

## Commands to bring up and run the Pharma-Network

### Prerequisite

Go to chaincode folder and run the below command

### Command

**cd chaincode**

**npm install**

- This command installs the node modules needed for the chaincode

### Starting the Network

1. Go to the Network folder and start the network by running the below command.

### Command

**./fabricNetwork.sh up**

- This command generates crypto materials
- It generates config materials
- Starts the docker containers
- Create channel
- Join peers in the channel
- Update anchor peers

## Generate crypto materials

```
rakesh@rakesh-VirtualBox: ~/workspace/pharma-net/Network
rakesh@rakesh-VirtualBox:~/workspace/pharma-net/Network$ ./fabricNetwork.sh up
Starting for channel 'pharmachannel' with CLI timeout of '15' seconds and CLI delay of '5' seconds and chaincode version '1.1'
Continue? [Y/n] y
proceeding ...
LOCAL_VERSION=1.4.3
DOCKER_IMAGE_VERSION=1.4.3
/home/rakesh/workspace/pharma-net/Network/bin/cryptogen

#####
#### Generate certificates using cryptogen tool ####
#####
+ cryptogen generate --config=./crypto-config.yaml
manufacturer.pharma-network.com
distributor.pharma-network.com
retailer.pharma-network.com
transporter.pharma-network.com
consumer.pharma-network.com
+ res=0
+ set +x

/home/rakesh/workspace/pharma-net/Network/bin/configtxgen
#####
##### Generating Orderer Genesis block #####
#####
+ configtxgen -profile OrdererGenesis -channelID pharma-sys-channel -outputBlock ./channel-artifacts/genesis.block
2022-08-11 21:02:53.449 IST [common.tools.configtxgen] main -> INFO 001 Loading configuration
2022-08-11 21:02:53.490 IST [common.tools.configtxgen.localconfig] completeInitialization -> INFO 002 orderer type: solo
2022-08-11 21:02:53.490 IST [common.tools.configtxgen.localconfig] Load -> INFO 003 Loaded configuration: /home/rakesh/workspace/pharma-net/Network/configtx.yaml
2022-08-11 21:02:53.500 IST [common.tools.configtxgen.localconfig] completeInitialization -> INFO 004 orderer type: solo
2022-08-11 21:02:53.500 IST [common.tools.configtxgen.localconfig] LoadTopLevel -> INFO 005 Loaded configuration: /home/rakesh/workspace/pharma-net/Network/configtx.yaml
2022-08-11 21:02:53.522 IST [common.tools.configtxgen] doOutputBlock -> INFO 006 Generating genesis block
2022-08-11 21:02:53.522 IST [common.tools.configtxgen] doOutputBlock -> INFO 007 Writing genesis block
+ res=0
+ set +x

#####
### Generating channel configuration transaction 'channel.tx' ###
#####
+ configtxgen -profile PharmaChannel -outputCreateChannelTx ./channel-artifacts/channel.tx -channelID pharmachannel
2022-08-11 21:02:53.548 IST [common.tools.configtxgen] main -> INFO 001 Loading configuration
2022-08-11 21:02:53.561 IST [common.tools.configtxgen.localconfig] Load -> INFO 002 Loaded configuration: /home/rakesh/workspace/pharma-net/Network/configtx.yaml
2022-08-11 21:02:53.571 IST [common.tools.configtxgen.localconfig] completeInitialization -> INFO 003 orderer type: solo
2022-08-11 21:02:53.571 IST [common.tools.configtxgen.localconfig] LoadTopLevel -> INFO 004 Loaded configuration: /home/rakesh/workspace/pharma-net/Network/configtx.yaml
2022-08-11 21:02:53.571 IST [common.tools.configtxgen] doOutputChannelCreateTx -> INFO 005 Generating new channel configtx
2022-08-11 21:02:53.571 IST [common.tools.configtxgen.encoder] NewChannelGroup -> WARN 006 Default policy emission is deprecated, please include policy specifications for the channel group in configtx.yaml
2022-08-11 21:02:53.575 IST [common.tools.configtxgen.encoder] NewChannelGroup -> WARN 007 Default policy emission is deprecated, please include policy specifications for the channel group in configtx.yaml
```

## Generate Config

```
rakesh@rakesh-VirtualBox: ~/workspace/pharma-net/Network
2022-08-11 21:02:53.596 IST [common.tools.configtxgen] doOutputChannelCreateTx -> INFO 008 Writing new channel tx
+ res=0
+ set +x

#####
### Generating anchor peer update for ManufacturerMSP #####
#####
+ configtxgen -profile PharmaChannel -outputAnchorPeersUpdate ./channel-artifacts/ManufacturerMSPanchors.tx -channelID pharmachannel -asOrg ManufacturerMSP
2022-08-11 21:02:53.627 IST [common.tools.configtxgen] main -> INFO 001 Loading configuration
2022-08-11 21:02:53.638 IST [common.tools.configtxgen.localconfig] Load -> INFO 002 Loaded configuration: /home/rakesh/workspace/pharma-net/Network/configtx.yaml
2022-08-11 21:02:53.649 IST [common.tools.configtxgen.localconfig] completeInitialization -> INFO 003 orderer type: solo
2022-08-11 21:02:53.649 IST [common.tools.configtxgen.localconfig] LoadTopLevel -> INFO 004 Loaded configuration: /home/rakesh/workspace/pharma-net/Network/configtx.yaml
2022-08-11 21:02:53.649 IST [common.tools.configtxgen] doOutputAnchorPeersUpdate -> INFO 005 Generating anchor peer update
2022-08-11 21:02:53.649 IST [common.tools.configtxgen] doOutputAnchorPeersUpdate -> INFO 006 Writing anchor peer update
+ res=0
+ set +x

#####
### Generating anchor peer update for DistributorMSP #####
#####
+ configtxgen -profile PharmaChannel -outputAnchorPeersUpdate ./channel-artifacts/DistributorMSPanchors.tx -channelID pharmachannel -asOrg DistributorMSP
2022-08-11 21:02:53.679 IST [common.tools.configtxgen] main -> INFO 001 Loading configuration
2022-08-11 21:02:53.689 IST [common.tools.configtxgen.localconfig] Load -> INFO 002 Loaded configuration: /home/rakesh/workspace/pharma-net/Network/configtx.yaml
2022-08-11 21:02:53.701 IST [common.tools.configtxgen.localconfig] completeInitialization -> INFO 003 orderer type: solo
2022-08-11 21:02:53.701 IST [common.tools.configtxgen.localconfig] LoadTopLevel -> INFO 004 Loaded configuration: /home/rakesh/workspace/pharma-net/Network/configtx.yaml
2022-08-11 21:02:53.701 IST [common.tools.configtxgen] doOutputAnchorPeersUpdate -> INFO 005 Generating anchor peer update
2022-08-11 21:02:53.701 IST [common.tools.configtxgen] doOutputAnchorPeersUpdate -> INFO 006 Writing anchor peer update
+ res=0
+ set +x

#####
#### Generating anchor peer update for RetailerMSP #####
#####
+ configtxgen -profile PharmaChannel -outputAnchorPeersUpdate ./channel-artifacts/RetailerMSPanchors.tx -channelID pharmachannel -asOrg RetailerMSP
2022-08-11 21:02:53.724 IST [common.tools.configtxgen] main -> INFO 001 Loading configuration
2022-08-11 21:02:53.737 IST [common.tools.configtxgen.localconfig] Load -> INFO 002 Loaded configuration: /home/rakesh/workspace/pharma-net/Network/configtx.yaml
2022-08-11 21:02:53.759 IST [common.tools.configtxgen.localconfig] completeInitialization -> INFO 003 orderer type: solo
2022-08-11 21:02:53.759 IST [common.tools.configtxgen.localconfig] LoadTopLevel -> INFO 004 Loaded configuration: /home/rakesh/workspace/pharma-net/Network/configtx.yaml
2022-08-11 21:02:53.759 IST [common.tools.configtxgen] doOutputAnchorPeersUpdate -> INFO 005 Generating anchor peer update
2022-08-11 21:02:53.759 IST [common.tools.configtxgen] doOutputAnchorPeersUpdate -> INFO 006 Writing anchor peer update
+ res=0
+ set +x

#####
### Generating anchor peer update for TransporterMSP #####
#####
```

```
Terminal Aug 11 9:16 PM
rakesh@rakesh-VirtualBox: ~/workspace/pharma-net/Network

#####
+ configtxgen -profile PharmaChannel -outputAnchorPeersUpdate ./channel-artifacts/TransporterMSPanchors.tx -channelID pharmachannel -asOrg TransporterMSP
2022-08-11 21:02:53.794 IST [common.tools.configtxgen] main -> INFO 001 Loading configuration
2022-08-11 21:02:53.804 IST [common.tools.configtxgen.localconfig] Load -> INFO 002 Loaded configuration: /home/rakesh/workspace/pharma-net/Network/configtx.yaml
2022-08-11 21:02:53.815 IST [common.tools.configtxgen.localconfig] completeInitialization -> INFO 003 orderer type: solo
2022-08-11 21:02:53.815 IST [common.tools.configtxgen.localconfig] LoadTopLevel -> INFO 004 Loaded configuration: /home/rakesh/workspace/pharma-net/Network/configtx.yaml
2022-08-11 21:02:53.815 IST [common.tools.configtxgen] doOutputAnchorPeersUpdate -> INFO 005 Generating anchor peer update
2022-08-11 21:02:53.815 IST [common.tools.configtxgen] doOutputAnchorPeersUpdate -> INFO 006 Writing anchor peer update
+ res=0
+ set +x

#####
##### Generating anchor peer update for ConsumerMSP #####
#####
+ configtxgen -profile PharmaChannel -outputAnchorPeersUpdate ./channel-artifacts/ConsumerMSPanchors.tx -channelID pharmachannel -asOrg ConsumerMSP
2022-08-11 21:02:53.844 IST [common.tools.configtxgen] main -> INFO 001 Loading configuration
2022-08-11 21:02:53.859 IST [common.tools.configtxgen.localconfig] Load -> INFO 002 Loaded configuration: /home/rakesh/workspace/pharma-net/Network/configtx.yaml
2022-08-11 21:02:53.879 IST [common.tools.configtxgen.localconfig] completeInitialization -> INFO 003 orderer type: solo
2022-08-11 21:02:53.879 IST [common.tools.configtxgen.localconfig] LoadTopLevel -> INFO 004 Loaded configuration: /home/rakesh/workspace/pharma-net/Network/configtx.yaml
2022-08-11 21:02:53.879 IST [common.tools.configtxgen] doOutputAnchorPeersUpdate -> INFO 005 Generating anchor peer update
2022-08-11 21:02:53.879 IST [common.tools.configtxgen] doOutputAnchorPeersUpdate -> INFO 006 Writing anchor peer update
+ res=0
+ set +x

Creating network "network_pharma" with the default driver
Creating volume "network_orderer.pharma-network.com" with default driver
Creating volume "network_peer0.manufacturer.pharma-network.com" with default driver
Creating volume "network_peer1.manufacturer.pharma-network.com" with default driver
Creating volume "network_peer0.distributor.pharma-network.com" with default driver
Creating volume "network_peer1.distributor.pharma-network.com" with default driver
Creating volume "network_peer0.retailer.pharma-network.com" with default driver
Creating volume "network_peer1.retailer.pharma-network.com" with default driver
Creating volume "network_peer0.transporter.pharma-network.com" with default driver
Creating volume "network_peer1.transporter.pharma-network.com" with default driver
Creating volume "network_peer0.consumer.pharma-network.com" with default driver
Creating volume "network_peer1.consumer.pharma-network.com" with default driver
Creating chaincode ... done
Creating peer0.transporter.pharma-network.com ... done
Creating peer1.manufacturer.pharma-network.com ... done
Creating ca.manufacturer.pharma-network.com ... done
Creating ca.consumer.pharma-network.com ... done
Creating peer1.retailer.pharma-network.com ... done
Creating ca.retailer.pharma-network.com ... done
Creating peer0.manufacturer.pharma-network.com ... done
Creating orderer.pharma-network.com ... done
Creating peer0.retailer.pharma-network.com ... done
Creating peer1.consumer.pharma-network.com ... done
```

