

（本中文教程参考了多个英文教程以及我个人的实践经验。）

我参考了@xenpub 写的这篇教程，特此感谢，链接如下：

https://github.com/JozefJarosciak/X1/blob/main/Validator-Instructions_Testnet.md

另外一些有用的链接有：

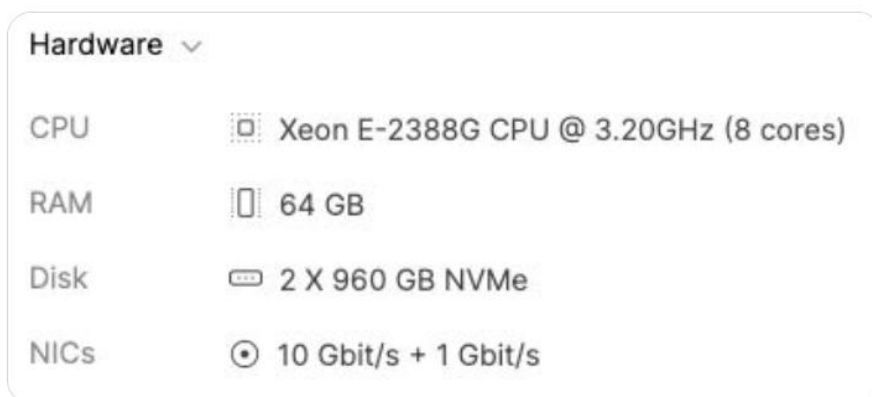
全球节点列表：<http://186.233.186.56:5002/nodes>

节点概况总览：<https://pwa-explorer.x1-testnet.xen.network/>

官方节点部署教程：<https://github.com/FairCrypto/go-x1/tree/x1>

步骤 1：订购服务器

以下是 JACK 的推荐配置，此配置考虑到 X1 后续的发展



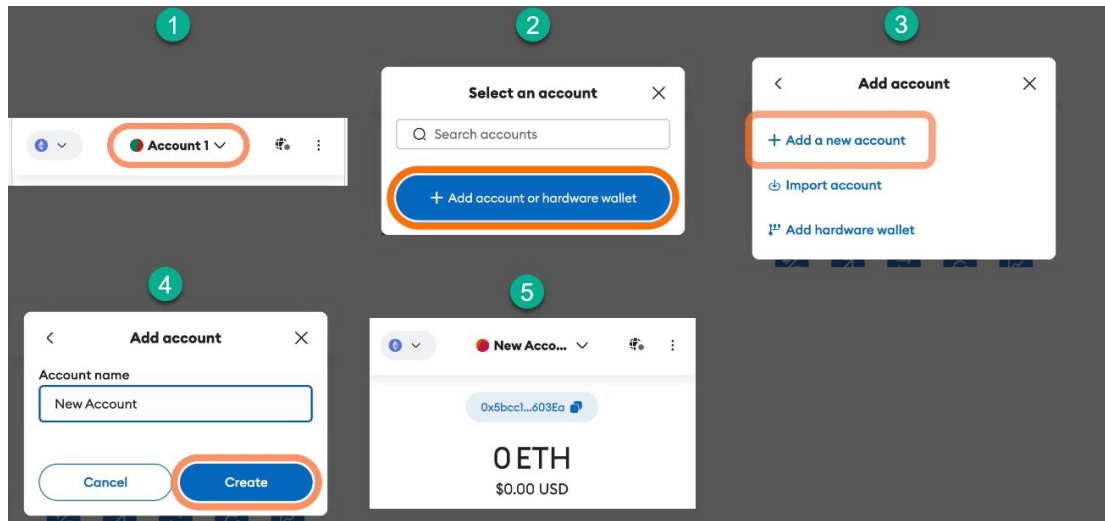
以下是我的配置，服务商是腾讯云，价格是 150 美金/月

基础和实例配置					
主机计费模式	按量计费	地域	新加坡	可用区	新加坡三区
实例	SA2.2XLARGE32 (标准型SA2, 8核32GB)	镜像	公共镜像 Ubuntu img-487zeit5 Ubuntu Server 22.04 LTS 64位 20GB	系统盘	高性能云硬盘 1024GiB 0个数据备份点
数据盘	未设置				


步骤 2：创建 Metamask 钱包

- 单击钱包顶部选择账户。
- 点击“添加账户或硬件钱包”。

- 点击“添加新账户”。
- 输入你喜欢的钱包名称。
- 点击“创建”，然后就可以看到你的新钱包了。



钱包创建以后还需要将钱包切换到 X1 测试网的 RPC 服务器，步骤如下：

1、点击浏览器右上角的 Metamask 插件图标 

2、钱包界面右上角的 3 个小点->设置->网络->添加网络->手动添加网络，然后就会显示以下界面：

网络 > 添加网络 > 手动添加网络

⚠ 恶意网络提供商可能会谎报区块链的状态并记录您的网络活动。只添加您信任的自定义网络。

网络名称

新的 RPC URL

链 ID ❗

货币符号

区块浏览器 URL (可选)

