
PHARMA-NET

A drug counterfeiting solution

PRE-SETUP

Generating Crypto Materials

```
q > ~/pharma-network/network
> cryptogen generate --config=./crypto-config.yaml
manufacturer.pharma-network.com
distributor.pharma-network.com
retailer.pharma-network.com
consumer.pharma-network.com
transporter.pharma-network.com
```



Generating Channel Artifacts

```
> configtxgen -profile OrdererGenesis -channelID upgrad-sys-channel -outputBlock ./channel-artifacts/genesis.block
2022-08-20 12:04:13.667 IST [common.tools.configtxgen] main -> INFO 001 Loading configuration
2022-08-20 12:04:13.709 IST [common.tools.configtxgen.localconfig] completeInitialization -> INFO 002 orderer type: solo
2022-08-20 12:04:13.709 IST [common.tools.configtxgen.localconfig] Load -> INFO 003 Loaded configuration: /home/adhoc/pharma-network/network/configtx.yaml
2022-08-20 12:04:13.751 IST [common.tools.configtxgen.localconfig] completeInitialization -> INFO 004 orderer type: solo
2022-08-20 12:04:13.751 IST [common.tools.configtxgen.localconfig] LoadTopLevel -> INFO 005 Loaded configuration: /home/adhoc/pharma-network/network/configtx.yaml
2022-08-20 12:04:13.759 IST [common.tools.configtxgen] doOutputBlock -> INFO 006 Generating genesis block
2022-08-20 12:04:13.760 IST [common.tools.configtxgen] doOutputBlock -> INFO 007 Writing genesis block
```

Create Channel Artifacts

```
q > ~/pharma-network/network
> configtxgen -profile PharmaChannel -outputCreateChannelTx ./channel-artifacts/channel.tx -channelID pharmachannel
2022-08-20 12:11:30.139 IST [common.tools.configtxgen] main -> INFO 001 Loading configuration
2022-08-20 12:11:30.184 IST [common.tools.configtxgen.localconfig] Load -> INFO 002 Loaded configuration: /home/adhoc/pharma-network/network/configtx.yaml
2022-08-20 12:11:30.231 IST [common.tools.configtxgen.localconfig] completeInitialization -> INFO 003 orderer type: solo
2022-08-20 12:11:30.232 IST [common.tools.configtxgen.localconfig] LoadTopLevel -> INFO 004 Loaded configuration: /home/adhoc/pharma-network/network/configtx.yaml
2022-08-20 12:11:30.232 IST [common.tools.configtxgen] doOutputChannelCreateTx -> INFO 005 Generating new channel configtx
2022-08-20 12:11:30.232 IST [common.tools.configtxgen.encoder] NewChannelGroup -> WARN 006 Default policy emission is deprecated, please include policy specificatio
e channel group in configtx.yaml
2022-08-20 12:11:30.239 IST [common.tools.configtxgen.encoder] NewChannelGroup -> WARN 007 Default policy emission is deprecated, please include policy specificatio
e channel group in configtx.yaml
2022-08-20 12:11:30.246 IST [common.tools.configtxgen] doOutputChannelCreateTx -> INFO 008 Writing new channel tx
```

Updating Anchor Peers

- `configtxgen -profile PharmaChannel -outputAnchorPeersUpdate ./channel-artifacts/manufacturerMSPanchors.tx -channelID pharmachannel -asOrg manufacturerMSP`
- `configtxgen -profile PharmaChannel -outputAnchorPeersUpdate ./channel-artifacts/distributorMSPanchors.tx -channelID pharmachannel -asOrg distributorMSP`
- `configtxgen -profile PharmaChannel -outputAnchorPeersUpdate ./channel-artifacts/retailerMSPanchors.tx -channelID pharmachannel -asOrg retailerMSP`
- `configtxgen -profile PharmaChannel -outputAnchorPeersUpdate ./channel-artifacts/consumerMSPanchors.tx -channelID pharmachannel -asOrg consumerMSP`
- `configtxgen -profile PharmaChannel -outputAnchorPeersUpdate ./channel-artifacts/transporterMSPanchors.tx -channelID pharmachannel -asOrg transporterMSP`

```
cd ~/pharma-network/network  
> configtxgen -profile PharmaChannel -outputAnchorPeersUpdate ./channel-artifacts/manufacturerMSPanchors.tx -channelID pharmachannel -asOrg manufacturerMSP  
configtxgen -profile PharmaChannel -outputAnchorPeersUpdate ./channel-artifacts/distributorMSPanchors.tx -channelID pharmachannel -asOrg distributorMSP  
configtxgen -profile PharmaChannel -outputAnchorPeersUpdate ./channel-artifacts/retailerMSPanchors.tx -channelID pharmachannel -asOrg retailerMSP  
configtxgen -profile PharmaChannel -outputAnchorPeersUpdate ./channel-artifacts/consumerMSPanchors.tx -channelID pharmachannel -asOrg consumerMSP  
configtxgen -profile PharmaChannel -outputAnchorPeersUpdate ./channel-artifacts/transporterMSPanchors.tx -channelID pharmachannel -asOrg transporterMSP  
2022-08-20 12:15:56.280 IST [common.tools.configtxgen] main -> INFO 001 Loading configuration  
2022-08-20 12:15:56.300 IST [common.tools.configtxgen.localconfig] Load -> INFO 002 Loaded configuration: /home/adhoc/pharma-network/network/configtx.yaml  
2022-08-20 12:15:56.330 IST [common.tools.configtxgen.localconfig] completeInitialization -> INFO 003 orderer type: solo  
2022-08-20 12:15:56.330 IST [common.tools.configtxgen.localconfig] LoadTopLevel -> INFO 004 Loaded configuration: /home/adhoc/pharma-network/network/configtx.yaml  
2022-08-20 12:15:56.330 IST [common.tools.configtxgen] doOutputAnchorPeersUpdate -> INFO 005 Generating anchor peer update  
2022-08-20 12:15:56.330 IST [common.tools.configtxgen] doOutputAnchorPeersUpdate -> INFO 006 Writing anchor peer update  
2022-08-20 12:15:56.375 IST [common.tools.configtxgen] main -> INFO 001 Loading configuration  
2022-08-20 12:15:56.415 IST [common.tools.configtxgen.localconfig] Load -> INFO 002 Loaded configuration: /home/adhoc/pharma-network/network/configtx.yaml  
2022-08-20 12:15:56.461 IST [common.tools.configtxgen.localconfig] completeInitialization -> INFO 003 orderer type: solo  
2022-08-20 12:15:56.461 IST [common.tools.configtxgen.localconfig] LoadTopLevel -> INFO 004 Loaded configuration: /home/adhoc/pharma-network/network/configtx.yaml  
2022-08-20 12:15:56.461 IST [common.tools.configtxgen] doOutputAnchorPeersUpdate -> INFO 005 Generating anchor peer update  
2022-08-20 12:15:56.461 IST [common.tools.configtxgen] doOutputAnchorPeersUpdate -> INFO 006 Writing anchor peer update  
2022-08-20 12:15:56.553 IST [common.tools.configtxgen] main -> INFO 001 Loading configuration  
2022-08-20 12:15:56.597 IST [common.tools.configtxgen.localconfig] Load -> INFO 002 Loaded configuration: /home/adhoc/pharma-network/network/configtx.yaml  
2022-08-20 12:15:56.627 IST [common.tools.configtxgen.localconfig] completeInitialization -> INFO 003 orderer type: solo  
2022-08-20 12:15:56.627 IST [common.tools.configtxgen.localconfig] LoadTopLevel -> INFO 004 Loaded configuration: /home/adhoc/pharma-network/network/configtx.yaml  
2022-08-20 12:15:56.627 IST [common.tools.configtxgen] doOutputAnchorPeersUpdate -> INFO 005 Generating anchor peer update  
2022-08-20 12:15:56.627 IST [common.tools.configtxgen] doOutputAnchorPeersUpdate -> INFO 006 Writing anchor peer update  
2022-08-20 12:15:56.666 IST [common.tools.configtxgen] main -> INFO 001 Loading configuration  
2022-08-20 12:15:56.686 IST [common.tools.configtxgen.localconfig] Load -> INFO 002 Loaded configuration: /home/adhoc/pharma-network/network/configtx.yaml  
2022-08-20 12:15:56.704 IST [common.tools.configtxgen.localconfig] completeInitialization -> INFO 003 orderer type: solo  
2022-08-20 12:15:56.704 IST [common.tools.configtxgen.localconfig] LoadTopLevel -> INFO 004 Loaded configuration: /home/adhoc/pharma-network/network/configtx.yaml  
2022-08-20 12:15:56.704 IST [common.tools.configtxgen] doOutputAnchorPeersUpdate -> INFO 005 Generating anchor peer update  
2022-08-20 12:15:56.705 IST [common.tools.configtxgen] doOutputAnchorPeersUpdate -> INFO 006 Writing anchor peer update  
2022-08-20 12:15:56.747 IST [common.tools.configtxgen] main -> INFO 001 Loading configuration  
2022-08-20 12:15:56.779 IST [common.tools.configtxgen.localconfig] Load -> INFO 002 Loaded configuration: /home/adhoc/pharma-network/network/configtx.yaml  
2022-08-20 12:15:56.815 IST [common.tools.configtxgen.localconfig] completeInitialization -> INFO 003 orderer type: solo  
2022-08-20 12:15:56.815 IST [common.tools.configtxgen.localconfig] LoadTopLevel -> INFO 004 Loaded configuration: /home/adhoc/pharma-network/network/configtx.yaml  
2022-08-20 12:15:56.815 IST [common.tools.configtxgen] doOutputAnchorPeersUpdate -> INFO 005 Generating anchor peer update  
2022-08-20 12:15:56.815 IST [common.tools.configtxgen] doOutputAnchorPeersUpdate -> INFO 006 Writing anchor peer update
```

Network Setup & Start

Command: ./fabricNetwork.sh up

```
> ./fabricNetwork.sh up
Starting for channel 'pharmacchannel' with CLI timeout of '15' seconds and CLI delay of '5' seconds and chaincode version '1.2'
Continue? [Y/n] y
proceeding ...
LOCAL_VERSION=1.4.2
DOCKER_IMAGE_VERSION=1.4.3
===== WARNING =====
Local fabric binaries and docker images are
out of sync. This may cause problems.
=====
[+] Running 18/18
# Container ca.retailer.pharma-network.com      Started          0.7s
# Container peer0.retailer.pharma-network.com   Running          0.0s
# Container peer0.distributor.pharma-network.com Running          0.0s
# Container ca.consumer.pharma-network.com     Started          1.1s
# Container ca.distributor.pharma-network.com  Started          0.7s
# Container peer1.transporter.pharma-network.com Running          0.0s
# Container ca.manufacturer.pharma-network.com Started          0.8s
# Container peer1.distributor.pharma-network.com Running          0.0s
# Container orderer.pharma-network.com          Running          0.0s
# Container peer1.retailer.pharma-network.com   Running          0.0s
# Container peer0.transporter.pharma-network.com Running          0.0s
# Container peer0.consumer.pharma-network.com   Running          0.0s
# Container peer1.consumer.pharma-network.com   Running          0.0s
# Container peer0.manufacturer.pharma-network.com Running          0.0s
# Container peer1.manufacturer.pharma-network.com Running          0.0s
# Container chaincode                           Running          0.0s
# Container ca.transporter.pharma-network.com   Started          1.1s
# Container cli                                Running          0.0s
CONTAINER ID        IMAGE               COMMAND             CREATED            STATUS              PORTS
NAMES
5d457fcbbb0a      hyperledger/fabric-tools:latest    "/bin/bash"        2 minutes ago     Up 2 minutes
cli
d0b805e587db      hyperledger/fabric-peer:latest    "peer node start --..."  2 minutes ago     Up 2 minutes
0.0.0.0:8051->8051/tcp, :::8051->8051/tcp, 0.
0.0.0.0:8052->8052/tcp, :::8052->8052/tcp
peer1.manufacturer.pharma-network.com
```

```
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
```

```
2022-08-20 11:22:35.509 UTC [channelCmd] InitCmdFactory > INFO 001 Endorser and orderer connections initialized
2022-08-20 11:22:35.521 UTC [channelCmd] update > INFO 002 Successfully submitted channel update
===== Anchor peers updated for org 'retailerMSP' 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
```

```
2022-08-20 11:22:40.618 UTC [channelCmd] InitCmdFactory > INFO 001 Endorser and orderer connections initialized
2022-08-20 11:22:40.630 UTC [channelCmd] update > INFO 002 Successfully submitted channel update
===== Anchor peers updated for org 'consumerMSP' 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
```

```
2022-08-20 11:22:45.725 UTC [channelCmd] InitCmdFactory > INFO 001 Endorser and orderer connections initialized
2022-08-20 11:22:45.737 UTC [channelCmd] update > INFO 002 Successfully submitted channel update
===== Anchor peers updated for org 'transporterMSP' on channel 'pharmachannel' =====
```

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



Start the Chaincode in DEV MODE

SSH to chaincode container in new terminal/tab using the following command

- **docker exec -it chaincode /bin/bash**
- **npm run start-dev**

```
q > ~pharma-network/network
> docker exec -it chaincode /bin/bash
root@6eb842758aec:/opt/gopath/src/chaincode# npm run start-dev

> pharma-network@0.0.1 start-dev /opt/gopath/src/chaincode
> fabric-chaincode-node start --peer.address peer0.manufacturer.pharma-network.com:7053 --chaincode-id-name pharmanet:1.2

Configuring yargs through package.json is deprecated and will be removed in the next major release, please use the JS API instead.
Configuring yargs through package.json is deprecated and will be removed in the next major release, please use the JS API instead.
Configuring yargs through package.json is deprecated and will be removed in the next major release, please use the JS API instead.
2022-08-20T11:31:52.840Z info [shim:contracts-spi/bootstrap.js] No metadata file supplied in contract, introspection will generate all the data
2022-08-20T11:31:52.840Z info [shim:contracts-spi/chaincodefromcontract.js] Using serializers {"transaction":"jsonSerializer","serializers":{}}
Configuring yargs through package.json is deprecated and will be removed in the next major release, please use the JS API instead.
2022-08-20T11:31:52.870Z info [shim:lib/chaincode.js] Registering with peer peer0.manufacturer.pharma-network.com:7053 as chaincode "pharmanet:1.2"

Command succeeded

2022-08-20T11:31:52.891Z info [shim:lib/handler.js] Successfully registered with peer node. State transferred to "established"
2022-08-20T11:31:52.892Z info [shim:lib/handler.js] Successfully established communication with peer node. State transferred to "ready"
```

