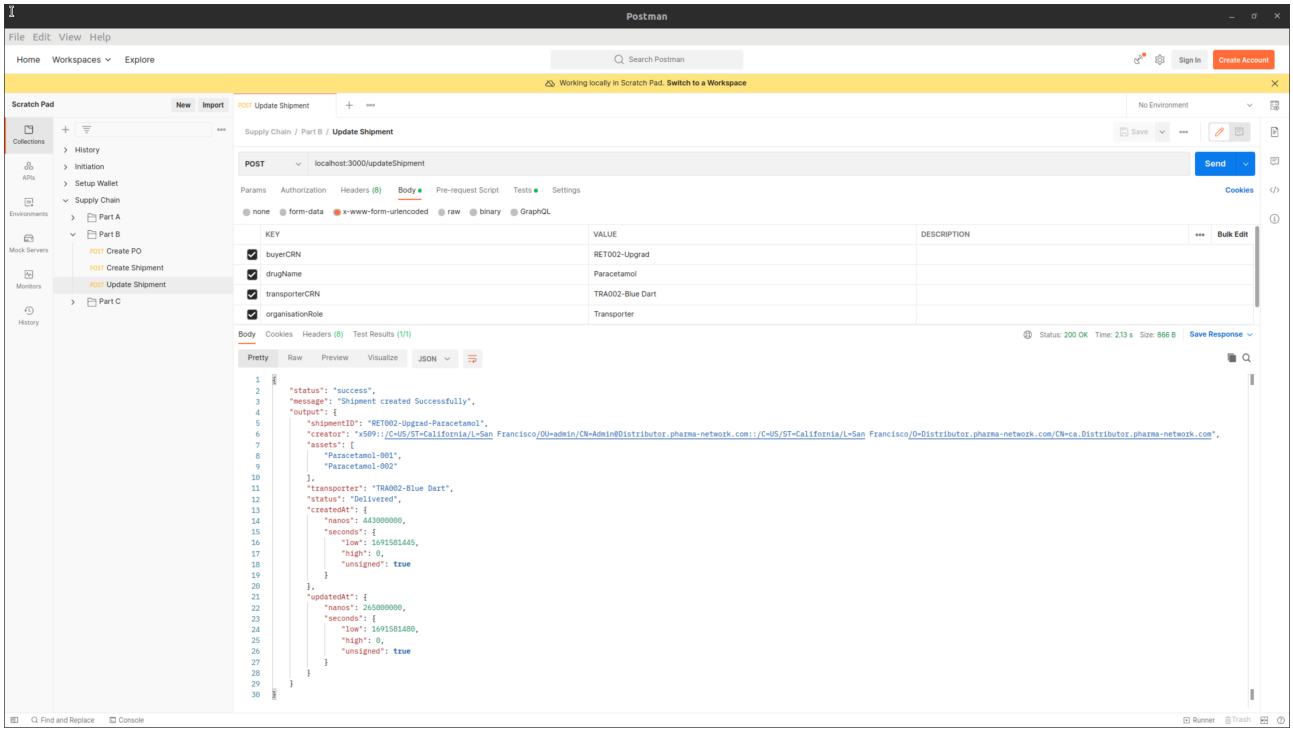


Console :

```
{
  shipmentID: 'RET002-Upgrad-Paracetamol',
  creator: 'x509::/C=US/ST=California/L=San Francisco/OU=admin/CN=Admin@Distributor.pharma-network.com::/C=US/ST=California/L=San Francisco/O=Distributor.pharma-network.com/CN=ca.Distributor.pharma-network.com',
  assets: [ 'Paracetamol-001', 'Paracetamol-002' ],
  transporter: 'TRA002-Blue Dart',
  status: 'in-transit',
  createdAt: {
    nanos: 443000000,
    seconds: { low: 1691581445, high: 0, unsigned: true }
  },
  updatedAt: {
    nanos: 443000000,
    seconds: { low: 1691581445, high: 0, unsigned: true }
  }
}
```

