

Guide to setting up Stake Cube Coin (SCC) masternodes.

To setup and operate an SCC masternode you will need:

- * 1000 SCC
- * A Virtual Private Server (VPS)
- * Fully synced SCC wallet version 1.3.0.0

It is assumed that you have installed the wallet, synced it and it has at least 1000 coins in it.

1. Get a VPS.

There are many VPS providers out there and you can use whichever you like but here we will only talk about two of them. One is [Vultr](#) and the other is [Contabo](#). Both offer a choice of specifications/prices.

Pros, cons and notes.

Vultr offer a VPS with 1 virtual processor core, 1GB RAM and 25GB SSD storage for US\$5/month.

Contabo offer a VPS with 4 virtual processor cores, 8GB RAM and 200GB SSD storage for €4.99/month.

Note: There are cheaper HD versions but as you'll be using swap space the saving is not worth it, you need the speed of SSD.

At Vultr, once you have your account, you can create a new virtual server just about instantly. At Contabo there is a waiting time up to 24 hours but can be as little as a few minutes.

With Vultr there is no setup fee, just the monthly fees (charged by the hour). Contabo charge a setup fee of €4.99 for the above spec server unless they're running a special offer at the time or you commit to and pay for 6 or 12 months up front.

Which to go for? Both have their advantages and disadvantages. If you only plan to run a single node or just a few then Vultr may be sufficient. If you plan on running lots of nodes (not necessarily all SCC) then the considerably higher spec of the Contabo VPS is well worth it.

How many nodes per server? Nodes for different coins use different amounts of resources so it's not a question that can be directly answered. Just looking at SCC nodes, the Vultr VPS seem to be a little random on this. Some people are able to run more nodes reliably than other people with the same spec server. Generally the range is between 5 and 10 nodes. With the larger resources available on the Contabo VPS it is possible to run considerably more nodes. 40 to 50 nodes (depending on how "heavy" they are) is quite achievable.

Being that they're virtual processor cores it is possible to push them above 100% usage. Vultr don't seem to care about you doing that, Contabo do. It's perfectly fine for a while but they don't want you to use the full virtual processor on an ongoing basis and would cancel your account if you did. The reason for this is that there are a number of virtual servers on each physical server. If one user is hogging all the real, physical, resources it means other customers can't use them. It's recommended that you don't run it above 60% constantly to ensure your account remains safe. Depending on the nodes 40 to 50 should keep it under that figure.

Many nodes still require Ubuntu 16.04 to run but more modern wallets require Ubuntu 18.04 to run. The SCC wallet should run on either so it's up to you which version of Ubuntu to install on your server.

2. Wallet setup

At the time of writing version 1.3.0.0 is the latest version of the SCC wallet. The wallet you install on your desktop computer is referred to as the "controller wallet" as it's where you control the masternode wallets from. Make sure there are 1001 SCC available to ensure you will be able to send exactly 1000 coins and cover the transaction fees, or send exactly 1000 SCC from somewhere else where there are sufficient coins to cover the fees or from somewhere like StakeCube.net that doesn't charge withdrawal fees.

Controller wallet.

Download and install the SCC wallet. Only download from GitHub – you can find a link to the SCC github on the SCC information page in your SC account. Never use a wallet download link from an unofficial source and especially not from someone who contacts you via DM in Discord, Telegram etc. Make sure you encrypt your wallet and keep the password safe, if you lose it you lose all of your coins. Load the wallet and go to the "Receive" tab of your SCC wallet and enter the name you've chosen for your node in the "Label" box. As you will need to type this name it is recommended that you keep it short, all lower case and don't include any symbols or special characters, for example "scc01". Click on the "Request payment" button and a box will pop up with a new address in it. Copy that address to a text file. You will be asked for your wallet decryption password if necessary.

File Settings Tools Help

Overview

Send

Receive

Transactions

RECEIVE

Use this form to request payments. All fields are optional.

