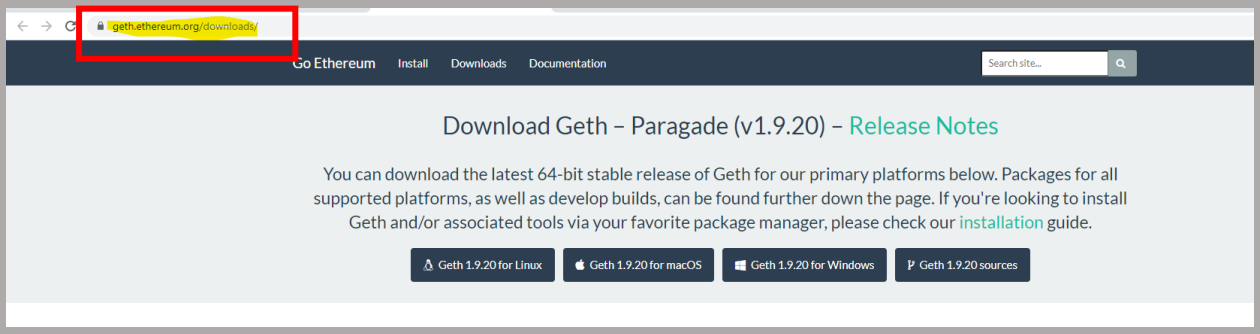
Preliminary Information

- User should have a prefunded wallet. Please make an account using MyCrypto (https://mycrypto.com/account)
- Installation and command lines are different for mac and windows user
- The algorithm used here is proof of work

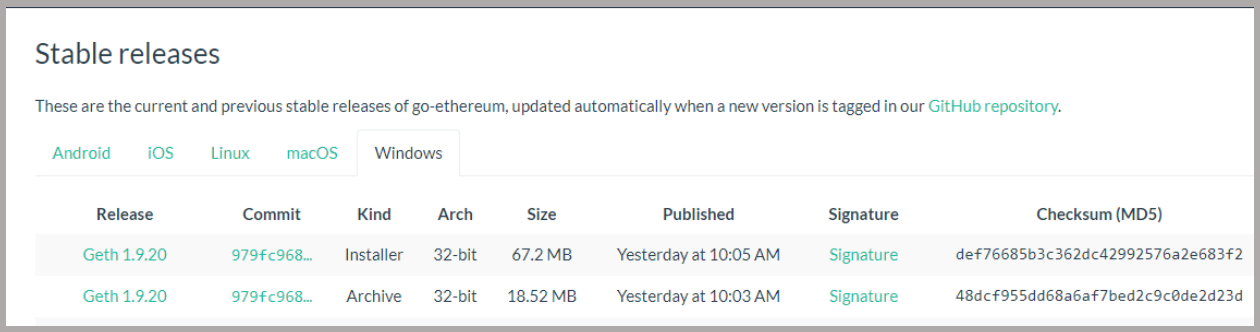
Instructions

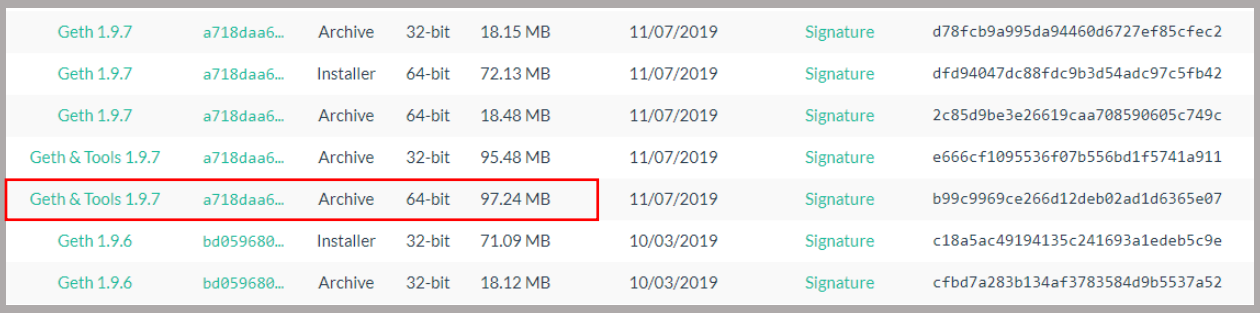
Step 1. Installing Go Ethereum Tools

- Step 1.a. Open your browser and navigate to the Go Ethereum Tools download page at https://geth.ethereum.org/downloads/



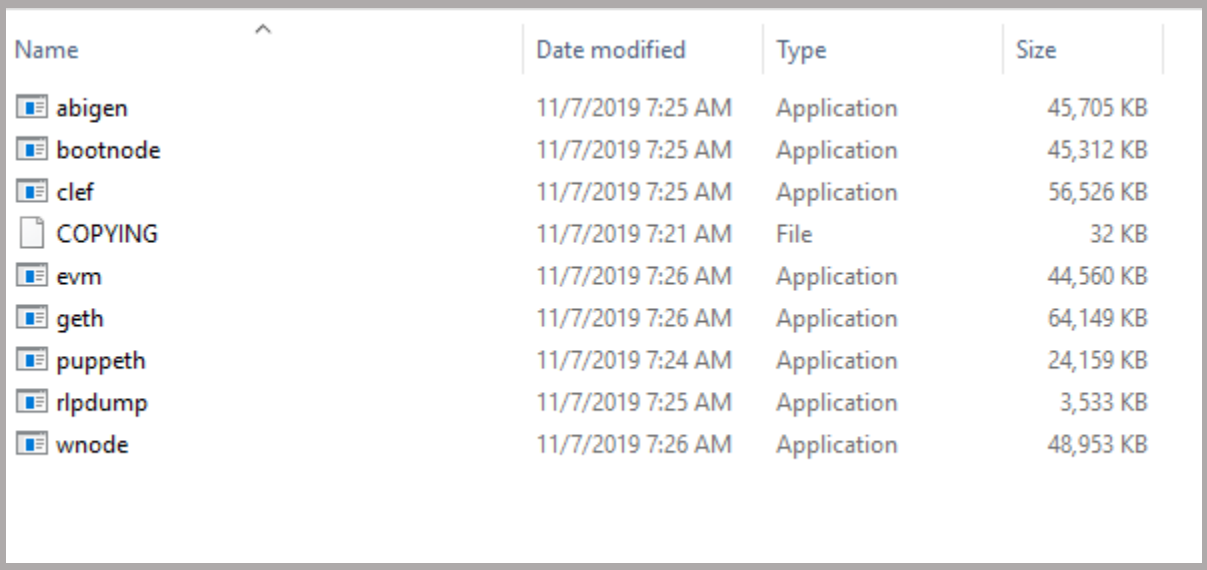
- Step 1.b. Scroll down to Stable releases section and install Geth & Tools depending upon the operating system specification
- e.g I downloaded Geth & Tools 1.9.7 for windows 64 bit





- Step 1.c. The package will be downloaded as geth-alltools-windows-amd64-1.9.7-a718daa6.
- Extract the folder and rename it whatever you want to. I have renamed it as BlockchainDemo. For Mac user the file will be downloaded with different name as geth-alltools-darwin-amd64-1.9.7-a718daa6.tar.gz.

