# **FPC implimentation: Demo HLGF 2022**

There are few things to notedown:

Part I: Path, repo and docker and env file creation: you must do inside the docker-dev enviornment.

Part II: Starting a fabric network: you can do inside or outside the dev-env).

Part III: Interaction with network through CLI: you can do inside or outside the dev-env.

#### PART - I

Provide path address

 ${\tt export\ FPC\_PATH=\$GOPATH/src/github.com/hyperledger/fabric-private-chaincode}$ 

Clonning the go-support branch

 $\label{lem:git_com_hyperledger/fabric-private-chaincode.git} $$\operatorname{FPC\_PATH}$ is $\operatorname{Com_hyperledger/fabric-private-chaincode.git} $$\operatorname{PC\_PATH}$ is $\operatorname{PC\_PATH}$ is $\operatorname{Com_hyperledger/fabric-private-chaincode.git} $$\operatorname{PC\_PATH}$ is $\operatorname{PC\_PATH}$ is $\operatorname{Com_hyperledger/fabric-private-chaincode.git} $$\operatorname{PC\_PATH}$ is $\operatorname{Com_hyperledger/$ 

Once you have cloned the repository, to pull the docker image and start the development container execute the following:

cd \$FPC\_PATH/utils/docker make pull-dev make run-dev

If there is error then you can do the following by pulling the docker files

cd \$FPC\_PATH
make -C \$FPC\_PATH/utils/docker pull

or you can build all required FPC componenet and run the intgration test using following commands

cd \$FPC\_PATH make

For docker based enviornment:

cd \$FPC\_PATH/utils/docker
make pull-dev
make run-dev

```
Step 9/17 : BN/ FPC VERSION=$(FPC_VERSION)
---> Using cache
---> a93303807985

Step 19/17 : BN/ SOX MODE-SIM
---> Using cache
---> using us
```

Once the development enviornment is running: now you can go the write the chaincode and build it usign the make command: It is better to run the make inside the devenvionment.

Input modification in main.go modification in makefile

```
assetChaincode, _ := contractapi.NewChaincode(&chaincode.SmartContract{})
chaincode := fpc.NewPrivateChaincode(assetChaincode)
```

Make sure you import

"aithub.com/hyperledger/fabric-contract-api-go/contractapi"

fpc "github.com/hyperledger/fabric-private-chaincode/ecc\_go/chaincode"
"github.com/hyperledger/fabric-samples/asset-transfer-basic/chaincode-go/chaincode"

To build chaincode: use the docker dev envionrment

Set inside the Makefile.

```
CC_NAME ?= fpc-basic-asset-transfer
```

Once it is done then you will get following:

a. A docker image: fpc-basic-asset-transfer b. enviornment variable: details.env

#### PART - II

Here we use the the fabric-smart-client as network

Open a new terminal and firstly export the variable:

```
export FPC_PATH=$GOPATH/src/github.com/hyperledger/fabric-private-chaincode
```

then go the fabric-smart-client directory

```
cd $FPC_PATH/samples/deployment/fabric-smart-client/the-simple-testing-network
```

To run the Fabric network we need the Fabric binaries. We will use the following:

```
make -C $FPC_PATH/fabric
export FAB_BINS=$FPC_PATH/fabric/_internal/bin
```

Go to

 $\verb| FPC_PATH/samples/deployment/fabric-smart-client/the-simple-testing-network. | \\$ 

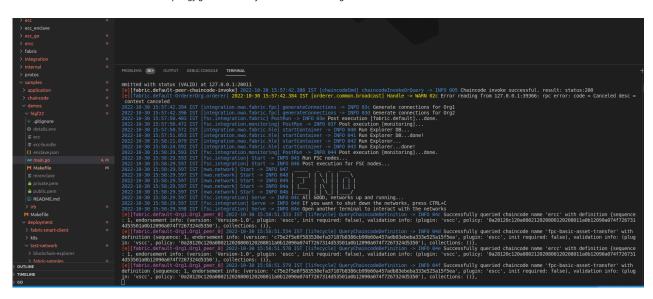
Review the topology.go, which defines a simple Fabric network with two organizations. Note that we enable FPC by setting the chaincode name and the docker image. These information are in the details.env variable, we will source them here by:

```
source $FPC_PATH/samples/demos/hlgf22/details.env
```