Update Shipment

Postman :



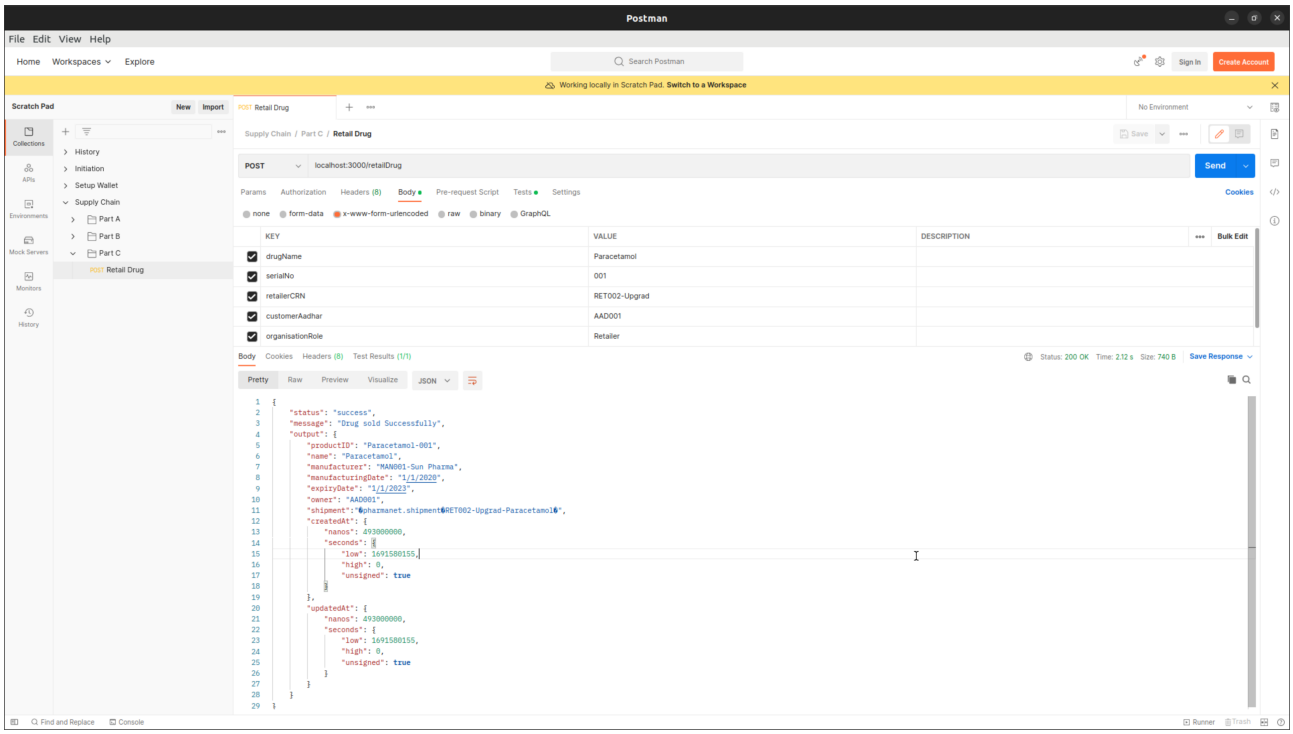
Console

```
{
  shipmentID: 'RET002-Upgrad-Paracetamol',
  creator: 'x509::/C=US/ST=California/L=San Francisco/OU=admin/CN=Admin@Distributor.pharma-network.com::/C=US/ST=California/L=San Francisco/O=Distributor.pharma-network.com/CN=ca.Distributor.pharma-network.com',
  assets: [ 'Paracetamol-001', 'Paracetamol-002' ],
  transporter: 'TRA002-Blue Dart',
  status: 'Delivered',
  createdAt: {
    nanos: 443000000,
    seconds: { low: 1691581445, high: 0, unsigned: true }
  },
  updatedAt: {
    nanos: 265000000,
    seconds: { low: 1691581480, high: 0, unsigned: true }
  }
}
```

