Hyperledger Explorer

Installation of Hyperledger Explorer

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Suho Kwon

(**suho.kwon@gmail.com**, **http://blog.naver.com/knix008**)

Hyperledger Explorer

Installing Hyperledger Explorer(0/7)

- **Using "test-network" for Test :**
  - **Step 00**. **Setup "test-network" for installing blockchain explorer**. Run the following **(RED)** commands.
    - For more information, please refer to **https://hyperledger-fabric.readthedocs.io/en/latest/test_network.html**.

```
cd fabric-samples/test-work
./network.sh up
./network.sh createChannel

./network.sh deployCC -ccn basic -ccp ../asset-transfer-basic/chaincode-go -ccl go

export PATH=${PWD}/../bin:$PATH
export FABRIC_CFG_PATH=$PWD/../config/
export CORE_PEER_TLS_ENABLED=true
export CORE_PEER_LOCALMSPID="Org1MSP"
export CORE_PEER_TLS_ROOTCERT_FILE=${PWD}/organizations/peerOrganizations/org1.example.com/peers/peer0.org1.example.com/tls/ca.crt
export CORE_PEER_MSPCONFIGPATH=${PWD}/organizations/peerOrganizations/org1.example.com/users/Admin@org1.example.com/msp
export CORE_PEER_ADDRESS=localhost:7051


peer chaincode invoke -o localhost:7050 --ordererTLSHostnameOverride orderer.example.com --tls --cafile
${PWD}/organizations/ordererOrganizations/example.com/orderers/orderer.example.com/msp/tlscacerts/tlsca.example.com-cert.pem -C mychannel -n basic
--peerAddresses localhost:7051 --tlsRootCertFiles ${PWD}/organizations/peerOrganizations/org1.example.com/peers/peer0.org1.example.com/tls/ca.crt --
peerAddresses localhost:9051 --tlsRootCertFiles ${PWD}/organizations/peerOrganizations/org2.example.com/peers/peer0.org2.example.com/tls/ca.crt -c
'{"function":"InitLedger","Args":[]}'


peer chaincode query -C mychannel -n basic -c '{"Args":["GetAllAssets"]}'


peer chaincode invoke -o localhost:7050 --ordererTLSHostnameOverride orderer.example.com --tls --cafile
${PWD}/organizations/ordererOrganizations/example.com/orderers/orderer.example.com/msp/tlscacerts/tlsca.example.com-cert.pem -C mychannel -n basic
--peerAddresses localhost:7051 --tlsRootCertFiles ${PWD}/organizations/peerOrganizations/org1.example.com/peers/peer0.org1.example.com/tls/ca.crt --
peerAddresses localhost:9051 --tlsRootCertFiles ${PWD}/organizations/peerOrganizations/org2.example.com/peers/peer0.org2.example.com/tls/ca.crt -c
'{"function":"TransferAsset","Args":["asset6","Christopher"]}'
```

NOTICE!!! Before you run the Hyperledger Explorer, you need to create a channel for connection.

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- **Blockchain Explorer :**
  - **Step 01. Get the repository into your local machine.** Run the following commands**.**

```
cd fabric-samples
mkdir explorer
cd explorer
git clone https://github.com/hyperledger/blockchain-explorer.git
cd blockchain-explorer
```

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- **Blockchain Explorer :**
  - **Step 02. Find files for setting the blockchain explorer**. You need the following files.

  > - blockchain-explorer/docker-compose.yaml
  > - blockchain-explorer/examples/net1/connection-profile/test-network.json
  > - blockchain-explorer/examples/net1/config.json

  - **Step 03. Get the all certificates** from the "**test-network**" example. The certificate files are in the "**fabric-samples/test-network/organizations**" directory. Before you copy the directory, you need to run "**network.sh up**" command in the "**test-network**" directory to generate all certificate files. Run the following commands.

  > blockchain-explorer/cp -r ../../test-network/organizations .