## Start the docker containers

```
rakesh@rakesh-VirtualBox: ~/workspace/pharma-net/Network
Creating ca.transporter.pharma-network.com ... done
Creating peer0.consumer.pharma-network.com ... done
Creating peer1.transporter.pharma-network.com ... done
Creating peer1.distributor.pharma-network.com ... done
Creating ca.distributor.pharma-network.com ... done
Creating peer0.distributor.pharma-network.com ... done
Creating cli ... done
CONTAINER ID        IMAGE                                     COMMAND                  CREATED             STATUS              PORTS
b3eef90a0373       hyperledger/fabric-tools:latest        "/bin/bash"             4 seconds ago      Up Less than a second
697421f13dea       hyperledger/fabric-peer:latest         "peer node start"       13 seconds ago     Up 6 seconds       0.0.0.0:9051->9051/tcp, :::9051->9051/tcp, 0.0.0.0:9053->9053/tcp, :::9053->9053/tcp
2e52f8ef5415       hyperledger/fabric-ca:1.5.3           "sh -c 'fabric-ca-se..." 13 seconds ago     Up 5 seconds       0.0.0.0:8054->7054/tcp, :::8054->7054/tcp
74fa0c5f295c       hyperledger/fabric-peer:latest         "peer node start"       13 seconds ago     Up 6 seconds       0.0.0.0:14051->14051/tcp, :::14051->14051/tcp, 0.0.0.0:14053->14053/tcp, :::14053->140
53/tcp peer1.transporter.pharma-network.com
8dc4a648effb       hyperledger/fabric-peer:latest         "peer node start"       13 seconds ago     Up 6 seconds       0.0.0.0:10051->10051/tcp, :::10051->10051/tcp, 0.0.0.0:10053->10053/tcp, :::10053->100
53/tcp peer1.distributor.pharma-network.com
35c3d1b2f744       hyperledger/fabric-peer:latest         "peer node start"       13 seconds ago     Up 4 seconds       0.0.0.0:16051->16051/tcp, :::16051->16051/tcp, 0.0.0.0:16053->16053/tcp, :::16053->160
53/tcp peer1.consumer.pharma-network.com
2342f5d7b8c7       hyperledger/fabric-ca:1.5.3           "sh -c 'fabric-ca-se..." 13 seconds ago     Up 7 seconds       0.0.0.0:10054->7054/tcp, :::10054->7054/tcp
46adfc7bdb22       hyperledger/fabric-peer:latest         "peer node start"       13 seconds ago     Up 8 seconds       0.0.0.0:11051->11051/tcp, :::11051->11051/tcp, 0.0.0.0:11053->11053/tcp, :::11053->110
53/tcp peer0.retailer.pharma-network.com
63bce5ac1a34       hyperledger/fabric-peer:latest         "peer node start"       13 seconds ago     Up 4 seconds       0.0.0.0:15051->15051/tcp, :::15051->15051/tcp, 0.0.0.0:15053->15053/tcp, :::15053->150
53/tcp peer0.consumer.pharma-network.com
3869e8105486       hyperledger/fabric-orderer:latest      "orderer"               13 seconds ago     Up 5 seconds       0.0.0.0:7050->7050/tcp, :::7050->7050/tcp
022dbc9c56c0       hyperledger/fabric-ca:1.5.3           "sh -c 'fabric-ca-se..." 13 seconds ago     Up 7 seconds       0.0.0.0:9054->7054/tcp, :::9054->7054/tcp
99edefcd09a1       hyperledger/fabric-peer:latest         "peer node start"       13 seconds ago     Up 5 seconds       0.0.0.0:7051->7051/tcp, :::7051->7051/tcp, 0.0.0.0:7053->7053/tcp, :::7053->7053/tcp
bcaef344df34       hyperledger/fabric-peer:latest         "peer node start"       13 seconds ago     Up 8 seconds       0.0.0.0:12051->12051/tcp, :::12051->12051/tcp, 0.0.0.0:12053->12053/tcp, :::12053->120
53/tcp peer1.retailer.pharma-network.com
439e0d8457c7       hyperledger/fabric-ca:1.5.3           "sh -c 'fabric-ca-se..." 13 seconds ago     Up 6 seconds       0.0.0.0:11054->7054/tcp, :::11054->7054/tcp
50be3cf2cd79       hyperledger/fabric-peer:latest         "peer node start"       13 seconds ago     Up 5 seconds       0.0.0.0:8051->8051/tcp, :::8051->8051/tcp, 0.0.0.0:8053->8053/tcp, :::8053->8053/tcp
d9ac4aa41bf8       hyperledger/fabric-ca:1.5.3           "sh -c 'fabric-ca-se..." 13 seconds ago     Up 4 seconds       0.0.0.0:7054->7054/tcp, :::7054->7054/tcp
ccfc8a169ef0       hyperledger/fabric-peer:latest         "peer node start"       13 seconds ago     Up 8 seconds       0.0.0.0:13051->13051/tcp, :::13051->13051/tcp, 0.0.0.0:13053->13053/tcp, :::13053->130
53/tcp peer0.transporter.pharma-network.com
8f846d1f2329       hyperledger/fabric-ccenv:latest        "/bin/bash -c 'sleep..." 13 seconds ago     Up 7 seconds
chaincode
Sleeping 10s to allow cluster to complete booting
```

