Ecclesiastes (Eccl) 12:13

Now all has been heard; here is the conclusion of the matter:

Have reverence for God, and obey his commands, because this is all that man was created for.

Fear God and keep his commandments, for this is the whole duty of man.





Bitcoin and Bitcoin-Core

bitcoin.org / bitcoincore.org

https://bitcoin.org/ https://bitcoin.org/en/download • https://github.com/bitcoin/bitcoin https://developer.bitcoin.org/ https://bitcoincore.org/en/releases/ https://bitcoincore.org/en/download/ https://en.bitcoin.it/ https://en.bitcoin.it/wiki/Category:Technical https://bitnodes.io/#join-the-network

```
    Bitcoin source code
    $ sudo apt-get install git
    $ git clone https://github.com/bitcoin/bitcoin.git
    $ git tag -l
    * git checkout tags/version_tag
    $ git checkout tags/v0.21.0
```

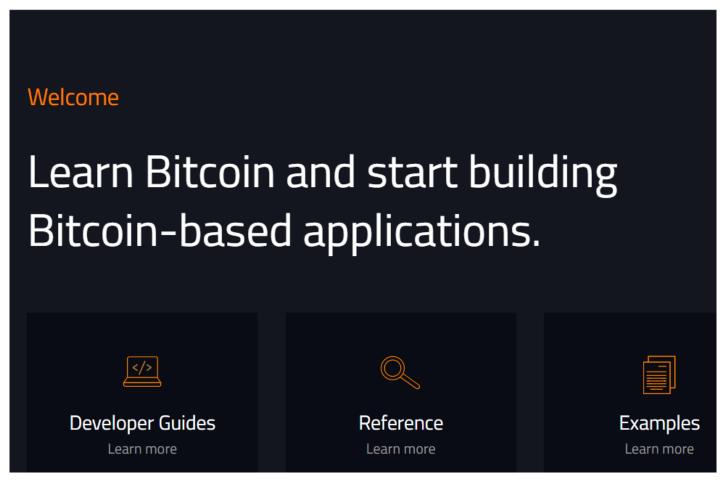
bitcoin.org

- Official Bitcoin Website
 - Provides official information regarding Bitcoin updates, releases, and documentation
- Download Bitcoin Client Software
 - Provides download links for Bitcoin Core and other Bitcoin client software

[†] Have reverence for God, and obey his commands, because this is all that man was created for (Ecclesiastes 12:13)

https://developer.bitcoin.org/

Obitcoindeveloper



[†] Have reverence for God, and obey his commands, because this is all that man was created for (Ecclesiastes 12:13)

bitcoincore.org

- https://bitcoincore.org/en/about/
- Bitcoin Core
 - An open source project which maintains and releases Bitcoin client software called 'Bitcoin Core'
 - It is a direct descendant of the original Bitcoin software client released by Satoshi Nakamoto

[†] Have reverence for God, and obey his commands, because this is all that man was created for (Ecclesiastes 12:13)

Bitcoin vs Bitcoin-core

- Differences between bitcoin and bitcoin-core
 - Bitcoin refers to the cryptocurrency itself, encompassing the protocol, technology, and ecosystem
 - Bitcoin Core is the official client software that implements the Bitcoin protocol, allowing users to interact with the Bitcoin network and manage their wallets

[†] Have reverence for God, and obey his commands, because this is all that man was created for (Ecclesiastes 12:13)

Bitcoin-core

- The official client software for Bitcoin
 - Responsible for interacting with the Bitcoin network and maintaining the blockchain
 - Implements the Bitcoin protocol, allowing users to interact with the Bitcoin network and manage their wallets
 - Maintains a replica of the Bitcoin network and verifies new transactions
 - Includes wallet software, allowing individual users to hold and transact with Bitcoin

Bitcoin-core

- Bitcoin Core, while serving as a full node software,
 - is often referred to as "client software" because it allows individual users to act as clients on the Bitcoin network
- It provides the essential functions for users
 - to create and manage Bitcoin wallets,
 - send and receive transactions,
 - and interact with the broader Bitcoin network
- It also functions as a full node, contributing to the network's security and validation of transactions

[†] Have reverence for God, and obey his commands, because this is all that man was created for (Ecclesiastes 12:13)

- Bitcoin Core software includes mining functionality
 - Bitcoin Core is a full node software that serves several key roles within the Bitcoin network, and one of those roles is mining
- How Bitcoin Core's mining functionality works
 - Full Node
 - Bitcoin Core functions as a full node, which means it maintains a complete replica of the Bitcoin network, including the blockchain. This is crucial for verifying new transactions and blocks, ensuring the security and trustworthiness of the network.
 - Wallet
 - Bitcoin Core also operates as a wallet software, allowing users to send and receive Bitcoin. Users can manage their Bitcoin holdings and conduct transactions using Bitcoin Core's wallet features.
 - Mining
 - Bitcoin Core includes mining capabilities. Miners can use Bitcoin Core to mine new blocks and include new transactions in those blocks. This process is how new Bitcoin is issued, and miners earn rewards for mining blocks as well as collecting transaction fees.

Build Bitcoin Source

- git clone https://github.com/bitcoin/bitcoin.git -b branch_name --single-branch
- git clone https://github.com/bitcoin/bitcoin.git -b release/v0.21.0 --single-branch
- cd bitcoin
- ./autogen.sh
- ./configure
- make
- sudo make install
- ./src/bitcoind

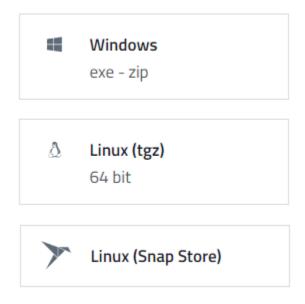
Install bitcoin

Method 1 \$ curl https://bitnodes.io/install-full-node.sh Method 2 \$ sudo apt update \$ sudo apt install build-essential autoconf automake libtool libeventdev libboost-all-dev libminiupnpc-dev libssl-dev libzmq3-dev libqt5gui5 libqt5core5a libqt5dbus5 qttools5-dev qttools5-dev-tools libarencode-dev \$ wget https://bitcoin.org/bin/bitcoin-core-x.y.z/bitcoin-x.y.zx86 64-linux-gnu.tar.gz \$ sha256sum bitcoin-x.y.z-x86_64-linux-gnu.tar.gz \$ tar -xvf bitcoin-x.y.z-x86 64-linux-gnu.tar.gz \$ sudo mv bitcoin-x.y.z /usr/local/bin/bitcoin \$ bitcoin