- Part C

Retail Drug : Update Shipment

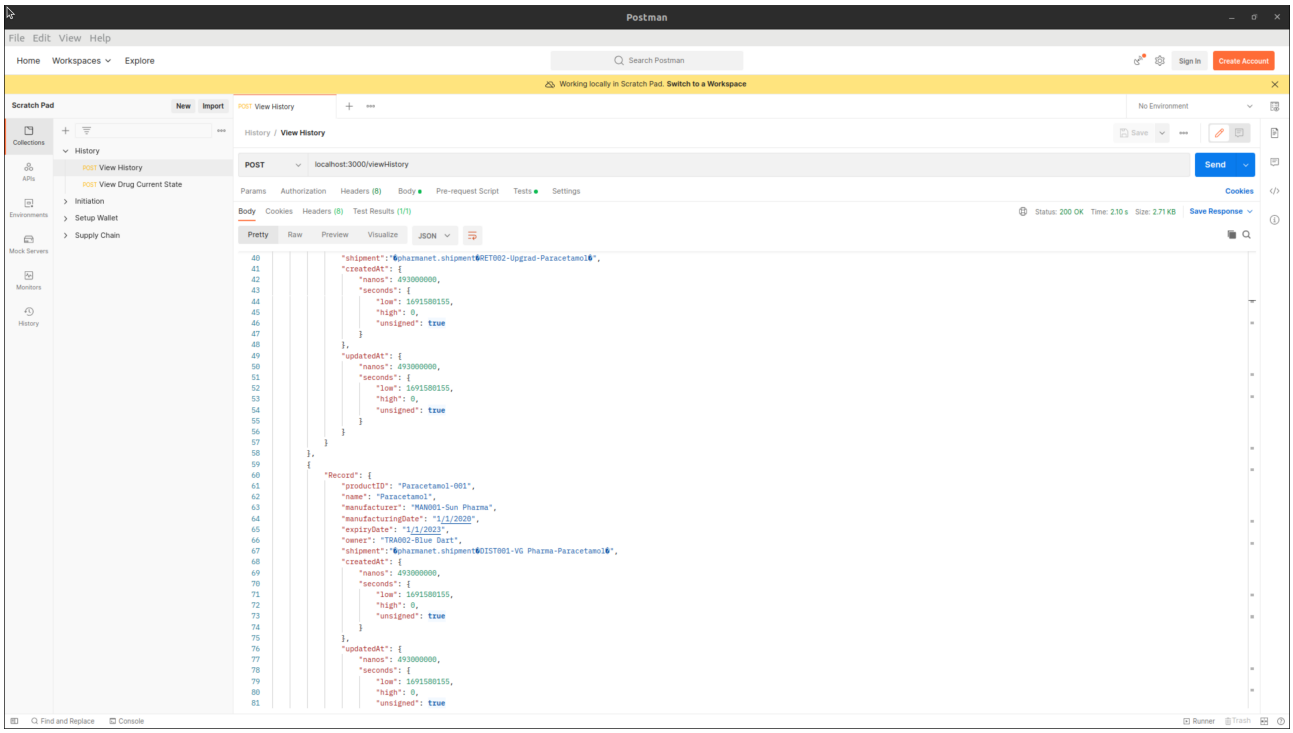
Postman :

