

Steps to Run Property Registration Project

- Generate the Crypto Materials

Crypto Materials need to be generated to start the network, navigate to

cd /workspace/property-registration/network folder now run the below command:

./fabricNetwork.sh generate

```
File Edit View Search Terminal Help
upgrad@upgrad-VirtualBox:~/workspace/property-registration/network$ ./fabricNetwork.sh generate
Generating certs and genesis block for channel 'registrationchannel' with CLI timeout of '15' seconds and CLI delay of '5' seconds and chaincode version '1.1'
Continue? [Y/n] y
proceeding ...
/home/upgrad/workspace/property-registration/network/bin/cryptogen

#####
##### Generate certificates using cryptogen tool #####
#####
+ cryptogen generate --config=./crypto-config.yaml
registrar.property-registration-network.com
users.property-registration-network.com
+ res=0
+ set +x

/home/upgrad/workspace/property-registration/network/bin/configtxgen

##### Generating Orderer Genesis block #####
#####
+ configtxgen -profile OrdererGenesis -channelID upgrad-sys-channel -outputBlock ./channel-artifacts/genesis.block
2021-07-07 18:43:48.795 IST [common.tools.configtxgen] main -> INFO 001 Loading configuration
2021-07-07 18:43:48.885 IST [common.tools.configtxgen.localconfig] completeInitialization -> INFO 002 orderer type: solo
2021-07-07 18:43:48.890 IST [common.tools.configtxgen.localconfig] Load -> INFO 003 Loaded configuration: /home/upgrad/workspace/property-registration/network/configtx.yaml
2021-07-07 18:43:48.971 IST [common.tools.configtxgen.localconfig] completeInitialization -> INFO 004 orderer type: solo
2021-07-07 18:43:48.974 IST [common.tools.configtxgen.localconfig] LoadTopLevel -> INFO 005 Loaded configuration: /home/upgrad/workspace/property-registration/network/configtx.yaml
2021-07-07 18:43:48.977 IST [common.tools.configtxgen] doOutputBlock -> INFO 006 Generating genesis block
2021-07-07 18:43:48.982 IST [common.tools.configtxgen] doOutputBlock -> INFO 007 Writing genesis block
+ res=0
+ set +x

#####
### Generating channel configuration transaction 'channel.tx' ###
#####
+ configtxgen -profile RegistrationChannel -outputCreateChannelTx ./channel-artifacts/channel.tx -channelID registrationchannel
2021-07-07 18:43:49.164 IST [common.tools.configtxgen] main -> INFO 001 Loading configuration
2021-07-07 18:43:49.281 IST [common.tools.configtxgen.localconfig] Load -> INFO 002 Loaded configuration: /home/upgrad/workspace/property-registration/network/configtx.yaml
2021-07-07 18:43:49.381 IST [common.tools.configtxgen.localconfig] completeInitialization -> INFO 003 orderer type: solo
2021-07-07 18:43:49.386 IST [common.tools.configtxgen.localconfig] LoadTopLevel -> INFO 004 Loaded configuration: /home/upgrad/workspace/property-registration/network/configtx.yaml
2021-07-07 18:43:49.386 IST [common.tools.configtxgen] doOutputChannelCreateTx -> INFO 005 Generating new channel configtx
2021-07-07 18:43:49.386 IST [common.tools.configtxgen.encoder] NewChannelGroup -> WARN 006 Default policy emission is deprecated, please include policy specifications for the channel group in configtx.yaml
2021-07-07 18:43:49.388 IST [common.tools.configtxgen.encoder] NewChannelGroup -> WARN 007 Default policy emission is deprecated, please include policy specifications for the channel group in configtx.yaml
2021-07-07 18:43:49.420 IST [common.tools.configtxgen] doOutputChannelCreateTx -> INFO 008 Writing new channel tx
+ res=0
+ set +x

#####
##### Generating anchor peer update for registrarMSP #####
#####
+ configtxgen -profile RegistrationChannel -outputAnchorPeersUpdate ./channel-artifacts/registrarMSPanchors.tx -channelID registrationchannel -asOrg registrarMSP
2021-07-07 18:43:49.675 IST [common.tools.configtxgen] main -> INFO 001 Loading configuration
2021-07-07 18:43:49.884 IST [common.tools.configtxgen.localconfig] Load -> INFO 002 Loaded configuration: /home/upgrad/workspace/property-registration/network/configtx.yaml
2021-07-07 18:43:49.899 IST [common.tools.configtxgen.localconfig] completeInitialization -> INFO 003 orderer type: solo
2021-07-07 18:43:49.900 IST [common.tools.configtxgen.localconfig] LoadTopLevel -> INFO 004 Loaded configuration: /home/upgrad/workspace/property-registration/network/configtx.yaml
2021-07-07 18:43:49.900 IST [common.tools.configtxgen] doOutputAnchorPeersUpdate -> INFO 005 Generating anchor peer update
2021-07-07 18:43:49.900 IST [common.tools.configtxgen] doOutputAnchorPeersUpdate -> INFO 006 Writing anchor peer update
+ res=0
+ set +x

#####
##### Generating anchor peer update for usersMSP #####
#####
+ configtxgen -profile RegistrationChannel -outputAnchorPeersUpdate ./channel-artifacts/usersMSPanchors.tx -channelID registrationchannel -asOrg usersMSP
2021-07-07 18:43:50.169 IST [common.tools.configtxgen] main -> INFO 001 Loading configuration
2021-07-07 18:43:50.384 IST [common.tools.configtxgen.localconfig] Load -> INFO 002 Loaded configuration: /home/upgrad/workspace/property-registration/network/configtx.yaml
2021-07-07 18:43:50.433 IST [common.tools.configtxgen.localconfig] completeInitialization -> INFO 003 orderer type: solo
2021-07-07 18:43:50.440 IST [common.tools.configtxgen.localconfig] LoadTopLevel -> INFO 004 Loaded configuration: /home/upgrad/workspace/property-registration/network/configtx.yaml
2021-07-07 18:43:50.440 IST [common.tools.configtxgen] doOutputAnchorPeersUpdate -> INFO 005 Generating anchor peer update
2021-07-07 18:43:50.440 IST [common.tools.configtxgen] doOutputAnchorPeersUpdate -> INFO 006 Writing anchor peer update
+ res=0
+ set +x

upgrad@upgrad-VirtualBox:~/workspace/property-registration/network$
```