[†] Have reverence for God, and obey his commands, because this is all that man was created for (Ecclesiastes 12:13)

https://bitcoin.org/en/bitcoin-core/

- https://bitcoin.org/en/bitcoin-core/
- https://bitcoin.org/en/download



[†] Have reverence for God, and obey his commands, because this is all that man was created for (Ecclesiastes 12:13)

Ubuntu-22.04.3

```
$ bitcoin-core.cli getbestblockhash
$ ls -1 blocks/blk00000.dat
$ ls -1 blocks/blk*
$ bitcoin-core.cli getblockchaininfo
$ cat currentblk
 #!/bin/bash
  cnt=`bitcoin-core.cli getblockcount`
  hash=`bitcoin-core.cli getblockhash ${cnt}`
  timeline=`bitcoin-core.cli getblock $hash | grep '"time"'`
  ltrimtime=${timeline#*time\" : }
  newest=${ltrimtime%%,*}
  echo $((`date +%s`-$newest))
  echo $(((`date +%s`-$newest)/60))
$ bitcoin-core.cli getblockcount
$ cnt=`bitcoin-core.cli getblockcount`
$ hash=`bitcoin-core.cli getblockhash ${cnt}`
$ timeline=`bitcoin-core.cli getblock $hash | grep '"time"'`
$ ltrimtime=${timeline#*time\" : }
$ newest=${ltrimtime%%,*}
```

bitcoin-core.cli or bitcoin-cli

```
$ bitcoin-cli getblockhash 0

000000000019d6689c085ae165831e934ff763ae46a2a6c172b3f1b60a8ce26f

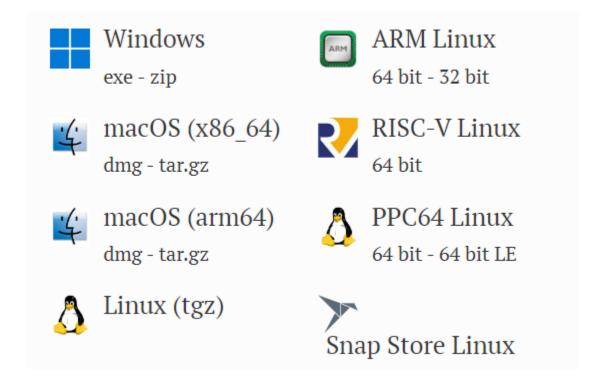
$ bitcoin-cli getblock 00000000019d...26f 2

Where the first argument is the block hash,
and 2 is the verbosity (i.e. for json object with transaction data)
```

[†] Have reverence for God, and obey his commands, because this is all that man was created for (Ecclesiastes 12:13)

Bitcoin Core

https://bitcoincore.org/en/download/



[†] Have reverence for God, and obey his commands, because this is all that man was created for (Ecclesiastes 12:13)

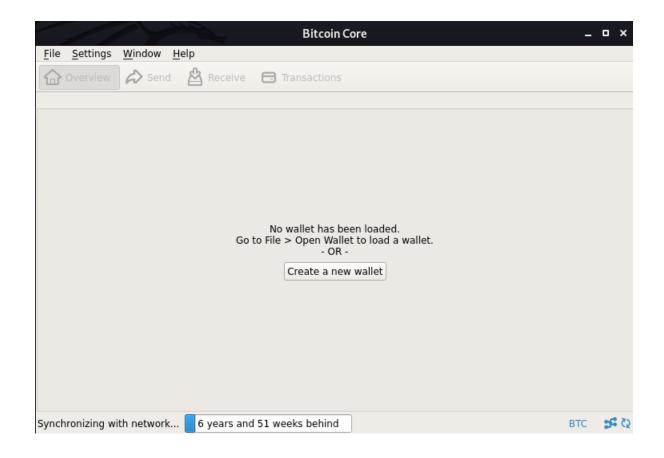
Installing Bitcoin Core

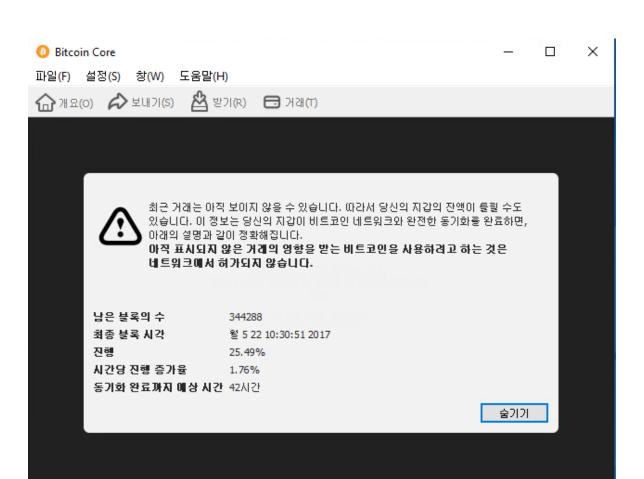
• https://en.bitcoin.it/wiki/Help:Installing_Bitcoin_Core

[†] Have reverence for God, and obey his commands, because this is all that man was created for (Ecclesiastes 12:13)

Installing Bitcoin Core







6년 과 20주 뒷처지는 중

BTC 🎜 🗘

네트워크와 동기화 중...

