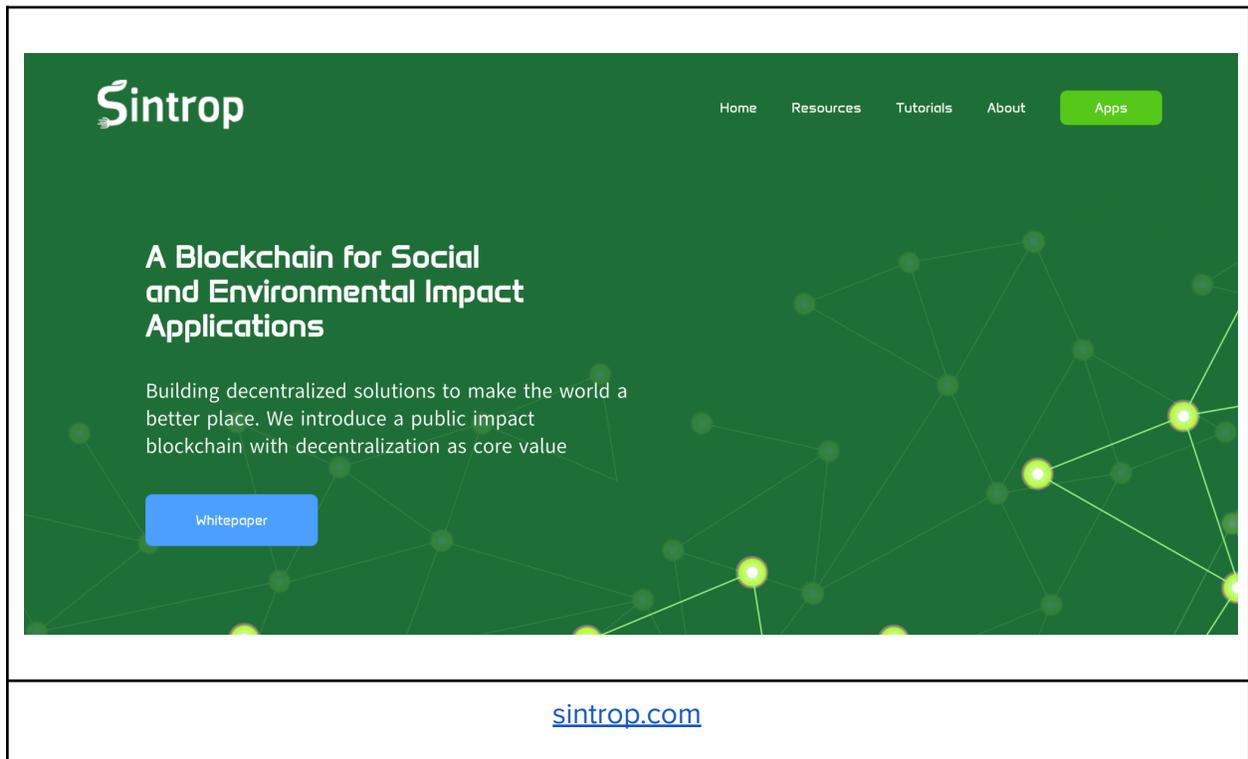


Sintrop node and solo mining guide

On Ubuntu



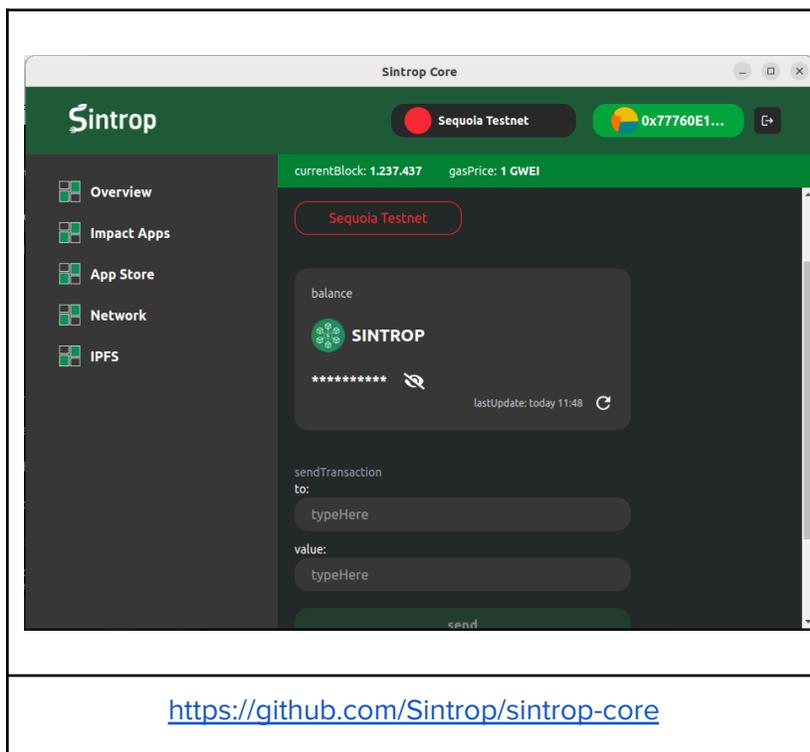
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Resources

Before starting the tutorial, here is a list of useful resources for nodes and miners.

Sintrop core

Core software of the Sintrop blockchain. To access it, download the latest version at the website resources page or at the Github repository. This is the main application, you can check the balance, send transactions and interact with the impact smart contracts system projects.



Network status

A network status page, where useful information such as the block.number, last miners and other information can be found.

The screenshot displays a comprehensive status dashboard for the Sintrop blockchain. Key metrics include:

- BEST BLOCK:** #901,186
- UNCLES (CURRENT / LAST 50):** 0/9
- LAST BLOCK:** 2 s ago
- AVG BLOCK TIME:** 13.95s
- ACTIVE NODES:** 2/2
- GAS PRICE:** 1 gwei
- GAS LIMIT:** 3000000 gas
- PAGE LATENCY:** 136 ms
- BLOCK TIME:** Bar chart showing block intervals.
- DIFFICULTY:** Line graph showing difficulty over time.
- BLOCK PROPAGATION:** Line graph showing propagation progress.
- LAST BLOCKS MINERS:** List of miner addresses and their respective block hashes.
- UNCLE COUNT (25 BLOCKS PER BAR):** Bar chart showing the number of uncles per block.
- TRANSACTIONS:** Line graph showing transaction volume.
- GAS SPENDING:** Line graph showing gas spending over time.
- GAS LIMIT:** Line graph showing gas limit over time.

At the bottom, there is an attention notice and a table of active nodes:

Node	Version	Uptime	Sync	Height	Balance	Gas Price	Gas Limit
sintrop	GoSintrop/v1.0.0-unstable-182c4c08/linux-amd64/go1.21.13	1 ms	8	0	#901,186	ee12b18...35c205e4	1,468,259,645,598,119
sintrop-rpc	GoSintrop/v1.0.0-unstable-182c4c08/linux-amd64/go1.21.13	1 ms	2	0	#901,186	ee12b18...35c205e4	1,468,259,645,598,119

<http://status.sintrop.com:3000/>

Sintrop explorer

A simple blockchain explorer to check balance, blocks, contracts and transactions. It is still at the beginning of the development, but useful information such as your wallet's balance can be found.

The screenshot shows the Sintrop Explorer interface with the following sections:

- Search:** A search bar with the placeholder "Search for a transaction/address/block" and a "Search" button.
- Latest block:**
 - Block #901198:** Miner: 0x083ccc7..., Tx: 0, 51 seconds ago.
 - Txs in block #901198:** (Empty list)
- Network data:**
 - ID: 250225
 - Name: Sintrop
 - Coin name: SINTROP
 - RPC: <https://rpc.sintrop.com>

<https://explorer.sintrop.com/>

Hardware requirements

A simple computer is necessary to run a node and start mining. It is possible to use the computer along with the node, but a dedicated machine is recommended. Below is a list of the essential hardware components you'll need, along with a brief explanation and basic assembly instructions.

Equipments

Power Supply Unit (PSU): This is the heart of your rig, providing power to all components. For mining, you'll need a reliable, high-wattage PSU, typically **1000W**, if you plan to use multiple GPUs, or a simple one if using only one GPU. Look for PSUs with a high efficiency rating (like **80 Plus Gold or Platinum**) to save on electricity costs.

Motherboard: The motherboard is the backbone of your computer, connecting all the components. For a mining rig, you'll want a motherboard with **multiple PCIe slots** to accommodate several GPUs. There are mining-specific motherboards available that are designed for this purpose. Or you can use a simple motherboard to mine with only one or two GPUs. You can also use extended PCI connections when using simple motherboard.

