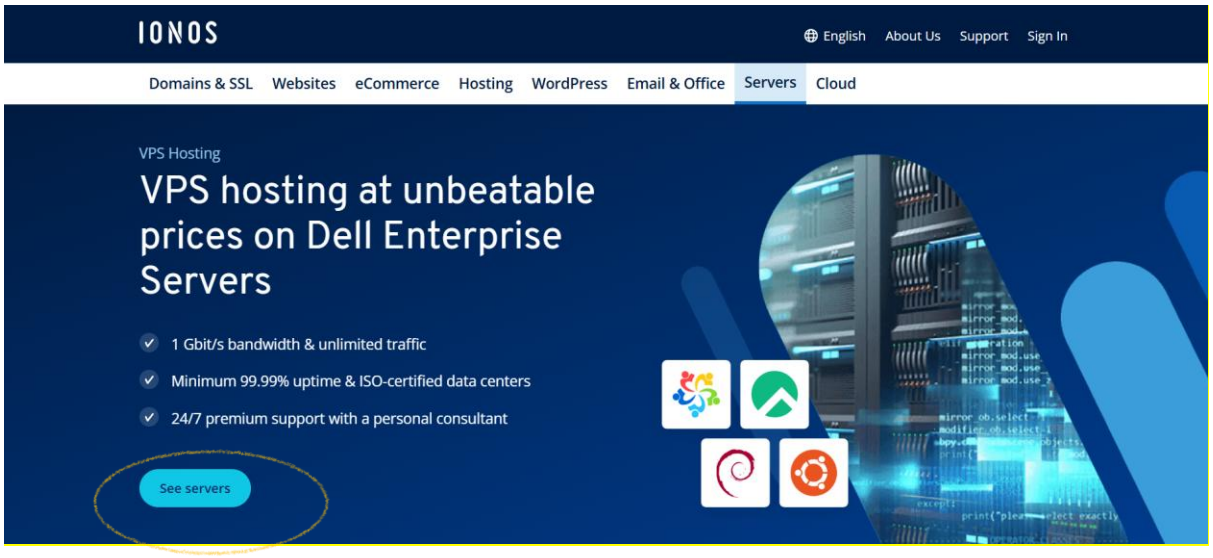
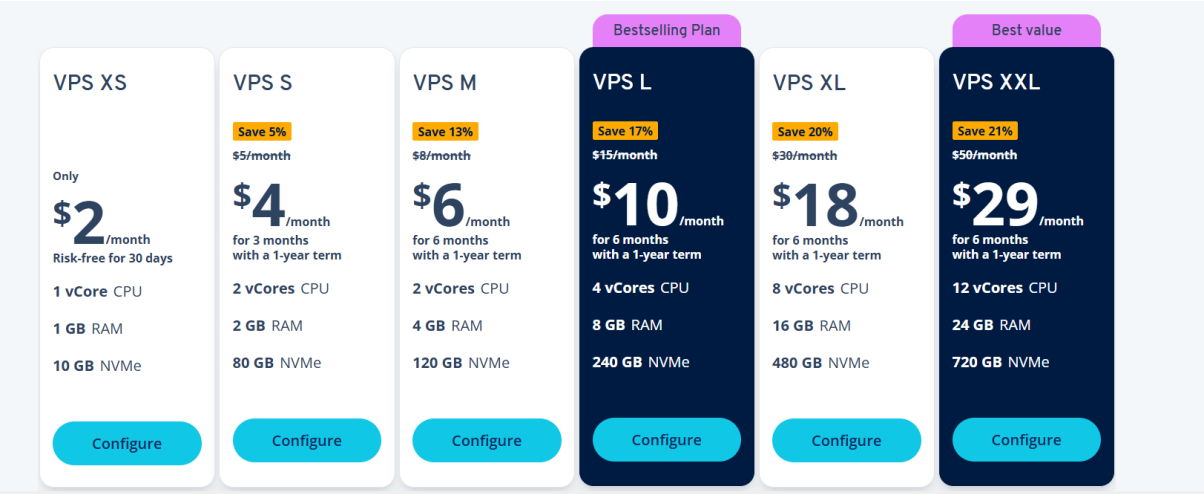
Document to build a node on Ionos

Step 1: Purchasing a plan

Website URL : https://www.ionos.com/servers/vps



Click on see servers to see the plans.