- Start the Network

Now the docker containers need to start for the different peers, it uses the below command:

`./fabricNetwork.sh up`

```
+ peer channel join -b registrationchannel.block
2021-07-07 13:17:55.362 UTC [channelCmd] InitCmdFactory -> INFO 001 Endorser and orderer connections initialized
2021-07-07 13:17:55.518 UTC [cli.common] readBlock -> INFO 002 Received block: 0
===== Channel 'registrationchannel' created =====

Having all peers join the channel...
+ res=0
+ set +x
2021-07-07 13:17:55.811 UTC [channelCmd] InitCmdFactory -> INFO 001 Endorser and orderer connections initialized
2021-07-07 13:17:55.971 UTC [channelCmd] executeJoin -> INFO 002 Successfully submitted proposal to join channel
===== peer0.registrar.registration-network.com joined channel 'registrationchannel' =====

+ peer channel join -b registrationchannel.block
+ res=0
+ set +x
2021-07-07 13:18:01.276 UTC [channelCmd] InitCmdFactory -> INFO 001 Endorser and orderer connections initialized
2021-07-07 13:18:01.331 UTC [channelCmd] executeJoin -> INFO 002 Successfully submitted proposal to join channel
===== peer1.registrar.registration-network.com joined channel 'registrationchannel' =====

+ peer channel join -b registrationchannel.block
+ res=0
+ set +x
2021-07-07 13:18:06.683 UTC [channelCmd] InitCmdFactory -> INFO 001 Endorser and orderer connections initialized
2021-07-07 13:18:06.671 UTC [channelCmd] executeJoin -> INFO 002 Successfully submitted proposal to join channel
===== peer0.users.registration-network.com joined channel 'registrationchannel' =====

+ peer channel join -b registrationchannel.block
+ res=0
+ set +x
2021-07-07 13:18:11.971 UTC [channelCmd] InitCmdFactory -> INFO 001 Endorser and orderer connections initialized
2021-07-07 13:18:12.080 UTC [channelCmd] executeJoin -> INFO 002 Successfully submitted proposal to join channel
===== peer1.users.registration-network.com joined channel 'registrationchannel' =====

+ peer channel join -b registrationchannel.block
+ res=0
+ set +x
2021-07-07 13:18:17.342 UTC [channelCmd] InitCmdFactory -> INFO 001 Endorser and orderer connections initialized
2021-07-07 13:18:17.435 UTC [channelCmd] executeJoin -> INFO 002 Successfully submitted proposal to join channel
Updating anchor peers for REGISTRAR...
+ peer channel update -o orderer.property-registration-network.com:7050 -c registrationchannel -f ./channel-artifacts/registrarMSPanchors.tx
2021-07-07 13:18:17.687 UTC [channelCmd] InitCmdFactory -> INFO 001 Endorser and orderer connections initialized
2021-07-07 13:18:17.835 UTC [channelCmd] update -> INFO 002 Successfully submitted channel update
+ res=0
+ set +x
===== Anchor peers updated for org 'registrarMSP' on channel 'registrationchannel' =====

Updating anchor peers for USERS...
+ peer channel update -o orderer.property-registration-network.com:7050 -c registrationchannel -f ./channel-artifacts/usersMSPanchors.tx
```

