Step by step guide how to install ANON wallet and masternode in Linux FOR NEWBIES.

First of all try to understand some basic commands and principles. Anyway you can scroll up here and read again. And sorry for my English:)

ctrl+alt+T – start a new terminal window.

ctrl+shift+C – copy in terminal.

ctrl+shift+V – paste to terminal.

~ – quick link to your home folder, for example `/home/john/`, on VPS it's a folder `/root/`

– commentary sign, if you see it in config file, it means all string behind **#** just ignores by program.

cd – change directory

> **cd ~** – jump to home folder, in /home/john/
>
> **cd ..** – jump to one level up, to previous folder, if you have `~/anon/src/` and type `cd ..` you will jump to folder `~/anon/`
>
> **cd anon/** – jump to folder `anon/` if it exist in **CURRENT** folder.
>
> **cd ~/.anon/** – jump to folder `.anon/` if it exist in **HOME** folder.
>
> **cd ~/anon/src/ = cd /home/vasya/anon/src/**

./ – launch the program

> **./anond** – launch `anond` if it exist in **CURRENT** folder.
>
> **./anon/src/anond** – launch `anond` if it exist in folder **UNDER** current.
>
> **/./home/john/anon/src/anond** – launch `anond` from any place of filesystem.

ls -al – show all files and folders in current directory, if you see in table size 4096 it means that this is a folder.

chmod +x – make file executable, if file has not this permission you will see `"permissions denied"` error when you try to launch it.

top – show all launched processes.

free – show free RAM and swap.

[TAB] – magic button, which help you to finish command or path if the start of name of program or path is unique. Anyway, I recommend to copy and past all commands from this instruction, because any missed space forward you to error.

> **chm[PRESS_TAB]** – will finish it to `chmod`
>
> **cd ~/an[PRESS_TAB]** – will finish it to `cd ~/anon/`

[TAB][TAB] – show all possible finishes for start of command.

ctrl+C – stop the program.

nano – console text editor.

   ctrl+X – exit, if you want to save changes hit **[y]** and **[ENTER]**, if not - **[n]**

Requirements.

For building wallet on your **local machine**.

Ubuntu 18.04 + VirtualBox or native Ubuntu. I builded all in native 16.04.

For virtual machine you need to give at least 2048 MB of RAM and at least 40 GB of HDD. But in fact you need quite more RAM for building, for it in Linux there is a swap partition. If you choose during Ubuntu installation "Erase data and install" then you already have a swap. If you can't give to virtual machine 2048 MB, for example only 1024 MB, then you need manually make a swap partition with 4096 MB for sure.

For **VPS**.

Ubuntu 18.04, 1024 MB RAM и 40 GB SSD. I use only 25 GB SSD and have 9 GB of free space but keep in mind that size of blockchain grows up.

#Open new terminal window and update your system, then reboot.
```
sudo apt update
sudo apt upgrade
sudo shutdown -r now
```

#Open new terminal window and install dependencies.
```
sudo apt install \
    build-essential pkg-config libc6-dev m4 g++-multilib autoconf \
    libtool ncurses-dev unzip git python zlib1g-dev wget unzip \
    bsdmainutils automake pwgen default-jdk ant filezilla
```

#Clone the main repository.
```
git clone https://github.com/anonymousbitcoin/anon.git
```

#Jump to folder with source code and build.
```
cd anon/
./anonutil/build.sh -j$(nproc)
```

#If build process finish with error `g++: internal compiler error: Killed (program cc1plus)` try to compile like this
`./anonutil/build.sh` (without options)
```
cd ~/anon/src
make clean
cd ../
./anonutil/build.sh
#
```
#If build process finish with errors again, it means that you don't have enough RAM or swap space.
#
#If you faced with `libsnark-3854b20c25e8bc567aab2b558dec84d45f4a3e73.tar.gz` error, in this case temporary fix
#will help you:
```
cd ~/anon/depends/sources/
wget https://codeload.github.com/ZencashOfficial/libsnark/tar.gz/3854b20c25e8bc567aab2b558dec84d45f4a3e73
```

```
mv 3854b20c25e8bc567aab2b558dec84d45f4a3e73 libsnark-3854b20c25e8bc567aab2b558dec84d45f4a3e73.tar.gz
cd ~/anon/
./anonutil/build.sh -j$(nproc)
```
#If you faced with `libsodium-1.0.11.tar.gz` error:
```
cd ~/anon/depends/packages/
rm libsodium.mk
wget https://raw.githubusercontent.com/zcash/zcash/master/depends/packages/libsodium.mk
cd ~/anon/
./anonutil/build.sh -j$(nproc)
```

#Install fetch-params.
```
./anonutil/fetch-params.sh
```

#Create main working folder.
```
mkdir ~/.anon
```

#Create random password and write it to config file. You don't need to remember this password.
```
pwgen -s 16 1 >> ~/.anon/anon.conf
```

#Open config file and see already generated password.
```
nano ~/.anon/anon.conf
```

#Copy all strings to file.
```
rpcpassword=5oQfE3zHWbKi79HU #It is the password generated above
rpcuser=anonrpc
rpcallowip=127.0.0.1
txindex=1
rpcport=3130
```
#Close it, save changes.