Install The Chaincode

Command: `./fabricNetwork.sh install`

1m 31s

```
> ./fabricNetwork.sh install
Installing chaincode for channel 'pharmacchannel' with CLI timeout of '15' seconds and CLI delay of '5' seconds and chaincode version '1.2'
Continue? [Y/n] y
proceeding ...
LOCAL_VERSION=1.4.2
DOCKER_IMAGE_VERSION=1.4.3
===== WARNING =====
  Local fabric binaries and docker images are
  out of sync. This may cause problems.
=====

=====
\_\_|_|_\_|| / \_\_|\_\_\\|_\_||_\_
\_\_|| | | / - \_\_|| | | | | |
____)| | | / - \_\_|| | | < | |
|_\_|| | | / - \_\_|| | | \_\_|| | |

Deploying Chaincode PHARMANET On Pharma Network

Channel name : pharmacchannel
Installing chaincode on peer0.manufacturer.pharma-network.com ...
+ peer chaincode install -n pharmanet -v 1.2 -l node -p /opt/gopath/src/github.com/hyperledger/fabric/peer/chaincode/
+ res=0
+ set +x
2022-08-20 11:32:44.734 UTC [chaincodeCmd] checkChaincodeCmdParams -> INFO 001 Using default escc
2022-08-20 11:32:44.734 UTC [chaincodeCmd] checkChaincodeCmdParams -> INFO 002 Using default vscc
2022-08-20 11:32:44.889 UTC [chaincodeCmd] install -> INFO 003 Installed remotely response:<status:200 payload:"OK" >
===== Chaincode is installed on peer0.manufacturer =====

Installing chaincode on peer0.distributor.pharma-network.com ...
+ peer chaincode install -n pharmanet -v 1.2 -l node -p /opt/gopath/src/github.com/hyperledger/fabric/peer/chaincode/
+ res=0
+ set +x
2022-08-20 11:32:44.940 UTC [chaincodeCmd] checkChaincodeCmdParams -> INFO 001 Using default escc
2022-08-20 11:32:44.940 UTC [chaincodeCmd] checkChaincodeCmdParams -> INFO 002 Using default vscc
2022-08-20 11:32:45.088 UTC [chaincodeCmd] install -> INFO 003 Installed remotely response:<status:200 payload:"OK" >
```

```
installing chaincode on peer0.transporter.pharma-network.com ...
+ peer chaincode install -n pharmanet -v 1.2 -l node -p /opt/gopath/src/github.com/hyperledger/fabric/peer/chaincode/
+ res=0
+ set +x
2022-08-20 11:32:45.617 UTC [chaincodeCmd] checkChaincodeCmdParams -> INFO 001 Using default escc
2022-08-20 11:32:45.617 UTC [chaincodeCmd] checkChaincodeCmdParams -> INFO 002 Using default vscc
2022-08-20 11:32:45.766 UTC [chaincodeCmd] install -> INFO 003 Installed remotely response:<status:200 payload:"OK" >
===== Chaincode is installed on peer0.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 1.2 -c '{"Args":["org.pharma-network.pharmanet.manufacturer:instantiate"]}' -P 'OR ('\"'manufacturerMSP.member'\\"', '\"'distributorMSP.member'\\"', '\"'retailerMSP.member'\\"', '\"'consumerMSP.member'\\"', '\"'transporterMSP.member'\\"')'
+ res=0
+ peer chaincode instantiate -o orderer.pharma-network.com:7050 -C pharmachannel -n pharmanet -l node -v 1.2 -c '{"Args":["org.pharma-network.pharmanet.distributor:instantiate"]}' -P 'OR ('\"'manufacturerMSP.member'\\"', '\"'distributorMSP.member'\\"', '\"'retailerMSP.member'\\"', '\"'consumerMSP.member'\\"', '\"'transporterMSP.member'\\"')'
+ res=0
+ peer chaincode instantiate -o orderer.pharma-network.com:7050 -C pharmachannel -n pharmanet -l node -v 1.2 -c '{"Args":["org.pharma-network.pharmanet.retailer:instantiate"]}' -P 'OR ('\"'manufacturerMSP.member'\\"', '\"'distributorMSP.member'\\"', '\"'retailerMSP.member'\\"', '\"'consumerMSP.member'\\"', '\"'transporterMSP.member'\\"')'
+ res=0
+ peer chaincode instantiate -o orderer.pharma-network.com:7050 -C pharmachannel -n pharmanet -l node -v 1.2 -c '{"Args":["org.pharma-network.pharmanet.transporter:instantiate"]}' -P 'OR ('\"'manufacturerMSP.member'\\"', '\"'distributorMSP.member'\\"', '\"'retailerMSP.member'\\"', '\"'consumerMSP.member'\\"', '\"'transporterMSP.member'\\"')'
+ res=0
+ set +x
2022-08-20 11:32:46.058 UTC [chaincodeCmd] checkChaincodeCmdParams -> INFO 001 Using default escc
2022-08-20 11:32:46.058 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 =====



Now, we can see our console statements of each Smart Contract have been instantiated in the following chaincode tab

```
q > e ~/pharma-network/network
> docker exec -it chaincode /bin/bash
root@6eb842758aec:/opt/gopath/src/chaincode# npm run start-dev

> pharma-network@0.0.1 start-dev /opt/gopath/src/chaincode
> fabric-chaincode-node start --peer.address peer0.manufacturer.pharma-network.com:7053 --chaincode-id-name pharmanet:1.2

Configuring args through package.json is deprecated and will be removed in the next major release, please use the JS API instead.
Configuring args through package.json is deprecated and will be removed in the next major release, please use the JS API instead.
Configuring args through package.json is deprecated and will be removed in the next major release, please use the JS API instead.
2022-08-20T11:31:52.840Z info [shim:contracts-spi/bootstrap.js]           No metadata file supplied in contract, introspection will generate all the data
2022-08-20T11:31:52.840Z info [shim:contracts-spi/chaincodefromcontract.js]   Using serializers {"transaction":"jsonSerializer","serializers":{}}
Configuring args through package.json is deprecated and will be removed in the next major release, please use the JS API instead.
2022-08-20T11:31:52.870Z info [shim:lib/chaincode.js]                      Registering with peer peer0.manufacturer.pharma-network.com:7053 as chaincode "pharmanet:1.2"

Command succeeded

2022-08-20T11:31:52.891Z info [shim:lib/handler.js]                         Successfully registered with peer node. State transferred to "established"
2022-08-20T11:31:52.892Z info [shim:lib/handler.js]                         Successfully established communication with peer node. State transferred to "ready"

PharmaNet - Manufacturer Smart Contract Instantiated
2022-08-20T11:32:45.835Z info [shim:lib/handler.js]                         [pharmacchannel-247579b6] Calling chaincode Init() succeeded. Sending COMPLETED message back
to peer
PharmaNet - Distributor Smart Contract Instantiated
2022-08-20T11:32:45.901Z info [shim:lib/handler.js]                         [pharmacchannel-9d9ed46f] Calling chaincode Init() succeeded. Sending COMPLETED message back
to peer
PharmaNet - Retailer Smart Contract Instantiated
2022-08-20T11:32:45.998Z info [shim:lib/handler.js]                         [pharmacchannel-c8b034d0] Calling chaincode Init() succeeded. Sending COMPLETED message back
to peer
PharmaNet - Transporter Smart Contract Instantiated
2022-08-20T11:32:46.064Z info [shim:lib/handler.js]                         [pharmacchannel-f9c63ddd] Calling chaincode Init() succeeded. Sending COMPLETED message back
to peer
```

Terminal Setup

Keep a separate terminal tab for each organisation so that we can invoke functions on behalf of the specific organisation.

SSH to cli container in new terminal/tab using the following command

- `docker exec -it cli /bin/bash`

Manufacturer MSP

```
q > ~/pharma-network/network
> docker exec -it cli /bin/bash
root@5d457fcbbb0a:/opt/gopath/src/github.com/hyperledger/fabric/peer# echo $CORE_PEER_LOCALMSPID
manufacturerMSP
root@5d457fcbbb0a:/opt/gopath/src/github.com/hyperledger/fabric/peer# 
```



Distributor MSP

```
root@5d457fcbbb0a:/opt/gopath/src/github.com/hyperledger/fabric/peer# CORE_PEER_LOCALMSPID="distributorMSP"
root@5d457fcbbb0a:/opt/gopath/src/github.com/hyperledger/fabric/peer# CORE_PEER_ADDRESS=peer0.distributor.pharma-network.com:9051
root@5d457fcbbb0a:/opt/gopath/src/github.com/hyperledger/fabric/peer# CORE_PEER_MSPCONFIGPATH=/opt/gopath/src/github.com/hyperledger/fabric/peer/crypto/peerOrganizations/distributor.pharma-network.com/users/Admin@distributor.pharma-network.com/msp
root@5d457fcbbb0a:/opt/gopath/src/github.com/hyperledger/fabric/peer#
root@5d457fcbbb0a:/opt/gopath/src/github.com/hyperledger/fabric/peer# echo $CORE_PEER_LOCALMSPID
distributorMSP
root@5d457fcbbb0a:/opt/gopath/src/github.com/hyperledger/fabric/peer# 
```



Retailer MSP

```
root@5d457fcbbb0a:/opt/gopath/src/github.com/hyperledger/fabric/peer# CORE_PEER_LOCALMSPID="retailerMSP"
root@5d457fcbbb0a:/opt/gopath/src/github.com/hyperledger/fabric/peer# CORE_PEER_ADDRESS=peer0.retailer.pharma-network.com:11051
root@5d457fcbbb0a:/opt/gopath/src/github.com/hyperledger/fabric/peer# CORE_PEER_MSPCONFIGPATH=/opt/gopath/src/github.com/hyperledger/fabric/peer/crypto/peerOrganizations/retail
ainer.pharma-network.com/users/Admin@retailer.pharma-network.com/msp
root@5d457fcbbb0a:/opt/gopath/src/github.com/hyperledger/fabric/peer# echo $CORE_PEER_LOCALMSPID
retailerMSP
root@5d457fcbbb0a:/opt/gopath/src/github.com/hyperledger/fabric/peer# █
```

Transporter MSP

```
root@5d457fcbbb0a:/opt/gopath/src/github.com/hyperledger/fabric/peer# CORE_PEER_LOCALMSPID="transporterMSP"
root@5d457fcbbb0a:/opt/gopath/src/github.com/hyperledger/fabric/peer# CORE_PEER_ADDRESS=peer0.transporter.pharma-network.com:15051
root@5d457fcbbb0a:/opt/gopath/src/github.com/hyperledger/fabric/peer# CORE_PEER_MSPCONFIGPATH=/opt/gopath/src/github.com/hyperledger/fabric/peer/crypto/peerOrganizations/tra
nsporter.pharma-network.com/users/Admin@transporter.pharma-network.com/msp
root@5d457fcbbb0a:/opt/gopath/src/github.com/hyperledger/fabric/peer# echo $CORE_PEER_LOCALMSPID
transporterMSP
root@5d457fcbbb0a:/opt/gopath/src/github.com/hyperledger/fabric/peer# █
```



NODE API CLIENT

Run the following command in application folder

- `node index.js`

Invoke “initializeAllIdentitiesAtOnce” from Postman to add identities of all organisations to the WALLET.

Initialize ALL Identities At Once

Comments 0 Examples 0

GET

http://localhost:3000/initializeAllIdentitiesAtOnce

Send

Save

Params Auth Headers (6) Body Pre-req. Tests Settings Cookies Code

Status: 200 OK Time: 409 ms Size: 326 B

Save Response ▾

Query Params

Body Cookies Headers (7) Test Results

KEY	VALUE	DESCRIPTION	...	Bulk Edit
Key	Value	Description		

Pretty Raw Preview Visualize JSON  

```
1 []
2   "status": "success",
3   "message": "All organisation user credentials added to wallet"
4 ]
```

Invoking functions through CLI and Postman

INITIATION : Register Company

Command:

```
peer chaincode invoke -o orderer.pharma-network.com:7050 -C pharmachannel -n pharmanet -c
'{"Args":["org.pharma-network.pharmanet.manufacturer:registerCompany","MAN001
","","Sun Pharma","Chennai","Manufacturer"]}'
```

root@dd5e05d178dc: /opt/gopath/src/github.com/hyperledger/fabric/peer

Firefox Web Browser

File Edit View Search Terminal Tabs Help

upgrad@upgrad-Virt... x

root@20b46a79f0c6... x

root@dd5e05d178d... x

root@dd5e05d178d... x

root@dd5e05d178d... x

root@dd5e05d178d... x

upgrad@upgrad-Virt... x



```
root@dd5e05d178dc:/opt/gopath/src/github.com/hyperledger/fabric/peer# echo $CORE_PEER_LOCALMSPID  
manufacturerMSP
```

```
root@dd5e05d178dc:/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.pharmanet.manufacturer:registerCompany","MAN001","Sun Pharma","Chennai","Manufacturer"]}'
```

```
2020-05-27 12:41:41.124 UTC [chaincodeCmd] chaincodeInvokeOrQuery -> INFO 001 Chaincode invoke successful. result: status:200 payload:"{\"companyID\":\"\\u0000org.pharma-network.pharmanet.company\\u0000MAN001\\u0000Sun Pharma\\u0000\", \"name\":\"Sun Pharma\", \"location\":\"Chennai\", \"organisationRole\":\"MANUFACTURER\", \"hierarchyKey\":1, \"updatedBy\":\"x509::/C=US/ST=California/L=San Francisco/OU=client/CN=Admin@manufacturer.pharma-network.com::/C=US/ST=California/\"}"
```

S1: Invalid CRN[Already exists]

```
root@dd5e05d178dc:/opt/gopath/src/github.com/hyperledger/fabric/peer
File Edit View Search Terminal Tabs Help
upgrad@upgrad-Virt... × root@20b46a79f0c6... × root@dd5e05d178d... × root@dd5e05d178d... × root@dd5e05d178d... × root@dd5e05d178d... × root@dd5e05d178d... × upgrad@upgrad-Virt...
root@dd5e05d178dc:/opt/gopath/src/github.com/hyperledger/fabric/peer# echo $CORE_PEER_LOCALMSPID
manufacturerMSP
root@dd5e05d178dc:/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.pharmanet.manufacturer:registerCompany","MAN001","Sun Pharma","Chennai","Manufacturer"]}'
2020-05-27 12:41:41.124 UTC [chaincodeCmd] chaincodeInvokeOrQuery -> INFO 001 Chaincode invoke successful. result: status:200 payload:"{\"companyID\":\"\\u0000org.pharma-network.pharmanet.company\\u0000MAN001\\u0000Sun Pharma\\u0000\", \"name\":\"Sun Pharma\", \"location\":\"Chennai\", \"organisationRole\":\"MANUFACTURER\", \"hierarchyKey\":1, \"updatedBy\":\"x509::C=US/ST=California/L=San Francisco/OU=client/CN=Admin@manufacturer.pharma-network.com\", \"updatedOn\":\"2020-05-27T12:41:41.112Z\"}"
root@dd5e05d178dc:/opt/gopath/src/github.com/hyperledger/fabric/peer#
root@dd5e05d178dc:/opt/gopath/src/github.com/hyperledger/fabric/peer#
root@dd5e05d178dc:/opt/gopath/src/github.com/hyperledger/fabric/peer#
root@dd5e05d178dc:/opt/gopath/src/github.com/hyperledger/fabric/peer#
root@dd5e05d178dc:/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.pharmanet.manufacturer:registerCompany","MAN001","Sun Pharma","Chennai","Manufacturer"]}' Error: endorsement failure during invoke. response: status:500 message:"transaction returned with failure: Error: Invalid COMPANY Details. Another company with this CRN already exists."
root@dd5e05d178dc:/opt/gopath/src/github.com/hyperledger/fabric/peer#
```

Postman:

The screenshot shows the Postman interface with a successful API call to 'registerCompany'. The 'Body' tab displays the JSON input for the POST request, and the 'Pretty' tab shows the detailed JSON response.

POST Manufac... X [DELETED] POST [DELETED] POST [DELETED] POST [DELETED] POST Distribut... POST Retailer ... POST Transpo... POST Transpo... + ... No Environment

Comments 0 Examples 0

Send Save

Save Response

POST http://localhost:3000/registerCompany

Params Auth Headers (8) Body Pre-req. Tests Settings Cookies Code

raw JSON Beautify

Status: 200 OK Time: 49.34 s Size: 766 B

Body Cookies Headers (7) Test Results

Pretty Raw Preview Visualize JSON