Content of the downloaded file



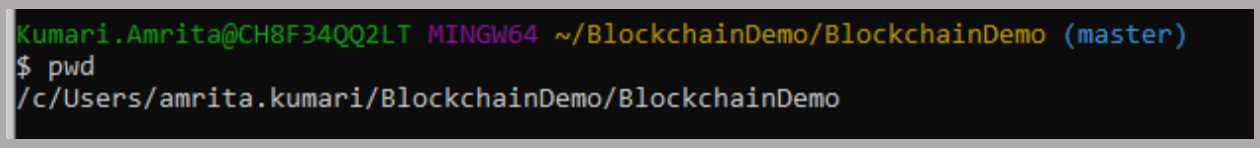
Name	Date modified	Type	Size
abigen	11/7/2019 7:25 AM	Application	45,705 KB
bootnode	11/7/2019 7:25 AM	Application	45,312 KB
clef	11/7/2019 7:25 AM	Application	56,526 KB
COPYING	11/7/2019 7:21 AM	File	32 KB
evm	11/7/2019 7:26 AM	Application	44,560 KB
geth	11/7/2019 7:26 AM	Application	64,149 KB
puppeth	11/7/2019 7:24 AM	Application	24,159 KB
rlpdump	11/7/2019 7:25 AM	Application	3,533 KB
wnode	11/7/2019 7:26 AM	Application	48,953 KB

Step 2. To run the geth Windows user should use git bash and mac user can use their system terminal

Note :- All terminal commands are w.r.t windows user, please refer the corresponding command(cmd) line for mac user

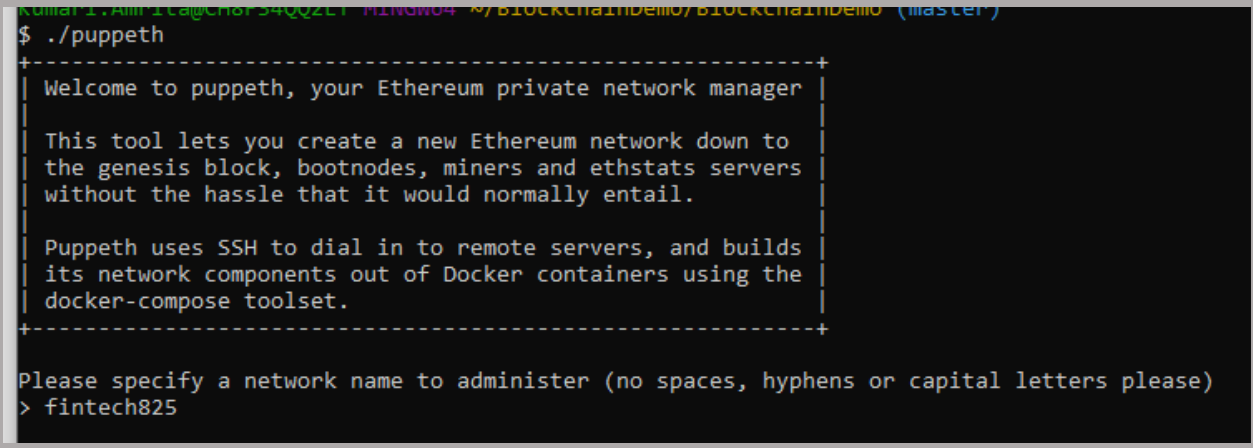
- Step 2.1 Navigate to folder BlockchainDemo using cmd line cd

- Step 2.2 To check if you are in the folder use pwd cmd line. It will show the folder path that means you are in the folder

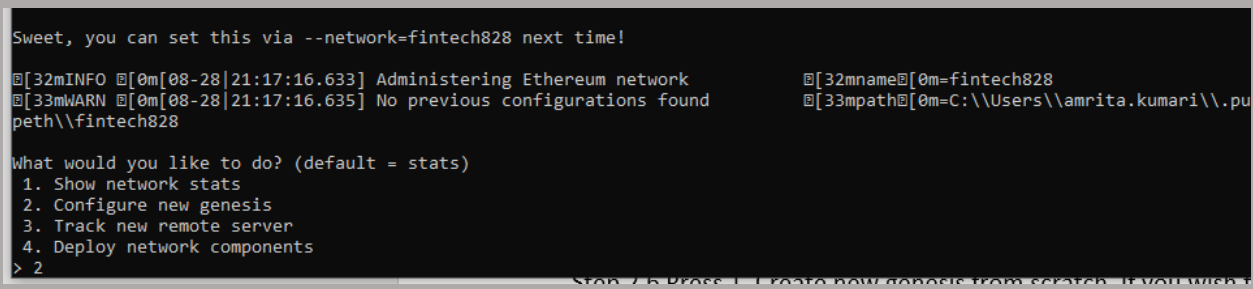


- Step 2.3 Use ls cmd line to see which files are there inside the folder

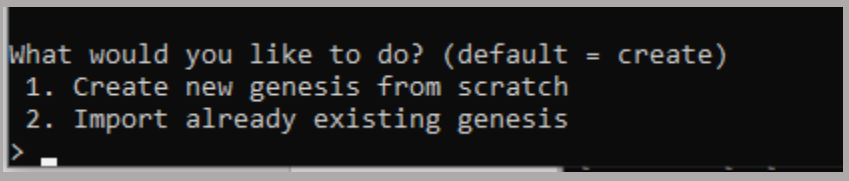
- Step 2.4 Initiate puppeth using cmd line ./puppet ; and provide a network name as per your preference. For e.g I have used fintech825



- Step 2.5 Press 2. Configure of new genesis. This will create the genesis for the blockchains



- Step 2.6 Press 1. Create new genesis from scratch. If you wish to import an existing genesis then press 2



- Step 2.7 Press 2. Clique -proof-of - authority. It depends upon user preference which algorithm want to use for hash

```
Which consensus engine to use? (default = clique)
 1. Ethash - proof-of-work
 2. Clique - proof-of-authority
> 2
```

- Step 2.8 I used the same public address of my wallet, if don't want to use the same wallet then specify a different one. Hit enter twice after specifying the address

```
Which accounts should be pre-funded? (advisable at least one)
> 0x474d5856828462365a665964DF5B950e2718D333
> 0x
```

- Step 2.9 Hit enter and don't specify anything

```
Should the precompile-addresses (0x1 .. 0xff) be pre-funded with 1 wei? (advisable yes)
>
```

