CROWDCOIN MASTERNODE SETUP
COLD WALLET ON WINDOWS WITH LINUX VPS

This tutorial shows the steps required to setup your Crowdcoin Masternode on a Linux server and run your wallet on a Windows operating system as the controller..

REQUIREMENTS

- 1,000 CRC Tokens

- SSH Client to connect to your server + root access
  www.putty.org

- VPS Linux server
  UBUNTU 16.0.4 64 Bits operating system
  1 GHZ CPU
  1 GB RAM

  * If you don't have enough ram you can create a swap file. (page 7)

PREPARING THE MASTERNODE SERVER   (VPS LINUX)

Open a shell and type the following commands to install the dependencies needed for the crowdcoin daemon:

```
sudo apt-get install build-essential libtool automake autoconf
sudo apt-get install autotools-dev autoconf pkg-config libssl-dev
sudo apt-get install libgmp3-dev libevent-dev bsdmainutils libboost-all-dev
sudo add-apt-repository ppa:bitcoin/bitcoin
sudo apt-get update
sudo apt-get install libdb4.8-dev libdb4.8++-dev
sudo apt-get install libminiupnpc-dev
```

INSTALLING THE DEAMON   (VPS LINUX)

It is recommended to build your wallet from source available on Github. Alternatively, you can download the latest binaries from our official website http://crowdcoin.site
For the purpose of this tutorial, we will install the crowdcoin deamon from Github.

Type the following commands:

```
sudo apt-get install git
git clone https://github.com/crowdcoinChain/Crowdcoin.git
```

After finishing go to the Crowdcoin folder and execute the commands:

```
cd Crowdcoin
chmod 755 autogen.sh
./autogen.sh
./configure
chmod 755 share/genbuild.sh
make
```

STARTING THE DEAMON   (VPS LINUX)

We initially run the daemon so it creates the initial configuration files:

```
cd src
./crowdcoind -daemon
```

PREPARING THE LOCAL WALLET   (WINDOWS)

The local wallet installed on your local machine (Windows) acts as the controller wallet for your masternode. It contains the masternode settings and can activate your remote masternode on your VPS.

In the Crowdcoin Core wallet, go to "tools – debug console" and type:

```
getnewaddress MN1
```

Go to "Send" and send EXACTLY 1,000 CRC to the earlier generated address.

Now go to "Tools - Debug console" and type:

```
masternode outputs
```

You should see something like "<collateralTXID>" : "<TXINDX>", the <collateralTXID> is a long alphanumerical string, whereas the <TXINDX> is a small number, usually 1 or 0.
*** Take a note of this information.

In the " Debug console" type:

```
masternode genkey
```

*** Take a note of this information.

Now go to "**tools - edit masternode configuration file**" and add this line:

```
<alias> <VPS IP>:12875 <masternodeprivkey> <collateralTXID> <TXINDX>
```

<alias>:	Any name can be given
<VPS IP>:	The external IP address of your remote VPS.
<masternodeprivkey>:	The key you generated earlier when typing masternode genkey in the debug console.
<collateralTXID>:	The long alphanumerical string when typing masternode outputs in the debug console.
<TXINDX>:	The small number when typing masternode outputs in the debug console.

Save the file and close the Crowdcoin Core wallet.

CONFIGURING THE DEAMON (VPS LINUX)

Go to the crowdcoin folder by typing:

```
cd /root/.crowdcoincore
```

Type the following command to edit the configuration file (using nano):

```
nano crowdcoin.conf
```

Now copy and paste this information into crowdcoin.conf:

```
rpcuser=<rpcuser>
rpcpassword=<rpcpassword>
rpcallowip=127.0.0.1
rpcthreads=8
listen=1
server=1
daemon=1
staking=0
discover=1
externalip=<VPS IP>:12875
masternode=1
masternodeprivkey=<masternodeprivkey>
addnode=84.17.23.43:12875
addnode=18.220.138.90:12875
addnode=86.57.164.166:12875
addnode=86.57.164.146:12875
addnode=18.217.78.145:12875
addnode=23.92.30.230:12875
addnode=35.190.182.68:12875
addnode=80.209.236.4:12875
addnode=91.201.40.89:12875
```