```
1: { "status": "success", "message": "registerCompany invoked successfully", "response": { "companyID": "@org.pharma-network.pharmanet.company@MAN001@Sun Pharma@", "name": "Sun Pharma", "location": "Chennai", "organisationRole": "MANUFACTURER", "hierarchyKey": 1, "updatedBy": "x509::C=US/ST=California/L=San Francisco/OU=client/CN=Admin@manufacturer.pharma-network.com", "updatedOn": "2020-05-27T06:14:30.087Z" } }
```

Launchpad

POST Manufacturer - registerCompa... + ... No Environment

Comments 0 Examples 0

Manufacturer - registerCompany

POST http://localhost:3000/registerCompany

Send Save

Params Auth Headers (8) Body (1) Pre-req. Tests Settings Cookies Code Status: 200 OK Time: 2.29 s Size: 766 B Save Response

raw JSON Beautify Body Cookies Headers (7) Test Results

```
1 {  
2   "orgType": "manufacturer",  
3   "companyCRN": "MAN002",  
4   "companyName": "Dr Reddys",  
5   "location": "Hyderabad",  
6   "organisationRole": "Manufacturer"  
7 }
```

Body Cookies Headers (7) Test Results

Pretty Raw Preview Visualize JSON

```
1 {  
2   "status": "success",  
3   "message": "registerCompany invoked successfully",  
4   "response": {  
5     "companyID": "@org.pharma-network.pharmanet.company@MAN002@Dr Reddys@",  
6     "name": "Dr Reddys",  
7     "location": "Hyderabad",  
8     "organisationRole": "MANUFACTURER",  
9     "hierarchyKey": 1,  
10    "updatedBy": "x509::/C=US/ST=California/L=San Francisco/OU=client/CN=Admin@manufacturer.pharma-network.com::/C=US/ST=California/L=San Francisco/O=manufacturer.pharma-network.com/CN=ca.manufacturer.pharma-network.com",  
11    "updatedOn": "2020-05-27T13:35:37.758Z"  
12  }  
13 }
```

POST Manuf... [DELETED] POST [DELETED] POST [DELETED] POST POST Distribut... POST Retailer ... POST Transpo... POST Transpo... + ... No Environment

Comments 0 Examples 0

Distributor - registerCompany

POST http://localhost:3000/registerCompany

Send Save

Params Auth Headers (8) Body (1) Pre-req. Tests Settings Cookies Code Status: 200 OK Time: 2.33 s Size: 762 B Save Response

raw JSON Beautify Body Cookies Headers (7) Test Results

```
1 {  
2   "orgType": "distributor",  
3   "companyCRN": "DIST001",  
4   "companyName": "VG pharma",  
5   "location": "Vizag",  
6   "organisationRole": "Distributor"  
7 }
```

Body Cookies Headers (7) Test Results

Pretty Raw Preview Visualize JSON

```
1 {  
2   "status": "success",  
3   "message": "registerCompany invoked successfully",  
4   "response": {  
5     "companyID": "@org.pharma-network.pharmanet.company@DIST001@VG pharma@",  
6     "name": "VG pharma",  
7     "location": "Vizag",  
8     "organisationRole": "DISTRIBUTOR",  
9     "hierarchyKey": 2,  
10    "updatedBy": "x509::/C=US/ST=California/L=San Francisco/OU=client/CN=Admin@manufacturer.pharma-network.com::/C=US/ST=California/L=San Francisco/O=manufacturer.pharma-network.com/CN=ca.manufacturer.pharma-network.com",  
11    "updatedOn": "2020-05-27T06:21:09.749Z"  
12  }  
13 }
```

Distributor - registerCompany

Comments 0

Examples 0

POST http://localhost:3000/registerCompany

Send

Save

Params Auth Headers (8) Body Pre-req. Tests Settings Cookies Code

raw JSON Beautify

```
1 {  
2   "orgType": "distributor",  
3   "companyCRN": "DIST001",  
4   "companyName": "VG pharma",  
5   "location": "Vizag",  
6   "organisationRole": "Distributor"  
7 }
```

Status: 200 OK Time: 2.33 s Size: 762 B

Save Response

Body Cookies Headers (7) Test Results

Pretty Raw Preview Visualize JSON

```
1 [ {  
2   "status": "success",  
3   "message": "registerCompany invoked successfully",  
4   "response": {  
5     "companyID": "@org.pharma-network.pharmanet.company@DIST001@VG pharma@",  
6     "name": "VG pharma",  
7     "location": "Vizag",  
8     "organisationRole": "DISTRIBUTOR",  
9     "hierarchyKey": 2,  
10    "updatedBy": "x509::/C=US/ST=California/L=San Francisco/OU=client/CN=Admin@manufacturer.pharma.com",  
11    "updatedOn": "2020-05-27T06:21:09.749Z"  
12  }  
13 }
```

Filter

Collections APIs

New Collection

FIO ★ 21 requests

PharmaNet ★ 25 requests

- Identity Setup
- Manufacturer
- Distributor
 - POST Distributor - registerCompany
 - POST Distributor - createPO
 - POST Distributor - createShipment
- Retailer
 - POST Retailer - registerCompany
 - POST Retailer - createPO
 - POST Retailer - retailDrug
- Transporter
 - POST Transporter - registerCompany FedEx
 - POST Transporter - registerCompany Blue Dart
 - POST Transporter - updateShipment #TRA001
 - POST Transporter - updateShipment #TRA002

POST Manufacturer - v... GET Initialize ALL Iden... POST Distributor - regi... POST Retailer - regist... POST Transporter - re... POST Transporter - re... + ... No Environment

Comments 0 Examples 0

Send Save Save Response

Params Auth Headers (8) Body Pre-req. Tests Settings Cookies Code Status: 200 OK Time: 2.55 s Size: 745 B

raw JSON Beautify

Body Cookies Headers (7) Test Results

Pretty Raw Preview Visualize JSON

```
1 [ {  
2   "status": "success",  
3   "message": "registerCompany invoked successfully",  
4   "response": {  
5     "companyID": "@org.pharma-network.pharmanet.company@TRA002@Blue Dart@",  
6     "name": "Blue Dart",  
7     "location": "Bangalore",  
8     "organisationRole": "TRANSPORTER",  
9     "updatedBy": "x509::/C=US/ST=California/L=San Francisco/OU=client/CN=Admin@transporter.pharma-network.com::/C=US/ST=California/L=San Francisco/OU=transporter.pharma-network.com/CN=ca.transporter.pharma-network.com",  
10    "updatedOn": "2020-05-27T12:58:50.746Z"  
11  }  
12 }
```

Filter

History Collections APIs

+ New Collection FIO ★ 21 requests

FarmaNet ★ 25 requests

- Identity Setup
- Manufacturer
- Distributor
- POST Distributor - registerCompany
- POST Distributor - createPO
- POST Distributor - createShipment
- Retailer
- POST Retailer - registerCompany
- POST Retailer - createPO
- POST Retailer - retailDrug
- Transporter
- POST Transporter - registerCompany FedEx
- POST Transporter - registerCompany Blue Dart
- POST Transporter - updateShipment #TRA001
- POST Transporter - updateShipment #TRA002

POST Manufacturer - v... GET Initialize ALL Iden... POST Distributor - regi... POST Retailer - regi... POST Transporter - re... POST Transporter - re... + ... No Environment

Comments 0 Examples 0

Send Save Save Response

POST http://localhost:3000/registerCompany

Params Auth Headers (8) Body Pre-req. Tests Settings Cookies Code Status: 200 OK Time: 2.52 s Size: 733 B

Body Cookies Headers (?) Test Results

Raw JSON Pretty Raw Preview Visualize JSON

```

1 {
2   "orgType": "transporter",
3   "companyCRN": "TRA001",
4   "companyName": "FedEx",
5   "location": "Delhi",
6   "organisationRole": "Transporter"
7 }
  
```

```

1 {
2   "status": "success",
3   "message": "registerCompany invoked successfully",
4   "response": {
5     "companyID": "B0C0_pharma-network.pharmanet.company@TRA001@FedEx@",
6     "name": "FedEx",
7     "location": "Delhi",
8     "organisationRole": "TRANSPORTER",
9     "updatedBy": "x509::/C=US/ST=California/L=San Francisco/OU=client/CN=Admin@transporter.pharma-network.com::/C=US/ST=California/L=San Francisco/O=transporter.pharma-network.com/ON-ca.transporter.pharma-network.com",
10    "updatedOn": "2020-05-27T12:58:43.439Z"
11  }
12 }
  
```

upgrad@upgrad-VirtualBox: ~/Desktop/pharma-network/application

File Edit View Search Terminal Tabs Help

upgrad@upgrad-Virt... root@20b46a79f0c6... root@dd5e05d178d... root@dd5e05d178d... root@dd5e05d178d... root@dd5e05d178d... upgrad@upgrad-Virt...

....Connecting to channel - pharmachannel
....Connecting to pharmanet Smart Contract
org.pharma-network.pharmanet.retailer

....registerCompany Transaction Complete! { companyID: '\u0000org.pharma-network.pharmanet.company\u0000RET002\u0000upgrad\u0000',
name: 'upgrad',
location: 'Mumbai',
organisationRole: 'RETAILER',
hierarchyKey: 3,
updatedBy: 'x509::/C=US/ST=California/L=San Francisco/OU=client/CN=Admin@retailer.pharma-network.com::/C=US/ST=California/L=San Francisco/O=retailer.pharma-network.com/CN=ca.retailer.pharma-network.com',
updatedOn: '2020-05-27T12:58:36.324Z' }
....Disconnecting from Fabric Gateway
....Connecting to Fabric Gateway
....Connecting to channel - pharmachannel
....Connecting to pharmanet Smart Contract
org.pharma-network.pharmanet.transporter

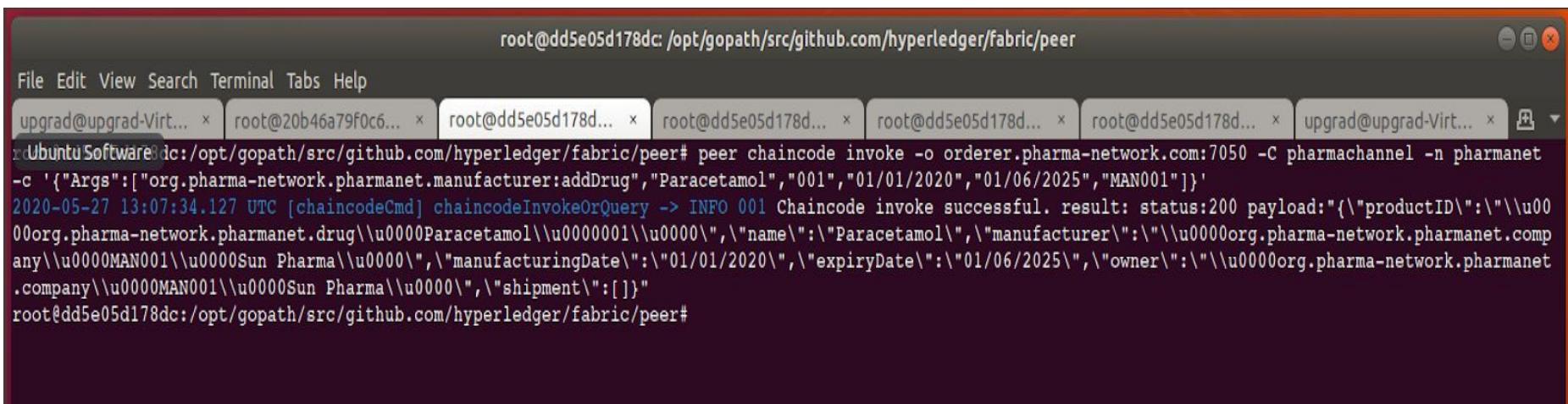
....registerCompany Transaction Complete! { companyID: '\u0000org.pharma-network.pharmanet.company\u0000TRA001\u0000FedEx\u0000',
name: 'FedEx',
location: 'Delhi',
organisationRole: 'TRANSPORTER',
updatedBy: 'x509::/C=US/ST=California/L=San Francisco/OU=client/CN=Admin@transporter.pharma-network.com::/C=US/ST=California/L=San Francisco/O=transporter.pharma-network.com/CN=ca.transporter.pharma-network.com',
updatedOn: '2020-05-27T12:58:43.439Z' }
....Disconnecting from Fabric Gateway
....Connecting to Fabric Gateway
....Connecting to channel - pharmachannel
....Connecting to pharmanet Smart Contract
org.pharma-network.pharmanet.transporter

....registerCompany Transaction Complete! { companyID: '\u0000org.pharma-network.pharmanet.company\u0000TRA002\u0000Blue Dart\u0000',
name: 'Blue Dart',
location: 'Bangalore',
organisationRole: 'TRANSPORTER',
updatedBy: 'x509::/C=US/ST=California/L=San Francisco/OU=client/CN=Admin@transporter.pharma-network.com::/C=US/ST=California/L=San Francisco/O=transporter.pharma-network.com/CN=ca.transporter.pharma-network.com',

Case: Adding Drug

Execute the following command in “manufacturerMSP” Tab 1

```
peer chaincode invoke -o orderer.pharma-network.com:7050 -C pharmachannel -n pharmanet -c  
'{"Args":["org.pharma-network.pharmanet.manufacturer:addDrug","Paracetamol","001","01/01/2020","01/06/2025","MAN001"]}'
```



The screenshot shows a terminal window with a dark theme. The title bar reads "root@dd5e05d178dc: /opt/gopath/src/github.com/hyperledger/fabric/peer". The window contains several tabs, with the current tab showing the command and its output.