Label: scc01

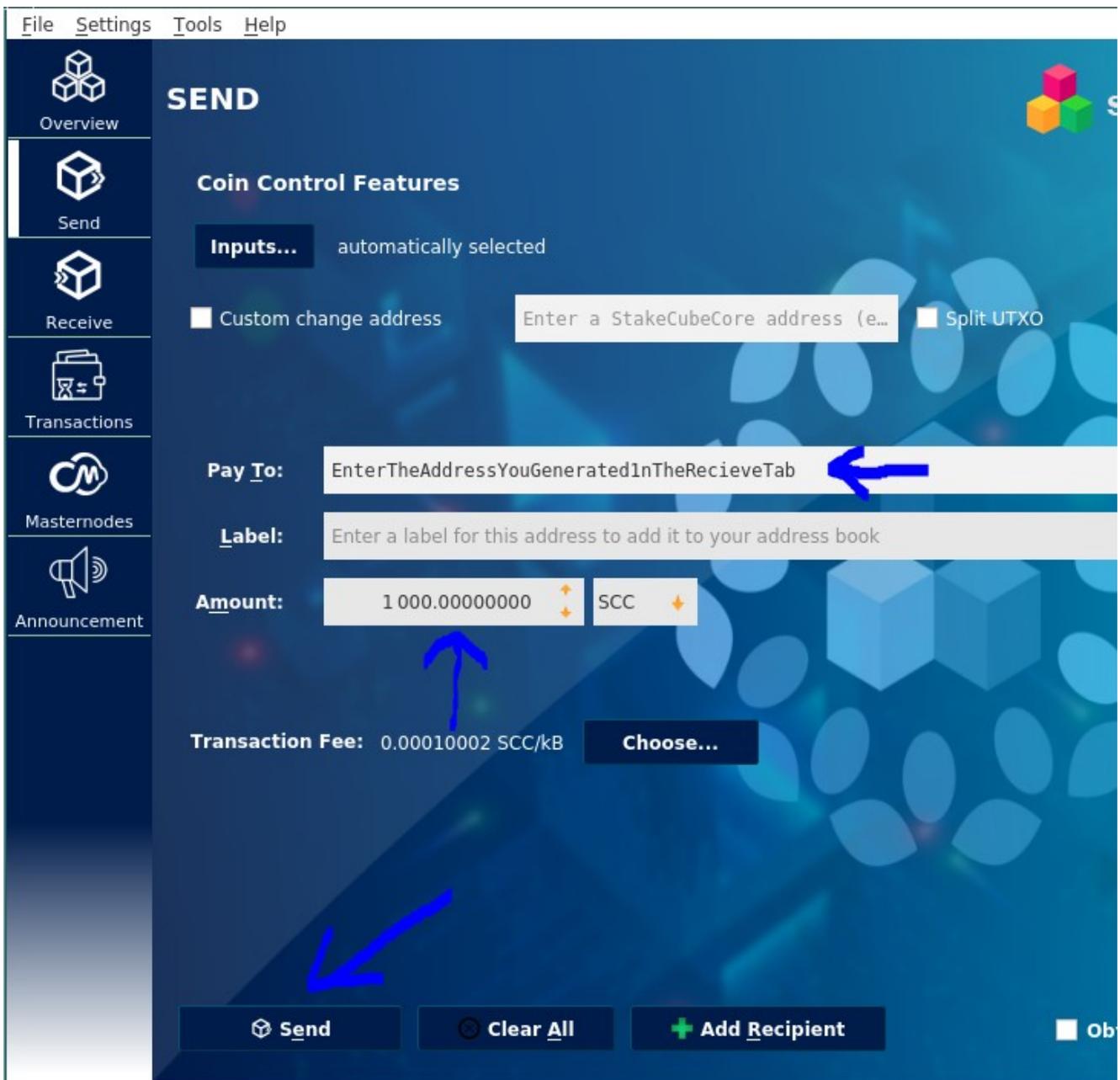
Amount: [input] SCC [dropdown]

Message: [input]