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- **Blockchain Explorer :**
    - **Step 04**. **Edit "docker-compose.yaml" file**. You need to **change the network name("fabric_test")** and **volume path**.

```
...
...
networks:
  mynetwork.com:
    external:
      name: fabric_test
...
volumes:
      - ./examples/net1/config.json:/opt/explorer/app/platform/fabric/config.json
      - ./examples/net1/connection-profile:/opt/explorer/app/platform/fabric/connection-profile
      - ./organizations:/tmp/crypto
      - walletstore:/opt/explorer/wallet
...
```

- **NOTICE!!! "fabric_test"** should be in the "docker network ls" command result.
- **Step 05. Check the "config.json" file**. It has to refer the "**test-network.js**on" profile.

```
{
  "network-configs": {
    "test-network": {
      "name": "Test Network",
      "profile": "./connection-profile/test-network.json"
    }
  },
  "license": "Apache-2.0"
}
```

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- **Blockchain Explorer :**
  - **Step 06**. **Edit "test-network.json" file** to specify the private key and other certificates directory path.

```
'''
"organizations": {
  "Org1MSP": {
    "mspid": "Org1MSP",
    "adminPrivateKey": {
      "path": "/tmp/crypto/peerOrganizations/org1.example.com/users/Admin@org1.example.com/msp/keystore/priv_sk"
    },
    "peers": [
      "peer0.org1.example.com"
    ],
    "signedCert": {
      "path": "/tmp/crypto/peerOrganizations/org1.example.com/users/Admin@org1.example.com/msp/signcerts/Admin@org1.example.com-cert.pem"
    }
  }
},
"peers": {
  "peer0.org1.example.com": {
    "tlsCACerts": {
    "path": "/tmp/crypto/peerOrganizations/org1.example.com/peers/peer0.org1.example.com/tls/ca.crt"
    },
  "url": "grpcs://peer0.org1.example.com:7051"
  }
}
```

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- **Blockchain Explorer :**
  - **Step 06**. **Run the docker image.** Run the following command**.**
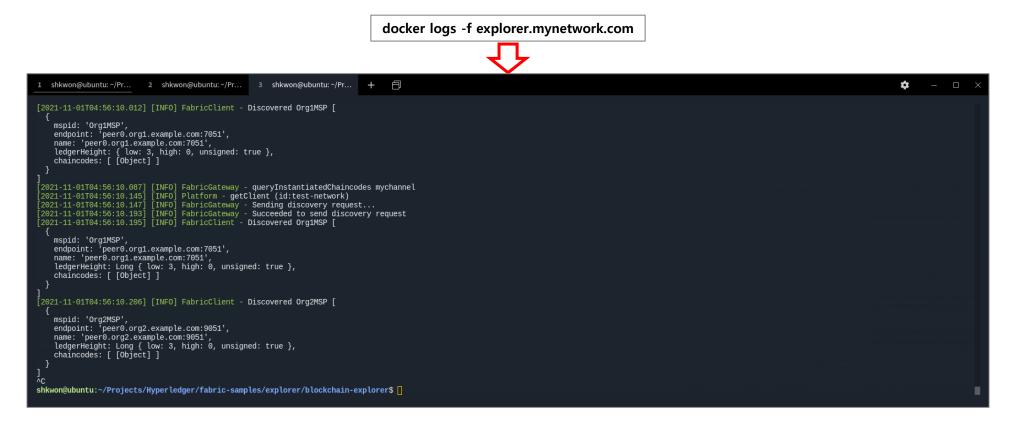
blockchain-explorer/docker-compose up -d

- **NOTICE!!! When you run the "test-network" again. You must copy all the certificates from "organization" directory into the "blockchain-explorer/organization" directory again.**
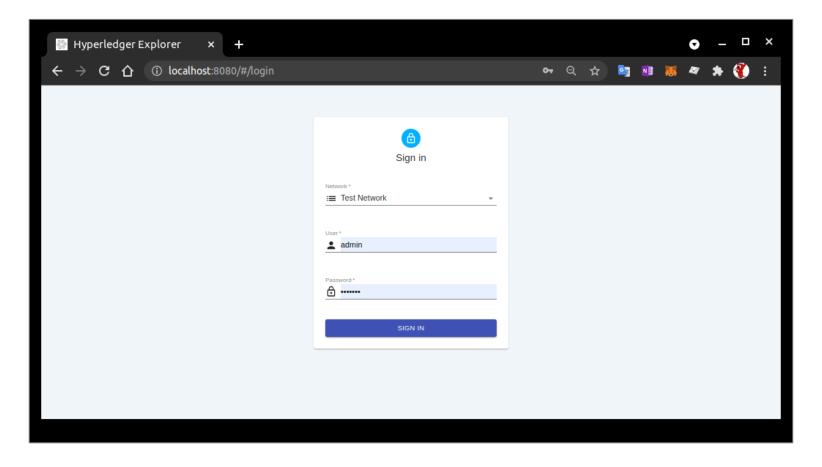
Note : Block Explorer Docker Container

