Creating an Ethereum Instance on local machine at port number 8545

Start the Power Shell

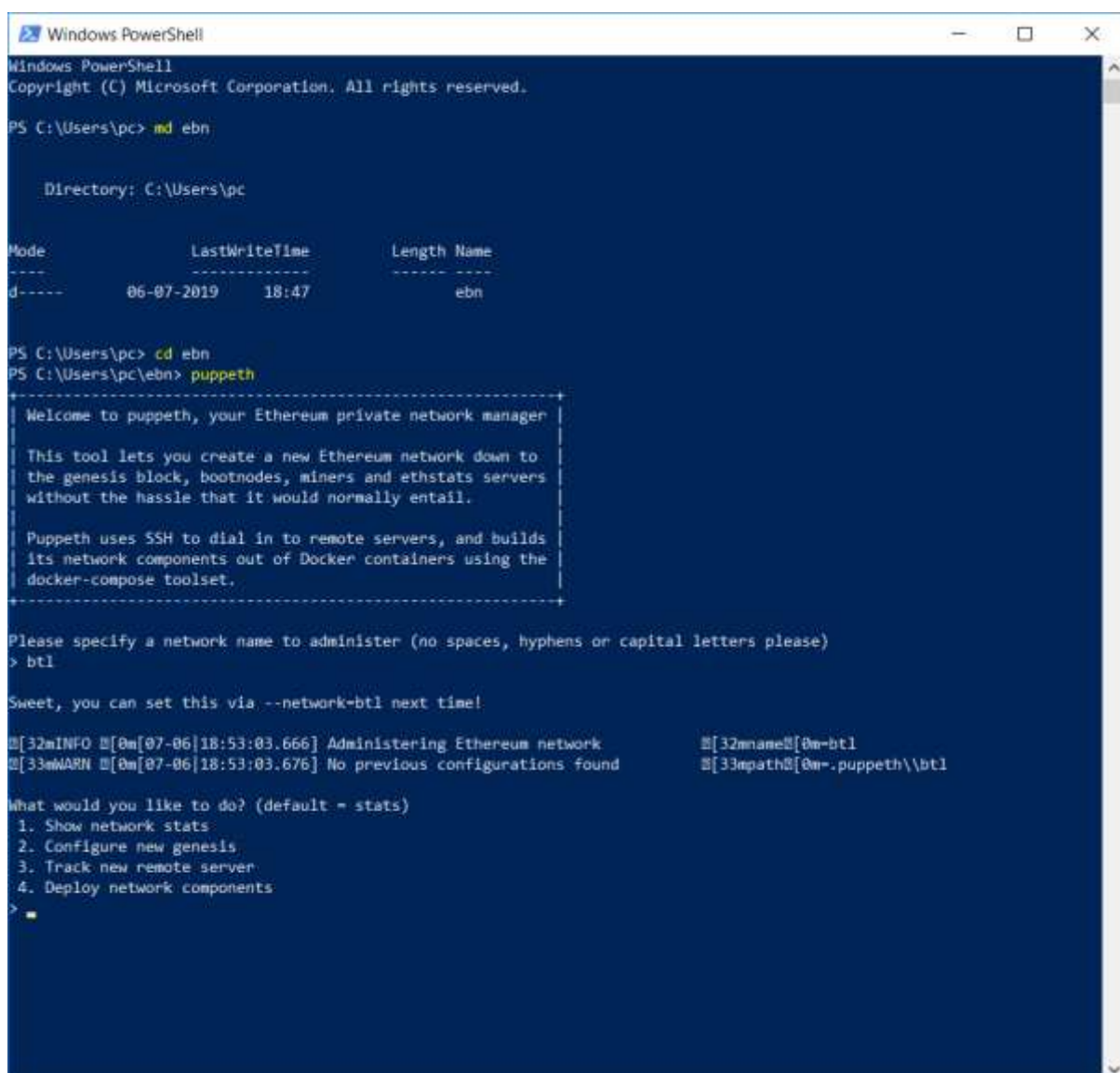Create a folder inside current folder as ebn for Ethereum Blockchain Node

md ebn

Goto inside the created folder

cd ebn

Use the command line tool **puppeth** provided with geth to create the genesis block compatible with Ethereum Blockchain