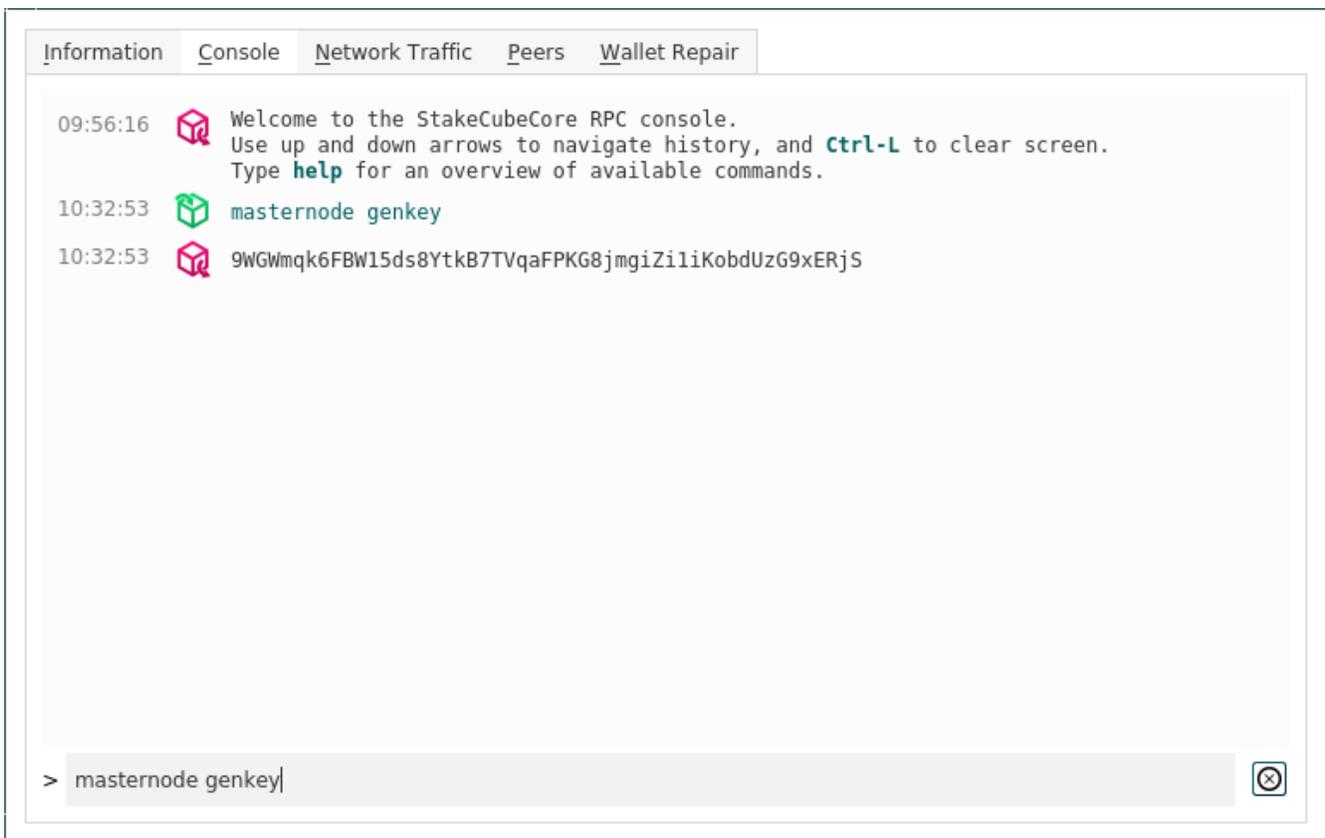
Reuse an existing receiving address (not recommended)

[Request payment](#) [Clear](#)

Click on the “Send” tab and paste the address you have just generated into the “Pay To” box. It will automatically place the label you gave that address in the Label box. Enter “1000” into the “Amount” box and click the “Send” button. Before you can start your node the collateral transaction must have 16 confirmations so you can now complete the other steps whilst you wait for that to happen.



Next, click on the “Tools” menu at the top of the wallet and select “Debug console” from the menu. In the debug console type “masternode genkey” into the command entry box at the bottom. Hit Enter and a new masternode private key will be shown above, in the main area of the debug console window. Copy that key to the text file you pasted the collateral address into, you will need it later.



