CAPSTONE PROJECT – DRUG COUNTERFIET

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Table of contents

Introduction

Before getting into test cases and proving the project, we need to make sure "Crypto materials" are generated and the "Network is up" and the chain code is "Installed.". All these steps are performed as shown in the below images.

File Edit View Search Terminal Help

```
urs ago                                       dev-peer0.distributor.pharma-network.com-pharmanet-1.1
d985388bc133        dev-peer0.manufacturer.pharma-network.com-pharmanet-1.1-941d9f41fb3927bb09dd9345376e89e8c838651f9ca9196ab5ff6d70be099b48   "/bin/sh -c 'cd /usr…"   20 hours ago        Exited (0) 17 ho
urs ago                                       dev-peer0.manufacturer.pharma-network.com-pharmanet-1.1
3918a8a40ead        dev-peer0.manufacturer.pharma-network.com-pharmanet-1.0-1654e354abbde00c300a7475f4ebb874dce6b7fc6e339118f46d979a32d5f7c1   "/bin/sh -c 'cd /usr…"   20 hours ago        Exited (0) 17 ho
urs ago                                       dev-peer0.manufacturer.pharma-network.com-pharmanet-1.0
Sleeping 10s to allow cluster to complete booting
```

```
 ____  _____  _    ____  _____
/ ___||_   _|/ \  |  _ \|_   _|
\___ \  | | / _ \ | |_) | | |
 ___) | | |/ ___ \|  _ <  | |
|____/  |_/_/   \_\_| \_\ |_|
```

Setting Up Hyperledger Fabric Network

Channel name : pharmachannel
+ peer channel create -o orderer.pharma-network.com:7050 -c pharmachannel -f ./channel-artifacts/channel.tx
Creating channel...
+ res=0
+ set +x
2020-02-16 02:20:33.565 UTC [channelCmd] InitCmdFactory -> INFO 001 Endorser and orderer connections initialized
2020-02-16 02:20:33.846 UTC [cli.common] readBlock -> INFO 002 Received block: 0
===================== Channel 'pharmachannel' created =====================

Having all peers join the channel...
+ echo 'peer0.manufacturer going to join channel'
peer0.manufacturer going to join channel
+ peer channel join -b pharmachannel.block
+ res=0
+ set +x
2020-02-16 02:20:33.786 UTC [channelCmd] InitCmdFactory -> INFO 001 Endorser and orderer connections initialized
2020-02-16 02:20:33.846 UTC [channelCmd] executeJoin -> INFO 002 Successfully submitted proposal to join channel
===================== peer0.manufacturer.pharma-network.com joined channel 'pharmachannel' =====================

+ echo 'peer1.manufacturer going to join channel'
peer1.manufacturer going to join channel
+ peer channel join -b pharmachannel.block
+ res=0
+ set +x
2020-02-16 02:20:39.084 UTC [channelCmd] InitCmdFactory -> INFO 001 Endorser and orderer connections initialized
2020-02-16 02:20:39.172 UTC [channelCmd] executeJoin -> INFO 002 Successfully submitted proposal to join channel
===================== peer1.manufacturer.pharma-network.com joined channel 'pharmachannel' =====================

+ echo 'peer0.distributor going to join channel'
peer0.distributor going to join channel
+ peer channel join -b pharmachannel.block
+ res=0
+ set +x
```

upgrad@upgrad-VirtualBox: ~/workspace/pharma-network/network

File Edit View Search Terminal Help

```
CONTAINER ID      IMAGE                                                                          COMMAND              CREATED           STATUS
       PORTS                                    NAMES
1f22d326db2b      hyperledger/fabric-tools:latest                                                "/bin/bash"          3 seconds ago     Up Less than a s
econd                                          cli
3bff2a68079a      hyperledger/fabric-peer:latest                                                 "peer node start --p…" 35 seconds ago  Up 3 seconds
       0.0.0.0:9051->9051/tcp, 0.0.0.0:9053->9053/tcp   peer0.distributor.pharma-network.com
88761fd889ef      hyperledger/fabric-peer:latest                                                 "peer node start --p…" 35 seconds ago  Up 4 seconds
       0.0.0.0:11051->11051/tcp, 0.0.0.0:11053->11053/tcp  peer0.retailer.pharma-network.com
ee972da7ef29      hyperledger/fabric-ca:latest                                                   "sh -c 'fabric-ca-se…" 35 seconds ago  Up 3 seconds
       0.0.0.0:7054->7054/tcp                   ca.manufacturer.pharma-network.com
ed3ab8e1f983      hyperledger/fabric-ca:latest                                                   "sh -c 'fabric-ca-se…" 35 seconds ago  Up 12 seconds
       0.0.0.0:8054->7054/tcp                   ca.distributor.pharma-network.com
de0f8868d866      hyperledger/fabric-peer:latest                                                 "peer node start --p…" 35 seconds ago  Up 4 seconds
       0.0.0.0:12051->12051/tcp, 0.0.0.0:12053->12053/tcp  peer1.retailer.pharma-network.com
7b62fa0170c0      hyperledger/fabric-orderer:latest                                              "orderer"            36 seconds ago    Up 5 seconds
       0.0.0.0:7050->7050/tcp                   orderer.pharma-network.com
fd699a461d81      hyperledger/fabric-ccenv:latest                                                "/bin/bash -c 'sleep…" 36 seconds ago  Up 15 seconds
                                               chaincode
fb8ac95058fa      hyperledger/fabric-peer:latest                                                 "peer node start --p…" 36 seconds ago  Up 7 seconds
       0.0.0.0:13051->13051/tcp, 0.0.0.0:13053->13053/tcp  peer0.consumer.pharma-network.com
d9a89c6f33b0      hyperledger/fabric-ca:latest                                                   "sh -c 'fabric-ca-se…" 36 seconds ago  Up 10 seconds
       7054/tcp, 0.0.0.0:9054->9054/tcp         ca.retailer.pharma-network.com
5be4dea33430      hyperledger/fabric-peer:latest                                                 "peer node start --p…" 37 seconds ago  Up 4 seconds
       0.0.0.0:14051->14051/tcp, 0.0.0.0:14053->14053/tcp  peer1.consumer.pharma-network.com
8de8a2213ca3      hyperledger/fabric-peer:latest                                                 "peer node start --p…" 37 seconds ago  Up 5 seconds
       0.0.0.0:8051->8051/tcp, 0.0.0.0:8053->8053/tcp  peer1.manufacturer.pharma-network.com
277805ca573b      hyperledger/fabric-peer:latest                                                 "peer node start --p…" 37 seconds ago  Up 16 seconds
       0.0.0.0:7051->7051/tcp, 0.0.0.0:7053->7053/tcp  peer0.manufacturer.pharma-network.com
d8ad60fa103f      hyperledger/fabric-ca:latest                                                   "sh -c 'fabric-ca-se…" 37 seconds ago  Up 15 seconds
       7054/tcp, 0.0.0.0:10054->10054/tcp       ca.consumer.pharma-network.com
f277ba52f0d1      hyperledger/fabric-peer:latest                                                 "peer node start --p…" 37 seconds ago  Up 14 seconds
       0.0.0.0:16051->16051/tcp, 0.0.0.0:16053->16053/tcp  peer1.transporter.pharma-network.com
86edfbc2d807      hyperledger/fabric-peer:latest                                                 "peer node start --p…" 37 seconds ago  Up 8 seconds
       0.0.0.0:10051->10051/tcp, 0.0.0.0:10053->10053/tcp  peer1.distributor.pharma-network.com
37d9512a9c67      hyperledger/fabric-ca:latest                                                   "sh -c 'fabric-ca-se…" 37 seconds ago  Up 15 seconds
       7054/tcp, 0.0.0.0:11054->11054/tcp       ca.transporter.pharma-network.com
d6b978a09dbb      hyperledger/fabric-peer:latest                                                 "peer node start --p…" 38 seconds ago  Up 2 seconds
       0.0.0.0:15051->15051/tcp, 0.0.0.0:15053->15053/tcp  peer0.transporter.pharma-network.com
bb953ab87bfa      dev-peer0.retailer.pharma-network.com-pharmanet-1.1-65226a74d169555b961a3a5137c0734c2ea1493c7cdab8ffae52ae5506a6e893  "/bin/sh -c 'cd /usr…" 18 hours ago  Exited (0) 17 ho
urs ago                                        dev-peer0.retailer.pharma-network.com-pharmanet-1.1
523861f927c5      dev-peer0.transporter.pharma-network.com-pharmanet-1.1-6fbb3cff19badbd63e61939b5749a095b0c24b7d447f7cd37c9dbb7b8a21515d  "/bin/sh -c 'cd /usr…" 18 hours ago  Exited (0) 17 ho
urs ago                                        dev-peer0.transporter.pharma-network.com-pharmanet-1.1
6acf4c4b0bcd      dev-peer0.consumer.pharma-network.com-pharmanet-1.1-9297f1fe5e552f61bdb92558ac83cec983ea4dc71f323d6e65118eb6e1051242  "/bin/sh -c 'cd /usr…" 18 hours ago  Exited (0) 17 ho
urs ago                                        dev-peer0.consumer.pharma-network.com-pharmanet-1.1
729d62b16728      dev-peer0.distributor.pharma-network.com-pharmanet-1.1-d6cbc72fbbedc3a5d7c6823a4adb814cf4b83f53b14935ac5e1b30ffc19e6b12  "/bin/sh -c 'cd /usr…" 18 hours ago  Exited (0) 17 ho
urs ago                                        dev-peer0.distributor.pharma-network.com-pharmanet-1.1
d985388bc133      dev-peer0.manufacturer.pharma-network.com-pharmanet-1.1-941d9f41fb3927bb09dd9345376e89e8c838651f9ca9196ab5ff6d78be899b48  "/bin/sh -c 'cd /usr…" 20 hours ago  Exited (0) 17 ho
urs ago                                        dev-peer0.manufacturer.pharma-network.com-pharmanet-1.1
```

File Edit View Search Terminal Help