- Step 2.10 Specify the network ID else it will use the default; in my scenario I have used 825

```
Specify your chain/network ID if you want an explicit one (default = random)
> 825
```

- Step 2.11 Press 2. Manage the existing genesis

```
[32mINFO [0m[08-26|21:07:47.717] Configured new genesis block

What would you like to do? (default = stats)
 1. Show network stats
 2. Manage existing genesis
 3. Track new remote server
 4. Deploy network components
>
```

- Step 2.12 Press 2. Export the genesis configuration, this will export the files of the newly created genesis in the BlockchainDemo folder

```
 1. Modify existing configurations
 2. Export genesis configurations
 3. Remove genesis configuration
> 2
```

- Step 2.13. Hit enter to save the folder, after hitting enter press ctrl+c to get out of menu (“What would you like to do?”)

```
Which folder to save the genesis specs into? (default = current)
  Will create fintech825.json, fintech825-aleth.json, fintech825-harmony.json, fintech825-parity.json
>
```

```
What would you like to do? (default = stats)
 1. Show network stats
 2. Manage existing genesis
 3. Track new remote server
 4. Deploy network components
> [35mCRIT [0m[08-26|21:43:01.654] Failed to read user input               [35merr[0m=EOF
```

Step 3. To create the node

- Step 3.1 Create node 1 using cmd line ./geth account new --datadir node1, provide a password as per your preference
- Pswd – fintech789

```
Kumari.Amrita@CH8F34QQ2LT MINGW64 ~/BlockchainDemo/BlockchainDemo (master)
$ ./geth account new --datadir node1
INFO [08-26|21:48:36.583] Maximum peer count                       ETH=50 LES=0 total=50
Your new account is locked with a password. Please give a password. Do not forget this password.
Password:
```

- Step 3.2 Save the public address and path of the secret key file in a local file of node1

```
Public address of the key:   0xEb569758D496b5a597F322212d7e436c3d515614
Path of the secret key file: node1\keystore\UTC--2020-08-29T21-13-36.484385000Z--eb569758d496b5a597f322212d7e436c3d515614
```

- Step 3.3 Similar create node 2 using the same cmd line, instead of node1 use node 2 ; ./geth account new –datadir node2. Provide a password as per your preference
- Pswd – fintech789

```
Kumari.Amrita@CH8F34QQ2LT MINGW64 ~/BlockchainDemo/BlockchainDemo (master)
$ ./geth account new --datadir node2
INFO [08-26|21:54:30.201] Maximum peer count                       ETH=50 LES=0 total=50
Your new account is locked with a password. Please give a password. Do not forget this password.
Password:
Repeat password:
```

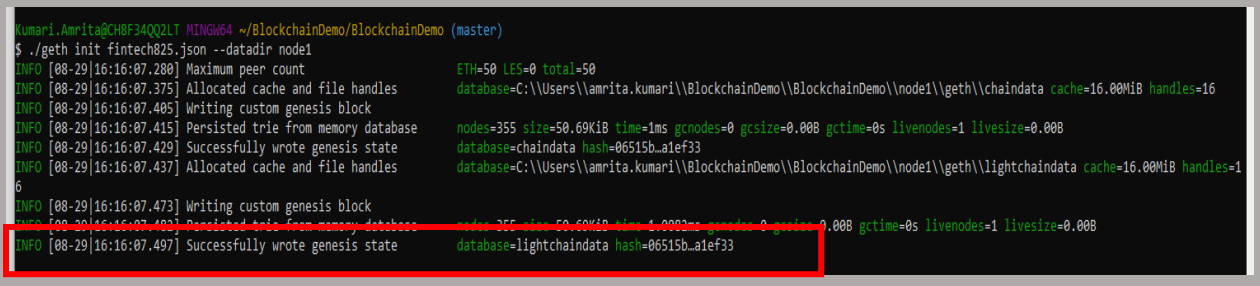
- Step 3.3 Save the public address and path of the secret key file in a local file of node2

```
Public address of the key:   0xaBbB0dF0B2717edf49Ec329eD05A64BCE1E388F1
Path of the secret key file: node2\keystore\UTC--2020-08-29T21-14-35.631704700Z--abbb0df0b2717edf49ec329ed05a64bce1e388f1

- You can share your public address with anyone. Others need it to interact with you.
- You must NEVER share the secret key with anyone! The key controls access to your funds!
- You must BACKUP your key file! Without the key, it's impossible to access account funds!
- You must REMEMBER your password! Without the password, it's impossible to decrypt the key!
```

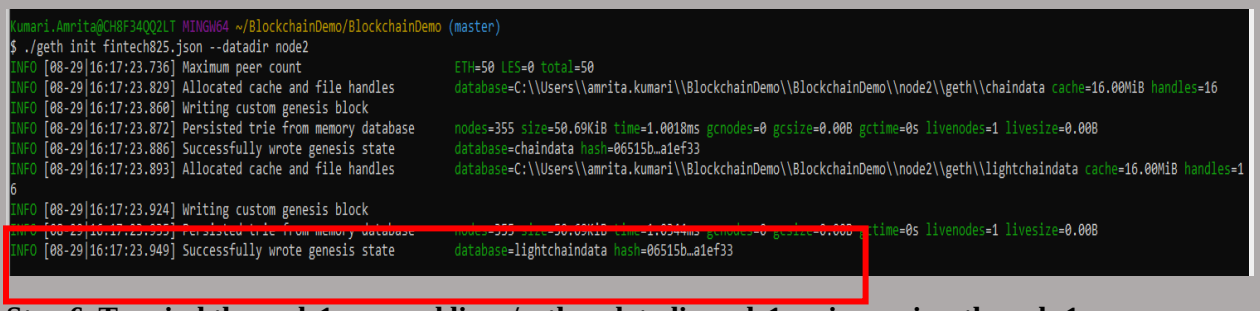
Step 4. Initialize the node 1, use cmd line ./geth init fintech825.json --datadir node1

The initiation is successful if the last line says “Successfully wrote genesis state”



Step 5. Initialize the node 1, use cmd line ./geth init fintech825.json --datadir node2