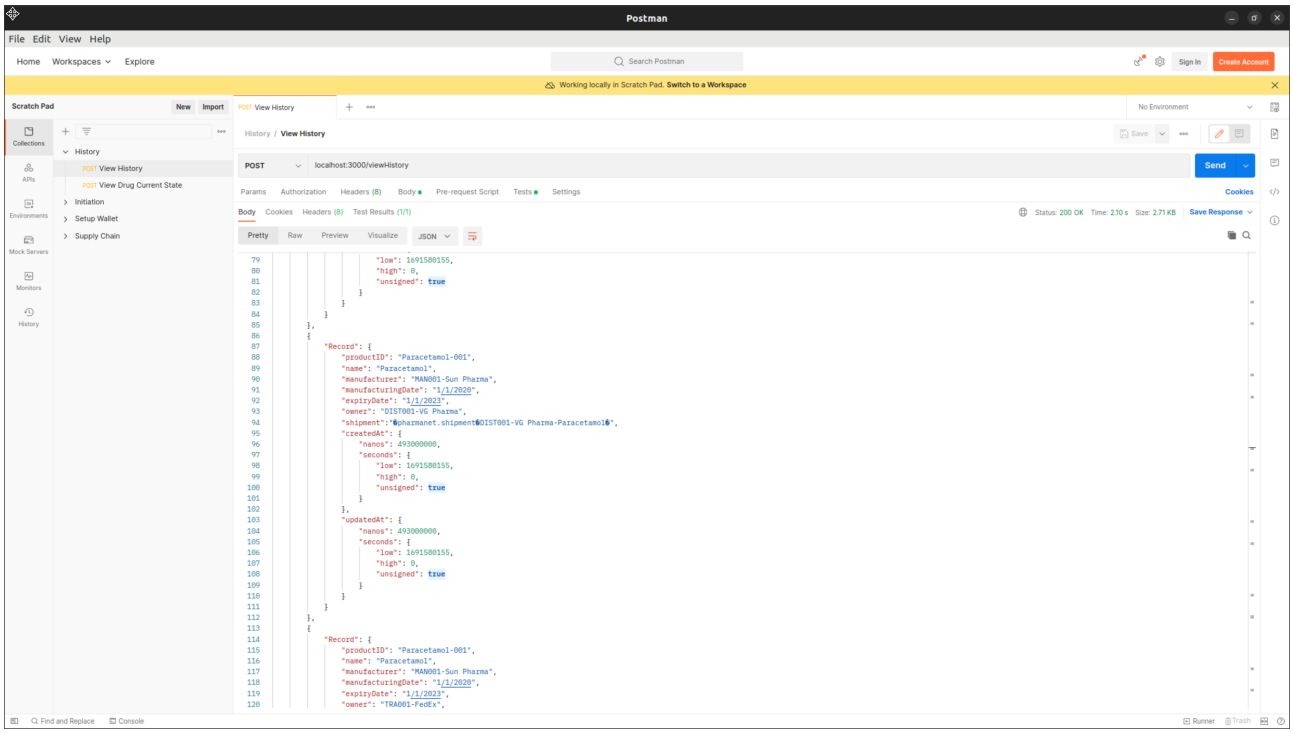


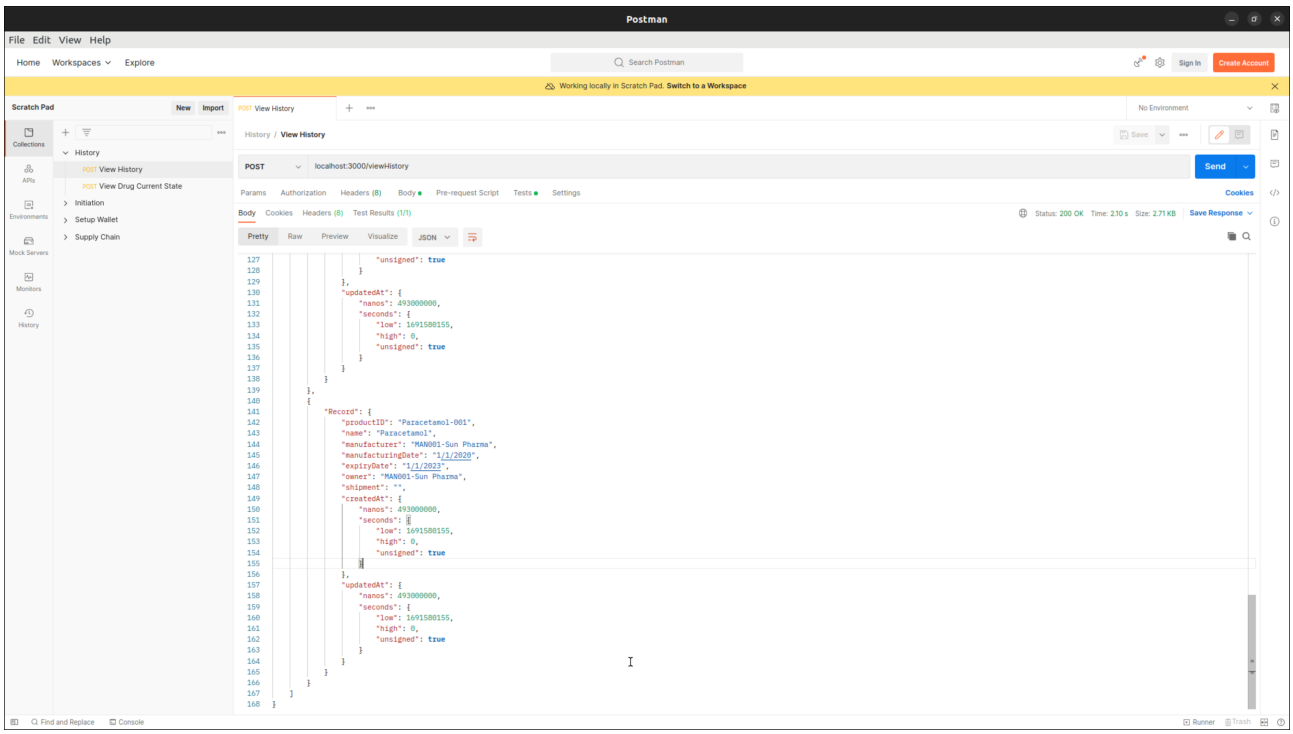
Console

- Once the supply chain is completed we can now view the Drug History

Postman :






Postman
File Edit View Help
Home Workspaces Explore
Search Postman
Sign In
Create Account
Working locally in Scratch Pad. Switch to a Workspace
Scratch Pad
New
Import
Collections
APIs
Environments
Mock Servers
Monitors
History
History
POST View History
POST View Drug Current State
Initiation
Setup Wallet
Supply Chain
POST View History
No Environment
History / View History
Save
POST
localhost:3000/viewHistory
Send
Params Authorization Headers (8) Body Pre-request Script Tests Settings
Cookies
Body Cookies Headers (8) Test Results (1/1)
Status: 200 OK Time: 2.10 s Size: 2.71 KB
Save Response
Pretty Raw Preview Visualize JSON
"unsigned": true
}
},
"updatedAt": {
"nanos": 493000000,
"seconds": {
"low": 1691580155,
"high": 0,
"unsigned": true
}
}
}
},
{
"Record": {
"productID": "Paracetamol-001",
"name": "Paracetamol",
"manufacturer": "MAN001-Sun Pharma",
"manufacturingDate": "1/1/2020",
"expiryDate": "1/1/2023",
"owner": "MAN001-Sun Pharma",
"shipment": "",
"createdAt": {
"nanos": 493000000,
"seconds": {
"low": 1691580155,
"high": 0,
"unsigned": true
},
"updatedAt": {
"nanos": 493000000,
"seconds": {
"low": 1691580155,
"high": 0,
"unsigned": true
}
}
}
}
]
]
Find and Replace
Console
Runner
Trash