```
root@dd5e05d178dc: /opt/gopath/src/github.com/hyperledger/fabric/peer
File Edit View Search Terminal Tabs Help
upgrad@upgrad-Virt... x root@20b46a79f0c6... x root@dd5e05d178d... x root@dd5e05d178d... x root@dd5e05d178d... x root@dd5e05d178d... x upgrad@upgrad-Virt... x
root@dd5e05d178dc: /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.pharmanet.manufacturer:addDrug","Paracetamol","001","01/01/2020","01/06/2025","MAN001"]}'  
2020-05-27 13:07:34.127 UTC [chaincodeCmd] chaincodeInvokeOrQuery -> INFO 001 Chaincode invoke successful. result: status:200 payload:"{\"productID\":\"\\u0000org.pharma-network.pharmanet.drug\\u0000Paracetamol\\u0000001\\u0000\\\", \"name\":\"Paracetamol\", \"manufacturer\":\"\\u0000org.pharma-network.pharmanet.company\\u0000MAN001\\u0000Sun Pharma\\u0000\", \"manufacturingDate\":\"01/01/2020\", \"expiryDate\":\"01/06/2025\", \"owner\":\"\\u0000org.pharma-network.pharmanet.company\\u0000MAN001\\u0000Sun Pharma\\u0000\", \"shipment\":[]}"  
root@dd5e05d178dc: /opt/gopath/src/github.com/hyperledger/fabric/peer#
```

Case#1: Already exists

```
root@dd5e05d178dc: /opt/gopath/src/github.com/hyperledger/fabric/peer
File Edit View Search Terminal Tabs Help
upgrad@upgrad-Virt... x root@20b46a79f0c6... x root@dd5e05d178d... x root@dd5e05d178d... x root@dd5e05d178d... x root@dd5e05d178d... x upgrad@upgrad-Virt... x
root@dd5e05d178dc:/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.pharmanet.manufacturer:addDrug","Paracetamol","001","01/01/2020","01/06/2025","MAN001"]}' 2020-05-27 13:07:34.127 UTC [chaincodeCmd] chaincodeInvokeOrQuery > INFO 001 Chaincode invoke successful. result: status:200 payload:"{\"productID\":\"\\u00000000000000000000000000000000\", \"name\":\"Paracetamol\", \"manufacturer\":\"\\u00000000000000000000000000000000\", \"manufacturingDate\":\"01/01/2020\", \"expiryDate\":\"01/06/2025\", \"owner\":\"\\u00000000000000000000000000000000\", \"shipment\":[]}" root@dd5e05d178dc:/opt/gopath/src/github.com/hyperledger/fabric/peer# root@dd5e05d178dc:/opt/gopath/src/github.com/hyperledger/fabric/peer# root@dd5e05d178dc:/opt/gopath/src/github.com/hyperledger/fabric/peer# root@dd5e05d178dc:/opt/gopath/src/github.com/hyperledger/fabric/peer# root@dd5e05d178dc:/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.pharmanet.manufacturer:addDrug","Paracetamol","001","01/01/2020","01/06/2025","MAN001"]}' 2020-05-27 13:07:34.127 UTC [chaincodeCmd] chaincodeInvokeOrQuery > INFO 001 Chaincode invoke successful. result: status:200 payload:"{\"productID\":\"\\u00000000000000000000000000000000\", \"name\":\"Paracetamol\", \"manufacturer\":\"\\u00000000000000000000000000000000\", \"manufacturingDate\":\"01/01/2020\", \"expiryDate\":\"01/06/2025\", \"owner\":\"\\u00000000000000000000000000000000\", \"shipment\":[]}" root@dd5e05d178dc:/opt/gopath/src/github.com/hyperledger/fabric/peer# Terminal [1]: ["org.pharma-network.pharmanet.manufacturer:addDrug","Paracetamol","001","01/01/2020","01/06/2025","MAN001"] Error: endorsement failure during invoke. response: status:500 message:"transaction returned with failure: Error: You already have a DRUG with same Paracetamol & 001" root@dd5e05d178dc:/opt/gopath/src/github.com/hyperledger/fabric/peer#
```

Case#2: Invalid Initiator

```
root@dd5e05d178dc: /opt/gopath/src/github.com/hyperledger/fabric/peer
File Edit View Search Terminal Tabs Help
upgrad@upgrad-Virt... x root@20b46a79f0c6... x root@dd5e05d178d... x root@dd5e05d178d... x root@dd5e05d178d... x root@dd5e05d178d... x upgrad@upgrad-Virt... x
upgrad@upgrad-VirtualBox:~/Desktop/pharma-network/network$ docker exec -it cli /bin/bash
root@dd5e05d178dc:/opt/gopath/src/github.com/hyperledger/fabric/peer# CORE_PEER_LOCALMSPID="distributorMSP"
root@dd5e05d178dc:/opt/gopath/src/github.com/hyperledger/fabric/peer# CORE_PEER_ADDRESS=peer0.distributor.pharma-network.com:9051
root@dd5e05d178dc:/opt/gopath/src/github.com/hyperledger/fabric/peer# CORE_PEER_MSPCONFIGPATH=/opt/gopath/src/github.com/hyperledger/fabric/peer/crypto/peerOrganizations/distributor.pharma-network.com/users/Admin@distributor.pharma-network.com/msp
root@dd5e05d178dc:/opt/gopath/src/github.com/hyperledger/fabric/peer# echo $CORE_PEER_LOCALMSPID
distributorMSP
root@dd5e05d178dc:/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.pharmanet.manufacturer:addDrug","Paracetamol","001","01/01/2020","01/06/2025","MAN001"]}' 2020-05-27 13:07:34.127 UTC [chaincodeCmd] chaincodeInvokeOrQuery > INFO 001 Chaincode invoke successful. result: status:200 payload:"{\"productID\":\"\\u00000000000000000000000000000000\", \"name\":\"Paracetamol\", \"manufacturer\":\"\\u00000000000000000000000000000000\", \"manufacturingDate\":\"01/01/2020\", \"expiryDate\":\"01/06/2025\", \"owner\":\"\\u00000000000000000000000000000000\", \"shipment\":[]}" root@dd5e05d178dc:/opt/gopath/src/github.com/hyperledger/fabric/peer# Terminal [1]: ["org.pharma-network.pharmanet.manufacturer:addDrug","Paracetamol","001","01/01/2020","01/06/2025","MAN001"] Error: endorsement failure during invoke. response: status:500 message:"transaction returned with failure: Error: You are not authorized to perform this operation" root@dd5e05d178dc:/opt/gopath/src/github.com/hyperledger/fabric/peer#
```

Case#3: Invalid CRN

root@dd5e05d178dc: /opt/gopath/src/github.com/hyperledger/fabric/peer

```
File Edit View Search Terminal Tabs Help
upgrad@upgrad-Virt...  x  root@20b46a79f0c6...  x  root@dd5e05d178d...  x  root@dd5e05d178d...  x  root@dd5e05d178d...  x  root@dd5e05d178d...  x  upgrad@upgrad-Virt...  x  ↻
root@dd5e05d178dc:/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.pharmanet.manufacturer:addDrug","Paracetamol","001","01/01/2020","01/06/2025","MAN001"]}'
2020-05-27 13:07:34.127 UTC [chaincodeCmd] chaincodeInvokeOrQuery -> INFO 001 Chaincode invoke successful. result: status:200 payload:(\"productID\":\"\\\"\\u0000org.pharma-network.pharmanet.drug\\\"\\u0000Paracetamol\\\"\\u0000001\\\"\\u00000\",\"name\":\"\\\"Paracetamol\\\"\",\"manufacturer\":\"\\\"\\u0000org.pharma-network.pharmanet.company\\\"\\u0000MAN001\\\"\\u0000Sun Pharma\\\"\\u0000\\\",\"manufacturingDate\":\"\\\"01/01/2020\\\"\",\"expiryDate\":\"\\\"01/06/2025\\\"\",\"owner\":\"\\\"\\u0000org.pharma-network.pharmanet.company\\\"\\u0000MAN001\\\"\\u0000Sun Pharma\\\"\\u0000\\\",\"shipment\":[]}")
root@dd5e05d178dc:/opt/gopath/src/github.com/hyperledger/fabric/peer#
root@dd5e05d178dc:/opt/gopath/src/github.com/hyperledger/fabric/peer#
root@dd5e05d178dc:/opt/gopath/src/github.com/hyperledger/fabric/peer#
root@dd5e05d178dc:/opt/gopath/src/github.com/hyperledger/fabric/peer#
root@dd5e05d178dc:/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.pharmanet.manufacturer:addDrug","Paracetamol","001","01/01/2020","01/06/2025","MAN001"]}'
Error: endorsement failure during invoke. response: status:500 message:"transaction returned with failure: Error: You already have a DRUG with same Paracetamol & 001"
root@dd5e05d178dc:/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.pharmanet.manufacturer:addDrug","Paracetamol","001","01/01/2020","01/06/2025","MAN0099"]}'
Error: endorsement failure during invoke. response: status:500 message:"transaction returned with failure: Error: Invalid CRN. No MANUFACTURER exists with provided CRN"
root@dd5e05d178dc:/opt/gopath/src/github.com/hyperledger/fabric/peer#
```

Case#4: Invalid Organisation Role

root@dd5e05d178dc: /opt/gopath/src/github.com/hyperledger/fabric/peer

```
File Edit View Search Terminal Tabs Help
upgrad@upgrad-Virt...  x  root@20b46a79f0c6...  x  root@dd5e05d178d...  x  root@dd5e05d178d...  x  root@dd5e05d178d...  x  root@dd5e05d178d...  x  upgrad@upgrad-Virt...  x  ↻
root@dd5e05d178dc:/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.pharmanet.manufacturer:addDrug","Paracetamol","001","01/01/2020","01/06/2025","MAN001"]}'
2020-05-27 13:07:34.127 UTC [chaincodeCmd] chaincodeInvokeOrQuery -> INFO 001 Chaincode invoke successful. result: status:200 payload:(\"productID\":\"\\\"\\u0000org.pharma-network.pharmanet.drug\\\"\\u0000Paracetamol\\\"\\u0000001\\\"\\u00000\",\"name\":\"\\\"Paracetamol\\\"\",\"manufacturer\":\"\\\"\\u0000org.pharma-network.pharmanet.company\\\"\\u0000MAN001\\\"\\u0000Sun Pharma\\\"\\u0000\\\",\"manufacturingDate\":\"\\\"01/01/2020\\\"\",\"expiryDate\":\"\\\"01/06/2025\\\"\",\"owner\":\"\\\"\\u0000org.pharma-network.pharmanet.company\\\"\\u0000MAN001\\\"\\u0000Sun Pharma\\\"\\u0000\\\",\"shipment\":[]}")
root@dd5e05d178dc:/opt/gopath/src/github.com/hyperledger/fabric/peer#
root@dd5e05d178dc:/opt/gopath/src/github.com/hyperledger/fabric/peer#
root@dd5e05d178dc:/opt/gopath/src/github.com/hyperledger/fabric/peer#
root@dd5e05d178dc:/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.pharmanet.manufacturer:addDrug","Paracetamol","001","01/01/2020","01/06/2025","MAN001"]}'
Error: endorsement failure during invoke. response: status:500 message:"transaction returned with failure: Error: You already have a DRUG with same Paracetamol & 001"
root@dd5e05d178dc:/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.pharmanet.manufacturer:addDrug","Paracetamol","001","01/01/2020","01/06/2025","MAN0099"]}'
Error: endorsement failure during invoke. response: status:500 message:"transaction returned with failure: Error: Invalid CRN. No MANUFACTURER exists with provided CRN"
root@dd5e05d178dc:/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.pharmanet.manufacturer:addDrug","Paracetamol","001","01/01/2020","01/06/2025","DIST001"]}'
Error: endorsement failure during invoke. response: status:500 message:"transaction returned with failure: Error: You are not registered as MANUFACTURER and can't add DRUGS with your license"
root@dd5e05d178dc:/opt/gopath/src/github.com/hyperledger/fabric/peer#
```

Postman

The screenshot shows the Postman application interface. On the left, there's a sidebar with collections like 'FIO' and 'PharmaNet'. The main area displays a POST request to 'http://localhost:3000/addDrug' with status 200 OK. The request body is JSON:

```
1 + {  
2   "orgType": "manufacturer",  
3   "drugName": "Paracetamol",  
4   "serialNo": "002",  
5   "mfgDate": "01/06/2020",  
6   "expDate": "01/06/2025",  
7   "companyCRN": "MAN001"  
8 }
```

The response body is also JSON:

```
1 + {  
2   "status": "success",  
3   "message": "addDrug invoked successfully",  
4   "response": {  
5     "productID": "@org.pharma-network.pharmanet.drug@Paracetamol@0002@",  
6     "name": "Paracetamol",  
7     "manufacturer": "@org.pharma-network.pharmanet.company@MAN001@Sun Pharma@",  
8     "manufacturingDate": "01/06/2020",  
9     "expiryDate": "01/06/2025",  
10    "owner": "@org.pharma-network.pharmanet.company@MAN001@Sun Pharma@",  
11    "shipment": []  
12  }  
13 }
```

This screenshot shows another POST request to 'http://localhost:3000/addDrug' with status 200 OK. The request body is JSON:

```
1 + {  
2   "orgType": "manufacturer",  
3   "drugName": "Brufen",  
4   "serialNo": "006",  
5   "mfgDate": "01/06/2020",  
6   "expDate": "01/06/2025",  
7   "companyCRN": "MAN002",  
8 }
```

The response body is JSON:

```
1 + {  
2   "status": "success",  
3   "message": "addDrug invoked successfully",  
4   "response": {  
5     "productID": "@org.pharma-network.pharmanet.drug@Brufen@0006@",  
6     "name": "Brufen",  
7     "manufacturer": "@org.pharma-network.pharmanet.company@MAN002@Dr Reddys@",  
8     "manufacturingDate": "01/06/2020",  
9     "expiryDate": "01/06/2025",  
10    "owner": "@org.pharma-network.pharmanet.company@MAN002@Dr Reddys@",  
11    "shipment": []  
12  }  
13 }
```

API Client Console

```
.....Connecting to Fabric Gateway
.....Connecting to channel - pharmachannel
.....Connecting to pharmanet Smart Contract
org.pharma-network.pharmanet.manufacturer

.....addDrug Transaction Complete! { productID: '\u0000org.pharma-network.pharmanet.drug\u0000Paracetamol\u0000003\u0000',
name: 'Paracetamol',
manufacturer: '\u0000org.pharma-network.pharmanet.company\u0000MAN001\u0000Sun Pharma\u0000',
manufacturingDate: '01/06/2020',
expiryDate: '01/06/2025',
owner: '\u0000org.pharma-network.pharmanet.company\u0000MAN001\u0000Sun Pharma\u0000',
shipment: [] }
.....Disconnecting from Fabric Gateway
.....Connecting to Fabric Gateway
.....Connecting to channel - pharmachannel
.....Connecting to pharmanet Smart Contract
org.pharma-network.pharmanet.manufacturer

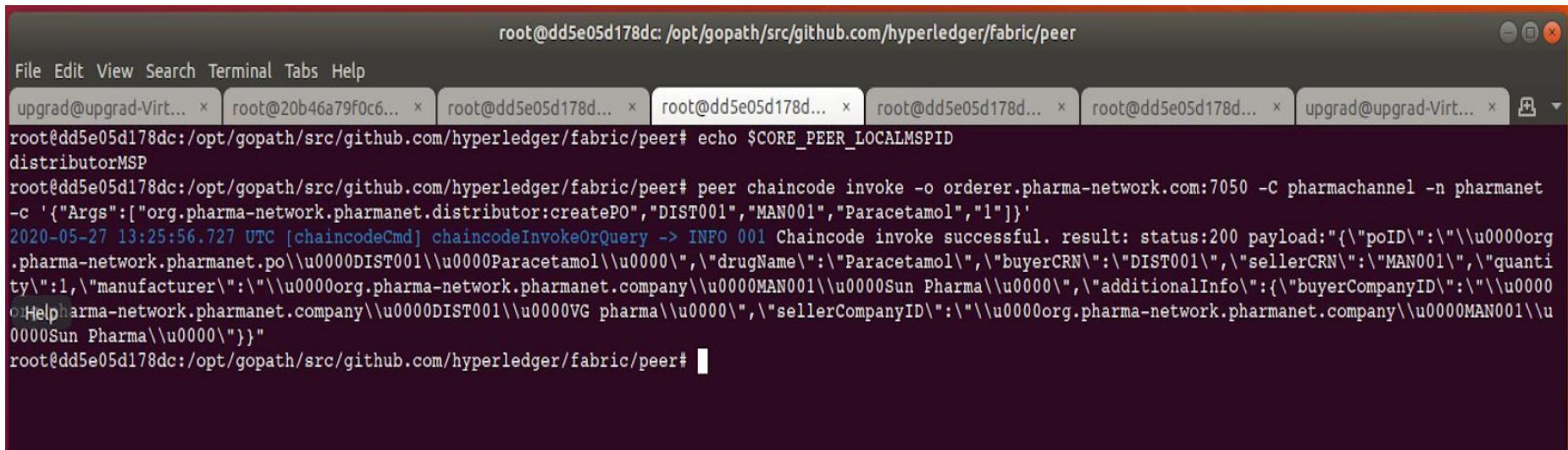
.....addDrug Transaction Complete! { productID: '\u0000org.pharma-network.pharmanet.drug\u0000Paracetamol\u0000004\u0000',
name: 'Paracetamol',
manufacturer: '\u0000org.pharma-network.pharmanet.company\u0000MAN001\u0000Sun Pharma\u0000',
manufacturingDate: '01/06/2020',
expiryDate: '01/06/2025',
owner: '\u0000org.pharma-network.pharmanet.company\u0000MAN001\u0000Sun Pharma\u0000',
shipment: [] }
.....Disconnecting from Fabric Gateway
.....Connecting to Fabric Gateway
.....Connecting to channel - pharmachannel
.....Connecting to pharmanet Smart Contract
org.pharma-network.pharmanet.manufacturer