| | | | | | | |
|----------------------------|-----------------------------------|--------------------------|----------------|--------------------------|--|-----------------------------|
| 00ef1d4b3ce3 | hyperledger/fabric-ccenv:latest | "/bin/bash -c 'sleep..." | 36 seconds ago | Up 16 seconds | 0.0.0.0:8051->8051/tcp, 0.0.0.0:8053->8053/tcp | chaincode |
| 49e5879422cd | hyperledger/fabric-peer:latest | "peer node start --p..." | 36 seconds ago | Up 5 seconds | | peer1.registrar.property-re |
| y-registration-network.com | | | | | | |
| c215fcbcd7a5 | hyperledger/fabric-peer:latest | "peer node start --p..." | 36 seconds ago | Up 5 seconds | 0.0.0.0:11051->11051/tcp, 0.0.0.0:11053->11053/tcp | peer2.users.property-re |
| gistration-network.com | | | | | | |
| 94436ed5d3a | hyperledger/fabric-ca:latest | "sh -c 'fabric-ca-se..." | 3 weeks ago | Exited (255) 2 weeks ago | 0.0.0.0:8054->7054/tcp | ca.mhrd.certificatio-n |
| etwork.com | | | | | | |
| ace977ec8fe | hyperledger/fabric-peer:latest | "peer node start" | 3 weeks ago | Exited (255) 2 weeks ago | 0.0.0.0:10051->10051/tcp, 0.0.0.0:10053->10053/tcp | peer1.mhrd.certificatio |
| n-network.com | | | | | | |
| 9084fb19c8de | hyperledger/fabric-peer:latest | "peer node start" | 3 weeks ago | Exited (255) 2 weeks ago | 0.0.0.0:8051->8051/tcp, 0.0.0.0:8053->8053/tcp | peer1.itt.certificatio |
| -network.com | | | | | | |
| c94000e95d75 | hyperledger/fabric-peer:latest | "peer node start" | 3 weeks ago | Exited (255) 2 weeks ago | 0.0.0.0:11051->11051/tcp, 0.0.0.0:11053->11053/tcp | peer0.upgrad.certificat |
| ion-network.com | | | | | | |
| 48db0482b2cf | hyperledger/fabric-orderer:latest | "orderer" | 3 weeks ago | Exited (255) 2 weeks ago | 0.0.0.0:7050->7050/tcp | orderer.certificatio-n |
| etwork.com | | | | | | |
| d486bdda1327 | hyperledger/fabric-peer:latest | "peer node start" | 3 weeks ago | Exited (0) 2 weeks ago | | peer1.upgrad.certificat |
| ion-network.com | | | | | | |
| d68d0c2a7c30 | hyperledger/fabric-peer:latest | "peer node start" | 3 weeks ago | Exited (255) 2 weeks ago | 0.0.0.0:7051->7051/tcp, 0.0.0.0:7053->7053/tcp | peer0.itt.certificatio |
| -network.com | | | | | | |
| 98d9a31c676a | hyperledger/fabric-ca:latest | "sh -c 'fabric-ca-se..." | 3 weeks ago | Exited (255) 2 weeks ago | 0.0.0.0:9054->7054/tcp | ca.upgrad.certificatio |
| n-network.com | | | | | | |
| b141c156045a | hyperledger/fabric-peer:latest | "peer node start" | 3 weeks ago | Exited (0) 2 weeks ago | 0.0.0.0:9051->9051/tcp, 0.0.0.0:9053->9053/tcp | peer0.mhrd.certificatio |
| n-network.com | | | | | | |
| 8f87839f2541 | hyperledger/fabric-ca:latest | "sh -c 'fabric-ca-se..." | 3 weeks ago | Exited (255) 2 weeks ago | 0.0.0.0:7054->7054/tcp | ca.itt.certificatio-ne |
| etwork.com | | | | | | |