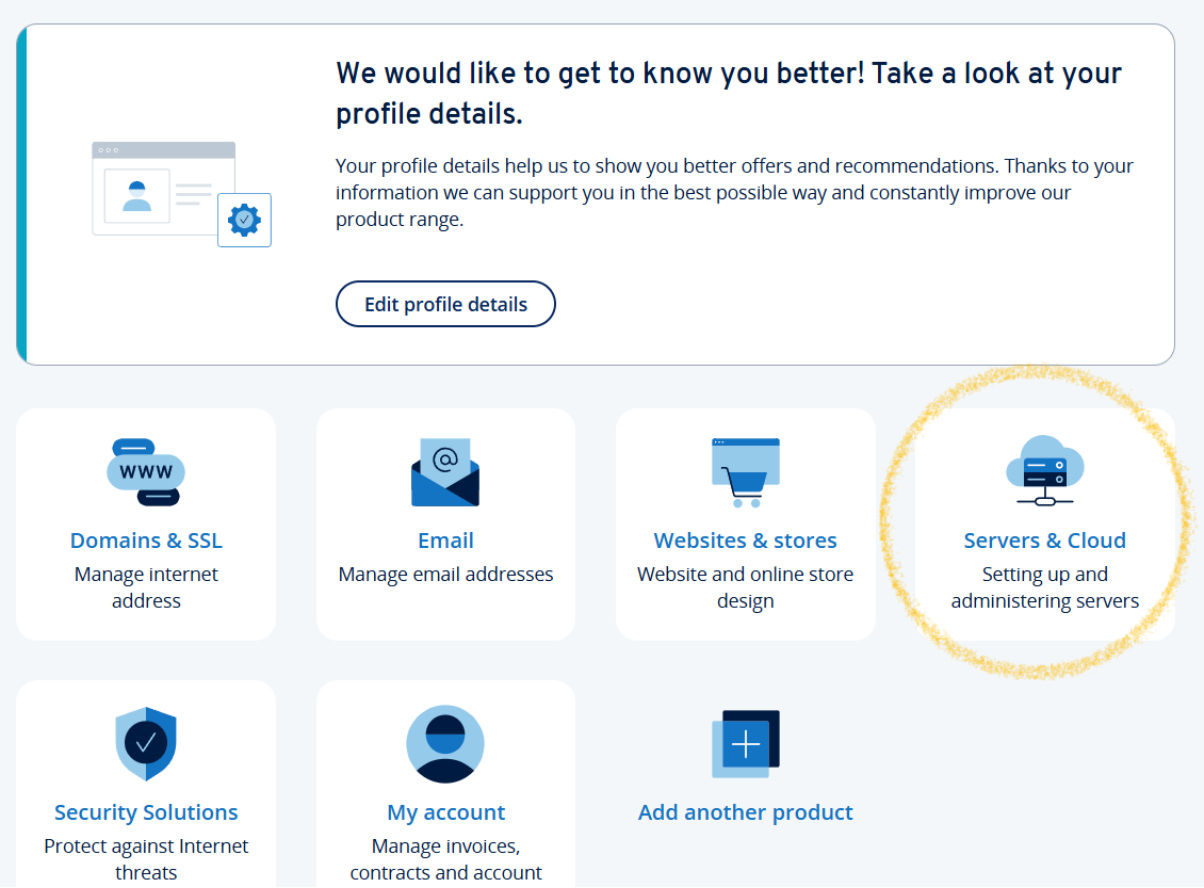


These are the plans available. The specifications for running a $DAG node is 8 vCores CPU, 16 GB RAM and Disk space varies depending on the snapshots. We have to choose VPS XL here. Once you select this plan, you will be asked to fill in all your personal details and do the payment.

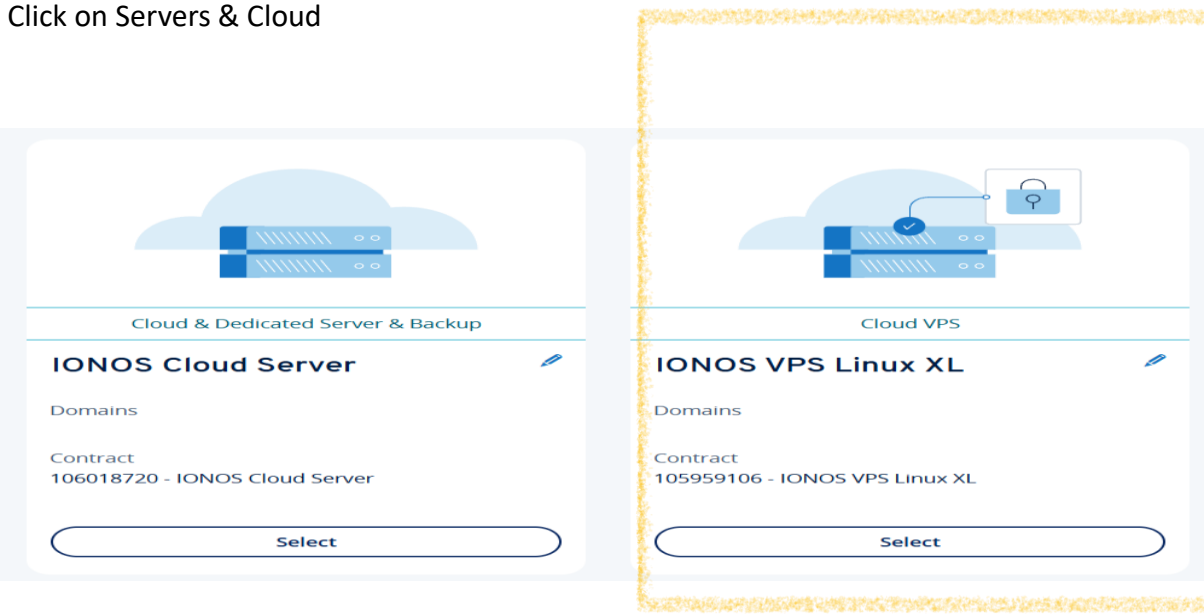
You can also place an order by calling to the customer support. Phone no - +1-484-254-5555
Once the payment is done, you will get the customer id details to your email id.

Step 2: Getting the details of root password

Go to my.ionos.com and give your customer id or email id and password to login to your account. Once you login you will see as below