Processor (CPU): Mining with the CPU doesn't do the heavy lifting; the GPUs do. Therefore, a basic, modern processor like an **Intel Core i3 or an AMD Ryzen 3** is more than sufficient. You don't need to invest in a high-end CPU.

Random Access Memory (RAM): Similar to the CPU, RAM is not a critical component for the mining process itself. A single **8GB stick of DDR4 RAM** is generally enough to run the operating system and mining software smoothly.

Graphics Processing Unit (GPU): This is the most crucial component for mining. The GPU performs the complex calculations required to mine new blocks. For Sintrop blockchain, you'll need a GPU with a good amount of VRAM (at least **6-8GB**) and a high hash rate. Popular choices include NVIDIA's **GeForce RTX 30 and 40 series**. You can use any GPU to mine, but the higher the hashrate of the card, the greater the chance of finding blocks and being rewarded.

Storage (SSD): You'll need a drive to install your operating system and mining software. A small **120-240GB Solid State Drive (SSD)** is recommended to start. The blockchain will grow over time, so in the future it may be necessary to have larger SSDs to store the complete copy of the blockchain.

Mining Rig Frame (Optional but Recommended): While you can build your rig on a simple wooden or metal frame, a dedicated mining rig frame will help with organization, airflow, and scalability.

Basically assembly instructions

1. Prepare the Motherboard:

- Carefully unbox the motherboard and place it on its anti-static bag on a flat, non-metallic surface.
- Open the CPU socket lever, gently place the CPU in the socket (aligning the triangles on the CPU and socket), and close the lever to secure it.
- Install the RAM stick(s) into the RAM slots. They will click into place when inserted correctly.

2. Mount the Motherboard:

- If you are using a mining frame or case, screw the motherboard into the designated standoffs.

3. Install the GPUs:

- If you are using PCIe riser cables (common in mining rigs), connect one end to a PCIe slot on the motherboard and the other to your GPU.
- Secure the GPUs to the mining frame, leaving enough space between them for proper airflow.

4. Connect the Power Supply (PSU):

- Connect the main 24-pin motherboard power cable and the 8-pin CPU power cable from the PSU to the motherboard.
- Connect the PCIe power cables from the PSU to each GPU. Each GPU will likely require one or two 6+2 pin power connectors.
- Connect the power to your storage drive.

5. Final Connections:

- Connect your storage drive to a SATA port on the motherboard.
- Connect a monitor, keyboard, and mouse for the initial setup.

Once all the components are connected, you can install your preferred operating system. For now, we suggest using Ubuntu to run your own node. It is the most appropriate operating system for running a Sintrop node.



Example of a simple computer setup with SSD, CPU, GPU, PSU and memory.

Running a Sintrop Node

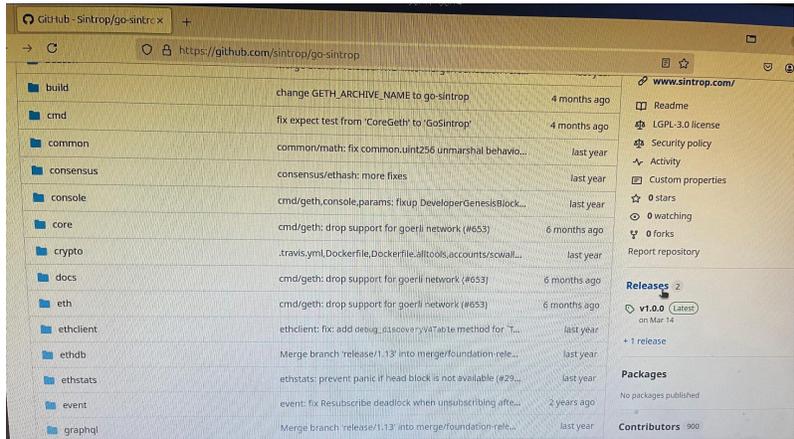
Guide to run a full blockchain node on Ubuntu. To do it, you must download the go-sintrop software. If you need to install Ubuntu first, check the instructions below on how to install Ubuntu on a computer.

Download GO-SINTROP

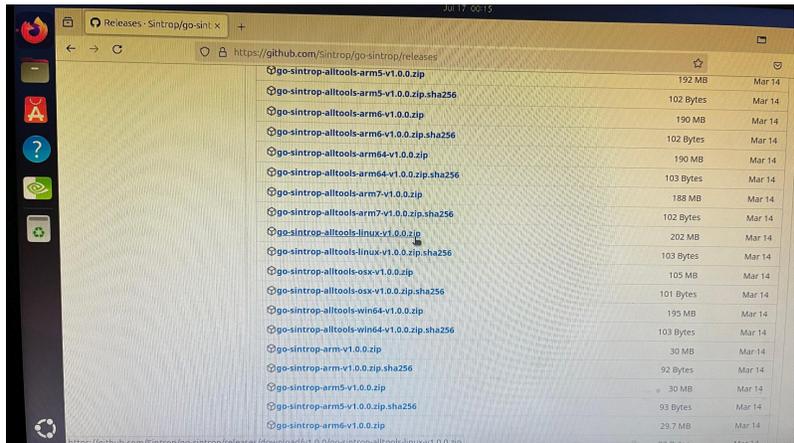
Download the latest version of go-sintrop at the project repo [sintrop/go-sintrop](https://github.com/Sintrop/go-sintrop).

<https://github.com/Sintrop/go-sintrop/releases>

Click at the 'Releases' tab to download the latest version. Choose the right file according to your operating system. At the moment, the solo mining works better at Ubuntu, but feel free to try other operating systems.



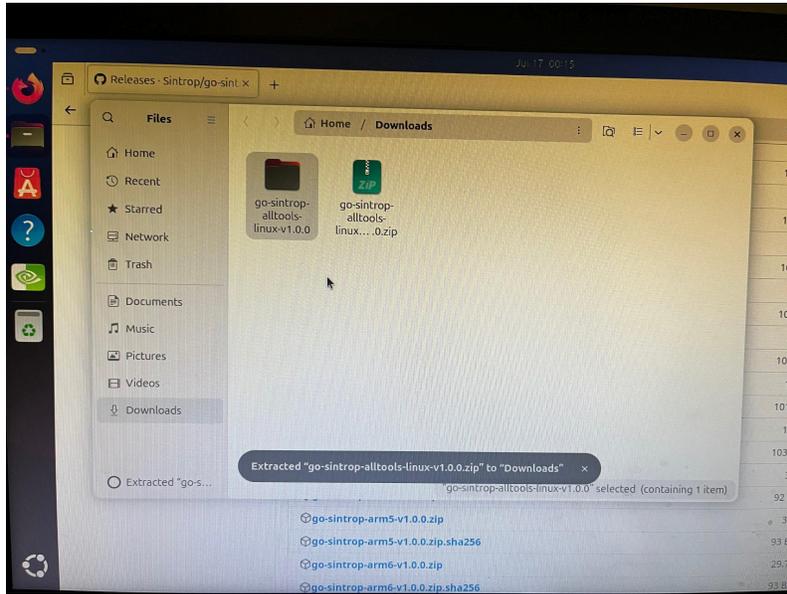
Download go-sintrop software at the Github repository page.



Download the linux version. If using a different operating system, choose the right version.

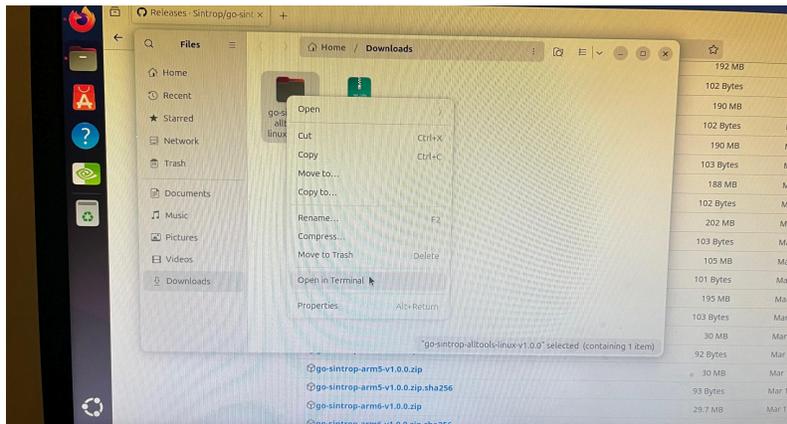
Run Sintrop

Extract the file, and access the project path.