Lets define the network name as btl for Blockchain TechQubator Lab

Select choice 2 to configure new genesis block

Select choice 1 to create a new genesis block

Select choice 1 when asked for which consensus engine to use to select Proof-of-Work consensus algorithm

List of Chain/Network IDs

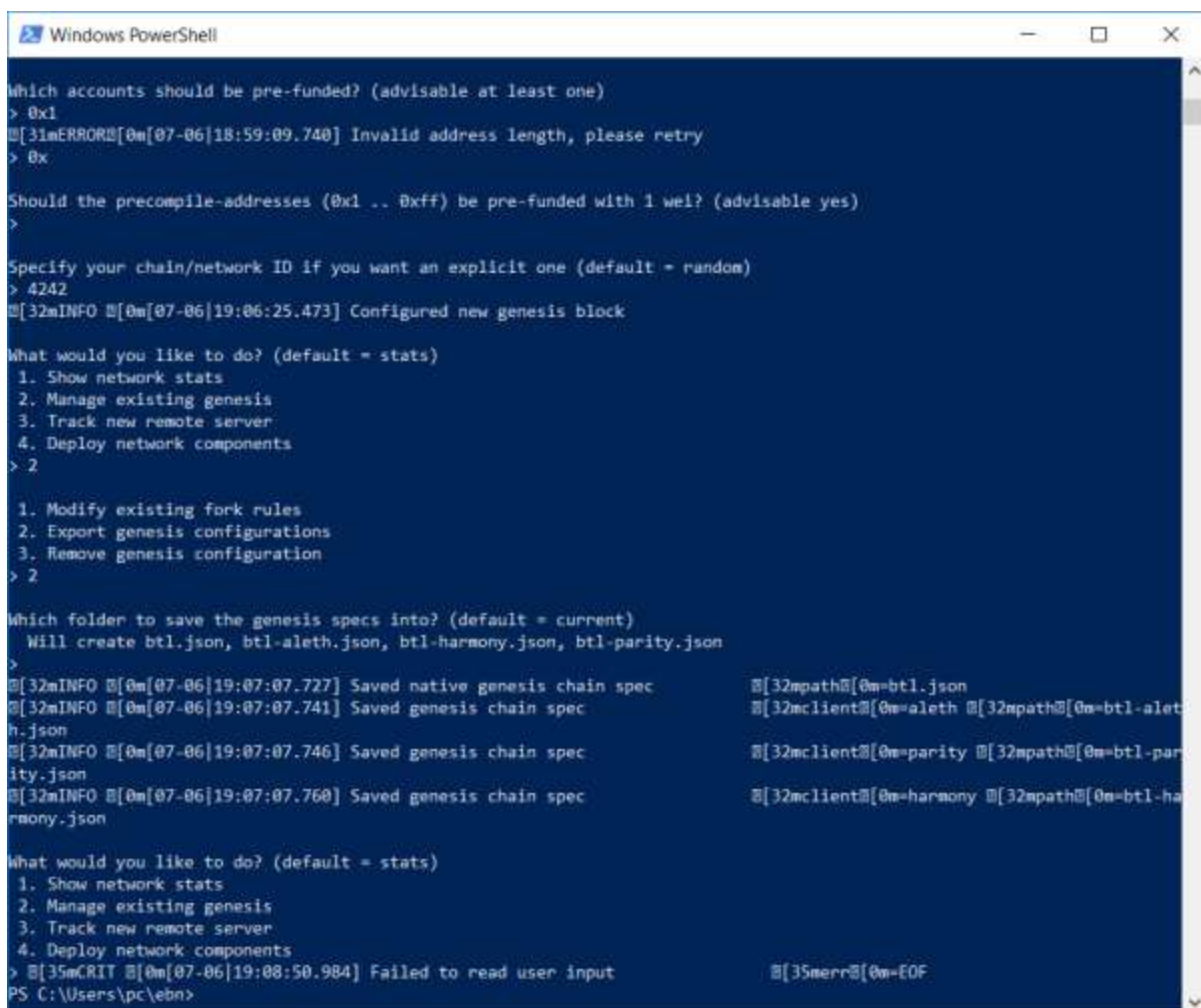https://medium.com/@piyopiyo/list-of-ethereums-major-network-and-chain-ids-2bc58e928508