## Create channel and join peers

```
rakesh@rakesh-VirtualBox: ~/workspace/pharma-net/Network

START

Setting Up Hyperledger Fabric Network

Channel name : pharmachannel
Creating channel...
+ peer channel create -o orderer.pharma-network.com:7050 -c pharmachannel -f ./channel-artifacts/channel.tx
+ res=0
+ set +x
2022-08-11 15:33:19.365 UTC [channelCmd] InitCmdFactory -> INFO 001 Endorser and orderer connections initialized
2022-08-11 15:33:19.496 UTC [cli.common] readBlock -> INFO 002 Received block: 0
===== Channel 'pharmachannel' created =====

Having all peers join the channel...
+ peer channel join -b pharmachannel.block
+ res=0
+ set +x
2022-08-11 15:33:19.596 UTC [channelCmd] InitCmdFactory -> INFO 001 Endorser and orderer connections initialized
2022-08-11 15:33:19.686 UTC [channelCmd] executeJoin -> INFO 002 Successfully submitted proposal to join channel
===== peer0.Manufacturer.pharma-network.com joined channel 'pharmachannel' =====

+ peer channel join -b pharmachannel.block
+ res=0
+ set +x
2022-08-11 15:33:24.730 UTC [channelCmd] InitCmdFactory -> INFO 001 Endorser and orderer connections initialized
2022-08-11 15:33:24.858 UTC [channelCmd] executeJoin -> INFO 002 Successfully submitted proposal to join channel
===== peer1.Manufacturer.pharma-network.com joined channel 'pharmachannel' =====

+ peer channel join -b pharmachannel.block
+ res=0
+ set +x
2022-08-11 15:33:29.906 UTC [channelCmd] InitCmdFactory -> INFO 001 Endorser and orderer connections initialized
2022-08-11 15:33:29.967 UTC [channelCmd] executeJoin -> INFO 002 Successfully submitted proposal to join channel
===== peer0.Distributor.pharma-network.com joined channel 'pharmachannel' =====

+ peer channel join -b pharmachannel.block
+ res=0
+ set +x
2022-08-11 15:33:35.065 UTC [channelCmd] InitCmdFactory -> INFO 001 Endorser and orderer connections initialized
2022-08-11 15:33:35.124 UTC [channelCmd] executeJoin -> INFO 002 Successfully submitted proposal to join channel
===== peer1.Distributor.pharma-network.com joined channel 'pharmachannel' =====

+ peer channel join -b pharmachannel.block
```



```
rakesh@rakesh-VirtualBox: ~/workspace/pharma-net/Network
===== peer1.Distributor.pharma-network.com joined channel 'pharmachannel' =====

+ peer channel join -b pharmachannel.block
+ res=0
+ set +x
2022-08-11 15:33:40.279 UTC [channelCmd] InitCmdFactory -> INFO 001 Endorser and orderer connections initialized
2022-08-11 15:33:40.361 UTC [channelCmd] executeJoin -> INFO 002 Successfully submitted proposal to join channel
===== peer0.Retailer.pharma-network.com joined channel 'pharmachannel' =====

+ peer channel join -b pharmachannel.block
+ res=0
+ set +x
2022-08-11 15:33:45.430 UTC [channelCmd] InitCmdFactory -> INFO 001 Endorser and orderer connections initialized
2022-08-11 15:33:45.496 UTC [channelCmd] executeJoin -> INFO 002 Successfully submitted proposal to join channel
===== peer1.Retailer.pharma-network.com joined channel 'pharmachannel' =====

+ peer channel join -b pharmachannel.block
+ res=0
+ set +x
2022-08-11 15:33:50.544 UTC [channelCmd] InitCmdFactory -> INFO 001 Endorser and orderer connections initialized
2022-08-11 15:33:50.626 UTC [channelCmd] executeJoin -> INFO 002 Successfully submitted proposal to join channel
===== peer0.Transporter.pharma-network.com joined channel 'pharmachannel' =====
+ peer channel join -b pharmachannel.block

+ res=0
+ set +x
2022-08-11 15:33:55.680 UTC [channelCmd] InitCmdFactory -> INFO 001 Endorser and orderer connections initialized
2022-08-11 15:33:55.742 UTC [channelCmd] executeJoin -> INFO 002 Successfully submitted proposal to join channel
===== peer1.Transporter.pharma-network.com joined channel 'pharmachannel' =====

+ peer channel join -b pharmachannel.block
+ res=0
+ set +x
2022-08-11 15:34:00.873 UTC [channelCmd] InitCmdFactory -> INFO 001 Endorser and orderer connections initialized
2022-08-11 15:34:00.952 UTC [channelCmd] executeJoin -> INFO 002 Successfully submitted proposal to join channel
===== peer0.Consumer.pharma-network.com joined channel 'pharmachannel' =====

+ peer channel join -b pharmachannel.block
+ res=0
+ set +x
2022-08-11 15:34:06.074 UTC [channelCmd] InitCmdFactory -> INFO 001 Endorser and orderer connections initialized
2022-08-11 15:34:06.788 UTC [channelCmd] executeJoin -> INFO 002 Successfully submitted proposal to join channel
===== peer1.Consumer.pharma-network.com joined channel 'pharmachannel' =====
```

## Update Anchor Peers

File Machine View Input Devices Help

```
Updating anchor peers for MANUFACTURER...
+ peer channel update -o orderer.pharma-network.com:7050 -c pharmachannel -f ./channel-artifacts/ManufacturerMSPanchors.tx
+ res=0
+ set +x
2022-08-11 15:34:11.885 UTC [channelCmd] InitCmdFactory -> INFO 001 Endorser and orderer connections initialized
2022-08-11 15:34:11.895 UTC [channelCmd] update -> INFO 002 Successfully submitted channel update
===== Anchor peers updated for org 'ManufacturerMSP' on channel 'pharmachannel' =====

Updating anchor peers for DISTRIBUTOR...
+ peer channel update -o orderer.pharma-network.com:7050 -c pharmachannel -f ./channel-artifacts/DistributorMSPanchors.tx
+ res=0
+ set +x
2022-08-11 15:34:16.954 UTC [channelCmd] InitCmdFactory -> INFO 001 Endorser and orderer connections initialized
2022-08-11 15:34:16.973 UTC [channelCmd] update -> INFO 002 Successfully submitted channel update
===== Anchor peers updated for org 'DistributorMSP' on channel 'pharmachannel' =====

Updating anchor peers for RETAILER...
+ peer channel update -o orderer.pharma-network.com:7050 -c pharmachannel -f ./channel-artifacts/RetailerMSPanchors.tx
+ res=0
+ set +x
2022-08-11 15:34:22.046 UTC [channelCmd] InitCmdFactory -> INFO 001 Endorser and orderer connections initialized
2022-08-11 15:34:22.060 UTC [channelCmd] update -> INFO 002 Successfully submitted channel update
===== Anchor peers updated for org 'RetailerMSP' on channel 'pharmachannel' =====

Updating anchor peers for TRANSPORTER...
+ peer channel update -o orderer.pharma-network.com:7050 -c pharmachannel -f ./channel-artifacts/TransporterMSPanchors.tx
+ res=0
+ set +x
2022-08-11 15:34:27.140 UTC [channelCmd] InitCmdFactory -> INFO 001 Endorser and orderer connections initialized
2022-08-11 15:34:27.153 UTC [channelCmd] update -> INFO 002 Successfully submitted channel update
===== Anchor peers updated for org 'TransporterMSP' on channel 'pharmachannel' =====

Updating anchor peers for CONSUMER...
+ peer channel update -o orderer.pharma-network.com:7050 -c pharmachannel -f ./channel-artifacts/ConsumerMSPanchors.tx
+ res=0
+ set +x
2022-08-11 15:34:32.224 UTC [channelCmd] InitCmdFactory -> INFO 001 Endorser and orderer connections initialized
2022-08-11 15:34:32.238 UTC [channelCmd] update -> INFO 002 Successfully submitted channel update
===== Anchor peers updated for org 'ConsumerMSP' on channel 'pharmachannel' =====

===== All GOOD, Hyperledger Fabric Pharma Network Is Now Up and Running! =====
```

END

rakesh@rakesh-VirtualBox:~/workspace/pharma-net/Network\$



## Install and instantiate chaincode

1. Install the chaincode by running the below command.

### Command

**`./fabricNetwork.sh install`**

- This command installs the chaincode on all the peers in the network
- It instantiates the chaincode on peer0.manufacturer.pharma-network.com

## Install the chaincode

File Machine View Input Devices Help

```

rakesh@rakesh-VirtualBox:~/workspace/pharma-net/Network$ ./fabricNetwork.sh install
Installing chaincode for channel 'pharmachannel' with CLI timeout of '15' seconds and CLI delay of '5' seconds and chaincode version '1.1'
Continue? [Y/n] y
proceeding ...
LOCAL_VERSION=1.4.3
DOCKER_IMAGE_VERSION=1.4.3

START

Deploying Chaincode PHARMANET On Pharma Network

Channel name : pharmachannel
Installing chaincode on peer0.manufacturer.pharma-network.com ...
+ peer chaincode install -n pharmanet -v 1.1 -l node -p /opt/gopath/src/github.com/hyperledger/fabric/peer/chaincode/
+ res=0
+ set +x
2022-08-11 16:19:51.909 UTC [chaincodeCmd] checkChaincodeCmdParams -> INFO 001 Using default escv
2022-08-11 16:19:51.909 UTC [chaincodeCmd] checkChaincodeCmdParams -> INFO 002 Using default vscc
2022-08-11 16:19:55.216 UTC [chaincodeCmd] install -> INFO 003 Installed remotely response:<status:200 payload:"OK" >
===== Chaincode is installed on peer0.Manufacturer =====

Installing chaincode on peer1.manufacturer.pharma-network.com ...
+ peer chaincode install -n pharmanet -v 1.1 -l node -p /opt/gopath/src/github.com/hyperledger/fabric/peer/chaincode/
+ res=0
+ set +x
2022-08-11 16:19:55.268 UTC [chaincodeCmd] checkChaincodeCmdParams -> INFO 001 Using default escv
2022-08-11 16:19:55.268 UTC [chaincodeCmd] checkChaincodeCmdParams -> INFO 002 Using default vscc
2022-08-11 16:19:55.372 UTC [chaincodeCmd] install -> INFO 003 Installed remotely response:<status:200 payload:"OK" >
===== Chaincode is installed on peer1.Manufacturer =====

Installing chaincode on peer0.distributor.pharma-network.com ...
+ peer chaincode install -n pharmanet -v 1.1 -l node -p /opt/gopath/src/github.com/hyperledger/fabric/peer/chaincode/
+ res=0
+ set +x
2022-08-11 16:19:55.430 UTC [chaincodeCmd] checkChaincodeCmdParams -> INFO 001 Using default escv
2022-08-11 16:19:55.430 UTC [chaincodeCmd] checkChaincodeCmdParams -> INFO 002 Using default vscc
2022-08-11 16:19:55.504 UTC [chaincodeCmd] install -> INFO 003 Installed remotely response:<status:200 payload:"OK" >
===== Chaincode is installed on peer0.Distributor =====

Installing chaincode on peer1.distributor.pharma-network.com ...
+ peer chaincode install -n pharmanet -v 1.1 -l node -p /opt/gopath/src/github.com/hyperledger/fabric/peer/chaincode/
+ res=0
+ set +x
2022-08-11 16:19:55.565 UTC [chaincodeCmd] checkChaincodeCmdParams -> INFO 001 Using default escv
2022-08-11 16:19:55.565 UTC [chaincodeCmd] checkChaincodeCmdParams -> INFO 002 Using default vscc
2022-08-11 16:19:55.654 UTC [chaincodeCmd] install -> INFO 003 Installed remotely response:<status:200 payload:"OK" >
===== Chaincode is installed on peer1.Distributor =====

