

Ethereum Client Installation

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Genesis File

```
1  {
2    "config": {
3      "chainId": 5777,
4      "homesteadBlock": 0,
5      "eip150Block": 0,
6      "eip155Block": 0,
7      "eip158Block": 0,
8      "byzantiumBlock": 0,
9      "constantinopleBlock": 0,
10     "petersburgBlock": 0,
11     "ethash": {}
12   },
13   "gasLimit": "0x47b760",
14   "difficulty": "0x44",
15   "alloc": {}
16 }
```

Initialize the network by initializing the genesis file

```
Microsoft Windows [Version 10.0.19043.1237]
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C:\Users\abhir\Music\EthereumTest>geth --datadir data init genesis.json
INFO [09-23|20:32:25.993] Maximum peer count          ETH=50 LES=0 total=50
INFO [09-23|20:32:26.021] Set global gas cap          cap=50,000,000
INFO [09-23|20:32:26.027] Allocated cache and file handles database=C:\Users\abhir\Music\EthereumTest\data\geth\chaindata cache=16.00MiB handles=16
INFO [09-23|20:32:26.517] Writing custom genesis block nodes=0 size=0.008 time=0s gcnodes=0 gcsizes=0.008 gctime=0s livenodes=1 livesize=0.008
INFO [09-23|20:32:26.527] Persisted trie from memory database database=chaindata hash=a52950..55bbb6
INFO [09-23|20:32:26.594] Successfully wrote genesis state database=C:\Users\abhir\Music\EthereumTest\data\geth\lightchaindata cache=16.00MiB handles=16
INFO [09-23|20:32:26.603] Allocated cache and file handles nodes=0 size=0.008 time=0s gcnodes=0 gcsizes=0.008 gctime=0s livenodes=1 livesize=0.008
INFO [09-23|20:32:27.308] Writing custom genesis block database=lightchaindata hash=a52950..55bbb6
INFO [09-23|20:32:27.313] Persisted trie from memory database
INFO [09-23|20:32:27.340] Successfully wrote genesis state

C:\Users\abhir\Music\EthereumTest>
```

Creating Ethereum Wallet Address

```
C:\Users\abhir\Music\EthereumTest>
C:\Users\abhir\Music\EthereumTest>geth --datadir data account new
INFO [09-23|20:35:25.416] 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:

Your new key was generated

Public address of the key: 0xF7555109D6f08498036130AAe7705538E8919edE
Path of the secret key file: data\keystore\UTC--2021-09-23T15-05-35.486199200Z--f7555109d6f08498036130aae7705538e8919ede

- 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!

C:\Users\abhir\Music\EthereumTest>
```

