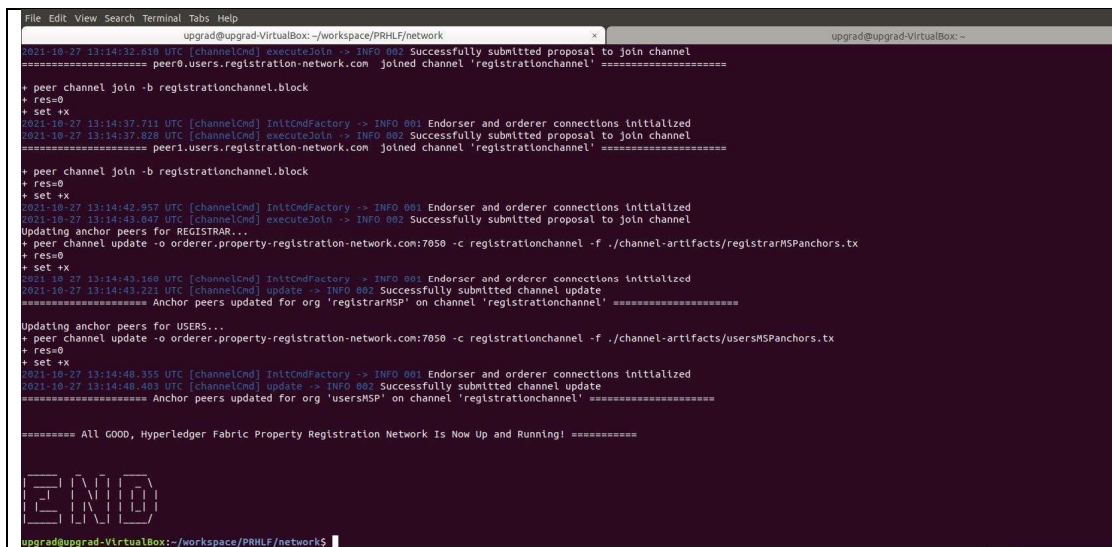# Property Registration HLF Network

By: Tanuj Sharma

1. Generating certificates, genesis block, channel config, anchor peer, Generating and starting docker container.
   Joining peers to channel, Updating anchor peers
   Hyperledger Fabric Property Registration Network Is Now Up and Running
   Command to run script:
   - Navigate to the property-registration DIR and then cd into network
   - ./fabricNetwork.sh up

2. Open another terminal and connect to CHAINCODE container:

   Then first make sure all node dependency are in place and then start the (start-dev) script

   Command to run script:
   - docker exec -it chaincode /bin/bash
   - npm install
   - npm run start-dev

3. Install and Instantiate Chaincode:
   Command:
   - ./fabricNetwork.sh install

4. Now we could connect to the CLI container and start invoking our functions: Invoking instantiate function
   Command:
   - docker exec -it cli /bin/bash
   - peer chaincode invoke -o orderer.property-registration-network.com:7050 -C registrationchannel -n regnet -c '{"Args":["org.property-registrationnetwork.user:instantiate"]}'
   - peer chaincode invoke -o orderer.property-registration-network.com:7050 -C registrationchannel -n regnet -c '{"Args":["org.property-registrationnetwork.registrar:instantiate"]}'

CLI Container

User Smart Contract

CLI Container

Registrar Smart Contract

Chaincode Container

Both the contracts are up and running

1. **User Contract**
2. **Registrar Contract**

Logic Flow:

    a. Creation of User Request
    b. Approval of User Request
    c. View User
    d. Recharge User
    e. Register Property
    f. Approve Property
    g. View Property
    h. Update Property for sell
    i. Buy Property

5. Invoke User Contract: **Creation of User Request**
   Steps to invoke a function from user contract using peer0.users:
       a. connect to chaincode container : **docker exec -it chaincode /bin/bash**
       b. Run the script **npm run start-dev1** (as this script is pointing to peer0.users)
       c. On another terminal connect to peer0.users.property-registration-network.com:
          docker exec -it peer0.users.property-registration-network.com /bin/bash

d. Invoke any function from the user contract:

Example:

peer chaincode invoke -o orderer.property-registration-network.com:7050 -C registrationchannel - n regnet -c '{"Args":["org.property-registration network.user:requestNewUser","tanuj","t4pandit@gmail","00010","11"]}'

