SmartCash SmartNode SCRIPT Setup Guide v2.2

Windows 10

Date: 20/02/2018

By (Jazz) yoyomonkey

Introduction

Welcome to this step by step guide that will take you through the process of creating your own SmartCash SmartNode. This guide is aimed at the casual Windows 10 PC user who has purchased SmartCash from an exchange but has little or no experience of using Linux or VPS (virtual private servers).

This is an in-depth guide that will be broken into sections. The document will attempt to give an explanation of each step accompanied by relevant screenshots to guide you along.

As a recommendation, please read through each section first and try to understand what is going on before doing it. As soon as one section is complete, please move to the next one. Don't miss any steps and please take your time.

The views and opinions expressed in this document are from the author only. This document is not an official document of the SmartCash team and has only been created by a hive member in the hope to assist others.

Corrections and Comments

If you like the guide or would like to give any feedback please contact yoyomonkey on the SmartCash discord channel.

Creating a Virtual Private Server (VPS)

For a small monthly fee, you can run your own Virtual Private Server to host a SmartNode without having to create one at home and having the extra headache of worrying about having your machine running 24/7 and managing static IP-addresses etc.

This guide has been created to give a step by step account using Digital Ocean. However, I would like to state that there is no recommended preference from the SmartCash team for picking a VPS service.

To demonstrate that the service offerings are very similar, I have also included an "OPTIONAL SECTION 3" for vultr.com to show an alternate VPS setup process. Compare the 2 Sections and pay attention that the requirements and setup are very similar.

A list has been compiled of alternate VPS providers and I would encourage all SmartNode creators to do their own research and pick the best service that suits them.

Typing "VPS Hosting Providers" in a Google Search should return a number of possible VPS providers that can be used.

Name	Link
Amazon AWS	https://aws.amazon.com/
Microsoft Azure	https://portal.azure.com/
Google Cloud	https://cloud.google.com/
Digital Ocean	https://www.digitalocean.com/
Vultr VPS	https://www.vultr.com/
Chunk Host	https://chunkhost.com/
VPS Net	https://www.vps.net/
Host-it.co.uk	https://www.host-it.co.uk
VPS City (SmartCash Accepted)	https://www.vps-city.com
Offshore Hosting Space (SmartCash Accepted)	http://offshorehostingspace.org/

Requirements

10,000 SmartCash for each SmartNode.

Computer for running a local wallet only to start nodes and hold funds. Windows is used in this guide, but other QT version wallets work.
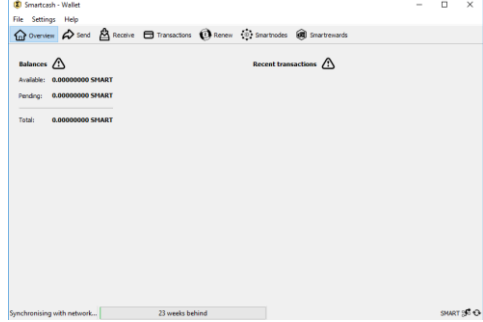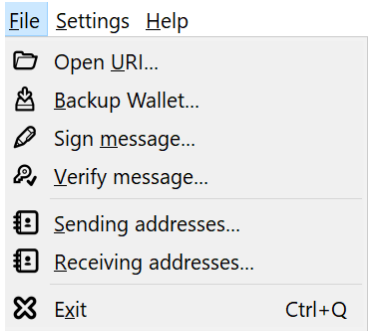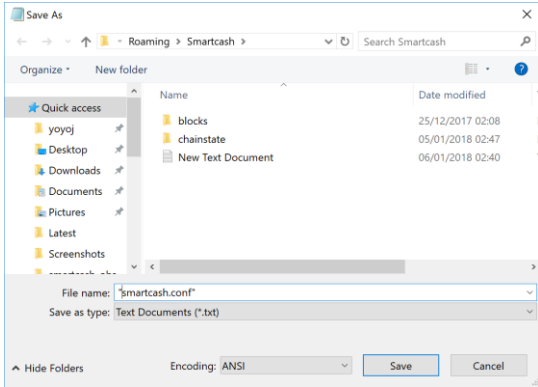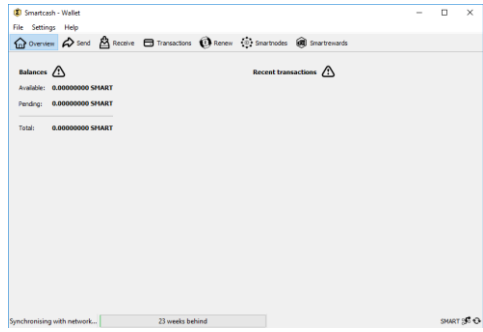
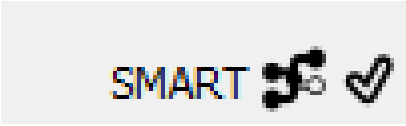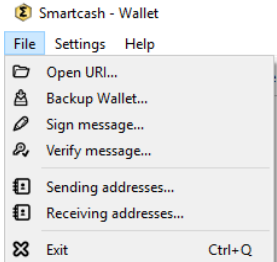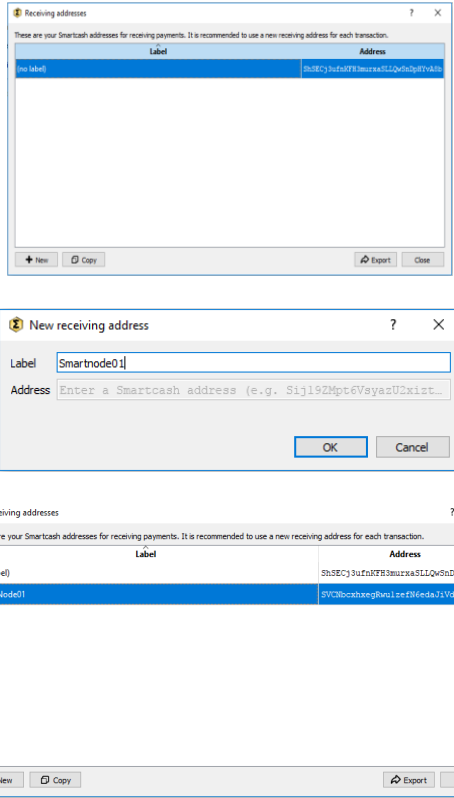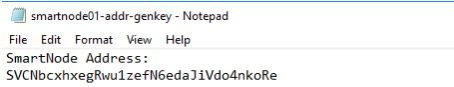VPS server for remote node running 24hrs/day which includes:

- 1GB RAM (about half used for the OS and half for the daemon we install)
- 20GB drive (less than 1GB used for wallet, some for OS, and some for future.
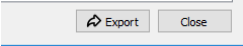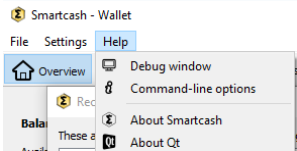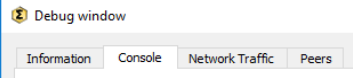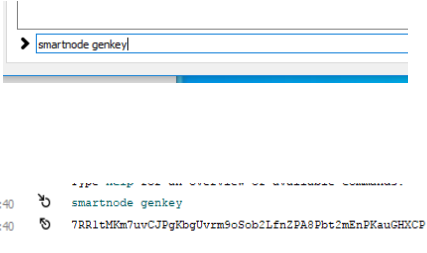- 1 Static IPV4 Address per node (IPV4 address that never changes) (No IPV6)
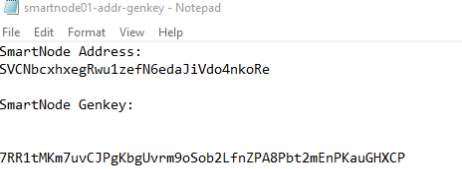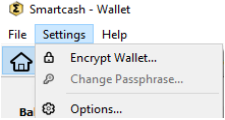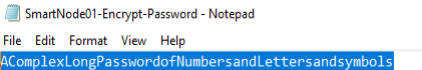
The remote node is actually the SmartNode, but for this guide we will call that remote node.

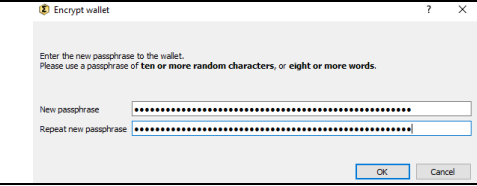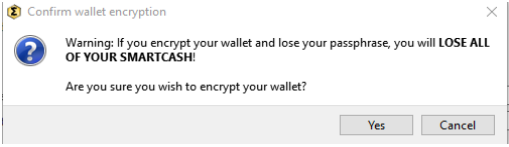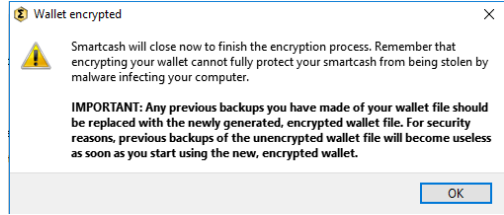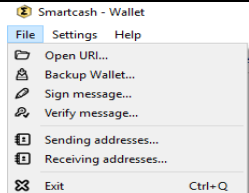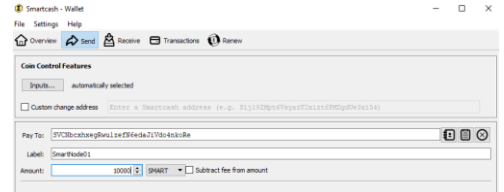## Section 1: Configure Windows SmartCash Wallet

1. Install the 1.1.1 SmartCash wallet from https://smartcash.cc/wallets/	
2. On your Windows machine start your SmartCash wallet.	

3. As soon as the wallet starts up go to the File menu and select "Exit".

   We need to make a config change before syncing the wallet to make it able to manage the SmartNodes.

File   Settings   Help

📂 Open URI...
🖺 Backup Wallet...
✏ Sign message...
🔍 Verify message...

📇 Sending addresses...
📇 Receiving addresses...

✖ Exit   Ctrl+Q

4. To run a SmartNode we need to create a smartcash.conf file in the %appdata%/Smartcash" folder (or the Data directory you selected when you installed the SmartCash Installer).

   Right click and select create text file. Right-click and edit with notepad.

   rpcuser=AUSERNAME
   rpcpassword=PASSWORD
   txindex=1

   Go to Save As and save the file name as "smartcash.conf" BUT INCLUDE the "double quotes" to force the extension of .conf.

📝 smartcash - Notepad

File Edit Format View Help

```
rpcuser=smartnode1
rpcpassword=temp123
txindex=1
```


5. Start the SmartCash wallet again.

6.	Wait for the wallet to fully sync. This can take up to 8 hours depending on many factors including Network Traffic. Look for the tick in the Bottom Right Corner of the wallet to signify that the wallet has fully synced.	SMART
7.	Go to File in the top menu bar and then select "Receiving addresses".	Smartcash - Wallet File Settings Help Open URI... Backup Wallet... Sign message... Verify message... Sending addresses... Receiving addresses... Exit Ctrl+Q
8.	Create a new address. Click New. Call it something identifiable i.e "SmartNode01". Click Ok. A second address should now appear in Receiving Addresses Window. Click the button "Copy".	Receiving addresses New receiving address Label Smartnode01 Address Enter a Smartcash address (e.g. Sij19ZMpt6VsyazU2xizt... OK Cancel Receiving addresses
9.	Paste the long address and save it in a file called: "smartnode01-addr-genkey.txt" Close the Receiving addresses window.	smartnode01-addr-genkey - Notepad File Edit Format View Help SmartNode Address: SVCNbcxhxegRwu1zefN6edaJiVdo4nkoRe

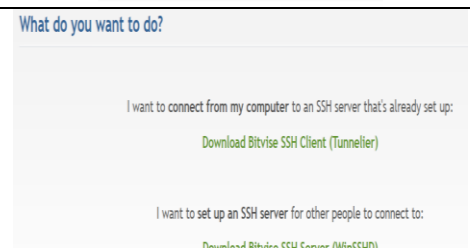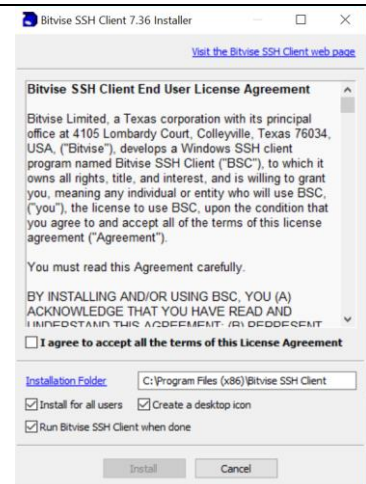|	
	Export Close
10. In the SmartCash wallet select Help in the top menu bar. Click "Debug window"	Smartcash - Wallet File Settings Help Overview Debug window Command-line options Rec About Smartcash Bala About Qt These a
11. In the Debug window click the console tab.	Debug window Information Console Network Traffic Peers
12. At the bottom of the window type into the input box. *smartnode genkey* This will generate a long string of text. Copy and paste this into the smartnode01-addr-genkey file as you will need it later. Remember to Save the file.	> smartnode genkey 17:57:40 smartnode genkey 17:57:40 7RR1tMKm7uvCJPgKbgUvrm9oSob2LfnZPA8Pbt2mEnPKauGHXCP smartnode01-addr-genkey - Notepad File Edit Format View Help SmartNode Address: SVCNbcxhxegRwu1zefN6edaJiVdo4nkoRe SmartNode Genkey: 7RR1tMKm7uvCJPgKbgUvrm9oSob2LfnZPA8Pbt2mEnPKauGHXCP
13. VERY IMPORTANT We now have to encrypt the wallet with a secure password. Go to the main SmartCash window and go to "Settings" in the menu and select Encrypt Wallet	Smartcash - Wallet File Settings Help Encrypt Wallet... Change Passphrase... Ba Options...
14. First, create a complex password in a notepad file (Save it as "SmartWallet-Encrypt-Password.txt") and keep this somewhere very safe. Copy and paste this password into the Encrypt wallet Window twice and select OK.	SmartNode01-Encrypt-Password - Notepad File Edit Format View Help AComplexLongPasswordofNumbersandLettersandsymbols