There are just two more pieces of information to gather and a couple to decide on. Close the debug console window and go to the “Transactions” tab. You will see an entry (should be right at the top as you’ve only just sent the collateral transaction) labelled “payment to yourself”, it’ll show an address of “(n/a)” and a small negative amount in the “Amount” column (that’s the transaction fee showing). That is your collateral transaction. Right click on it and select “Copy transaction ID” from the menu. Paste that transaction ID (TXID) into your text file. Then click the “Tools” menu at the top and select “Blockchain explorer” from the menu. An error box is likely to appear telling you you need to set index=1 in the config file, you don’t, ignore that, click OK. When it opens it will show the current block height in the search box, delete that and paste your TXID and click “Search”. There may be many “Inputs” shown or just one, that doesn’t matter. Scroll down if necessary and find the “Outputs” section. Find the line that has 1000 SCC associated with it, in the example below it’s the bottom line. Look for the number in the circled column, in this example it’s number 1.

Outputs			
#	Redeemed in	Address	Amount
0	unknown	sXdWZ7AE [REDACTED] Jc7dU	0.49846095 SCC
1	unknown	sRyHHwT [REDACTED] TUxgjk	1000.00000000 SCC

That is the TX index number. Take a note of it in your text file.

Now all that remains is to decide on ports to use before the actual node setup begins. Never use a port number below 1024. The maximum port number that exists is 65535. Each node needs two unique port numbers assigned to it. The node port and the RPC port. Defaults for these are 40000 for the node port and 39999 for RPC but if you plan to ever have more than one SCC node on the same server then it is not recommended that you use those. You are free to choose whichever port numbers you like but a

suggestion is that you pick two “base numbers” that are well apart for your node and RPC port starting points. For example 40000 for the node ports and 45000 for the RPC ports:

	Port	RPC port
scc01	40001	45001
scc02	40002	45002
scc03	40003	45003
scc04	40004	45004 and so on...

The reasons for this are that you’re not sensibly going to run out of ports between the node ports and RPC ports, the final digit/s of the port numbers match each other and the node name (alias) so it is easier to keep track of which node is using which ports. Record your chosen ports in your text file.

You will need to perform these steps for each node you wish to install as each node must have a unique alias, masternodekey, port and RPC port, collateral address, collateral, TXID and TX index.

3. VPS setup

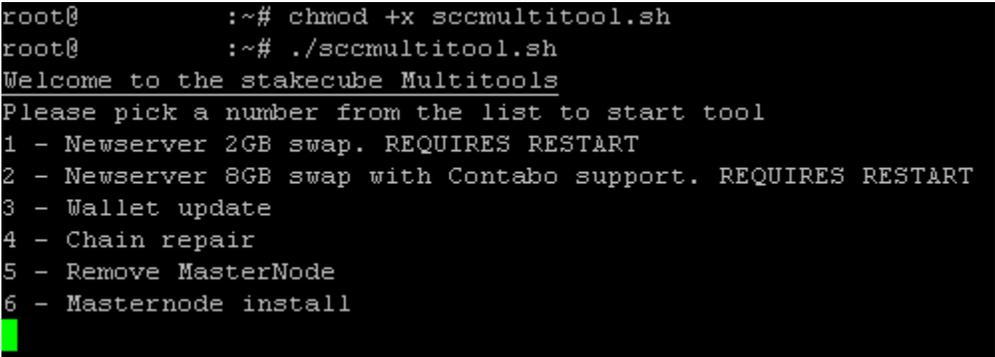
If you are running **Windows** on your computer and don’t already have it, download and install PuTTY. <https://www.putty.org> If you are running **Linux** or **macos** then open a terminal window.

In PuTTY enter the IP address of your VPS in the “Host Name (or IP address)” box, leave the port set to default 22. Click “Open” and when a security warning message opens click OK. From Linux or mac terminal type “ssh root@<IP>” without the quotes and replace “<IP>” with the IP address of your VPS.

PuTTY will open a new window, all black with a login prompt at the top. Enter “root” without the quotes (for Linux and mac you won’t need that as you’ve already told SSH that you want to login as root) and press Enter. You’ll be prompted for the root password. Most VPS providers generate a strong password for you so you’ll not want to type it in each time, you’ll be copying and pasting it. To paste into PuTTY you just right click, nothing else. For the password entry you’ll see nothing appear after you have right clicked, just press Enter and you should now be logged in. In Ubuntu, to paste into a terminal window use <Ctrl><Shift><v> and then press Enter.