```

```
Installing chaincode on peer0.retailer.pharma-network.com ...
+ peer chaincode install -n pharmanet -v 1.1 -l node -p /opt/gopath/src/github.com/hyperledger/fabric/peer/chaincode/
+ res=0
+ set +x
2022-08-11 16:19:55.724 UTC [chaincodeCmd] checkChaincodeCmdParams -> INFO 001 Using default escc
2022-08-11 16:19:55.724 UTC [chaincodeCmd] checkChaincodeCmdParams -> INFO 002 Using default vscc
2022-08-11 16:19:55.796 UTC [chaincodeCmd] install -> INFO 003 Installed remotely response:<status:200 payload:"OK" >
===== Chaincode is installed on peer0.Retailer =====

Installing chaincode on peer1.retailer.pharma-network.com ...
+ peer chaincode install -n pharmanet -v 1.1 -l node -p /opt/gopath/src/github.com/hyperledger/fabric/peer/chaincode/
+ res=0
+ set +x
2022-08-11 16:19:55.874 UTC [chaincodeCmd] checkChaincodeCmdParams -> INFO 001 Using default escc
2022-08-11 16:19:55.874 UTC [chaincodeCmd] checkChaincodeCmdParams -> INFO 002 Using default vscc
2022-08-11 16:19:55.940 UTC [chaincodeCmd] install -> INFO 003 Installed remotely response:<status:200 payload:"OK" >
===== Chaincode is installed on peer1.Retailer =====

Installing chaincode on peer0.transporter.pharma-network.com ...
+ peer chaincode install -n pharmanet -v 1.1 -l node -p /opt/gopath/src/github.com/hyperledger/fabric/peer/chaincode/
+ res=0
+ set +x
2022-08-11 16:19:56.032 UTC [chaincodeCmd] checkChaincodeCmdParams -> INFO 001 Using default escc
2022-08-11 16:19:56.032 UTC [chaincodeCmd] checkChaincodeCmdParams -> INFO 002 Using default vscc
2022-08-11 16:19:56.105 UTC [chaincodeCmd] install -> INFO 003 Installed remotely response:<status:200 payload:"OK" >
===== Chaincode is installed on peer0.Transporter =====

Installing chaincode on peer1.transporter.pharma-network.com ...
+ peer chaincode install -n pharmanet -v 1.1 -l node -p /opt/gopath/src/github.com/hyperledger/fabric/peer/chaincode/
+ res=0
+ set +x
2022-08-11 16:19:56.165 UTC [chaincodeCmd] checkChaincodeCmdParams -> INFO 001 Using default escc
2022-08-11 16:19:56.166 UTC [chaincodeCmd] checkChaincodeCmdParams -> INFO 002 Using default vscc
2022-08-11 16:19:56.238 UTC [chaincodeCmd] install -> INFO 003 Installed remotely response:<status:200 payload:"OK" >
===== Chaincode is installed on peer1.Transporter =====

Installing chaincode on peer0.consumer.pharma-network.com ...
+ peer chaincode install -n pharmanet -v 1.1 -l node -p /opt/gopath/src/github.com/hyperledger/fabric/peer/chaincode/
+ res=0
+ set +x
2022-08-11 16:19:56.337 UTC [chaincodeCmd] checkChaincodeCmdParams -> INFO 001 Using default escc
2022-08-11 16:19:56.337 UTC [chaincodeCmd] checkChaincodeCmdParams -> INFO 002 Using default vscc
2022-08-11 16:19:56.427 UTC [chaincodeCmd] install -> INFO 003 Installed remotely response:<status:200 payload:"OK" >
===== Chaincode is installed on peer0.Consumer =====

Installing chaincode on peer1.consumer.pharma-network.com ...
+ peer chaincode install -n pharmanet -v 1.1 -l node -p /opt/gopath/src/github.com/hyperledger/fabric/peer/chaincode/
+ res=0
+ set +x
2022-08-11 16:19:56.481 UTC [chaincodeCmd] checkChaincodeCmdParams -> INFO 001 Using default escc
2022-08-11 16:19:56.481 UTC [chaincodeCmd] checkChaincodeCmdParams -> INFO 002 Using default vscc
2022-08-11 16:19:56.573 UTC [chaincodeCmd] install -> INFO 003 Installed remotely response:<status:200 payload:"OK" >
```

## Instantiating chaincode

```
Instantiating chaincode on channel using peer0.manufacturer.pharma-network.com ...
+ peer chaincode instantiate -o orderer.pharma-network.com:7050 -C pharmachannel -n pharmanet -l node -v 1.1 -c '{"Args":["org.pharma-network.pharmanet:instantiate"]}' -P 'OR (''ManufacturerMSP.member'', ''DistributorMSP.member'', ''RetailerMSP.member'', ''TransporterMSP.member'', ''ConsumerMSP.member'')'
+ res=0
+ set +x
2022-08-11 16:19:56.666 UTC [chaincodeCmd] checkChaincodeCmdParams -> INFO 001 Using default escc
2022-08-11 16:19:56.666 UTC [chaincodeCmd] checkChaincodeCmdParams -> INFO 002 Using default vscc
===== Chaincode is instantiated on peer0.Manufacturer on channel 'pharmachannel' =====

===== All GOOD, Chaincode PHARMANET Is Now Installed & Instantiated On Pharma Network =====

      END

rakesh@rakesh-VirtualBox:~/workspace/pharma-net/Network$
```

## Navigate to Application folder

1. Navigate to application folder and install node packages

### Command

```
cd ../Application/
```

```
npm install
```

- This command installs all the packages mentioned in the package.json file

File Machine View Input Devices Help

```
rakesh@rakesh-VirtualBox:~/workspace/pharma-net/Network$ cd ../Application/  
rakesh@rakesh-VirtualBox:~/workspace/pharma-net/Application$ npm install  
npm WARN pharma-network@1.0.0 No repository field
```


## Start the node server

1. Start the node server

### Command

**node index.js**

- This command starts the node server at port 3000



```
File Machine View Input Devices Help
rakesh@rakesh-VirtualBox:~/workspace/pharma-net/Application$ node index.js
Distributed drug counterfeiting App listening on port 3000!
```

## Start the postman and run the collections

- Launch Postman
- Select collections and import the collections from test folder
- There are four collections in test folder
  - AddToWallet
  - Initiation
  - Supply Chain
  - History



## AddToWallet collection

Run the AddToWallet collections first, so that the identity for each organisation is created

The screenshot displays the Postman application interface. On the left, the 'AddToWallet' collection is expanded, showing five POST requests: 'localhost:3000/addToWallet Manufacturer', 'localhost:3000/addToWallet Distributor', 'localhost:3000/addToWallet Retailer', 'localhost:3000/addToWallet Transporter', and 'localhost:3000/addToWallet Consumer'. Below these are folders for 'History', 'Initiation', 'Supply Chain', and 'test'. The main area is titled 'RUN ORDER' and contains a list of the same five POST requests, each with a checked checkbox. Above this list are buttons for 'Deselect All', 'Select All', and 'Reset'. On the right, the 'Run Settings' panel is visible, featuring input fields for 'Iterations' (set to 1) and 'Delay' (set to 0 ms), a 'Data' section with a 'Select File' button, and an 'Advanced settings' section with checkboxes for 'Save responses', 'Keep variable values' (checked), 'Run collection without using stored cookies', and 'Save cookies after collection run' (checked). A red 'Run AddToWallet' button is located at the bottom of the settings panel. The bottom status bar includes a search bar, a 'Console' tab, and various utility icons like 'Cookies', 'Capture requests', 'Bootcamp', 'Runner', 'Trash', and a help icon.

**Collection:** AddToWallet

- POST localhost:3000/addToWallet Manufacturer
- POST localhost:3000/addToWallet Distributor
- POST localhost:3000/addToWallet Retailer
- POST localhost:3000/addToWallet Transporter
- POST localhost:3000/addToWallet Consumer

**History:** > History, > Initiation, > Supply Chain, > test

**RUN ORDER** [Deselect All] [Select All] [Reset]

- ☒ POST localhost:3000/addToWallet Manufacturer
- ☒ POST localhost:3000/addToWallet Distributor
- ☒ POST localhost:3000/addToWallet Retailer
- ☒ POST localhost:3000/addToWallet Transporter
- ☒ POST localhost:3000/addToWallet Consumer

**Run Settings**

Iterations: 1

Delay: 0 ms

Data: [Select File]

Advanced settings:

- ☐ Save responses ⓘ
- ☒ Keep variable values ⓘ
- ☐ Run collection without using stored cookies
- ☒ Save cookies after collection run ⓘ

[Run AddToWallet]

Find and Replace | Console | Cookies | Capture requests | Bootcamp | Runner | Trash | ⓘ

+

...