#Jump to home folder.
```
cd ~
```

#Clone repository of GUI-wallet.
```
git clone https://github.com/anonymousbitcoin/anon-full-node-wallet.git
```

#Jump to folder with source code and build.
```
cd anon-full-node-wallet
./gradlew clean fatJar
```
#If you see "`BUILD SUCCESSFUL`", it means java-program successfully compiled.

#Copy executable jar-file of wallet to folder with files **anond** and **anon-cli** which we builded before, they are
#in folder ***~/anon/src/***
```
cp build/libs/AnonymousDesktopWallet-1.0.0.jar ~/anon/src/
```

#You can also download jar files pre-compiled by developers.
```
wget -P ~/anon/src
https://github.com/anonymousbitcoin/anon-full-node-wallet/releases/download/1.0.0/AnonymousDesktopWallet-1.0.0.jar
```
#or
```
wget -P ~/anon/src
https://github.com/anonymousbitcoin/anon-full-node-wallet/releases/download/0.1.1/AnonymousDesktopWallet-0.1.1.jar
```

#Make file executable and jump to folder with this file.
```
chmod +x ~/anon/src/AnonymousDesktopWallet-1.0.0.jar
cd ~/anon/src/
```

#In **ANOTHER** terminal launch anond.
```
./anon/src/anond
```

#If you want to launch `anond` in background then you need to add `--daemon` option.
```
./anon/src/anond --daemon
```

#Come back to previous terminal and launch GUI-wallet.
```
java -jar AnonymousDesktopWallet-1.0.0.jar
```
#Another way you can come in Nautilus GUI file manager to folder **~/anon/src/** and launch
AnonymousDesktopWallet-1.0.0.jar with right mouse button > "**Open with OpenJDK**"

#Create second address in wallet.
#
#Export private keys from both addresses with mouse right click on each address > "**Obtain private key**", it
#should be copied to clipboard. You need to save them in safe place or accuracy write down on paper.
#
#Send your ANON from exchange to **first** address.
#
#Wait for full synchronization and send 500 ANON to **second** empty address.

#If you want to speed up the synchronization process, you can download blockchain by link from developers which can be found
#here https://github.com/anonymousbitcoin/anon-bootstrap. For it close GUI-wallet and do:
```
wget -P ~ http://assets.anonfork.io/anon-bootstrap.zip
unzip -o ~/anon-bootstrap.zip -d ~/.anon/
mv -f ~/.anon/blocks_chainstate/blocks/ ~/.anon/
mv -f ~/.anon/blocks_chainstate/chainstate/ ~/.anon/
rmdir ~/.anon/blocks_chainstate/
rm anon-bootstrap.zip #Optionally. Remove downloaded file.
java -jar AnonymousDesktopWallet-1.0.0.jar
```

#Close GUI-wallet. Anond will be also stopped.
#In separate terminal launch again **anond**.
```
./anon/src/anond
```

#Go to main terminal and generate masternode private key through **anon-cli** which **CAN'T WORK WITHOUT RUNNING** the **anond** program.

```
cd ~
./anon/src/anon-cli masternode genkey >> ~/.anon/masternode.conf
#Private key goes directly to masternode.conf
./anon/src/anon-cli masternode outputs #Copy transaction to clipboard and
                                       #remember number next to it, 0 or 1.
```

#Open config file and you will see your masternode private key and also example of needed string.

```
nano ~/.anon/masternode.conf
```

#Write IP of your VPS, port **33130**, masternode private key, paste transaction from buffer and number that #you remember.

```
MN01 193.193.193.193:33130 PRIVKEY TRANSACTION NUMBER
```

#Now you need to copy files **anond** and **anon-cli** from folder **/anon/src/** to **VPS** to folder **/root/** with **#filezilla**, this program already installed and you can find it in GUI menu.
#https://www.vultr.com/docs/how-to-connect-to-an-ftp-server-with-filezilla