```
upgrad@upgrad-VirtualBox:~/workspace/pharma-network/network$ ./fabricNetwork.sh up
Starting for channel 'pharmachannel' with CLI timeout of '15' seconds and CLI delay of '5' seconds and chaincode version '1.0'
Continue? [Y/n]
proceeding ...
LOCAL_VERSION=1.4.2
DOCKER_IMAGE_VERSION=1.4.4
==================== WARNING ====================
  Local fabric binaries and docker images are
  out of  sync. This may cause problems.
================================================
Creating network "network_pharma-network" 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.consumer.pharma-network.com" with default driver
Creating volume "network_peer1.consumer.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 ca.transporter.pharma-network.com      ... done
Creating peer0.transporter.pharma-network.com  ... done
Creating peer1.distributor.pharma-network.com  ... done
Creating peer1.transporter.pharma-network.com  ... done
Creating ca.consumer.pharma-network.com         ... done
Creating peer0.manufacturer.pharma-network.com ... done
Creating peer1.manufacturer.pharma-network.com ... done
Creating peer0.consumer.pharma-network.com      ... done
Creating peer1.consumer.pharma-network.com      ... done
Creating ca.retailer.pharma-network.com         ... done
Creating chaincode                              ... done
Creating peer0.retailer.pharma-network.com      ... done
Creating orderer.pharma-network.com             ... done
Creating ca.distributor.pharma-network.com      ... done
Creating ca.manufacturer.pharma-network.com     ... done
Creating peer0.distributor.pharma-network.com  ... done
Creating peer1.retailer.pharma-network.com      ... done
Creating cli                                    ... done
CONTAINER ID        IMAGE                                                      COMMAND                  CREATED             STATUS
          PORTS                                           NAMES
1f22d326db2b        hyperledger/fabric-tools:latest                           "/bin/bash"              3 seconds ago       Up Less than a s
econd                                                     cli
3bff2a68879a        hyperledger/fabric-peer:latest                            "peer node start --p…"   35 seconds ago      Up 3 seconds
          0.0.0.0:9051->9051/tcp, 0.0.0.0:9053->9053/tcp  peer0.distributor.pharma-network.com
88761fd889ef        hyperledger/fabric-peer:latest                            "peer node start --p…"   35 seconds ago      Up 4 seconds
          0.0.0.0:11051->11051/tcp, 0.0.0.0:11053->11853/tcp  peer0.retailer.pharma-network.com
```

File Edit View Search Terminal Help

```
Installing chaincode on peer1.consumer.pharma-network.com ...
+ peer chaincode install -n pharmanet -v 1.0 -l node -p /opt/gopath/src/github.com/hyperledger/fabric/peer/chaincode/
+ res=0
+ set +x
2020-02-16 02:33:41.162 UTC [chaincodeCmd] checkChaincodeCmdParams -> INFO 001 Using default escc
2020-02-16 02:33:41.162 UTC [chaincodeCmd] checkChaincodeCmdParams -> INFO 002 Using default vscc
2020-02-16 02:33:41.170 UTC [chaincodeCmd] install -> INFO 003 Installed remotely response:<status:200 payload:"OK" >
==================== Chaincode is installed on peer1.consumer ====================

Installing chaincode on peer0.transporter.pharma-network.com ...
+ peer chaincode install -n pharmanet -v 1.0 -l node -p /opt/gopath/src/github.com/hyperledger/fabric/peer/chaincode/
+ res=0
+ set +x
2020-02-16 02:33:41.367 UTC [chaincodeCmd] checkChaincodeCmdParams -> INFO 001 Using default escc
2020-02-16 02:33:41.367 UTC [chaincodeCmd] checkChaincodeCmdParams -> INFO 002 Using default vscc
2020-02-16 02:33:41.370 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 1.0 -l node -p /opt/gopath/src/github.com/hyperledger/fabric/peer/chaincode/
+ res=0
+ set +x
2020-02-16 02:33:41.637 UTC [chaincodeCmd] checkChaincodeCmdParams -> INFO 001 Using default escc
2020-02-16 02:33:41.637 UTC [chaincodeCmd] checkChaincodeCmdParams -> INFO 002 Using default vscc
2020-02-16 02:33:41.654 UTC [chaincodeCmd] install -> INFO 003 Installed remotely response:<status:200 payload:"OK" >
==================== Chaincode is installed on peer1.transporter ====================

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 1.0 -c '{"Args":["org.pharma-network.com-pharmanet:instantiate"]}' -P 'OR ('\''manufacturerMSP.memb
er'\'','\''distributorMSP.member'\'','\''retailerMSP.member'\'','\''consumerMSP.member'\'','\''transporterMSP.member'\'')'
+ res=0
+ set +x
2020-02-16 02:33:41.878 UTC [chaincodeCmd] checkChaincodeCmdParams -> INFO 001 Using default escc
2020-02-16 02:33:41.878 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




upgrad@upgrad-VirtualBox:~/workspace/pharma-network/network$
```

File Edit View Search Terminal Help

```
upgrad@upgrad-VirtualBox:~/workspace/pharma-network/network$ ./fabricNetwork.sh install
Installing chaincode for channel 'pharmachannel' with CLI timeout of '15' seconds and CLI delay of '5' seconds and chaincode version '1.0'
Continue? [Y/n]
proceeding ...
LOCAL_VERSION=1.4.2
DOCKER_IMAGE_VERSION=1.4.4
=================== WARNING ===================
  Local fabric binaries and docker images are
  out of  sync. This may cause problems.
==============================================



Deploying Chaincode PHARMANET On PHARMA Network

Channel name : pharmachannel
+ peer chaincode install -n pharmanet -v 1.0 -l node -p /opt/gopath/src/github.com/hyperledger/fabric/peer/chaincode/
Installing chaincode on peer0.manufacturer.pharma-network.com ...
+ res=0
+ set +x
2020-02-16 02:33:39.824 UTC [chaincodeCmd] checkChaincodeCmdParams -> INFO 001 Using default escc
2020-02-16 02:33:39.824 UTC [chaincodeCmd] checkChaincodeCmdParams -> INFO 002 Using default vscc
2020-02-16 02:33:39.838 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 1.0 -l node -p /opt/gopath/src/github.com/hyperledger/fabric/peer/chaincode/
+ res=0
+ set +x
2020-02-16 02:33:40.041 UTC [chaincodeCmd] checkChaincodeCmdParams -> INFO 001 Using default escc
2020-02-16 02:33:40.042 UTC [chaincodeCmd] checkChaincodeCmdParams -> INFO 002 Using default vscc
2020-02-16 02:33:40.050 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 1.0 -l node -p /opt/gopath/src/github.com/hyperledger/fabric/peer/chaincode/
+ res=0
+ set +x
2020-02-16 02:33:40.288 UTC [chaincodeCmd] checkChaincodeCmdParams -> INFO 001 Using default escc
2020-02-16 02:33:40.288 UTC [chaincodeCmd] checkChaincodeCmdParams -> INFO 002 Using default vscc
2020-02-16 02:33:40.304 UTC [chaincodeCmd] install -> INFO 003 Installed remotely response:<status:200 payload:"OK" >
```

Right Ctrl

upgrad@upgrad-VirtualBox: ~/workspace/pharma-network/network

File Edit View Search Terminal Help

```
+ res=0
+ set +x


######################################################################
######    Generating anchor peer update for retailerMSP   ##########
######################################################################
+ configtxgen -profile pharmachannel -outputAnchorPeersUpdate ./channel-artifacts/retailerMSPanchors.tx -channelID pharmachannel -asOrg retailerMSP
2020-02-16 07:57:20.694 IST [common.tools.configtxgen] main -> INFO 001 Loading configuration
2020-02-16 07:57:20.788 IST [common.tools.configtxgen.localconfig] Load -> INFO 002 Loaded configuration: /home/upgrad/workspace/pharma-network/network/configtx.yaml
2020-02-16 07:57:20.882 IST [common.tools.configtxgen.localconfig] completeInitialization -> INFO 003 orderer type: solo
2020-02-16 07:57:20.882 IST [common.tools.configtxgen.localconfig] LoadTopLevel -> INFO 004 Loaded configuration: /home/upgrad/workspace/pharma-network/network/configtx.yaml
2020-02-16 07:57:20.883 IST [common.tools.configtxgen] doOutputAnchorPeersUpdate -> INFO 005 Generating anchor peer update
2020-02-16 07:57:20.890 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
2020-02-16 07:57:21.014 IST [common.tools.configtxgen] main -> INFO 001 Loading configuration
2020-02-16 07:57:21.090 IST [common.tools.configtxgen.localconfig] Load -> INFO 002 Loaded configuration: /home/upgrad/workspace/pharma-network/network/configtx.yaml
2020-02-16 07:57:21.192 IST [common.tools.configtxgen.localconfig] completeInitialization -> INFO 003 orderer type: solo
2020-02-16 07:57:21.198 IST [common.tools.configtxgen.localconfig] LoadTopLevel -> INFO 004 Loaded configuration: /home/upgrad/workspace/pharma-network/network/configtx.yaml
2020-02-16 07:57:21.199 IST [common.tools.configtxgen] doOutputAnchorPeersUpdate -> INFO 005 Generating anchor peer update
2020-02-16 07:57:21.199 IST [common.tools.configtxgen] doOutputAnchorPeersUpdate -> INFO 006 Writing anchor peer update
+ res=0
+ set +x