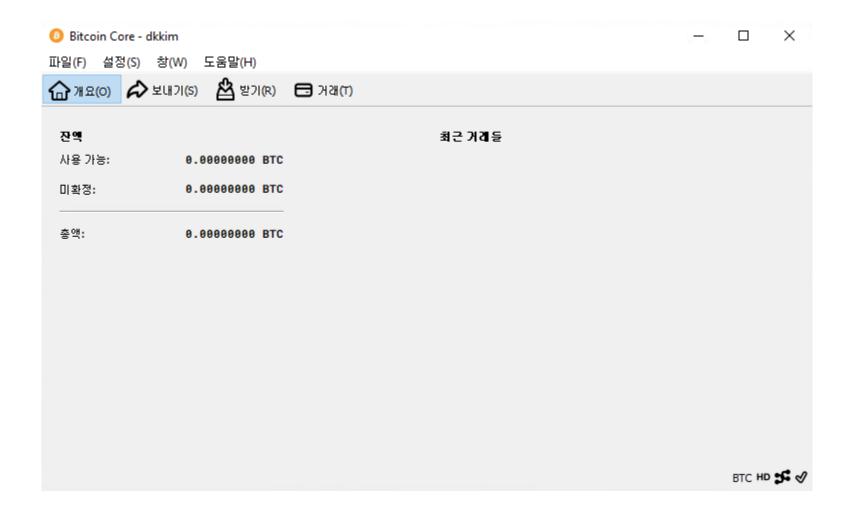
Ubuntu-22.04.3

```
btc@dkkim:~/snap/bitcoin-core/common/.bitcoin$
btc@dkkim:~/snap/bitcoin-core/common/.bitcoin$
btc@dkkim:~/snap/bitcoin-core/common/.bitcoin$ pwd
/home/btc/snap/bitcoin-core/common/.bitcoin
btc@dkkim:~/snap/bitcoin-core/common/.bitcoin$ ls
banlist.json bitcoind.pid blocks chainstate debug.log peers.dat settings.json wallets
btc@dkkim:~/snap/bitcoin-core/common/.bitcoin$
```

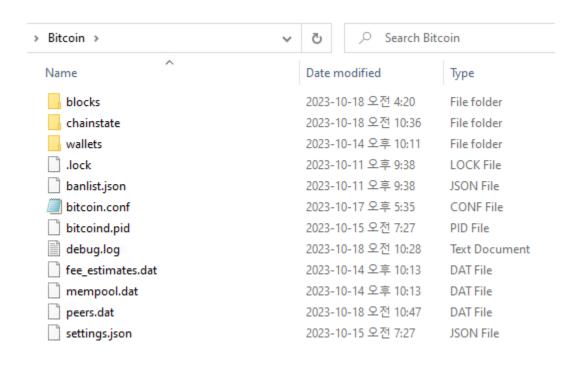
[†] Have reverence for God, and obey his commands, because this is all that man was created for (Ecclesiastes 12:13)

```
2023-10-18T00:58:50Z New outbound peer connected: version: 70015, blocks=812691, peer=10418 (block-relay-only)
2023-10-18T01:00:07Z New outbound peer connected: version: 70016, blocks=812691, peer=10419 (block-relay-only)
2023-10-18T01:04:31Z Saw new header hash=00000000000000000000018166f16ab19c73a745cf7aba86256b3028163986b980 height=812692
2023-10-18T01:04:31Z [net] Saw new cmpctblock header hash=000000000000000000028166f16ab19c73a745cf7aba86256b3028163986b980 peer=10170
2023-10-18T01:04:31Z UpdateTip: new best=00000000000000000000000028166f16ab19c73a745cf7aba86256b3028163986b980 height=812692 version=0x2512e000 log2 work=94.483101 tx=906
666534 date='2023-10-18T01:04:19Z' progress=1.000000 cache=164.3MiB(947196txo)
2023-10-18T01:18:42Z New outbound peer connected: version: 70015, blocks=812692, peer=10420 (block-relay-only)
2023-10-18T01:28:18Z Saw new header hash=000000000000000000144134697afa3061b2e6684d3d28ab69e0abcea3a4a9d height=812693
2023-10-18T01:28:18Z UpdateTip: new best=0000000000000000000000000144134697afa3061b2e6684d3d28ab69e0abcea3a4a9d height=812693 version=0x248b8000 log2 work=94.483114 tx=906
668764 date='2023-10-18T01:28:09Z' progress=1.000000 cache=166.0MiB(960309txo)
2023-10-18T01:36:11Z Saw new header hash=000000000000000000000045e9e395e70b2f8bd8c1429efdf5eae891a3124056c64 height=812694
2023-10-18T01:36:11Z [net] Saw new cmpctblock header hash=00000000000000000045e9e395e70b2f8bd8c1429<u>efdf5eae891a3124056c64 peer=10170</u>
2023-10-18T01:36:11Z UpdateTip: new best=00000000000000000000000045e9e395e70b2f8bd8c1429efdf5eae891a3124056c64 height=812694 version=0x20a00000 log2 work=94.483128 tx=906
670023 date='2023-10-18T01:35:50Z' progress=1.000000 cache=166.3MiB(962797txo)
2023-10-18T01:45:40Z Saw new header hash=00000000000000000000008be18c0f21ba6d391c1ea13c83f66768a68ad8d1a271 height=812695
2023-10-18T01:45:40Z [net] Saw new cmpctblock header hash=00000000000000000008be18c0f21ba6d391c1ea13c83f66768a68ad8d1a271 peer=<math>10170
671128 date='2023-10-18T01:45:00Z' progress=1.000000 cache=167.3MiB(970979txo)
```

Windows



[†] Have reverence for God, and obey his commands, because this is all that man was created for (Ecclesiastes 12:13)



[†] Have reverence for God, and obey his commands, because this is all that man was created for (Ecclesiastes 12:13)