.....addDrug Transaction Complete! { productID: '\u0000org.pharma-network.pharmanet.drug\u0000Paracetamol\u0000005\u0000',
name: 'Paracetamol',
manufacturer: '\u0000org.pharma-network.pharmanet.company\u0000MAN001\u0000Sun Pharma\u0000',
manufacturingDate: '01/06/2020',
expiryDate: '01/06/2025',
owner: '\u0000org.pharma-network.pharmanet.company\u0000MAN001\u0000Sun Pharma\u0000',
shipment: [] }
.....Disconnecting from Fabric Gateway
```

Supply Chain : createPO

Execute the following command in “distributor MSP” Tab 2

```
peer chaincode invoke -o orderer.pharma-network.com:7050 -C pharmachannel -n pharmanet -c  
'{"Args":["org.pharma-network.pharmanet.distributor:createPO","DIST001","MAN001","Paracetamol","1"]}'
```



The screenshot shows a terminal window with a dark background and light-colored text. The title bar reads "root@dd5e05d178dc: /opt/gopath/src/github.com/hyperledger/fabric/peer". The menu bar includes "File Edit View Search Terminal Tabs Help". There are seven tabs open in the tab bar, all labeled "root@dd5e05d178dc: /opt/gopath/src/github.com/hyperledger/fabric/peer#". The main area of the terminal shows the following command and its output:

```
root@dd5e05d178dc: /opt/gopath/src/github.com/hyperledger/fabric/peer# echo $CORE_PEER_LOCALMSPID
distributorMSP
root@dd5e05d178dc: /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.pharmanet.distributor:createPO","DIST001","MAN001","Paracetamol","1"]}'
2020-05-27 13:25:56.727 UTC [chaincodeCmd] chaincodeInvokeOrQuery -> INFO 001 Chaincode invoke successful. result: status:200 payload:"{\"poID\":\"\\u0000org.pharma-network.pharmanet.po\\u0000DIST001\\u0000Paracetamol\\u0000\", \"drugName\":\"Paracetamol\", \"buyerCRN\":\"DIST001\", \"sellerCRN\":\"MAN001\", \"quantity\":1, \"manufacturer\":\"\\u0000org.pharma-network.pharmanet.company\\u0000MAN001\\u0000Sun Pharma\\u0000\", \"additionalInfo\":{\"buyerCompanyID\":\"\\u0000org.pharma-network.pharmanet.company\\u0000DIST001\\u0000VG pharma\\u0000\", \"sellerCompanyID\":\"\\u0000org.pharma-network.pharmanet.company\\u0000MAN001\\u0000Sun Pharma\\u0000\"}}"
root@dd5e05d178dc: /opt/gopath/src/github.com/hyperledger/fabric/peer#
```

Case#1: BUYER can't be Manufacturer

```
root@dd5e05d178dc: /opt/gopath/src/github.com/hyperledger/fabric/peer
File Edit View Search Terminal Tabs Help
upgrad@upgrad-Virt... x root@20b46a79f0c6... x root@dd5e05d178d... x root@dd5e05d178d... x root@dd5e05d178d... x root@dd5e05d178d... x upgrad@upgrad-Virt... x
root@dd5e05d178dc:/opt/gopath/src/github.com/hyperledger/fabric/peer# echo $CORE_PEER_LOCALMSPID
distributorMSP
root@dd5e05d178dc:/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.pharmanet.distributor:createPO","DIST001","MAN001","Paracetamol","1"]}'
2020-05-27 13:25:56.727 UTC [chaincodeCmd] chaincodeInvokeOrQuery -> INFO 001 Chaincode invoke successful. result: status:200 payload:"{\\"poID\\":\"\\u0000org
.pharma-network.pharmanet.po\\u0000DIST001\\u0000Paracetamol\\u0000\",\\"drugName\\":\"Paracetamol\",\\"buyerCRN\\\":\"DIST001\",\\"sellerCRN\\\":\"MAN001\",\\"quanti
ty\\\":1,\"manufacturer\\\":\"\\u0000org.pharma-network.pharmanet.company\\u0000MAN001\\u0000Sun Pharma\\u0000\",\\"additionalInfo\\\":{\"buyerCompanyID\\\":\"\\u0000
org.pharma-network.pharmanet.company\\u0000DIST001\\u0000VG pharma\\u0000\",\"sellerCompanyID\\\":\"\\u0000org.pharma-network.pharmanet.company\\u0000MAN001\\u
0000Sun Pharma\\u0000\"}}"
root@dd5e05d178dc:/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.pharmanet.distributor:createPO","MAN001","DIST001","TEST","1"]}'
Error: endorsement failure during invoke. response: status:500 message:"transaction returned with failure: Error: BUYER can't be Manufacturer"
root@dd5e05d178dc:/opt/gopath/src/github.com/hyperledger/fabric/peer#
```

Case#2: Invalid BUYER CRN

```
root@dd5e05d178dc: /opt/gopath/src/github.com/hyperledger/fabric/peer
File Edit View Search Terminal Tabs Help
upgrad@upgrad-Virt... x root@20b46a79f0c6... x root@dd5e05d178d... x root@dd5e05d178d... x root@dd5e05d178d... x root@dd5e05d178d... x upgrad@upgrad-Virt... x
root@dd5e05d178dc:/opt/gopath/src/github.com/hyperledger/fabric/peer# echo $CORE_PEER_LOCALMSPID
distributorMSP
root@dd5e05d178dc:/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.pharmanet.distributor:createPO","DIST001","MAN001","Paracetamol","1"]}'
2020-05-27 13:25:56.727 UTC [chaincodeCmd] chaincodeInvokeOrQuery -> INFO 001 Chaincode invoke successful. result: status:200 payload:"{\\"poID\\":\"\\u0000org
.pharma-network.pharmanet.po\\u0000DIST001\\u0000Paracetamol\\u0000\",\\"drugName\\":\"Paracetamol\",\\"buyerCRN\\\":\"MAN001\",\\"sellerCRN\\\":\"MAN001\",\\"quanti
ty\\\":1,\"manufacturer\\\":\"\\u0000org.pharma-network.pharmanet.company\\u0000MAN001\\u0000Sun Pharma\\u0000\",\\"additionalInfo\\\":{\"buyerCompanyID\\\":\"\\u0000
org.pharma-network.pharmanet.company\\u0000DIST001\\u0000VG pharma\\u0000\",\"sellerCompanyID\\\":\"\\u0000org.pharma-network.pharmanet.company\\u0000MAN001\\u
0000Sun Pharma\\u0000\"}}"
root@dd5e05d178dc:/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.pharmanet.distributor:createPO","MAN001","DIST001","TEST","1"]}'
Error: endorsement failure during invoke. response: status:500 message:"transaction returned with failure: Error: BUYER can't be Manufacturer"
root@dd5e05d178dc:/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.pharmanet.distributor:createPO","DIST001","MAN001","TEST","1"]}'
Error: endorsement failure during invoke. response: status:500 message:"transaction returned with failure: Error: Invalid BUYER CRN."
root@dd5e05d178dc:/opt/gopath/src/github.com/hyperledger/fabric/peer#
```

Case#3: No DRUG available with specified name TEST

```
File Edit View Search Terminal Tabs Help
upgrad@upgrad-Virt... x root@20b46a79f0c6... x root@dd5e05d178d... x root@dd5e05d178d... x root@dd5e05d178d... x root@dd5e05d178d... x upgrad@upgrad-Virt... x
root@dd5e05d178dc:/opt/gopath/src/github.com/hyperledger/fabric/peer# echo SCORE_PEER_LOCALSPID
distributorMSPI
root@dd5e05d178dc:/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.pharmanet.distributor:createPO","DIST001","MAN001","Paracetamol","1"]}'
2020-05-27 13:25:56.727 UTC [chaincodeCmd] chaincodeInvokeOrQuery -- INFO 001 Chaincode invoke successful. result: status:200 payload:"{\\"poID\\":\\"\\u0000org.pharma-network.pharmanet.po\\\"\\u00000DIST001\\\"\\u0000Paracetamol\\\"\\u0000\\\",\\\"drugName\\\":\\\"Paracetamol\\\",\\\"buyerCRN\\\":\\\"DIST001\\\",\\\"sellerCRN\\\":\\\"MAN001\\\",\\\"quantity\\\":1,\\\"manufacturer\\\":\\\"\\u0000org.pharma-network.pharmanet.company\\\"\\u0000MAN001\\\"\\u0000Sun Pharma\\\"\\u0000\\\",\\\"additionalInfo\\\":{\\\"buyerCompanyID\\\":\\\"\\u0000org.pharma-network.pharmanet.company\\\"\\u0000DIST001\\\"\\u0000VG pharma\\\"\\u0000\\\",\\\"sellerCompanyID\\\":\\\"\\u0000org.pharma-network.pharmanet.company\\\"\\u0000MAN001\\\"\\u0000Sun Pharma\\\"\\u0000\\\"}}"
root@dd5e05d178dc:/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.pharmanet.distributor:createPO","MAN001","TEST","1"]}'
Error: endorsement failure during invoke. response: status:500 message:"transaction returned with failure: Error: BUYER can't be Manufacturer"
root@dd5e05d178dc:/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.pharmanet.distributor:createPO","DIST001","MAN001","TEST","1"]}'
Error: endorsement failure during invoke. response: status:500 message:"transaction returned with failure: Error: Invalid BUYER CRN."
root@dd5e05d178dc:/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.pharmanet.distributor:createPO","DIST001","MAN001","TEST","1"]}'
Error: endorsement failure during invoke. response: status:500 message:"transaction returned with failure: Error: No DRUG available with specified name TEST"

root@dd5e05d178dc:/opt/gopath/src/github.com/hyperledger/fabric/peer#
```

Case#4: SELLER does not own this DRUG

```
File Edit View Search Terminal Tabs Help
upgrad@upgrad-Virt... x root@20b46a79f0c6... x root@dd5e05d178d... x root@dd5e05d178d... x root@dd5e05d178d... x root@dd5e05d178d... x upgrad@upgrad-Virt... x
root@dd5e05d178dc:/opt/gopath/src/github.com/hyperledger/fabric/peer# echo SCORE_PEER_LOCALSPID
distributorMSPI
root@dd5e05d178dc:/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.pharmanet.distributor:createPO","DIST001","MAN001","Paracetamol","1"]}'
2020-05-27 13:25:56.727 UTC [chaincodeCmd] chaincodeInvokeOrQuery -- INFO 001 Chaincode invoke successful. result: status:200 payload:"{\\"poID\\":\\"\\u0000org.pharma-network.pharmanet.po\\\"\\u00000Paracetamol\\\"\\u0000\\\",\\\"drugName\\\":\\\"Paracetamol\\\",\\\"buyerCRN\\\":\\\"DIST001\\\",\\\"sellerCRN\\\":\\\"MAN001\\\",\\\"quantity\\\":1,\\\"manufacturer\\\":\\\"\\u0000org.pharma-network.pharmanet.company\\\"\\u0000MAN001\\\"\\u0000Sun Pharma\\\"\\u0000\\\",\\\"additionalInfo\\\":{\\\"buyerCompanyID\\\":\\\"\\u0000org.pharma-network.pharmanet.company\\\"\\u0000DIST001\\\"\\u0000VG pharma\\\"\\u0000\\\",\\\"sellerCompanyID\\\":\\\"\\u0000org.pharma-network.pharmanet.company\\\"\\u0000MAN001\\\"\\u0000Sun Pharma\\\"\\u0000\\\"}}"
root@dd5e05d178dc:/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.pharmanet.distributor:createPO","MAN001","TEST","1"]}'
Error: endorsement failure during invoke. response: status:500 message:"transaction returned with failure: Error: BUYER can't be Manufacturer"
root@dd5e05d178dc:/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.pharmanet.distributor:createPO","DIST001","MAN001","TEST","1"]}'
Error: endorsement failure during invoke. response: status:500 message:"transaction returned with failure: Error: Invalid BUYER CRN."
root@dd5e05d178dc:/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.pharmanet.distributor:createPO","DIST001","MAN001","TEST","1"]}'
Error: endorsement failure during invoke. response: status:500 message:"transaction returned with failure: Error: No DRUG available with specified name TEST"

root@dd5e05d178dc:/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.pharmanet.distributor:createPO","DIST001","MAN001","Brufin","1"]}'
Error: endorsement failure during invoke. response: status:500 message:"transaction returned with failure: Error: SELLER does not own this DRUG : Brufin"
root@dd5e05d178dc:/opt/gopath/src/github.com/hyperledger/fabric/peer#
```

Postman

Part A: Distributor - createPO (VG Pharma - 3 Strips)

The screenshot shows the Postman interface with the following details:

- Request URL:** POST http://localhost:3000/createPO
- Status:** 200 OK
- Time:** 2.28 s
- Size:** 790 B
- Body (Pretty):**

```
1 {
2   "orgType": "distributor",
3   "buyerCRN": "DIST001",
4   "sellerCRN": "MAN001",
5   "drugName": "Paracetamol",
6   "quantity": "3"
7 }
```
- Response Body (Pretty):**

```
1 {
2   "status": "success",
3   "message": "createPO invoked successfully",
4   "response": {
5     "poID": "org.pharma-network.pharmanet.po@DIST001@Paracetamol@",
6     "drugName": "Paracetamol",
7     "buyerCRN": "DIST001",
8     "sellerCRN": "MAN001",
9     "quantity": 3,
10    "manufacturer": "org.pharma-network.pharmanet.company@MAN001@Sun Pharma@",
11    "additionalInfo": {
12      "buyerCompanyID": "org.pharma-network.pharmanet.company@DIST001@VG pharma@",
13      "sellerCompanyID": "org.pharma-network.pharmanet.company@MAN001@Sun Pharma@"
14    }
15  }
16 }
```

Part B: Retailer - createPO (upgrad - 2 strips)

The screenshot shows the Postman application interface with the following details:

- Header Bar:** Shows multiple tabs (e.g., [DELETED] POST, POST Part a: Di...), a dropdown for "No Environment", and icons for comments, examples, and settings.
- Request Details:** A collapsed section titled "Part b: Retailer - createPO (upgrad - 2 Scripts)" is shown.
- Method and URL:** The method is "POST" and the URL is "http://localhost:3000/createPO".
- Status:** Status: 200 OK, Time: 1 m 59.58 s, Size: 691 B.
- Body Tab:** Selected tab, showing the raw JSON request body:

```
1 {  
2   "orgType": "retailer",  
3   "buyerCRN": "RET002",  
4   "sellerCRN": "DIST001",  
5   "drugName": "Paracetamol",  
6   "quantity": "2"  
7 }
```
- Response Tab:** Selected tab, showing the raw JSON response body:

