**Geth**

**Ethereum**

**Practical 4**

**Create a new folder on your desktop called “private-chain”.**

** Open command prompt in this folder and create a data directory folder for**

**our chaindata by typing “mkdir chaindata”.**

** Next, we need to create and save our genesis.json block in our private-**

**chain folder, as the genesis block will be used to initialize our private**

**network and store data in the data directory folder “chaindata”.**

**Open up notepad, copy & paste the code below into a new file called “genesis.json”**

**and save this file in our Private-Chain folder.**

**geth --datadir chaindata init genesis.json**

**geth --datadir=./chaindata/**

**Genesis.json**

{ "coinbase" : "0x0000000000000000000000000000000000000001",

"difficulty" : "0x20000",

"extraData" : "",

"gasLimit" : "0x2fefd8",

"nonce" : "0x0000000000000042",

"mixhash" : "0x0000000000000000000000000000000000000000000000000000000000000000",

"parentHash" : "0x0000000000000000000000000000000000000000000000000000000000000000",

"timestamp" : "0x00",

"alloc": {},

"config": {

"chainId": 15,

"homesteadBlock": 0,

"eip155Block": 0,

"eip158Block": 0,

"eip150Block": 0 } }

PS C:\windows\system32> geth attach ipc:\\.\pipe\geth.ipc

Welcome to the Geth JavaScript console!

instance: Geth/v1.10.26-stable-e5eb32ac/windows-amd64/go1.18.5

at block: 0 (Thu Jan 01 1970 05:30:00 GMT+0530 (IST))

datadir: C:\Users\windows\Desktop\private-chain\chaindata

modules: admin:1.0 debug:1.0 engine:1.0 eth:1.0 ethash:1.0 miner:1.0 net:1.0 personal:1.0 rpc:1.0 txpool:1.0 web3:1.0

To exit, press ctrl-d or type exit

> eth.accounts

[]

> personal.newAccount()

Passphrase:

Repeat passphrase:

"0x4f12c83a6ab06f609e876215a22158bc7c981d89"

> eth.accounts

["0x4f12c83a6ab06f609e876215a22158bc7c981d89"]

> eth.coinbase

"0x4f12c83a6ab06f609e876215a22158bc7c981d89"

> eth.getBalance(eth.accounts[0])

0

> miner.start()

null

> miner.stop()

null

> eth.getBalance(eth.accounts[0])

355000000000000000000

> personal.newAccount()

Passphrase:

Repeat passphrase:

"0xf731b40835e8596eb50483302968c5c159fb7324"

> personal.unlockAccount(eth.accounts[0])

Unlock account 0x4f12c83a6ab06f609e876215a22158bc7c981d89

Passphrase:

true

> eth.sendTransaction({from:eth.coinbase,to:eth.accounts[1],value:web3toWei(10,"ether")})

ReferenceError: web3toWei is not defined

at <eval>:1:74(15)

> eth.sendTransaction({from:eth.coinbase,to:eth.accounts[1],value:web3.toWei(10,"ether")})

"0xff10346723c0df6a36a3b5e3bbcbf27c1155cfda13f162c7c425d35fcf42b2d9"

> eth.getBalance(eth.accounts[1])

0

> miner.start()

null

> miner.stop()

null

> eth.getBalance(eth.accounts[1])

10000000000000000000

> eth.getBalance(eth.accounts[0])

685000000000000000000

> web3.fromWei(eth.getBalance(eth.accounts[1]), "ether")

10

> eth.getBlock("latest")

{

difficulty: 138707,

extraData: "0xda83010a1a846765746888676f312e31382e358777696e646f7773",

gasLimit: 3597877,

gasUsed: 0,

hash: "0xe80c16b390b2f947b434d8b32f51f282d83e41ee462a18ba98d9edcad398f2d1",

logsBloom: "0x00000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000",

miner: "0x4f12c83a6ab06f609e876215a22158bc7c981d89",

mixHash: "0x584bfba208bf2ff9da536ee733af4c56b620b24294dd8323b9a1b2d2b6d3db75",

nonce: "0x2e07d47ab91f7124",

number: 139,

parentHash: "0xd73e14548925a1c03a81f3f6f9a9913130068e53d210ee4da22dccb347d2e724",

receiptsRoot: "0x56e81f171bcc55a6ff8345e692c0f86e5b48e01b996cadc001622fb5e363b421",

sha3Uncles: "0x1dcc4de8dec75d7aab85b567b6ccd41ad312451b948a7413f0a142fd40d49347",

size: 539,

stateRoot: "0xbe74ac5961db0d867a1dd0f3cf022233204a760ef2449dcf646ed7a52646026c",

timestamp: 1670352505,

totalDifficulty: 18878961,

transactions: [],

transactionsRoot: "0x56e81f171bcc55a6ff8345e692c0f86e5b48e01b996cadc001622fb5e363b421",

uncles: []

}

> eth.getBlock(35)

{

difficulty: 133250,

extraData: "0xda83010a1a846765746888676f312e31382e358777696e646f7773",

gasLimit: 3250719,

gasUsed: 0,

hash: "0xd48a41076c6965bea67da06de16b2053b666d8c30a82702d8fd5895795b7fa2c",

logsBloom: "0x00000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000",

miner: "0x4f12c83a6ab06f609e876215a22158bc7c981d89",

mixHash: "0x47018f8aa36f054882f738db7adcf270809df71f2fd73b4ba33519f935e84958",

nonce: "0x03a7681f2f42772e",

number: 35,

parentHash: "0xd804be8fb489a41896066e919cd6a4c63538a7875ab12fdd3e44682ac3776006",

receiptsRoot: "0x56e81f171bcc55a6ff8345e692c0f86e5b48e01b996cadc001622fb5e363b421",

sha3Uncles: "0x1dcc4de8dec75d7aab85b567b6ccd41ad312451b948a7413f0a142fd40d49347",

size: 538,

stateRoot: "0x8d6cea7dbd235cbbee4cc22e00ac0b0ae26bf087e980b8e8d296cd876ab3b160",

timestamp: 1670352186,

totalDifficulty: 4756675,

transactions: [],

transactionsRoot: "0x56e81f171bcc55a6ff8345e692c0f86e5b48e01b996cadc001622fb5e363b421",

uncles: []

}

>