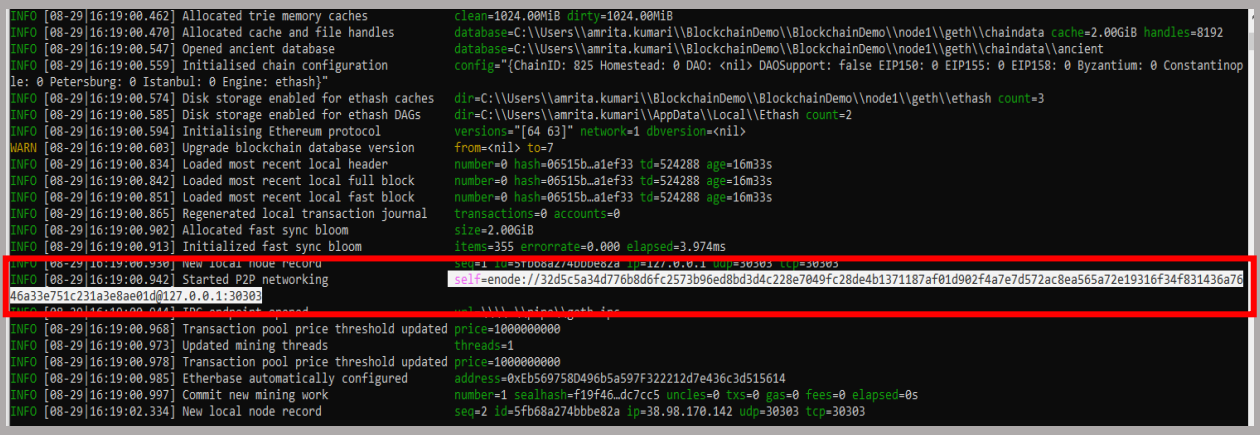
The initiation is successful if the last line says “Successfully wrote genesis state”



Step 6. To mind the node1 use cmd line ./geth --datadir node1 –mine –minerthreads 1

As the command line runs copy the enode

self=enode://32d5c5a34d776b8d6fc2573b96ed8bd3d4c228e7049fc28de4b1371187af01d902f4a7e7d572ac8ea565a72e19316f34f831436a7646a33e751c231a3e8ae01d@127.0.0.1:30303



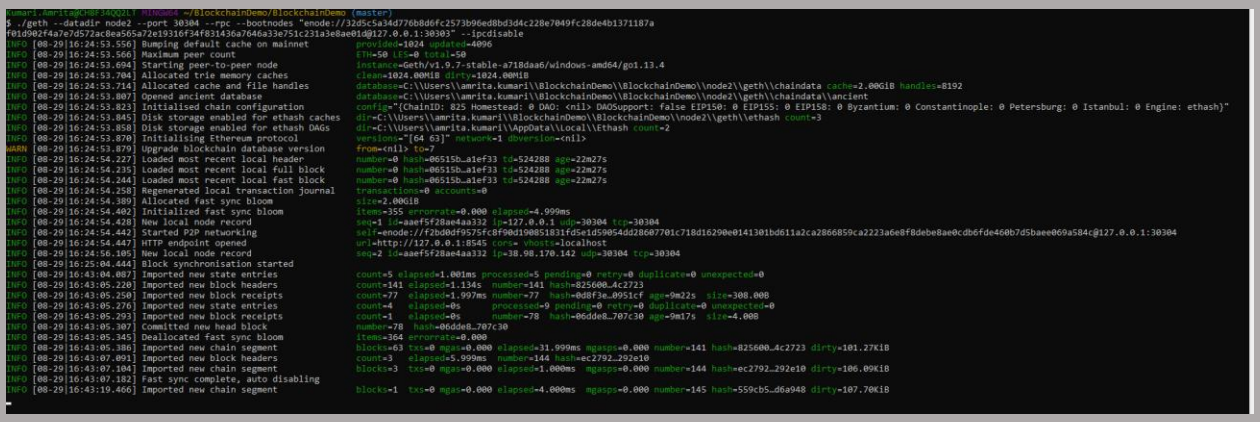
Step 7. Open another terminal and run the following command

./geth --datadir node2 --port 30304 --rpc --bootnodes "enode://<replace with node1 enode address>" –ipcdisable

The enode address which copied for node 1 should be replace at “replace with node1 enode address”. This will connect node 1 with node 2

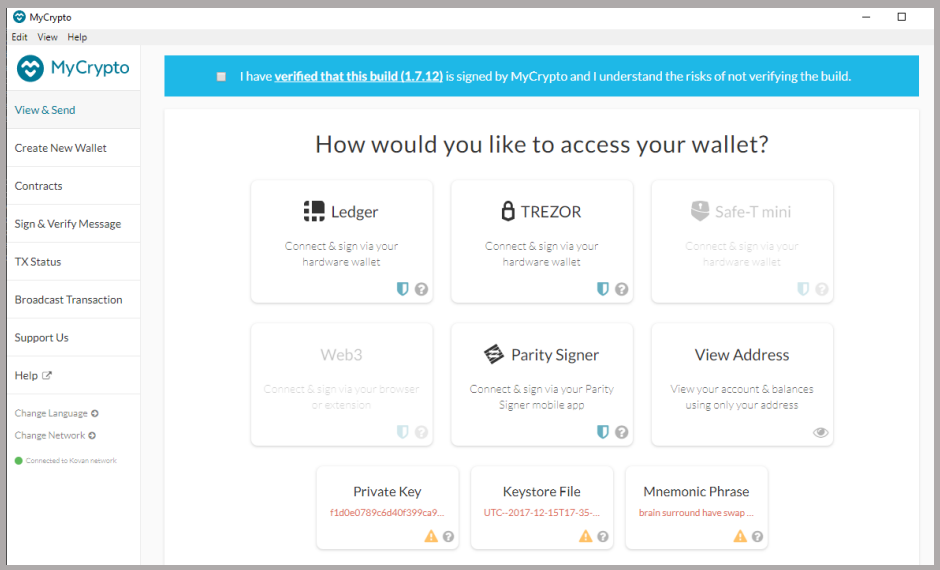
```
Kumari.Amrita@CH8F34QQ2LT MINGW64 ~/BlockchainDemo/BlockchainDemo (master)
$ ./geth --datadir node2 --port 30304 --rpc --bootnodes "enode://32d5c5a34d776b8d6fc2573b96ed8bd3d4c228e7049fc28de4b137
1187af01d902f4a7e7d572ac8ea565a72e19316f34f831436a7646a33e751c231a3e8ae01d@127.0.0.1:30303" --ipcdisable
```