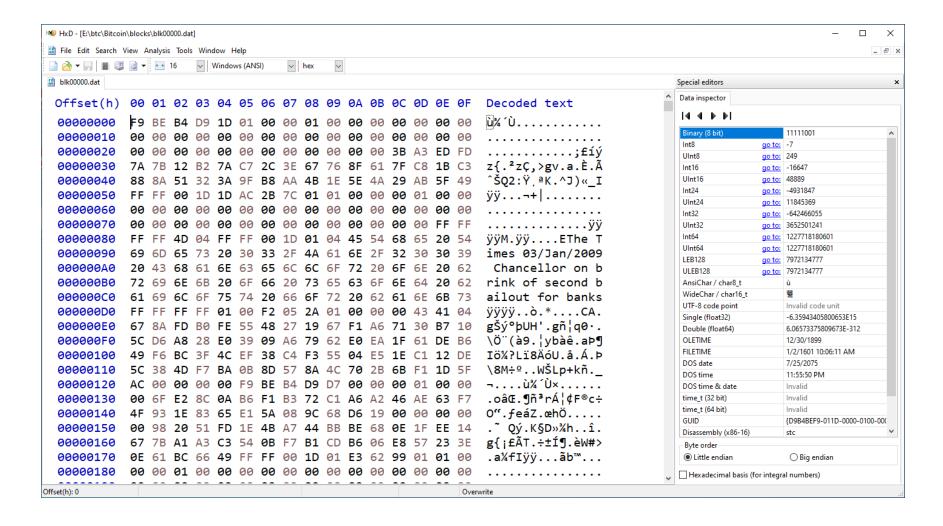
blkNNNNN.dat / revNNNNN.dat

Bitcoin > blocks	~	ク Search blocks		
Name		Date modified	Туре	Size
blk03883.dat		2023-10-16 오후 2:57	DAT File	129,792 KB
blk03884.dat		2023-10-17 오전 4:44	DAT File	130,663 KB
blk03885.dat		2023-10-17 오후 3:01	DAT File	130,172 KB
blk03886.dat		2023-10-18 오전 4:20	DAT File	130,346 KB
blk03887.dat		2023-10-18 오전 10:45	DAT File	65,536 KB
rev00000.dat		2023-10-11 오후 10:17	DAT File	19,045 KB
rev00001.dat		2023-10-11 오후 10:19	DAT File	16,571 KB
rev00002.dat		2023-10-11 오후 10:20	DAT File	15,900 KB
rev00003.dat		2023-10-11 오후 10:21	DAT File	16,109 KB
rev00004.dat		2023-10-11 오후 10:22	DAT File	16,433 KB
rev00005.dat		2023-10-11 오후 10:24	DAT File	17,313 KB

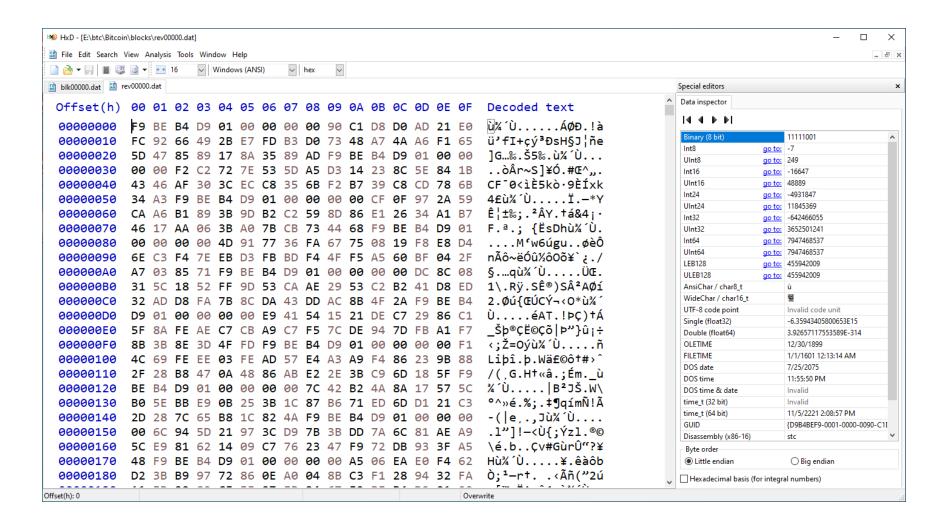
[†] Have reverence for God, and obey his commands, because this is all that man was created for (Ecclesiastes 12:13)

- blk00000.dat
 - Storing block data and managing the entire history of the blockchain
- rev00000.dat
 - Primarily focused on supporting database searches and indexing

blk00000.dat



rev00000.dat



Electrum

https://electrum.org/

Latest release: Electrum-4.4.6

Release notes - Previous releases

Our executables are reproducible, and are signed independently by several builders.

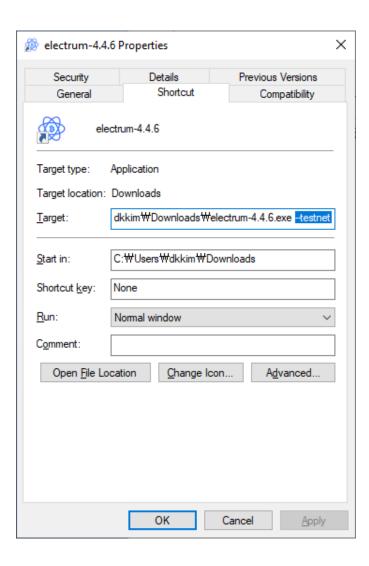
The current executables have been signed by ThomasV, SomberNight, Emzy.