Extract the go-sintrop download file.

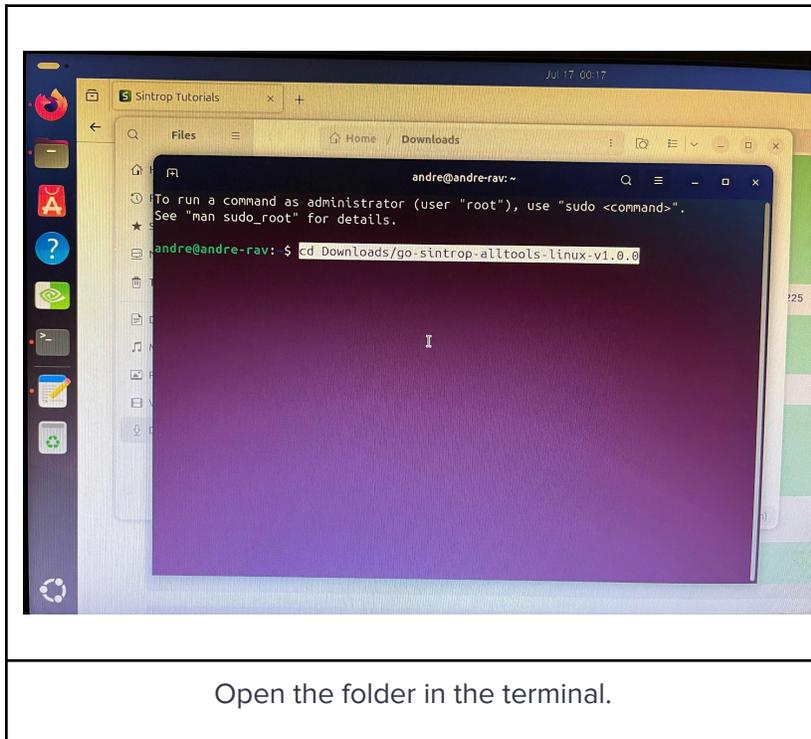
Open the folder in the terminal. You can do it by manually clicking with the right button and opening it directly or you can open a terminal and run the command to access the path.



Open the folder in the terminal.

You can run the command to access the folder directly from terminal. Example If downloaded at the Downloads folder:

```
cd Downloads/go-sintrop-alltools-linux-v1.0.0
```



Now it is time to start the node. Before it, you must have a wallet address to receive the reward when finding new blocks. If you don't have it, check the tutorial of how to create a new one and place your wallet address in the command below.

Change miner.ethersbase to your wallet address and run the following command:

```
./geth --identity Sintrop --datadir ./sintrop_node --sintrop --syncmode "full" --networkid 250225  
--cache=1024 --port 25225 --http.vhosts=* --http.addr "0.0.0.0" --http.port 8545 --http=true  
--miner.threads=1 --miner.ethersbase=0x0000000000000000000000000000000000000000  
console
```

Be sure to change the wallet address (red), this will be the wallet address that will receive the reward when finding new blocks.

Hint: Save the commands in a .txt file on your computer.

Blockchain synchronization

After starting the blockchain, it should automatically start syncing with the network.

```
andre@andre-rav: ~/Downloads/go-sintrop-alltools-linux-v1.0.0
395,924 id=78161bc2c5b0cb4d ip=127.0.0.1 udp=25225 tcp=25225
INFO [07-17|11:26:35.926] Started P2P networking
298497b457c17011454a09b7ef6bb19e1a87c52f59541231da17a2f02149954abb59432adde09990a
81bdd9cab10979c932397647c1c83ef1d89c18cccf740b@127.0.0.1:25225
INFO [07-17|11:26:35.927] IPC endpoint opened
url=/home/andre/Downloads/go-sintrop-alltools-linux-v1.0.0/sintrop_node/geth.ipc
INFO [07-17|11:26:35.928] Generated JWT secret
path=/home/andre/Downloads/go-sintrop-alltools-linux-v1.0.0/sintrop_node/geth/jwtsecret
INFO [07-17|11:26:35.928] HTTP server started
endpoint=[::]:8545 auth=false prefix=cors vhosts=*
INFO [07-17|11:26:35.928] WebSocket enabled
url=ws://127.0.0.1:8551
INFO [07-17|11:26:35.928] HTTP server started
endpoint=127.0.0.1:8551 auth=true prefix=cors localhost vhosts=localhost
Welcome to the Geth JavaScript console!

Instance: GoSintrop/Sintrop/v1.0.0-unstable-182c4c08/linux-amd64/go1.21.13
coinbase: 0x2b0530ef336dd785a01ee35f3c1c91857ec4a4e
at block: 0 (Tue Feb 25 2025 11:10:58 GMT-0300 (-03))
datadir: /home/andre/Downloads/go-sintrop-alltools-linux-v1.0.0/sintrop_node
modules: admin:1.0 debug:1.0 engine:1.0 eth:1.0 ethash:1.0 miner:1.0 net:1.0 rpc:1.0 trace:1.0 txpool:1.0 web3:1.0

To exit, press ctrl-d or type exit
> INFO [07-17|11:26:39.372] New local node record
2,395,925 id=78161bc2c5b0cb4d ip=187.34.47.252 udp=58369 tcp=25225 seq=1,752,76
INFO [07-17|11:26:45.930] Block synchronisation started
```

```
Tutorial Sintrop
cd Downloads/go-sintrop-alltools-linux-v1.0.0
./geth --identity Sintrop --data-dir /home/andre/Downloads/go-sintrop-alltools-linux-v1.0.0/sintrop_node --sintrop --networkid 250225 --cache=1024 --http --http.vhosts=* --http.addr 0.0.0.0 --http.port 8545 --http.trace --miner.etherbase=0x0000000000000000000000000000000000000000 console
```

After starting the node, block synchronization should start automatically.

```
andre@andre-rav: ~/Downloads/go-sintrop-alltools-linux-v1.0.0
INFO [07-17|11:26:35.928] HTTP server started
endpoint=127.0.0.1:8551 auth=true prefix=cors localhost vhosts=localhost
Welcome to the Geth JavaScript console!

Instance: GoSintrop/Sintrop/v1.0.0-unstable-182c4c08/linux-amd64/go1.21.13
coinbase: 0x2b0530ef336dd785a01ee35f3c1c91857ec4a4e
at block: 0 (Tue Feb 25 2025 11:10:58 GMT-0300 (-03))
datadir: /home/andre/Downloads/go-sintrop-alltools-linux-v1.0.0/sintrop_node
modules: admin:1.0 debug:1.0 engine:1.0 eth:1.0 ethash:1.0 miner:1.0 net:1.0 rpc:1.0 trace:1.0 txpool:1.0 web3:1.0

To exit, press ctrl-d or type exit
> INFO [07-17|11:26:39.372] New local node record
2,395,925 id=78161bc2c5b0cb4d ip=187.34.47.252 udp=58369 tcp=25225 seq=1,752,76
INFO [07-17|11:26:45.930] Block synchronisation started
INFO [07-17|11:26:49.267] Looking for peers
peercount=2 tr
INFO [07-17|11:26:50.062] Imported new chain segment
number=25 hash=3a9df7..093458 blocks=25 txs=0 mgas=0.000 elapsed=889,278ms mgasps=0.000 age=4mo
3w19h snapdiffs=1.12KIB triedirty=11,86KIB
INFO [07-17|11:26:50.067] Indexed transactions
blocks=26 txs=0 tail=0 elapsed=3,652ms
INFO [07-17|11:26:56.738] Imported new chain segment
number=1923 hash=742b07..64ab0f blocks=1898 txs=0 mgas=0.000 elapsed=6,663s
4mo3w14h snapdiffs=90.52KIB triedirty=64,95KIB
INFO [07-17|11:26:59.413] Looking for peers
peercount=2 tr
```

The system will download a full copy of all transactions made on the blockchain. It is going to take some time until full sync.

```
INFO [07-17|12:23:40.637] Chain reorg detected
INFO [07-17|12:23:40.642] Imported new chain segment
INFO [07-17|12:24:05.558] Imported new chain segment
INFO [07-17|12:24:10.228] Looking for peers
INFO [07-17|12:24:20.663] Looking for peers
INFO [07-17|12:24:21.345] Imported new chain segment
INFO [07-17|12:24:30.665] Looking for peers
INFO [07-17|12:24:41.471] Imported new chain segment
INFO [07-17|12:24:41.578] Looking for peers
> miner.start()
INFO [07-17|12:24:51.638] Looking for peers
> miner.start()
```

The system will download a full copy of all transactions made on the blockchain. It is going to take some time until full sync. When finished, you are ready to start mining.