取消
保存

3、将以下信息分别填写到以上界面中：

- 网络名称：X1 Testnet
- 新的 RPC URL： <https://x1-testnet.xen.network/>

- 链 ID: 204005
- 货币符号: XN
- 区块链浏览器 URL: <https://explorer.x1-testnet.xen.network/>

点“保存”，然后切换到这个链，此时你钱包应该显示如下信息：



第 3 步：填写 X1 测试网验证节点申请表

要成为验证节点，您需要 10 万个测试用的 XN 代币。填写电子表格就可以获得测试 XN 空投资格，记得使用刚刚创建的新钱包地址，

详情请参见 Jack 的推文：

<https://twitter.com/mrJackLevin/status/1745573668212924719>

今天(2024/01/18)已经为填写表格的前面 150 名人员进行了空投，后续空投消息请关注 JACK 推文。

无论你现在是否有 10 万 XN 测试币，都需要进入第 4 步先同步区块数据，在没有获得空投资格之前以只读节点的方式运行，为区块链网络的健康运行添砖加瓦。

这里有一个知识点，节点分 4 种：

- 1、只读节点
- 2、验证节点
- 3、API 节点
- 4、历史数据节点

第 4 步：配置 X1 验证节点

登录到你的 Ubuntu 服务器后（不知怎么登入请咨询服务器商家），请按照以下步骤配置：

1、root 用户登入

```
sudo su
```

2、运行系统更新

```
apt update -y
```

```
root@Xen: ~/go-x1
root@Xen ~/go-x1 # sudo apt-get update
sudo apt-get install expect
Hit:1 http://mirror.hetzner.com/ubuntu/packages jammy InRelease
Hit:2 http://mirror.hetzner.com/ubuntu/packages jammy-updates InRelease
Hit:3 http://mirror.hetzner.com/ubuntu/packages jammy-backports InRelease
Hit:4 http://mirror.hetzner.com/ubuntu/packages jammy-security InRelease
Hit:5 http://de.archive.ubuntu.com/ubuntu jammy InRelease
Get:6 http://security.ubuntu.com/ubuntu jammy-security InRelease [110 kB]
Get:7 http://de.archive.ubuntu.com/ubuntu jammy-updates InRelease [119 kB]
Get:8 https://deb.nodesource.com/node_18.x jammy InRelease [4,563 B]
Hit:9 http://de.archive.ubuntu.com/ubuntu jammy-backports InRelease
Hit:10 https://ppa.launchpadcontent.net/ondrej/php/ubuntu focal InRelease
Hit:11 https://ppa.launchpadcontent.net/deadsnakes/ppa/ubuntu jammy InRelease
Hit:12 https://ppa.launchpadcontent.net/ondrej/php/ubuntu jammy InRelease
Get:13 http://de.archive.ubuntu.com/ubuntu jammy-updates/multiverse amd64 Packages [42.1 kB]
Ign:14 https://download.webmin.com/download/newkey/repository stable InRelease
Hit:15 https://download.webmin.com/download/newkey/repository stable Release
Fetched 276 kB in 1s (202 kB/s)
Reading package lists... Done
Reading package lists... Done
Building dependency tree... Done
```