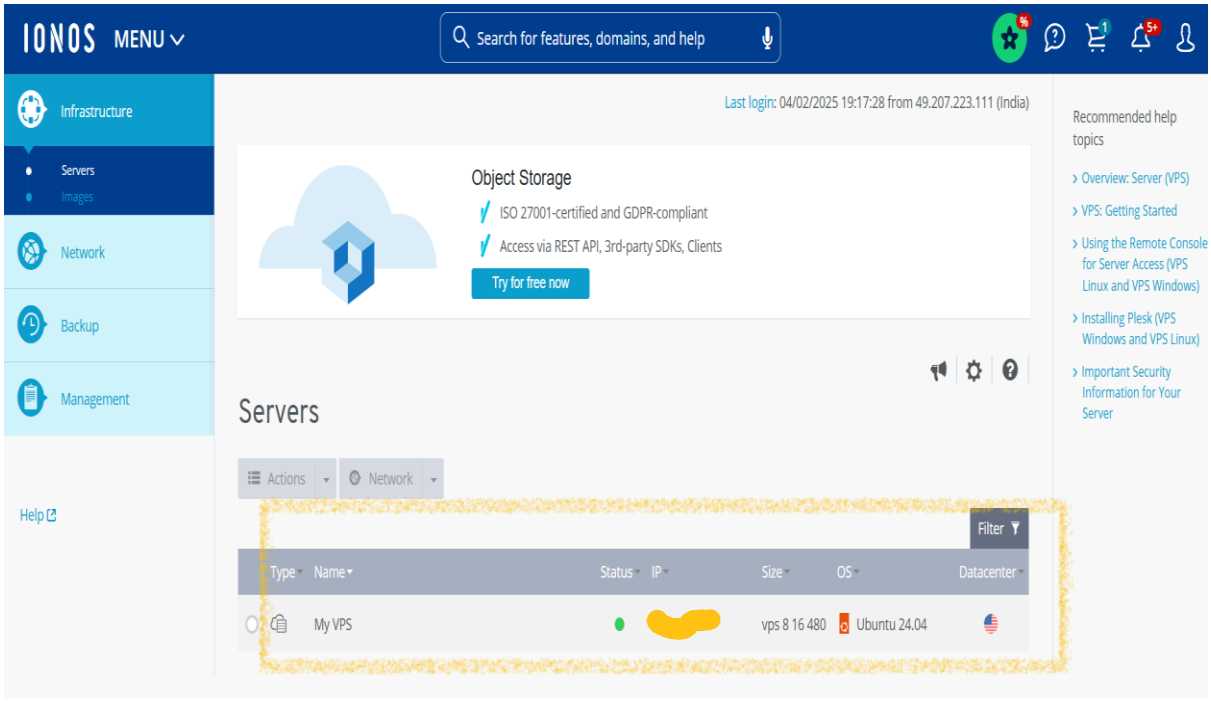


Click on Servers & Cloud

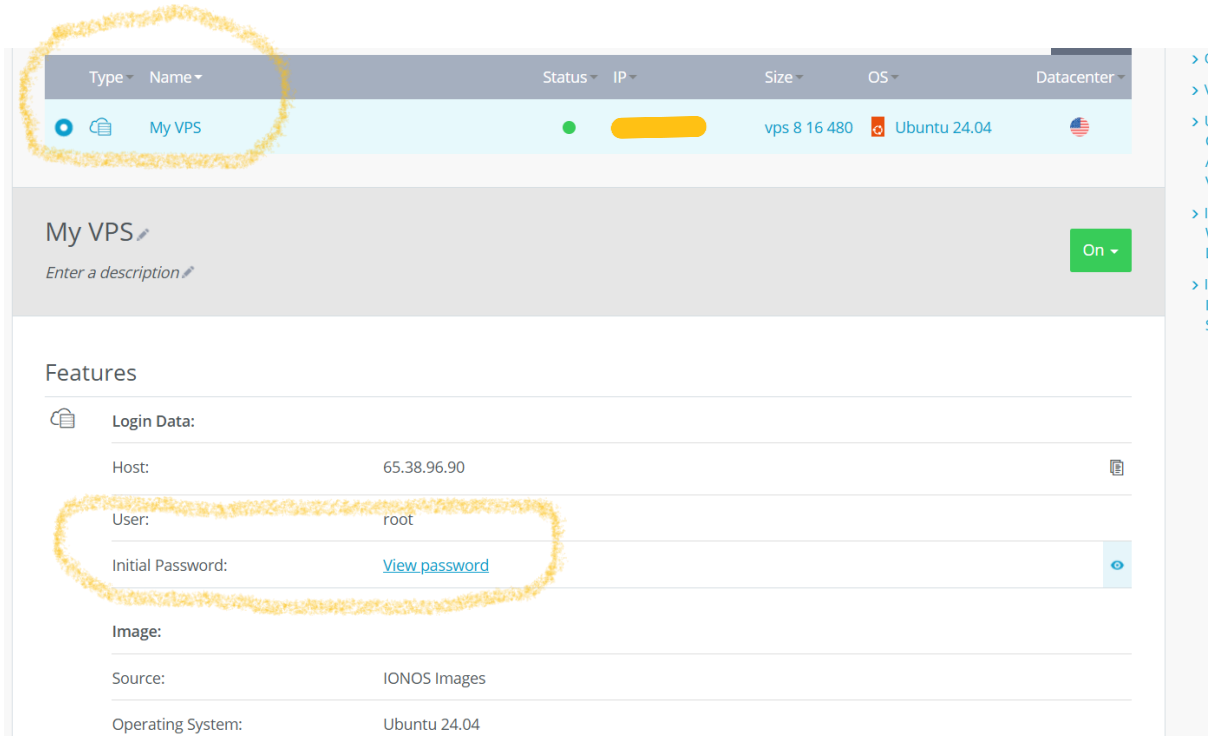


Select IONOS VPS Linux XL

ss

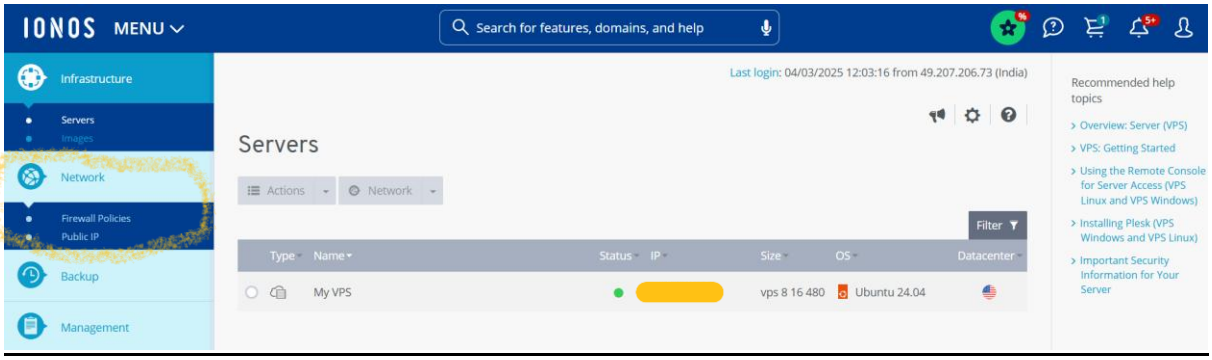


You can see your vps here

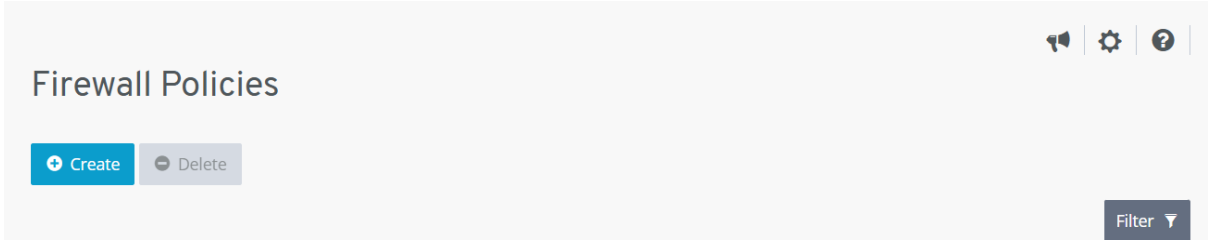


Click on the Radio button beside My VPS so that you can view User which is root and click on view password for password