Starting the network

```
C:\Users\abhir\Music\EthereumTest>
C:\Users\abhir\Music\EthereumTest>geth --identity "ABC" --networkid "5777" --datadir "data" --http --http.port "8545" --unlock "0" --http.corsdomain "*" --http.api "miner,eth,net,web3,personal" --allow-insecure-unlock --nodiscover --miner.ethash --rp
INFO [09-23|20:41:29.003] Maximum peer count: ETH50 (15x0 total=50)
WARN [09-23|20:41:29.003] Referring to accounts by order in the keystore folder is dangerous!
WARN [09-23|20:41:29.100] This functionality is deprecated and will be removed in the future!
WARN [09-23|20:41:29.109] Please use explicit addresses! (can search via 'geth account list')
INFO [09-23|20:41:29.214]
INFO [09-23|20:41:29.310] Set global gas cap: 5000000000
INFO [09-23|20:41:29.422] Allocated trie memory caches: clean=154.00MiB dirty=256.00MiB
INFO [09-23|20:41:29.423] Allocated cache and file handler: database=C:\Users\abhir\Music\EthereumTest\data\geth\chaindata cache=512.00MiB handle=8192
INFO [09-23|20:41:30.152] Opened ancient database: database=C:\Users\abhir\Music\EthereumTest\data\geth\chaindata\ancient readonly=false
INFO [09-23|20:41:30.162] Initialised chain configuration: Config={ChainID: 5777 Homestead: 0 DAO: <nil> DAOSupport: false EIP150: 0 EIP155: 0 EIP158: 0 Byzantium: 0 Constantinople: 0 Petersburg: 0 Istanbul: <nil>, Muir Glacier: <nil>, Berlin: <nil>, London: <nil>, Engine: ethash}
INFO [09-23|20:41:30.192] Disk storage enabled for ethash caches: dir=C:\Users\abhir\Music\EthereumTest\data\geth\ethash count=2
INFO [09-23|20:41:30.203] Disk storage enabled for ethash DAOs: number=0 hash=a52950..55b0b6 tid=68 ngs=525m03v
INFO [09-23|20:41:30.215] Initialising Ethereum protocol: number=0 hash=a52950..55b0b6 tid=68 ngs=525m03v
INFO [09-23|20:41:30.224] Loaded most recent local header: number=0 hash=a52950..55b0b6 tid=68 ngs=525m03v
INFO [09-23|20:41:30.234] Loaded most recent local full block: number=0 hash=a52950..55b0b6 tid=68 ngs=525m03v
INFO [09-23|20:41:30.243] Loaded most recent local fast block: number=0 hash=a52950..55b0b6 tid=68 ngs=525m03v
WARN [09-23|20:41:30.252] Failed to load snapshot, regenerating: err=Missing on corrupted snapshot
INFO [09-23|20:41:30.262] Rebuilding state snapshot: root=56681f..63b421 accounts=0 slots=0 storage=0.000 elapsed=707.5µs
INFO [09-23|20:41:30.273] Regenerated local transaction journal: transactions=0 accounts=0
INFO [09-23|20:41:30.283] Generated state snapshot: accounts=0 slots=0 storage=0.000 elapsed=14.602ms
INFO [09-23|20:41:30.310] Gasprice oracle is ignoring threshold set: threshold=2
WARN [09-23|20:41:30.327] Error reading unclean shutdown markers: error="level0: not found"
INFO [09-23|20:41:30.340] Starting peer-to-peer node: instance=Geth/v1.10.8-stable-26675454/windows-amd64/go1.16.4
INFO [09-23|20:41:30.865] IPC endpoint opened: url=\\.\pipe\geth.ipc
INFO [09-23|20:41:30.866] New local node record: peer[127.0.0.1:30303] self[enode://c02e080e6d413b87d0bf9d47ba0ef01130b7bfc383114f3be9f3718c3112276aeb473ddba91169bd209ada79240c542130df725574f3c9c808abbeac1e40127.0.0.1:30303]discport=0"
INFO [09-23|20:41:30.910] Started P2P networking:
INFO [09-23|20:41:30.874] HTTP server started: endpoint=127.0.0.1:8545 prefix= cors=* whoistolocalhost
WARN [09-23|20:41:30.980]
WARN [09-23|20:41:31.000] Referring to accounts by order in the keystore folder is dangerous!
WARN [09-23|20:41:31.000] This functionality is deprecated and will be removed in the future!
WARN [09-23|20:41:31.111] Please use explicit addresses! (can search via 'geth account list')
WARN [09-23|20:41:31.110]
Unlocking account 0 | Attempt 1/3
Password:
INFO [09-23|20:41:37.324] Unlocked account: address=0xf7555109d6f08498036130Aae7705538E8919ede
```

Starting the mining process

```
Microsoft Windows [Version 10.0.19043.1237]
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C:\Users\abhir\Music\EthereumTest>geth attach ipc:\\.pipe\geth.ipc
Welcome to the Geth JavaScript console!

instance: Geth/ABC/v1.10.8-stable-26675454/windows-amd64/go1.16.4
coinbase: 0xf7555109d6f08498036130Aae7705538E8919ede
at block: 0 (Thu Jan 01 1970 05:30:00 GMT+0530 (IST))
datadir: C:\Users\abhir\Music\EthereumTest\data
modules: admin:1.0 debug: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
> miner.start()
null
```