▼ AddToWallet

☆ ...

POST localhost:3000/addToWallet Manufactu...

POST localhost:3000/addToWallet Distributor

POST localhost:3000/addToWallet Retailer

POST localhost:3000/addToWallet Transporter

POST localhost:3000/addToWallet Consumer

> History

> Initiation

> Supply Chain

> test

AddToWallet

No Environment, Today, 8:50 pm

Run Again

+ New Run

Export Results

All Tests

Passed (0)

Failed (0)

Skipped (0)

View Summary

Iteration 1

1

POST localhost:3000/addToWallet Manufacturer

localhost:3000/addToWallet

/ localhost:3000/addToWallet Manufacturer

200 OK

32 ms

309 B

No tests in this request.

POST localhost:3000/addToWallet Distributor

localhost:3000/addToWallet

/ localhost:3000/addToWallet Distributor

200 OK

9 ms

309 B

No tests in this request.

POST localhost:3000/addToWallet Retailer

localhost:3000/addToWallet

/ localhost:3000/addToWallet Retailer

200 OK

8 ms

309 B

No tests in this request.

POST localhost:3000/addToWallet Transporter

localhost:3000/addToWallet

/ localhost:3000/addToWallet Transporter

200 OK

11 ms

309 B

No tests in this request.

POST localhost:3000/addToWallet Consumer

localhost:3000/addToWallet

/ localhost:3000/addToWallet Consumer

200 OK

9 ms

309 B

No tests in this request.

## Test Case 1 - Initiation collection

*Create a Manufacturer with the following details*

Name: "Sun Pharma"

CRN Number: "MAN001"

Location: "Chennai"

The screenshot displays a REST client interface with a sidebar on the left containing a collection of requests under the 'Initiation' folder. The main panel shows a selected POST request to 'localhost:3000/registerCompany'. The 'Body' tab is active, showing a JSON response with a success status and company details.

**Request Details:**

- Method: POST
- URL: localhost:3000/registerCompany
- Form: x-www-form-urlencoded

KEY	VALUE	DESCRIPTION
<input checked="" type="checkbox"/> companyCRN	MAN001	
<input checked="" type="checkbox"/> companyName	Sun Pharma	
<input checked="" type="checkbox"/> location	Chennai	
<input checked="" type="checkbox"/> organisationRole	Manufacturer	
<input checked="" type="checkbox"/> organisation	Manufacturer	

**Response Details:**

- Status: 200 OK
- Time: 26.23 s
- Size: 495 B

```
1  {
2    "status": "success",
3    "message": "Company Registered",
4    "company": {
5      "companyId": "org.pharma-network.pharmanet.companyidMAN001Sun Pharma",
6      "name": "Sun Pharma",
7      "location": "Chennai",
8      "organisationRole": "Manufacturer",
9      "hierarchyKey": "1"
10   }
11 }
```

Create a Transporter with the following details

Name: "FedEx"

CRN Number: "TRA001"

Location: "Delhi"

The screenshot shows a REST client interface with a sidebar on the left containing a list of requests under the 'Initiation' folder. The selected request is 'POST localhost:3000/registerCompany FedEx'. The main panel displays the details of this request, including the method (POST), URL (localhost:3000/registerCompany), and various tabs for configuration. The 'Body' tab is active, showing a JSON response in 'Pretty' format. The response indicates a successful registration with a status of 'success' and a message of 'Company Registered'. The response body includes a company object with details like companyId, name, location, organisationRole, and hierarchyKey.

Initiation / localhost:3000/registerCompany FedEx

POST localhost:3000/registerCompany

Params Authorization Headers (8) **Body** Pre-request Script Tests Settings Cookies

none form-data x-www-form-urlencoded raw binary GraphQL

Key	Value	Description
<input checked="" type="checkbox"/> location	Delhi	
<input checked="" type="checkbox"/> organisationRole	Transporter	
<input checked="" type="checkbox"/> organisation	Transporter	

Body Cookies Headers (7) Test Results

Status: 200 OK Time: 59.59 s Size: 481 B Save Response

Pretty Raw Preview Visualize JSON

```
1 {
2   "status": "success",
3   "message": "Company Registered",
4   "company": {
5     "companyId": "0org.pharma-network.pharmanet.companyid0TRA0010FedEx0",
6     "name": "FedEx",
7     "location": "Delhi",
8     "organisationRole": "Transporter",
9     "hierarchyKey": ""
10  }
11 }
```

Create another Transporter with the following details

Name: "Blue Dart"

CRN Number: "TRA002"

Location: "Bangalore"

The screenshot shows a REST client interface with a sidebar on the left containing a tree view of requests. The main panel displays a POST request to `localhost:3000/registerCompany` with the following parameters:

KEY	VALUE	DESCRIPTION
<input checked="" type="checkbox"/> companyCRN	TRA002	
<input checked="" type="checkbox"/> companyName	Blue Dart	
<input checked="" type="checkbox"/> location	Bangalore	
<input checked="" type="checkbox"/> organisationRole	Transporter	
<input checked="" type="checkbox"/> organisation	Transporter	
Key	Value	Description

The response body is shown in JSON format:

```
1 {
2   "status": "success",
3   "message": "Company Registered",
4   "company": {
5     "companyId": "0org.pharma-network.phazmanet.companyid0TRA0020Blue Dart0",
6     "name": "Blue Dart",
7     "location": "Bangalore",
8     "organisationRole": "Transporter",
9     "hierarchyKey": ""
10  }
11 }
```

The status bar at the bottom indicates a successful response: Status: 200 OK, Time: 133 ms, Size: 493 B.

Create a Distributor with the following details

Name: "VG Pharm"

CRN Number: "DIST001"

Location: "Vizag"

The screenshot displays a REST client interface with a sidebar on the left containing a project tree. The main area shows the details of a POST request to `localhost:3000/registerCompany`. The request body is in x-www-form-urlencoded format, with the following data:

KEY	VALUE	DESCRIPTION
<input checked="" type="checkbox"/> companyCRN	DIST001	
<input checked="" type="checkbox"/> companyName	VG Pharma	
<input checked="" type="checkbox"/> location	Vizag	
<input checked="" type="checkbox"/> organisationRole	Distributor	
<input checked="" type="checkbox"/> organisation	Distributor	
Key	Value	Description

The response is shown in JSON format, indicating a successful registration:

```
1 {
2   "status": "success",
3   "message": "Company Registered",
4   "company": {
5     "companyId": "6org.pharma-network.pharmanet.companyid6DIST0016VG Pharma6",
6     "name": "VG Pharma",
7     "location": "Vizag",
8     "organisationRole": "Distributor",
9     "hierarchyKey": "2"
10  }
11 }
```

The status bar at the bottom shows "Status: 200 OK", "Time: 1 m 8.88 s", and "Size: 491 B".



Create a Retailer with the following details

Name: "Upgrad"

CRN Number: "RET002"

Location: "Mumbai"

The screenshot shows a REST client interface with a sidebar on the left containing a tree view of requests. The main panel displays a POST request to `localhost:3000/registerCompany` with the following body:

KEY	VALUE	DESCRIPTION
<input checked="" type="checkbox"/> companyCRN	RET002	
<input checked="" type="checkbox"/> companyName	upgrad	
<input checked="" type="checkbox"/> location	Mumbai	
<input checked="" type="checkbox"/> organisationRole	Retailer	
<input checked="" type="checkbox"/> organisation	Retailer	
Key	Value	Description

The response is shown in the 'Body' tab, indicating a successful status (200 OK) with a response time of 1 m 41.04 s and a size of 482 B. The response body is a JSON object:

```
1 {
2   "status": "success",
3   "message": "Company Registered",
4   "company": {
5     "companyId": "0org.pharma-network.phazmanet.companyid0RET0020upgrad0",
6     "name": "upgrad",
7     "location": "Mumbai",
8     "organisationRole": "Retailer",
9     "hierarchyKey": "3"
10  }
11 }
```

The bottom of the interface includes a search bar, a console, and a status bar with various tool icons.

Create 4 strips of a drug name 'Paracetamol' with serial number starting from '001' to '004'

[illegible]

Drug Counterfeiting

NewImport

Collections

+

...

AddToWallet

History

Initiation

POST localhost:3000/registerCompan...

POST localhost:3000/registerCompan...

POST localhost:3000/registerCompan...

POST localhost:3000/registerCompan...

POST localhost:3000/registerCompan...