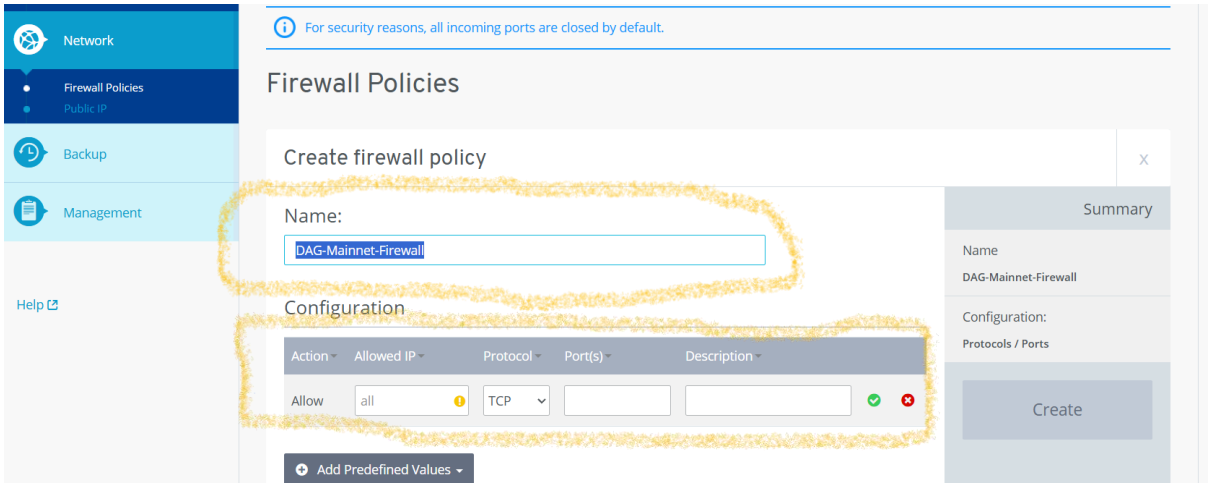
Step3: Create a Firewall



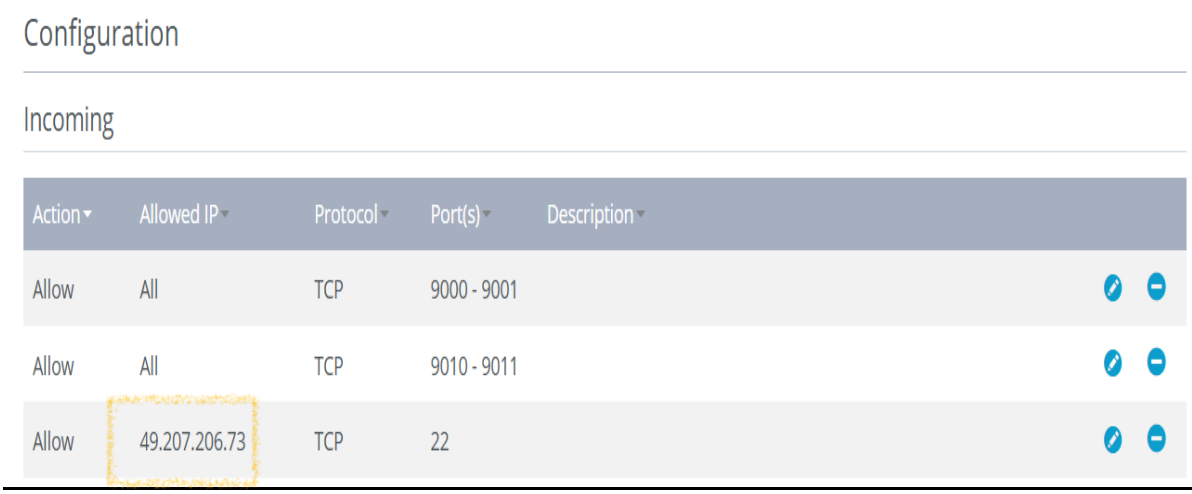
On the left side click on Firewall policies



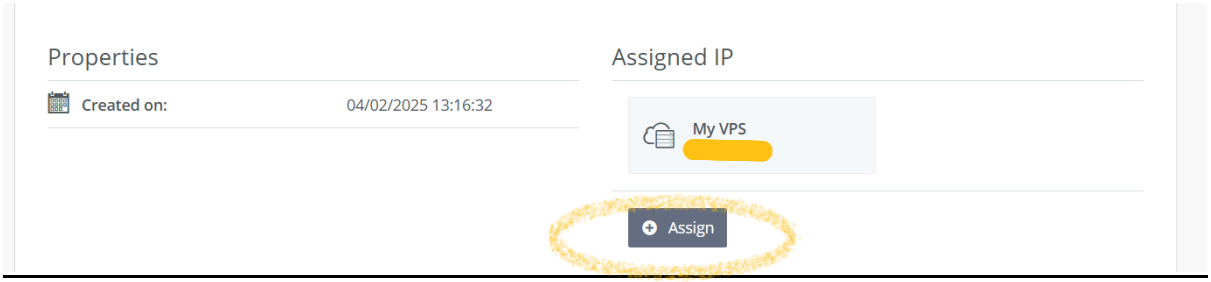
Click on firewall to create a firewall



Give the name of your choice and add the rules



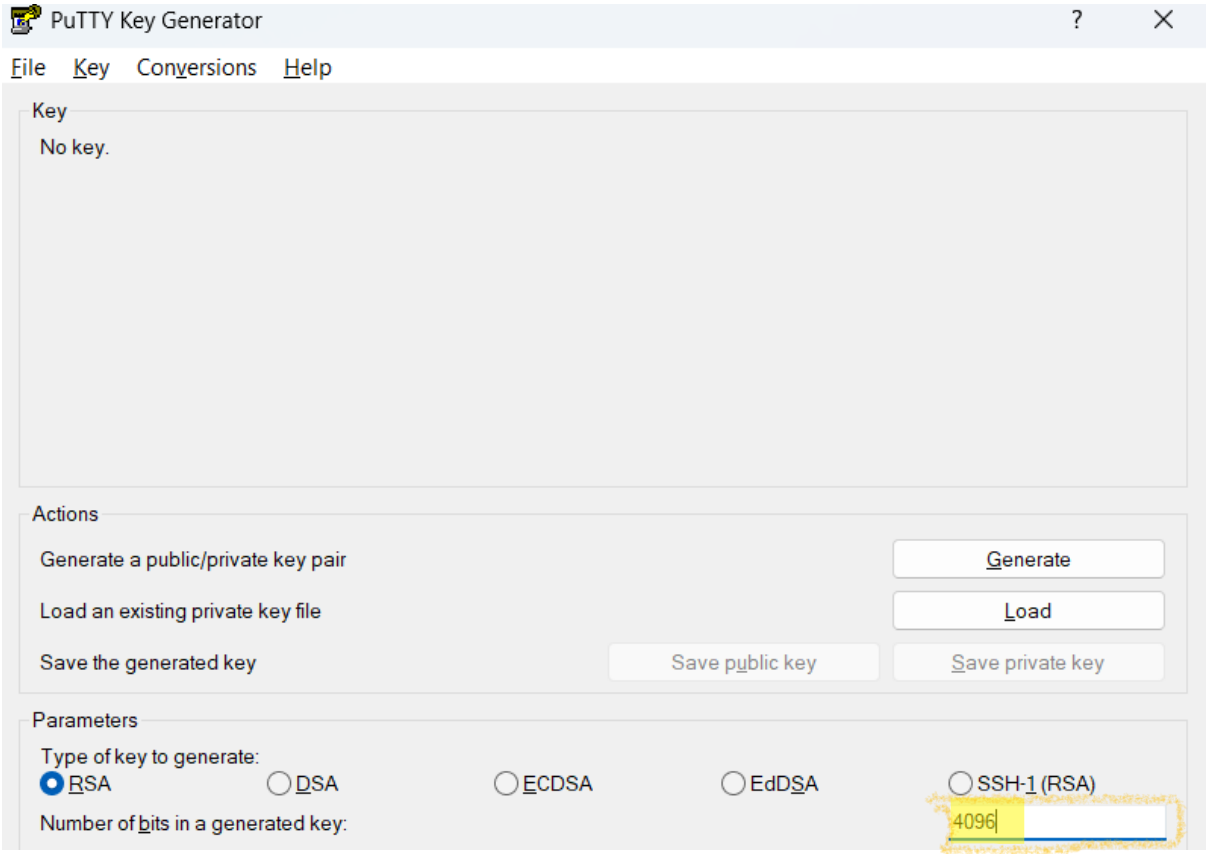
These are the rules to be added. To get your local ip address, go to **whatismyip.com** and paste your ip address