Mining process started

```
Unlocking account 0 | Attempt 1/3
Password:
INFO [09-23|20:41:37.324] Unlocked account: address=0xf7555109d6f08498036130Aae7705538E8919ede
INFO [09-23|20:53:57.485] Updated mining threads: threads=4
INFO [09-23|20:55:46.860] Updated mining threads: threads=4
INFO [09-23|20:55:53.570] Transaction pool price threshold updated: price=1,000,000,000
INFO [09-23|20:55:53.579] Transaction pool price threshold updated: price=1,000,000,000
INFO [09-23|20:55:53.580] Commit new mining work: number=1 sealhash=954cdf..c00a90 uncles=0 txs=0 gas=0 fees=0 elapsed=503.3µs
INFO [09-23|20:55:53.594] Commit new mining work: number=1 sealhash=954cdf..c00a90 uncles=0 txs=0 gas=0 fees=0 elapsed=0s
INFO [09-23|20:55:56.226] Generating DAG in progress: epoch=0 percentage=0 elapsed=1.716s
INFO [09-23|20:55:57.672] Generating DAG in progress: epoch=0 percentage=1 elapsed=3.162s
INFO [09-23|20:55:59.123] Generating DAG in progress: epoch=0 percentage=2 elapsed=4.613s
INFO [09-23|20:56:00.715] Generating DAG in progress: epoch=0 percentage=3 elapsed=6.204s
INFO [09-23|20:56:02.353] Generating DAG in progress: epoch=0 percentage=4 elapsed=7.842s
INFO [09-23|20:56:04.240] Generating DAG in progress: epoch=0 percentage=5 elapsed=9.738s
INFO [09-23|20:56:05.823] Generating DAG in progress: epoch=0 percentage=6 elapsed=11.313s
INFO [09-23|20:56:07.355] Generating DAG in progress: epoch=0 percentage=7 elapsed=12.845s
INFO [09-23|20:56:08.858] Generating DAG in progress: epoch=0 percentage=8 elapsed=14.348s
INFO [09-23|20:56:10.381] Generating DAG in progress: epoch=0 percentage=9 elapsed=15.871s
```

Terminating the mining process

```
Microsoft Windows [Version 10.0.19043.1237]
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C:\Users\abhir\Music\EthereumTest>geth attach ipc:\\.pipe\geth.ipc
Welcome to the Geth JavaScript console!

instance: Geth/ABC/v1.10.8-stable-26675454/windows-amd64/go1.16.4
coinbase: 0xf7555109d6f08498036130Aae7705538E8919ede
at block: 0 (Thu Jan 01 1970 05:30:00 GMT+0530 (IST))
datadir: C:\Users\abhir\Music\EthereumTest\data
modules: admin:1.0 debug: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
> miner.start()
null
> miner.stop()
null
>
```

Mining process terminated

```
INFO [09-23|20:58:13.853] Generating DAG in progress epoch=0 percentage=82 elapsed=2m19.343s
INFO [09-23|20:58:15.338] Generating DAG in progress epoch=0 percentage=83 elapsed=2m20.828s
INFO [09-23|20:58:16.933] Generating DAG in progress epoch=0 percentage=84 elapsed=2m22.423s
INFO [09-23|20:58:18.366] Generating DAG in progress epoch=0 percentage=85 elapsed=2m23.856s
INFO [09-23|20:58:19.848] Generating DAG in progress epoch=0 percentage=86 elapsed=2m25.338s
INFO [09-23|20:58:21.437] Generating DAG in progress epoch=0 percentage=87 elapsed=2m26.927s
INFO [09-23|20:58:23.075] Generating DAG in progress epoch=0 percentage=88 elapsed=2m28.565s
INFO [09-23|20:58:24.782] Generating DAG in progress epoch=0 percentage=89 elapsed=2m30.271s
INFO [09-23|20:58:26.450] Generating DAG in progress epoch=0 percentage=90 elapsed=2m31.940s
INFO [09-23|20:58:28.073] Generating DAG in progress epoch=0 percentage=91 elapsed=2m33.563s
INFO [09-23|20:58:29.792] Generating DAG in progress epoch=0 percentage=92 elapsed=2m35.282s
INFO [09-23|20:58:31.295] Generating DAG in progress epoch=0 percentage=93 elapsed=2m36.784s
INFO [09-23|20:58:32.756] Generating DAG in progress epoch=0 percentage=94 elapsed=2m38.245s
INFO [09-23|20:58:34.361] Generating DAG in progress epoch=0 percentage=95 elapsed=2m39.850s
INFO [09-23|20:58:35.862] Generating DAG in progress epoch=0 percentage=96 elapsed=2m41.351s
INFO [09-23|20:58:37.311] Generating DAG in progress epoch=0 percentage=97 elapsed=2m42.800s
INFO [09-23|20:58:38.769] Generating DAG in progress epoch=0 percentage=98 elapsed=2m44.258s
INFO [09-23|20:58:41.024] Generating DAG in progress epoch=0 percentage=99 elapsed=2m46.514s
INFO [09-23|20:58:41.033] Generated ethash verification cache epoch=0 elapsed=2m46.523s
```