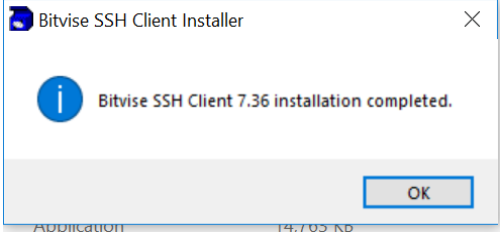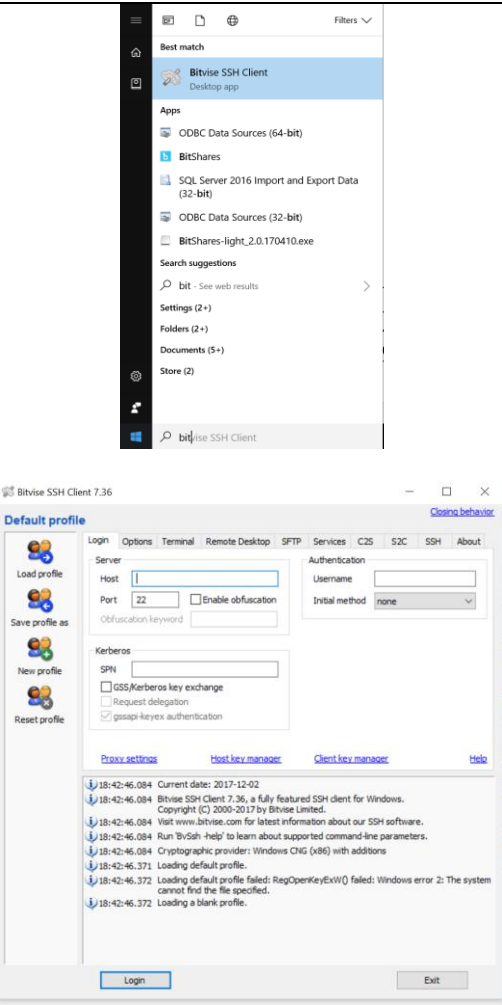|	
If you lose this password you will lose your SmartCash and no one will be able to get it back. Keep this file really safe!	
15. Read and confirm that you understand the message that if you lose this password there is no way of getting your SmartCash back! If you agree click "Yes" to continue.	
16. Please read this window carefully and backup your password file. Once the "SmartWallet-Encrypt-Password.txt" file is backed up (printed it out on paper and I saved it on usb pendrive) remove this file from the machine itself. Select "OK" and the SmartCash Wallet will close.	
17. Start the Smartcash wallet again. Back up the wallet file by going to the File Menu and Backup Wallet. Save this file to two USB backups and label them. The filename defaults to name as wallet.dat. Do not use these USB drives for any other use as these store your SmartCash funds.	
18. You are now ready to send 10,000 SmartCash to the SmartNode01 address from your exchange or another Smartcash address. **Send exactly 10,000 in one transaction.** You can send from within the same wallet if you wish. Sending from an exchange may require an email approval – accept that and wait for an hour or two. Once off an exchange, in network transfers are seconds.	
19. In the Windows Wallet Debug Console (Help in the Menu and Debug Console) type: *smartnode outputs*	

Save the key and index (0,1,2..) in the file. smartnode01-addr-genkey.txt (Section 1: Step 9) We will need this file later on.	

Once that is confirmed and you have backed up your files somewhere safe.
Please continue with Section 2.

Section 2: Install Bitvise SSH Client

The Bitvise SSH Client is a program which will allow you to connect to and control remote machines using the SSH protocol, which is for command line entry communication.
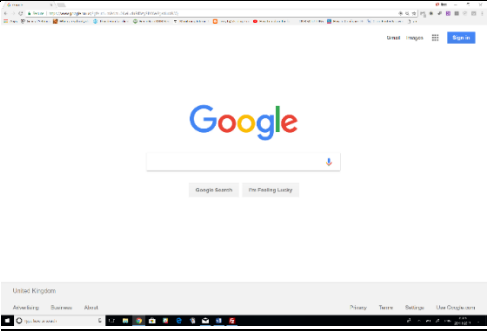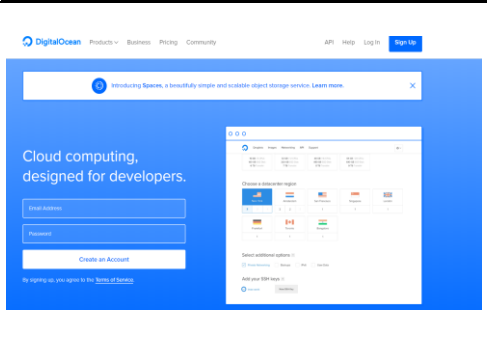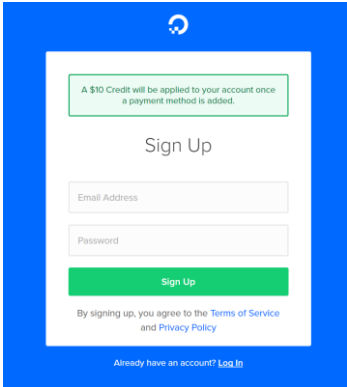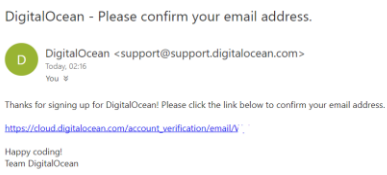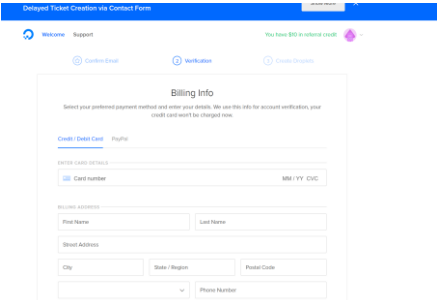
The remote node will be running 24/7 on a remote server. We can setup and maintain using Bitvise with IP-address, username and password. As the remote node will be running for a long duration, this guide will take it a step further by using secure keys to secure the connection further. We suggest following the extra security measure so your SmartNode is not kicked offline. There is no risk to funds, since they are not stored in this server anyway.
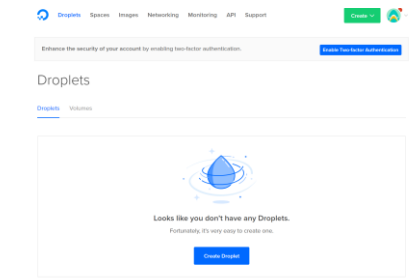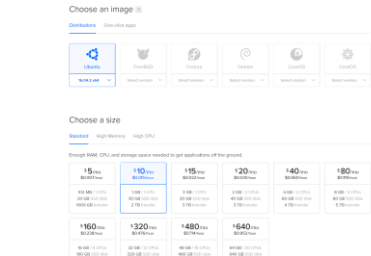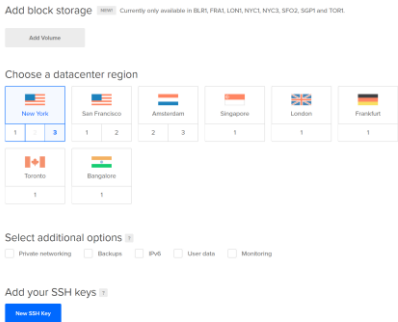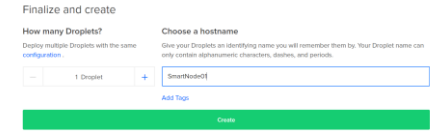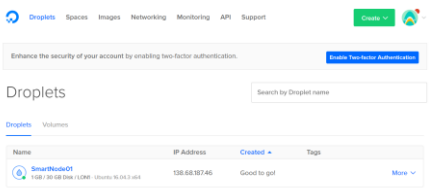
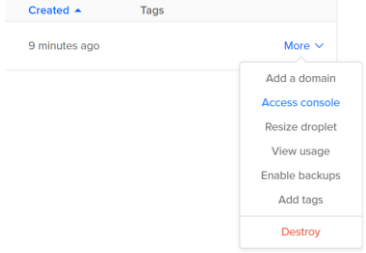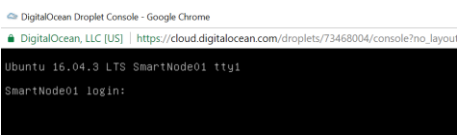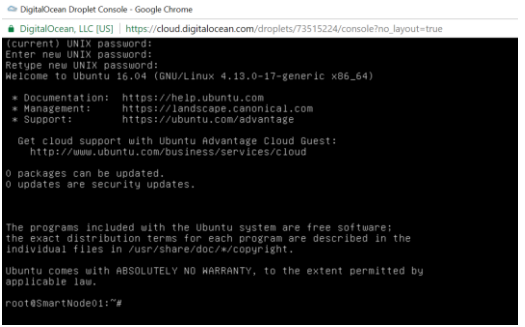|		
1.	Open Google Chrome and go to https://www.bitvise.com/ssh-client.	
2.	Go to Downloads and select the "Download Bitvise SSH Client (Tunneller).	
3.	Download the software and install. Read the Agreement and tick the "I agree to accept all the terms of this License Agreement".	