Console


```
    Record: {
      productID: 'Paracetamol-001',
      name: 'Paracetamol',
      manufacturer: 'MAN001-Sun Pharma',
      manufacturingDate: '1/1/2020',
      expiryDate: '1/1/2023',
      owner: 'AAD001',
      shipment: '\x00pharmanet.shipment\x00RET002-Upgrad-Paracetamol\x00',
      createdAt: [Object],
      updatedAt: [Object]
    }
  },
  {
    Record: {
      productID: 'Paracetamol-001',
      name: 'Paracetamol',
      manufacturer: 'MAN001-Sun Pharma',
      manufacturingDate: '1/1/2020',
      expiryDate: '1/1/2023',
      owner: 'RET002-Upgrad',
      shipment: '\x00pharmanet.shipment\x00RET002-Upgrad-Paracetamol\x00',
      createdAt: [Object],
      updatedAt: [Object]
    }
  },
  {
    Record: {
      productID: 'Paracetamol-001',
      name: 'Paracetamol',
      manufacturer: 'MAN001-Sun Pharma',
      manufacturingDate: '1/1/2020',
      expiryDate: '1/1/2023',
      owner: 'TRA002-Blue Dart',
      shipment: '\x00pharmanet.shipment\x00DIST001-VG Pharma-Paracetamol\x00',
      createdAt: [Object],
      updatedAt: [Object]
    }
  },
  {
    Record: {
      productID: 'Paracetamol-001',
      name: 'Paracetamol',
      manufacturer: 'MAN001-Sun Pharma',
      manufacturingDate: '1/1/2020',
      expiryDate: '1/1/2023',
      owner: 'DIST001-VG Pharma',