3、安装依赖包

```
apt install -y golang wget git make
```

```
root@Xen ~ # apt install -y golang wget git make
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
make is already the newest version (4.3-4.1build1).
make set to manually installed.
wget is already the newest version (1.21.2-2ubuntu1).
git is already the newest version (1:2.34.1-1ubuntu1.10).
The following packages were automatically installed and are no longer required:
  gyp libc-ares2 libjs-events libjs-highlight.js libjs-inherits libjs-is-typedarray libjs-psl libjs-source-map libjs-sprintf-js
  libjs-typedarray-to-buffer libuv1-dev node-abbrev node-ansi-regex node-ansi-styles node-ansistyles node-are-we-there-yet node-arrify node-asap
  node-asyncify node-balanced-match node-brace-expansion node-chownr node-clean-yaml-object node-color-convert node-color-name node-commander
  node-core-util-is node-decompress-response node-delayed-stream node-delegates node-depd node-diff node-encoding node-end-of-stream node-err-code
  node-escape-string-regexp node-fancy-log node-foreground-child node-fs.realpath node-function-bind node-get-stream node-glob node-growl node-has-flag
  node-has-unicode node-hosted-git-info node-iconv-lite node-iferr node-immutable node-indent-string node-inflight node-inherits node-ini node-ip
  node-ip-regex node-is-buffer node-is-plain-obj node-is-typedarray node-isarray node-isexe node-json-parse-better-errors node-jsonparse node-kind-of
  node-lodash-packages node-lowercase-keys node-lru-cache node-mimic-response node-minimatch node-minimist node-minipass node-mute-stream
  node-negotiator node-npm-bundled node-once node-osenv node-p-cancelable node-p-map node-path-is-absolute node-process-nextick-args
  node-promise-inflight node-promise-retry node-promzard node-pump node-quick-lru node-read node-readable-stream node-resolve node-retry
  node-safe-buffer node-set-blocking node-signal-exit node-slash node-slice-ansi node-source-map node-spdx-correct node-spdx-exceptions
  node-spdx-expression-parse node-spdx-license-ids node-sprintf-js node-stealthy-require node-string-decoder node-supports-color node-text-table
  node-time-stamp node-tmatch node-typedarray-to-buffer node-universalify node-util-deprecate node-validate-npm-package-license node-webidl-conversions
  node-whatwg-fetch node-wrapappy node-yallist php8.2-curl php8.2-sqlite3
Use 'apt autoremove' to remove them.
```

4、克隆和构建 X1 代码库，以下代码逐条复制到 Ubuntu 中执行

```
git clone --branch x1 https://github.com/FairCrypto/go-x1
cd go-x1
make x1
cp build/x1 /usr/local/bin
```

```

root@Xen: ~/go-x1
root@Xen ~ # cd go-x1
root@Xen ~/go-x1 # make x1
GIT_COMMIT="git rev-list -1 HEAD 2>/dev/null || echo "" && \
GIT_DATE="git log -1 --date=short --pretty=format:%ct 2>/dev/null || echo "" && \
GOPROXY="https://proxy.golang.org,direct" \
go build \
    -ldflags "-s -w -X github.com/Fantom-foundation/go-opera/cmd/opera/launcher.gitCommit=${GIT_COMMIT} \
a/launcher.gitDate=${GIT_DATE}" \
-o build/x1 \
./cmd/opera
go: downloading github.com/Fantom-foundation/lachesis-base v0.0.0-20230817040848-1326ba9aa59b
go: downloading github.com/faircrypto/go-ethereum v1.10.8-fm-rc1-x1-5
go: downloading github.com/pkg/errors v0.9.1
go: downloading github.com/status-im/keycard-go v0.0.0-20190424133014-d95853db0f48
go: downloading gopkg.in/urfave/cli.v1 v1.20.0
go: downloading github.com/naoina/toml v0.1.2-0.20170918210437-9fafd6967416
go: downloading github.com/syndtr/goleveldb v1.0.1-0.20210305035536-64b5b1c73954
go: downloading github.com/holiman/bloomfilter/v2 v2.0.3
go: downloading github.com/mattn/go-isatty v0.0.12
go: downloading github.com/opentracing/opentracing-go v1.1.0
go: downloading github.com/hashicorp/golang-lru v0.5.5-0.20210104140557-80c98217689d
go: downloading github.com/uber/jaeger-client-go v2.20.1+incompatible
go: downloading github.com/fjl/memsize v0.0.0-20190710130421-bcb5799ab5e5
go: downloading github.com/uber/jaeger-lib v2.2.0+incompatible
go: downloading github.com/mattn/go-colorable v0.1.8
go: downloading github.com/gorilla/websocket v1.4.2
go: downloading github.com/nibty/recws v0.0.0-20231129011923-06823df0d0db
go: downloading golang.org/x/sys v0.13.0
go: downloading github.com/deckarep/golang-set v1.7.1
go: downloading github.com/cockroachdb/pebble v0.0.0-2022111210721-lbda21f4fc2
go: downloading github.com/emirpasic/gods v1.12.0
go: downloading golang.org/x/crypto v0.14.0
go: downloading github.com/peterh/liner v1.1.1-0.20190123174540-a2c9a5303de7
go: downloading github.com/dop251/goja v0.0.0-20200721192441-a695b0cd498
go: downloading github.com/huin/goupnp v1.0.2
go: downloading github.com/jackpal/go-nat-pmp v1.0.2-0.20160603034137-1fa385a6f458
go: downloading github.com/google/uuid v1.1.5
go: downloading github.com/rjeczalik/notify v0.9.2
go: downloading github.com/gballet/go-libpcsclite v0.0.0-20191108122812-4678299bea08
go: downloading github.com/shirou/gopsutil v3.21.4-0.20210419000835-c7a38de76ee5+incompatible
go: downloading github.com/golang/snappy v0.0.4
go: downloading github.com/olekukonko/tablewriter v0.0.5
go: downloading github.com/prometheus/tsdb v0.10.0
go: downloading github.com/VictoriaMetrics/fastcache v1.6.0
go: downloading github.com/rs/cors v1.7.0