How to stop the node

A very important step is to stop the node properly when you need to shut it down. To do it, run the command at the node terminal:

ctrl + d;

With this command, the node should stop without any problems.

Mining with CPU

The go-sintrop software allows you to directly mine with CPUs. It is a necessary step, even if the node miner plans to mine with GPUs.

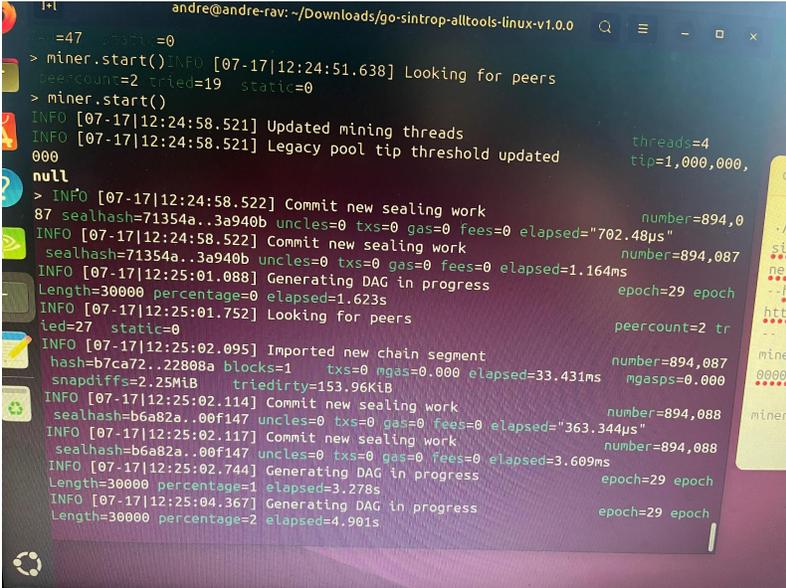
Start mining with CPU

To start mining with your CPU directly in go-sintrop run the following command at the geth console:

miner.start()

To stop mining, run the following command:

`miner.stop()`



```
andre@andre-rav: ~/Downloads/go-sintrop-alltools-linux-v1.0.0
> miner.start() INFO [07-17|12:24:51.638] Looking for peers
peercount=2 tried=19 static=0
> miner.start()
INFO [07-17|12:24:58.521] Updated mining threads threads=4
INFO [07-17|12:24:58.521] Legacy pool tip threshold updated tip=1,000,000,
000
null
> INFO [07-17|12:24:58.522] Commit new sealing work number=894,0
87 sealhash=71354a..3a940b uncles=0 txs=0 gas=0 fees=0 elapsed="702.48µs"
INFO [07-17|12:24:58.522] Commit new sealing work number=894,087
sealhash=71354a..3a940b uncles=0 txs=0 gas=0 fees=0 elapsed=1.164ms
INFO [07-17|12:25:01.088] Generating DAG in progress epoch=29 epoch
Length=30000 percentage=0 elapsed=1.623s
INFO [07-17|12:25:01.752] Looking for peers peercount=2 tr
ied=27 static=0
INFO [07-17|12:25:02.095] Imported new chain segment number=894,087
hash=b7ca72..22808a blocks=1 txs=0 ngas=0.000 elapsed=33.431ms
mgasps=0.000
snapdiffs=2.25MiB triedirty=153.96KiB
INFO [07-17|12:25:02.114] Commit new sealing work number=894,088
sealhash=b6a82a..00f147 uncles=0 txs=0 gas=0 fees=0 elapsed="363.344µs"
INFO [07-17|12:25:02.117] Commit new sealing work number=894,088
sealhash=b6a82a..00f147 uncles=0 txs=0 gas=0 fees=0 elapsed=3.609ms
INFO [07-17|12:25:02.744] Generating DAG in progress epoch=29 epoch
Length=30000 percentage=1 elapsed=3.278s
INFO [07-17|12:25:04.367] Generating DAG in progress epoch=29 epoch
Length=30000 percentage=2 elapsed=4.901s
```

If the message “Comit new sealing work” appears and “Generating DAG in progress” everything is ok and your node will start mining with CPU.

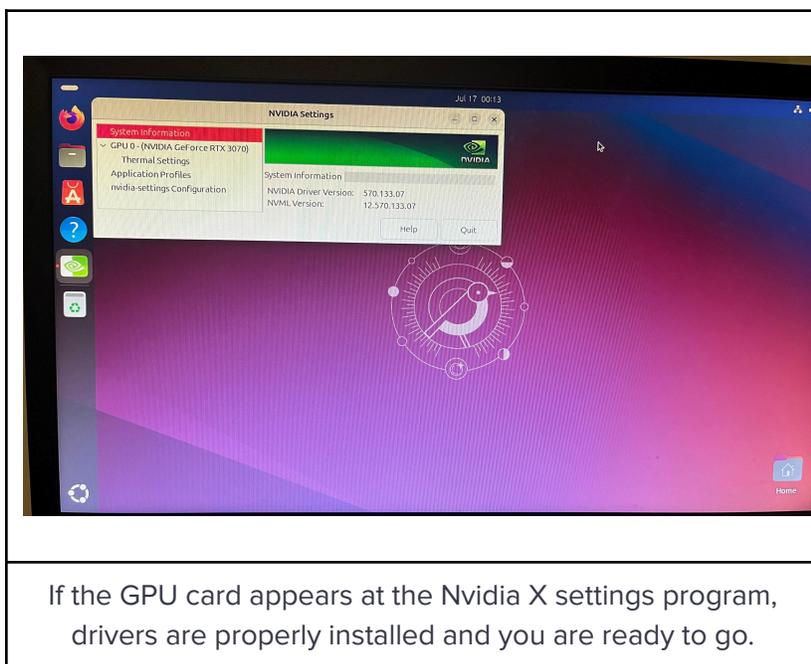
Mining with GPU

This guide will explain how to mine sintrop using graphics cards.

Install appropriate drivers

To mine with graphics cards, or GPUs, first you need to install the hardware and the drivers. This is the same approach to use the GPU for any other use. Follow the card instructions to install the drivers.

Nvidia has the NVIDIA X server settings software that shows the available cards. If you selected to install the drivers when installing Ubuntu, it should be installed automatically. If not, you must go to their site and tutorials and follow the instructions for installing it.



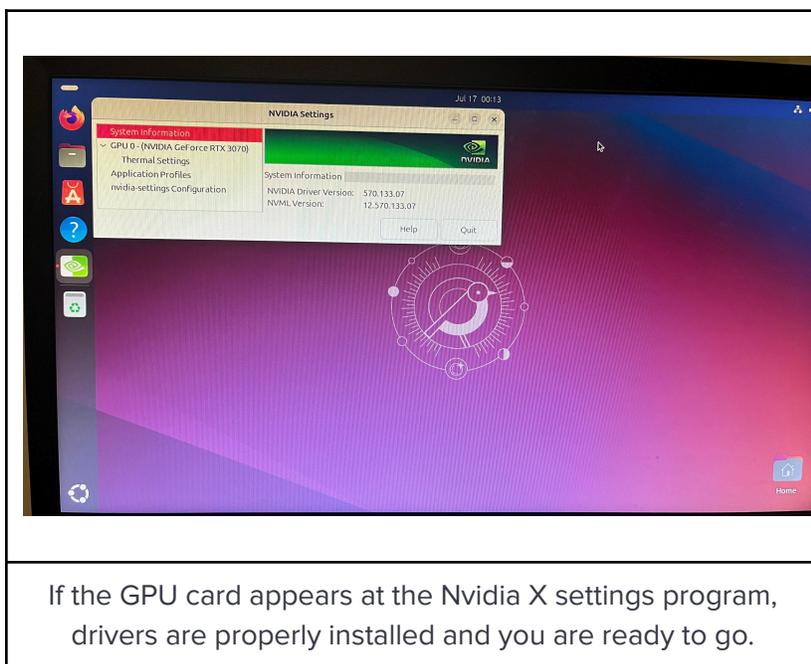
Download a mining software

To mine with GPU, it is necessary to use a third party mining software. There are many options available and the project wants to build their own mining software in the future. For this tutorial we will use the ethminer software, the same old version used to mine Ethereum in the early days.

Download the software version at the Github repository:

<https://github.com/ethereum-mining/ethminer>

Extract the file, and open the bin folder at the terminal:



Overclock the GPU

It is very important to overclock to optimize the GPU settings. The most important thing is the power limit. Each card can range from a minimum to a maximum power, which is related to energy consumption. You don't want to waste energy without a hash power increase.