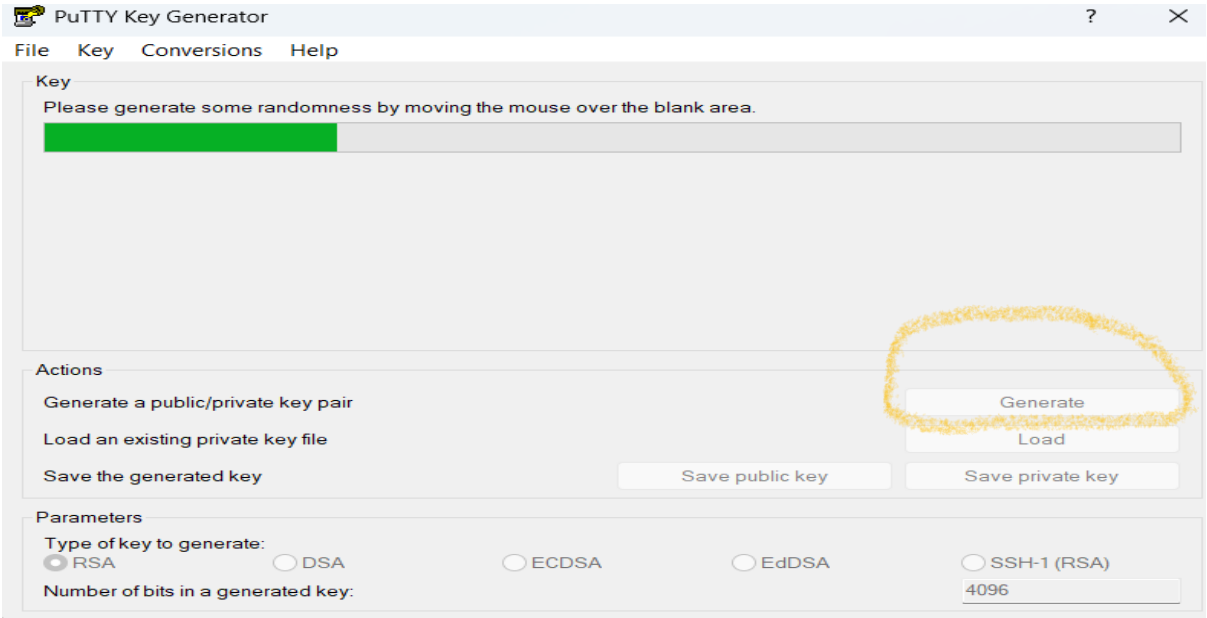
Click on Assign to add firewall to the vps