```

自此，你的测试网验证节点已成功安装！

接下来我们来启动它！

第 5 步，以只读节点模式启动，同步区块信息

上面一步已经完成结点软件安装，但是此时还没有数据，数据需到其他的节点下载，即同步数据，运行以下代码即可开始同步数据：

```
x1 --testnet --syncmode snap --xenblocks-endpoint ws://xenblocks.io:6668
```

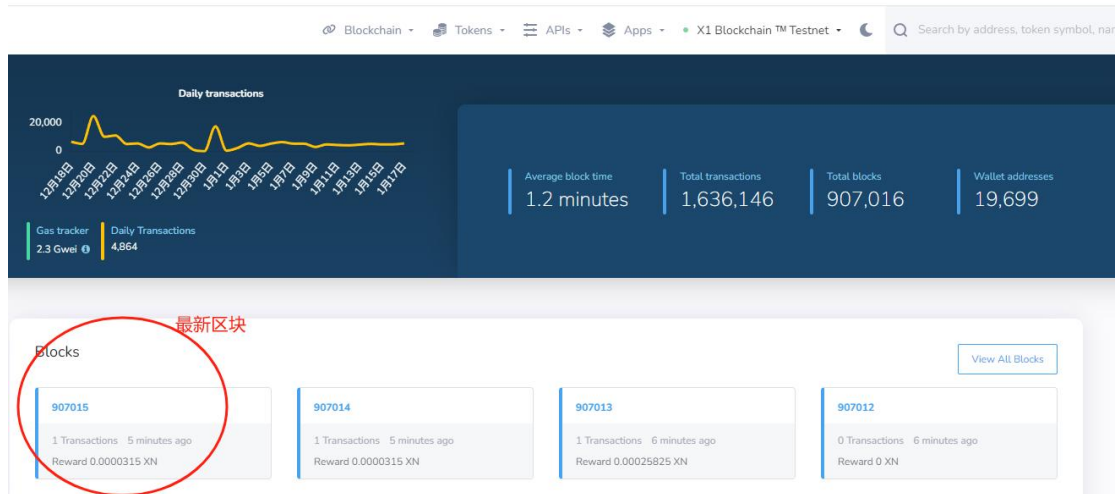
运行后，如图显示同步进度，同步完成时间视网络速度而定，

```

root@Xen: ~/go-x1
root@Xen ~/go-x1 # x1 --testnet --syncmode snap --xenblocks-endpoint ws://xenblocks.io:6668
WARN [01-15|05:32:19.689] Please add "--cache 64359" flag to allocate more cache for X1. Total memory is 128719 MB.
INFO [01-15|05:32:19.689] Maximum peer count          total=50
INFO [01-15|05:32:19.689] Smartcard socket not found, disabling     err="test /run/pcscd/pcscd.com: no such file or directory"
INFO [01-15|05:32:19.689] Validator                               address=0x1149aD69030084b780C5c37b252873235A0a0d0 pk=0xc0046e4a62824c79b42995e1144d66
50dfc6730294670dcbddac57f630a7e613b10cacb6cf0f65995dfedd7339af34c7d5e2031ad6c21c6bc0df78549726060 id=1
INFO [01-15|05:32:19.689] Validator                               address=0x5c11daF4913c68838ce7ce6969b12ba5ff4318b pk=0xc004dfc5e6a7594905af4ea8318473
6722e9a0b2c26d85b040700e616e1504ab8c47d1e42c118230e593c010e0466b331045a0d01170d562e14a8c522b8f src=2
INFO [01-15|05:32:19.689] Validator                               address=0xa12f1025a2f0ec13385c4CF3f8c97496f87d98 pk=0xc00404b2366cb5269d81cd00e0db9f80
8c43f614b44dc3ab25f54b0254f98a579e7dd13de4f7573360690b23b2b2525a7518cf37119b8a03c8a9cf9dbdac98667e id=3
INFO [01-15|05:32:19.892] Applying genesis state      name=x1-testnet id=204,005 genesis=0x6caaa23983ce234e2c4515ebbc93aad5b5934607cb4472e48
4813e089754462d
INFO [01-15|05:32:21.534] Regenerated local transaction journal      transactions=0 accounts=0
INFO [01-15|05:32:21.535] Establishing connection to Reporter
INFO [01-15|05:32:23.535] Starting peer-to-peer node      instance=go-x1/v1.1.3-rc.5-27d88e24-1705003000/linux-amd64/gol.18.1
seq=1 id=f941277a5c95dfa2 ip=127.0.0.1 udp=5050 tcp=5050
INFO [01-15|05:32:23.608] New local node record      self=enode://c4f30842d9c0e0032b75b697094b9546dbf99c48cd5ad389f022c4dc949e4fa0a6648da
INFO [01-15|05:32:23.609] Started P2P networking
INFO [01-15|05:32:23.610] Rebuilding state snapshot      url=/root/.x1/x1.ipc
INFO [01-15|05:32:23.610] EVM snapshot      module=gossip-store at=a2bd25_a7fff97 generating=true