In Nvidia cards, run the following command to set the power limit closer to the bottom value, and then when start mining change this value to see the impact on the hashrate. This way you can optimize the energy consumption. For example, using the RTX 3070, the ideal power limit is close to 130W. If you set it to a lower value, the hashrate will drop. And if you increase the power limit you may not get the same increase in the hashrate.

For example, to set a Nvidia card, at the 0 position (motherboard), to 130W you can run the following command:

```
sudo nvidia-smi -i 0 -pl 130
```

When running a rig with multiple cards, change the 0 value to the other IDs.

```
andre@andre-rav:~$ sudo nvidia-smi -i 0 -pl 130
[sudo] password for andre:
Power limit for GPU 00000000:01:00.0 was set to 130.00 W from 250.00 W.

Warning: persistence mode is disabled on device 00000000:01:00.0. See the Known Issues section of the nvidia-s
more information. Run with [-help | -h] switch to get more information on how to enable persistence mode.
All done.
andre@andre-rav:~$
```

Power limit settings example for a RTX 3070.

Start mining

At the bin folder, run the following command to start mining with GPU:

```
./ethminer -G -P http://localhost:8545
```

```
Jul 17 15:41
andre@andre-rav:~/Downloads/ethminer-0.18.0-cuda-9-linux-x86_64/bin
andre@andre-rav:~/Downloads/ethminer-0.18.0-cuda-9-linux-x86_64/bin$ ./ethminer -G -P http://localhost:8545
ethminer 0.18.0
Build: linux/release/gnu
i 15:41:57 ethminer Configured pool localhost:8545
i 15:41:57 ethminer Selected pool localhost:8545
i 15:41:57 ethminer Established connection to localhost [127.0.0.1:8545]
i 15:41:57 ethminer Spinning up miners...
cl 15:41:57 cl-0 Using PciId : 01:00.0 NVIDIA GeForce RTX 3070 (Compute 8.6) Memory : 7.67 GB
i 15:41:57 ethminer Epoch : 29 Difficulty : 5.84 Gh
i 15:41:57 ethminer Job: ccd597d6_ localhost [127.0.0.1:8545]
```

Open the bin folder at the terminal and run the command to start mining with the GPU.

```

Jul 17 15:42
andre@andre-rav: ~/Downloads/ethminer-0.18.0-cuda-9-linux-x86_64/bin
$ ./ethminer -G -P http://localhost:8545

ethminer 0.18.0
Build: linux/release/gnu

15:41:57 ethminer Configured pool localhost:8545
15:41:57 ethminer Selected pool localhost:8545
15:41:57 ethminer Established connection to localhost [127.0.0.1:8545]
15:41:57 ethminer Spinning up miners...
cl 15:41:57 cl-0 Using Pctid : 01:00:0 NVIDIA GeForce RTX 3070 (Compute 8.6) Memory : 7.67 GB
15:41:57 ethminer Epoch : 29 Difficulty : 5.84 Gh
15:41:57 ethminer Job: ccd597d6_ localhost [127.0.0.1:8545]
cl 15:41:59 cl-0 Generating DAG + Light : 1.25 GB
cl 15:41:59 cl-0 OpenCL kernel
cl 15:42:01 cl-0 Creating light cache buffer, size: 19.62 MB
cl 15:42:01 cl-0 Creating DAG buffer, size: 1.23 GB, Free: 6.42 GB
cl 15:42:01 cl-0 Loading kernels
cl 15:42:01 cl-0 Writing light cache buffer
cl 15:42:01 cl-0 Creating buffer for header.
cl 15:42:01 cl-0 Creating mining buffer
m 15:42:02 ethminer 0:00 A0 0.00 h - cl0 0.00
cl 15:42:02 cl-0 1.23 GB of DAG data generated in 3,717 ms.
15:42:06 ethminer Job: 84a4dd67_ localhost [127.0.0.1:8545]
m 15:42:07 ethminer 0:00 A0 12.71 Gh - cl0 12.71
m 15:42:12 ethminer 0:00 A0 51.12 Mh - cl0 51.12
15:42:14 ethminer Job: c6d14e4_ localhost [127.0.0.1:8545]
m 15:42:17 ethminer 0:00 A0 51.27 Mh - cl0 51.27

```

You will see the hashrate that the GPU is working. For this tutorial, the RTX 3070 reached 51 Mh.

The probability of finding new blocks is related to your hashrate and the network total hashrate. If you see the message 'Mined potential block' at the node terminal or '**Accepted at the mining software terminal you found a block and you will automatically receive the reward at your wallet address.

```

=0 fees=0 elapsed=563.503us"
INFO [07-17|15:44:26.144] Commit new sealing work
number=894,917 sealhash=330910..e4b06e uncles=0 txs=0 g
as=0 fees=0 elapsed=9.097ms
INFO [07-17|15:44:26.690] Successfully sealed new block
number=894,917 sealhash=330910..e4b06e hash=71492b..247
29a elapsed=554.030ms
INFO [07-17|15:44:26.690] "A_mined potential block"
number=894,917 hash=71492b..24729a
INFO [07-17|15:44:26.690] Commit new sealing work
number=894,918 sealhash=6f1f05..176626 uncles=0 txs=0 g
as=0 fees=0 elapsed=340.319us"
INFO [07-17|15:44:26.690] Commit new sealing work
number=894,918 sealhash=6f1f05..176626 uncles=0 txs=0 g
as=0 fees=0 elapsed=5.808ms
INFO [07-17|15:44:27.636] Imported new chain segment
number=894,917 hash=75d36..38d4ed blocks=1 txs=0 mg
as=0.000 elapsed=30.881ms mgasps=0.000 snapdflfs=2.29MIB
triedirty=155.06KB
INFO [07-17|15:44:27.637] Commit new sealing work
number=894,918 sealhash=52c6fc..32764f uncles=1 txs=0 g
as=0 fees=0 elapsed=192.545us"
15:44:26 ethminer **Accepted 9 ms. localhost [127.0.0.1:8545]
15:44:26 ethminer Epoch : 29 Difficulty : 5.84 Gh
15:44:26 ethminer Job: 6f1f057f_ localhost [127.0.0.1:8545]
m 15:44:27 ethminer 0:02 A2 51.23 Mh - cl0 51.23
15:44:27 ethminer Job: 52c6fc90_ localhost [127.0.0.1:8545]

```

Message when a new block is mined.

Troubleshooting

Unfortunately, many problems are common when running a node and mining. This section will discuss how to solve the most common ones.

Peers connection lost

Sometimes the node loses the peer connections, it can be seen when the message “looking for peers” with a peercount = 0. This is one of the most common problems, usually it is related to internet connection problems. Check your internet connection and internet provider if it keeps happening all the time.

To solve this problem, stop the node with the `ctrl + d` command and start it again. It should connect to the peers and sync to the network. Simply stop the node and restart it, it must solve the problem.

```
16|08:41:40.087] Looking for peers peercount=0 tried=82 static=0
16|08:41:50.470] Looking for peers peercount=0 tried=32 static=0
16|08:42:00.582] Looking for peers peercount=0 tried=42 static=0
16|08:42:12.023] Looking for peers peercount=0 tried=50 static=0
16|08:42:22.076] Looking for peers peercount=0 tried=36 static=0
-16|08:42:32.108] Looking for peers peercount=0 tried=36 static=0
-16|08:42:43.685] Looking for peers peercount=0 tried=53 static=0
-16|08:42:53.705] Looking for peers peercount=0 tried=67 static=0
-16|08:43:03.885] Looking for peers peercount=0 tried=14 static=0
7-16|08:43:14.453] Looking for peers peercount=0 tried=56 static=0
7-16|08:43:24.535] Looking for peers peercount=0 tried=40 static=0
7-16|08:43:35.023] Looking for peers peercount=0 tried=65 static=0
7-16|08:43:45.139] Looking for peers peercount=0 tried=52 static=0
7-16|08:43:55.186] Looking for peers peercount=0 tried=23 static=0
7-16|08:44:05.245] Looking for peers peercount=0 tried=71 static=0
97-16|08:44:15.292] Looking for peers peercount=1 tried=70 static=0
97-16|08:44:25.456] Looking for peers peercount=0 tried=8 static=0
07-16|08:44:35.847] Looking for peers peercount=0 tried=8 static=0
07-16|08:44:45.930] Looking for peers peercount=0 tried=31 static=0
07-16|08:44:56.082] Looking for peers peercount=0 tried=74 static=0
07-16|08:45:06.124] Looking for peers peercount=0 tried=61 static=0
07-16|08:45:16.265] Looking for peers peercount=0 tried=34 static=0
07-16|08:45:26.318] Looking for peers peercount=0 tried=27 static=0
07-16|08:45:36.473] Looking for peers peercount=0 tried=32 static=0
07-16|08:45:46.486] Looking for peers peercount=0 tried=34 static=0
07-16|08:45:56.989] Looking for peers peercount=0 tried=68 static=0
07-16|08:46:07.096] Looking for peers peercount=0 tried=55 static=0
07-16|08:46:17.143] Looking for peers peercount=0 tried=55 static=0
```