Sources and Binaries

Python (3.8 and higher)	Electrum-4.4.6.tar.gz	
Linux	Appimage	
	Standalone Executable	
Windows (8.1 and higher)	Windows Installer	
	Portable version (security advice)	

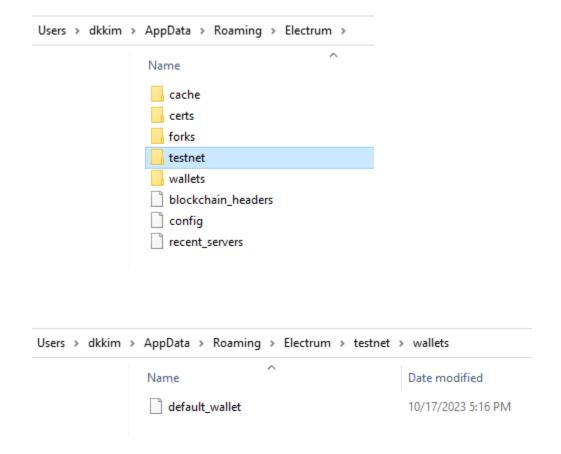
[†] Have reverence for God, and obey his commands, because this is all that man was created for (Ecclesiastes 12:13)

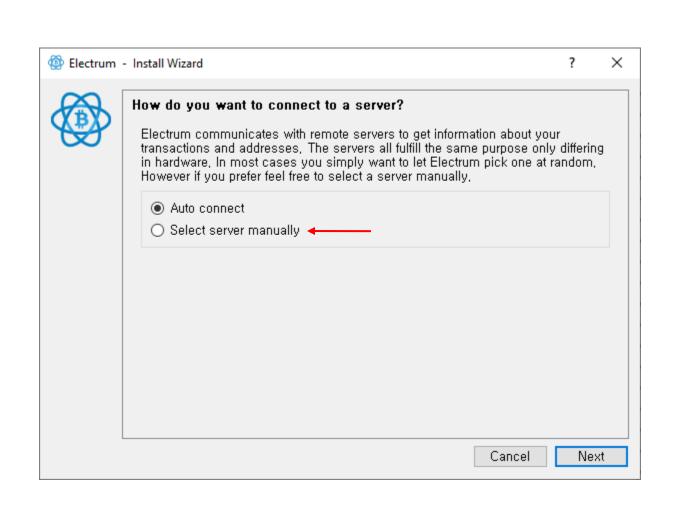
electrum-4.4.6.exe --testnet



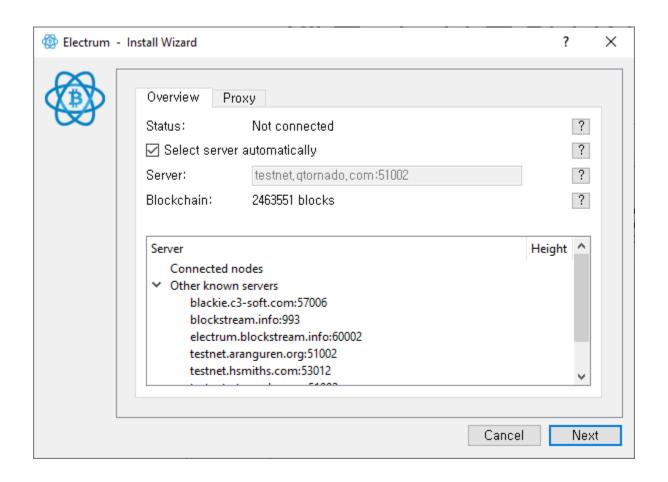
Wallet

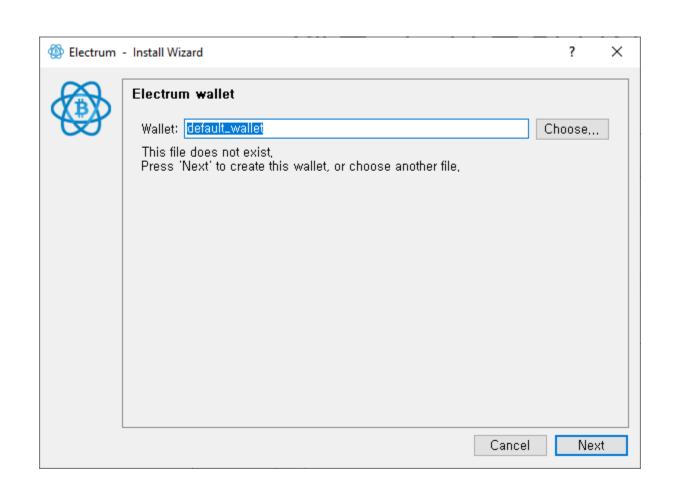
• C:\Users\dkkim\AppData\Roaming\Electrum\wallets