You will usually get some output from your server (general info) after logging in and a fresh command prompt. If this is a new server and doesn’t have any swap space setup that is the first thing to do. Download and run the “sccmultitool.sh” script by using these commands:

```
wget https://github.com/stakecube/SCC-multitool/raw/master/sccmultitool.sh
      chmod +x sccmultitool.sh
      ./sccmultitool.sh
```



```
root@      :~# chmod +x sccmultitool.sh
root@      :~# ./sccmultitool.sh
Welcome to the stakecube Multitools
Please pick a number from the list to start tool
1 - Newserver 2GB swap. REQUIRES RESTART
2 - Newserver 8GB swap with Contabo support. REQUIRES RESTART
3 - Wallet update
4 - Chain repair
5 - Remove MasterNode
6 - Masternode install
```

When it runs you will see the above menu. If you have a \$5 Vultr server (or a similar spec from another provider) select option 1. If you have a €4.99 Contabo server (or a similar spec from another provider) select option 2. This will create an appropriate amount of swap for your server and install some dependencies. Contabo Linux installations don't have some required software installed by default, option 2 will take care of that. Don't worry about running option 2 on a similar spec, non-Contabo server, attempting to install those dependencies won't do any harm to the Linux installation.

Only run one of the new server options once on a new server or you will end up eating up a lot of the storage with new swap files and could cause problems for the system. **You do not need to run either of the above options before installing your 2nd SCC masternode or beyond.** If you have to reinstall Linux on your VPS (from the provider's control panel) you will need to run the appropriate option again (only once) as it is a fresh install.

Once it has finished you will need to reboot the server, do so with this command:

```
reboot
```

You will receive a message about disconnection from the server. If using PuTTY, close the PuTTY window. Wait 1 minute and then log back into your VPS.

4.1 1st node setup

You already have sccmultitool.sh on your VPS. The script is often updated so if there have been more than a few days pass since you setup your server it's recommended to delete the version you have and download a fresh copy in case it has changed. Usually first node setup will immediately follow on from setting up the VPS with swap etc. Should you need to remove and download a new copy of the script use these commands:

```
rm sccmultitool.sh
```

```
wget https://github.com/stakecube/SCC-multitool/raw/master/sccmultitool.sh  
chmod +x sccmultitool.sh
```

Run the script with this command:

```
./sccmultitool.sh
```

You will see the same menu as before:

```
root@      :~# chmod +x sccmultitool.sh  
root@      :~# ./sccmultitool.sh  
Welcome to the stakecube Multitools  
Please pick a number from the list to start tool  
1 - Newserver 2GB swap. REQUIRES RESTART  
2 - Newserver 8GB swap with Contabo support. REQUIRES RESTART  
3 - Wallet update  
4 - Chain repair  
5 - Remove MasterNode  
6 - Masternode install  
█
```

This time select option 6 – Masternode install. It will run and ask you for some input:

```
6
Starting SCC MasterNode install
Checking home directory for MN alias's
sccmn01
Above are the alias names for installed MN's
Please enter MN alias. Example mn3
sccmn02
Enter masternode key
-->ENTER MASTERNODE KEY HERE<--
Please enter a port number. Default is 40000 for MultiNode use unique
40001
Please enter a RPC port number. Default is 39999 for MultiNode use unique
40002
```

Alias = Name of your masternode, must all be in lower case with no spaces or special characters. It's usually a good idea to use the same name as you chose when setting up the collateral address in the controller wallet. Eg. scc01

MN key = get this from your text file that you created earlier.

Port = get this from your text file that you created earlier.

RPC port = get this from your text file that you created earlier.

Remember that to run multiple masternodes on one server sharing the same IP you will need to enter a unique Alias, MN key, port and RPCport each time you run sccmultitool.sh.