Step 4: Create an SSH Key pair using PuTTYgen

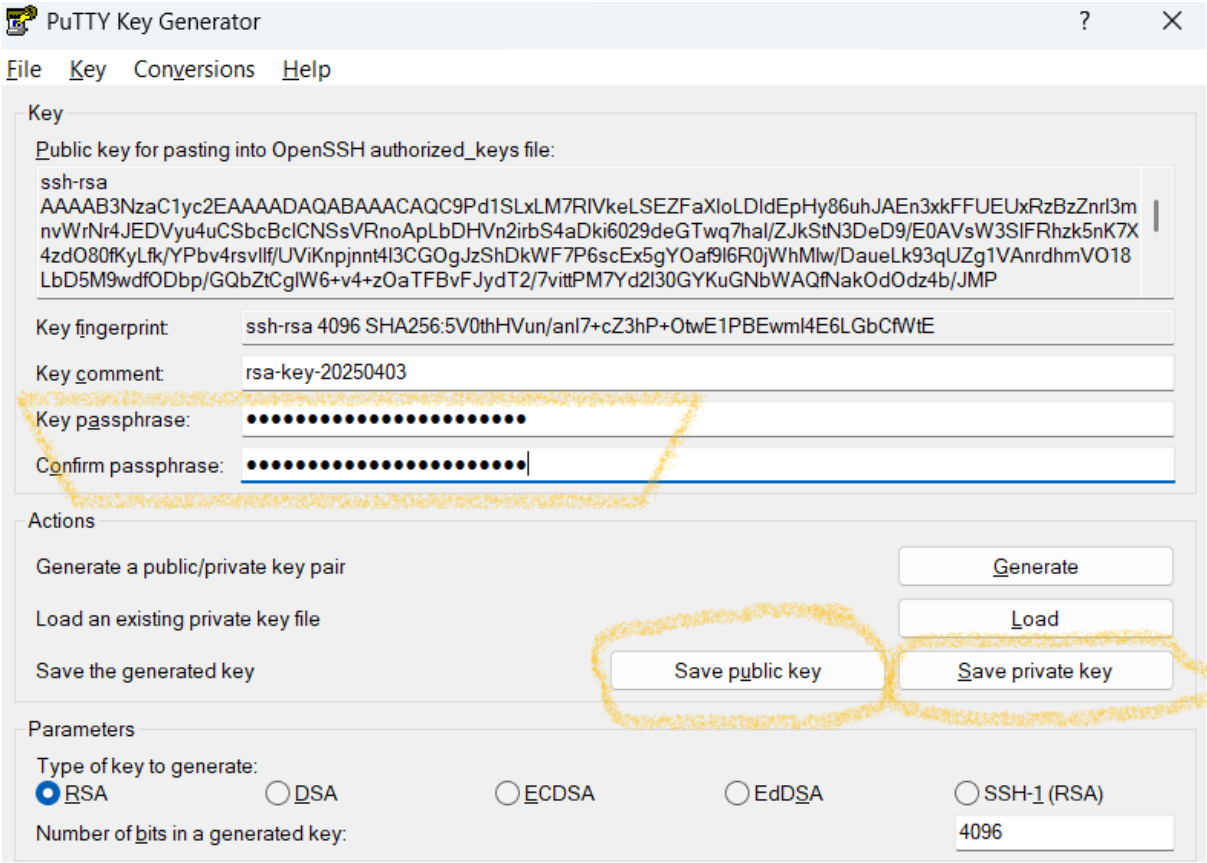
Open PuTTYgen



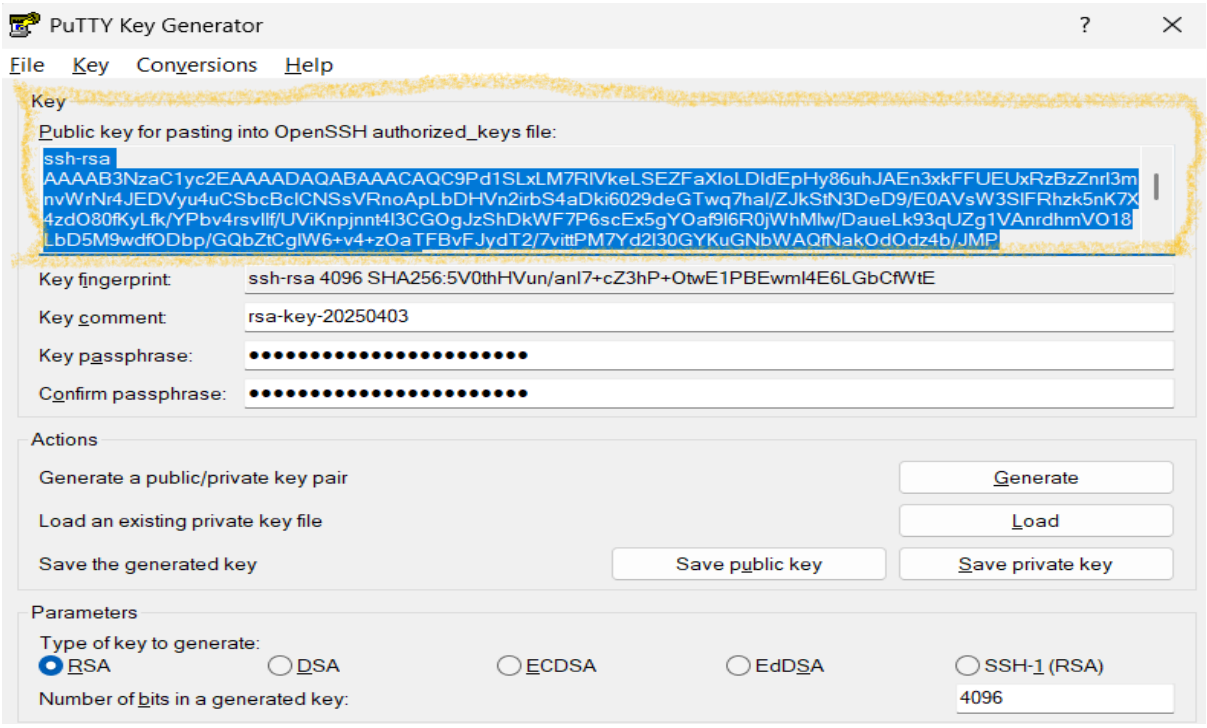
By default it will be 2048. Change the Number of bits in a generated key to 4096.



Click on Generate and move the mouse around to complete the process

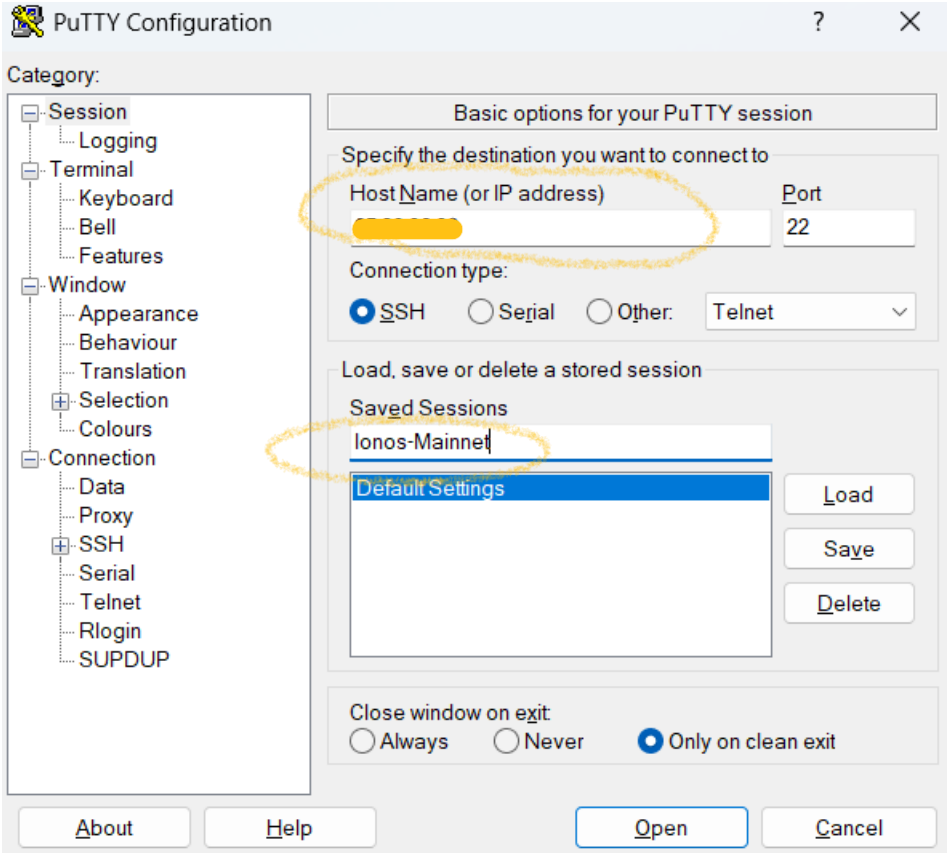


Give the Key Passphrase of your own choice and Confirm Passphrase. After that save public key with name **id_rsa.pub** and private key with name **id_rsa** to your local computer.