######################################################################
######    Generating anchor peer update for transporterMSP   ##########
######################################################################
+ configtxgen -profile pharmachannel -outputAnchorPeersUpdate ./channel-artifacts/transporterMSPanchors.tx -channelID pharmachannel -asOrg transporterMSP
2020-02-16 07:57:21.344 IST [common.tools.configtxgen] main -> INFO 001 Loading configuration
2020-02-16 07:57:21.418 IST [common.tools.configtxgen.localconfig] Load -> INFO 002 Loaded configuration: /home/upgrad/workspace/pharma-network/network/configtx.yaml
2020-02-16 07:57:21.514 IST [common.tools.configtxgen.localconfig] completeInitialization -> INFO 003 orderer type: solo
2020-02-16 07:57:21.523 IST [common.tools.configtxgen.localconfig] LoadTopLevel -> INFO 004 Loaded configuration: /home/upgrad/workspace/pharma-network/network/configtx.yaml
2020-02-16 07:57:21.523 IST [common.tools.configtxgen] doOutputAnchorPeersUpdate -> INFO 005 Generating anchor peer update
2020-02-16 07:57:21.524 IST [common.tools.configtxgen] doOutputAnchorPeersUpdate -> INFO 006 Writing anchor peer update
+ res=0
+ set +x


upgrad@upgrad-VirtualBox:~/workspace/pharma-network/network$ ./fabricNetwork.sh up
Starting for channel 'pharmachannel' with CLI timeout of '15' seconds and CLI delay of '5' seconds and chaincode version '1.0'
Continue? [Y/n]
```

Test Case 1: Initiation

As per this test case we need to

- Register companies, add drugs. All the companies Sun Pharma, FedEx, Blue Dart, VG Pharma, and upgrad are registered.
- And 4 strips of a drug named 'Paracetamol' with serial number starting from '001' to '004' are added.

- And also do the same via Node Application as shown in the snap shots.

Postman

File Edit View Help

New ▾   Import   Runner   My Workspace ▾   Invite

Q Filter

| History | Collections | APIs |

+ New Collection   Trash

▾ History Track Down
     2 requests

   localhost:4000/ViewDrugCurrentState
   localhost:4000/ViewHistory

▾ Initiation
     5 requests

   localhost:4000/registerCompany FedEx
   localhost:4000/registerCompany Blue Dart
   localhost:4000/registerCompany VG Pharma
   localhost:4000/registerCompany upgrad
   localhost:4000/addDrug 004
   localhost:4000/addDrug 002
   localhost:4000/addDrug 001
   localhost:4000/addDrug 003
   localhost:4000/registerCompany Sun Pharm

▾ Supply Chain
     7 requests

   localhost:4000/createPO by VG PHARMA
   localhost:4000/createPO BY uagrad
   localhost:4000/createShipment BY SUN PHARMA
   localhost:4000/createShipment created by VG PHARMA
   localhost:4000/updateShipment FEDEX DELIVER TO VG PHARMA

localhost:4000/registerComp... × + ...

▸ localhost:4000/registerCompany FedEx   Comments (0)   Examples (0) ▾

| POST ▾ | localhost:4000/registerCompany | Send ▾ | Save ▾ |

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

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

KEY	VALUE	DESCRIPTION	••• Bulk Edit
☑ companyCRN	TRA001		
☑ companyName	FedEx		
☑ Location	Delhi		
☑ organisationRole	transporter		
Key	Value	Description	

Body   Cookies   Headers (7)   Test Results   Status: 200 OK   Time: 453s   Size: 493 B   Save Response ▾

Pretty   Raw   Preview   Visualize   JSON ▾

```
1  {
2      "status": "success",
3      "message": "Register Company request submitted on the Network",
4      "returnObject": {
5          "m_companyID": "TRA001-FedEx",
6          "m_companyName": "FedEx",
7          "m_Location": "Delhi",
8          "m_organisationRole": "transporter",
9          "createdAt": "2020-02-15T08:03:51.101Z"
10     }
11 }
```

Bootcamp   Build   Browse

Postman

File Edit View Help

+ New ▾   Import   Runner   ▤▾   ▦ My Workspace ▾   👥 Invite   🔄   ⚡   🔧   ♥   ➕   Upgrade ▾

Q Filter   POST localhost... POST localhost... POST localhost... POST localhost... POST localhost... POST localhost... POST localhost... POST localhost..X + •••   No Environment   ▾   ⊙   ⚙

History   Collections   APIs   ▸ localhost:4000/registerCompany Sun Pharm   🗨 Comments (0)   Examples (0) ▾

+ New Collection   Trash

History Track Down   POST ▾   localhost:4000/registerCompany   Send ▾   Save ▾
2 requests

POST localhost:4000/viewDrugCurrentState   Params   Authorization   Headers (9)   Body ●   Pre-request Script   Tests   Settings   Cookies   Code

POST localhost:4000/viewHistory   Query Params

Initiaton
9 requests

KEY	VALUE	DESCRIPTION	••• Bulk Edit
Key	Value	Description	

POST localhost:4000/registerCompany FedEx   Body   Cookies   Headers (7)   Test Results   Status: 200 OK   Time: 3.18s   Size: 526 B   Save Response ▾

POST localhost:4000/registerCompany Blue Dart

POST localhost:4000/registerCompany VG Pharma   Pretty   Raw   Preview   Visualize   JSON ▾   ⇄   📋 Q

POST localhost:4000/registerCompany upgrad

POST localhost:4000/addDrug 004

POST localhost:4000/addDrug 002

POST localhost:4000/addDrug 001

POST localhost:4000/addDrug 003

POST localhost:4000/registerCompany Sun Pharm

Supply Chain
7 requests

POST localhost:4000/createPO by VG PHARMA

POST localhost:4000/createPO BY upgrad

```
1  {
2      "status": "success",
3      "message": "Register Company request submitted on the Network",
4      "returnObject": {
5          "m_comapanyID": "MAN001-Sun Pharma",
6          "m_companyName": "Sun Pharma",
7          "m_Location": "Chennai",
8          "m_organisationRole": "manufacturer",
9          "m_hierarchyKey": 1,
10         "createdAt": "2020-02-15T08:31:19.5672"
11     }
12 }
```

Postman

File Edit View Help

+ New ▼   Import   Runner   ⬛▼   ▦ My Workspace ▼   👥 Invite   Upgrade ▼

Q Filter   POST localhost:4000/registerComp... POST localhost:4000/registerComp... POST localhost:4000/registerComp... POST localhost:4000/registerComp... X + •••   No Environment   ▼   ⊙ ⚙

History   Collections   APIs   ▸ localhost:4000/registerCompany upgrad   💬 Comments (0) Examples (0) ▼

+ New Collection   Trash

History Track Down   POST ▼ localhost:4000/registerCompany   Send ▼   Save ▼
2 requests

POST localhost:4000/viewDrugCurrentState   Params Authorization Headers (9) Body ● Pre-request Script Tests Settings   Cookies Code

POST localhost:4000/viewHistory   Query Params

Initiaiton | KEY | VALUE | DESCRIPTION | ••• Bulk Edit |
9 requests | --- | --- | --- | --- |
                                              | Key | Value | Description | |
POST localhost:4000/registerCompany FedEx

POST localhost:4000/registerCompany Blue Dart   Body Cookies Headers (7) Test Results   Status: 200 OK Time: 3.54s Size: 513 B   Save Response ▼

POST localhost:4000/registerCompany VG Pharma

POST localhost:4000/registerCompany upgrad   Pretty Raw Preview Visualize JSON ▼ ⇄   📋 Q

POST localhost:4000/addDrug 004

POST localhost:4000/addDrug 002

POST localhost:4000/addDrug 001

POST localhost:4000/addDrug 003

POST localhost:4000/registerCompany Sun Pharm

Supply Chain
7 requests

POST localhost:4000/createPO by VG PHARMA

POST localhost:4000/createPO BY upgrad

POST localhost:4000/createShipment BY SUN PHARMA

POST localhost:4000/createShipment created by VG PHARMA

POST localhost:4000/updateShipment FEDEX DELIVER TO VG PHARMA