```
1 {  
2   "status": "success",  
3   "message": "createPO invoked successfully",  
4   "response": {  
5     "poID": "org.pharma-network.pharmanet.poRET002Paracetamol0",  
6     "drugName": "Paracetamol",  
7     "buyerCRN": "RET002",  
8     "sellerCRN": "DIST001",  
9     "quantity": 2,  
10    "additionalInfo": {  
11      "buyerCompanyID": "org.pharma-network.pharmanet.companyRET002upgrad0",  
12      "sellerCompanyID": "org.pharma-network.pharmanet.companyDIST001VG pharma0"  
13    }  
14  }  
15 }
```
- Save Response:** A button to save the current response structure.

API Client Console

```
_msps: Map {},
_devMode: false,
_adminSigningIdentity: null,
_tls_mutual: {},
_organizations: Map {},
_certificateAuthorities: Map {},
_channels: [Object],
_connection_options: {} },
wallet: null,
networks: Map { 'pharmacachannel' => [Object] },
options:
{ queryHandlerOptions: [Object],
eventHandlerOptions: [Object],
discovery: [Object],
checkpointer: [Object],
eventHubSelectionOptions: [Object],
wallet: [Object],
identity: 'DISTRIBUTOR_ADMIN' },
currentIdentity:
User {
  _name: 'DISTRIBUTOR_ADMIN',
  _roles: null,
  _affiliation: '',
  _enrollmentSecret: '',
  _identity: [Object],
  _signingIdentity: [Object],
  _mspID: 'distributorMSP',
  _cryptoSuite: [Object] },
namespace: 'org.pharma-network.pharmanet.distributor',
checkpointer: { factory: [Function: FILE_SYSTEM_CHECKPOINTER], options: {} } }

.....createPO Transaction Complete! { poID: '\u0000org.pharma-network.pharmanet.po\u0000DIST001\u0000Paracetamol\u0000',
drugName: 'Paracetamol',
buyerCRN: 'DIST001',
sellerCRN: 'MAN001',
quantity: 1,
manufacturer: '\u0000org.pharma-network.pharmanet.company\u0000MAN001\u0000Sun Pharma\u0000',
additionalInfo:
{ buyerCompanyID: '\u0000org.pharma-network.pharmanet.company\u0000DIST001\u0000VG pharma\u0000',
sellerCompanyID: '\u0000org.pharma-network.pharmanet.company\u0000MAN001\u0000Sun Pharma\u0000' } }
.....Disconnecting from Fabric Gateway
```

Supply Chain : createShipment

Execute the following command in “manufacturer MSP” Tab 1

```
peer chaincode invoke -o orderer.pharma-network.com:7050 -C pharmachannel -n pharmanet -c  
'{"Args":["org.pharma-network.pharmanet.manufacturer:createShipment","DIST001","Paracetamol","[\"  
org.pharma-network.pharmanet.drugParacetamol001\"]","TRA001"]}'
```

The screenshot shows a terminal window with a dark background and light-colored text. At the top, the title bar displays the path: root@dd5e05d178dc: /opt/gopath/src/github.com/hyperledger/fabric/peer. Below the title bar is a menu bar with options: File, Edit, View, Search, Terminal, Tabs, Help. The terminal window contains several tabs, with the active tab showing the command and its output.

```
File Edit View Search Terminal Tabs Help
upgrad@upgrad-Virt... x root@20b46a79f0c6... x root@dd5e05d178d... x root@dd5e05d178d... x root@dd5e05d178d... x root@dd5e05d178d... x upgrad@upgrad-Virt... x
root@dd5e05d178dc:/opt/gopath/src/github.com/hyperledger/fabric/peer# echo $CORE_PEER_LOCALMSPID
manufacturerMSP
root@dd5e05d178dc:/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.pharmanet.manufacturer:createShipment","DIST001","Paracetamol","[\"org.pharma-network.pharmanet.drugParacetamol001\"]","TRA001"]}'
2020-05-27 13:43:39.048 UTC [chaincodeCmd] chaincodeInvokeOrQuery -> INFO 001 Chaincode invoke successful. result: status:200 payload:"{\"shipmentID\":\"\\u0000org.pharma-network.pharmanet.shipment\\u0000DIST001\\u0000Paracetamol\\u0000\",\"creator\":\"\\u0000org.pharma-network.pharmanet.company\\u0000DIST001\\u0000VG_pharma\\u0000\",\"assets\":[\"\\u0000org.pharma-network.pharmanet.drug\\u0000Paracetamol\\u0000001\\u0000\"],\"transporterCRN\":\"TRA001\",\"status\":\"IN-TRANSIT\"}"
root@dd5e05d178dc:/opt/gopath/src/github.com/hyperledger/fabric/peer#
```

Scenario#1: Invalid Initiator

```
Firefox Web Browser
File Edit View Search Terminal Tabs Help
upgrad@upgrad-Virt... x root@20b46a79f0c6... x root@dd5e05d178d... x root@dd5e05d178d... x root@dd5e05d178d... x root@dd5e05d178d... x upgrad@upgrad-Virt... x
root@dd5e05d178dc:/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.pharmanet.manufacturer:createShipment","DIST001","Paracetamol","[\"org.pharma-network.pharmanet.drugParacetamol001\"]","TRA001"]}' Error: endorsement failure during invoke. response: status:500 message:"transaction returned with failure: Error: You are not authorized to perform this operation : Your Organization is : transporterMSP"
root@dd5e05d178dc:/opt/gopath/src/github.com/hyperledger/fabric/peer#
```

Scenario#2: Invalid BUYER CRN

```
root@dd5e05d178dc:/opt/gopath/src/github.com/hyperledger/fabric/peer
File Edit View Search Terminal Tabs Help
upgrad@upgrad-Virt... x root@20b46a79f0c6... x root@dd5e05d178d... x root@dd5e05d178d... x root@dd5e05d178d... x root@dd5e05d178d... x upgrad@upgrad-Virt... x
root@dd5e05d178dc:/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.pharmanet.distributor:createShipment","XYZ001","Paracetamol","[\"org.pharma-network.pharmanet.drugParacetamol001\"]","TRA002"]}' Error: endorsement failure during invoke. response: status:500 message:"transaction returned with failure: Error: Invalid BUYER CRN."
root@dd5e05d178dc:/opt/gopath/src/github.com/hyperledger/fabric/peer#
```

Scenario#3:Invalid Transporter CRN

```
root@dd5e05d178dc: /opt/gopath/src/github.com/hyperledger/fabric/peer
File Edit View Search Terminal Tabs Help
upgrad@upgrad-Virt... x root@20b46a79f0c6... x root@dd5e05d178d... x root@dd5e05d178d... x root@dd5e05d178d... x root@dd5e05d178d... x upgrad@upgrad-Virt... x
root@dd5e05d178dc:/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.pharmanet.distributor:createShipment","XYZ001","Paracetamol","[\"org.pharma-network.pharmanet.drugParacetamol001\"]","TRA002"]}''
Error: endorsement failure during invoke. response: status:500 message:"transaction returned with failure: Error: Invalid BUYER CRN."
root@dd5e05d178dc:/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.pharmanet.distributor:createShipment","RET002","Paracetamol","[\"org.pharma-network.pharmanet.drugParacetamol001\"]","XYZ001"]}''
Error: endorsement failure during invoke. response: status:500 message:"transaction returned with failure: Error: Invalid Transporter CRN."
root@dd5e05d178dc:/opt/gopath/src/github.com/hyperledger/fabric/peer#
```

Scenario#4:Invalid operation. No PO raised for specified items

```
root@dd5e05d178dc: /opt/gopath/src/github.com/hyperledger/fabric/peer
File Edit View Search Terminal Tabs Help
upgrad@upgrad-Virt... x root@20b46a79f0c6... x root@dd5e05d178d... x root@dd5e05d178d... x root@dd5e05d178d... x root@dd5e05d178d... x upgrad@upgrad-Virt... x
root@dd5e05d178dc:/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.pharmanet.distributor:createShipment","XYZ001","Paracetamol","[\"org.pharma-network.pharmanet.drugParacetamol001\"]","TRA002"]}''
Error: endorsement failure during invoke. response: status:500 message:"transaction returned with failure: Error: Invalid BUYER CRN."
root@dd5e05d178dc:/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.pharmanet.distributor:createShipment","RET002","Paracetamol","[\"org.pharma-network.pharmanet.drugParacetamol001\"]","XYZ001"]}''
Error: endorsement failure during invoke. response: status:500 message:"transaction returned with failure: Error: Invalid Transporter CRN."
root@dd5e05d178dc:/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.pharmanet.distributor:createShipment","RET002","TEST","[\"org.pharma-network.pharmanet.drugParacetamol001\"]","XYZ001"]}''
Error: endorsement failure during invoke. response: status:500 message:"transaction returned with failure: Error: Invalid Transporter CRN."
root@dd5e05d178dc:/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.pharmanet.distributor:createShipment","RET002","TEST","[\"org.pharma-network.pharmanet.drugParacetamol001\"]","TRA002"]}''
Error: endorsement failure during invoke. response: status:500 message:"transaction returned with failure: Error: Invalid operation. No PO raised for BUYER : RET002, DRUG : TEST"
root@dd5e05d178dc:/opt/gopath/src/github.com/hyperledger/fabric/peer#
```

Postman

Part a: Manufacturer - createShipment (Sun Pharma - 3 Strips)

The screenshot shows the Postman application interface. The top navigation bar has tabs for '[DELETED] POST Manufacturer - regi...', 'POST Distributor - createPO (VG Pha...', and 'POST Manufacturer - createShipme...'. The current tab is 'POST Manufacturer - createShipment (Sun Pharma - 3 Strips)'. On the right, there are buttons for 'Comments 0', 'Examples 0', 'Send', and 'Save'. Below the tabs, the URL is set to 'http://localhost:3000/createShipment'. The 'Body' tab is selected, showing a JSON payload with line numbers 1 through 7. The response tab shows a status of '200 OK' with a response body containing a success message and shipment details.

POST http://localhost:3000/createShipment

Status: 200 OK Time: 2.28 s Size: 792 B

Params Auth Headers (8) Body Pre-req. Tests Settings Cookies Code Save Response

raw JSON Beautify

```
1 {
2   "orgType": "manufacturer",
3   "buyerCRN": "DIST001",
4   "drugName": "Paracetamol",
5   "listOfAssets": "[\"org.pharma-network.pharmanet
       .drugParacetamol002\", \"org.pharma-network.pharmanet
       .drugParacetamol003\", \"org.pharma-network.pharmanet
       .drugParacetamol004\"]",
6   "transporterCRN": "TRA001"
7 }
```

Body Cookies Headers (7) Test Results

Pretty Raw Preview Visualize JSON

```
1 [
2   "status": "success",
3   "message": "createShipment invoked successfully",
4   "response": {
5     "shipmentID": "org.pharma-network.pharmanet.shipment@DIST001@Paracetamol@",
6     "creator": "org.pharma-network.pharmanet.company@DIST001@VG pharma@",
7     "assets": ["org.pharma-network.pharmanet.drug@Paracetamol@002@",
       "org.pharma-network.pharmanet.drug@Paracetamol@003@",
       "org.pharma-network.pharmanet.drug@Paracetamol@004@"]
8   },
9   "transporterCRN": "TRA001",
10  "status": "IN-TRANSIT"
11 }
```

Part b: Distributor - createShipment (VG Pharma to Upgrad - Blue Dart)

Part b: Distributor - createShipment (VG Pharma to upgrad - Blue Dart)

Add a description

POST http://localhost:3000/createShipment

Status: 200 OK Time: 2.78 s Size: 713 B

Params Auth Headers (8) Body Pre-req Tests Settings Cookies Code Save Response

raw JSON Beautify

```
1 {  
2   "orgType": "distributor",  
3   "buyerCRN": "RET002",  
4   "drugName": "Paracetamol",  
5   "listOfAssets": "[\"003\", \"004\"]",  
6   "transporterCRN": "TRA002"  
7 }
```

Body Cookies Headers (7) Test Results

Pretty Raw Preview Visualize JSON

```
1 {  
2   "status": "success",  
3   "message": "createShipment invoked successfully",  
4   "response": {  
5     "shipmentID": "@org.pharma-network.pharmanet.shipment@RET002@Paracetamol@",  
6     "creator": "@org.pharma-network.pharmanet.company@RET002@upgrad@",  
7     "assets": ["@org.pharma-network.pharmanet.drug@Paracetamol@003@",  
8                 "@org.pharma-network.pharmanet.drug@Paracetamol@004@"  
9               ],  
10    "transporterCRN": "TRA002",  
11    "status": "IN-TRANSIT"  
12  }  
}
```

API Client Console

```
discovery: [Object],
checkpointer: [Object],
eventHubSelectionOptions: [Object],
wallet: [Object],
identity: 'RETAILER_ADMIN' ),
currentIdentity:
User {
  _name: 'RETAILER_ADMIN',
  _roles: null,
  _affiliation: '',
  _enrollmentSecret: '',
  _identity: [Object],
  _signingIdentity: [Object],
  _mspId: 'retailerMSP',
  _cryptoSuite: [Object] } },
namespace: 'org.pharma-network.pharmanet.retailer',
checkpointer: { factory: [Function: FILE_SYSTEM_CHECKPOINTER], options: {} } }

.....createPO Transaction Complete! { poID: '\u0000org.pharma-network.pharmanet.po\u0000RET002\u0000Paracetamol\u0000',
drugName: 'Paracetamol',
buyerCRN: 'RET002',
sellerCRN: 'DIST001',
quantity: 1,
manufacturer: null,
additionalInfo:
 { buyerCompanyID: '\u0000org.pharma-network.pharmanet.company\u0000RET002\u0000upgrad\u0000',
  sellerCompanyID: '\u0000org.pharma-network.pharmanet.company\u0000DIST001\u0000VG pharma\u0000' } }
.....Disconnecting from Fabric Gateway
.....Connecting to Fabric Gateway
.....Connecting to channel - pharmacchannel
.....Connecting to pharmanet Smart Contract
org.pharma-network.pharmanet.distributor

.....createShipment Transaction Complete! { shipmentID: '\u0000org.pharma-network.pharmanet.shipment\u0000RET002\u0000Paracetamol\u0000',
creator: '\u0000org.pharma-network.pharmanet.company\u0000RET002\u0000upgrad\u0000',
assets:
 [ '\u0000org.pharma-network.pharmanet.drug\u0000Paracetamol\u0000001\u0000' ],
transporterCRN: 'TRA002',
status: 'IN-TRANSIT' }
.....Disconnecting from Fabric Gateway
```

Supply Chain : updateShipment

Execute the following command in “transporter MSP” Tab 4

```
peer chaincode invoke -o orderer.pharma-network.com:7050 -C pharmachannel -n pharmanet -c  
'{"Args":["org.pharma-network.pharmanet.transporter:updateShipment","DIST001","Paracetamol","TRA001"]}'
```

The screenshot shows a terminal window with a dark background and light-colored text. The title bar reads "root@dd5e05d178dc: /opt/gopath/src/github.com/hyperledger/fabric/peer". The window has multiple tabs at the top, all labeled "root@dd5e05d178dc...". The main area of the terminal shows the following command being run:

```
root@dd5e05d178dc: /opt/gopath/src/github.com/hyperledger/fabric/peer# echo $CORE_PEER_LOCALMSPID  
transporterMSP  
root@dd5e05d178dc: /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.pharmanet.transporter:updateShipment","DIST001","Paracetamol","TRA001"]}'  
2020-05-27 13:46:16.073 UTC [chaincodeCmd] chaincodeInvokeOrQuery -> INFO 001 Chaincode invoke successful. result: status:200 payload:"{\"shipmentID\":\"\\u0000org.pharma-network.pharmanet.shipment\\u0000DIST001\\u0000Paracetamol\\u0000\", \"creator\":\"\\u0000org.pharma-network.pharmanet.company\\u0000DIST001\\u0000VG pharma\\u0000\", \"assets\": [\"\\u0000org.pharma-network.pharmanet.drug\\u0000Paracetamol\\u0000001\\u0000\"], \"transporterCRN\":\"TRA001\", \"status\":\"DELIVERED\"}"  
root@dd5e05d178dc: /opt/gopath/src/github.com/hyperledger/fabric/peer#
```

The bottom left corner of the terminal window has a button labeled "Terminal".

Scenario#1: Invalid Initiator

```
root@dd5e05d178dc: /opt/gopath/src/github.com/hyperledger/fabric/peer
File Edit View Search Terminal Tabs Help
upgrad@upgrad-Virt... × root@20b46a79f0c6... × root@dd5e05d178d... × root@dd5e05d178d... × root@dd5e05d178d... × root@dd5e05d178d... × upgrad@upgrad-Virt... ×
root@dd5e05d178dc:/opt/gopath/src/github.com/hyperledger/fabric/peer# echo $CORE_PEER_LOCALMSPID
retailerMSP
root@dd5e05d178dc:/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.pharmanet.transporter:updateShipment","DIST001","Paracetamol","TRA001"]}'
Error: endorsement failure during invoke. response: status:500 message:"transaction returned with failure: Error: You are not authorized to perform this operation : Your Organization is : retailerMSP"
root@dd5e05d178dc:/opt/gopath/src/github.com/hyperledger/fabric/peer#
```

Scenario#2: Invalid BUYER CRN.