4. Go to the Windows Menu Type Bitvise and select the Bitvise SSH Client.	
Congratulations you have installed Bitvise SSH Client. We will be using Bitvise in Section 5 to connect to the VPS.	

Section 3: Digital Ocean sign up and Droplet Creation

Next are the steps to create a Virtual Server on Digital Ocean. For a small amount each month you can have an Ubuntu machine running in the cloud 24 hours a day, 7 days a week to run your SmartCash SmartNode.

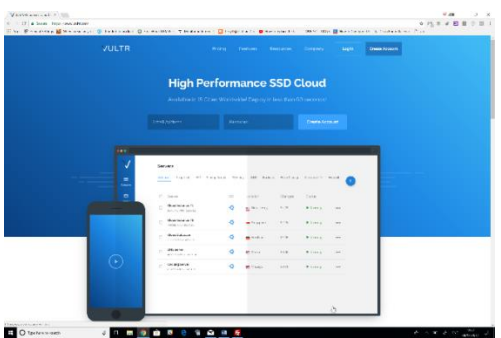|	
1. Open Google Chrome and go to https://www.digitalocean.com/	
2. Click on the blue "Sign In" button in the top right	
3. Enter your email and create a password.	
4. Go to your e-mail and check for a digital ocean email. Confirm the email.	
5. Enter in Payment Details so that you can create a Droplet (VPS)	

6. Once this is all done, log in again to Digital Ocean and go to "Create Droplet"	
7. Select an Ubuntu Distribution use Ubuntu Version 16.04 LTS. Select a monthly plan. Our suggestion is to setup with 1GB or more of RAM. Although, 512MB of RAM will work for a few days, it will often cause the wallet to lockup when it runs out of memory. As we add features, our wallets will use more resources too.	
8. You DO NOT need to Add block storage so leave this empty. Choose a Datacenter Region. If you have multiple nodes use different locations. DO NOT select additional options DO NOT add SSH Keys	
9. Give your VPS a name and select create.	
10. Check your email account for an email from Digital Ocean which will contain the root password.	
11. Back on the Digital Ocean page in your Internet Browser. Once the machine is created you will be presented with this screen. Click on more link and select Access console.	

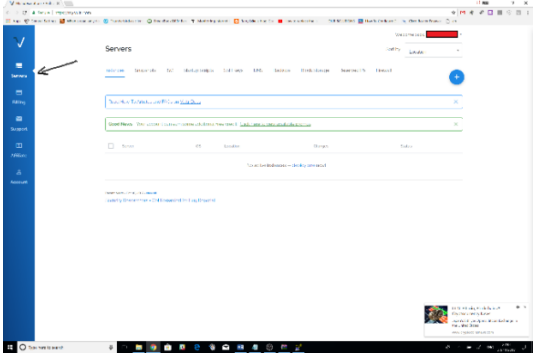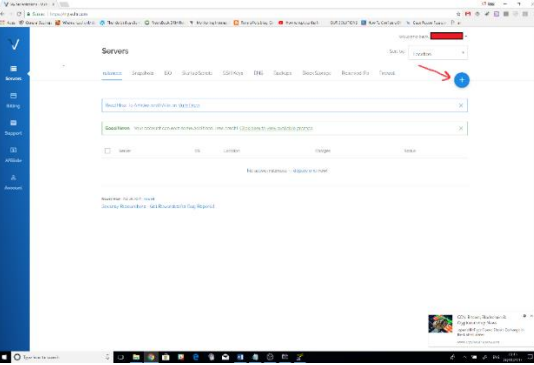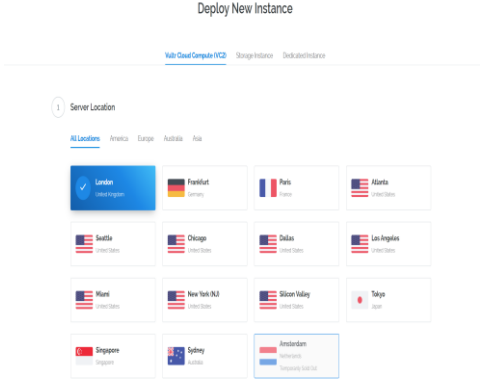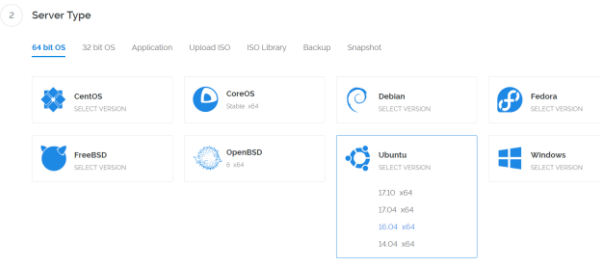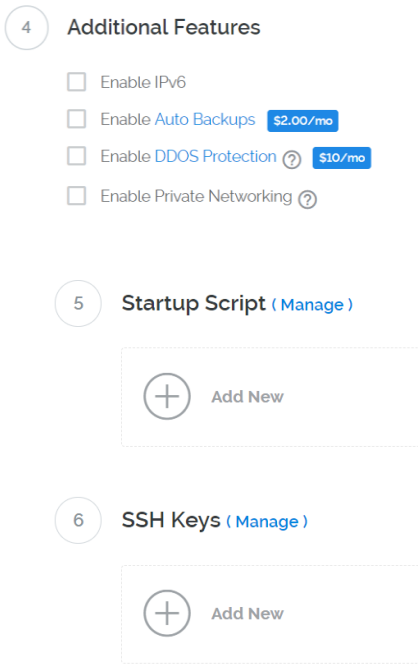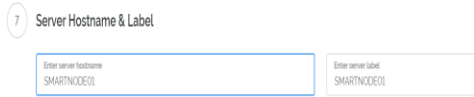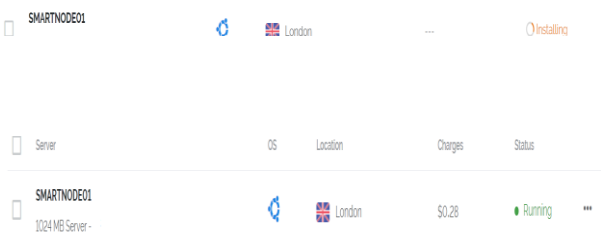|	
	Created ▲ Tags 9 minutes ago More ∨ Add a domain Access console Resize droplet View usage Enable backups Add tags Destroy
12. On the console screen enter the root credentials with the password from the email (step 10) to log in. Please note copy and paste may not work. So please type carefully.	DigitalOcean Droplet Console - Google Chrome 🔒 DigitalOcean, LLC [US] | https://cloud.digitalocean.com/droplets/73468004/console?no_layou Ubuntu 16.04.3 LTS SmartNode01 tty1 SmartNode01 login:

13. You will be asked to change your password so please follow the instructions and make note of your new password and keep it safe.	DigitalOcean Droplet Console - Google Chrome
	🔒 DigitalOcean, LLC [US] | https://cloud.digitalocean.com/droplets/73515224/console?no_layout=true
	
	(current) UNIX password:
	Enter new UNIX password:
	Retype new UNIX password:
	Welcome to Ubuntu 16.04 (GNU/Linux 4.13.0-17-generic x86_64)
	
	 * Documentation: https://help.ubuntu.com
	 * Management: https://landscape.canonical.com
	 * Support: https://ubuntu.com/advantage
	
	  Get cloud support with Ubuntu Advantage Cloud Guest:
	    http://www.ubuntu.com/business/services/cloud
	
	0 packages can be updated.
	0 updates are security updates.
	
	The programs included with the Ubuntu system are free software;
	the exact distribution terms for each program are described in the
	individual files in /usr/share/doc/*/copyright.
	
	Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
	applicable law.
	
	root@SmartNode01:~#

Congratulations. You have successfully created and logged into the VPS in Digital Ocean.	

ALTERNATE Section 3: VPS Creation and Console Connection: vultr.com
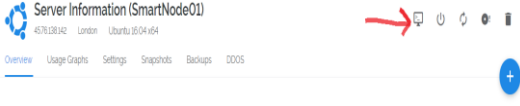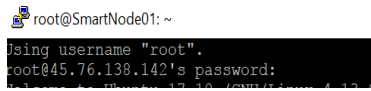
We are now going to use Vultr.com to create an Ubuntu Server in the Vultr console.

We will then log into the server using the Vultr control panel.

1. Using Google Chrome go to Vultr.com and sign in for the service. Once you have signed up, add funds using an accepted form of payment.	VULTR High Performance SSD Cloud
2. When you first log in. Click on the "Servers" icon in the blue left-hand navigation bar.	

3. Click the "+" on the right side of the page.	
4. Create a Server: a. Select your region.	
b. Select Ubuntu and 16.04 x64	

c. Select the 1GB Ram option.	
d. Skip section 4 (Additional Features. Skip section 5 Startup Script Skip section 6 SSH Keys. At default: All should be empty.	
e. Enter a name for your SmartNode.	
f. Click on "Deploy Now".	
5. You will now be returned to the servers page showing that the Smartnode server is now installing. Please wait 5 minutes for status to change from "Installing" to "Running".	
6. Once running, click on the SmartNode make a note of the IP-address and root password. We will	

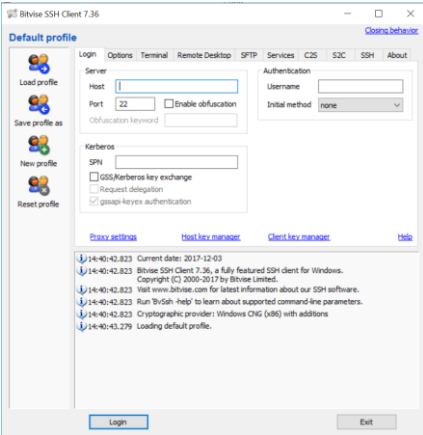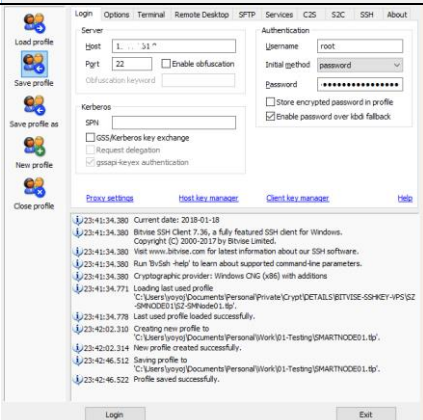|		
	need these details to connect to the server.	Location: London IP Address: 45.76.138.142 Username: root Password: $Tk8aZ|gJJVfH||P
7.	Click on the connect button located in the top left.	Server Information (SmartNode01) 45.76.138.142 London Ubuntu 16.04 x64 Overview Usage Graphs Settings Snapshots Backups DDOS
8.	You should now have a connection to your Virtual Machine. Enter the root password exactly when prompted. Please note copy and paste may not work. So please type carefully.	root@SmartNode01: ~ Using username "root". root@45.76.138.142's password:
Please go to Section 4: Step to update the VPS, Create a user and install the firewall.		