<rpcuser>:   Choose your own username
<rpcpassword>:   Choose your own password
<VPS IP>:   The external IP address of your remote VPS.
<masternodeprivkey>:   The key you generated earlier and put in masternode.conf on the
                              local wallet (Windows)

Press CTRL-X, then Y and then ENTER to save and exit the file.

CONFIGURING THE FIREWALL (VPS LINUX)

Type the following command to open the masternode deamon port in the firewall:

```
sudo ufw allow 12875/tcp
```

STARTING THE DEAMON   (VPS LINUX)

We can now start the daemon again:

```
cd /root/Crowdcoin/src
./crowdcoind -daemon
```

Now wait for approximately 15 minutes to finish synchronising.

STARTING THE MASTERNODE FROM LOCAL WALLET   (WINDOWS)

Start the Crowdcoin Core wallet and go to the "Masternodes" tab.
Wait for your 1,000 CRC you sent to have 15 confirmations.
Now right-click on your masternode listed in the "masternodes" tab and click "Start Alias"

The Masternode will now start and enter "PRE-ENABLED" within 10 minutes and then switch to
"ENABLED" automatically after a short period of time.

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INSTALLING SENTINEL (VPS LINUX)

Sentinel is a watchdog for your masternode which communicates to the network that your node is working properly.

Make sure Python version 2.7.x or above is installed:

```
python --version
```

Update the system packages and ensure virtualenv is installed:

```
sudo apt-get update
sudo apt-get -y install python-virtualenv
```

Clone the Sentinel repo and install Python dependencies:

```
cd /root/.crowdcoincore
git clone https://github.com/crowdcoinChain/sentinelLinux.git && cd sentinelLinux
export LC_ALL=C
apt install virtualenv
virtualenv ./venv
./venv/bin/pip install -r requirements.txt
```

CONFIGURING SENTINEL (VPS LINUX)

Type the following command to edit the configuration file (using nano):

```
cd /root/.crowdcoincore/sentinelLinux
nano sentinel.conf
```

Uncomment the #dash_conf line at the top and add the path to your crowdcoin configuration file.

```
dash_conf=/root/.crowdcoincore/crowdcoin.conf
```

Press CTRL-X, then Y and then ENTER to save and exit the file.

CONFIGURING SENTINEL IN CRONTAB (VPS LINUX)

Set up a crontab entry to call Sentinel every minute:

```
crontab -e
```

In the crontab editor, add the lines below:

```
* * * * * cd /root/.crowdcoincore/sentinelLinux && ./venv/bin/python bin/sentinel.py >/dev/null 2>&1
```

Press CTRL-X, then Y and then ENTER to save and exit the file.

Test the config by runnings all tests from the sentinel folder you cloned into

```
cd /root/.crowdcoincore/sentinelLinux
./venv/bin/py.test ./test
```

Installation completed !

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CREATING A SWAP FILE

If you don't have enough ram on your vps server as required you can create a swap file.
The swap file makes space on your hard drive that the server can use as simulated extra ram.

Run these commands to make a swap file:

```
sudo fallocate -l 4G /swapfile
sudo chmod 600 /swapfile
sudo mkswap /swapfile
sudo swapon /swapfile
```

We have our swap file enabled, but when we reboot, the server will not automatically enable the file. We can change that though by modifying the fstab file.

Edit the file with root privileges in your text editor:

```
sudo nano /etc/fstab
```

At the bottom of the file, you need to add a line that will tell the operating system to automatically use the file you created:

```
/swapfile   none   swap   sw   0   0
```

Save and close the file when you are finished.

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