Output saying imported a new chain segment, that means nodes are connected

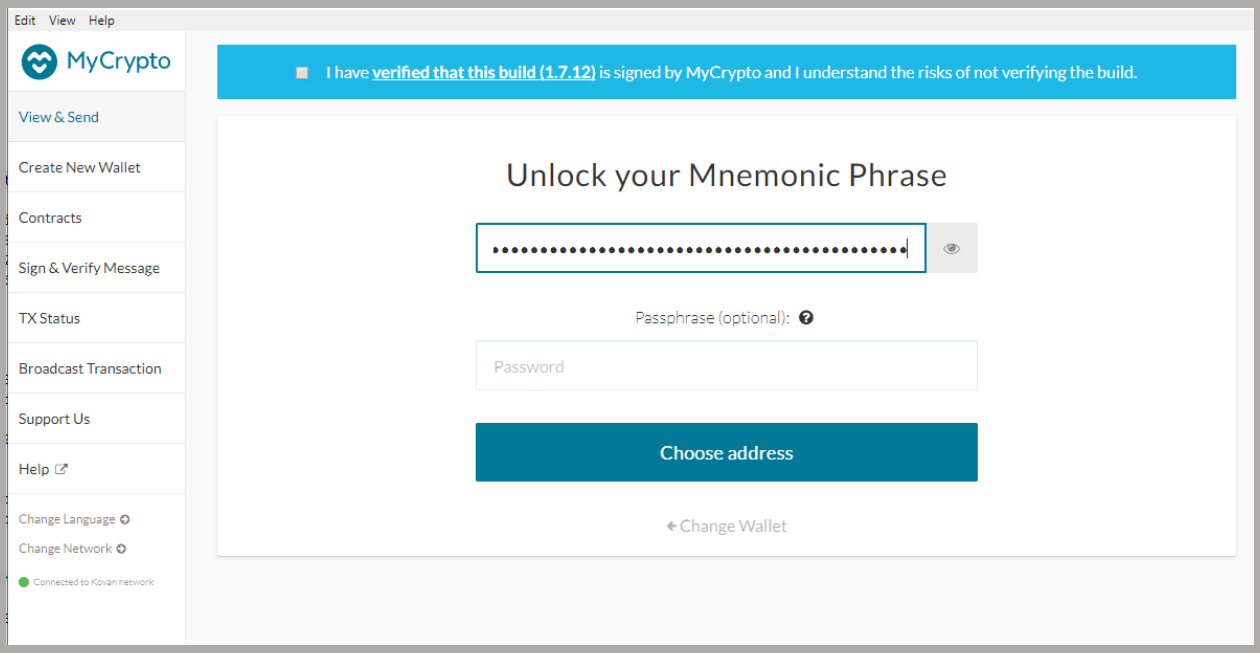


Step 8 Transaction on the newly created chain

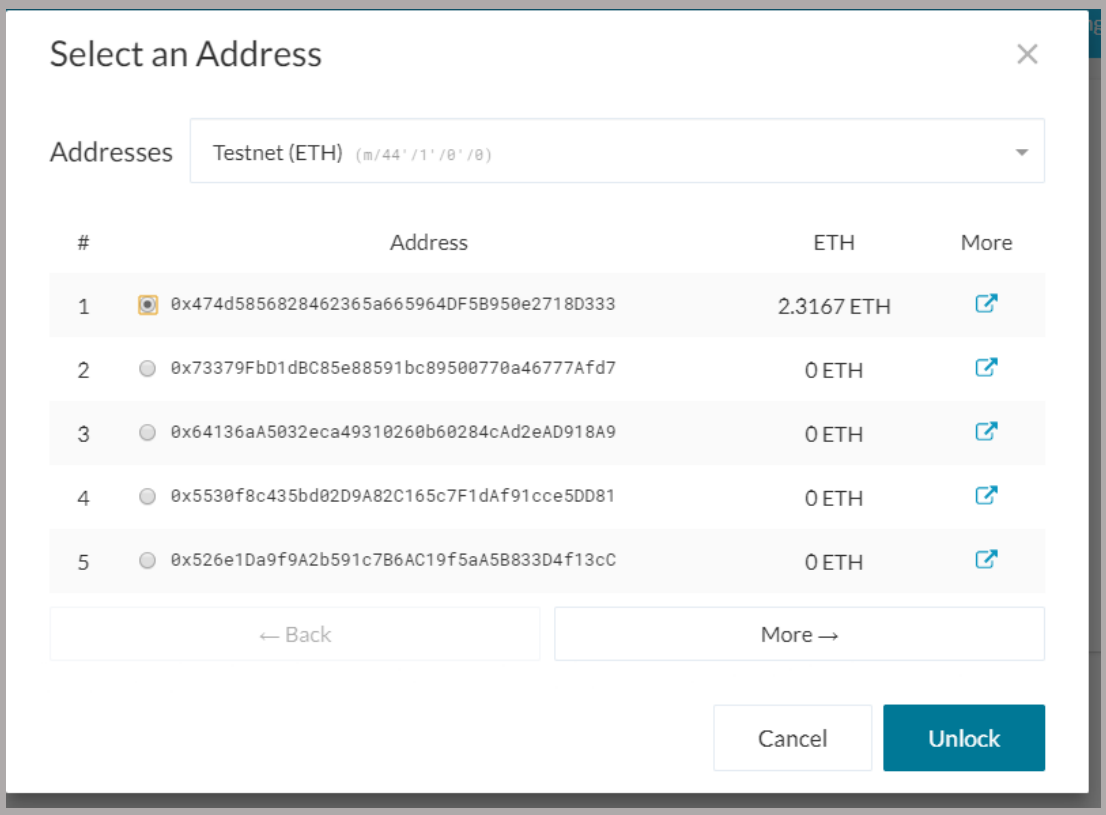
- Step 8.1 Open the myCrypto App
- Make sure it is selected to the Kovan network or whatever network with which prefunded wallet was provided in the above step



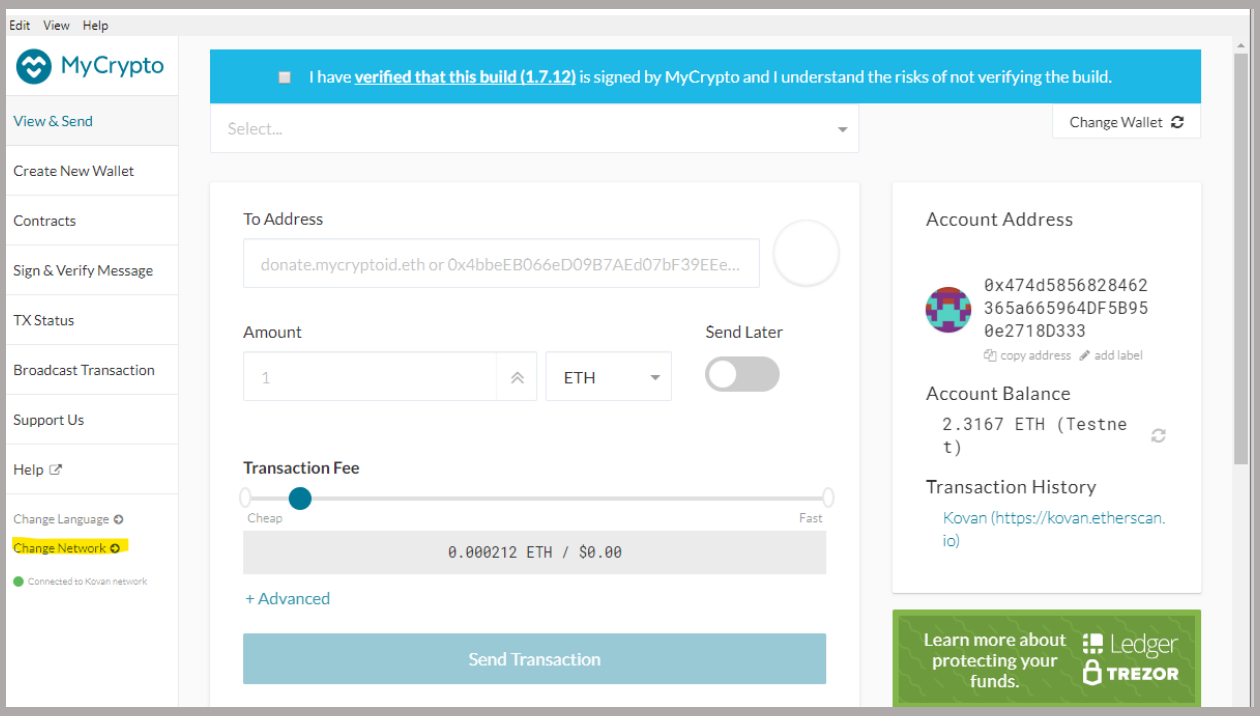
- Step 8.2 Unlock the wallet using Mnemonic phrase and choose the prefunded address provided for mining using puppeth