Run the network

```
make run
// OR
go run . network start --path ./testdata
```

The network start which is defined in the topology.go will run and you will see the message:

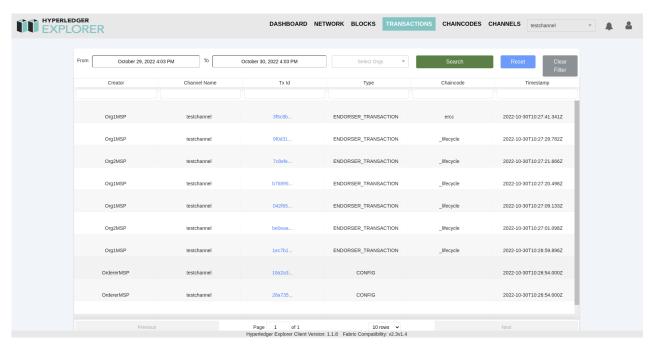


It also start with the hyperledger explorer to see the network and related artifcats and transaction information over the GUI

### To run the Hyperledger-explorer

nce the network is started we can open Hyperledger Explorer in a browser at <a href="http://localhost:8080/">http://localhost:8080/</a>) with username admin and password admin. We can see that the fpc-basic-asset-transfer chaincode is installed. Moreover, we see the FPC Enclave Registry chaincode is installed as well

in the browser window type: localhost:8080 in the login and password is admin



for next step use a new terminal

## Network interaction: Invoke the chaincode

we will interact with the deployed FPC Chaincode using the  $\,$ 

FPC simple-cli-go.

Open a new terminal and firstly export the variable

export FPC\_PATH=\$GOPATH/src/github.com/hyperledger/fabric-private-chaincode

then Go to

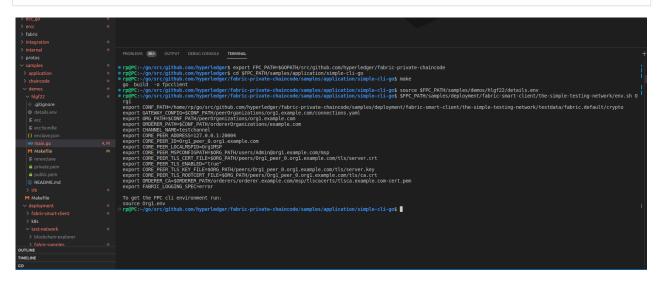
cd \$FPC\_PATH/samples/application/simple-cli-go

run the following:

configure cli environment using followings:

make

 $source $FPC\_PATH/samples/demos/hlgf22/details.env $FPC\_PATH/samples/deployment/fabric-smart-client/the-simple-testing-network/env.sh \ \, 0rg1 \\$ 



then to get the FPC cli envionrent run the followings:

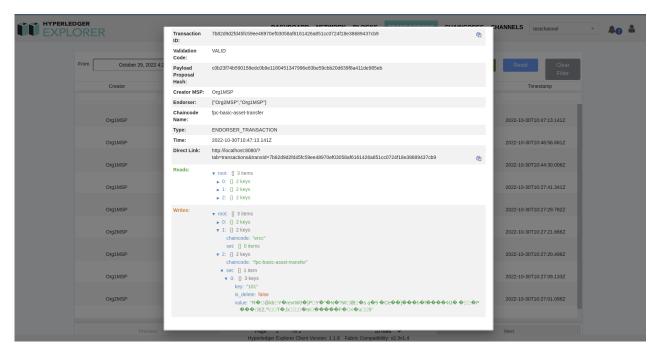
source Orgl.env

to invoke a transaction

./fpcclient invoke createAsset 101 blue 20 hart 100000

Here the createAsst in the funcation name and parameters are: 101 blue 20 hart 100000

we can see it in the transaction in the explorer



to query

./fpcclient query readAsset 101

you will see in the cli terminal window

> {"AppraisedValue":100000,"Color":"blue","ID":"101","Owner":"hart","Size":20}

we can verify the transaction on the transaction history in the hyperledger explorer.

we can see the three transactio on the chaincode