```
 1  {
 2      "status": "success",
 3      "message": "Register Company request submitted on the Network",
 4      "returnObject": {
 5          "m_comapanyID": "RET002-upgrad",
 6          "m_companyName": "upgrad",
 7          "m_Location": "Mumbai",
 8          "m_organisationRole": "retailer",
 9          "m_hierarchyKey": 3,
10          "createdAt": "2020-02-15T08:29:00.271Z"
11      }
12  }
```

Postman

File Edit View Help

+ New ▾   Import   Runner   ▣▾   ▦ My Workspace ▾   ⚫ Invite   Upgrade ▾

Q Filter

History   Collections   APIs

+ New Collection   Trash

▾ ▤ History Track Down
   2 requests

POST localhost:4000/viewDrugCurrentState

POST localhost:4000/viewHistory

▾ ▤ Initiaiton
   9 requests

POST localhost:4000/registerCompany FedEx

POST localhost:4000/registerCompany Blue Dart

POST localhost:4000/registerCompany VG Pharma

POST localhost:4000/registerCompany upgrad

POST localhost:4000/addDrug 004

POST localhost:4000/addDrug 002

POST localhost:4000/addDrug 001

POST localhost:4000/addDrug 003

POST localhost:4000/registerCompany Sun Pharm

▾ ▤ Supply Chain
   7 requests

POST localhost:4000/createPO by VG PHARMA

POST localhost:4000/createPO BY upgrad

POST localhost:4000/createShipment BY SUN PHARMA

POST localhost:4000/createShipment created by VG PHARMA

POST localhost:4000/registerComp...   POST localhost:4000/registerComp...   POST localhost:4000/registerComp.. X   + ⋯

No Environment ▾ ⊙ ⚙

▸ localhost:4000/registerCompany VG Pharma   🗩 Comments (0)   Examples (0) ▾

POST ▾ localhost:4000/registerCompany   Send ▾   Save ▾

Params   Authorization   Headers (9)   Body ●   Pre-request Script   Tests   Settings   Cookies Code

Query Params

KEY	VALUE	DESCRIPTION	⋯ Bulk Edit
Key	Value	Description	

Body   Cookies   Headers (7)   Test Results   Status: 200 OK   Time: 3.51s   Size: 522 B   Save Response ▾

Pretty   Raw   Preview   Visualize   JSON ▾   ⇥   ▤ Q

```json
1  {
2      "status": "success",
3      "message": "Register Company request submitted on the Network",
4      "returnObject": {
5          "m_comapanyID": "DIST001-VG Pharma",
6          "m_companyName": "VG Pharma",
7          "m_Location": "Vizag",
8          "m_organisationRole": "distributor",
9          "m_hierarchyKey": 2,
10         "createdAt": "2020-02-15T08:28:23.800Z"
11     }
12 }
```

Postman

File Edit View Help

New ▾   Import   Runner   ▣ ▾   My Workspace ▾   Invite   Upgrade ▾

Q Filter

| History | Collections | APIs |

+ New Collection   Trash

History Track Down
2 requests

POST localhost:4000/viewDrugCurrentState

POST localhost:4000/viewHistory

Initialton
9 requests

POST localhost:4000/registerCompany FedEx

POST localhost:4000/registerCompany Blue Dart

POST localhost:4000/registerCompany VG Pharma

POST localhost:4000/registerCompany upgrad

POST localhost:4000/addDrug 004

POST localhost:4000/addDrug 002

POST localhost:4000/addDrug 001

POST localhost:4000/addDrug 003

POST localhost:4000/registerCompany Sun Pharm

Supply Chain
7 requests

POST localhost:4000/createPO by VG PHARMA

POST localhost:4000/createPO BY upgrad

POST localhost:4000/createShipment BY SUN PHARMA

POST localhost:4000/createShipment created by VG PHARMA

POST localhost:4000/registerComp...   POST localhost:4000/registerComp... X   +   ···

No Environment ▾

▸ localhost:4000/registerCompany Blue Dart   Comments (0)   Examples (0) ▾

| POST ▾ | localhost:4000/registerCompany | Send ▾ | Save ▾ |

Params   Authorization   Headers (9)   Body ●   Pre-request Script   Tests   Settings   Cookies Code

Query Params

KEY	VALUE	DESCRIPTION	··· Bulk Edit
Key	Value	Description	

Body   Cookies   Headers (7)   Test Results   Status: 200 OK   Time: 4.04s   Size: 506 B   Save Response ▾

Pretty   Raw   Preview   Visualize   JSON ▾   ⇄

```
1  {
2      "status": "success",
3      "message": "Register Company request submitted on the Network",
4      "returnObject": {
5          "m_comapanyID": "TRA002-Blue Dart",
6          "m_companyName": "Blue Dart",
7          "m_Location": "Bangalore",
8          "m_organisationRole": "transporter",
9          "createdAt": "2020-02-15T08:27:46.920Z"
10     }
11 }
```

File Edit View Help

➕ New ▾   Import   Runner   ▣▾   ▦ My Workspace ▾   ⚫ Invite

🔍 Filter

History   Collections   APIs

➕ New Collection   Trash

▾ ▣ History Track Down
       2 requests

POST localhost:4000/viewDrugCurrentState

POST localhost:4000/viewHistory

▾ ▣ Initiaiton
       9 requests

POST localhost:4000/registerCompany FedEx

POST localhost:4000/registerCompany Blue Dart

POST localhost:4000/registerCompany VG Pharma

POST localhost:4000/registerCompany upgrad

POST localhost:4000/addDrug 004

POST localhost:4000/addDrug 002

POST localhost:4000/addDrug 001

POST localhost:4000/addDrug 003

POST localhost:4000/registerCompany Sun Pharm

▾ ▣ Supply Chain
       7 requests

POST localhost:4000/createPO by VG PHARMA

POST localhost:4000/createPO BY upgrad

POST localhost:40...   POST localhost:40...   POST localhost:40...   POST localhost:40...   POST localho

▸ localhost:4000/addDrug 003

POST   ▾   localhost:4000/addDrug

Params   Authorization   Headers (9)   Body ●   Pre-request Script   Tests   Settings

Query Params

KEY	VALUE
Key	Value

Body   Cookies   Headers (7)   Test Results

Pretty   Raw   Preview   Visualize   JSON ▾   ⇥

```
 1   {
 2       "status": "success",
 3       "message": "ADD DRUG  request submitted on the Network",
 4       "returnObject": {
 5           "m_productID":"᠖org.pharma.network.pharmanet.product.drugkey᠖paracetam
 6           "m_drugName": "paracetamol",
 7           "m_serialNo": "003",
 8           "m_mfgDate": "2020-01-01",
 9           "m_expDate": "2022-01-01",
10           "m_owner":"᠖org.pharma.network.pharmanet.companyCRN᠖MAN001᠖",
11           "m_manufacturer": "MAN001",
12           "m_shipmentList": [],
13           "createdAt": "2020-02-15T08:30:42.048Z"
14       }
15   }
```

File Edit View Help

New ▾   Import   Runner   ▣▾   ▦ My Workspace ▾   ▵ Invite

Q Filter

History   Collections   APIs

+ New Collection   Trash

▾ ▣ History Track Down
       2 requests

POST localhost:4000/viewDrugCurrentState

POST localhost:4000/viewHistory

▾ ▣ Initiaiton
       9 requests

POST localhost:4000/registerCompany FedEx

POST localhost:4000/registerCompany Blue Dart

POST localhost:4000/registerCompany VG Pharma

POST localhost:4000/registerCompany upgrad

POST localhost:4000/addDrug 004

POST localhost:4000/addDrug 002

POST localhost:4000/addDrug 001

POST localhost:4000/addDrug 003

POST localhost:4000/registerCompany Sun Pharm

▾ ▣ Supply Chain
       7 requests

POST localhost:4000/createPO by VG PHARMA

POST localhost:4000/re...   POST localhost:4000/re...   POST localhost:4000/re...   POST localhost:4000/re...

▸ localhost:4000/addDrug 002

POST   ▾   localhost:4000/addDrug

Params   Authorization   Headers (9)   Body ●   Pre-request Script   Tests   Settings

Query Params

KEY	VALUE
Key	Value

Body Cookies Headers (7) Test Results

Pretty   Raw   Preview   Visualize   JSON ▾   ⇥