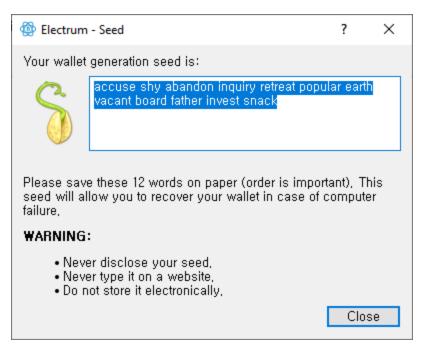
testnet.qtornado.com:51002



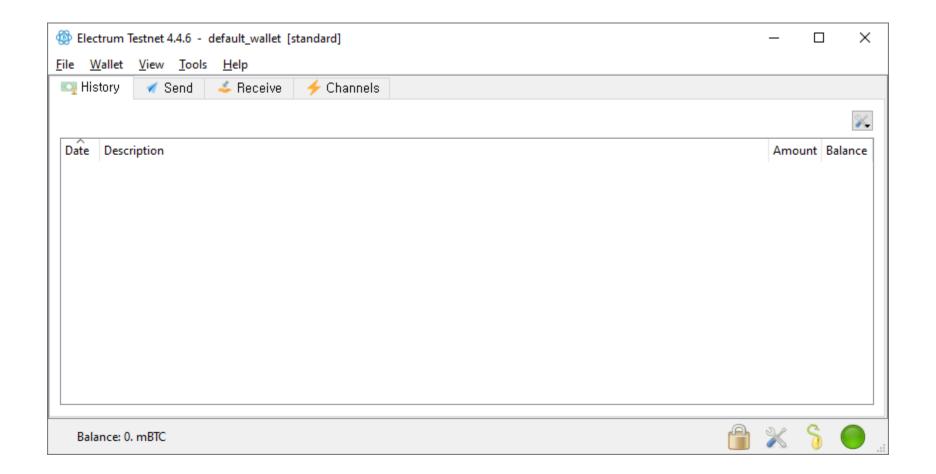


Seed

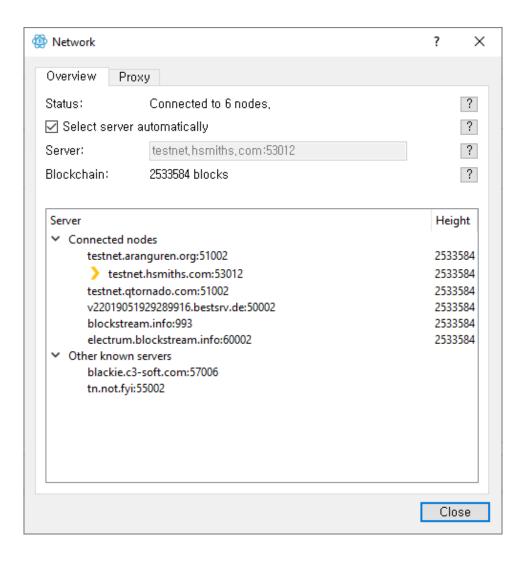
 accuse shy abandon inquiry retreat popular earth vacant board father invest snack