Sleeping 10s to allow cluster to complete booting

START

Setting Up Hyperledger Fabric Network

```
+ peer channel create -o orderer.property-registration-network.com:7050 -c registrationchannel -f ./channel-artifacts/channel.tx
Channel name : registrationchannel
Creating channel...
+ res=0
+ set +x
+ peer channel join -b registrationchannel.block
2021-07-07 13:17:55.362 UTC [channelCmd] InitCmdFactory -> INFO 001 Endorser and orderer connections initialized
2021-07-07 13:17:55.518 UTC [cli.common] readBlock -> INFO 002 Received block: 0
===== Channel 'registrationchannel' created =====

Having all peers join the channel...
+ res=0
+ set +x
```

```

+ peer channel join -b registrationchannel.block
2021-07-07 13:17:55.362 UTC [channelCmd] InitCmdFactory -> INFO 001 Endorser and orderer connections initialized
2021-07-07 13:17:55.518 UTC [cli.common] readBlock -> INFO 002 Received block: 0
===== Channel 'registrationchannel' created =====

Having all peers join the channel...
+ res=0
+ set +x
2021-07-07 13:17:55.811 UTC [channelCmd] InitCmdFactory -> INFO 001 Endorser and orderer connections initialized
2021-07-07 13:17:55.971 UTC [channelCmd] executeJoin -> INFO 002 Successfully submitted proposal to join channel
===== peer0.registrar.registration-network.com joined channel 'registrationchannel' =====

+ peer channel join -b registrationchannel.block
+ res=0
+ set +x
2021-07-07 13:18:01.391 UTC [channelCmd] InitCmdFactory -> INFO 001 Endorser and orderer connections initialized
2021-07-07 13:18:01.551 UTC [channelCmd] executeJoin -> INFO 002 Successfully submitted proposal to join channel
===== peer1.registrar.registration-network.com joined channel 'registrationchannel' =====

+ peer channel join -b registrationchannel.block
+ res=0
+ set +x
2021-07-07 13:18:06.603 UTC [channelCmd] InitCmdFactory -> INFO 001 Endorser and orderer connections initialized
2021-07-07 13:18:06.671 UTC [channelCmd] executeJoin -> INFO 002 Successfully submitted proposal to join channel
===== peer0.users.registration-network.com joined channel 'registrationchannel' =====

+ peer channel join -b registrationchannel.block
+ res=0
+ set +x
2021-07-07 13:18:11.971 UTC [channelCmd] InitCmdFactory -> INFO 001 Endorser and orderer connections initialized
2021-07-07 13:18:12.080 UTC [channelCmd] executeJoin -> INFO 002 Successfully submitted proposal to join channel
===== peer1.users.registration-network.com joined channel 'registrationchannel' =====

+ peer channel join -b registrationchannel.block
+ res=0
+ set +x
2021-07-07 13:18:17.342 UTC [channelCmd] InitCmdFactory -> INFO 001 Endorser and orderer connections initialized
2021-07-07 13:18:17.435 UTC [channelCmd] executeJoin -> INFO 002 Successfully submitted proposal to join channel
Updating anchor peers for REGISTRAR...
+ peer channel update -o orderer.property-registration-network.com:7050 -c registrationchannel -f ./channel-artifacts/registrarMSPanchors.tx
2021-07-07 13:18:17.687 UTC [channelCmd] InitCmdFactory -> INFO 001 Endorser and orderer connections initialized
2021-07-07 13:18:17.835 UTC [channelCmd] update -> INFO 003 Successfully submitted channel update
+ res=0
+ set +x
===== Anchor peers updated for org 'registrarMSP' on channel 'registrationchannel' =====

Updating anchor peers for USERS...
+ peer channel update -o orderer.property-registration-network.com:7050 -c registrationchannel -f ./channel-artifacts/usersMSPanchors.tx

```

```

+ res=0
+ set +x
2021-07-07 13:18:23.069 UTC [channelCmd] InitCmdFactory -> INFO 001 Endorser and orderer connections initialized
2021-07-07 13:18:23.136 UTC [channelCmd] update -> INFO 002 Successfully submitted channel update
===== Anchor peers updated for org 'usersMSP' on channel 'registrationchannel' =====

===== All GOOD, Hyperledger Fabric Property Registration Network Is Now Up and Running! =====

```

END

● Install and Instantiate the Chaincode

The chaincode is now ready to be installed on the required peer containers. This is done by running the below command.

`./fabricNetwork.sh install`

```

upgrad@upgrad-VirtualBox:~/workspace/property-registration/network$ ./fabricNetwork.sh install
Installing chaincode for channel 'registrationchannel' with CLI timeout of '15' seconds and CLI delay of '5' seconds and chaincode version '1.1'
Continue? [Y/n] y
proceeding ...
LOCAL_VERSION=1.4.2
DOCKER_IMAGE_VERSION=1.4.3
===== WARNING =====
Local fabric binaries and docker images are
out of sync. This may cause problems.
=====

START

Deploying Chaincode REGNET On Certification Network

Channel name : registrationchannel
Installing chaincode on peer0.registrar.property-registration-network.com ...
+ peer chaincode install -n regnet -v 1.1 -l node -p /opt/gopath/src/github.com/hyperledger/fabric/peer/chaincode/
+ res=0
+ set +x
2021-07-09 20:27:21.016 UTC [chaincodeCmd] checkChaincodeCmdParams -> INFO 001 Using default escv
2021-07-09 20:27:21.016 UTC [chaincodeCmd] checkChaincodeCmdParams -> INFO 002 Using default vscc
2021-07-09 20:27:26.686 UTC [chaincodeCmd] install -> INFO 003 Installed remotely response:<status:200 payload:"OK" >
===== Chaincode is installed on peer0.registrar =====

Installing chaincode on peer1.registrar.property-registration-network.com ...
+ peer chaincode install -n regnet -v 1.1 -l node -p /opt/gopath/src/github.com/hyperledger/fabric/peer/chaincode/
+ res=0
+ set +x
2021-07-09 20:27:26.845 UTC [chaincodeCmd] checkChaincodeCmdParams -> INFO 001 Using default escv
2021-07-09 20:27:26.846 UTC [chaincodeCmd] checkChaincodeCmdParams -> INFO 002 Using default vscc
2021-07-09 20:27:27.054 UTC [chaincodeCmd] install -> INFO 003 Installed remotely response:<status:200 payload:"OK" >
===== Chaincode is installed on peer1.registrar =====

Installing chaincode on peer0.users.property-registration-network.com ...
+ peer chaincode install -n regnet -v 1.1 -l node -p /opt/gopath/src/github.com/hyperledger/fabric/peer/chaincode/
+ res=0
+ set +x
2021-07-09 20:27:27.285 UTC [chaincodeCmd] checkChaincodeCmdParams -> INFO 001 Using default escv
2021-07-09 20:27:27.285 UTC [chaincodeCmd] checkChaincodeCmdParams -> INFO 002 Using default vscc
2021-07-09 20:27:27.402 UTC [chaincodeCmd] install -> INFO 003 Installed remotely response:<status:200 payload:"OK" >
===== Chaincode is installed on peer0.users =====