```
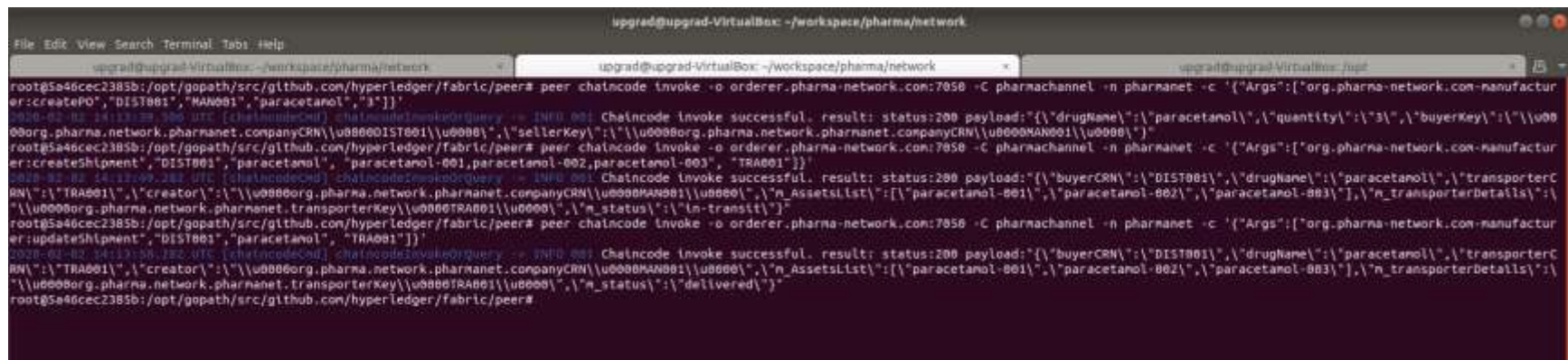 1  {
 2      "status": "success",
 3      "message": "ADD DRUG  request submitted on the Network",
 4      "returnObject": {
 5          "m_productID":"org.pharma.network.pharmanet.product.drugkey paracetam
 6          "m_drugName": "paracetamol",
 7          "m_serialNo": "002",
 8          "m_mfgDate": "2020-01-01",
 9          "m_expDate": "2022-01-01",
10          "m_owner":"org.pharma.network.pharmanet.companyCRN MAN001",
11          "m_manufacturer": "MAN001",
12          "m_shipmentList": [],
13          "createdAt": "2020-02-15T08:30:10.431Z"
14      }
15  }
```

Postman

File Edit View Help

➕ New ▼   Import   Runner   📑▼   ▦ My Workspace ▼   👤 Invite

🔍 Filter

History   **Collections**   APIs

➕ New Collection   Trash

▼ 🗂 **History Track Down**
   2 requests

POST localhost:4000/viewDrugCurrentState

POST localhost:4000/viewHistory

▼ 🗂 **Initiaiton**
   9 requests

POST localhost:4000/registerCompany FedEx

POST localhost:4000/registerCompany Blue Dart

POST localhost:4000/registerCompany VG Pharma

POST localhost:4000/registerCompany upgrad

POST localhost:4000/addDrug 004

POST localhost:4000/addDrug 002

POST localhost:4000/addDrug 001

POST localhost:4000/addDrug 003

POST localhost:4000/registerCompany Sun Pharm

▼ 🗂 **Supply Chain**
   7 requests

POST localhost:4000/createPO by VG PHARMA

POST localhost:4000/createPO BY upgrad

POST localhost:4000/register...   POST localhost:4000/register...   POST localhost:4000/register...   POST lo

▶ **localhost:4000/addDrug 001**

POST ▼   localhost:4000/addDrug

Params   Authorization   Headers (9)   Body ●   Pre-request Script   Tests   Settings

Query Params

KEY	VALUE
Key	Value

Body   Cookies   Headers (7)   Test Results

Pretty   Raw   Preview   Visualize   JSON ▼   ⇥

```json
1  {
2      "status": "success",
3      "message": "ADD DRUG  request submitted on the Network",
4      "returnObject": {
5          "m_productID":"org.pharma.network.pharmanet.product.drugkeyparacetam
6          "m_drugName": "paracetamol",
7          "m_serialNo": "001",
8          "m_mfgDate": "2020-01-01",
9          "m_expDate": "2022-01-01",
10         "m_owner":"org.pharma.network.pharmanet.companyCRNMAN001",
11         "m_manufacturer": "MAN001",
12         "m_shipmentList": [],
13         "createdAt": "2020-02-15T08:29:32.231Z"
14     }
15 }
```

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File   Edit   View   Help

➕ New   ▼   Import   Runner   ▣▾   ▦ My Workspace ▼   👤 Invite

🔍 Filter

History   Collections   APIs

➕ New Collection   Trash

▼ ■ History Track Down
   2 requests

POST   localhost:4000/viewDrugCurrentState

POST   localhost:4000/viewHistory

▼ ■ Initiaiton
   9 requests

POST   localhost:4000/registerCompany FedEx

POST   localhost:4000/registerCompany Blue Dart

POST   localhost:4000/registerCompany VG Pharma

POST   localhost:4000/registerCompany upgrad

POST   localhost:4000/addDrug 004

POST   localhost:4000/addDrug 002

POST   localhost:4000/addDrug 001

POST   localhost:4000/addDrug 003

POST   localhost:4000/registerCompany Sun Pharm

▼ ■ Supply Chain
   7 requests

POST   localhost:4000/createPO by VG PHARMA

POST   localhost:4000/createPO BY upgrad

▸ localhost:4000/addDrug 004

POST ▼	localhost:4000/addDrug

Params   Authorization   Headers (9)   Body ●   Pre-request Script   Tests   Settings

Query Params

KEY	VALUE
Key	Value

Body   Cookies   Headers (7)   Test Results

Pretty   Raw   Preview   Visualize   JSON ▼   ⇉

```
1   {
2       "status": "success",
3       "message": "ADD DRUG  request submitted on the Network",
4       "returnObject": {
5           "m_productID":"Øorg.pharma.network.pharmanet.product.drugkeyØparacetamo
6           "m_drugName": "paracetamol",
7           "m_serialNo": "004",
8           "m_mfgDate": "2020-01-01",
9           "m_expDate": "2022-01-01",
10          "m_owner":"Øorg.pharma.network.pharmanet.companyCRNØMAN001Ø",
11          "m_manufacturer": "MAN001",
12          "m_shipmentList": [],
13          "createdAt": "2020-02-15T08:31:53.937Z"
14      }
15  }
```

Test Case 2: Supply Chain

As per this test case we need to

- Create Purchase Orders, Shipment of the order and deliver the shipment via transporter
- And do same as above bullet with different companies.
- as shown in the snap shots.

```
upgrad@upgrad-VirtualBox: ~/workspace/pharma/network

File  Edit  View  Search  Terminal  Tabs  Help

   upgrad@upgrad-VirtualBox: ~/workspace/pharma/network          upgrad@upgrad-VirtualBox: ~/workspace/pharma/network          upgrad@upgrad-VirtualBox: /opt