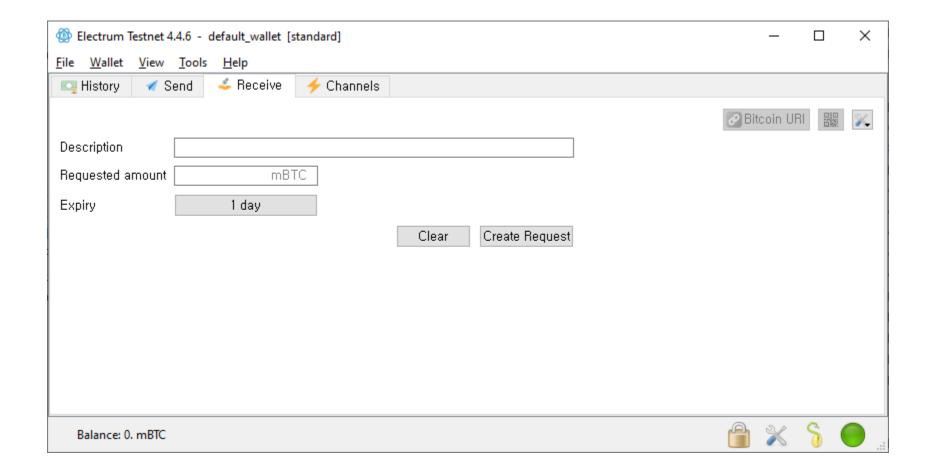


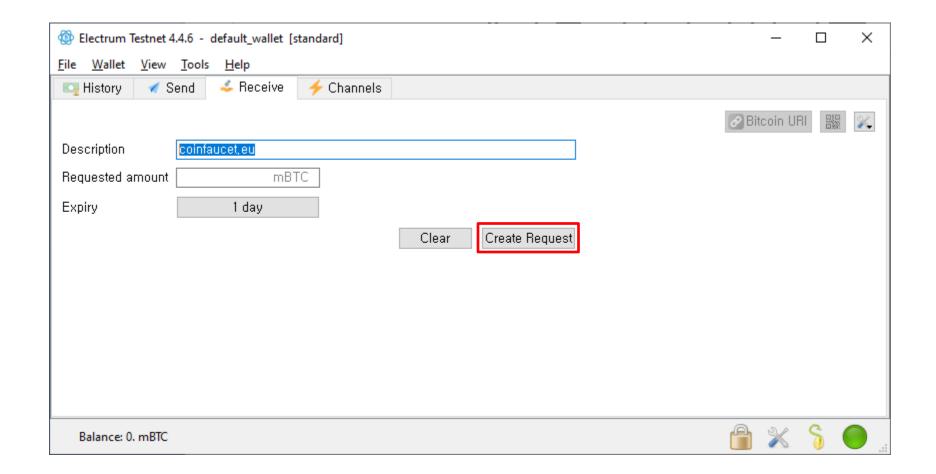


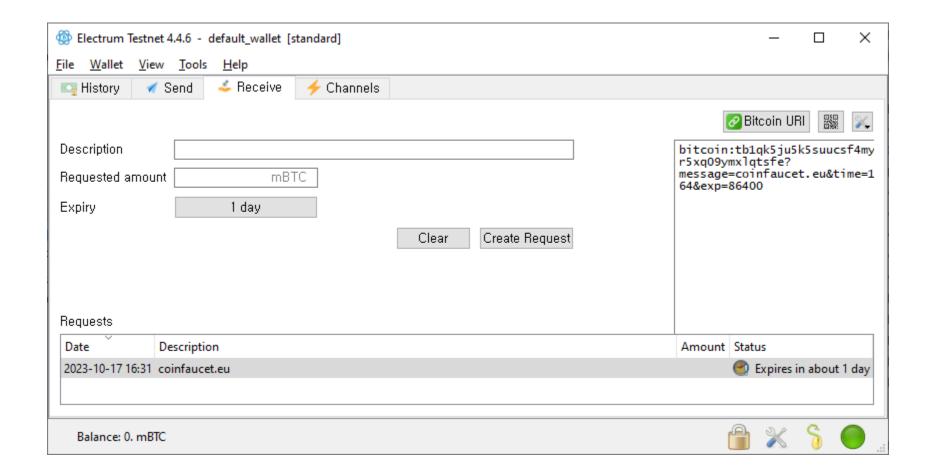


Tools | Network

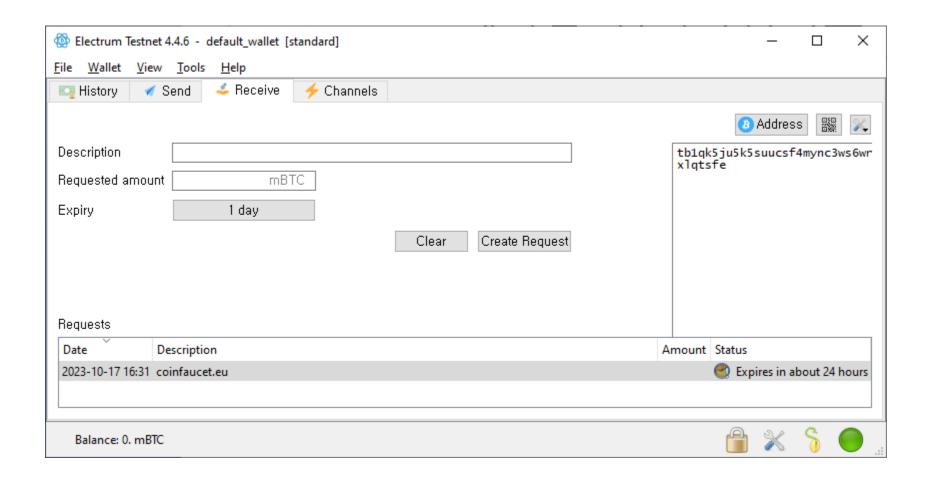








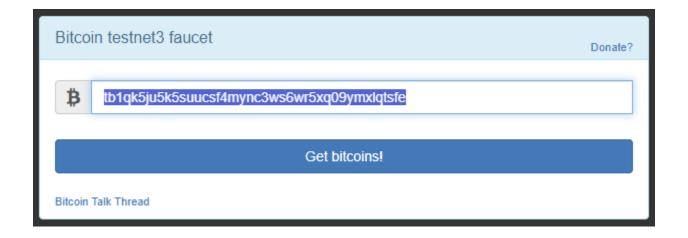
tb1qk5ju5k5suucsf4mync3ws6wr5xq09ymxlqtsfe



coinfaucet.eu/en

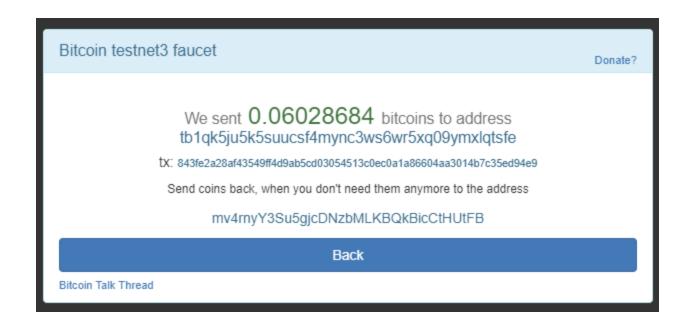


tb1qk5ju5k5suucsf4mync3ws6wr5xq09ymxlqtsfe



We sent 0.06028684 bitcoins to addresstb1qk5ju5k5suucsf4mync3ws6wr5xq09y mxlqtsfe

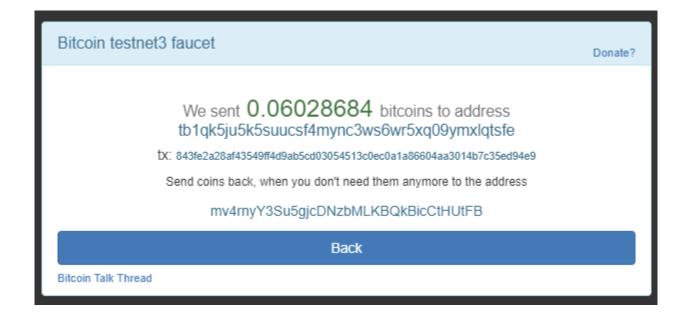
tx: <u>843fe2a28af43549ff4d9ab5cd03054513c0ec0a1a86604aa3014b7c35ed94e9</u>
Send coins back, when you don't need them anymore to the address
mv4rnyY3Su5gjcDNzbMLKBQkBicCtHUtFB

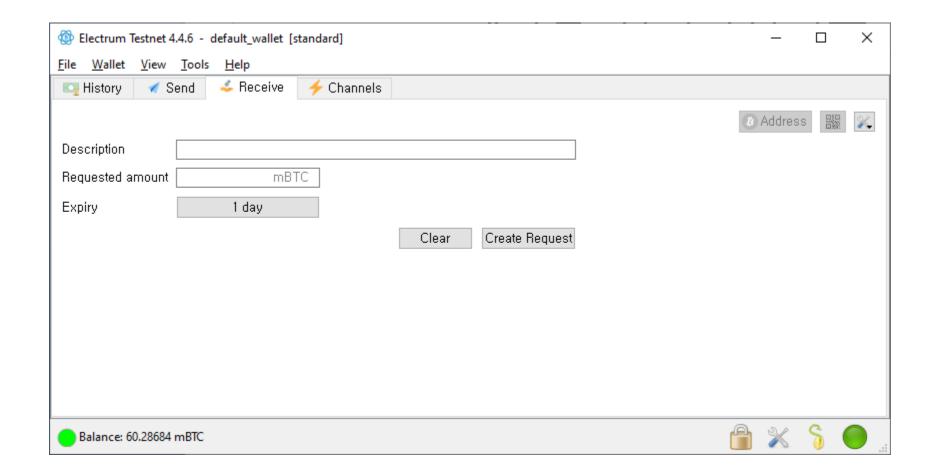


We sent 0.06028684 bitcoins to addresstb1qk5ju5k5suucsf4mync3ws6wr5xq09y mxlqtsfe