Looking for peers and peercount = 0 error messages.

```

[07-16|22:51:56.530] Commit new sealing work          number=890,08
.ba1b5b uncles=0 txs=0 gas=0 fees=0 elapsed="358.195µs"
[07-16|22:51:56.535] Commit new sealing work          number=890,08
.ba1b5b uncles=0 txs=0 gas=0 fees=0 elapsed=5.549ms
[07-16|22:52:05.121] Looking for peers                  peercount=2
[07-16|22:52:15.200] Looking for peers                  peercount=2
[07-16|22:52:25.383] Looking for peers                  peercount=2
[07-16|22:52:35.423] Looking for peers                  peercount=0
[07-16|22:52:45.498] Looking for peers                  peercount=0
[07-16|22:52:57.646] Looking for peers                  peercount=0
[07-16|22:53:09.951] Looking for peers                  peercount=0
[07-16|22:53:22.231] Looking for peers                  peercount=0
[07-16|22:53:32.451] Looking for peers                  peercount=0
[07-16|22:53:33.818] Successfully sealed new block     number=890,086
..ba1b5b hash=503ce6..ba461c elapsed=1m37.288s
[07-16|22:53:33.819] "⏏ mined potential block"       number=890,086
[07-16|22:53:33.825] Commit new sealing work          number=890,087
9..278fe2 uncles=0 txs=0 gas=0 fees=0 elapsed=2.070ms
[07-16|22:53:33.825] Commit new sealing work          number=890,087
9..278fe2 uncles=0 txs=0 gas=0 fees=0 elapsed=2.488ms

```

Sometimes the node automatically reconnects to the network. If it is a short period of disconnection, you probably won't need to do anything.

Miner connection lost

Sometimes the miner loses the connection to the node. It can happen for several reasons, often related to connectivity problems as well. To solve this problem, check if your node is properly running. If not, restart the node. If it is running, restart the miner and it should connect again.

```

cl 16:58:13 cl-0 Job: 786a9d37... Sol: 0xf3319de9ffc93d56
i 16:58:13 ethminer **Accepted 38 ms. localhost [127.0.0.1:8545]
i 16:58:13 ethminer Epoch : 29 Difficulty : 6.00 Gh
i 16:58:13 ethminer Job: d2db73d1... localhost [127.0.0.1:8545]
m 17:01:14 ethminer 1:11 A41:R6 52.95 Mh - cl0 52.95
X 17:01:14 ethminer No new work received in 180 seconds.
i 17:01:14 ethminer Disconnected from localhost [127.0.0.1:8545]
i 17:01:14 ethminer No connection. Suspend mining ...
i 17:01:14 ethminer No more connections to try. Exiting...
i 17:01:14 ethminer Shutting down miners...
i 17:01:15 main Got interrupt ...
i 17:01:15 ethminer Terminated!

```

If the miner loses connection, shut the miner down and restart it or close the terminal and start it all over.

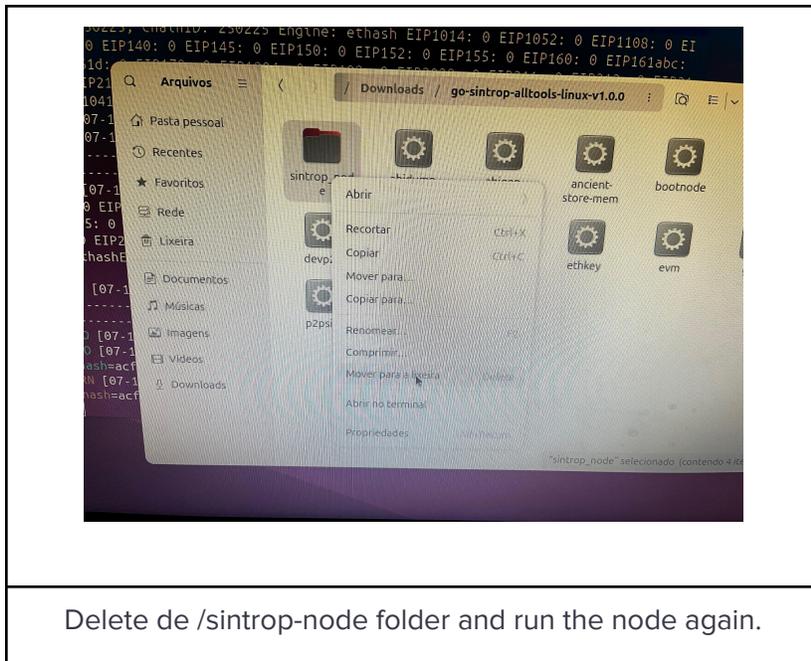
Head state missing

“Head state missing, repairing”. This is a very common problem, it is related to bad node shut down. If the energy goes down abruptly, or if you close the node terminal without the command ‘ctrl + d’ this usually happens.

```
INFO [07-17|19:23:52.680] -----
INFO [07-17|19:23:52.683] NetworkID: 250225, ChainID: 250225 Engine: ethash EIP1014: 0 EIP1052: 0 EIP1108: 0 EIP114: 0 EIP1052: 0 EIP1108: 0 EIP1344: 0 EIP140: 0 EIP145: 0 EIP150: 0 EIP152: 0 EIP155: 0 EIP160: 0 EIP161abc: 0 EIP161d: 0 EIP170: 0 EIP1884: 0 EIP198: 0 EIP2028: 0 EIP211: 0 EIP212: 0 EIP214: 0 EIP2200: 0 EIP2: 0 EIP658: 0 EIP7: 0 EthashECIP1017: 5000000 EthashECIP1041: 0 EthashEIP100B: 0 EthashHomestead: 0 "
INFO [07-17|19:23:52.680] -----
INFO [07-17|19:23:52.684] -----
INFO [07-17|19:23:52.687] Loaded most recent local block      number=895,75
8 hash=acfb36..f3c508 td=1,439,337,112,463,196 age=19m1s
WARN [07-17|19:23:52.689] Head state missing, repairing
8 hash=acfb36..f3c508 snaproot=1528d8..5a68bc      number=895,75
```

An

To solve this problem, a full sync is necessary again. Delete the /sintrop-node folder and start over again.



Delete de /sintrop-node folder and run the node again.

No mining work available

When the message “No mining work available yet from localhost” appears, the problem is that the local node is not sending the work or the block to the miner. Probably the node stopped running or it is not mining with CPU. To solve the problem, go to the node terminal and run the command `miner.start()` and then start the GPU mining again.



```
nu
onfigured pool localhost:8545
selected pool localhost:8545
Established connection to localhost [127.0.0.1:8545]
Spinning up miners...
Using PciId : 01:00.0 NVIDIA GeForce RTX 3060 (Compute 8.6) Memory :
Using PciId : 03:00.0 NVIDIA GeForce RTX 3070 (Compute 8.6) Memory :
Got code:-32000 message:no mining work available yet from localhost
0:00 A0 0.00 h - cl0 0.00, cl1 0.00
0:00 A0 0.00 h - cl0 0.00, cl1 0.00
Got interrupt ...
Disconnected from localhost [127.0.0.1:8545]
Shutting down miners...
Terminated!
```

No mining work available error.

Energy source

By the nature of the business model, miners are incentivized to seek the cheapest energy available, which often comes from renewable sources, sometimes even self-produced. We encourage nodes and miners to power their machines using solar, wind, hydro, and other low-impact renewable energy sources. Our goal is to build a blockchain infrastructure entirely powered by renewable energy. To further promote sustainability, we aim to develop an application that rewards renewable energy production.

The business model

The mining business model can be simplified into:

$+Block\ reward - energy\ cost - hardware\ cost$

The hardware cost is due to the computer and GPUs plus the depreciation overtime. So to increase the profit miners should find the cheapest energy possible. Self produced solar energy is often the best choice.

Installing Ubuntu

This guide will walk you through the simple process of installing Ubuntu on your computer.

Step 1: Prepare the Installation Media

First, you'll need to create a bootable USB drive with the Ubuntu installation files.