oot@5a46cec2385b:/opt/gopath/src/github.com/hyperledger/fabric/peer# peer chaincode invoke -o orderer.pharma-network.com:7050 -C pharmachannel -n pharmanet -c '{"Args":["org.pharma-network.com-manufactur
er:addDrug","paracetamol","001", "2020-01-01", "2022-01-01","DIST001"]}'
2020-02-02 14:25:51.684 UTC [chaincodeCmd] chaincodeInvokeOrQuery -> INFO 001 Chaincode invoke successful. result: status:200 payload:"{\"m_productID\":\"paracetamol-001\",\"m_drugName\":\"paracetamol\",\
"m_serialNo\":\"001\",\"m_mfgDate\":\"2020-01-01\",\"m_expDate\":\"2022-01-01\",\"m_owner\":\"DIST001\",\"m_manufacturer\":\"DIST001\",\"m_shipmentList\":[],\"createdAt\":\"2020-02-02T14:25:51.595Z\"}"
oot@5a46cec2385b:/opt/gopath/src/github.com/hyperledger/fabric/peer# peer chaincode invoke -o orderer.pharma-network.com:7050 -C pharmachannel -n pharmanet -c '{"Args":["org.pharma-network.com-manufactur
er:addDrug","paracetamol","002", "2020-01-01", "2022-01-01","DIST001"]}'
2020-02-02 14:25:59.825 UTC [chaincodeCmd] chaincodeInvokeOrQuery -> INFO 001 Chaincode invoke successful. result: status:200 payload:"{\"m_productID\":\"paracetamol-002\",\"m_drugName\":\"paracetamol\",\
"m_serialNo\":\"002\",\"m_mfgDate\":\"2020-01-01\",\"m_expDate\":\"2022-01-01\",\"m_owner\":\"DIST001\",\"m_manufacturer\":\"DIST001\",\"m_shipmentList\":[],\"createdAt\":\"2020-02-02T14:25:59.819Z\"}"
oot@5a46cec2385b:/opt/gopath/src/github.com/hyperledger/fabric/peer# peer chaincode invoke -o orderer.pharma-network.com:7050 -C pharmachannel -n pharmanet -c '{"Args":["org.pharma-network.com-manufactur
er:createPO","RET001","DIST001","paracetamol","2"]}'
2020-02-02 14:26:00.380 UTC [chaincodeCmd] chaincodeInvokeOrQuery -> INFO 001 Chaincode invoke successful. result: status:200 payload:"{\"drugName\":\"paracetamol\",\"quantity\":\"2\",\"buyerKey\":\"\\u00
00org.pharma.network.pharmanet.companyCRN\\u0000RET001\\u0000\",\"sellerKey\":\"\\u0000org.pharma.network.pharmanet.companyCRN\\u0000DIST001\\u0000\"}"
oot@5a46cec2385b:/opt/gopath/src/github.com/hyperledger/fabric/peer# peer chaincode invoke -o orderer.pharma-network.com:7050 -C pharmachannel -n pharmanet -c '{"Args":["org.pharma-network.com-manufactur
er:createShipment","DIST001","paracetamol", "paracetamol-001,paracetamol-002", "TRA002"]}'
Error: endorsement failure during invoke. response: status:500 message:"transaction returned with failure: Error: Quantity of drug mentioned in Product order does not matches with number of assets!!"
oot@5a46cec2385b:/opt/gopath/src/github.com/hyperledger/fabric/peer# peer chaincode invoke -o orderer.pharma-network.com:7050 -C pharmachannel -n pharmanet -c '{"Args":["org.pharma-network.com-manufactur
er:createShipment","RET001","paracetamol", "paracetamol-001,paracetamol-002", "TRA002"]}'
2020-02-02 14:28:58.881 UTC [chaincodeCmd] chaincodeInvokeOrQuery -> INFO 001 Chaincode invoke successful. result: status:200 payload:"{\"buyerCRN\":\"RET001\",\"drugName\":\"paracetamol\",\"transporterCR
N\":\"TRA002\",\"creator\":\"\\u0000org.pharma.network.pharmanet.companyCRN\\u0000DIST001\\u0000\",\"m_AssetsList\":[\"paracetamol-001\",\"paracetamol-002\"],\"m_transporterDetails\":\"\\u0000org.pharma.n
etwork.pharmanet.transporterKey\\u0000TRA002\\u0000\",\"m_status\":\"in-transit\"}"
oot@5a46cec2385b:/opt/gopath/src/github.com/hyperledger/fabric/peer# peer chaincode invoke -o orderer.pharma-network.com:7050 -C pharmachannel -n pharmanet -c '{"Args":["org.pharma-network.com-manufactur
er:updateShipment","RET001","paracetamol", "TRA002"]}'
2020-02-02 14:29:18.348 UTC [chaincodeCmd] chaincodeInvokeOrQuery -> INFO 001 Chaincode invoke successful. result: status:200 payload:"{\"buyerCRN\":\"RET001\",\"drugName\":\"paracetamol\",\"transporterCR
N\":\"TRA002\",\"creator\":\"\\u0000org.pharma.network.pharmanet.companyCRN\\u0000DIST001\\u0000\",\"m_AssetsList\":[\"paracetamol-001\",\"paracetamol-002\"],\"m_transporterDetails\":\"\\u0000org.pharma.n
etwork.pharmanet.transporterKey\\u0000TRA002\\u0000\",\"m_status\":\"delivered\"}"
oot@5a46cec2385b:/opt/gopath/src/github.com/hyperledger/fabric/peer#
```

upgrad@upgrad-VirtualBox: ~/workspace/pharma/network

File Edit View Search Terminal Tabs Help

upgrad@upgrad-VirtualBox: ~/workspace/pharma/network   upgrad@upgrad-VirtualBox: ~/workspace/pharma/network   upgrad@upgrad-VirtualBox: /opt

root@5a46cec2385b:/opt/gopath/src/github.com/hyperledger/fabric/peer# peer chaincode invoke -o orderer.pharma-network.com:7050 -C pharmachannel -n pharmanet -c '{"Args":["org.pharma-network.com-manufactur
er:addDrug","paracetamol","001", "2020-01-01", "2022-01-01","DIST001"]}'
2020-02-02 14:53:29.888 UTC [chaincodeCmd] chaincodeInvokeOrQuery -> INFO 001 Chaincode invoke successful. result: status:200 payload:"{\"m_productID\":\"paracetamol-001\",\"m_drugName\":\"paracetamol\",\
"m_serialNo\":\"001\",\"m_mfgDate\":\"2020-01-01\",\"m_expDate\":\"2022-01-01\",\"m_owner\":\"DIST001\",\"m_manufacturer\":\"DIST001\",\"m_shipmentList\":[],\"createdAt\":\"2020-02-02T14:53:29.874Z\"}"
root@5a46cec2385b:/opt/gopath/src/github.com/hyperledger/fabric/peer# peer chaincode invoke -o orderer.pharma-network.com:7050 -C pharmachannel -n pharmanet -c '{"Args":["org.pharma-network.com-manufactur
er:addDrug","paracetamol","002", "2020-01-01", "2022-01-01","DIST001"]}'
2020-02-02 14:53:37.401 UTC [chaincodeCmd] chaincodeInvokeOrQuery -> INFO 001 Chaincode invoke successful. result: status:200 payload:"{\"m_productID\":\"paracetamol-002\",\"m_drugName\":\"paracetamol\",\
"m_serialNo\":\"002\",\"m_mfgDate\":\"2020-01-01\",\"m_expDate\":\"2022-01-01\",\"m_owner\":\"DIST001\",\"m_manufacturer\":\"DIST001\",\"m_shipmentList\":[],\"createdAt\":\"2020-02-02T14:53:37.386Z\"}"
root@5a46cec2385b:/opt/gopath/src/github.com/hyperledger/fabric/peer# peer chaincode invoke -o orderer.pharma-network.com:7050 -C pharmachannel -n pharmanet -c '{"Args":["org.pharma-network.com-manufactur
er:createPO","RET001","DIST001","paracetamol","2"]}'
2020-02-02 14:53:49.877 UTC [chaincodeCmd] chaincodeInvokeOrQuery -> INFO 001 Chaincode invoke successful. result: status:200 payload:"{\"drugName\":\"paracetamol\",\"quantity\":\"2\",\"buyerKey\":\"\\u00
00org.pharma.network.pharmanet.companyCRN\\u0000RET001\\u0000\",\"sellerKey\":\"\\u0000org.pharma.network.pharmanet.companyCRN\\u0000DIST001\\u0000\"}"
root@5a46cec2385b:/opt/gopath/src/github.com/hyperledger/fabric/peer# peer chaincode invoke -o orderer.pharma-network.com:7050 -C pharmachannel -n pharmanet -c '{"Args":["org.pharma-network.com-manufactur
er:createShipment","RET001","paracetamol", "paracetamol-001,paracetamol-002", "TRA002"]}'
2020-02-02 14:54:00.487 UTC [chaincodeCmd] chaincodeInvokeOrQuery -> INFO 001 Chaincode invoke successful. result: status:200 payload:"{\"buyerCRN\":\"RET001\",\"drugName\":\"paracetamol\",\"transporterCR
N\":\"TRA002\",\"creator\":\"\\u0000org.pharma.network.pharmanet.companyCRN\\u0000DIST001\\u0000\",\"m_AssetsList\":[\"paracetamol-001\",\"paracetamol-002\"],\"m_transporterDetails\":\"\\u0000org.pharma.n
etwork.pharmanet.transporterKey\\u0000TRA002\\u0000\",\"m_status\":\"in-transit\"}"
root@5a46cec2385b:/opt/gopath/src/github.com/hyperledger/fabric/peer# peer chaincode invoke -o orderer.pharma-network.com:7050 -C pharmachannel -n pharmanet -c '{"Args":["org.pharma-network.com-manufactur
er:updateShipment","RET001","paracetamol", "TRA002"]}'
2020-02-02 14:54:09.641 UTC [chaincodeCmd] chaincodeInvokeOrQuery -> INFO 001 Chaincode invoke successful. result: status:200 payload:"{\"buyerCRN\":\"RET001\",\"drugName\":\"paracetamol\",\"transporterCR
N\":\"TRA002\",\"creator\":\"\\u0000org.pharma.network.pharmanet.companyCRN\\u0000DIST001\\u0000\",\"m_AssetsList\":[\"paracetamol-001\",\"paracetamol-002\"],\"m_transporterDetails\":\"\\u0000org.pharma.n
etwork.pharmanet.transporterKey\\u0000TRA002\\u0000\",\"m_status\":\"delivered\"}"
root@5a46cec2385b:/opt/gopath/src/github.com/hyperledger/fabric/peer# peer chaincode invoke -o orderer.pharma-network.com:7050 -C pharmachannel -n pharmanet -c '{"Args":["org.pharma-network.com-manufactur
er:retailDrug","paracetamol","paracetamol-001","RET001","AkashAdhar"]}'
Error: endorsement failure during invoke. response: status:500 message:"transaction returned with failure: ReferenceError: drugCompositeObject is not defined"
root@5a46cec2385b:/opt/gopath/src/github.com/hyperledger/fabric/peer# peer chaincode invoke -o orderer.pharma-network.com:7050 -C pharmachannel -n pharmanet -c '{"Args":["org.pharma-network.com-manufactur
er:retailDrug","paracetamol","001","RET001","AkashAdhar"]}'
Error: endorsement failure during invoke. response: status:500 message:"transaction returned with failure: SyntaxError: Unexpected end of JSON input"
root@5a46cec2385b:/opt/gopath/src/github.com/hyperledger/fabric/peer# peer chaincode invoke -o orderer.pharma-network.com:7050 -C pharmachannel -n pharmanet -c '{"Args":["org.pharma-network.com-manufactur
er:viewDrugCurrentState","paracetamol", "001"]}'
Error: endorsement failure during invoke. response: status:500 message:"transaction returned with failure: ReferenceError: drugObject is not defined"
root@5a46cec2385b:/opt/gopath/src/github.com/hyperledger/fabric/peer# peer chaincode invoke -o orderer.pharma-network.com:7050 -C pharmachannel -n pharmanet -c '{"Args":["org.pharma-network.com-manufactur
er:viewDrugCurrentState","paracetamol", "001"]}'
2020-02-02 15:00:54.927 UTC [chaincodeCmd] chaincodeInvokeOrQuery -> INFO 001 Chaincode invoke successful. result: status:200 payload:"{\"m_productID\":\"paracetamol-001\",\"m_drugName\":\"paracetamol\",\
"m_serialNo\":\"001\",\"m_mfgDate\":\"2020-01-01\",\"m_expDate\":\"2022-01-01\",\"m_owner\":\"DIST001\",\"m_manufacturer\":\"DIST001\",\"m_shipmentList\":[],\"createdAt\":\"2020-02-02T14:53:29.874Z\"}"
root@5a46cec2385b:/opt/gopath/src/github.com/hyperledger/fabric/peer#

Postman

File   Edit   View   Help

➕ New ▼   Import   Runner   ▦▼   ▦ My Workspace ▼   👥 Invite

Q Filter

| POST l... | POST l... | POST l... | POST l... | POST l... | POST l... | POST l... | POST l... |

History   Collections   APIs

▸ localhost:4000/createShipment BY SUN PHARMA

➕ New Collection   Trash

| POST ▼ | localhost:4000/createShipment |

History Track Down
2 requests

Params   Authorization   Headers (9)   Body ●   Pre-request Script   Tests   Settings

POST   localhost:4000/viewDrugCurrentState

Query Params

POST   localhost:4000/viewHistory

KEY	VALUE
Key	Value

Initiaiton
9 requests

Body   Cookies   Headers (7)   Test Results

Supply Chain
7 requests

Pretty   Raw   Preview   Visualize   JSON ▼   ⇉

POST   localhost:4000/createPO by VG PHARMA

POST   localhost:4000/createPO BY upgrad

POST   localhost:4000/createShipment BY SUN PHARMA

POST   localhost:4000/createShipment created by VG PHARMA

POST   localhost:4000/updateShipment FEDEX DELIVER TO VG PHARMA

POST   localhost:4000/updateShipment BLUEDART DELIVER TO UPGRAD

POST   localhost:4000/retailDrug