```



```

+ peer chaincode install -n regnet -v 1.1 -l node -p /opt/gopath/src/github.com/hyperledger/fabric/peer/chaincode/
+ res=0
+ set +x
2021-07-09 20:27:21.016 UTC [chaincodeCmd] checkChaincodeCmdParams -> INFO 001 Using default escc
2021-07-09 20:27:21.016 UTC [chaincodeCmd] checkChaincodeCmdParams -> INFO 002 Using default vsc
2021-07-09 20:27:26.686 UTC [chaincodeCmd] install -> INFO 003 Installed remotely response:<status:200 payload:"OK" >
===== Chaincode is installed on peer0.registrar =====

Installing chaincode on peer1.registrar.property-registration-network.com ...
+ peer chaincode install -n regnet -v 1.1 -l node -p /opt/gopath/src/github.com/hyperledger/fabric/peer/chaincode/
+ res=0
+ set +x
2021-07-09 20:27:26.845 UTC [chaincodeCmd] checkChaincodeCmdParams -> INFO 001 Using default escc
2021-07-09 20:27:26.846 UTC [chaincodeCmd] checkChaincodeCmdParams -> INFO 002 Using default vsc
2021-07-09 20:27:27.054 UTC [chaincodeCmd] install -> INFO 003 Installed remotely response:<status:200 payload:"OK" >
===== Chaincode is installed on peer1.registrar =====

Installing chaincode on peer0.users.property-registration-network.com ...
+ peer chaincode install -n regnet -v 1.1 -l node -p /opt/gopath/src/github.com/hyperledger/fabric/peer/chaincode/
+ res=0
+ set +x
2021-07-09 20:27:27.205 UTC [chaincodeCmd] checkChaincodeCmdParams -> INFO 001 Using default escc
2021-07-09 20:27:27.205 UTC [chaincodeCmd] checkChaincodeCmdParams -> INFO 002 Using default vsc
2021-07-09 20:27:27.402 UTC [chaincodeCmd] install -> INFO 003 Installed remotely response:<status:200 payload:"OK" >
===== Chaincode is installed on peer0.users =====

Instantiating chaincode on channel using peer0.registrar.property-registration-network.com ...
+ peer chaincode instantiate -o orderer.property-registration-network.com:7050 -c registrationchannel -n regnet -l node -v 1.1 -c '{"Args":["org.property-registration-network.regnet.user:instantiate","org.property-registration-network.regnet.registrar:instantiate"]}' -P 'OR ('\"registrarMSP.member '\", '\usersMSP.member '\")'
+ res=0
+ set +x
2021-07-09 20:27:27.551 UTC [chaincodeCmd] checkChaincodeCmdParams -> INFO 001 Using default escc
2021-07-09 20:27:27.551 UTC [chaincodeCmd] checkChaincodeCmdParams -> INFO 002 Using default vsc
===== Chaincode is instantiated on peer0.registrar on channel 'registrationchannel' =====

===== All GOOD, Chaincode REGNET is Now Installed & Instantiated On Registration Network =====

END

```

• Docker Install Dependencies for Chaincode and Start Dev environment

- docker exec -it chaincode /bin/bash
- npm install

```

upgrad@upgrad-VirtualBox:~/workspace/property-registration/network$ docker exec -it chaincode /bin/bash
root@0def1d4bice3:/opt/gopath/src/chaincode#
root@0def1d4bice3:/opt/gopath/src/chaincode# ls
index.js lib package-lock.json package.json registrarContract.js userContract.js
root@0def1d4bice3:/opt/gopath/src/chaincode# npm install

> @anpretia/x509@4.0.0 install /opt/gopath/src/chaincode/node_modules/@anpretia/x509
> node-gyp rebuild

make: Entering directory '/opt/gopath/src/chaincode/node_modules/@anpretia/x509/build'
  CXX(target) Release/obj.target/x509/src/addon.o
  CXX(target) Release/obj.target/x509/src/x509.o
../src/x509.cc: In function 'void LocalV8::Value try_parse(const string&)':
../src/x509.cc:395:38: warning: value computed is not used [-Wunused-value]
    BIO_set_close(ext_bio, BIO_CLOSE);
                               ^
  SOLINK_MODULE(target) Release/obj.target/x509.node
  COPY Release/x509.node
make: Leaving directory '/opt/gopath/src/chaincode/node_modules/@anpretia/x509/build'

> grpc@1.17.0 install /opt/gopath/src/chaincode/node_modules/grpc
> node-pre-gyp install --fallback-to-build --library=static_library

node-pre-gyp WARN Using needle for node-pre-gyp https download
[grpc] Success: "/opt/gopath/src/chaincode/node_modules/grpc/src/node/extension_binary/node-v57-linux-x64-glibc/grpc_node.node" is installed via remote
npm WARN regnet@0.0.1 No repository field.
npm WARN regnet@0.0.1 No license field.

added 613 packages from 1092 contributors and audited 613 packages in 87.502s
found 286 vulnerabilities (139 low, 4 moderate, 60 high, 3 critical)
  run 'npm audit fix' to fix them, or 'npm audit' for details
root@0def1d4bice3:/opt/gopath/src/chaincode#