      shipment: '\x00pharmanet.shipment\x00DIST001-VG Pharma-Paracetamol\x00',
      createdAt: [Object],
      updatedAt: [Object]
    }
  },
  {
    Record: {
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      name: 'Paracetamol',
      manufacturer: 'MAN001-Sun Pharma',
      manufacturingDate: '1/1/2020',
      expiryDate: '1/1/2023',
      owner: 'TRA001-FedEx',
      shipment: '',
      createdAt: [Object],
      updatedAt: [Object]
    }
  },
  {
    Record: {
      productID: 'Paracetamol-001',
      name: 'Paracetamol',
      manufacturer: 'MAN001-Sun Pharma',
      manufacturingDate: '1/1/2020',
      expiryDate: '1/1/2023',
      owner: 'MAN001-Sun Pharma',
      shipment: '',
      createdAt: [Object],
```
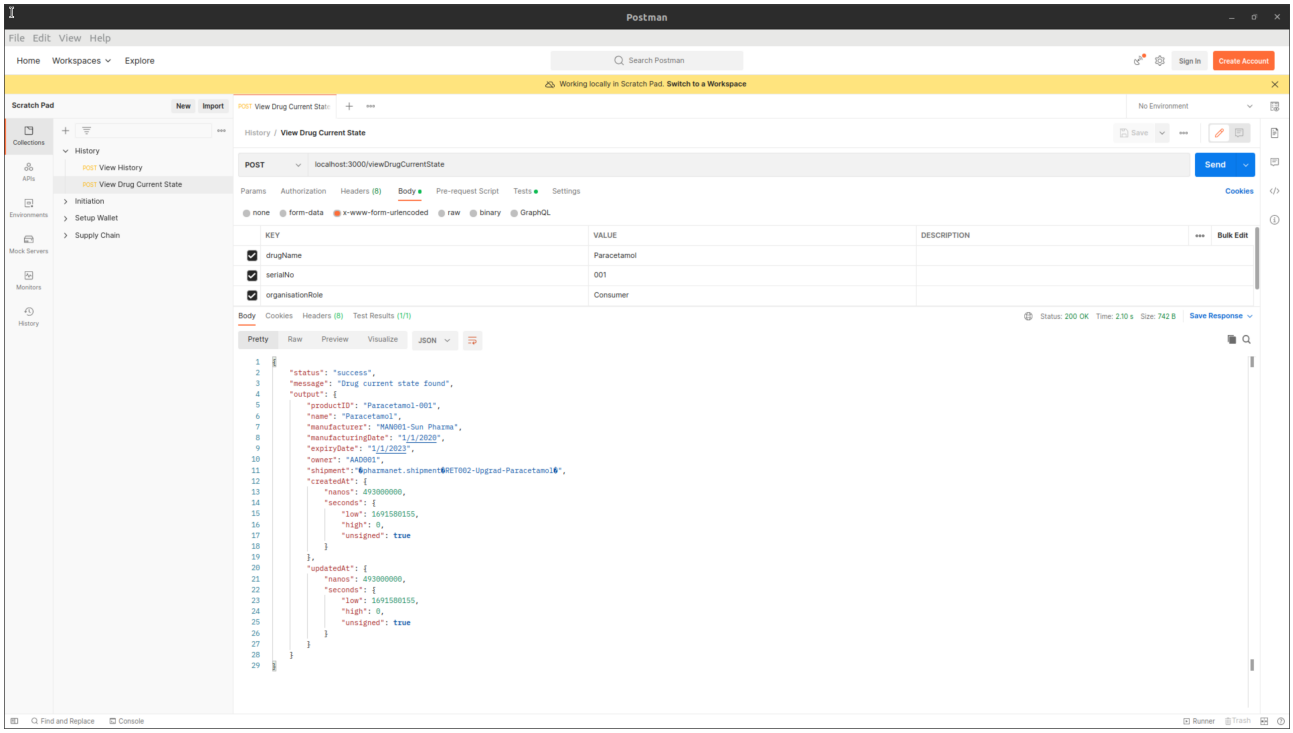
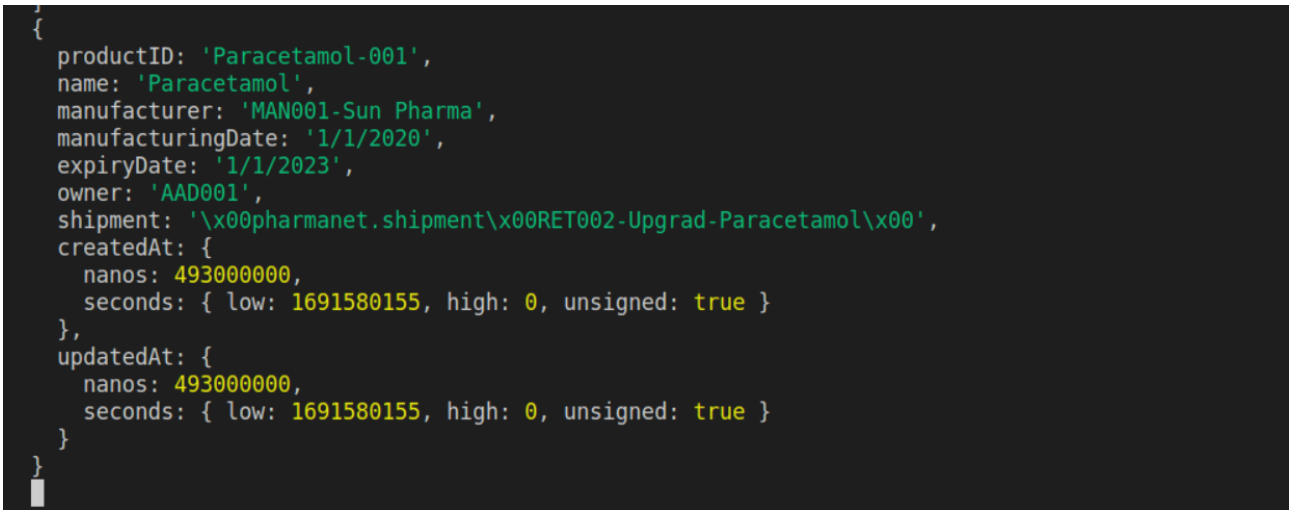

- We can now also view the Drug Current State

Postman :



Console



7. **Clearing the setup files to re-launch the network**

   To clear the system will all the docker and other crypto materials we can run the following shell script
   {Path_to_Project}/pharma-network/test-network-man/clearSetup.sh.

   This script will only delete all the files that were created by script {Path_to_Project}/pharma-network/test-network-man/startNetwork.sh

   It is recomended that before you run this command, you need to close the client side rest api application.