**Generate Cryptographic Material**

Below command will create crypto-config folder with all cryptographic material generated

./bin/cryptogen generate --config=crypto-config.yaml

**Generate required Tx files**

Generate Genesis block

./bin/configtxgen -profile TwoOrgsOrdererGenesis -outputBlock ./channel-artifacts/genesis.block

Creates channel.tx file

./bin/configtxgen -profile TwoOrgsChannel -outputCreateChannelTx ./channel-artifacts/channel.tx -channelID myfirstchannel

Define Anchor Peers

* For Org1 on channel

./bin/configtxgen -profile TwoOrgsChannel -outputAnchorPeersUpdate ./channel-artifacts/Org1MSPAnchors.tx -channelID myfirstchannel -asOrg Org1MSP

* For Org2 on channel

./bin/configtxgen -profile TwoOrgsChannel -outputAnchorPeersUpdate ./channel-artifacts/Org2MSPAnchors.tx -channelID myfirstchannel -asOrg Org2MSP

NOTE: This is for debugging

To Check the list of active network

docker network ls

Start the network

COMPOSE\_PROJECT\_NAME=fabric-network-demo docker-compose -f docker-compose-cli.yaml up -d

Check list of containers running

docker ps

To see the list of existing containers

docker ps -a -q

To stop all existing containers

docker stop $(docker ps -a -q)

To Remove all existing containers

docker rm $(docker ps -a -q)

Enter CLI container

docker exec -it cli bash

Create Channel

peer channel create -o orderer.orderernode.com:7050 -c myfirstchannel -f ./channel-artifacts/channel.tx --tls --cafile /opt/gopath/src/github.com/hyperledger/fabric/peer/crypto/ordererOrganizations/orderernode.com/orderers/orderer.orderernode.com/msp/tlscacerts/tlsca.orderernode.com-cert.pem

**Join Peers**

* For Peer0 and Org1

CORE\_PEER\_MSPCONFIGPATH=/opt/gopath/src/github.com/hyperledger/fabric/peer/crypto/peerOrganizations/org1.peernode.com/users/Admin@org1.peernode.com/msp export CORE\_PEER\_ADDRESS=peer0.org1.peernode.com:7051 export CORE\_PEER\_LOCALMSPID="Org1MSP" export CORE\_PEER\_TLS\_ROOTCERT\_FILE=/opt/gopath/src/github.com/hyperledger/fabric/peer/crypto/peerOrganizations/org1.peernode.com/peers/peer0.org1.peernode.com/tls/ca.crt

export CHANNEL\_NAME=myfirstchannel

peer channel join -b myfirstchannel.block

* For Peer1 and Org1

CORE\_PEER\_MSPCONFIGPATH=/opt/gopath/src/github.com/hyperledger/fabric/peer/crypto/peerOrganizations/org1.peernode.com/users/Admin@org1.peernode.com/msp CORE\_PEER\_ADDRESS=peer1.org1.peernode.com:7051 CORE\_PEER\_LOCALMSPID="Org1MSP" CORE\_PEER\_TLS\_ROOTCERT\_FILE=/opt/gopath/src/github.com/hyperledger/fabric/peer/crypto/peerOrganizations/org1.peernode.com/peers/peer1.org1.peernode.com/tls/ca.crt

peer channel join -b myfirstchannel.block

* For Peer0 and Org2

CORE\_PEER\_MSPCONFIGPATH=/opt/gopath/src/github.com/hyperledger/fabric/peer/crypto/peerOrganizations/org2.peernode.com/users/Admin@org2.peernode.com/msp export CORE\_PEER\_ADDRESS=peer0.org2.peernode.com:7051 export CORE\_PEER\_LOCALMSPID="Org2MSP" export CORE\_PEER\_TLS\_ROOTCERT\_FILE=/opt/gopath/src/github.com/hyperledger/fabric/peer/crypto/peerOrganizations/org2.peernode.com/peers/peer0.org2.peernode.com/tls/ca.crt

peer channel join -b myfirstchannel.block

* For Pee1 and Org2

CORE\_PEER\_MSPCONFIGPATH=/opt/gopath/src/github.com/hyperledger/fabric/peer/crypto/peerOrganizations/org2.peernode.com/users/Admin@org2.peernode.com/msp export CORE\_PEER\_ADDRESS=peer1.org2.peernode.com:7051 export CORE\_PEER\_LOCALMSPID="Org2MSP" export CORE\_PEER\_TLS\_ROOTCERT\_FILE=/opt/gopath/src/github.com/hyperledger/fabric/peer/crypto/peerOrganizations/org2.peernode.com/peers/peer1.org2.peernode.com/tls/ca.crt

peer channel join -b myfirstchannel.block

Define anchor peer for channels

* For Org1

CORE\_PEER\_MSPCONFIGPATH=/opt/gopath/src/github.com/hyperledger/fabric/peer/crypto/peerOrganizations/org1.peernode.com/users/Admin@org1.peernode.com/msp CORE\_PEER\_ADDRESS=peer0.org1.peernode.com:7051 CORE\_PEER\_LOCALMSPID="Org1MSP" CORE\_PEER\_TLS\_ROOTCERT\_FILE=/opt/gopath/src/github.com/hyperledger/fabric/peer/crypto/peerOrganizations/org1.peernode.com/peers/peer0.org1.peernode.com/tls/ca.crt

peer channel update -o orderer.orderernode.com:7050 -c $CHANNEL\_NAME -f ./channel-artifacts/Org1MSPAnchors.tx --tls --cafile /opt/gopath/src/github.com/hyperledger/fabric/peer/crypto/ordererOrganizations/orderernode.com/orderers/orderer.orderernode.com/msp/tlscacerts/tlsca.orderernode.com-cert.pem