```

- npm run start-dev

```

root@23235a9b6d33:/opt/gopath/src/chaincode# npm run start-dev
> certnet@0.0.1 start-dev /opt/gopath/src/chaincode
> fabric-chaincode-node start --peer.address peer0.registrar.property-registration-network.com:7053 --chaincode-id-name regnet:1.1

2021-07-10T18:28:35.922Z info [shim:contracts-spi/bootstrap.js] No metadata file supplied in contract, introspection will generate all the data
2021-07-10T18:28:35.924Z info [shim:contracts-spi/chaincodeFromContract.js] Using serializers {"transaction":"jsonSerializer","serializers":{}}
2021-07-10T18:28:35.978Z info [shim:lib/chaincode.js] Registering with peer peer0.registrar.property-registration-network.com:7053 as chaincode "regnet:1.1"

Command succeeded

2021-07-10T18:28:36.039Z info [shim:lib/handler.js] Successfully registered with peer node. State transferred to "established"
2021-07-10T18:28:36.040Z info [shim:lib/handler.js] Successfully established communication with peer node. State transferred to "ready"

```

• Docker log into Cli to Invoke Chaincode

- Open a new terminal tab
- docker exec -it cli /bin/bash

```

upgrad@upgrad-VirtualBox:~/workspace/property-registration/chaincode$ docker exec -it cli /bin/bash
root@67a0aa05bb61:/opt/gopath/src/github.com/hyperledger/fabric/peer#

```

- Describing the Problem Statement

- In my example I am creating two users Rohan and Rahul
- Rahul owns the property and Rohan is buying it from him
- All the steps followed are described below

- Invoke Create User for Rohan

Command:

```
peer chaincode invoke -o orderer.property-registration-network.com:7050 -C
registrationchannel -n regnet -c
'{"Args":["org.property-registration-network.regnet.user:requestNewUser","Rohan",
"rohan@gmail.com","87654321", "234123109111"]}'
```

```
upgrad@upgrad-VirtualBox:~/workspace/property-registration/chaincode$ docker exec -it cli /bin/bash
root@67a0aa85bb61:/opt/gopath/src/github.com/hyperledger/fabric/peer# peer chaincode invoke -o orderer.property-registration-network.com:7050 -C registrationchannel -n regnet -c '{"Args":["org.property-r
egistration-network.regnet.user:requestNewUser","Rohan","rohan@gmail.com","87654321", "234123109111"]}'
2021-07-10 09:14:55.181 UTC [chaincodeCmd] chaincodeInvokeOrQuery -> INFO 001 Chaincode invoke successful. result: status:200 payload:"{\nname:\n\"Rohan\", \nemailId:\n\"rohan@gmail.com\", \nphoneNumber:\n
\"87654321\", \naadharNumber:\n\"234123109111\", \ncreatedAt:\n\"2021-07-10T09:14:54.634Z\"}"
```

- Invoke Approve User for Rohan

Command:

```
peer chaincode invoke -o orderer.property-registration-network.com:7050 -C
registrationchannel -n regnet -c
'{"Args":["org.property-registration-network.regnet.registrar:approveNewUser","Rohan","2
34123109111"]}'
```

```
root@67a0aa85bb61:/opt/gopath/src/github.com/hyperledger/fabric/peer# peer chaincode invoke -o orderer.property-registration-network.com:7050 -C registrationchannel -n regnet -c '{"Args":["org.property-r
egistration-network.regnet.registrar:approveNewUser","Rohan","234123109111"]}'
2021-07-10 09:17:53.931 UTC [chaincodeCmd] chaincodeInvokeOrQuery -> INFO 001 Chaincode invoke successful. result: status:200 payload:"{\nname:\n\"Rohan\", \nemailId:\n\"rohan@gmail.com\", \nphoneNumber:\n
\"87654321\", \naadharNumber:\n\"234123109111\", \ncreatedAt:\n\"2021-07-10T09:14:54.634Z\", \nupgradCoins:\n\"0\"}"
```