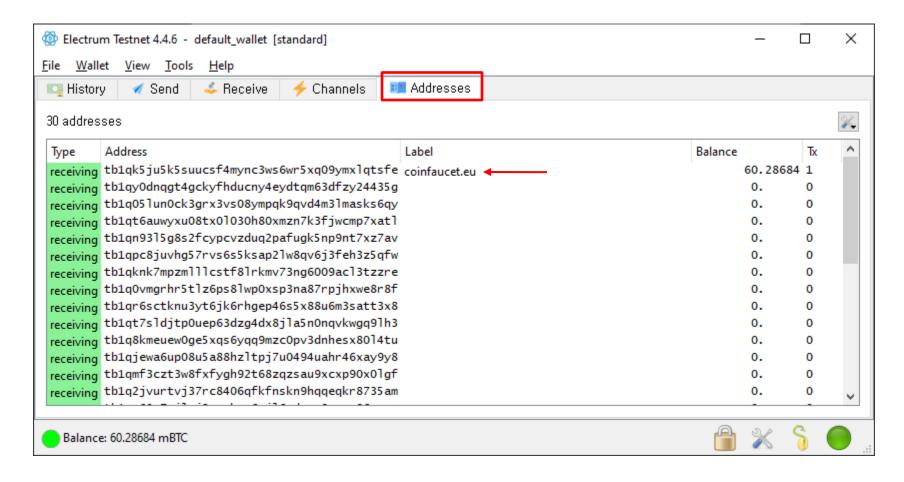
tx: <u>843fe2a28af43549ff4d9ab5cd03054513c0ec0a1a86604aa3014b7c35ed94e9</u>
Send coins back, when you don't need them anymore to the address
mv4rnyY3Su5gjcDNzbMLKBQkBicCtHUtFB

mv4rnyY3Su5gjcDNzbMLKBQkBicCtHUtFB



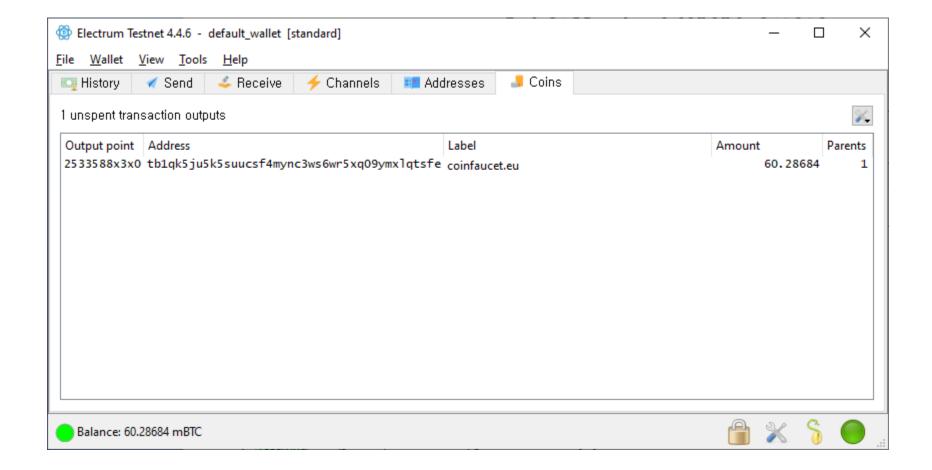


View | Address

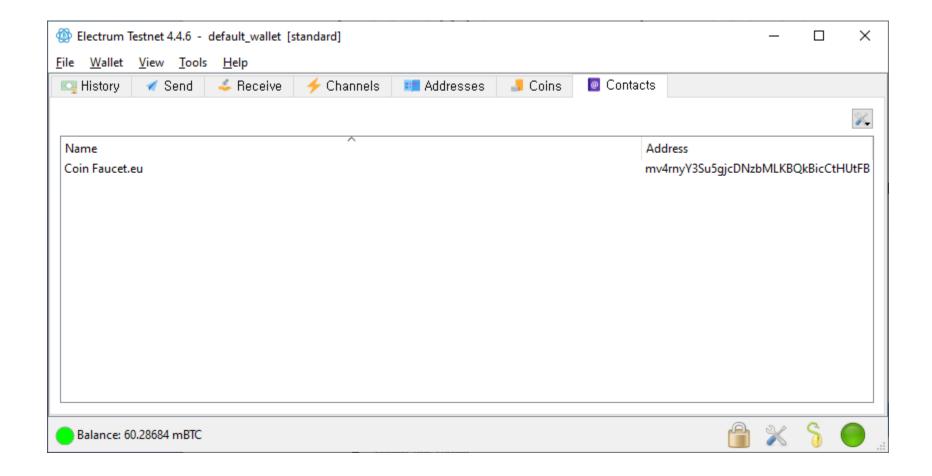


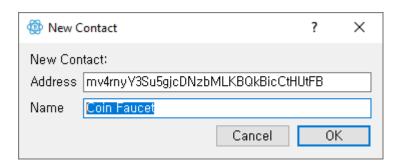
tb1qk5ju5k5suucsf4mync3ws6wr5xq09ymx1qtsfe

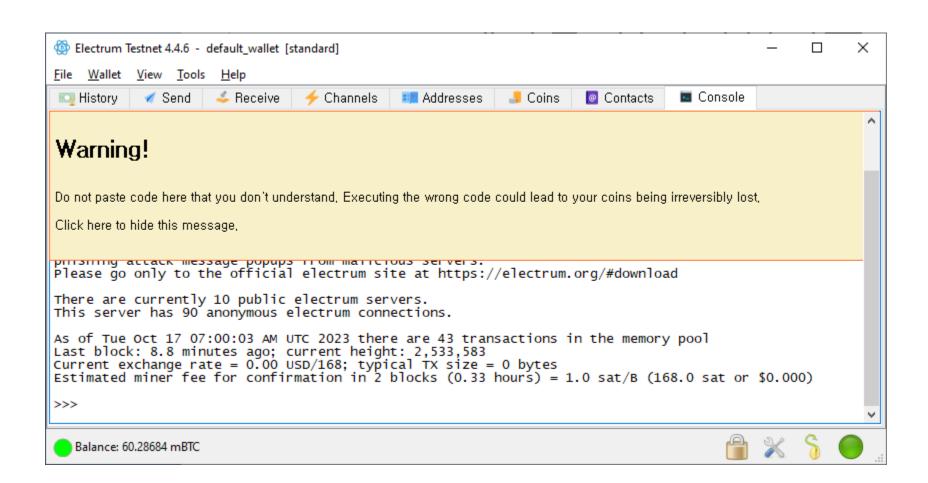
View | Coins



View | Contacts







Wallet | Information