1. **Download Ubuntu:** Go to the official Ubuntu website (<https://ubuntu.com/download/desktop>) and download the latest **LTS (Long-Term Support)** version for stability. This will download an ISO file.
2. **Get a USB Drive:** You'll need a USB flash drive with at least **8 GB** of storage. **Warning:** This process will erase all data on the drive.
3. **Create the Bootable Drive:** Choose one of the following tools to create your bootable USB drive. All are excellent, reliable options.

Option A: Raspberry Pi Imager (Windows, macOS, Linux)

Originally made for Raspberry Pi, this tool is fantastic for creating any bootable USB drive. It's simple, safe, and works on all major operating systems.

1. **Download and Install:** Go to the official Raspberry Pi website and download the Imager for your system. Install and open it.
2. **Choose OS:** Click "**Choose OS**". In the menu that appears, scroll down and select "**Use custom**". Find and select the Ubuntu ISO file you downloaded.
3. **Choose Storage:** Click "**Choose Storage**" and select your USB drive from the list. Be very careful to select the correct drive.
4. **Write:** Click the "**Write**" button and confirm that you want to erase the data on the drive. Wait for the process to complete.

Option B: Balena Etcher (Windows, macOS, Linux)

Balena Etcher is another excellent cross-platform tool, famous for its simple, three-step interface.

-
1. **Download and Install:** Go to the Balena Etcher website and download the version for your operating system. Install and open it.
 2. **Select Image:** Click on "**Flash from file**" and locate the Ubuntu ISO file you downloaded earlier.
 3. **Select Target:** Click on "**Select target**" and choose your USB drive.
 4. **Flash:** Click the "**Flash!**" button. It will take a few minutes to write the ISO to the drive and verify it.
-

Option C: Rufus (Windows Only)

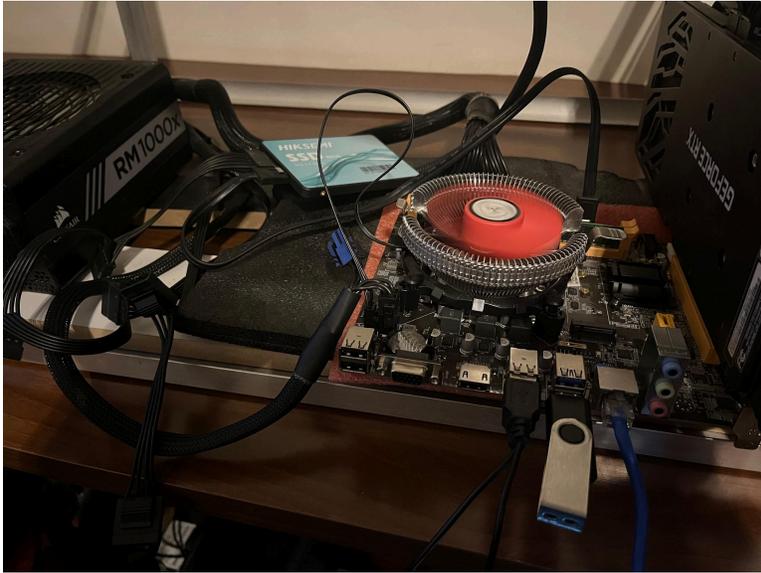
Rufus is a powerful and very popular tool for Windows users. It's fast and offers more advanced options (though the defaults are fine for installing Ubuntu).

1. **Download and Run:** Go to the Rufus website and download the latest version. Rufus is a portable application, so you can run it directly without installation.
 2. **Device:** Open Rufus. It should automatically detect your USB drive under "Device".
 3. **Boot Selection:** Click the "**SELECT**" button and choose the Ubuntu ISO file you downloaded.
 4. **Settings:** The other settings will usually be set automatically and correctly. You can leave them as they are.
 5. **Start:** Click "**START**". A pop-up may ask about the mode to write the image in; the recommended "**ISO Image mode**" is fine. Click "OK" to begin.
-

Step 2: Boot From the USB Drive

Now you need to tell the computer to start from the USB drive instead of its main hard drive.

1. **Insert the USB Drive:** Plug the bootable USB drive you just created into the computer you want to install Ubuntu on.
 2. **Enter the Boot Menu:** Turn on the computer and immediately press the **boot menu key**. This key varies by manufacturer but is commonly **F12**, **F10**, **F2**, or **ESC**. You may see a message on the screen indicating the correct key.
 3. **Select the USB Drive:** From the boot menu, use the arrow keys to select your USB drive and press Enter.
-



Insert the Ubuntu usb drive and start the computer

Step 3: Install Ubuntu

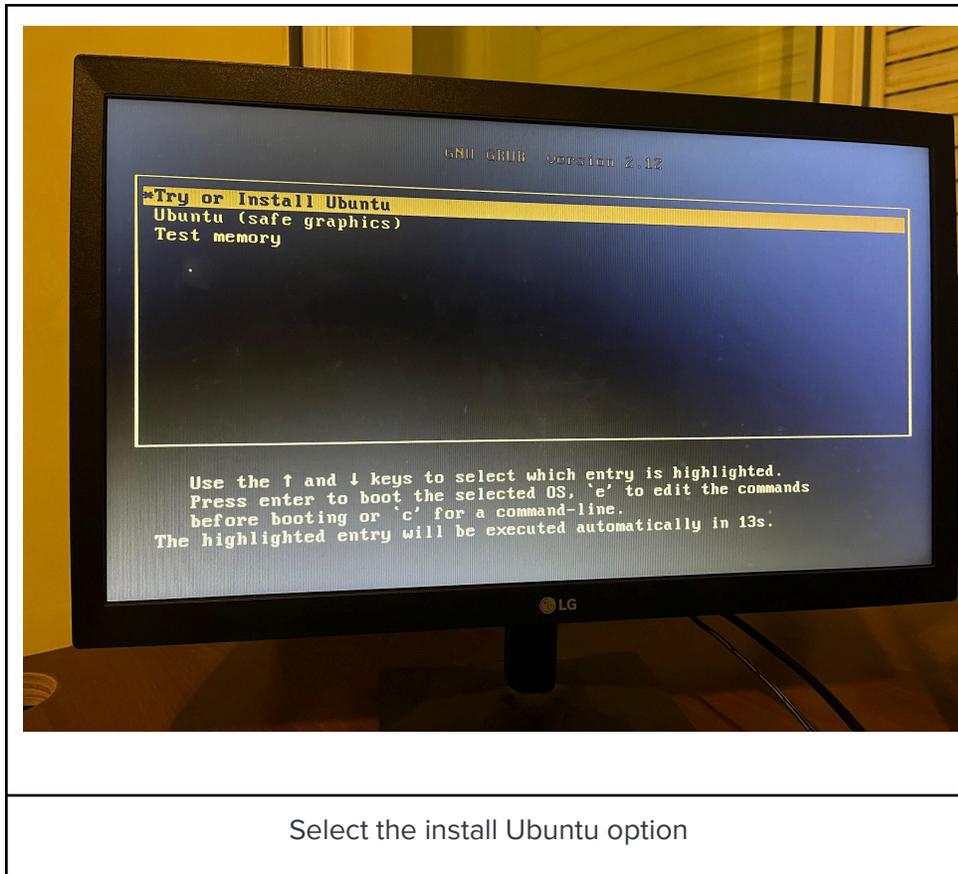
The computer will now load the Ubuntu installer from the USB drive.

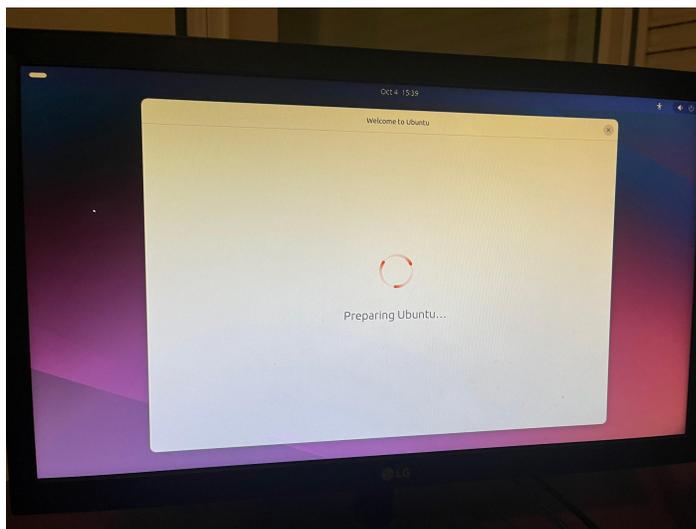
1. **Try or Install:** You will be greeted with a welcome screen. You can "Try Ubuntu" to test it out without making any changes, or you can click **"Install Ubuntu"** to begin the installation.
2. **Keyboard Layout:** Select your preferred keyboard layout and click "Continue."
3. **Updates and Software:**
 - Choose **"Normal installation"** for a full-featured desktop experience.
 - It's a good idea to check the box for **"Download updates while installing Ubuntu"** and **"Install third-party software for graphics and Wi-Fi hardware"** to ensure everything works correctly after installation. Click "Continue."
4. **Installation Type:**
 - **Erase disk and install Ubuntu:** This is the simplest option. It will delete everything on your computer's hard drive (including Windows or any other OS) and install Ubuntu. **⚠ Warning: This will erase all your files. Back up your data first.**
 - If you choose this option, just click "Install Now" and confirm the changes.
5. **Location:** Select your time zone on the map and click "Continue."
6. **Create Your Account:** Fill in your name, computer's name, a username, and a strong password. Click "Continue."