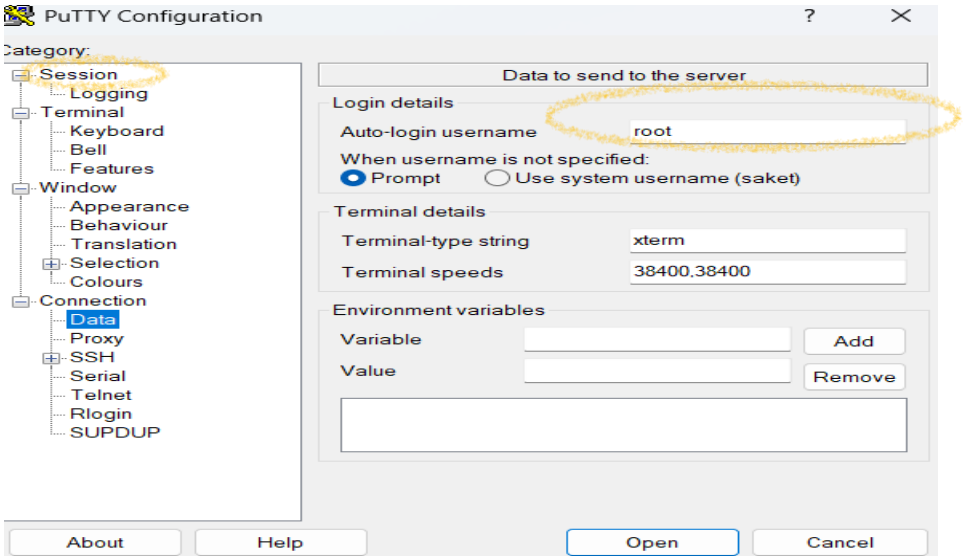


Copy the Public key to paste it in the authorized_keys file in your vps server

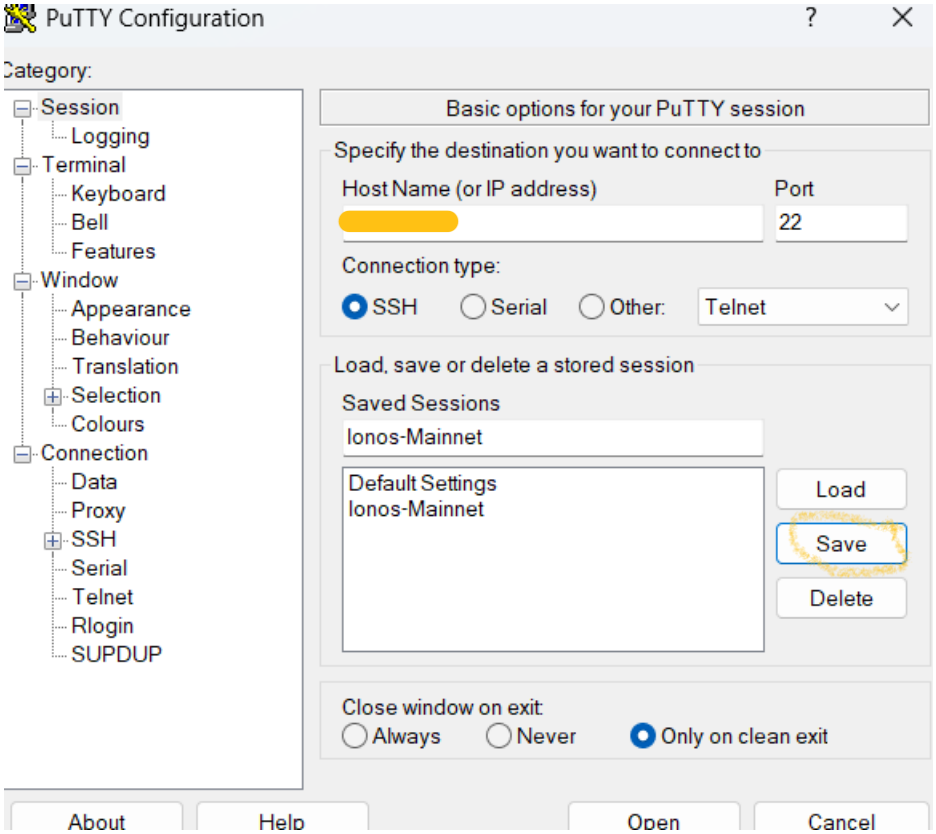
Step 5: Log-in to vps from root user and root password and paste the public key in authorized_keys file



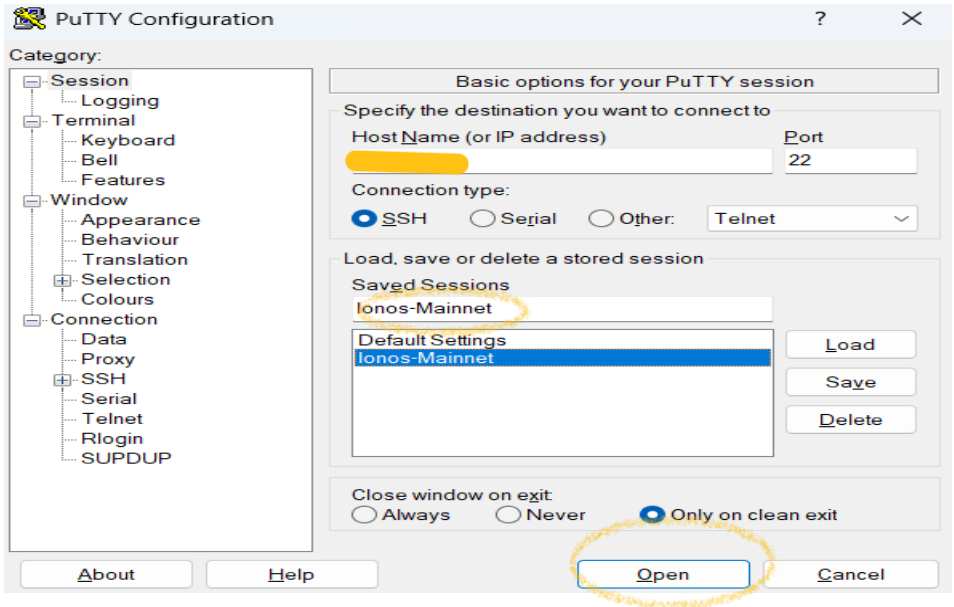
Give the ip address and name, save it



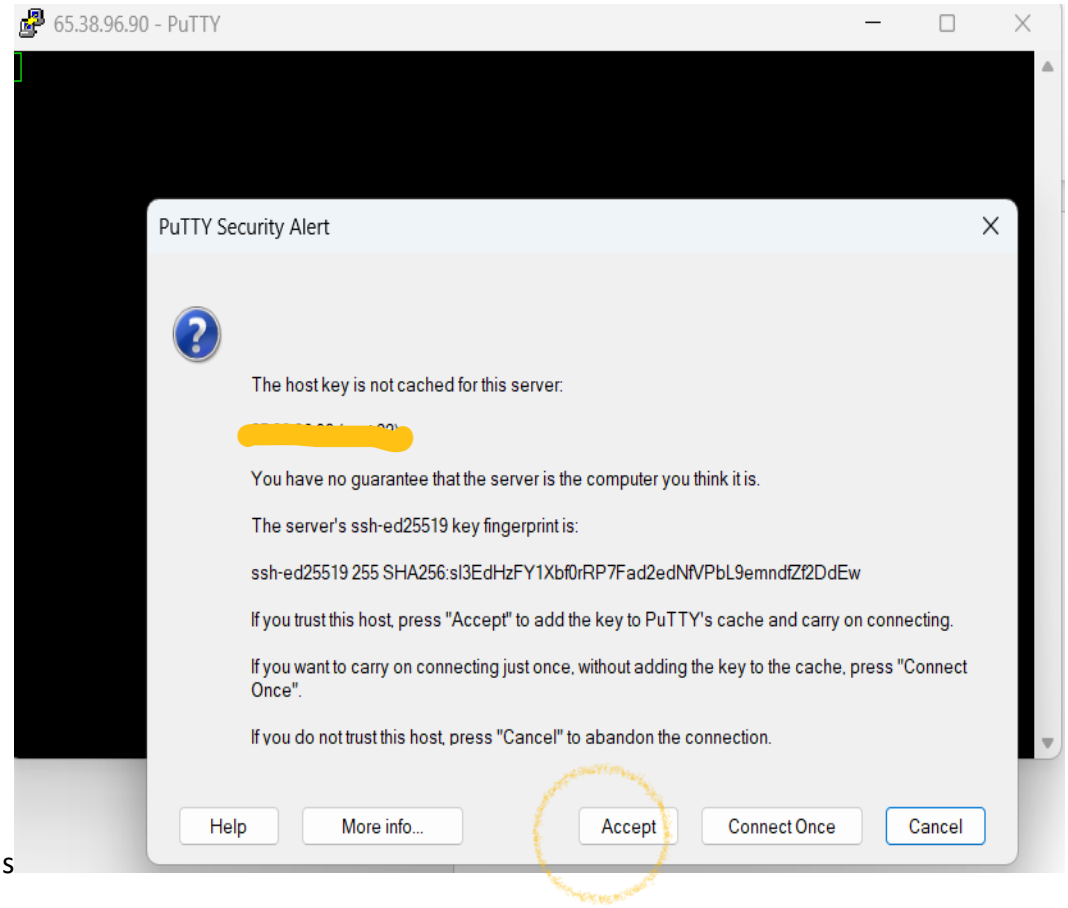
Go to Connection->Data and give Auto-login username as root. After that click on session