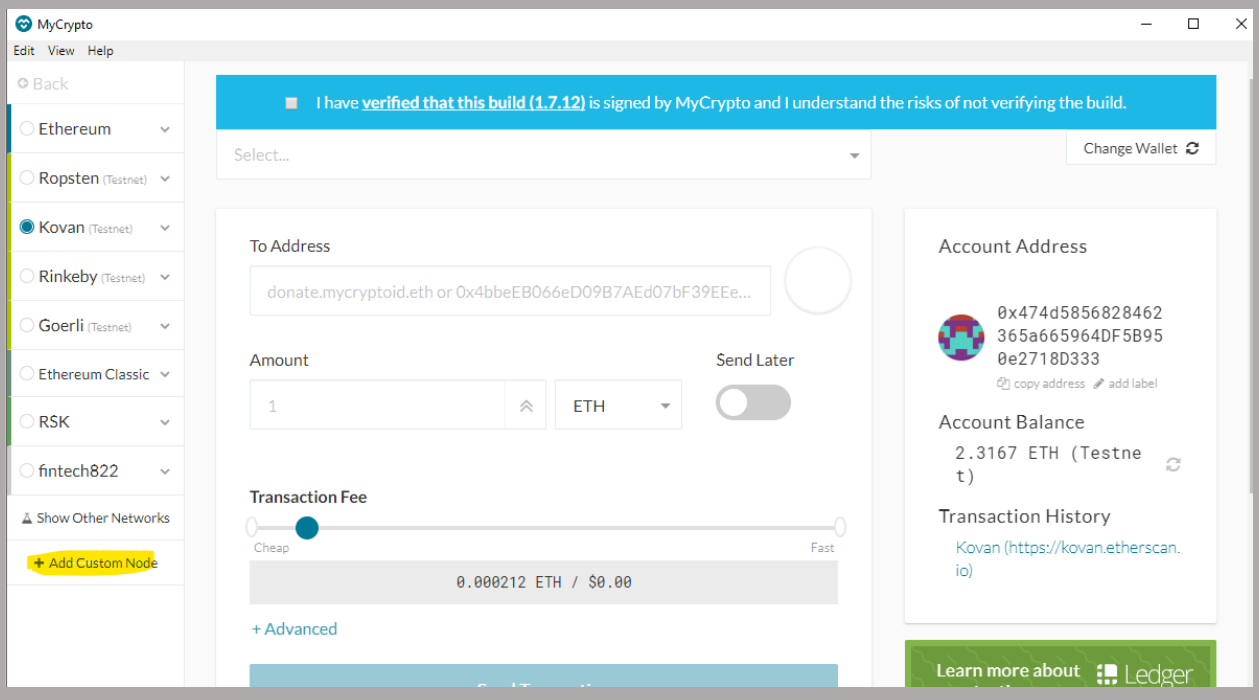
- Make sure to select the correct Addresses, here it is Testnet (ETH). Click on unlock



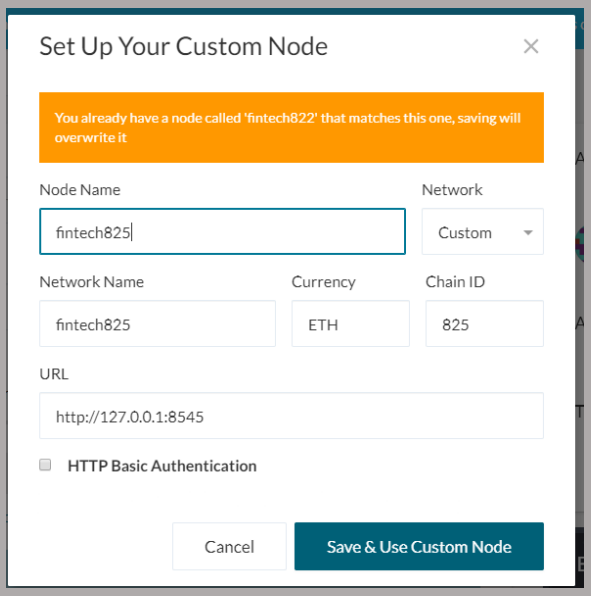
Step 9. To add the newly created network



