

Instruction to run Hot-Bittensor on the testnet

Prerequisites

Before proceeding further, make sure that you have installed Bittensor. See the below instructions:

⇒ [Install bittensor](#)

After installing `bittensor`, proceed as below:

1. Install Bittensor subnet template

NOTE: Skip this step if you already did this during local testing and development.

- `cd` into your project directory and clone the repository-name repo:

```
Unset  
git clone  
https://github.com/<user-name>/<repository-name>.git
```

- Next, `cd` into cloned repository-name repo directory:

```
Unset  
cd repository-name
```

- Install the repository-name package:

```
Unset  
python -m pip install -e .
```

- Replace the .env.example file with .env file:

Unset

```
mv .env.example .env
```

Update the .env file with the required values:

Unset

```
RPC_URL=<your_rpc_url>
```

```
ERC20_CONTRACT_ADDRESS=<your_erc20_contract_address>
```

2. Create wallets

Create wallets for subnet owner, subnet validator and for subnet miner.

This step creates local coldkey and hotkey pairs for your three identities: subnet owner, subnet validator and subnet miner.

The owner will create and control the subnet. The owner must have at least 100 testnet TAO before the owner can run the next steps.

The validator and miner will be registered to the subnet created by the owner. This ensures that the validator and miner can run the respective validator and miner scripts.

- Create a coldkey for your owner wallet:

Unset

```
btcli wallet new_coldkey --wallet.name owner
```

- Create hotkey for your miner:

Unset

```
btcli wallet new_hotkey --wallet.name owner --wallet.hotkey  
miner
```

- Create a coldkey and hotkey for your validator wallet:

Unset

```
btcli wallet new_hotkey --wallet.name owner --wallet.hotkey  
validator
```

3. Get the price of subnet creation

Creating subnets on the testnet is competitive. The cost is determined by the rate at which new subnets are being registered onto the chain.

By default you must have at least 100 testnet TAO in your owner wallet to create a subnet. However, the exact amount will fluctuate based on demand. The below command shows how to get the current price of creating a subnet.

Unset

```
btcli subnet lock_cost --subtensor.network test
```

The above command will show:

Unset

```
>> Subnet lock cost: τ100.000000000
```

4. (Optional) Get faucet tokens

Faucet is disabled on the testnet. Hence, if you don't have sufficient faucet tokens, ask the [Bittensor Discord community](#) for faucet tokens.

5. Purchase a slot

Using the test TAO from the previous step you can register your subnet on the testnet. This will create a new subnet on the testnet and give you the owner permissions to it.

The below command shows how to purchase a slot.

NOTE: Slots cost TAO to lock. You will get this TAO back when the subnet is deregistered.

Unset

```
btcli subnet create --subtensor.network test
```

Enter the owner wallet name which gives permissions to the coldkey:

Unset

```
>> Enter wallet name (default): owner # Enter your owner wallet
name
>> Enter password to unlock key: # Enter your wallet password.
>> Register subnet? [y/n]: <y/n> # Select yes (y)
>> : 📡 Registering subnet...
✅ Registered subnetwork with netuid: 1 # Your subnet netuid will
show here, save this for later.
```

6. Register keys

This step registers your subnet validator and subnet miner keys to the subnet, giving them the **first two slots** on the subnet.

Register your miner key to the subnet:

Unset

```
btcli subnet recycle_register --netuid 1 --subtensor.network
test --wallet.name miner --wallet.hotkey default
```

Follow the below prompts:

Unset

```
>> Enter netuid [1] (1): # Enter netuid 1 to specify the subnet you
just created.
>> Continue Registration?
hotkey: ...
coldkey: ...
network: finney [y/n]: # Select yes (y)
>> ☒ Registered
```

Next, register your validator key to the subnet:

Unset

```
btcli subnet recycle_register --netuid 1 --subtensor.network
test --wallet.name validator --wallet.hotkey default
```

Follow the prompts:

Unset

```
>> Enter netuid [1] (1): # Enter netuid 1 to specify the subnet you
just created.
>> Continue Registration?
hotkey: ...
coldkey: ...
network: finney [y/n]: # Select yes (y)
>> ☒ Registered
```

7. Check that your keys have been registered

This step returns information about your registered keys.

Check that your validator key has been registered:

Unset

```
btcli wallet overview --wallet.name owner --subtensor.network  
test
```

The above command will display the below:

Unset

```
Subnet: 1  
COLDKEY HOTKEY UID ACTIVE STAKE( $\tau$ ) RANK TRUST CONSENSUS  
INCENTIVE DIVIDENDS EMISSION( $\rho$ ) VTRUST VPERMIT UPDATED AXON  
HOTKEY_SS58  
miner miner 1 True 0.00000 0.00000 0.00000 0.00000  
0.00000 0.00000 0 0.00000 14 none  
5GTFrsEQfvTsh3WjiEVFeKzFTc2xcf...  
validator validator 2 True 0.00000 0.00000 0.00000  
0.00000 0.00000 0.00000 0 0.00000 14 none  
5GTFrsEQfvTsh3WjiEVFeKzFTc2xcf...  
2 2 2  $\tau$ 0.00000 0.00000 0.00000 0.00000 0.00000  
0.00000  $\rho$ 0 0.00000  
Wallet balance:  $\tau$ 0.0
```

8. Run subnet miner and subnet validator

Run the subnet miner:

Unset

```
python miner/miner.py --netuid 1 --subtensor.network test  
--wallet.name owner --wallet.hotkey miner --logging.debug
```

You will see the below terminal output:

Unset

```
>> 2023-08-08 16:58:11.223 | INFO | Running miner for  
subnet: 1 on network: ws://127.0.0.1:9946 with config: ...
```

Next, run the subnet validator:

Unset

```
python validators/validator.py --netuid 1 --subtensor.network  
test --wallet.name owner --wallet.hotkey validator  
--logging.debug
```

You will see the below terminal output:

Unset

```
>> 2023-08-08 16:58:11.223 | INFO | Running validator for  
subnet: 1 on network: ws://127.0.0.1:9946 with config: ...
```

OR

You can run the subnet miner and subnet validator using PM2:

To run the subnet miner using PM2:

Unset

```
pm2 start miner/miner.py --interpreter python3 -- --netuid 1  
--subtensor.network test --wallet.name owner --wallet.hotkey  
miner --logging.debug --axon.port 8091
```

To run the subnet validator using PM2:

Unset

```
pm2 start validators/validator.py --interpreter python3 --  
--netuid 1 --subtensor.network test --wallet.name owner  
--wallet.hotkey validator --logging.debug
```

9. Stopping your nodes

To stop your nodes, press CTRL + C in the terminal where the nodes are running.

Important links

For more information, see the below links:

- ⇒ [bittensor-subnet-template](#)
- ⇒ [Bittensor Documentation](#)
- ⇒ [Bittensor Cheat Sheet](#)