When it has installed your node it will give you most of the info you will need for your controller wallet's masternode.conf file.

```
SCC MN setup completed
Masternode setup complete for sccmn2

Alias name = sccmn2
IP/Bind = IP SHOWS HERE
Port = 40001
rpcport = 40002
MN key = MASTERNODE KEY SHOWS HERE
alias password =

Please note that if you are installing multiple MNs you will need to setup swap space
Wait for sync and then use sccmn2 getinfo or sccmn2 getmasternodestatus to check node
Enter the information below into your masternode.conf file in control wallet with the addition of the collateral output txid and
TX index
sccmn2 IPSHOWSHERE:40001 MASTERNODEKEYSHOWSHERE
You must use the default port with your control/desktop wallets masternode.conf file
Then save masternode.conf, restart your control wallet and start your new SCC MasterNode

For more information or support please visit the SCC masternode-support channel on Discord
https://discord.gg/xxj2zJE
root@:~#
```

The next section will document installing a 2nd (or more) node on the VPS, skip past that to find the section which covers the final step required with the controller wallet.

4.2 2nd node (or more) setup

You already have sccmultitool.sh on your VPS. The script is often updated so if there have been more than a few days pass since you setup your last node, it's recommended to delete the version you have and download a fresh copy in case it has changed. If you are installing a number of nodes in one sitting and you downloaded the script for the first node then you won't need to download a new copy for every node install. Should you need to remove and download a new copy of the script use these commands:

```
rm sccmultitool.sh
wget https://github.com/stakecube/SCC-multitool/raw/master/sccmultitool.sh
chmod +x sccmultitool.sh
```

Run the script with this command:

```
./sccmultitool.sh
```

You will see the same menu as before:

```
root@      :~# chmod +x sccmultitool.sh
root@      :~# ./sccmultitool.sh
Welcome to the stakecube Multitools
Please pick a number from the list to start tool
1 - Newserver 2GB swap. REQUIRES RESTART
2 - Newserver 8GB swap with Contabo support. REQUIRES RESTART
3 - Wallet update
4 - Chain repair
5 - Remove MasterNode
6 - Masternode install
```

Again select option 6 – Masternode install. It will run and ask you for some input:

```
6
Starting SCC MasterNode install
Checking home directory for MN alias's
sccmn01
Above are the alias names for installed MN's
Please enter MN alias. Example mn3
sccmn02
Enter masternode key
-->ENTER MASTERNODE KEY HERE<--
Please enter a port number. Default is 40000 for MultiNode use unique
40001
Please enter a RPC port number. Default is 39999 for MultiNode use unique
40002
```

Alias = Name of your masternode, must all be in lower case with no spaces or special characters. It's usually a good idea to use the same name as you chose when setting up the collateral address in the

controller wallet. Eg. scc02. Make sure the alias is unique on this server, not the same as any of your previous nodes.

MN key = get this from your text file that you created earlier. Make sure the alias is unique on this server, not the same as any of your previous nodes.

Port = get this from your text file that you created earlier. Make sure the alias is unique on this server, not the same as any of your previous nodes.

RPC port = get this from your text file that you created earlier. Make sure the alias is unique on this server, not the same as any of your previous nodes.

Remember that to run multiple masternodes on one server sharing the same IP you will need to enter a unique Alias, MN key, port and RPC port each time you run sccmultitool.sh.

When it has installed your node it will give you most of the info you will need for your controller wallet's masternode.conf file.

Simply run the sccmultitool.sh script again for each node you want to install with:

```
./sccmultitool.sh
```

5. Final controller wallet config and starting the node

Click the "Tools" menu at the top and select "Open masternode.conf file" and the file should open in a text editor such as Notepad. If it does not then you will need to find the file and open it manually.

To manually edit the masternode.conf file, in Windows type "%appdata%" without quotes into the Windows search box and press Enter. A directory viewer should open (the "Roaming" directory) and in there you should find a directory called "StakeCubeCore", inside there is the masternode.conf file. Open that in a text editor such as Notepad.

In a Linux desktop environment navigate to your home dir and press <Ctrl><h> to show hidden files (press that key combination again to re-hide them if you wish once this is complete) and you will see a directory called ".StakeCubeCore" without the quotes. In there is the masternode.conf file. Open it in a text editor.

In macos navigate to "Library" and press <Ctrl><h> and you should see ".StakeCubeCore" as per Linux. Open it in a text editor.

Now you have the masternode.conf file open in a text editor you need to add some data for each node on a separate line. You will need to add the following information, replacing anything in < > with the appropriate values. You will have all of these in the text file you built up during the preceding process.

```
<alias> <IP>:40000 <mnkey> <txid> <txindex>
```

Each data item must have a single space character between it and the next one, with the exception of the IP address and port number. Do not allow any extra space characters on the end of the line.