INFO [01-15|05:32:23.610] Resuming state snapshot generation      root=a2bd25_a7fff97 accounts=0 slots=0 storage=0,00B elapsed=233.121µs
INFO [01-15|05:32:23.611] Generated state snapshot      accounts=10 slots=75 storage=6.37KiB elapsed=1.73ms
INFO [01-15|05:32:24.152] Peer connected      id=afdc6c7d7572caf9f com=trusted-dyndial name=go-x1/v1.1.3-rc.5-38... id=afdc6c7d7572ca
19f genesis=0x6aa254462d progress=[Epoch:2 LastBlockIdx:1 LastBlockAtropos:0:0:000000 HighestLamport:0]
INFO [01-15|05:32:24.153] Peer connected      id=afdc6c7d7572caf9f com=trusted-dyndial name=go-x1/v1.1.3-rc.5-38... id=afdc6c7d7572ca
119 genesis=0x6aa254462d progress=[Epoch:2 LastBlockIdx:1 LastBlockAtropos:0:0:000000 HighestLamport:0]
INFO [01-15|05:32:24.186] Peer connected      id=7a920e3372475fa com=trusted-dyndial name=go-x1/v1.1.3-rc.5-38... id=7a920e337247
5fa genesis=0x6aa254462d progress=[Epoch:2 LastBlockIdx:1 LastBlockAtropos:0:0:000000 HighestLamport:0]
INFO [01-15|05:32:24.815] New LLR summary      last_epoch=65 new_ers=0 new_ers=0 new_bvs=64 new_bvs=64 new_bvs=64
INFO [01-15|05:32:26.211] Update snapsync epoch      module=PM epoch=1198 root=81c578..cfd09
INFO [01-15|05:32:32.854] New LLR summary      last_epoch=1198 last_block=99963 new_ers=2533 new_ers=1196 new_bvs=199798 new_bvs=830
new=22m40.131s
INFO [01-15|05:32:35.100] State sync in progress      synced=6.25% state=133.63MiB accounts=11528284.15KiB slots=611,9398132.63MiB codes=208
8741.86KiB eta=2m12.354s
INFO [01-15|05:32:40.854] New LLR summary      last_epoch=1198 last_block=411204 new_ers=0 new_ers=0 new_bvs=622482 new_bvs=370
1 s new=22m40.131s
INFO [01-15|05:32:43.130] State sync in progress      synced=6.25% state=252.30MiB accounts=11528284.15KiB slots=1,156,491251.30MiB codes=2
088741.86KiB eta=4m9.754s
INFO [01-15|05:32:40.854] New LLR summary      last_epoch=1198 last_block=704739 new_ers=0 new_ers=0 new_bvs=507326 new_bvs=314
1 s new=22m56.131s
INFO [01-15|05:32:51.234] State sync in progress      synced=6.25% state=369.54MiB accounts=11528284.15KiB slots=1,689,8148367.54MiB codes=2
088741.86KiB eta=6m10.695s
INFO [01-15|05:32:56.863] New LLR summary      last_epoch=1198 last_block=892268 new_ers=0 new_ers=0 new_bvs=386963 new_bvs=14057
new=23m4.140s