Select the Kovan Network for testing as 4242

Select 2: Manage Genesis

Select 2: Export Genesis Configuration

JSON files get exported

Press Ctrl+C to quit the puppeth tool

Open the btl.json file in atom IDE to view the file

atom btl.json

Now issue the command to create a local node

geth --datadir . init btl.json

The keystore folder contains the list of accounts who can access the Blockchain

Lets create three accounts for

1. Miner
2. Buyer
3. Seller

geth --datadir . account new

Give some password to the account e.g. 123456

```
Windows PowerShell                                                               —    □    ×

PS C:\Users\pc\ebn> geth --datadir . account new
INFO [07-06|19:28:49.090] Maximum peer count                      ETH=25 LES=0 total=25
Your new account is locked with a password. Please give a password. Do not forget this password.
Passphrase:
Repeat passphrase:
Address: {24fa378f291307824c56d6dd4bc545f992e9fc31}
PS C:\Users\pc\ebn> geth --datadir . account new
INFO [07-06|19:31:27.781] Maximum peer count                      ETH=25 LES=0 total=25
Your new account is locked with a password. Please give a password. Do not forget this password.
Passphrase:
Repeat passphrase:
Address: {09427db1ba2782c468218e429d1fc3f546ac055f}
PS C:\Users\pc\ebn> geth --datadir . account new
INFO [07-06|19:32:18.180] Maximum peer count                      ETH=25 LES=0 total=25
Your new account is locked with a password. Please give a password. Do not forget this password.
Passphrase:
Repeat passphrase:
Address: {b6e4a1d07e98032b99be96a7b99e605b004c6630}
PS C:\Users\pc\ebn>
```

Now these accounts are available inside the keystore folder

```
Windows PowerShell                                                               —    □    ×

PS C:\Users\pc\ebn> cd .\keystore\
PS C:\Users\pc\ebn\keystore> dir


    Directory: C:\Users\pc\ebn\keystore


Mode                LastWriteTime         Length Name
----                -------------         ------ ----
-a----        06-07-2019     19:29           491 UTC--2019-07-06T13-59-31.201662900Z--24fa378f291307824c
                                                 56d6dd4bc545f992e9fc31
-a----        06-07-2019     19:31           491 UTC--2019-07-06T14-01-35.723040900Z--09427db1ba2782c468
                                                 218e429d1fc3f546ac055f
-a----        06-07-2019     19:32           491 UTC--2019-07-06T14-02-23.540771400Z--b6e4a1d07e98032b99
                                                 be96a7b99e605b004c6630


PS C:\Users\pc\ebn\keystore>
```

We can also see list of accounts from main folder

geth --datadir . account list

```
Windows PowerShell                                                               —    □    ×

PS C:\Users\pc\ebn> geth --datadir . account list
INFO [07-06|19:37:26.737] Maximum peer count                      ETH=25 LES=0 total=25
Account #0: {24fa378f291307824c56d6dd4bc545f992e9fc31} keystore://C:\Users\pc\ebn\keystore\UTC--2019-07-06T13-59-31.201662900Z--24fa378f291307824c56d6dd4bc545f992e9fc31
Account #1: {09427db1ba2782c468218e429d1fc3f546ac055f} keystore://C:\Users\pc\ebn\keystore\UTC--2019-07-06T14-01-35.723040900Z--09427db1ba2782c468218e429d1fc3f546ac055f
Account #2: {b6e4a1d07e98032b99be96a7b99e605b004c6630} keystore://C:\Users\pc\ebn\keystore\UTC--2019-07-06T14-02-23.540771400Z--b6e4a1d07e98032b99be96a7b99e605b004c6630
PS C:\Users\pc\ebn>
```

Starting the local node by creating startnode.cmd file

geth --networkid 4242 --mine --minerthreads 2 --datadir "." --nodiscover --rpc --rpcport "8545" --port "30303" --rpccorsdomain "*" --nat "any" --rpcapi eth,web3,personal,net --unlock 0 --password ./password.sec

Connecting to local node

View the balance available in accounts in **wei**

View amount in ether

Unlocking accounts for some duration in seconds

Transfer funds from one account to another account