```json
1  {
2      "status": "success",
3      "message": "CREATE SHIPMENT request submitted on the Network",
4      "returnObject": {
5          "buyerCRN": "DIST001",
6          "drugName": "paracetamol",
7          "transporterCRN": "TRA001",
8          "creator":"®org.pharma.network.pharmanet.companyCRN®MAN001®",
9          "m_AssetsList": [
10             "paracetamol-001",
11             "paracetamol-002",
12             "paracetamol-003"
13         ],
14         "m_transporterDetails":"®org.pharma.network.pharmanet.transporterKey®T
15         "m_status": "in-transit"
16     }
17 }
```

File   Edit   View   Help

New ▼   Import   Runner   🖼▼   ▦ My Workspace ▼   👤 Invite

Q Filter

History   Collections   APIs

+ New Collection   Trash

▾ 📁 **History Track Down**
   2 requests

POST   localhost:4000/viewDrugCurrentState

POST   localhost:4000/viewHistory

▸ 📁 **Initiaiton**
   9 requests

▾ 📁 **Supply Chain**
   7 requests

POST   localhost:4000/createPO by VG PHARMA

POST   localhost:4000/createPO BY upgrad

POST   localhost:4000/createShipment BY SUN PHARMA

POST   localhost:4000/createShipment created by VG PHARMA

POST   localhost:4000/updateShipment FEDEX DELIVER TO VG PHARMA

POST   localhost:4000/updateShipment BLUEDART DELIVER TO UPGRAD

POST   localhost:4000/retailDrug

POST loc...   POST loc...   POST loc...   POST loc...   POST loc...   POST loc...   POST loc...

▸ **localhost:4000/createPO BY upgrad**

POST   ▼   localhost:4000/createPO

Params   Authorization   Headers (9)   Body ●   Pre-request Script   Tests   Settings

Query Params

KEY	VALUE
Key	Value

Body   Cookies   Headers (7)   Test Results

Pretty   Raw   Preview   Visualize   JSON ▼   ⇥

```
 1  {
 2      "status": "success",
 3      "message": "PO request submitted on the Network",
 4      "returnObject": {
 5          "drugName": "paracetamol",
 6          "quantity": "2",
 7          "poId":"●org.pharma.network.pharmanet.productorder●RET002-paracetamol●
 8          "buyerKey":"●org.pharma.network.pharmanet.companyCRN●RET002●",
 9          "sellerKey":"●org.pharma.network.pharmanet.companyCRN●DIST001●"
10      }
11  }
```

File Edit View Help

➕ New ▾   Import   Runner   🖿▾   ▪▪ My Workspace ▾   👤 Invite

🔍 Filter

History   Collections   APIs

➕ New Collection   Trash

▾ 🖿 History Track Down
   2 requests

POST localhost:4000/viewDrugCurrentState

POST localhost:4000/viewHistory

▸ 🖿 Initiaiton
   9 requests

▾ 🖿 Supply Chain
   7 requests

POST localhost:4000/createPO by VG PHARMA

POST localhost:4000/createPO BY upgrad

POST localhost:4000/createShipment BY SUN PHARMA

POST localhost:4000/createShipment created by VG PHARMA

POST localhost:4000/updateShipment FEDEX DELIVER TO VG PHARMA

POST localhost:4000/updateShipment BLUEDART DELIVER TO UPGRAD

POST localhost:4000/retailDrug

POST local... POST local... POST local... POST local... POST local... POST local... POST l

▸ localhost:4000/createPO by VG PHARMA

POST   ▾   localhost:4000/createPO

Params   Authorization   Headers (9)   Body ●   Pre-request Script   Tests   Settings

Query Params

KEY	VALUE
Key	Value

Body Cookies Headers (7) Test Results

Pretty   Raw   Preview   Visualize   JSON ▾   ⇉

1   {
2   "status": "success",
3   "message": "PO request submitted on the Network",
4   "returnObject": {
5   "drugName": "paracetamol",
6   "quantity": "3",
7   "poId":"org.pharma.network.pharmanet.productorderDIST001-paracetamol
8   "buyerKey":"org.pharma.network.pharmanet.companyCRNDIST001",
9   "sellerKey":"org.pharma.network.pharmanet.companyCRNMAN001"
10   }
11 }

Postman

File   Edit   View   Help

New ▼   Import   Runner   ▼   My Workspace ▼   Invite

Q Filter

History   Collections   APIs

+ New Collection   Trash

▼ History Track Down
  2 requests

POST localhost:4000/viewDrugCurrentState

POST localhost:4000/viewHistory

▶ Initiaiton
  9 requests

▼ Supply Chain
  7 requests

POST localhost:4000/createPO by VG PHARMA

POST localhost:4000/createPO BY upgrad

POST localhost:4000/createShipment BY SUN PHARMA

POST localhost:4000/createShipment created by VG PHARMA

POST localhost:4000/updateShipment FEDEX DELIVER TO VG PHARMA

POST localhost:4000/updateShipment BLUEDART DELIVER TO UPGRAD

POST localhost:4000/retailDrug

POST ... POST ... POST ... POST ... POST ... POST ... POST ... POST ... POST

▶ localhost:4000/createShipment created by VG PHARMA

POST ▼   localhost:4000/createShipment

Params   Authorization   Headers (9)   Body ●   Pre-request Script   Tests   Settings

Query Params

KEY	VALUE
Key	Value

Body   Cookies   Headers (7)   Test Results

Pretty   Raw   Preview   Visualize   JSON ▼   ⇥

```json
1  {
2      "status": "success",
3      "message": "CREATE SHIPMENT request submitted on the Network",
4      "returnObject": {
5          "buyerCRN": "RET002",
6          "drugName": "paracetamol",
7          "transporterCRN": "TRA002",
8          "creator":"\u0040org.pharma.network.pharmanet.companyCRN\u0040DIST0010",
9          "m_AssetsList": [
10             "paracetamol-001",
11             "paracetamol-002"
12         ],
13         "m_transporterDetails":"\u0040org.pharma.network.pharmanet.transporterKey\u0040T
14         "m_status": "in-transit"
15     }
16 }
```

Postman

File   Edit   View   Help

➕ New   ▼   Import   Runner   ▦▾   ▦ My Workspace ▼   👥 Invite

🔍 Filter

History   Collections   APIs

+ New Collection   Trash

▼ 📁 History Track Down
    2 requests

POST   localhost:4000/viewDrugCurrentState

POST   localhost:4000/viewHistory

▶ 📁 Initiaiton
    9 requests

▼ 📁 Supply Chain
    7 requests

POST   localhost:4000/createPO by VG PHARMA

POST   localhost:4000/createPO BY upgrad

POST   localhost:4000/createShipment BY SUN PHARMA

POST   localhost:4000/createShipment created by VG PHARMA

POST   localhost:4000/updateShipment FEDEX DELIVER TO VG PHARMA

POST   localhost:4000/updateShipment BLUEDART DELIVER TO UPGRAD

POST   localhost:4000/retailDrug

POST localhost:4000/retailDrug   POST localhost:4000/updateShipm... ✕   POST localhost:4000/updateShipm

▶ **localhost:4000/updateShipment FEDEX DELIVER TO VG PHARMA**

POST ▼	localhost:4000/updateShipment

Params   Authorization   Headers (9)   Body ●   Pre-request Script   Tests   Settings

TYPE

Inherit auth from parent   ▼

The authorization header will be automatically generated when you send the request. Learn more about authorization

Body   Cookies   Headers (7)   Test Results

Pretty   Raw   Preview   Visualize   JSON ▼   ⇉