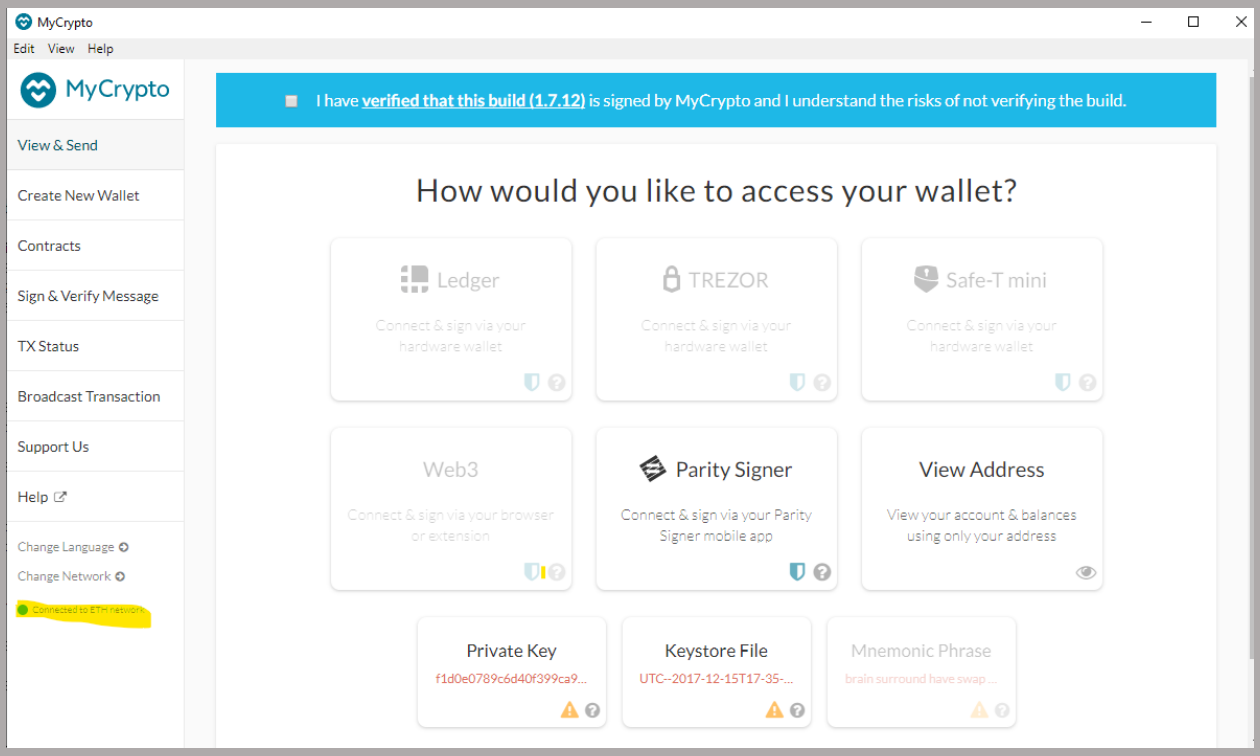
- Step 9.1 Click on Add Custom Node



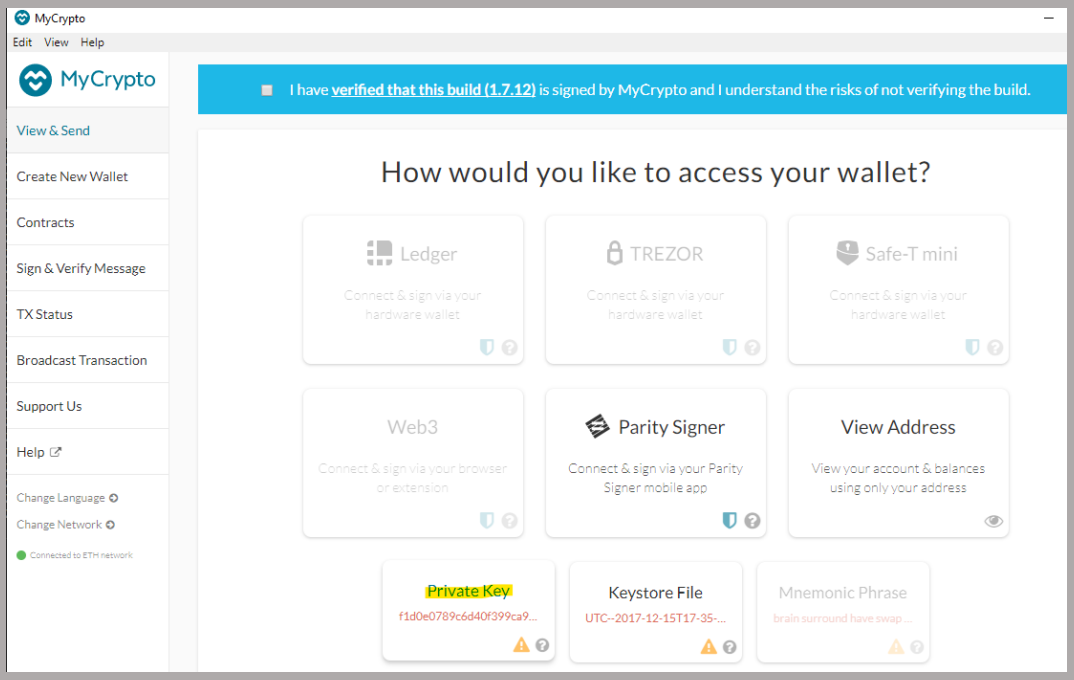
- Step 9.2 Provide the following details for the custom address,
- chain Id is similar as network id, the URL is http://127.0.0.1:8545
- I created a new network with same URL; therefore I override it with new network name

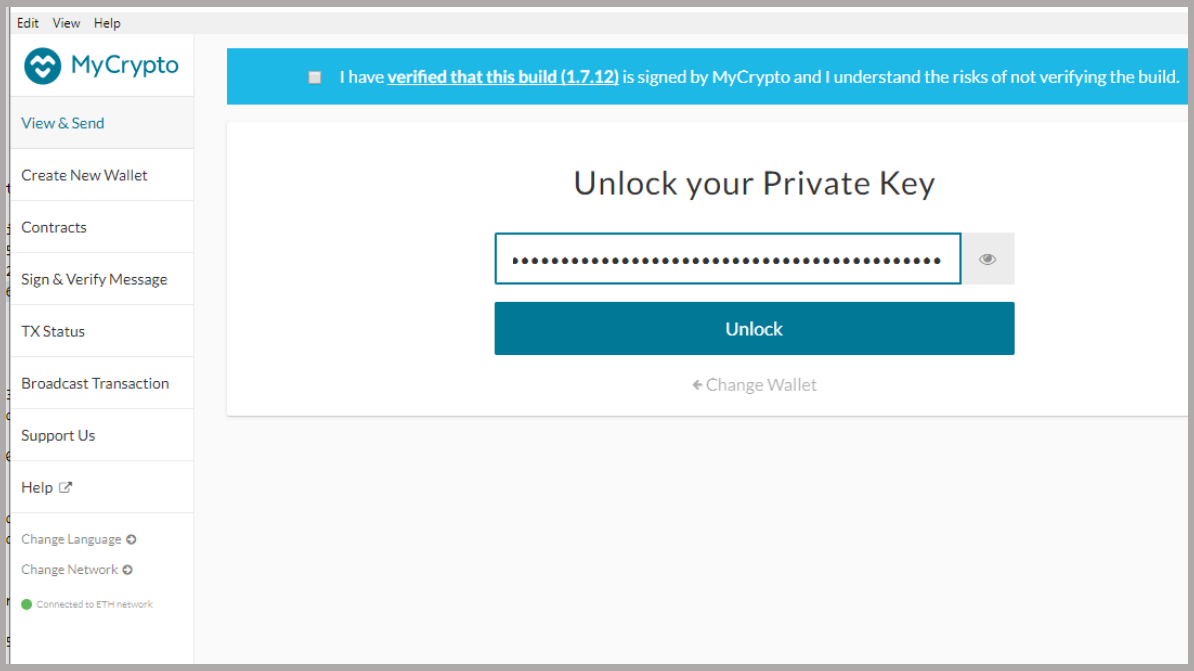


- Step 9.3 Make sure it is now connected to the custom network or else change and select it
- It should say connected to ETH network