```
root@dd5e05d178dc: /opt/gopath/src/github.com/hyperledger/fabric/peer
File Edit View Search Terminal Tabs Help
upgrad@upgrad-Virt... × root@20b46a79f0c6... × root@dd5e05d178d... × root@dd5e05d178d... × root@dd5e05d178d... × root@dd5e05d178d... × upgrad@upgrad-Virt... ×
root@dd5e05d178dc:/opt/gopath/src/github.com/hyperledger/fabric/peer# echo $CORE_PEER_LOCALMSPID
transporterMSP
root@dd5e05d178dc:/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.pharmanet.transporter:updateShipment","DIST001","Paracetamol","TRA001"]}'
2020-05-27 14:33:00.576 UTC [chaincodeCmd] chaincodeInvokeOrQuery > INFO 001 Chaincode invoke successful. result: status:200 payload:"{\\"shipmentID\\":\"\\u0000org.pharma-network.pharmanet.shipment\\u0000DIST001\\u0000Paracetamol\\u0000\",\\"creator\\":\"\\u0000org.pharma-network.pharmanet.company\\u0000DIST001\\u0000VG pharma\\u0000\",\\"assets\\":\"\\u0000org.pharma-network.pharmanet.drug\\u0000Paracetamol\\u0000001\\u0000\",\\"transporterCRN\\\":\"TRA001\",\\"status\\\":\"DELIVERED\"}"
root@dd5e05d178dc:/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.pharmanet.transporter:updateShipment","DIST002","Paracetamol","TRA001"]}'
Error: endorsement failure during invoke. response: status:500 message:"transaction returned with failure: Error: Invalid BUYER CRN."
root@dd5e05d178dc:/opt/gopath/src/github.com/hyperledger/fabric/peer#
```

Scenario#3: Invalid Transporter CRN

```
root@dd5e05d178dc:/opt/gopath/src/github.com/hyperledger/fabric/peer
File Edit View Search Terminal Tabs Help
upgrad@upgrad-Virt... x root@20b46a79f0c6... x root@dd5e05d178d... x root@dd5e05d178d... x root@dd5e05d178d... x root@dd5e05d178d... x upgrad@upgrad-Virt... x
root@dd5e05d178dc:/opt/gopath/src/github.com/hyperledger/fabric/peer# echo $CORE_PEER_LOCALMSPID
transporterMSP
root@dd5e05d178dc:/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.pharmanet.transporter:updateShipment","DIST001","Paracetamol","TRA001"]}'
2020-05-27 14:33:00.576 UTC [chaincodeCmd] chaincodeInvokeOrQuery -> INFO 001 Chaincode invoke successful. result: status:200 payload:"{\"shipmentID\":\"\\u0000org.pharma-network.pharmanet.shipment\\u0000DIST001\\u0000Paracetamol\\u0000\", \"creator\":\"\\u0000org.pharma-network.pharmanet.company\\u0000DIST001\\u0000VG pharma\\u0000\", \"assets\": [\"\\u0000org.pharma-network.pharmanet.drug\\u0000Paracetamol\\u0000001\\u0000\"], \"transporterCRN\":\"TRA001\", \"status\":\"DELIVERED\"}"
root@dd5e05d178dc:/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.pharmanet.transporter:updateShipment","DIST002","Paracetamol","TRA001"]}'
Error: endorsement failure during invoke. response: status:500 message:"transaction returned with failure: Error: Invalid BUYER CRN."
root@dd5e05d178dc:/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.pharmanet.transporter:updateShipment","DIST001","Paracetamol","TRA0011"]}'
Error: endorsement failure during invoke. response: status:500 message:"transaction returned with failure: Error: Invalid Transporter CRN."
root@dd5e05d178dc:/opt/gopath/src/github.com/hyperledger/fabric/peer#
```

Scenario#4: Can't find any shipment with specified buyer and drug

```
root@dd5e05d178dc:/opt/gopath/src/github.com/hyperledger/fabric/peer
File Edit View Search Terminal Tabs Help
upgrad@upgrad-Virt... x root@20b46a79f0c6... x root@dd5e05d178d... x root@dd5e05d178d... x root@dd5e05d178d... x root@dd5e05d178d... x upgrad@upgrad-Virt... x
root@dd5e05d178dc:/opt/gopath/src/github.com/hyperledger/fabric/peer# echo $CORE_PEER_LOCALMSPID
transporterMSP
root@dd5e05d178dc:/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.pharmanet.transporter:updateShipment","DIST001","Paracetamol","TRA001"]}'
2020-05-27 14:33:00.576 UTC [chaincodeCmd] chaincodeInvokeOrQuery -> INFO 001 Chaincode invoke successful. result: status:200 payload:"{\"shipmentID\":\"\\u0000org.pharma-network.pharmanet.shipment\\u0000DIST001\\u0000Paracetamol\\u0000\", \"creator\":\"\\u0000org.pharma-network.pharmanet.company\\u0000DIST001\\u0000VG pharma\\u0000\", \"assets\": [\"\\u0000org.pharma-network.pharmanet.drug\\u0000Paracetamol\\u0000001\\u0000\"], \"transporterCRN\":\"TRA001\", \"status\":\"DELIVERED\"}"
root@dd5e05d178dc:/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.pharmanet.transporter:updateShipment","DIST002","Paracetamol","TRA001"]}'
Error: endorsement failure during invoke. response: status:500 message:"transaction returned with failure: Error: Invalid BUYER CRN."
root@dd5e05d178dc:/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.pharmanet.transporter:updateShipment","DIST001","Paracetamol","TRA0011"]}'
Error: endorsement failure during invoke. response: status:500 message:"transaction returned with failure: Error: Invalid Transporter CRN."
root@dd5e05d178dc:/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.pharmanet.transporter:updateShipment","DIST001","Paracetamol123","TRA001"]}'
Error: endorsement failure during invoke. response: status:500 message:"transaction returned with failure: Error: Invalid operation. Can't find any SHIPMENT
with specified BUYER & DRUG"
root@dd5e05d178dc:/opt/gopath/src/github.com/hyperledger/fabric/peer#
```

Postman

Part A: Transporter - updateShipment (FedEx to VG Pharma)

The screenshot shows the Postman application interface with the following details:

- Header Bar:** Shows tabs for [DELETED] POST Manufacturer - regi..., POST Distributor - createPO (VG Pha..., POST Manufacturer - createShipme..., and POST Transporter - updateShipmen... (the active tab).
- Environment:** No Environment
- Request Details:** Method: POST, URL: http://localhost:3000/updateShipment.
- Body Tab (Active):** Contains the JSON payload for the updateShipment request:

```
1 {  
2   "orgType": "transporter",  
3   "buyerCRN": "DIST001",  
4   "drugName": "Paracetamol",  
5   "transporterCRN": "TRA001"  
6 }
```
- Response Tab:** Status: 200 OK, Time: 2.31 s, Size: 791 B.
- Body Content (Pretty View):** Displays the JSON response from the server:

```
1 {  
2   "status": "success",  
3   "message": "updateShipment invoked successfully",  
4   "response": {  
5     "shipmentID": "@org.pharma-network.pharmanet.shipment@DIST001@Paracetamol@",  
6     "creator": "@org.pharma-network.pharmanet.company@DIST001@VG pharma@",  
7     "assets": ["@org.pharma-network.pharmanet.drug@Paracetamol@0002@",  
8               "@org.pharma-network.pharmanet.drug@Paracetamol@0003@",  
9               "@org.pharma-network.pharmanet.drug@Paracetamol@0004@"  
10            ],  
11            "transporterCRN": "TRA001",  
12            "status": "DELIVERED"  
13        }  
14    }
```
- Buttons:** Send, Save.

Part B: Transporter - updateShipment (Blue Dart to upgrad)

▶ Part b: Transporter - updateShipment (BlueDart to upgrad)

Comments 0 Examples 0

POST http://localhost:3000/updateShipment Send Save

Params Auth Headers (8) Body Pre-req. Tests Settings Cookies Code Status: 200 OK Time: 2.69 s Size: 712 B Save Response

raw JSON Beautify Body Cookies Headers (7) Test Results

```
1 {  
2   "orgType": "transporter",  
3   "buyerCRN": "RET002",  
4   "drugName": "Paracetamol",  
5   "transporterCRN": "TRA002"  
6 }
```

Pretty Raw Preview Visualize JSON 

```
1 {  
2   "status": "success",  
3   "message": "updateShipment invoked successfully",  
4   "response": {  
5     "shipmentID": "@org.pharma-network.pharmanet.shipment@RET002@Paracetamol@",  
6     "creator": "@org.pharma-network.pharmanet.company@RET002@upgrad@",  
7     "assets": ["@org.pharma-network.pharmanet.drug@Paracetamol@003@",  
8               "@org.pharma-network.pharmanet.drug@Paracetamol@004@"  
9             ],  
10    "transporterCRN": "TRA002",  
11    "status": "DELIVERED"  
12  }  
}
```

API Client Console

```
_mspID: 'retailerMSP',
_cryptoSuite: [Object] },
namespace: 'org.pharma-network.pharmanet.retailer',
checkpointer: { factory: [Function: FILE_SYSTEM_CHECKPOINTER], options: {} } }

.....createPO Transaction Complete! { poID: '\u0000org.pharma-network.pharmanet.po\u0000RET002\u0000Paracetamol\u0000',
drugName: 'Paracetamol',
buyerCRN: 'RET002',
sellerCRN: 'DIST001',
quantity: 1,
manufacturer: null,
additionalInfo:
{ buyerCompanyID: '\u0000org.pharma-network.pharmanet.company\u0000RET002\u0000upgrad\u0000',
sellerCompanyID: '\u0000org.pharma-network.pharmanet.company\u0000DIST001\u0000VG pharma\u0000' } }
.....Disconnecting from Fabric Gateway
.....Connecting to Fabric Gateway
.....Connecting to channel - pharmachannel
.....Connecting to pharmanet Smart Contract
org.pharma-network.pharmanet.distributor

.....createShipment Transaction Complete! { shipmentID: '\u0000org.pharma-network.pharmanet.shipment\u0000RET002\u0000Paracetamol\u0000',
creator: '\u0000org.pharma-network.pharmanet.company\u0000RET002\u0000upgrad\u0000',
assets:
[ '\u0000org.pharma-network.pharmanet.drug\u0000Paracetamol\u0000001\u0000' ],
transporterCRN: 'TRA002',
status: 'IN-TRANSIT' }
.....Disconnecting from Fabric Gateway
.....Connecting to Fabric Gateway
.....Connecting to channel - pharmachannel
.....Connecting to pharmanet Smart Contract
org.pharma-network.pharmanet.transporter

.....updateShipment Transaction Complete! { shipmentID: '\u0000org.pharma-network.pharmanet.shipment\u0000RET002\u0000Paracetamol\u0000',
creator: '\u0000org.pharma-network.pharmanet.company\u0000RET002\u0000upgrad\u0000',
assets:
[ '\u0000org.pharma-network.pharmanet.drug\u0000Paracetamol\u0000001\u0000' ],
transporterCRN: 'TRA002',
status: 'DELIVERED' }
.....Disconnecting from Fabric Gateway
```

Supply Chain : retail Drug

Execute the following command in “retailerMSP” Tab1

```
peer chaincode invoke -o orderer.pharma-network.com:7050 -C pharmachannel -n pharmanet -c  
'{"Args":["org.pharma-network.pharmanet.retailer:retailDrug","Paracetamol","001","RET002","9090-1212-  
3434"]}'
```

The screenshot shows a terminal window with a dark theme. The title bar reads "root@dd5e05d178dc: /opt/gopath/src/github.com/hyperledger/fabric/peer". The terminal window has multiple tabs open, all showing the same root prompt. The current tab's content is as follows:

```
File Edit View Search Terminal Tabs Help  
upgrad@upgrad-Virt... x root@20b46a79f0c6... x root@dd5e05d178d... x root@dd5e05d178d... x root@dd5e05d178d... x root@dd5e05d178d... x upgrad@upgrad-Virt... x  
root@dd5e05d178dc:/opt/gopath/src/github.com/hyperledger/fabric/peer# echo $CORE_PEER_LOCALMSPID  
transporterMSP  
root@dd5e05d178dc:/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.pharmanet.transporter:updateShipment","DIST001","Paracetamol","TRA001"]}'  
2020-05-27 13:46:16.073 UTC [chaincodeCmd] chaincodeInvokeOrQuery -> INFO 001 Chaincode invoke successful. result: status:200 payload:"{\\"shipmentID\\":\"\\u0000org.pharma-network.pharmanet.shipment\\u0000DIST001\\u0000Paracetamol\\u0000\\\",\\\"creator\\\":\\\"\\u0000org.pharma-network.pharmanet.company\\u0000DIST001\\u0000VG pharma\\u0000\\\",\\\"assets\\\":\\\"\\u0000org.pharma-network.pharmanet.drug\\u0000Paracetamol\\u0000001\\u0000\\\"},\\\"transporterCRN\\\":\\\"TRA001\\\",\\\"status\\\":\\\"DELIVERED\\\"}"  
root@dd5e05d178dc:/opt/gopath/src/github.com/hyperledger/fabric/peer#
```

The bottom left corner of the terminal window has a button labeled "Terminal".

Scenario#1: You can't sell this DRUG as you are not the OWNER of this DRUG

```
root@dd5e05d178dc: /opt/gopath/src/github.com/hyperledger/fabric/peer
File Edit View Search Terminal Tabs Help
upgrad@upgrad-Virt... × root@20b46a79f0c6... × root@dd5e05d178d... × root@dd5e05d178d... × root@dd5e05d178d... × root@dd5e05d178d... × upgrad@upgrad-Virt... ×
root@dd5e05d178dc:/opt/gopath/src/github.com/hyperledger/fabric/peer# echo $CORE_PEER_LOCALMSPID
retailerMSP
root@dd5e05d178dc:/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.pharmanet.retailer:retailDrug","Paracetamol","001","RET002","9090-1212-3434"]}'
Files
ERROR: endorsement failure during invoke. response: status:500 message:"transaction returned with failure: Error: You can't sell this DRUG as you are not the
OWNER of this DRUG "
root@dd5e05d178dc:/opt/gopath/src/github.com/hyperledger/fabric/peer#
```

Scenario#2: Invalid Initiator