POST localhost:3000/addDrug 001

POST localhost:3000/addDrug 002

POST localhost:3000/addDrug 003

POST localhost:3000/addDrug 004

Supply Chain

test

Environments

Mock Servers

Monitors

Flows

History

Initiation / localhost:3000/addDrug 002

POSTlocalhost:3000/addDrug

Send

ParamsAuthorizationHeaders (8)BodyPre-request ScriptTestsSettings

noneform-datax-www-form-urlencodedrawbinaryGraphQL

KEY	VALUE	DESCRIPTION
<input checked="" type="checkbox"/> drugName	Paracetamol	
<input checked="" type="checkbox"/> serialNo	002	
<input checked="" type="checkbox"/> mfgDate	06082022	
<input checked="" type="checkbox"/> expDate	06082023	
<input checked="" type="checkbox"/> companyCRN	MAN001	
<input checked="" type="checkbox"/> organisation	Manufacturer	
Key	Value	Description

BodyCookiesHeaders (7)Test Results

Status: 200 OKTime: 105 msSize: 664 BSave Response

PrettyRawPreviewVisualizeJSON

```
1
2  "status": "success",
3  "message": "Drug added",
4  "drug": {
5    "productId": "0org.pharma-network.pharmanet.productid0Paracetamol00020",
6    "name": "Paracetamol",
7    "manufacturer": "0org.pharma-network.pharmanet.companyid0MAN0010Sun Pharma0",
8    "manufacturingDate": "06082022",
9    "expiryDate": "06082023",
10   "owner": "0org.pharma-network.pharmanet.companyid0MAN0010Sun Pharma0",
11   "shipment": ""
12 }
13
```

OnlineFind and ReplaceConsole

CookiesCapture requestsBootcampRunnerTrash

Drug Counterfeiting

New Import

POST localhost:3000/registerCompan...

POST localhost:3000/registerCompan...

POST localhost:3000/registerCompan...

POST localhost:3000/registerCompan...

POST localhost:3000/registerCompan...

POST localhost:3000/addDrug 001

POST localhost:3000/addDrug 002

POST localhost:3000/addDrug 003

POST localhost:3000/addDrug 004

Supply Chain

test

Initiation / localhost:3000/addDrug 003

POST

localhost:3000/addDrug

Send

Params

Authorization

Headers (8)

Body

Pre-request Script

Tests

Settings

none

form-data

x-www-form-urlencoded

raw

binary

GraphQL

KEY	VALUE	DESCRIPTION
<input checked="" type="checkbox"/> drugName	Paracetamol	
<input checked="" type="checkbox"/> serialNo	003	
<input checked="" type="checkbox"/> mfgDate	06082022	
<input checked="" type="checkbox"/> expDate	06082023	
<input checked="" type="checkbox"/> companyCRN	MAN001	
<input checked="" type="checkbox"/> organisation	Manufacturer	
Key	Value	Description

Body

Cookies

Headers (7)

Test Results

Status: 200 OK

Time: 115 ms

Size: 664 B

Save Response

Pretty

Raw

Preview

Visualize

JSON

```

1  {
2    "status": "success",
3    "message": "Drug added",
4    "drug": {
5      "productId": "org.pharma-network.pharmanet.productid0Paracetamol00030",
6      "name": "Paracetamol",
7      "manufacturer": "org.pharma-network.pharmanet.companyid0MAN0010Sun Pharma0",
8      "manufacturingDate": "06082022",
9      "expiryDate": "06082023",
10     "owner": "org.pharma-network.pharmanet.companyid0MAN0010Sun Pharma0",
11     "shipment": ""
12   }
13 }
```

Drug Counterfeiting

NewImport

Collections

APIs

Environments

Mock Servers

Monitors

Flows

History

AddToWallet

History

Initiation

POST localhost:3000/registerCompan...

POST localhost:3000/registerCompan...

POST localhost:3000/registerCompan...

POST localhost:3000/registerCompan...

POST localhost:3000/registerCompan...

POST localhost:3000/addDrug 001

POST localhost:3000/addDrug 002

POST localhost:3000/addDrug 003

POST localhost:3000/addDrug 004

Supply Chain

test

Initiation / localhost:3000/addDrug 004

Save

Send

POST

localhost:3000/addDrug

Params

Authorization

Headers (8)

Body

Pre-request Script

Tests

Settings

none

form-data

x-www-form-urlencoded

raw

binary

GraphQL

KEY	VALUE	DESCRIPTION
<input checked="" type="checkbox"/> drugName	Paracetamol	
<input checked="" type="checkbox"/> serialNo	004	
<input checked="" type="checkbox"/> mfgDate	06082022	
<input checked="" type="checkbox"/> expDate	06082023	
<input checked="" type="checkbox"/> companyCRN	MAN001	
<input checked="" type="checkbox"/> organisation	Manufacturer	

Key

Value

Description

Body

Cookies

Headers (7)

Test Results

Status: 200 OK

Time: 135 ms

Size: 664 B

Save Response

Pretty

Raw

Preview

Visualize

JSON

```
1  {
2    "status": "success",
3    "message": "Drug added",
4    "drug": {
5      "productId": "org.pharma-network.pharmanet.productid0Paracetamol00040",
6      "name": "Paracetamol",
7      "manufacturer": "org.pharma-network.pharmanet.companyid0MAN0010Sun Pharma0",
8      "manufacturingDate": "06082022",
9      "expiryDate": "06082023",
10     "owner": "org.pharma-network.pharmanet.companyid0MAN0010Sun Pharma0",
11     "shipment": ""
12   }
13 }
```

Online

Find and Replace

Console

Cookies

Capture requests

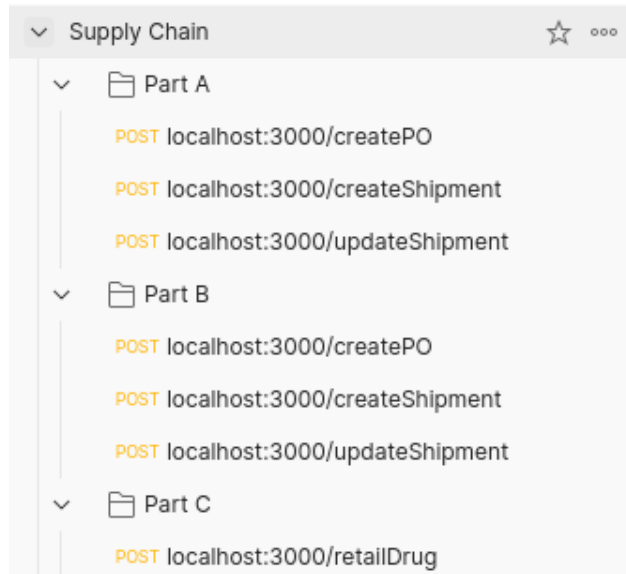
Bootcamp

Runner

Trash

## Test Case 2 – Supply chain

Create a collection file name 'Supply Chain' which contains the HTTP requests to perform the following functions





## Part A

Purchase Order raised by 'VG Pharma' to purchase 3 strips of 'Paracetamol' from 'Sun Pharma'

+

☰

...

> AddToWallet

> History

> Initiation

> Supply Chain

> Part A

> Part B

> Part C

> test

POST localhost:3000/createPO

POST localhost:3000/createShipment

POST localhost:3000/updateShipment

POST localhost:3000/createPO

POST localhost:3000/createShipment

POST localhost:3000/updateShipment

POST localhost:3000/retailDrug

Supply Chain / Part A / localhost:3000/createPO

Save

⌵

...

✎

💬

POST ⌵ localhost:3000/createPO

Params

Authorization

Headers (8)

Body ●

Pre-request Script

Tests ●

Settings

● none

● form-data

● x-www-form-urlencoded

● raw

● binary

● GraphQL

	KEY	VALUE	DESCRIPTION	...	Bulk Ed
<input checked="" type="checkbox"/>	buyerCRN	DIST001			
<input checked="" type="checkbox"/>	sellerCRN	MAN001			
<input checked="" type="checkbox"/>	drugName	Paracetamol			
<input checked="" type="checkbox"/>	quantity	3			
<input checked="" type="checkbox"/>	organisation	Distributor			
	Key	Value	Description		

Body

Cookies

Headers (7)

Test Results

🌐

Status: 200 OK

Time: 295 ms

Size: 634 B

Save Response

⌵

Pretty

Raw

Preview

Visualize

JSON ⌵

☰

```

1  {
2    "status": "success",
3    "message": "Purchase order created",
4    "purchaseOrder": {
5      "poID": "0org.pharma-network.pharmanet.purchaseOrderId0DIST0010Paracetamol0",
6      "drugName": "Paracetamol",
7      "quantity": "3",
8      "buyer": "0org.pharma-network.pharmanet.companyid0DIST0010VG Pharma0",
9      "seller": "0org.pharma-network.pharmanet.companyid0MAN0010Sun Pharma0"
10   }
11 }
```

Shipment created by 'Sun Pharma' in response to the raised purchase order. 'FedEx' acts as the Transporter

+

☰

...

Supply Chain / Part A / localhost:3000/createShipment

Save

⌵

...

✎

☰

> AddToWallet

> History

> Initiation

> Supply Chain

☰

Part A

POST localhost:3000/createPO

POST localhost:3000/createShipment

POST localhost:3000/updateShipment

☰

Part B

POST localhost:3000/createPO

POST localhost:3000/createShipment

POST localhost:3000/updateShipment

☰

Part C

POST localhost:3000/retailDrug

> test

POST

⌵

localhost:3000/createShipment

Send

⌵

Params

Authorization

Headers (8)

Body

Pre-request Script

Tests

Settings

● none

● form-data

● x-www-form-urlencoded

● raw

● binary

● GraphQL

	KEY	VALUE	DESCRIPTION	...	Bulk Edit
<input checked="" type="checkbox"/>	buyerCRN	DIST001			
<input checked="" type="checkbox"/>	drugName	Paracetamol			
<input checked="" type="checkbox"/>	listOfAssets	001,002,003			
<input checked="" type="checkbox"/>	transporterCRN	TRA001			
<input checked="" type="checkbox"/>	organisation	Manufacturer			
	Key	Value	Description		

Body

Cookies

Headers (7)

Test Results

⚙️

Status: 200 OK

Time: 224 ms

Size: 856 B

Save Response

⌵

Pretty

Raw

Preview

Visualize

JSON

⌵

☰

```

1  {
2    "status": "success",
3    "message": "Shipment created",
4    "shipment": {
5      "shipmentId": "0org.pharma-network.pharmanet.shipmentid0DIST0010Paracetamol0",
6      "creator": "0org.pharma-network.pharmanet.companyid0MAN0010Sun Pharma0",
7      "assets": ["0org.pharma-network.pharmanet.productid0Paracetamol00010", "0org.pharma-network.pharmanet.productid0Paracetamol00020", "0org.pharma-network.pharmanet.productid0Paracetamol00030"],
8      "transporter": "0org.pharma-network.pharmanet.companyid0TRA0010FedEx0",
9      "status": "in-transit"
10   }
11 }
12

```

'FedEx' delivers the shipment to 'VG Pharma'

+

☰

...