Section 4: VPS: Update Machine
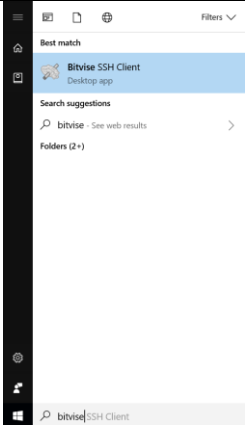
Now that you have logged in, let us start to configure the Linux server to be more secure and get it ready to become a SmartNode. This guide will use the Digital Ocean Droplet as the main examples in screen captures. Using any other VPS should be exactly the same.
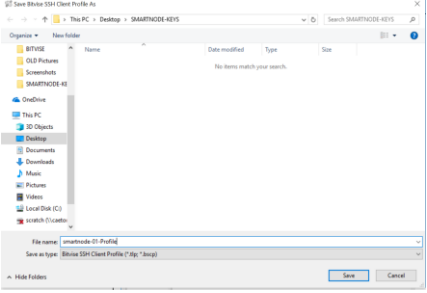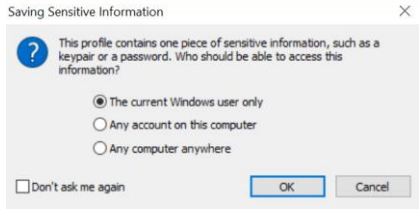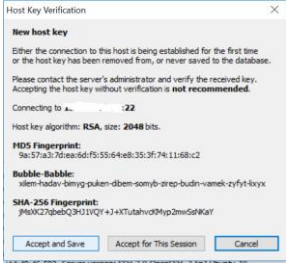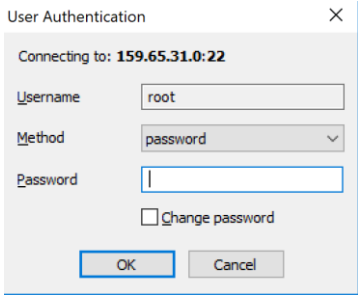
1.	In the connection to the virtual machine let us get the latest updates, please type in *apt-get update* and hit enter.	root@SmartNode01:~# apt-get update
2.	Now type *apt-get upgrade* and hit enter it will ask you if you want to upgrade just type y for yes.	root@SmartNode01:~# apt-get upgrade_
3.	As we have been using the console from the vultr control panel we have not used ssh. In the next section we get this sorted but first let us restart the machine again with *reboot* NOTE: Please be aware that restarting the machine may change your IP address so	root@SmartNode01:~# reboot Location: London IP Address: 45.76.138.142 Username: root Password: $Tk8aZ|gJJVfH||P

please refer back to the website and check your ip has not changed in the reboot.	
Congratulations you have successfully logged in as root, upgraded and updated the droplet.	

Section 5: Bitvise Login as root using the password

Now let us log in as the newly created user smartadmin and secure our SSH Connection

1. Go to Windows menu and start up Bitvise SSH Client.	
2. Enter in the details for: • Host: IP Address of Droplet • UserName: root • Click "Save Profile as"	

3. Give the Profile a Name to Save-As. SmartNode01 Click "Save".	
4. Click "OK".	
5. Click "Login".	
6. Click "Accept and Save"	
7. Password: Type the password you created for the root user. Click "OK". Two windows will appear one xterm console window and a file transfer window.	
8. Go to the xterm console window and let us create the ssh key. *ssh-keygen -t rsa -b 2048*	root@SmartNode01:~# ssh-keygen -t rsa -b 2048

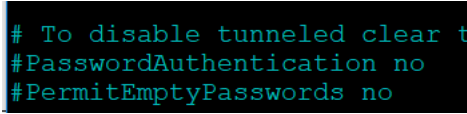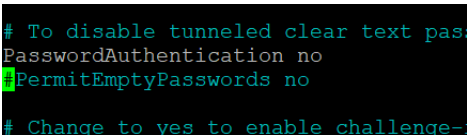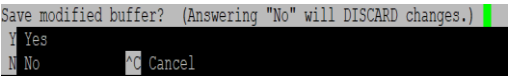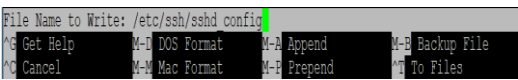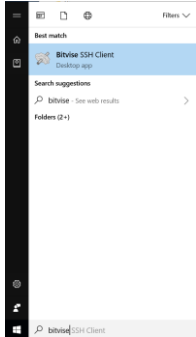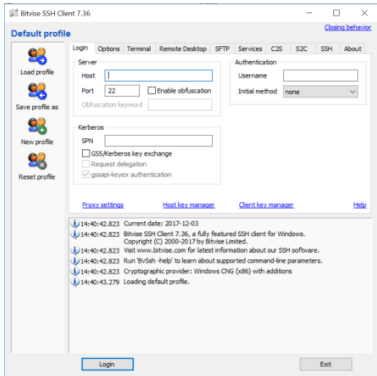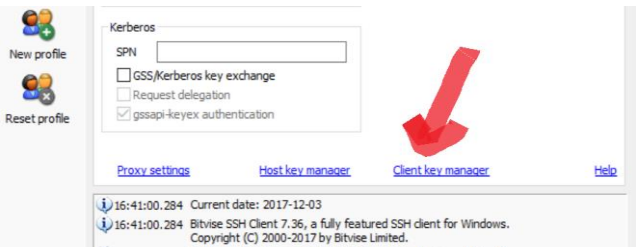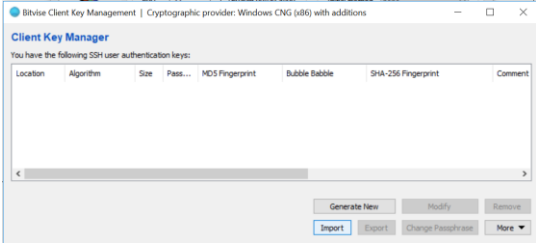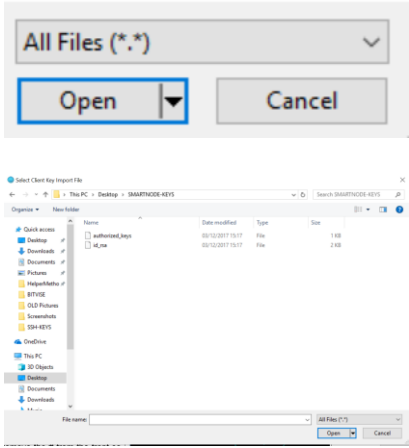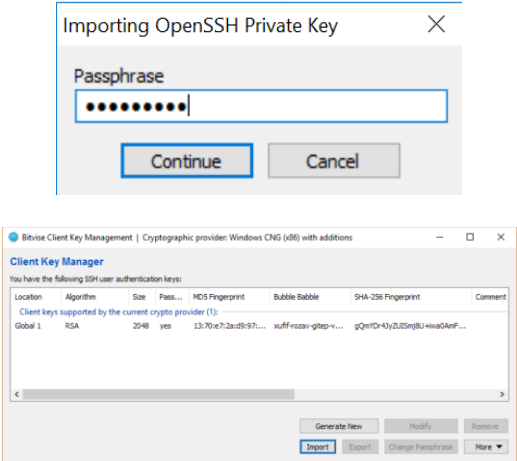|	

It will offer to save the file in the default location:
 	
/root/.ssh
 	
    Press Enter to Accept Defaults.
 	