- Invoke Recharge Account for Rohan

Command:

```
peer chaincode invoke -o orderer.property-registration-network.com:7050 -C
registrationchannel -n regnet -c
'{"Args":["org.property-registration-network.regnet.user:rechargeAccount","Rohan","23412
3109111", "upg1000"]}'
```

```
root@67a0aa85bb61:/opt/gopath/src/github.com/hyperledger/fabric/peer# peer chaincode invoke -o orderer.property-registration-network.com:7050 -C registrationchannel -n regnet -c '{"Args":["org.property-r
egistration-network.regnet.user:rechargeAccount","Rohan","234123109111", "upg1000"]}'
2021-07-10 09:21:37.678 UTC [chaincodeCmd] chaincodeInvokeOrQuery -> INFO 001 Chaincode invoke successful. result: status:200 payload:"{\nname:\n\"Rohan\", \nemailId:\n\"rohan@gmail.com\", \nphoneNumber:\n
\"87654321\", \naadharNumber:\n\"234123109111\", \ncreatedAt:\n\"2021-07-10T09:14:54.634Z\", \nupgradCoins:\n\"1000\"}"
```

- Invoke Create User for Rahul

Command:

```
peer chaincode invoke -o orderer.property-registration-network.com:7050 -C
registrationchannel -n regnet -c
'{"Args":["org.property-registration-network.regnet.user:viewUser","Rohan",
"234123109111"]}'
```

```
root@67a0aa05bb61:/opt/gopath/src/github.com/hyperledger/fabric/peer# peer chaincode invoke -o orderer.property-registration-network.com:7050 -C registrationchannel -n regnet -c '{"Args":["org.property-r
egistration-network.regnet.user:requestNewUser","Rahul","rahul@gmail.com","12345678","430812346789"]}'
2021-07-10 09:22:30.350 UTC [chaincodeCmd] chaincodeInvokeOrQuery -> INFO 001 Chaincode invoke successful. result: status:200 payload:{"name":"Rahul","emailId":"rahul@gmail.com","phoneNumber":"
12345678","aadharNumber":"430812346789","createdAt":"2021-07-10T09:22:30.325Z"}
```

- Invoke Approve User for Rahul

Command:

```
peer chaincode invoke -o orderer.property-registration-network.com:7050 -C
registrationchannel -n regnet -c
'{"Args":["org.property-registration-network.regnet.registrar:approveNewUser","Rahul","43
0812346789"]}'
```

```
root@67a0aa05bb61:/opt/gopath/src/github.com/hyperledger/fabric/peer# peer chaincode invoke -o orderer.property-registration-network.com:7050 -C registrationchannel -n regnet -c '{"Args":["org.property-r
egistration-network.regnet.registrar:approveNewUser","Rahul","430812346789"]}'
2021-07-10 09:23:34.361 UTC [chaincodeCmd] chaincodeInvokeOrQuery -> INFO 001 Chaincode invoke successful. result: status:200 payload:{"name":"Rahul","emailId":"rahul@gmail.com","phoneNumber":"
12345678","aadharNumber":"430812346789","createdAt":"2021-07-10T09:22:30.325Z","upgradCoins":0}
```

- Invoke Recharge Account for Rahul

Command:

```
peer chaincode invoke -o orderer.property-registration-network.com:7050 -C
registrationchannel -n regnet -c
'{"Args":["org.property-registration-network.regnet.user:rechargeAccount","Rahul","43081
2346789","upg1000"]}'
```

```
root@67a0aa05bb61:/opt/gopath/src/github.com/hyperledger/fabric/peer# peer chaincode invoke -o orderer.property-registration-network.com:7050 -C registrationchannel -n regnet -c '{"Args":["org.property-r
egistration-network.regnet.user:rechargeAccount","Rahul","430812346789","upg1000"]}'
2021-07-10 09:24:39.534 UTC [chaincodeCmd] chaincodeInvokeOrQuery -> INFO 001 Chaincode invoke successful. result: status:200 payload:{"name":"Rahul","emailId":"rahul@gmail.com","phoneNumber":"
12345678","aadharNumber":"430812346789","createdAt":"2021-07-10T09:22:30.325Z","upgradCoins":1000}
```

- Invoke View User for Rahul

Command:

```
peer chaincode invoke -o orderer.property-registration-network.com:7050 -C
registrationchannel -n regnet -c
'{"Args":["org.property-registration-network.regnet.user:viewUser","Rahul",
"430812346789"]}'
```

```
root@67a0aa05bb61:/opt/gopath/src/github.com/hyperledger/fabric/peer# peer chaincode invoke -o orderer.property-registration-network.com:7050 -C registrationchannel -n regnet -c '{"Args":["org.property-r
egistration-network.regnet.user:viewUser","Rahul","430812346789"]}'
2021-07-10 09:26:48.505 UTC [chaincodeCmd] chaincodeInvokeOrQuery -> INFO 001 Chaincode invoke successful. result: status:200 payload:{"name":"Rahul","emailId":"rahul@gmail.com","phoneNumber":"
12345678","aadharNumber":"430812346789","createdAt":"2021-07-10T09:22:30.325Z","upgradCoins":1000}
```