Supply Chain / Part A / localhost:3000/updateShipment

Save

⌵

...

✎

💬

> AddToWallet

> History

> Initiation

> Supply Chain

☰

Part A

POST localhost:3000/createPO

POST localhost:3000/createShipment

POST localhost:3000/updateShipment

> Part B

POST localhost:3000/createPO

POST localhost:3000/createShipment

POST localhost:3000/updateShipment

> Part C

POST localhost:3000/retailDrug

> test

POST

⌵

localhost:3000/updateShipment

Send

⌵

Params

Authorization

Headers (8)

Body

Pre-request Script

Tests

Settings

Cookies

● none

● form-data

● x-www-form-urlencoded

● raw

● binary

● GraphQL

	KEY	VALUE	DESCRIPTION	...	Bulk Edit
<input checked="" type="checkbox"/>	buyerCRN	DIST001			
<input checked="" type="checkbox"/>	drugName	Paracetamol			
<input checked="" type="checkbox"/>	transporterCRN	TRA001			
<input checked="" type="checkbox"/>	organisation	Transporter			
	Key	Value	Description		

Body

Cookies

Headers (7)

Test Results

Status: 200 OK

Time: 149 ms

Size: 862 B

Save Response

⌵

Pretty

Raw

Preview

Visualize

JSON

⌵

☰

```

1  {
2    "status": "success",
3    "message": "Shipment updated",
4    "updatedShipment": {
5      "shipmentId": "org.pharma-network.phazmanet.shipmentidDIST001Paracetamol",
6      "creator": "org.pharma-network.phazmanet.companyidMAN001Sun Pharma",
7      "assets": [
8        "org.pharma-network.phazmanet.productidParacetamol0001",
9        "org.pharma-network.phazmanet.productidParacetamol0002",
10       "org.pharma-network.phazmanet.productidParacetamol0003"
11     ],
12     "transporter": "org.pharma-network.phazmanet.companyidTRA001FedEx",
13     "status": "Delivered"
14   }
15 }

```

## Part B

Purchase Order raised by 'Upgrad' to purchase 2 strips of 'Paracetamol' from 'VG Pharma'

Supply Chain / Part B / localhost:3000/createPO

POST

localhost:3000/createPO

Send

Params

Authorization

Headers (8)

Body

Pre-request Script

Tests

Settings

none

form-data

x-www-form-urlencoded

raw

binary

GraphQL

KEY	VALUE	DESCRIPTION
<input checked="" type="checkbox"/> buyerCRN	RET002	
<input checked="" type="checkbox"/> sellerCRN	DIST001	
<input checked="" type="checkbox"/> drugName	Paracetamol	
<input checked="" type="checkbox"/> quantity	2	
<input checked="" type="checkbox"/> organisation	Retailer	
Key	Value	Description

Body

Cookies

Headers (7)

Test Results

Status: 200 OK

Time: 2.25 s

Size: 629 B

Cancel

Pretty

Raw

Preview

Visualize

JSON

```
1  {
2    "status": "success",
3    "message": "Purchase order created",
4    "purchaseOrder": {
5      "poID": "org.pharma-network.pharmanet.purchaseOrderIdRET002Paracetamol",
6      "drugName": "Paracetamol",
7      "quantity": "2",
8      "buyer": "org.pharma-network.pharmanet.companyidRET002Upgrad",
9      "seller": "org.pharma-network.pharmanet.companyidDIST001VG Pharma"
10   }
11 }
```

AddToWallet

History

Initiation

Supply Chain

Part A

POST localhost:3000/createPO

POST localhost:3000/createShipment

POST localhost:3000/updateShipment

Part B

POST localhost:3000/createPO

POST localhost:3000/createShipment

POST localhost:3000/updateShipment

Part C

POST localhost:3000/retailDrug

test

Shipment created by 'VG Pharma' in response to the raised purchase order. 'Blue Dart' acts as the Transporter

+

☰

...

Supply Chain / Part B / localhost:3000/createShipment

Save

...

✎

🗨

POST

localhost:3000/createShipment

Send

Params

Authorization

Headers (8)

Body

Pre-request Script

Tests

Settings

none

form-data

x-www-form-urlencoded

raw

binary

GraphQL

KEY	VALUE	DESCRIPTION	...	Bulk Edit
<input checked="" type="checkbox"/> buyerCRN	RET002			
<input checked="" type="checkbox"/> drugName	Paracetamol			
<input checked="" type="checkbox"/> listOfAssets	001,002			
<input checked="" type="checkbox"/> transporterCRN	TRA002			
<input checked="" type="checkbox"/> organisation	Manufacturer			
Key	Value	Description		

Body

Cookies

Headers (7)

Test Results

Status: 200 OK

Time: 2.24 s

Size: 780 B

Cancel

Pretty

Raw

Preview

Visualize

JSON

☑

☰

```

1  {
2    "status": "success",
3    "message": "Shipment created",
4    "shipment": {
5      "shipmentId": "0org.pharma-network.pharmanet.shipmentid0RET0020Paracetamol0",
6      "creator": "0org.pharma-network.pharmanet.companyid0DIST0010VG Pharma0",
7      "assets": ["0org.pharma-network.pharmanet.productid0Paracetamol00010", "0org.pharma-network.pharmanet.productid0Paracetamol00020"],
8    },
9    "transporter": "0org.pharma-network.pharmanet.companyid0TRA0020Blue Dart0",
10   "status": "in-transit"
11 }
12

```

'Blue Dart' delivers the shipment to 'Upgrad'

+

☰

...

> AddToWallet

> History

☆

...

> Initiation

> Supply Chain

> Part A

POST localhost:3000/createPO

POST localhost:3000/createShipment

POST localhost:3000/updateShipment

> Part B

POST localhost:3000/createPO

POST localhost:3000/createShipment

POST localhost:3000/updateShipment

> Part C

POST localhost:3000/retailDrug

> test

Supply Chain / Part B / localhost:3000/updateShipment

Save

⌵

...

POST

⌵

localhost:3000/updateShipment

Send

⌵

Params

Authorization

Headers (8)

Body

Pre-request Script

Tests

Settings

none

form-data

x-www-form-urlencoded

raw

binary

GraphQL

	KEY	VALUE	DESCRIPTION	...	Bulk Ed
<input checked="" type="checkbox"/>	buyerCRN	RET002			
<input checked="" type="checkbox"/>	drugName	Paracetamol			
<input checked="" type="checkbox"/>	transporterCRN	TRA002			
<input checked="" type="checkbox"/>	organisation	Transporter			
	Key	Value	Description		

Body

Cookies

Headers (7)

Test Results

Status: 200 OK

Time: 73 ms

Size: 786 B

Save Response

⌵

Pretty

Raw

Preview

Visualize

JSON

⌵

1

2

3

4

5

6

7

8

9

10

11

12

```
{
  "status": "success",
  "message": "Shipment updated",
  "updatedShipment": {
    "shipmentId": "0org.pharma-network.pharmanet.shipmentid0RET0020Paracetamol0",
    "creator": "0org.pharma-network.pharmanet.companyid0DIST0010VG Pharma0",
    "assets": [
      "0org.pharma-network.pharmanet.productid0Paracetamol00010",
      "0org.pharma-network.pharmanet.productid0Paracetamol00020"
    ],
    "transporter": "0org.pharma-network.pharmanet.companyid0TRA0020Blue Dart0",
    "status": "Delivered"
  }
}
```



## Part C

A Customer name 'Akash' with Aadhar number 'AAD001' buy 1 'Paracetamol' strip from the retailer 'Upgrad'

+

☰

Supply Chain / Part C / localhost:3000/retailDrug

...

Save

...

✎

📄

POST

localhost:3000/retailDrug

Send

Params

Authorization

Headers (8)

Body

Pre-request Script

Tests

Settings

none

form-data

x-www-form-urlencoded

raw

binary

GraphQL

KEY	VALUE	DESCRIPTION	...	Bulk Edit
<input checked="" type="checkbox"/> drugName	Paracetamol			
<input checked="" type="checkbox"/> serialNo	001			
<input checked="" type="checkbox"/> retailerCRN	RET002			
<input checked="" type="checkbox"/> customerAadhar	AAD001			
<input checked="" type="checkbox"/> organisation	Retailer			
Key	Value	Description		

Body

Cookies

Headers (7)

Test Results

Status: 200 OK Time: 94 ms Size: 687 B Save Response

Pretty

Raw

Preview

Visualize

JSON

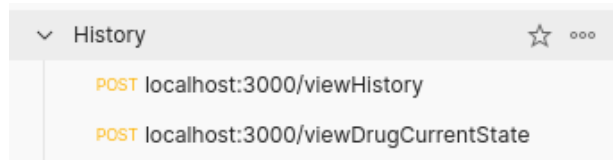
...