#Open separate terminal and log in to your VPS.

```
ssh root@YOUR.VPS.I.P
```

#Update your system.

```
sudo apt update
sudo apt upgrade
```

#Install dependencies.

```
sudo apt-get install \
    build-essential pkg-config libc6-dev m4 g++-multilib autoconf libtool \
    ncurses-dev unzip git python zlib1g-dev wget bsdmainutils automake \
    unzip pwgen python python-pip python3-pip virtualenv
```

#Install fetch-params.

```
wget https://raw.githubusercontent.com/anonymousbitcoin/anon/master/anonutil/fetch-params.sh
chmod +x fetch-params.sh
./fetch-params.sh
```

#Or you can just copy folder **~/.zcash-params/** from your local machine to your **VPS** to folder **/root/** with **#filezilla**.

#Create working directory.

```
mkdir ~/.anon
```

#Create random password and write it to config file. You don't need to remember this password.

```
pwgen -s 16 1 >> ~/.anon/anon.conf
```

#Open config file and see already generated password.

```
nano ~/.anon/anon.conf
```
#Copy all strings to file.
```
rpcpassword=PuaiUIn5SiGpvHRN #It is the password generated above
rpcuser=anonrpc
rpcallowip=127.0.0.1
txindex=1
rpcport=3130
masternode=1
masternodeprivkey=MASTERNODE_PRIVATE_KEY #Take it from masternode.conf on local PC.
externalip=YOUR.VPS.I.P:33130
port=33130
daemon=1
listen=1
server=1
```
#Close it, save changes.

#Clone sentinel repository, install dependencies and build.
```
git clone https://github.com/anonymousbitcoin/sentinel.git
pip install --upgrade setuptools
cd sentinel/
virtualenv ./venv
./venv/bin/pip install -r requirements.txt
```

#Open scheduler.
```
crontab -e #Press "1" for choosing nano editor.
```

#Make scheduled task for sentinel script.
```
* * * * * cd /root/sentinel && ./venv/bin/python bin/sentinel.py >/dev/null 2>&1
```
#Close it, save changes.

#Launch anond.
```
cd ~
./anond
```

#Test the sentinel.
```
cd sentinel
./venv/bin/py.test ./test #All 11 tests should be successful.
cd ~
```

#Time to time check blockchain synchronization.
```
./anon-cli getblockcount #Number of blocks should be equal
                         #to https://explorer.anon.zeltrez.io/
```

#If you want to speed up the synchronization process, or in case if block counter freezes on long time, you can download
#blockchain by link from developers which can be found here https://github.com/anonymousbitcoin/anon-bootstrap (~8GB). For it
#you need to do:
```
pkill anond
```

```
wget -P ~ http://assets.anonfork.io/anon-bootstrap.zip
unzip -o ~/anon-bootstrap.zip -d ~/.anon/
mv -f ~/.anon/blocks_chainstate/blocks/ ~/.anon/
mv -f ~/.anon/blocks_chainstate/chainstate/ ~/.anon/
rmdir ~/.anon/blocks_chainstate/
rm anon-bootstrap.zip #Optionally. Remove downloaded file.
./anond
```
#Or you can just copy **~/.anon/blocks** и **~/.anon/chainstate** folders from local machine to relevant directories on VPS with
#**filezilla**.

#In local terminal start masternode with **anon-cli**, I repeat that **anond should be launched**.
```
cd ~
./anon/src/anon-cli masternode start-all
```
#You can do it also from GUI-wallet but in some cases first start don't work from GUI.

#Check masternode status on **VPS**. You need see "`Masternode successfully started`".
```
./anon-cli masternode status
```

#After some time masternode status in GUI-wallet should be changed from **PRE-ENABLED** to **ENABLED**.
#If status changed on **WATCHDOG_EXPIRED**, don't worry and just check masternode status on **VPS**. If
#status "`Masternode successfully started`" it means that everything work fine.

#If you want to see again **ENABLED** word in GUI-wallet, you need to re-sync nodes. **It's a safe for your**
#**VPS**.Also, you **don't need to keep GUI-wallet open** for normal work of masternode.
```
./anon/src/anon-cli mnsync reset
./anon/src/anon-cli mnsync status
```

ANON masternode troubleshooting and FAQ can be found here
https://docs.google.com/document/d/1vhYqoaKUrWY9_DEZba1PnnvoyFaeN3NycXoP44l2nBl/

If you have a questions, I always happy to help everyone, feel free to write me in telegram **@anon_btc**
ANON: AnfY3SYmRvsMKbUe27oEK2EZf9jqWjXLbvE
BTC: 1CyBUrSeucvWuoPMwZNa44rVh2JPb8oiyi