- Invoke Property Registration Request for Rahul

Command:

```
peer chaincode invoke -o orderer.property-registration-network.com:7050 -C
registrationchannel -n regnet -c
'{"Args":["org.property-registration-network.regnet.user:propertyRegistrationRequest","001",
"800","registered","Rahul","430812346789"]}'
```

```
root@67a0aa05bb61:/opt/gopath/src/github.com/hyperledger/fabric/peer# peer chaincode invoke -o orderer.property-registration-network.com:7050 -C registrationchannel -n regnet -c '{"Args":["org.property-r
egistration-network.regnet.user:propertyRegistrationRequest","001","800","registered","Rahul","430812346789"]}'
2021-07-10 10:02:47.921 UTC [chaincodeCmd] chaincodeInvokeOrQuery -> INFO 001 Chaincode invoke successful. result: status:200 payload:"{\\"propertyId\\":\\"001\\",\\"owner\\":\\"\\u0000org.property-registration-
network.regnet.user\\u0000Rahul\\u0000430812346789\\u0000\\",\\"price\\":\\"800\\",\\"status\\":\\"registered\\"}"
```

- Invoke Approve Property Registration Request for Rahul

Command:

```
peer chaincode invoke -o orderer.property-registration-network.com:7050 -C
registrationchannel -n regnet -c
'{"Args":["org.property-registration-network.regnet.registrar:approvePropertyRegistration",
"001"]}'
```

```
root@67a0aa05bb61:/opt/gopath/src/github.com/hyperledger/fabric/peer# peer chaincode invoke -o orderer.property-registration-network.com:7050 -C registrationchannel -n regnet -c '{"Args":["org.property-r
egistration-network.regnet.registrar:approvePropertyRegistration","001"]}'
2021-07-10 10:11:11.221 UTC [chaincodeCmd] chaincodeInvokeOrQuery -> INFO 001 Chaincode invoke successful. result: status:200 payload:"{\\"propertyId\\":\\"001\\",\\"owner\\":\\"\\u0000org.property-registration-
network.regnet.user\\u0000Rahul\\u0000430812346789\\u0000\\",\\"price\\":\\"800\\",\\"status\\":\\"registered\\"}"
```

- Invoke View Property for Rahul

Command:

```
peer chaincode invoke -o orderer.property-registration-network.com:7050 -C
registrationchannel -n regnet -c
'{"Args":["org.property-registration-network.regnet.user:viewProperty","001"]}'
```

```
root@67a0aa05bb61:/opt/gopath/src/github.com/hyperledger/fabric/peer# peer chaincode invoke -o orderer.property-registration-network.com:7050 -C registrationchannel -n regnet -c '{"Args":["org.property-r
egistration-network.regnet.user:viewProperty","001"]}'
2021-07-10 10:19:47.538 UTC [chaincodeCmd] chaincodeInvokeOrQuery -> INFO 001 Chaincode invoke successful. result: status:200 payload:"{\\"propertyId\\":\\"001\\",\\"owner\\":\\"\\u0000org.property-registration-
network.regnet.user\\u0000Rahul\\u0000430812346789\\u0000\\",\\"price\\":\\"800\\",\\"status\\":\\"registered\\"}"
```

- Invoke Update Property Status for Rahul

Command:

```
peer chaincode invoke -o orderer.property-registration-network.com:7050 -C
registrationchannel -n regnet -c
'{"Args":["org.property-registration-network.regnet.user:updatePropertyStatus","001","Rah
ul","430812346789","onSale"]}'
```

```
root@67a0aa05bb61:/opt/gopath/src/github.com/hyperledger/fabric/peer# peer chaincode invoke -o orderer.property-registration-network.com:7050 -C registrationchannel -n regnet -c '{"Args":["org.property-r
egistration-network.regnet.user:updatePropertyStatus","001","Rahul","430812346789","onSale"]}'
2021-07-10 10:23:58.912 UTC [chaincodeCmd] chaincodeInvokeOrQuery -> INFO 001 Chaincode invoke successful. result: status:200 payload:"{\\"name\\":\\"Rahul\\",\\"emailId\\":\\"rahul@gmail.com\\",\\"phoneNumber\\":\\"
12345678\\",\\"aadharNumber\\":\\"430812346789\\",\\"createdAt\\":\\"2021-07-10T09:22:30.325Z\\",\\"upgradCoins\\":1000\\",\\"status\\":\\"onSale\\"}"
```

- Invoke Purchase Property Request for Rohan to Buy from Rahul

Command:

```
peer chaincode invoke -o orderer.property-registration-network.com:7050 -C
```

```
registrationchannel -n regnet -c
```

```
'{"Args":["org.property-registration-network.regnet.user:purchaseProperty","001","Rohan",  
"234123109111"]}'
```

```
root@07a0aa05bb61:/opt/gopath/src/github.com/hyperledger/fabric/peer# peer chaincode invoke -o orderer.property-registration-network.com:7050 -C registrationchannel -n regnet -c '{"Args":["org.property-r  
egistration-network.regnet.user:viewProperty","001"]}'  
2021-07-10 17:19:43.772 UTC [chaincodeCmd] chaincodeInvokeOrQuery -> INFO 001 Chaincode invoke successful. result: status:200 payload:"{\\"propertyId\\":\\"001\\",\\"owner\\":\\"\\u0000org.property-registration-  
network.regnet.user\\u0000Rohan\\u0000234123109111\\u0000\\",\\"price\\":\\"800\\",\\"status\\":\\"registered\\"}"
```