    Create a Passphrase.
 	
    Enter the Passphrase Again.	

9. Now we need to rename and change the permission on the public key.
 	
    mv ~/.ssh/id_rsa.pub ~/.ssh/authorized_keys
 	
press Enter
 	
    chmod 600 ~/.ssh/authorized_keys
 	
press Enter
	root@SmartNode01:~# mv ~/.ssh/id_rsa.pub ~/.ssh/authorized_keys
	
	root@SmartNode01:~# chmod 600 ~/.ssh/authorized_keys

10. Go to the File Transfer Window Create a folder in the left hand side of the file transfer window. (This is your local system - Windows 10 Machine) Right Mouse Click – Select Create folder named "SMARTNODE-KEYS" Double click the Folder to enter the folder.	
11. On the right side is the Droplet/VPS Side of the file transfer window (Remote VPS Machine). Look for a directory called .ssh If this window is empty click or does not show .ssh folder on the refresh button on the right hand side.	
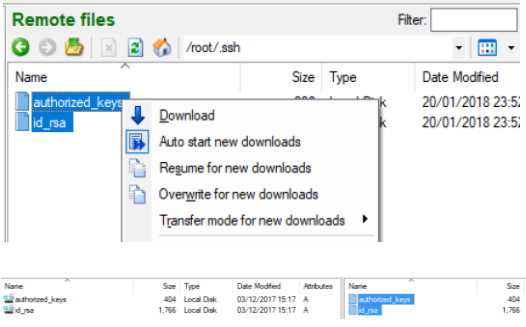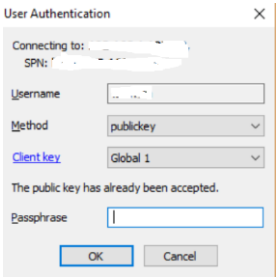
Go into the .ssh folder select both files and copy both files. Right mouse click and select "Download"	
12. Go to the x-term session and delete the id_rsa (private key) file from linux with the command. *rm ~/.ssh/id_rsa*	
13. Now to disable root access for ssh. *pico /etc/ssh/sshd_config* Enter when prompted the password for the smartadmin user.	
14. Scroll down to PasswordAuthentication and make sure it has no # character infront and says no (check screenshot)	 To
15. Now press CTRL + x to close. "Save modified buffer?" will appear at the bottom. Press Y to save.	
16. Hit Enter to confirm the filename to save as.	
17. Now it is time to restart the ssh service so the changes become active. *systemctl reload sshd*	

18. Congratulations we are all done just restart the machine. *reboot* Your machine is now updated and ready.	NEEDIMAGE Location: London IP Address: 45.76.138.142 Username: root Password: $Tk8aZ[gJJVfHlIP
19. Close Bitvise SSH and all associated windows.	

Section 6: Securely login as the root user with the private key and passphrase using Bitvise

Finally, let us test the login as the smartadmin user.

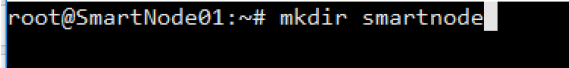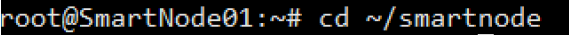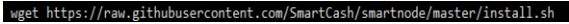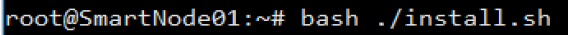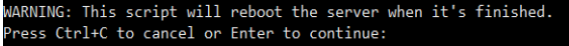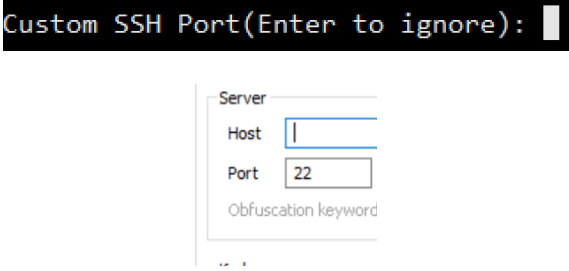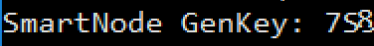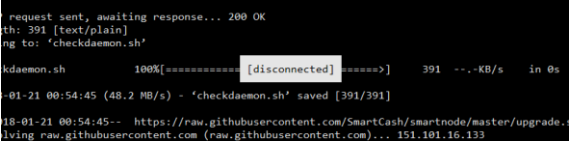|	
1. Go to Windows menu and start the Bitvise SSH Client	
2. From the previous section when we used Bitvise, we should already have the connections already but just in case the screenshot is provided. Click on Client Key Manager Link	

3. Click on Import.	
4. Navigate to the "SMARTNODE-KEYS" folder and then select the id_rsa file. (This was Section 5: Step 11) To see this file in the window. Change the file type to "All Files" in the drop-down in the bottom right corner .	
5. Enter the Passphrase used to create the ssh key (Section 5 Step 8).	
6. Select publickey and enter the password used for creating the key. Click OK. You should then be logged in.	

Congratulations. You now have securely logged in with a secure key and password into your account.	

Section 7: Install Smartnode using Script

Since you have already logged in as the root user let us install the SmartCash software using a script. Massive thanks to @msg768 for creating this.

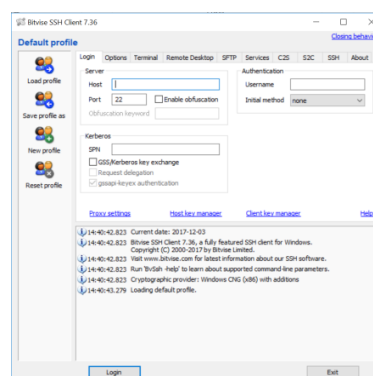|	
1. Create a folder called smartnode	`root@SmartNode01:~# mkdir smartnode`
2. Go into the smartnode folder *cd ~/smartnode*	`root@SmartNode01:~# cd ~/smartnode`
3. Type into the console session wget *https://raw.githubusercontent.com/SmartCash/smartnode/master/install.sh* press enter This will download the Auto Install script	`wget https://raw.githubusercontent.com/SmartCash/smartnode/master/install.sh`
4. Then type in *bash ./install.sh* *Confirm the install by pressing Enter*	`root@SmartNode01:~# bash ./install.sh`
5. This script will reboot the server when finished. *Press Enter to continue*	`WARNING: This script will reboot the server when it's finished.` `Press Ctrl+C to cancel or Enter to continue:`
6. If you would like to use a different port for SSH please enter a different number in here or you can press enter to accept the default port 22. If you do set a different value for a custom SSH port you must also change this port in Bitvise next time you reconnnect.	`Custom SSH Port(Enter to ignore):` Server Host Port 22 Obfuscation keyword
7. Enter in long Genkey from Section 1 Step 12.	`SmartNode GenKey: 7S8`
8. The droplet will restart once the script has finished running.	request sent, awaiting response... 200 OK th: 391 [text/plain] ng to: 'checkdaemon.sh' kdaemon.sh 100%[========== [disconnected] ======>] 391 --.-KB/s in 0s -01-21 00:54:45 (48.2 MB/s) - 'checkdaemon.sh' saved [391/391] 18-01-21 00:54:45-- https://raw.githubusercontent.com/SmartCash/smartnode/master/upgrade. lving raw.githubusercontent.com (raw.githubusercontent.com)... 151.101.16.133

Go to Section 8 to sync your smartnode.