🔍

```
1
2  "status": "success",
3  "message": "Drug sold to consumer",
4  "drugSold": {
5    "productId": "org.pharma-network.phazmanet.productid0Paracetamol00010",
6    "name": "Paracetamol",
7    "manufacturer": "org.pharma-network.phazmanet.companyid0MAN0010Sun Pharma0",
8    "manufacturingDate": "06082022",
9    "expiryDate": "06082023",
10   "owner": "AAD001",
11   "shipment": "org.pharma-network.phazmanet.shipmentid0RET0020Paracetamol0"
12 }
13
```

## Test Case 3 – History

Create a collection file name 'History' which contains the HTTP requests to perform the following functions



*The Customer 'Akash' wishes to check the history of the 'Paracetamol' that he brought from 'Upgrad'*

A screenshot of a REST client interface showing a POST request to 'localhost:3000/viewHistory'. The request body is a JSON object with the following structure:

```
{
  "drugName": "Paracetamol",
  "serialNo": "001",
  "organisation": "Consumer"
}
```

The response is a JSON object with the following structure:

```
{
  "status": "success",
  "message": "History of drug displayed",
  "history": [
    {
      "TxId": "0d86d639f4d60b31c0fe10350344f23c08619cc513a4384ed16fcd48b6b54f2",
      "Timestamp": {
        "seconds": {
          "low": 1660487270,
          "high": 0,
          "unsigned": false
        },
        "nanos": 899000000
      },
      "Value": {
        "productId": "org.pharma-network.pharmanet.productid0Paracetamol00010",
        "name": "Paracetamol",
        "manufacturer": "org.pharma-network.pharmanet.companyid0MAN0010Sun Pharma0",
        "manufacturingDate": "06082022"
      }
    }
  ]
}
```

The response status is 200 OK, Time: 43.76 s, Size: 3.7 KB. The response is saved.

```

19      "manufacturingDate": "06082022",
20      "expiryDate": "06082023",
21      "owner": "0org.pharma-network.pharmanet.companyid0MAN0010Sun Pharma0",
22      "shipment": ""
23    }
24  },
25  {
26    "TxId": "15242dc706ded5ee17984176a88c8b3166509aaa331ef8773d0a20a3f58768f8",
27    "Timestamp": {
28      "seconds": {
29        "low": 1660487986,
30        "high": 0,
31        "unsigned": false
32      },
33      "nanos": 178000000
34    },
35    "Value": {
36      "productId": "0org.pharma-network.pharmanet.productid0Paracetamol00010",
37      "name": "Paracetamol",
38      "manufacturer": "0org.pharma-network.pharmanet.companyid0MAN0010Sun Pharma0",
39      "manufacturingDate": "06082022",
40      "expiryDate": "06082023",
41      "owner": "0org.pharma-network.pharmanet.companyid0TRA0010FedEx0",
42      "shipment": ""
43    }
44  },
45  {
46    "TxId": "3dc486fef862138218e19a81441fe77b9d7e61c30bcf4d2b2883c1ea26dd47dd",

```

```

47    "Timestamp": {
48      "seconds": {
49        "low": 1660488451,
50        "high": 0,
51        "unsigned": false
52      },
53      "nanos": 802000000
54    },
55    "Value": {
56      "productId": "0org.pharma-network.pharmanet.productid0Paracetamol00010",
57      "name": "Paracetamol",
58      "manufacturer": "0org.pharma-network.pharmanet.companyid0MAN0010Sun Pharma0",
59      "manufacturingDate": "06082022",
60      "expiryDate": "06082023",
61      "owner": "0org.pharma-network.pharmanet.companyid0DIST0010VG Pharma0",
62      "shipment": "0org.pharma-network.pharmanet.shipmentid0DIST0010Paracetamol0"
63    }
64  },
65  {
66    "TxId": "478bfd2591b44eec3bbe7467f4f6398c8756eec981a7133a9b6af9a7933b730b",
67    "Timestamp": {
68      "seconds": {
69        "low": 1660488680,
70        "high": 0,
71        "unsigned": false
72      },
73      "nanos": 388000000
74    },

```

```

75     "Value": {
76         "productId": "0org.pharma-network.pharmanet.productid0Paracetamol00010",
77         "name": "Paracetamol",
78         "manufacturer": "0org.pharma-network.pharmanet.companyid0MAN0010Sun Pharma0",
79         "manufacturingDate": "06082022",
80         "expiryDate": "06082023",
81         "owner": "0org.pharma-network.pharmanet.companyid0TRA0020Blue Dart0",
82         "shipment": "0org.pharma-network.pharmanet.shipmentid0DIST0010Paracetamol0"
83     },
84 },
85 {
86     "TxId": "8f5c66de294bf9def428098d16d9ee06a23619c738be9e01cc7542807d87aeb8",
87     "Timestamp": {
88         "seconds": {
89             "low": 1660488792,
90             "high": 0,
91             "unsigned": false
92         },
93         "nanos": 61000000
94     },
95     "Value": {
96         "productId": "0org.pharma-network.pharmanet.productid0Paracetamol00010",
97         "name": "Paracetamol",
98         "manufacturer": "0org.pharma-network.pharmanet.companyid0MAN0010Sun Pharma0",
99         "manufacturingDate": "06082022",
100        "expiryDate": "06082023",
101        "owner": "0org.pharma-network.pharmanet.companyid0RET0020upgrad0",
102        "shipment": "0org.pharma-network.pharmanet.shipmentid0RET0020Paracetamol0"
103    }
104 }
105 ]
106 {
107     "TxId": "426c6706cc8f5f20d7ecb8a47172eb52df69fa8e5d5c1a5f5865b8d4c37b9fe4",
108     "Timestamp": {
109         "seconds": {
110             "low": 1660488987,
111             "high": 0,
112             "unsigned": false
113         },
114         "nanos": 142000000
115     },
116     "Value": {
117         "productId": "0org.pharma-network.pharmanet.productid0Paracetamol00010",
118         "name": "Paracetamol",
119         "manufacturer": "0org.pharma-network.pharmanet.companyid0MAN0010Sun Pharma0",
120         "manufacturingDate": "06082022",
121         "expiryDate": "06082023",
122         "owner": "AAD001",
123         "shipment": "0org.pharma-network.pharmanet.shipmentid0RET0020Paracetamol0"
124     }
125 }
126 }

```

```

99         "manufacturingDate": "06082022",
100        "expiryDate": "06082023",
101        "owner": "0org.pharma-network.pharmanet.companyid0RET0020upgrad0",
102        "shipment": "0org.pharma-network.pharmanet.shipmentid0RET0020Paracetamol0"
103    }
104 },
105 {
106     "TxId": "426c6706cc8f5f20d7ecb8a47172eb52df69fa8e5d5c1a5f5865b8d4c37b9fe4",
107     "Timestamp": {
108         "seconds": {
109             "low": 1660488987,
110             "high": 0,
111             "unsigned": false
112         },
113         "nanos": 142000000
114     },
115     "Value": {
116         "productId": "0org.pharma-network.pharmanet.productid0Paracetamol00010",
117         "name": "Paracetamol",
118         "manufacturer": "0org.pharma-network.pharmanet.companyid0MAN0010Sun Pharma0",
119         "manufacturingDate": "06082022",
120         "expiryDate": "06082023",
121         "owner": "AAD001",
122         "shipment": "0org.pharma-network.pharmanet.shipmentid0RET0020Paracetamol0"
123     }
124 }
125 ]
126 }

```

The Customer 'Akash' wishes to check the current state of the 'Paracetamol' that he brought from 'Upgrad'

+

☰

...

> AddToWallet

> History

POST localhost:3000/viewHistory

POST localhost:3000/viewDrugCurrentState

> Initiation

> Supply Chain

> test

History / localhost:3000/viewDrugCurrentState

Save

...

✎

💬

POST localhost:3000/viewDrugCurrentState

Send

...

Params

Authorization

Headers (8)

Body

Pre-request Script

Tests

Settings

Cookies

● none

● form-data

● x-www-form-urlencoded

● raw

● binary

● GraphQL

	KEY	VALUE	DESCRIPTION	...	Bulk Edit
<input checked="" type="checkbox"/>	drugName	Paracetamol			
<input checked="" type="checkbox"/>	serialNo	001			
<input checked="" type="checkbox"/>	organisation	Consumer			
	Key	Value	Description		

Body

Cookies

Headers (7)

Test Results

🌐 Status: 200 OK Time: 64 ms Size: 701 B

Save Response

Pretty

Raw

Preview

Visualize

JSON

☰

```
1  [
2    "status": "success",
3    "message": "Current state of drug displayed",
4    "currentState": {
5      "productId": "0org.pharma-network.pharmanet.productid0Paracetamol00010",
6      "name": "Paracetamol",
7      "manufacturer": "0org.pharma-network.pharmanet.companyid0MAN0010Sun Pharma0",
8      "manufacturingDate": "06082022",
9      "expiryDate": "06082023",
10     "owner": "AAD001",
11     "shipment": "0org.pharma-network.pharmanet.shipmentid0RET0020Paracetamol0"
12   }
13 ]
```