```


可以关注“New block index=892715”字样，这代表你的节点已经同步到哪一个区块了，可以在 X1 区块浏览器中核对下进度，如图，可以看到目前最新的块的索引是 907015



运行只读节点在支持 X1 区块链社区方面发挥着至关重要且非常有价值的作用。通过这样做，您可以为网络的稳健性和去中心化做出贡献。只读节点有助于维护区块链的副本，确保整个网络中的数据完整性和一致性，并且由于存在区块链数据的多个副本，因此可以提高网络抵御潜在攻击和故障的能力。通过这种方式参与，您不仅支持了区块链的底层基础设施，还为所有用户营造了一个更加信任和透明的环境，而且你还可能获得 XN 空投的奖励。

如果你有 10 万个 XN 测试币，那么你可以用 ctrl+c 退出同步，开始创建验证节点。

以下 6、7、8 步骤，都在帮助你创建验证节点。

第 6 步：创建新的验证节点密钥

验证节点私钥来签署共识消息，请使用以下命令创建私钥。输入命令后，系统会提示您输入密码——请使用强密码！

```
x1 validator new
```

```
root@Xen ~/go-x1 # x1 validator new
WARN [01-15|07:00:30.950] Please add '--cache 64359' flag to allocate more cache for X1. Total memory is 128719 MB.
INFO [01-15|07:00:30.950] Maximum peer count total=50
INFO [01-15|07:00:30.950] Smartcard socket not found, disabling err="stat /run/pcscd/pcscd.comm: no such file or directory"
INFO [01-15|07:00:30.951] Maximum peer count total=50
INFO [01-15|07:00:30.951] Smartcard socket not found, disabling err="stat /run/pcscd/pcscd.comm: no such file or directory"
Your new validator key is locked with a password. Please give a password. Do not forget this password.
Passphrase:
Repeat passphrase:

Your new key was generated

Public key: 0xc004c11718c85338ea26a1b6b8c84a
Path of the secret key file: /root/.x1/keystore/validator/c004c11718c85338ea26a1b6b8c84a

- You can share your public key with anyone. Others need it to validate messages from you.
- You must NEVER share the secret key with anyone! The key controls access to your validator!
- You must BACKUP your key file! Without the key, it's impossible to operate the validator!
- You must REMEMBER your password! Without the password, it's impossible to decrypt the key!
```

红色箭头是你的公钥，是可以给别人看的，
绿色箭头是你的私钥文件，是不能给别人看的！

此刻要作 2 件事：

- 1、保存公钥，验证节点需要它
- 2、保存密码，就是刚才我让你用强密码的那个，每次启动验证节点都需要它！

第 7 步：使用 Metamask 质押 10 万 XN 测试币

- 1、跳转到次合约：

<https://explorer.x1-testnet.xen.network/address/0xFC00FACE000000000000000000000000000000000000/write-contract#address-tabs>

- 2、单击“连接钱包”按钮并连接到您的验证节点钱包。

Transactions Internal Transactions Coin Balance History Logs Code ✓ Read Contract **Write Contract**

• Disconnected **Connect wallet** 连接钱包

Warning! Contract bytecode has been changed and doesn't match the verified one. Therefore, interaction with this smart contract may be risky.

1. _syncValidator → validatorID(uint256) + syncPubkey(bool) Write

2. burnFTM → amount(uint256) + Write

3. claimRewards → toValidatorID(uint256) + Write

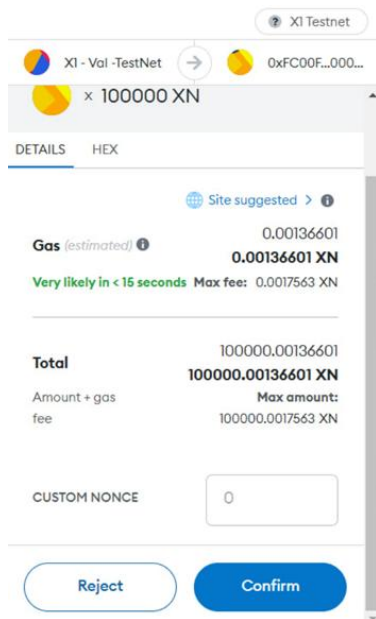
4. createValidator → 0xc004c11718c8 100000 Write

5. deactivateValidator → validatorID(uint256) + status(uint256) + Write

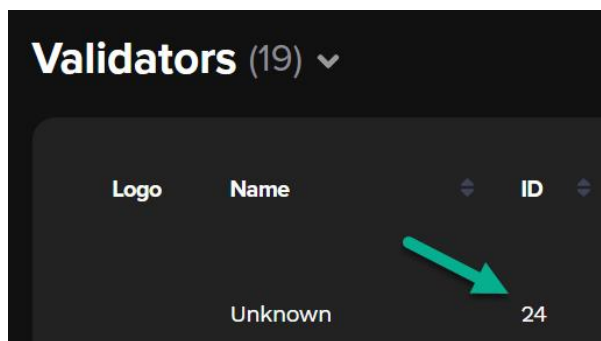
6. delegate → toValidatorID(uint256) + value(XN) Write

前一步创建的公钥地址 质押10万测试币

- 3、还记得前面让你创建的钱包以及填写电子表单领取空投测试币吗？此时你要确保你钱包中有 10 万的 XN 测试币，以及额外一点 XN 作为手续费，然后在你的钱包中确认交易（注意：这将从您的钱包中扣除 10 万 XN），如下图：