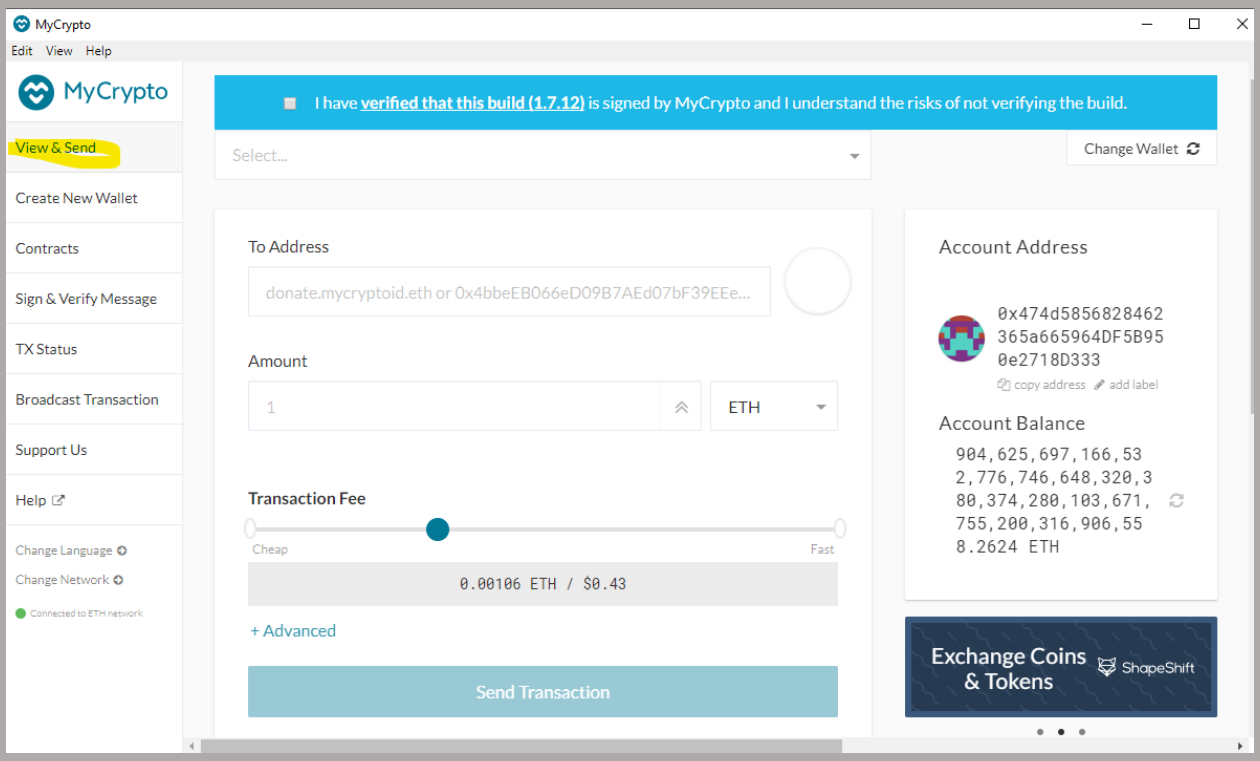


- Step 9.4 On changing the new network a new window will appear, use the private key to of the pre-funded wallet to login

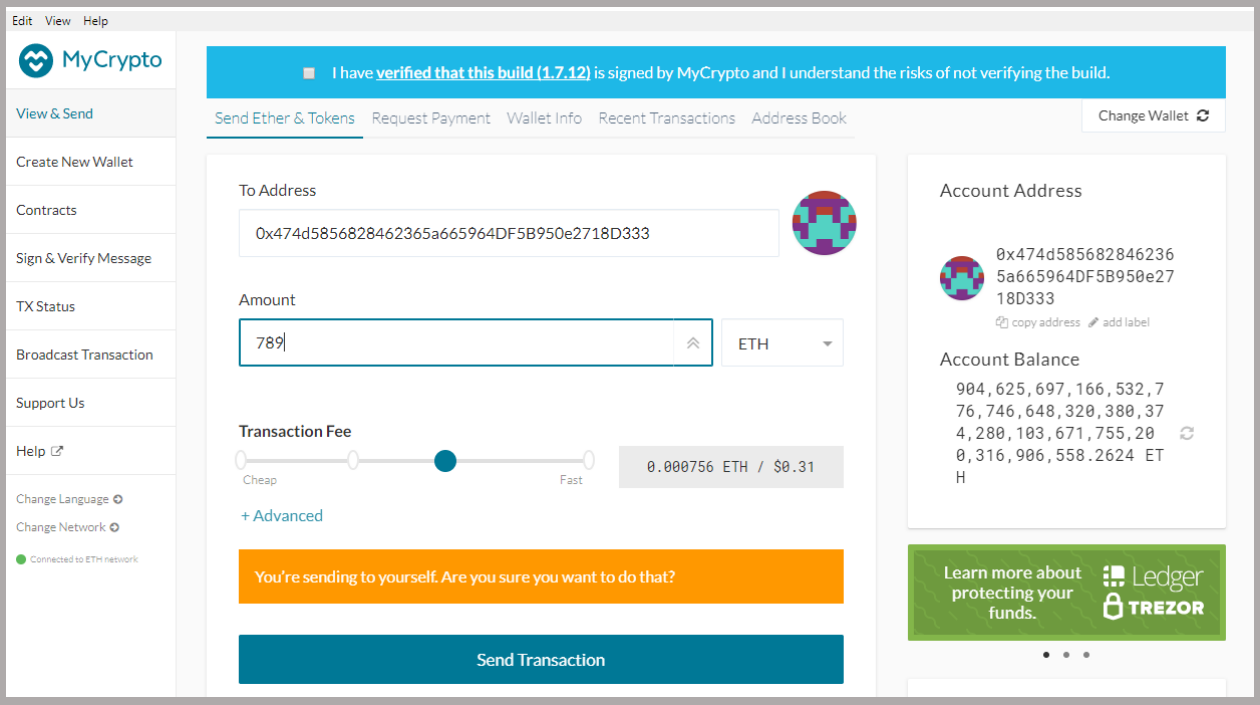




- Step 9.5 Click on View & send to make the transaction, Account Balance shows the statement of the wallet



- Step 9.6 Provide the public address to whomsoever want to send the amount, and provide whatever transaction fee want to put



Step 10. Check the transaction in geth. Go the terminal where node2 connected with node1. You can see the account of the receiver address and hash