Internet Routing Blockchain - Deliverable 3 - Testbed Setup

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I. Testbed Setup

In this section we describe how to setup the IRB Blockchain network from the scratch. We show how to bring up the docker network with all the required containers, set up the channel and join all the elected peer, install the chaincode on every peer and install the application on every organization.
Download the code at https://oruga.it.uc3m.es/git/irb-blockchain-code .

```
cd IRB_Network
find -type f -iname "*.sh" -exec chmod +x {} \;
cd bin
chmod +x *
cd ..
cd asn-pairs
./network-start
docker ps -a
```

The network is now live. We need to install the chaincode on every organization peer.
Recommendation: Open a different terminal per organization.

```
cd organizations/org1
source org1.sh
peer lifecycle chaincode package cp.tar.gz --lang node --path ./contract --label cp_0
peer lifecycle chaincode install cp.tar.gz
peer lifecycle chaincode queryinstalled
export PACKAGE_ID="result of previous command"

//example:
//export PACKAGE_ID=cp_0:770
    bd323a798ab9fb59ed6ef4163d2661fbaa523e33cb6c55a7cd1a0873747eb

peer lifecycle chaincode approveformyorg --orderer localhost:7050 --
    ordererTLSHostnameOverride orderer.example.com --channelID mychannel  --name
    aspaircontract -v 0 --package-id $PACKAGE_ID --sequence 1 --tls --cafile
    $ORDERER_CA
```

Repeat the process for all the organizations. Once the chaincode has been installed and approved on every organization peer, run in only one of the organizations folder:

```
peer lifecycle chaincode commit -o localhost:7050 --ordererTLSHostnameOverride
    orderer.example.com --peerAddresses localhost:7051 --tlsRootCertFiles ${
    PEER0_ORG1_CA} --peerAddresses localhost:9051 --tlsRootCertFiles ${PEER0_ORG2_CA}
     --peerAddresses localhost:11051 --tlsRootCertFiles ${PEER0_ORG3_CA} --
    peerAddresses localhost:13051 --tlsRootCertFiles ${PEER0_ORG4_CA} --peerAddresses
    localhost:15051 --tlsRootCertFiles ${PEER0_ORG5_CA}  --channelID mychannel --name
    aspaircontract -v 0 --sequence 1 --tls --cafile $ORDERER_CA --waitForEvent
```

The chaincode is finally committed to the channel. We need now to install the application on every organization.

```
cd IRB_Network/asn-pairs/organizations/org1/application
npm install prompt-sync
npm install sync-exec
npm install shelljs
npm install
```

Repeat the process for all the organizations. The system is finally ready to be used!
To issue an ASN_PAIR relationship we need first to register the user to the network.

```
cd IRB_Network/asn-pairs/
./registerEnrollUser.sh
```

Once the user is registered and enrolled into the IRB network we need to import his credential into the application wallet.

```
cd IRB_Network/asn-pairs/organizations/org1/application
node enrollUser.js
```

Finally the user is ready to play with the IRB Blockchain. In the same application folder you can run:

```
node issue.js
node sign.js
node invalid.js
./read.sh
```