4、等钱包交互完毕,就可以去 PWA 资源管理器上看下系统为你分配的验证节点 ID 是多少,以此来判断是否创建成功。地址如下: <https://pwa-explorer.x1-testnet.xen.network/staking>



第 8 步：启动 X1 验证节点

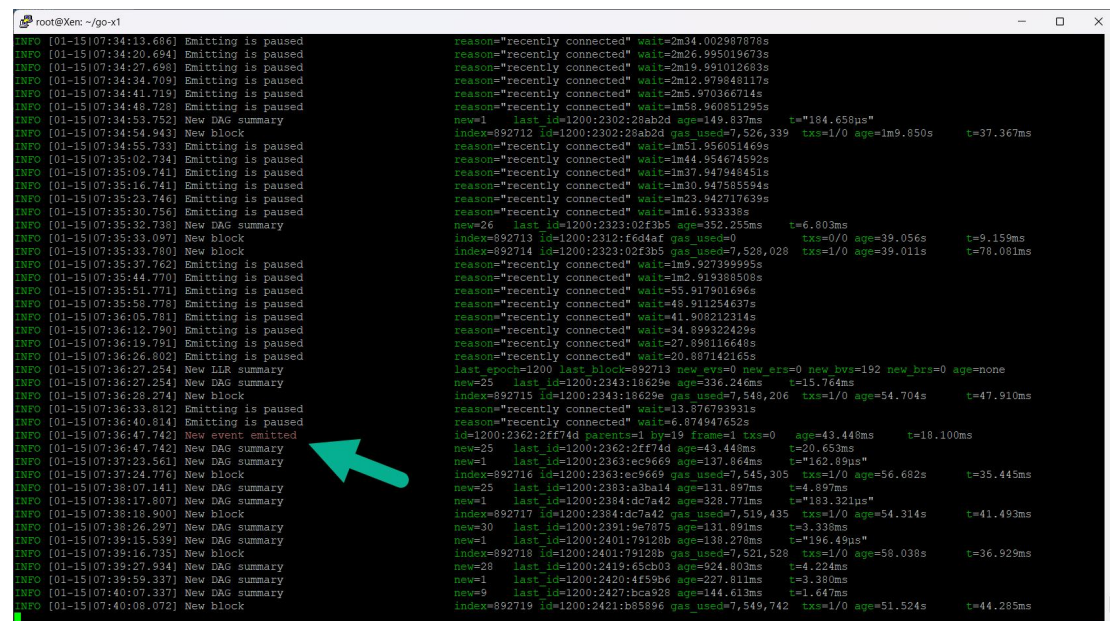
以上步骤都执行完毕，最激动人心的时刻来了，现在我们要启动验证器节点！

先确保您的节点已停止，
注意，将以下命令中 **VALIDATOR_ID** 位置替换成第 7 步分配给你的 ID，将 **VALIDATOR_PUBKEY** 位置替换成你生成的节点公钥，然后再执行

```
x1 --testnet --validator.id VALIDATOR_ID --validator.pubkey VALIDATOR_PUBKEY
--xenblocks-endpoint ws://xenblocks.io:6668 --gcmode full --syncmode snap
```

执行以上命令后，系统还将让你输入一个密码，就是第 6 步你自己设置的那个密码，这里是盲输，输入过程不会显示任何字符在屏幕上，你只管输入，输入完毕按回车，如果正确则节点开始运行！