```
root@dd5e05d178dc: /opt/gopath/src/github.com/hyperledger/fabric/peer
File Edit View Search Terminal Tabs Help
upgrad@upgrad-Virt... × root@20b46a79f0c6... × root@dd5e05d178d... × root@dd5e05d178d... × root@dd5e05d178d... × root@dd5e05d178d... × upgrad@upgrad-Virt... ×
root@dd5e05d178dc:/opt/gopath/src/github.com/hyperledger/fabric/peer# echo $CORE_PEER_LOCALMSPID
distributorMSP
root@dd5e05d178dc:/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.pharmanet.retailer:retailDrug","Paracetamol","001","RET002","9090-1212-3434"]}'
Error: endorsement failure during invoke. response: status:500 message:"transaction returned with failure: Error: You are not authorized to perform this operation : Your Organization is : distributorMSP"
root@dd5e05d178dc:/opt/gopath/src/github.com/hyperledger/fabric/peer#
```

Scenario#3: Invalid Retailer CRN

```
root@dd5e05d178dc: /opt/gopath/src/github.com/hyperledger/fabric/peer
File Edit View Search Terminal Tabs Help
upgrad@upgrad-Virt... x root@20b46a79f0c6... x root@dd5e05d178d... x root@dd5e05d178d... x root@dd5e05d178d... x root@dd5e05d178d... x upgrad@upgrad-Virt... x
root@dd5e05d178dc:/opt/gopath/src/github.com/hyperledger/fabric/peer# echo $CORE_PEER_LOCALMSPID
retailerMSP
root@dd5e05d178dc:/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.pharmanet.transporter:updateShipment", "DIST001", "Paracetamol", "TRA001"]}'
Error: endorsement failure during invoke. response: status:500 message:"transaction returned with failure: Error: You are not authorized to perform this operation : Your Organization is : retailerMSP"
root@dd5e05d178dc:/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.pharmanet.retailer:retailDrug", "Paracetamol", "001", "RET003", "9090-1212-3434"]}'
Error: endorsement failure during invoke. response: status:500 message:"transaction returned with failure: Error: Invalid Retailer CRN."
root@dd5e05d178dc:/opt/gopath/src/github.com/hyperledger/fabric/peer#
```

Scenario#4: No DRUG available with specified Name & Serial No

```
root@dd5e05d178dc: /opt/gopath/src/github.com/hyperledger/fabric/peer
File Edit View Search Terminal Tabs Help
upgrad@upgrad-Virt... x root@20b46a79f0c6... x root@dd5e05d178d... x root@dd5e05d178d... x root@dd5e05d178d... x root@dd5e05d178d... x upgrad@upgrad-Virt... x
root@dd5e05d178dc:/opt/gopath/src/github.com/hyperledger/fabric/peer# echo $CORE_PEER_LOCALMSPID
retailerMSP
root@dd5e05d178dc:/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.pharmanet.transporter:updateShipment", "DIST001", "Paracetamol", "TRA001"]}'
Error: endorsement failure during invoke. response: status:500 message:"transaction returned with failure: Error: You are not authorized to perform this operation : Your Organization is : retailerMSP"
root@dd5e05d178dc:/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.pharmanet.retailer:retailDrug", "Paracetamol", "001", "RET003", "9090-1212-3434"]}'
Error: endorsement failure during invoke. response: status:500 message:"transaction returned with failure: Error: Invalid Retailer CRN."
root@dd5e05d178dc:/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.pharmanet.retailer:retailDrug", "Paracetamol123", "001", "RET002", "9090-1212-3434"]}'
Error: endorsement failure during invoke. response: status:500 message:"transaction returned with failure: Error: No DRUG available with specified Name & Serial No"
root@dd5e05d178dc:/opt/gopath/src/github.com/hyperledger/fabric/peer#
```

Postman

Retailer - retail Drug (AAD001)

POST http://localhost:3000/retailDrug

Status: 200 OK Time: 2.29 s Size: 776 B

Params Auth Headers (8) Body Pre-req. Tests Settings Cookies Code Save Response

raw JSON Beautify

Body Cookies Headers (7) Test Results

Pretty Raw Preview Visualize JSON

```
1 {  
2   "orgType": "retailer",  
3   "drugName": "Paracetamol",  
4   "serialNo": "002",  
5   "retailerCRN": "RET002",  
6   "customerName": "Akash",  
7   "customerAadhar": "AAD001"  
8 }
```

```
1 {  
2   "status": "success",  
3   "message": "retailDrug invoked successfully",  
4   "response": {  
5     "productID": "org.pharma-network.pharmanet.drug@Paracetamol@00020",  
6     "name": "Paracetamol",  
7     "manufacturer": "org.pharma-network.pharmanet.company@MAN001@Sun Pharma",  
8     "manufacturingDate": "01/06/2020",  
9     "expiryDate": "01/06/2025",  
10    "owner": "AAD001",  
11    "shipment": ["org.pharma-network.pharmanet.shipment@DIST001@Paracetamol",  
12      "org.pharma-network.pharmanet.shipment@RET002@Paracetamol"]  
13  }  
14 }
```

API Client Console

```
.....Connecting to Fabric Gateway
.....Connecting to channel - pharmachannel
.....Connecting to pharmanet Smart Contract
org.pharma-network.pharmanet.distributor

.....createShipment Transaction Complete! { shipmentID: '\u0000org.pharma-network.pharmanet.shipment\u0000RET002\u0000Paracetamol\u0000',
creator: '\u0000org.pharma-network.pharmanet.company\u0000RET002\u0000upgrad\u0000',
assets:
[ '\u0000org.pharma-network.pharmanet.drug\u0000Paracetamol\u0000001\u0000' ],
transporterCRN: 'TRA002',
status: 'IN-TRANSIT' }
.....Disconnecting from Fabric Gateway
.....Connecting to Fabric Gateway
.....Connecting to channel - pharmachannel
.....Connecting to pharmanet Smart Contract
org.pharma-network.pharmanet.transporter

.....updateShipment Transaction Complete! { shipmentID: '\u0000org.pharma-network.pharmanet.shipment\u0000RET002\u0000Paracetamol\u0000',
creator: '\u0000org.pharma-network.pharmanet.company\u0000RET002\u0000upgrad\u0000',
assets:
[ '\u0000org.pharma-network.pharmanet.drug\u0000Paracetamol\u0000001\u0000' ],
transporterCRN: 'TRA002',
status: 'DELIVERED' }
.....Disconnecting from Fabric Gateway
.....Connecting to Fabric Gateway
.....Connecting to channel - pharmachannel
.....Connecting to pharmanet Smart Contract
org.pharma-network.pharmanet.retailer

.....retailDrug Transaction Complete! { productID: '\u0000org.pharma-network.pharmanet.drug\u0000Paracetamol\u0000001\u0000',
name: 'Paracetamol',
manufacturer: '\u0000org.pharma-network.pharmanet.company\u0000MAN001\u0000Sun Pharma\u0000',
manufacturingDate: '01/01/2020',
expiryDate: '01/06/2025',
owner: '9090-1212-3434',
shipment:
[ '\u0000org.pharma-network.pharmanet.shipment\u0000DIST001\u0000Paracetamol\u0000',
'\u0000org.pharma-network.pharmanet.shipment\u0000RET002\u0000Paracetamol\u0000' ] }
.....Disconnecting from Fabric Gateway
```

History : View drug current state in Postman

The screenshot shows the Postman interface with a successful API call. The URL is `http://localhost:3000/viewDrugcurrentState`. The response status is 200 OK, time taken is 2.56 s, and size is 786 B. The response body is a JSON object:

```
1 - {  
2   "orgType": "consumer",  
3   "drugName": "Paracetamol",  
4   "serialNo": "002"  
5 }  
  
1   "status": "success",  
2   "message": "viewDrugcurrentState invoked successfully",  
3   "response": [  
4     {"productID": "@org.pharma-network.pharmanet.drug@Paracetamol@002@",  
5      "name": "Paracetamol",  
6      "manufacturer": "@org.pharma-network.pharmanet.company@MAN001@Sun Pharma@",  
7      "manufacturingDate": "01/06/2020",  
8      "expiryDate": "01/06/2025",  
9      "owner": "AAD001",  
10     "shipment": ["@org.pharma-network.pharmanet.shipment@DIST001@Paracetamol@",  
11                   "@org.pharma-network.pharmanet.shipment@RET002@Paracetamol@"]  
12   }  
13 ]  
14 }
```

API Client Console

```
....viewDrugcurrentState Transaction Complete! { productID: '\u0000org.pharma-network.pharmanet.drug\u0000Paracetamol\u0000002\u0000',  
name: 'Paracetamol',  
manufacturer: '\u0000org.pharma-network.pharmanet.company\u0000MAN001\u0000Sun Pharma\u0000',  
manufacturingDate: '01/06/2020',  
expiryDate: '01/06/2025',  
owner: 'AAD001',  
shipment:  
[ '\u0000org.pharma-network.pharmanet.shipment\u0000DIST001\u0000Paracetamol\u0000',  
  '\u0000org.pharma-network.pharmanet.shipment\u0000RET002\u0000Paracetamol\u0000' ] }  
....Disconnecting from Fabric Gateway
```

View history in Postman

The screenshot shows the Postman application interface with the following details:

- Header Bar:** Shows various environment tabs like [DELETED], POST, POST Part a: Dist..., POST Part a: Ma..., POST Part a: Tr..., POST Part b: Re..., POST Part b: Dis..., POST Part b: Tr..., POST Manufact..., POST Retailer - r..., POST Manufact..., POST Manufact..., and POST Manufact... .
- Environment:** No Environment
- Request URL:** http://localhost:3000/viewHistory
- Status:** 200 OK, Time: 2.76 s, Size: 2.06 KB
- Body Tab:** Selected, showing raw JSON and pretty-printed JSON.
- Pretty-Printed JSON Response:**

```
1 {  
2   "orgType": "consumer",  
3   "drugName": "Paracetamol",  
4   "serialNo": "002"  
5 }  
  
1 {  
2   "status": "success",  
3   "message": "viewHistory invoked successfully",  
4   "response": [  
5     {  
6       "productID": "@org.pharma-network.pharmanet.drug@Paracetamol@002@",  
7       "name": "Paracetamol",  
8       "manufacturer": "@org.pharma-network.pharmanet.company@MAN001@Sun Pharma@",  
9       "manufacturingDate": "01/06/2020",  
10      "expiryDate": "01/06/2025",  
11      "owner": "@org.pharma-network.pharmanet.company@MAN001@Sun Pharma@",  
12      "shipment": []  
13    },  
14    {  
15      "productID": "@org.pharma-network.pharmanet.drug@Paracetamol@002@",  
16      "name": "Paracetamol",  
17      "manufacturer": "@org.pharma-network.pharmanet.company@MAN001@Sun Pharma@",  
18      "manufacturingDate": "01/06/2020",  
19      "expiryDate": "01/06/2025",  
20      "owner": "@org.pharma-network.pharmanet.company@DIST001@VG pharma@",  
21      "shipment": ["@org.pharma-network.pharmanet.shipment@DIST001@Paracetamol@"]  
22    },  
23    {  
24      "productID": "@org.pharma-network.pharmanet.drug@Paracetamol@002@",  
25      "name": "Paracetamol",  
26      "manufacturer": "@org.pharma-network.pharmanet.company@MAN001@Sun Pharma@",  
27      "manufacturingDate": "01/06/2020",  
28      "expiryDate": "01/06/2025",  
29      "owner": "@org.pharma-network.pharmanet.company@RET002@upgrade@",  
30      "shipment": ["@org.pharma-network.pharmanet.shipment@DIST001@Paracetamol@", "@org.pharma-network.pharmanet.shipment@RET002@Paracetamol@"]  
31    },  
32    {  
33      "productID": "@org.pharma-network.pharmanet.drug@Paracetamol@002@",  
34      "name": "Paracetamol",  
35      "manufacturer": "@org.pharma-network.pharmanet.company@MAN001@Sun Pharma@",  
36      "manufacturingDate": "01/06/2020",  
37      "expiryDate": "01/06/2025",  
38      "owner": "AAD001",  
39      "shipment": ["@org.pharma-network.pharmanet.shipment@DIST001@Paracetamol@", "@org.pharma-network.pharmanet.shipment@RET002@Paracetamol@"]  
40    },  
41  ]  
42 }  
43 }  
44 }
```
- Buttons:** Send, Save, Comments (0), Examples (0)

API Client Console

```
.....Connecting to Fabric Gateway
.....Connecting to channel - pharmachannel
.....Connecting to pharmanet Smart Contract

.....viewHistory Transaction Complete! [ { productID: '\u0000org.pharma-network.pharmanet.drug\u0000Paracetamol\u0000002\u0000',
  name: 'Paracetamol',
  manufacturer: '\u0000org.pharma-network.pharmanet.company\u0000MAN001\u0000Sun Pharma\u0000',
  manufacturingDate: '01/06/2020',
  expiryDate: '01/06/2025',
  owner: '\u0000org.pharma-network.pharmanet.company\u0000MAN001\u0000Sun Pharma\u0000',
  shipment: [] },
{ productID: '\u0000org.pharma-network.pharmanet.drug\u0000Paracetamol\u0000002\u0000',
  name: 'Paracetamol',
  manufacturer: '\u0000org.pharma-network.pharmanet.company\u0000MAN001\u0000Sun Pharma\u0000',
  manufacturingDate: '01/06/2020',
  expiryDate: '01/06/2025',
  owner: '\u0000org.pharma-network.pharmanet.company\u0000DIST001\u0000VG pharma\u0000',
  shipment:
  [ '\u0000org.pharma-network.pharmanet.shipment\u0000DIST001\u0000Paracetamol\u0000' ] },
{ productID: '\u0000org.pharma-network.pharmanet.drug\u0000Paracetamol\u0000002\u0000',
  name: 'Paracetamol',
  manufacturer: '\u0000org.pharma-network.pharmanet.company\u0000MAN001\u0000Sun Pharma\u0000',
  manufacturingDate: '01/06/2020',
  expiryDate: '01/06/2025',
  owner: '\u0000org.pharma-network.pharmanet.company\u0000RET002\u0000upgrad\u0000',
  shipment:
  [ '\u0000org.pharma-network.pharmanet.shipment\u0000DIST001\u0000Paracetamol\u0000',
    '\u0000org.pharma-network.pharmanet.shipment\u0000RET002\u0000Paracetamol\u0000' ] },
{ productID: '\u0000org.pharma-network.pharmanet.drug\u0000Paracetamol\u0000002\u0000',
  name: 'Paracetamol',
  manufacturer: '\u0000org.pharma-network.pharmanet.company\u0000MAN001\u0000Sun Pharma\u0000',
  manufacturingDate: '01/06/2020',
  expiryDate: '01/06/2025',
  owner: 'AAD001',
  shipment:
  [ '\u0000org.pharma-network.pharmanet.shipment\u0000DIST001\u0000Paracetamol\u0000',
    '\u0000org.pharma-network.pharmanet.shipment\u0000RET002\u0000Paracetamol\u0000' ] ]
.....Disconnecting from Fabric Gateway
.....Connecting to Fabric Gateway
.....Connecting to channel - pharmachannel
.....Connecting to pharmanet Smart Contract
```

Thank You!

