Pando Blockchain Setup

Installation guide for Metatron setup for Win , Mac and Linux

Step 1 - [Setup Go Environment]

1. **sudo apt-get update && sudo apt-get install wget git curl net-tools build-essential make -y**
1. **wget https://go.dev/dl/go1.17.4.linux-amd64.tar.gz**
2. **rm -rf /usr/local/go && tar -C /usr/local -xzf go1.17.4.linux-amd64.tar.gz**
3. **echo 'export PATH=$PATH:/usr/local/go/bin' >> ~/.profile**
4. **echo 'export PATH=$PATH:/usr/local/go/bin' >> ~/.bashrc**
5. **echo 'export PANDO_HOME=/usr/local/go/src/github.com/pandotoken/pando' >> ~/.bashrc**
6. **echo 'export PANDO_HOME=/usr/local/go/src/github.com/pandotoken/pando' >> ~/.profile**
7. **source ~/.bashrc && source ~/.profile**

Step 2 - [Setup Metatron]

mkdir -p /usr/local/go/src/github.com/pandotoken/ && cd /usr/local/go/src/github.com/pandotoken/

git clone https://github.com/logan-pandolab/Pando-Mainnet-Blockchain.git pando

Note: Code is there on **main** branch so it can be clone directly without switching any branch using github

- cd $PANDO_HOME

Step 2 - [Build and install]

(A) This should build the binaries and copy them into your **$GOPATH/bin**. Two binaries **pando** and **pandocli** are generated. **pando** can be regarded as the launcher of the Pando Ledger node, and **pandocli** is a wallet with command line tools to interact with the ledger.

- export GO111MODULE=on
- make install

*** Notes for Linux binary compilation**

The build and install process on Linux is similar, but note that Ubuntu 18.04.4 LTS / Centos 8 or higher version is required for the compilation.

*** Notes for Windows binary compilation**

The Windows binary can be cross-compiled from macOS. To cross-compile a Windows binary, first make sure **mingw64** is installed **(brew install mingw-w64)** on your macOS. Then you can cross-compile the Windows binary with the following command:

- make exe

You'll also need to place three .**dll** files **libgcc_s_seh-1.dll, libstdc++-6.dll**, **libwinpthread-1.dll** under the same folder as **pando.exe** and **pandocli.exe**.

Step 3 - [Run unit test]

Run unit tests with the command below

- make test_unit

Step 4 - [Launch Pandonet]

Open a terminal to launch the pandonet. For the first time, follow the setup steps below.

- cd $PANDO_HOME
- cp -r ./integration/pandonet ../pandonet
- mkdir ~/.pandocli
- chmod 700 ~/.pandocli
- **export PATH=$PATH:/usr/local/go/bin &&** make install

And then, use the following command to launch a pandonet . For this you can use tmux or any other tools to run your node service in the background.

- /usr/local/go/bin/pando start --config=../pandonet/node

When the prompt asks for a password, enter your required password here.

Note – { Your binary directory path **} denotes path where pando and pandocli binary exist or created while running after make install command.**

And then after run the following command to launch rpc of the node in another session.

- /{ Your binary directory path }/pandocli daemon start --port=16889

And to get the details of node for further process, run the below command -

- **cd {** Your binary directory path **}**
- ./pandocli query metatron

This command will give you following information about the metatron node life node summary which is needed for

staking process to make node active

Example:


```
{
   "Address": "0x8f3B...E819",
   "BlsPubkey": "a1225b...16ebe",
   "BlsPop": "b49fd2a...d025c",
   "Signature": "14deb5e...52500",
   "Summary": "0x8f3Bc...952500"
}
```


Use Summary key data for the metatron staking from the web wallet.
***Note: Please keep the records savely as you need this info to reinstall the node and for withdrawal.**

Steps to stake and make Metatron node Active

- Copy summary from here and go to web wallet
- Choose staking option and select metatron
- Add copied node summary and stake value more than 1250 PTX to make metatron active
- Once done switch back to cli on node now you can see node is active and working on finalizing and verifying the blockchain
- Use ./**pandocli query status** to check syncing status and staking and balance
- Same can be verify on explorer just copy address key and paste on explorer and now you can see staking value and in node tab also can see metatron listed there

Issue may occur after sometime while node running. Such as -

1. **Node termination with panic error**

Solution -

Follow the below steps to resolve -

Step 1 - Edit or replace the config file at below paths -

-> /usr/local/go/src/github.com/pandotoken/pando/integration/pandonet/node

-> /usr/local/go/src/github.com/pandotoken/pandonet/node

Below should be the config file -

```
# Pando configuration
genesis:
  hash: "0x294191fdd2a46c213dbb34dd61a873a293604080f6d5372a6e005a1673426b7a"
p2p:
  port: 12000
  seeds: 167.114.98.172:12000,198.244.150.58:12000,209.126.13.28:12000,139.99.214.118:12000,38.107.226.44:12000,38.107.226.179:12000,85.195.76.30:12000,103.146.40.171:12000,103.146.40.223:12000,103.146.40.203:12000,18.141.61.54:12000
  seedPeerOnlyOutbound: false
  address: 127.0.0.1
log:
  levels: "*:info,guardian:debug"
storage:
  statePruningRetainedBlocks: 2048
rpc:
  enabled: true
```

Step 2 - After changing the config file. Run the below commands -

-> rm -rf /usr/local/go/src/github.com/pandotoken/pandonet/node/db/main/*

-> rm -rf /usr/local/go/src/github.com/pandotoken/pandonet/node/db/ref/*

-> rm -rf /usr/local/go/src/github.com/pandotoken/pandonet/node/db/peer_table/*

-> Make Install

Step 3 - Enter into the session and run the below command to start the node with previous password whatsoever has been choosen at the time of launch of node with respective server -

-> /usr/local/go/bin/pando start --config=../pandonet/node

Note - After this let your node sync with blockchain for 2-3 days and put it in observation, once it reaches to current block it will work without any issue till then it needs to be observed.