-
7. **Installation:** The installer will now copy the files to your hard drive. This may take a while, so feel free to grab a coffee ☕.
 8. **Restart:** Once the installation is complete, you'll be prompted to restart the computer. Click "Restart Now" and remove the USB drive when asked.

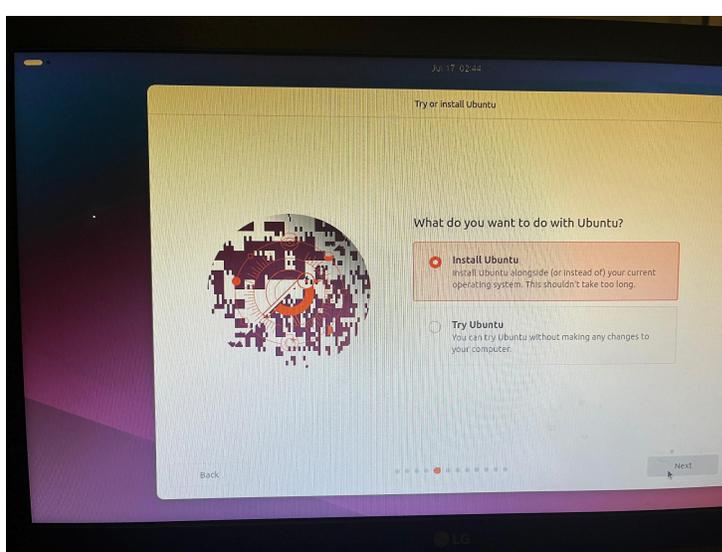
Your computer will now boot into your new Ubuntu installation. Welcome to the world of Linux!

Step-by-step instructions:

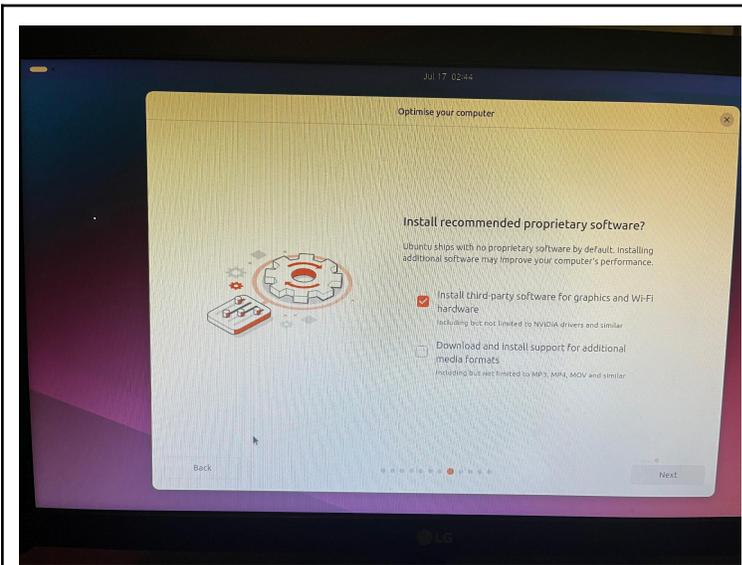




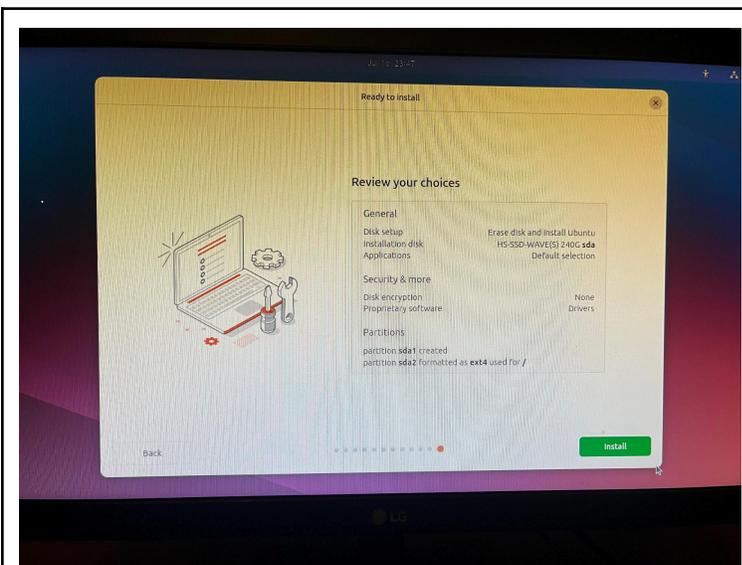
After the loading time, the installation guide screen will appear.



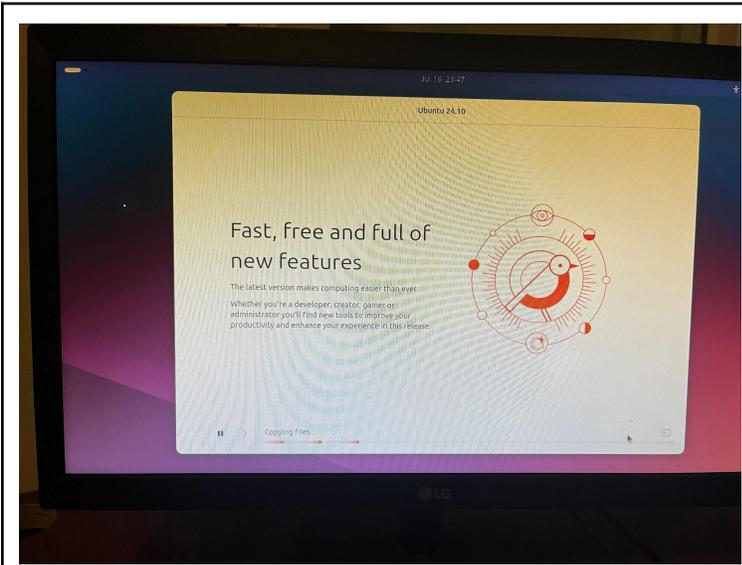
Follow the screen instructions to install.



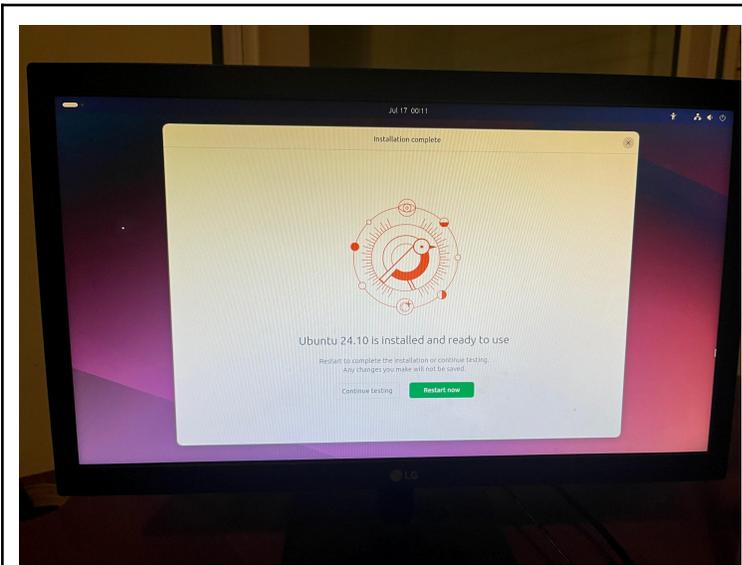
It is highly recommended to install the drivers to avoid doing it manually later.



Review your choices and install Ubuntu.



Wait the installation time.



Ubuntu is ready. Restart the computer, remove the installation media.