6. Invoke Registrar Contract: **Approval of User Request**
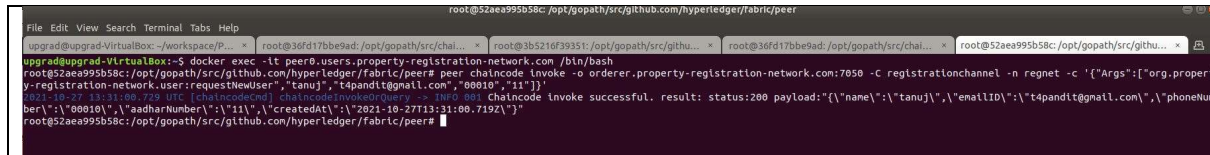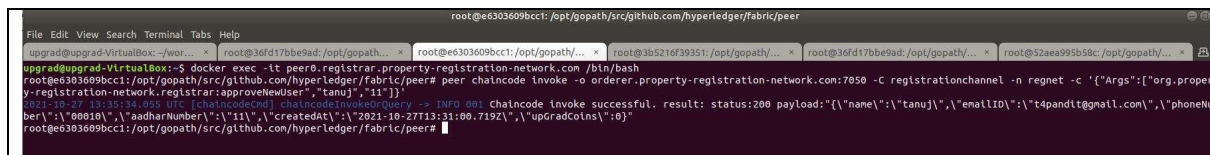
   Steps to invoke a function from registrar contract using peer0.registrar:

   a. connect to chaincode container **: docker exec -it chaincode /bin/bash**
   b. Stop the **npm run start-dev** script (ctrl +c) then,
   c. Run the script npm run start-dev (as this script is pointing to peer0.registrar)
   d. On another terminal connect to peer0.registrar.property-registration-network.com:
      docker exec -it peer0.registrar.property-registration-network.com /bin/bash
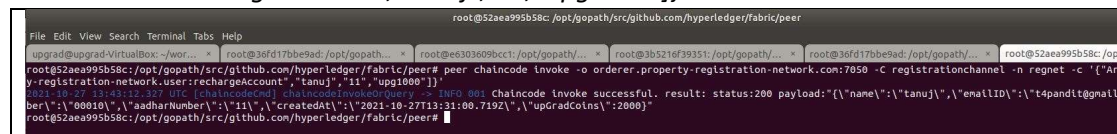   e. Invoke any function from the user contract:

   Example:

   peer chaincode invoke -o orderer.property-registration-network.com:7050 -C registrationchannel - n regnet -c '{"Args":["org.property-registration network.registrar:approveNewUser","tanuj","11"]}'

7. Invoke User Contract: **Recharge User Account**
   Command:
   peer chaincode invoke -o orderer.property-registration-network.com:7050 -C registrationchannel -n regnet -c '{"Args":["org.property-registration-network.user:rechargeAccount","tanuj","1","upg1000"]}'

8. Invoke User Contract: **Recharge Wrong User Account**
   Command:
   peer chaincode invoke -o orderer.property-registration-network.com:7050 -C registrationchannel -n regnet -c '{"Args":["org.property-registration-network.user:rechargeAccount","PQR","1","upg1000"]}'

9. Invoke User Contract: **View User**
   Command:
   peer chaincode invoke -o orderer.property-registration-network.com:7050 -C registrationchannel -n regnet -c '{"Args":["org.property-registration-network.user:viewUser","tanuj","11"]}'

10. Invoke Registrar Contract: **View User**
    Command:
    peer chaincode invoke -o orderer.property-registration-network.com:7050 -C registrationchannel -n regnet -c '{"Args":["org.property-registration-network.registrar:viewUser","tanuj","11"]}'

11. Invoke User Contract: **Property Registration**
    Command:
    peer chaincode invoke -o orderer.property-registration-network.com:7050 -C registrationchannel -n regnet -c '{"Args":["org.property-registration-network.user:propertyRegistrationRequest","001","tanuj","1000","registered","tanuj","11"]}'

12. Involve Registrar Contract: **Property Registration Approval**
    Command:
    peer chaincode invoke -o orderer.property-registration-network.com:7050 -C registrationchannel -n regnet -c '{"Args":["org.property-registration-network.registrar:approvePropertyRegistration","001"]}'

