Create a private Ethereum testnet for 3 nodes:

- install geth

Steps:

1. mkdir ~/ethtestnet
2. cd ethtestnet
3. mkdir node1 node2 node3
4. Cd node1
5. geth --datadir . account new (a node may contain many accounts)
6. cd .. ; cd node2
7. geth --datadir . account new
8. Cd .. ; cd node3
9. geth --datadir . account new
10. Cd .. ; Cd node1
11. geth --datadir . account list
12. Puppeth
13. Configure new genesis (option 2)
14. Ethhash(option 1)
15. Default account
16. 4224 network id (type any except 1-4, 42)
17. Select option 2 again
18. Select option 2 again
19. Default

Now genesis is exported to current directory

20. geth --datadir ~/ethtestnet/node1 init ethnet.json
21. geth --datadir ~/ethtestnet/node2 init ethnet.json
22. geth --datadir ~/ethtestnet/node3 init ethnet.json
23. Vi startnode.sh
24. geth --networkid 4224 --mine --minerthreads 1 --datadir "~/ethtestnet/node1" --nodiscover --http --http.port "8545" --port "30303" --http.corsdomain "*" --nat "any" --http.api admin,miner,eth,web3,personal,net --allow-insecure-unlock --password ~/ethtestnet/node1/password.sec --ipcpath "/Users/vikasjaiman/Library/Ethereum/node1geth.ipc"
    Save and close the file
    vi password.sec; type “password” and save
25. chmod +x startnode.sh
26. Repeat step 23-25 for node2 and node3
    geth --networkid 4224 --mine --minerthreads 1 --datadir "~/ethtestnet/node2" --nodiscover --http --http.port "8546" --port "30304" --http.corsdomain "*" --nat "any" --http.api admin,miner,eth,web3,personal,net --allow-insecure-unlock --password

~/ethtestnet/node2/password.sec --ipcpath "/Users/vikasjaiman/Library/Ethereum/node2geth.ipc" geth --networkid 4224 --mine --minerthreads 1 --datadir "~/ethtestnet/node3" --nodiscover --http --http.port "8547" --port "30305" --http.corsdomain "*" --nat "any" --http.api admin,miner,eth,web3,personal,net --allow-insecure-unlock --password ~/ethtestnet/node3/password.sec --ipcpath "/Users/vikasjaiman/Library/Ethereum/node3geth.ipc"

27. In a separate tab; run geth attach http://127.0.0.1:8545; geth attach http://127.0.0.1:8546; geth attach http://127.0.0.1:8547
28. Run commands:

- Eth.accounts
- Eth.coinbase (for checking miner account)
- eth.getBalance(eth.accounts[0])
- net.version
- personal.unlockAccount(eth.accounts[0], "password", 300) ; (300 is time in sec; password is “password”; it will unlock it for 300 sec)
- web3.fromWei(eth.getBalance(eth.accounts[0]), "ether")
- eth.sendTransaction({from: eth.accounts[0], to: eth.accounts[1], value: web3.toWei(10, "ether")})
- web3.fromWei(eth.getBalance(eth.accounts[1]), "ether")
- admin.nodeInfo
- admin.addPeer("enode://0ca3f64651cb3629e91d9d8e4e8f4c733b4f8eb50f969b4d79bc1ef48dad2f91ddb2d9985ddb33fa5644ca0150ba1be76e80b77ce836eaee5382e7722825d65d@127.0.0.1:30303?discport=0") (run it from node1; enode is the node address of node0)
- net.peerCount
- miner.stop()
- Deploying smart contract: https://medium.com/datawallet-blog/how-to-deploy-a-local-private-ethereum-blockchain-c2b497f068f4 https://github.com/goerli/ethstats-server/commit/6ad9c2cd5e1112c7f64c4d17f3bf6d180e9497c0

Connect to rinkeby public testnet:

Download chaindata:

geth --rinkeby --syncmode "fast" --rpc --rpcapi db,eth,admin,net,web3,miner,personal --cache=1024 --rpcport 8547 --allow-insecure-unlock --password ~/.ethereum/rinkeby/password.sec --rpcaddr 127.0.0.1 --rpccorsdomain "*"

From another terminal:

geth attach '/Users/vikasjaiman/Library/Ethereum/rinkeby/geth.ipc'
For luce: geth attach '/home/vagrant/.ethereum/rinkeby/geth.ipc'

Eth.syncing (if it shows false it means node is not syncing)

When current block and highest block are the same then the node is synced.

```
 eth.syncing
{
  currentBlock: 4775237,
  highestBlock: 7004007,
  knownStates: 14261945,
  pulledStates: 14251423,
  startingBlock: 0
}
```

For funding account in ether:

Put your coinbase account as a tweet or on fb account as mentioned here

https://faucet.rinkeby.io

And paste the status link in the above link.

Check the account status here:

http://rinkeby.etherscan.io