如果之前作为只读节点数据还未同步完毕，那么将继续同步，如下图所示：



```
root@Xen: ~/go-x1
INFO [01-15|07:34:13.686] Emitting is paused
INFO [01-15|07:34:20.694] Emitting is paused
INFO [01-15|07:34:27.698] Emitting is paused
INFO [01-15|07:34:34.709] Emitting is paused
INFO [01-15|07:34:41.719] Emitting is paused
INFO [01-15|07:34:48.728] Emitting is paused
INFO [01-15|07:34:53.752] New DAG summary
INFO [01-15|07:34:54.943] New block
INFO [01-15|07:34:55.733] Emitting is paused
INFO [01-15|07:35:02.734] Emitting is paused
INFO [01-15|07:35:09.741] Emitting is paused
INFO [01-15|07:35:16.741] Emitting is paused
INFO [01-15|07:35:23.746] Emitting is paused
INFO [01-15|07:35:30.756] Emitting is paused
INFO [01-15|07:35:32.738] New DAG summary
INFO [01-15|07:35:33.097] New block
INFO [01-15|07:35:33.700] New block
INFO [01-15|07:35:37.762] Emitting is paused
INFO [01-15|07:35:44.770] Emitting is paused
INFO [01-15|07:35:51.771] Emitting is paused
INFO [01-15|07:35:58.778] Emitting is paused
INFO [01-15|07:36:05.781] Emitting is paused
INFO [01-15|07:36:12.790] Emitting is paused
INFO [01-15|07:36:19.791] Emitting is paused
INFO [01-15|07:36:26.802] Emitting is paused
INFO [01-15|07:36:27.254] New LLR summary
INFO [01-15|07:36:27.254] New DAG summary
INFO [01-15|07:36:28.274] New block
INFO [01-15|07:36:33.812] Emitting is paused
INFO [01-15|07:36:40.814] Emitting is paused
INFO [01-15|07:36:47.742] New event emitted
INFO [01-15|07:36:47.742] New DAG summary
INFO [01-15|07:37:23.561] New DAG summary
INFO [01-15|07:37:24.776] New block
INFO [01-15|07:38:07.141] New DAG summary
INFO [01-15|07:38:17.807] New DAG summary
INFO [01-15|07:38:18.900] New block
INFO [01-15|07:38:26.297] New DAG summary
INFO [01-15|07:38:15.538] New DAG summary
INFO [01-15|07:38:16.735] New block
INFO [01-15|07:38:27.934] New DAG summary
INFO [01-15|07:38:59.337] New DAG summary
INFO [01-15|07:40:07.337] New DAG summary
INFO [01-15|07:40:08.072] New block
reason="recently connected" wait=2m34.002587878s
reason="recently connected" wait=2m26.995019673s
reason="recently connected" wait=2m19.991012683s
reason="recently connected" wait=2m12.979848117s
reason="recently connected" wait=2m5.970366714s
reason="recently connected" wait=1m59.968851295s
new=1 last_id=1200:2302:28ab2d age=149.837ms t="184.658µs"
index=892712 id=1200:2302:28ab2d gas_used=7,526,339 txs=1/0 age=1m9.850s t=37.367ms
reason="recently connected" wait=1m51.956051469s
reason="recently connected" wait=1m44.954674592s
reason="recently connected" wait=1m37.947848451s
reason="recently connected" wait=1m30.947885594s
reason="recently connected" wait=1m23.942717639s
reason="recently connected" wait=1m16.933338s
new=26 last_id=1200:2323:02f3b5 age=352.255ms t=6.803ms
index=892713 id=1200:2312:f6d4af gas_used=0 txs=0/0 age=39.056s t=9.159ms
index=892714 id=1200:2323:02f3b5 gas_used=7,528,028 txs=1/0 age=39.011s t=78.081ms
reason="recently connected" wait=1m9.927399995s
reason="recently connected" wait=1m2.919388508s
reason="recently connected" wait=55.917901696s
reason="recently connected" wait=48.911254637s
reason="recently connected" wait=41.909212314s
reason="recently connected" wait=34.99922429s
reason="recently connected" wait=27.98811648s
reason="recently connected" wait=20.88714216s
last_epoch=1200 last_block=892713 new_errs=0 new_bvs=192 new_brs=0 age=none
new=25 last_id=1200:2343:18629e age=336.246ms t=15.764ms
index=892715 id=1200:2343:18629e gas_used=7,548,206 txs=1/0 age=54.704s t=47.910ms
reason="recently connected" wait=13.876793931s
reason="recently connected" wait=6.874947652s
id=1200:2362:2ff74d parents=1 by=19 frame=1 txs=0 age=43.448ms t=18.100ms
new=25 last_id=1200:2362:2ff74d age=43.448ms t=20.653ms
new=1 last_id=1200:2363:ccc969 age=137.864ms t="162.89µs"
index=892716 id=1200:2363:ccc969 gas_used=7,545,305 txs=1/0 age=56.682s t=35.445ms
new=25 last_id=1200:2383:a3ba14 age=131.897ms t=4.897ms
new=1 last_id=1200:2384:dc7a42 age=328.771ms t="183.321µs"
index=892717 id=1200:2384:dc7a42 gas_used=7,519,435 txs=1/0 age=54.314s t=41.493ms
new=30 last_id=1200:2391:9e7875 age=131.891ms t=3.338ms
new=1 last_id=1200:2401:79120b age=130.270ms t="196.49µs"
index=892718 id=1200:2401:79120b gas_used=7,521,528 txs=1/0 age=58.038s t=36.929ms
new=28 last_id=1200:2419:65cb03 age=924.803ms t=4.224ms
new=1 last_id=1200:2420:4f59b6 age=227.811ms t=3.380ms
new=9 last_id=1200:2427:bca928 age=144.613ms t=1.647ms
index=892719 id=1200:2421:b8589e gas_used=7,549,742 txs=1/0 age=51.524s t=44.285ms
```

节点是区块链的基本单位，
接下来你的工作就是确保它 24 小时正常工作，
祝福你 XEN 战士！

--