* For Org2

CORE\_PEER\_MSPCONFIGPATH=/opt/gopath/src/github.com/hyperledger/fabric/peer/crypto/peerOrganizations/org2.peernode.com/users/Admin@org2.peernode.com/msp CORE\_PEER\_ADDRESS=peer0.org2.peernode.com:7051 CORE\_PEER\_LOCALMSPID="Org2MSP" CORE\_PEER\_TLS\_ROOTCERT\_FILE=/opt/gopath/src/github.com/hyperledger/fabric/peer/crypto/peerOrganizations/org2.peernode.com/peers/peer0.org2.peernode.com/tls/ca.crt

peer channel update -o orderer.orderernode.com:7050 -c $CHANNEL\_NAME -f ./channel-artifacts/Org2MSPAnchors.tx --tls --cafile /opt/gopath/src/github.com/hyperledger/fabric/peer/crypto/ordererOrganizations/orderernode.com/orderers/orderer.orderernode.com/msp/tlscacerts/tlsca.orderernode.com-cert.pem

**Install Chaincode on Peers**

* For Pee0 and Org1

CORE\_PEER\_MSPCONFIGPATH=/opt/gopath/src/github.com/hyperledger/fabric/peer/crypto/peerOrganizations/org1.peernode.com/users/Admin@org1.peernode.com/msp CORE\_PEER\_ADDRESS=peer0.org1.peernode.com:7051 CORE\_PEER\_LOCALMSPID="Org1MSP" CORE\_PEER\_TLS\_ROOTCERT\_FILE=/opt/gopath/src/github.com/hyperledger/fabric/peer/crypto/peerOrganizations/org1.peernode.com/peers/peer0.org1.peernode.com/tls/ca.crt

peer chaincode install -n myfirstcc -v 1.0 -p github.com/chaincode/go/

* For Pee1 and Org1

CORE\_PEER\_MSPCONFIGPATH=/opt/gopath/src/github.com/hyperledger/fabric/peer/crypto/peerOrganizations/org1.peernode.com/users/Admin@org1.peernode.com/msp CORE\_PEER\_ADDRESS=peer1.org1.peernode.com:7051 CORE\_PEER\_LOCALMSPID="Org1MSP" CORE\_PEER\_TLS\_ROOTCERT\_FILE=/opt/gopath/src/github.com/hyperledger/fabric/peer/crypto/peerOrganizations/org1.peernode.com/peers/peer1.org1.peernode.com/tls/ca.crt

peer chaincode install -n myfirstcc -v 1.0 -p github.com/chaincode/go/

* For Pee0 and Org2

CORE\_PEER\_MSPCONFIGPATH=/opt/gopath/src/github.com/hyperledger/fabric/peer/crypto/peerOrganizations/org2.peernode.com/users/Admin@org2.peernode.com/msp CORE\_PEER\_ADDRESS=peer0.org2.peernode.com:7051 CORE\_PEER\_LOCALMSPID="Org2MSP" CORE\_PEER\_TLS\_ROOTCERT\_FILE=/opt/gopath/src/github.com/hyperledger/fabric/peer/crypto/peerOrganizations/org2.peernode.com/peers/peer0.org2.peernode.com/tls/ca.crt

peer chaincode install -n myfirstcc -v 1.0 -p github.com/chaincode/go/

* For Pee1 and Org2

CORE\_PEER\_MSPCONFIGPATH=/opt/gopath/src/github.com/hyperledger/fabric/peer/crypto/peerOrganizations/org2.peernode.com/users/Admin@org2.peernode.com/msp CORE\_PEER\_ADDRESS=peer1.org2.peernode.com:7051 CORE\_PEER\_LOCALMSPID="Org2MSP" CORE\_PEER\_TLS\_ROOTCERT\_FILE=/opt/gopath/src/github.com/hyperledger/fabric/peer/crypto/peerOrganizations/org2.peernode.com/peers/peer1.org2.peernode.com/tls/ca.crt

peer chaincode install -n myfirstcc -v 1.0 -p github.com/chaincode/go/

**Instantiate Chaincode on channel**

peer chaincode instantiate -o orderer.orderernode.com:7050 --tls --cafile /opt/gopath/src/github.com/hyperledger/fabric/peer/crypto/ordererOrganizations/orderernode.com/orderers/orderer.orderernode.com/msp/tlscacerts/tlsca.orderernode.com-cert.pem -C $CHANNEL\_NAME -n myfirstcc -v 1.0 -c '{"Args":["init","a", "100", "b","200"]}' -P "AND ('Org1MSP.peer','Org2MSP.peer')"

**Test Query**

peer chaincode query -C $CHANNEL\_NAME -n myfirstcc -c '{"Args":["query","a"]}'

peer chaincode invoke -o orderer.orderernode.com:7050 --tls true --cafile /opt/gopath/src/github.com/hyperledger/fabric/peer/crypto/ordererOrganizations/orderernode.com/orderers/orderer.orderernode.com/msp/tlscacerts/tlsca.orderernode.com-cert.pem -C $CHANNEL\_NAME -n myfirstcc --peerAddresses peer0.org1.peernode.com:7051 --tlsRootCertFiles /opt/gopath/src/github.com/hyperledger/fabric/peer/crypto/peerOrganizations/org1.peernode.com/peers/peer0.org1.peernode.com/tls/ca.crt --peerAddresses peer0.org2.peernode.com:7051 --tlsRootCertFiles /opt/gopath/src/github.com/hyperledger/fabric/peer/crypto/peerOrganizations/org2.peernode.com/peers/peer0.org2.peernode.com/tls/ca.crt -c '{"Args":["invoke","a","b","10"]}'