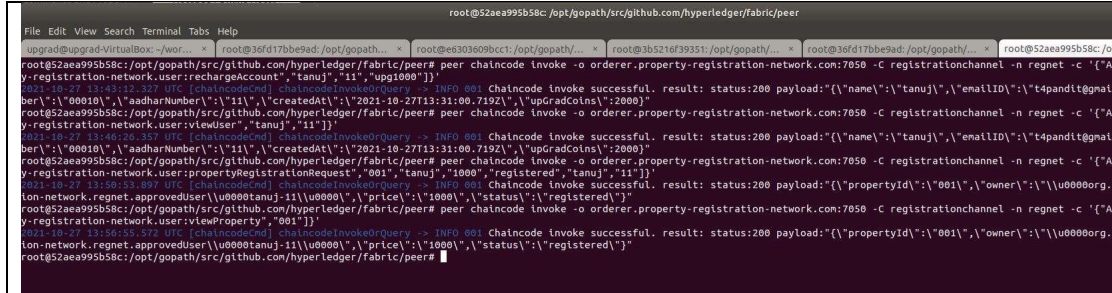13. Invoke User Contract: **View Property**
    Command:
    peer chaincode invoke -o orderer.property-registration-network.com:7050 -C registrationchannel -n regnet -c '{"Args":["org.property-registration-network.user:viewProperty","001"]}'
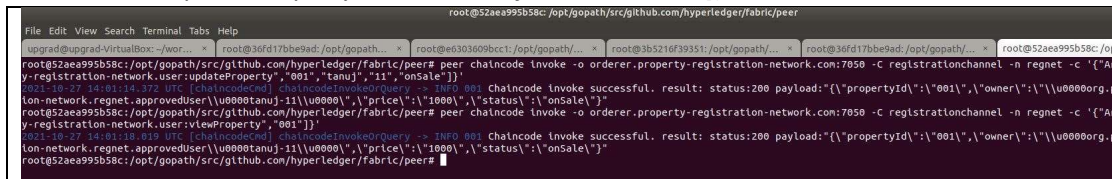

14. Invoke Registrar Contract: **View Property**
    Command:
    peer chaincode invoke -o orderer.property-registration-network.com:7050 -C registrationchannel -n regnet -c '{"Args":["org.property-registration-network.registrar:viewProperty","001"]}'

15. Invoke User Contract: **Update Property for Sell**
    Command:
    peer chaincode invoke -o orderer.property-registration-network.com:7050 -C registrationchannel -n regnet -c '{"Args":["org.property-registration-network.user:updateProperty","001","tanuj","11","onSale"]}'
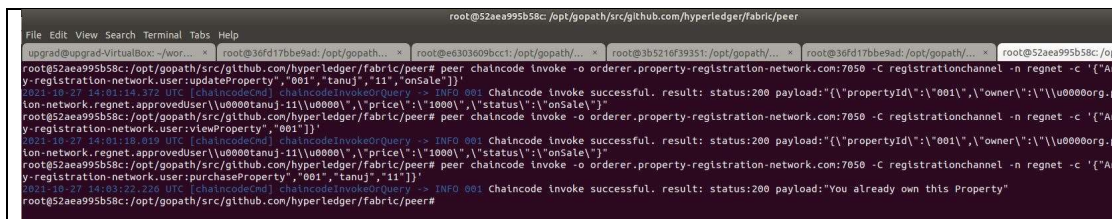

16. Invoke User Contract: **Try to but my own property**
    Command:
    peer chaincode invoke -o orderer.property-registration-network.com:7050 -C registrationchannel -n regnet -c '{"Args":["org.property-registration-network.user:purchaseProperty","001","tanuj","11"]}'
    Error:

17. Invoke User Contract: **Buy Property from another User**
    Command:
    > **Creation of New User Request**

a. *peer chaincode invoke -o orderer.property-registration-network.com:7050 -C registrationchannel -n regnet -c '{"Args":["org.property-registration-network.user:requestNewUser","sharma","sharma@gmail.com","00011","12"]}'*
    Approval of New User Request
b. *peer chaincode invoke -o orderer.property-registration-network.com:7050 -C registrationchannel -n regnet -c '{"Args":["org.property-registration-network.registrar:approveNewUser","sharma","12"]}'*
    Recharge New User
c. *peer chaincode invoke -o orderer.property-registration-network.com:7050 -C registrationchannel -n regnet -c '{"Args":["org.property-registration-network.user:rechargeAccount","sharma","12","upg1000"]}'*
    Buy property from New User
d. *peer chaincode invoke -o orderer.property-registration-network.com:7050 -C registrationchannel -n regnet -c '{"Args":["org.property-registration-network.user:purchaseProperty","001","sharma","12"]}'*