Section 8: Syncing Smartnode

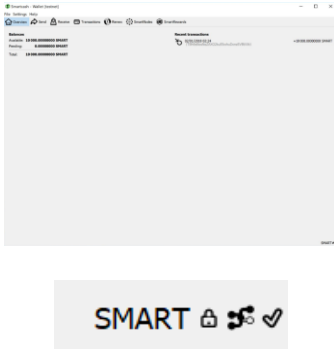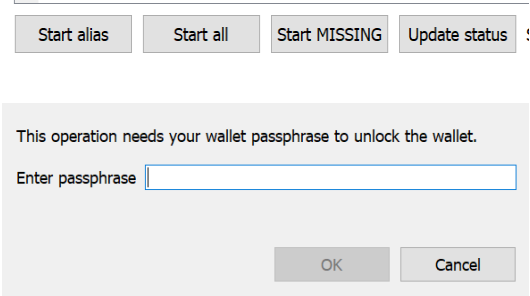|		
1.	Log back into the console via Bitvise.	
2.	Smartcashd will automatically be started please leave it to sync the complete blockchain this can take as long as a couple of hours. To check the sync progress..Type: *smartcash-cli getinfo* Hint: Type the above command every 30 minutes and check that the "blocks" field is increasing. When these numbers get within 1 block of the latest block explorer number you should then be fully synced. Go to your Chrome Browser and get the latest block number from https://explorer.smartcash.cc	
3.	Once your VPS has completely synced run the command. *smartcash-cli smartnode status*	
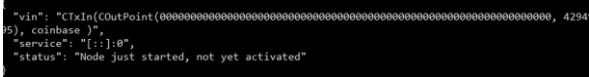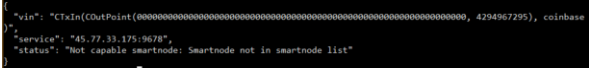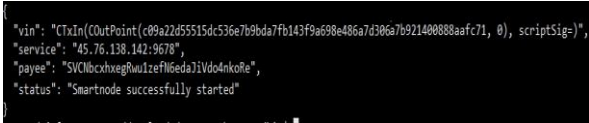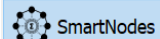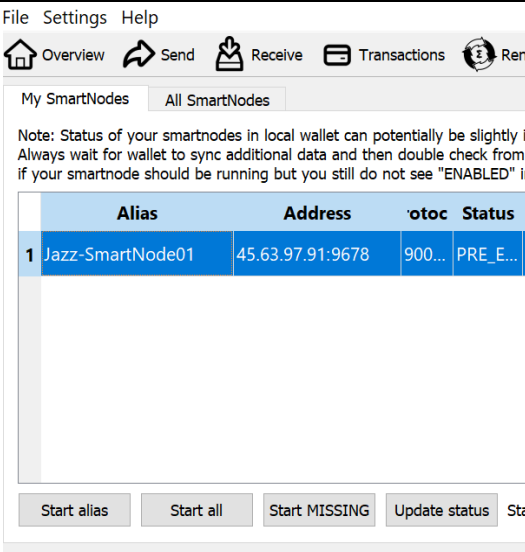
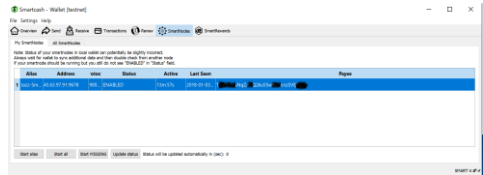|	

This can return the following smartnode status.
 	
   • "Node just started, not yet activated"
 	
   This will appear typically when smartnode is still syncing.
 	
OR
 	
   • "Not capable smartnode: Smartnode not in smartnode List"
 	
   When the smartnode has fully synced but has not been enabled by the Windows Wallet yet (Proceed to Section 9 Below)
 	
OR
 	
   • "Smartnode successfully started".
 	
   Once you have run the start command from your LOCAL windows wallet (After completing Section 9).
	
	Current Smartnode Status as it syncing
	
	Smartnode Fully Synced but not Activated.
	Before Section 9
	
	After Section 9 is Complete

Congratulations your SmartNode is now configured. Now we need to enable it.	

Section 9: Enable the SmartCash SmartNode

1. Go back to your local Windows Machine Open the file in %appdata%/Smartcash (or the Data directory you selected when you installed the SmartCash Installer) called smartnode.conf. This file has an example showing how a smartnode can be added for the windows wallet to manage it. Each line denotes a single SmartNode. The line consists of the following information separated by a single space.	

	LABEL: A one-word name you make up to call your node (ex. SmartNode01) IP : PORT: Your remote node VPS's IP-Address, and the port which is always 9678. SMARTNODEPRIVKEY: This is the result of your "smartnode genkey" from Section 1 Step 12. TRANSACTION HASH: The collateral tx. hash from "smartnode outputs" command from Section 1 Step 19. INDEX: The Index value(0,1,2..) at the end of the smartnode outputs from Section 1 Step 19. Add your smartnode details using the structure highlighted above. Do not add a # to the beginning lines of your smartnodes. Save the file.	
2.	Start the SmartCash wallet (If it is already started please close the application and restart the wallet so it can read the changes made). Wait for the wallet to fully sync: indicated by the tick in the bottom right corner.	SMART 🔒 🖧 ✓
3.	Click on the "SmartNodes" Tab.	SmartNodes
4.	Click on the "My SmartNodes" Tab.	File Settings Help Overview Send Receive Transactions Ren My SmartNodes All SmartNodes Note: Status of your smartnodes in local wallet can potentially be slightly i Always wait for wallet to sync additional data and then double check from if your smartnode should be running but you still do not see "ENABLED" in | **Alias** | **Address** | **otoc** | **Status** | 1 | Jazz-SmartNode01 | 45.63.97.91:9678 | 900... | PRE_E... | Start alias Start all Start MISSING Update status Sta
5.	Now to finally start your SmartNode.	

Click on "Start MISSING" button. (Clicking on "Start all" will reset any other SmartNode already started and push their payment date back. Start MISSING only starts nodes that need to be started.) You will be asked to type in your passphrase.	
6. Your SmartNode will change from a "Missing" status to a "Pre-Enabled" to finally "Enabled" this takes about 10 minutes.	
Congratulations you are now running your first SmartCash Smartnode! The local Windows wallet does not need to be left on 24/7. The Windows wallet can be used to see the rewards and SmartNode uptime.	

Next Steps?

Now that you have your Smartnode up and running there are additional steps you can take to secure and maintain your Smartnode.

Check out

www.smartnodes.cc: A community resource with some great tips on smartnode hardening.

SmartCash Discord: #smartnodes in the SmartCash Discord. Link is available on the official SmartCash site: www.smartcash.cc