- **Checking Status**
  - **To check the status of the Block Explorer container status**, you can use the following command.

docker logs -f explorer.mynetwork.com

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- **Blockchain Explorer :**
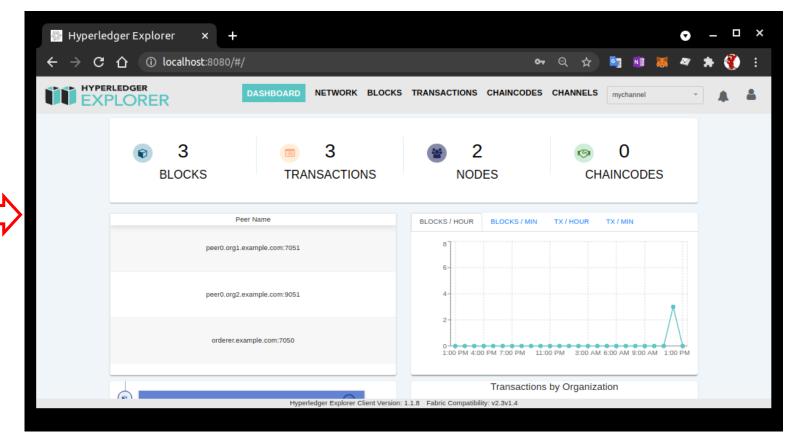   - **Step 07. Open your web browser and connect to the http://localhost:8080.** It will show you the following screen.

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- **Blockchain Explorer :**
  - **Step 08. Enter the User Name and Password**. You can get the user name and password from the "**test-network.json**" file.
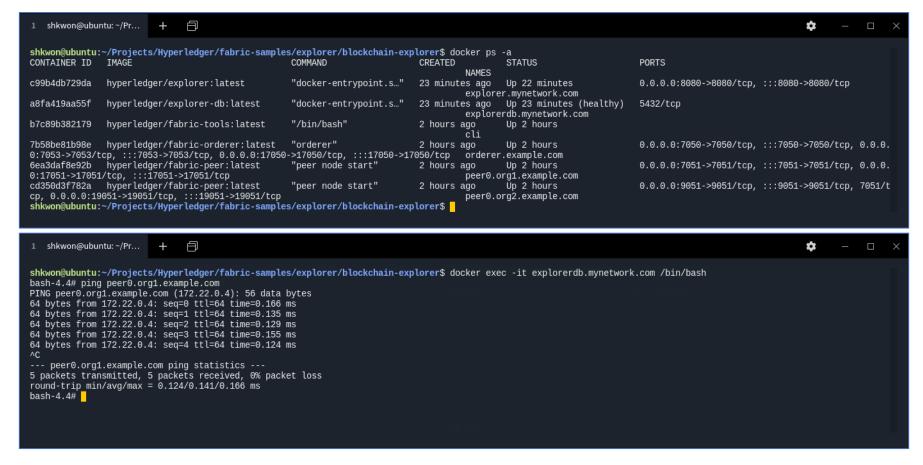
```
{
  "name": "test-network",
  "version": "1.0.0",
  "client": {
    "tlsEnable": true,
    "adminCredential": {
      "id": "exploreradmin",
      "password": "exploreradminpw"
    },
    "enableAuthentication": true,
    "organization": "Org1MSP",
    "connection": {
      "timeout": {
        "peer": {
          "endorser": "300"
        },
        "orderer": "300"
      }
    }
  },
  "channels": {
    "mychannel": {
      "peers": {
        "peer0.org1.example.com": {}
      }
    }
  },
  ...
```

Note : Checking Network Connectivity

- **Troubleshooting :**
  - When you are not connected to the Hyperledger Fabric Peers, you can connect to the **explorerdb node** using "**docker exec -it explorerdb.mynetwork.com /bin/bash**" command. Then use "**ping peer0.org1.example.com**" command to know whether the network is reachable or not.

  - **NOTICE!!! If the network is not reachable, you cannot run "explorer.mynetwork.com" node**.

Reference

[1] Hands-On Smart Contract Development with Hyperledger Fabric V2, Oreilly, 2021.

[2] https://hyperledger-fabric.readthedocs.io

[3] https://myhsts.org/hyperledger-fabric-book

[4] Installing Hyperledger Explorer

[5] https://blockchain-explorer.readthedocs.io/_/downloads/en/main/pdf/

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thank you!