```json
{
    "status": "success",
    "message": "updateShipment request submitted on the Network",
    "returnObject": {
        "buyerCRN": "DIST001",
        "drugName": "paracetamol",
        "transporterCRN": "TRA001",
        "creator":"@org.pharma.network.pharmanet.companyCRN#MAN001@",
        "m_AssetsList": [
            "paracetamol-001",
            "paracetamol-002",
            "paracetamol-003"
        ],
        "m_transporterDetails":"@org.pharma.network.pharmanet.transporterKey@TR
        "m_status": "delivered"
    }
}
```

File   Edit   View   Help

+ New   ▼   Import   Runner   ■▼   ■■ My Workspace ▼   ♣ Invite

Q Filter

History	Collections	APIs

+ New Collection   Trash

▼ 📁 History Track Down
     2 requests

POST   localhost:4000/viewDrugCurrentState

POST   localhost:4000/viewHistory

▶ 📁 Initiaiton
     9 requests

▼ 📁 Supply Chain
     7 requests

POST   localhost:4000/createPO by VG PHARMA

POST   localhost:4000/createPO BY upgrad

POST   localhost:4000/createShipment BY SUN PHARMA

POST   localhost:4000/createShipment created by VG PHARMA

POST   localhost:4000/updateShipment FEDEX DELIVER TO VG PHARMA

POST   localhost:4000/updateShipment BLUEDART DELIVER TO UPGRAD

POST   localhost:4000/retailDrug

POST localhost:4000/retailDrug   POST localhost:4000/updateShipm...   POST localhost:4000/updateShip

▶ **localhost:4000/updateShipment BLUEDART DELIVER TO UPGRAD**

POST ▼	localhost:4000/updateShipment

Params   Authorization   Headers (9)   Body ●   Pre-request Script   Tests   Settings

Query Params

KEY	VALUE
Key	Value

Body   Cookies   Headers (7)   Test Results

Pretty   Raw   Preview   Visualize   JSON ▼   ⇉

```json
1   {
2       "status": "success",
3       "message": "updateShipment request submitted on the Network",
4       "returnObject": {
5           "buyerCRN": "RET002",
6           "drugName": "paracetamol",
7           "transporterCRN": "TRA002",
8           "creator":"@org.pharma.network.pharmanet.companyCRN@DIST001@",
9           "m_AssetsList": [
10              "paracetamol-001",
11              "paracetamol-002"
12          ],
13          "m_transporterDetails":"@org.pharma.network.pharmanet.transporterKey@T
14          "m_status": "delivered"
15      }
16  }
```

Test Case 3: History Track Down

As per this test case we need to

- Check the history and current state of the drug
- as shown in the snap shots.

Postman

File   Edit   View   Help

➕ New   ▼   Import   Runner   🖼▼   ■■ My Workspace ▼   👤 Invite

🔍 Filter

| History | Collections | APIs |

➕ New Collection   Trash

▼ 📁 History Track Down
    2 requests

POST   localhost:4000/viewDrugCurrentState

POST   localhost:4000/viewHistory

▶ 📁 Initiaiton
    9 requests

▼ 📁 Supply Chain
    7 requests

POST   localhost:4000/createPO by VG PHARMA

POST   localhost:4000/createPO BY upgrad

POST   localhost:4000/createShipment BY SUN PHARMA

POST   localhost:4000/createShipment created by VG PHARMA

POST   localhost:4000/updateShipment FEDEX DELIVER TO VG PHARMA

POST   localhost:4000/updateShipment BLUEDART DELIVER TO UPGRAD

POST   localhost:4000/retailDrug

POST localhost:4000/retailDrug   POST localhost:4000/viewHistory   POST localhost:4000/viewDrugC

▶ **localhost:4000/viewDrugCurrentState**

| POST   ▼ | localhost:4000/viewDrugCurrentState |

Params   Authorization   Headers (9)   Body ●   Pre-request Script   Tests   Settings

Query Params

KEY	VALUE
Key	Value

Body   Cookies   Headers (7)   Test Results

Pretty   Raw   Preview   Visualize   JSON ▼   ⇄

```json
1  {
2      "status": "success",
3      "message": "viewDrugCurrentState request submitted on the Network",
4      "returnObject": {
5          "m_productID":"�org.pharma.network.pharmanet.product.drugkey�paracetam
6          "m_drugName": "paracetamol",
7          "m_serialNo": "001",
8          "m_mfgDate": "2020-01-01",
9          "m_expDate": "2022-01-01",
10         "m_owner": "AAKASH001",
11         "m_manufacturer": "MAN001",
12         "m_shipmentList": ["�org.pharma.network.pharmanet.shipmentkey�DIST001-
13         ],
14         "createdAt": "2020-02-15T08:29:32.231Z"
15     }
16 }
```

The Postman application window showing a POST request to `localhost:4000/viewHistory` with the following response body:

```json
{
    "status": "success",
    "message": "viewHistory request submitted on the Network",
    "returnObject": [
        {
            "m_productID":"org.pharma.network.pharmanet.product.drugkeyparac
            "m_drugName": "paracetamol",
            "m_serialNo": "001",
            "m_mfgDate": "2020-01-01",
            "m_expDate": "2022-01-01",
            "m_owner":"org.pharma.network.pharmanet.companyCRNMAN0010",
            "m_manufacturer": "MAN001",
            "m_shipmentList": [],
            "createdAt": "2020-02-15T08:29:32.231Z"
        },
        {
            "m_productID":"org.pharma.network.pharmanet.product.drugkeyparac
            "m_drugName": "paracetamol",
            "m_serialNo": "001",
            "m_mfgDate": "2020-01-01",
            "m_expDate": "2022-01-01",
            "m_owner": "DIST001",
            "m_manufacturer": "MAN001",
            "m_shipmentList": ["org.pharma.network.pharmanet.shipmentkeyDIST
            ],
            "createdAt": "2020-02-15T08:29:32.231Z"
        }
```

Other PostMan Execution related logs

```
File  Edit  View  Search  Terminal  Tabs  Help
                    upgrad@upgrad-VirtualBox: ~/workspace/pharma-network/network
{ m_comapanyID: 'TRA001-FedEx',
  m_companyName: 'FedEx',
  m_Location: 'Delhi',
  m_organisationRole: 'transporter',
  createdAt: '2020-02-15T08:03:51.101Z' }


.....Register companY Transaction Complete!
.....Disconnecting from Fabric Gateway
Register Company request submitted on the Network
Comapny Object is  { status: 'success',
  message: 'Register Company request submitted on the Network',
  returnObject:
   { m_comapanyID: 'TRA001-FedEx',
     m_companyName: 'FedEx',
     m_Location: 'Delhi',
     m_organisationRole: 'transporter',
     createdAt: '2020-02-15T08:03:51.101Z' } }
.....Connecting to Fabric Gateway
.....Connecting to channel - pharmachannel
.....Connecting to pharmanet Smart Contract
.....Requesting to register company on the Network
.....Processing register company Transaction Response
```

```
upgrad@upgrad-VirtualBox:~/workspace/pharma-network/application/manufacturer-application$ node .
Pharma Net App listening on port 4000!
User identity added to wallet.
.....Connecting to Fabric Gateway
.....Connecting to channel - pharmachannel
.....Connecting to pharmanet Smart Contract
.....Requesting to register company on the Network
.....Processing register company Transaction Response


{ m_comapanyID: 'TRA001-FedEx',
  m_companyName: 'FedEx',
  m_Location: 'Delhi',
  m_organisationRole: 'transporter',
  createdAt: '2020-02-15T07:59:34.012Z' }


.....Register companY Transaction Complete!
.....Disconnecting from Fabric Gateway
Register Company request submitted on the Network
Comapny Object is  { status: 'success',
  message: 'Register Company request submitted on the Network',
  returnObject:
   { m_comapanyID: 'TRA001-FedEx',
     m_companyName: 'FedEx',
     m_Location: 'Delhi',
     m_organisationRole: 'transporter',
     createdAt: '2020-02-15T07:59:34.012Z' } }
.....Connecting to Fabric Gateway
.....Connecting to channel - pharmachannel
.....Connecting to pharmanet Smart Contract
.....Requesting to register company on the Network
.....Processing register company Transaction Response
```

```
{ m_comapanyID: 'TRA002-Blue Dart',
  m_companyName: 'Blue Dart',
  m_Location: 'Bangalore',
  m_organisationRole: 'transporter',
  createdAt: '2020-02-15T08:27:46.920Z' }


.....Register companY Transaction Complete!
.....Disconnecting from Fabric Gateway
Register Company request submitted on the Network
Comapny Object is  { status: 'success',
  message: 'Register Company request submitted on the Network',
  returnObject:
   { m_comapanyID: 'TRA002-Blue Dart',
     m_companyName: 'Blue Dart',
     m_Location: 'Bangalore',
     m_organisationRole: 'transporter',
     createdAt: '2020-02-15T08:27:46.920Z' } }
.....Connecting to Fabric Gateway
.....Connecting to channel - pharmachannel
.....Connecting to pharmanet Smart Contract
.....Requesting to register company on the Network
.....Processing register company Transaction Response
```

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