You will note that the port used in the masternode.conf file is always 40000, this will not match your nodes on the VPS, this is quite correct for this particular wallet.

<alias> = the name you've given your node, specifically for this file the name of the collateral address.

<IP>:40000 = the IP address of your VPS. If using IPv6 the IP address must be in square brackets: [IP]

<mnkey> = the masternode private key you generated early on in the process and noted in your text file.

<txid> = you recorded this in your text file just after sending the collateral to the masternode address.

<txindex> = you recorded this in your text file just after sending the collateral to the masternode address.

When you have entered all of the data (on a single line per node) save the file. You can add more than one node's line of data at a time if you wish. When saved, close the wallet if it was running and then load it again. Click on the Masternode tab and you should see your newly setup nodes showing in there as "Missing". Click on the line for the masternode you wish to start and then click on the Start button. If you receive an error about incorrect IP address then it is likely you are using IPv6 addresses for the nodes, to start those, open the debug console again (Tools menu) and use this command to start each node:

```
startmasternode alias false <alias>
```

Replacing "<alias>" with the name of your node, for example:

```
startmasternode alias false scc01
```

Repeat this for each node you wish to start.

Nodes will not start properly if the collateral has less than 16 confirmations on the blockchain.

When you have started your node/s from the controller wallet, go back to the VPS and check the status of the node (sometimes they can say "Enabled" in the controller wallet but aren't actually running properly on the VPS). Use the command:

```
<alias> masternode status
```

For example:

```
scc01 masternode status
```

6. Checking – ongoing

The server setup script will have downloaded a file called "check.sh" to the same directory that the multitool script was run from (usually /root).

To make sure you have it, on your VPS use the command:

ls

You should see a file called "check.sh" listed and it should be shown in green. If you do not have that file (may be it's an existing VPS with swap already setup so you haven't run the newserver part of the script) you can run these commands once to get the file:

```
wget https://github.com/stakecube/SCC-multitool/raw/master/check.sh
chmod +x check.sh
```

To use this file issue the command:

```
./check.sh
```

But first you will need to set it up. To edit the file use the command:

```
nano check.sh
```

At the top of the file you will see a list of variables you need to fill in. Type your MN alias names next to "node1=" and again for 2, 3 ect. If you don't have 5 nodes to fill all the variables don't worry, it won't cause a problem. If you have more than 5 nodes you wish to add simply add more lines to that top section following the same format, for example:

```
node5=scc5
```

```
node6=scc6
```

```
node7=scc7
```

Note that there are no spaces in those lines.

Once you've added those you will need to duplicate the blocks of code at the bottom for each node.

```
echo -e "5) $node5 \c"
$node5 masternode status
echo -e "Blocks: \c"
$node5 getblockcount
echo -e "Connections: \c"
$node5 getconnectioncount
echo
```

That is one block of code, that is the final one in the check.sh template file. To add node 6 and beyond simply copy it below (but before the "Node check completed" line) and adjust the numbers appropriately. For example:

```
echo -e "6) $node6 \c"
$node6 masternode status
echo -e "Blocks: \c"
$node6 getblockcount
echo -e "Connections: \c"
$node6 getconnectioncount
echo
```

```
echo -e "7) $node7 \c"
$node7 masternode status
echo -e "Blocks: \c"
$node7 getblockcount
echo -e "Connections: \c"
$node7 getconnectioncount
echo
```

This is deliberately a very simple script to display node data to you so that you can see exactly how it works and be able to edit it easily. There are 5 places in each block of code where you will need to change the node number.

When you have finished editing the script in nano you will need the key combination <Ctrl><x> then press <y> and finally <Enter>.

Remember, to run your newly edited check.sh file use the command:

```
./check.sh
```

To issue any commands to a node use the format:

<alias> command

For example:

```
scc04 masternode status
```

If you have had masternodes before you might be tempted to use: stakecube-cli masternode status but this will not work with the structure the nodes have been setup with. You must address the individual node by it's alias.

If you have any problems setting up your masternodes please ask in the #scc-masternode-support channel in StakeCube discord: <https://discord.gg/xxjZzJE>