Now click on save

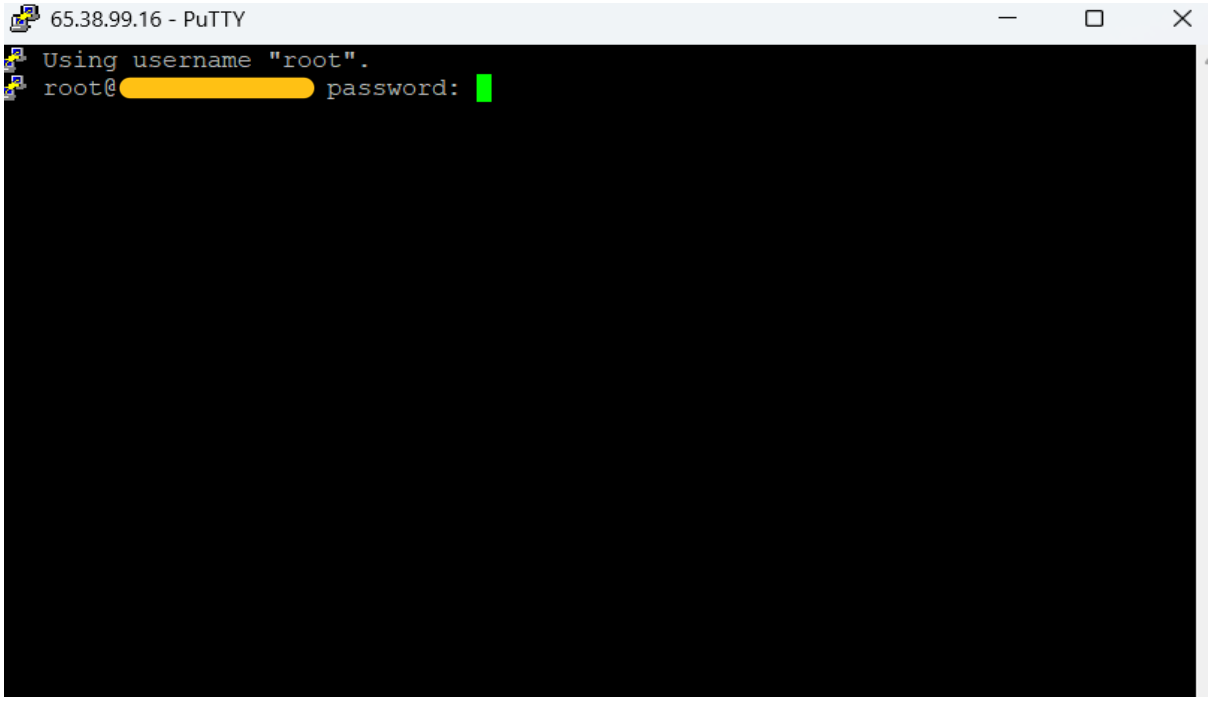


Now Select Ionos-Mainnet and open it

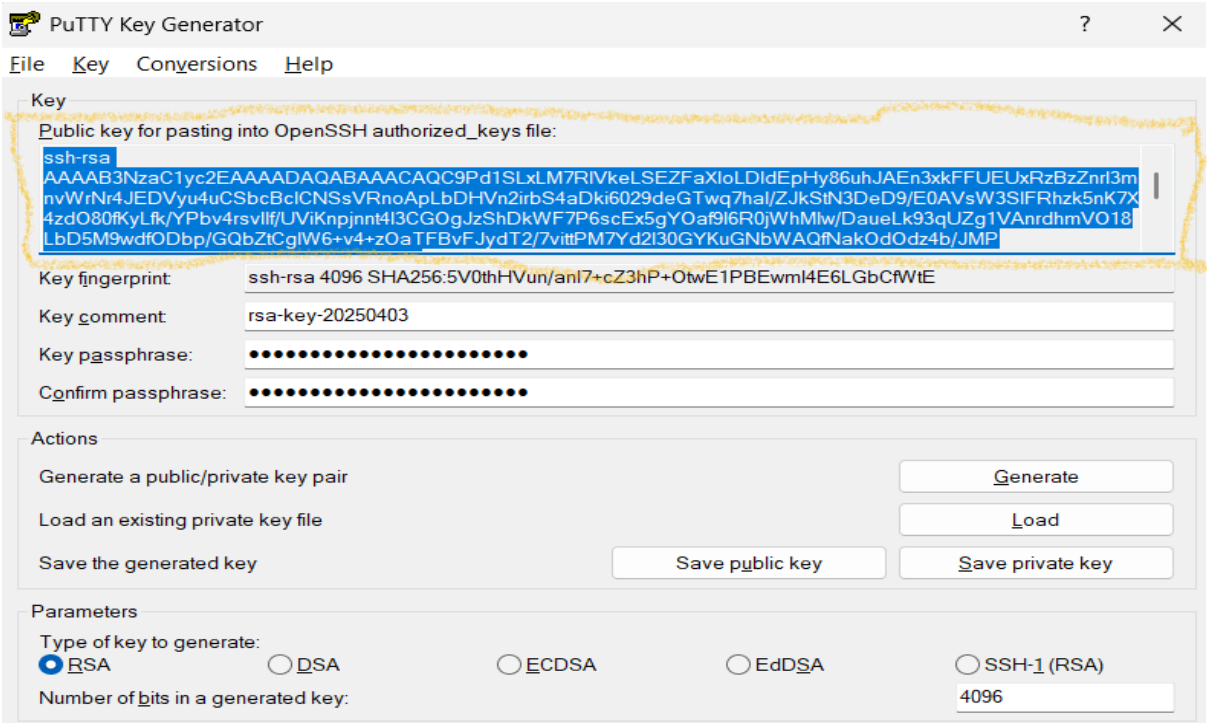


s

Click on Accept



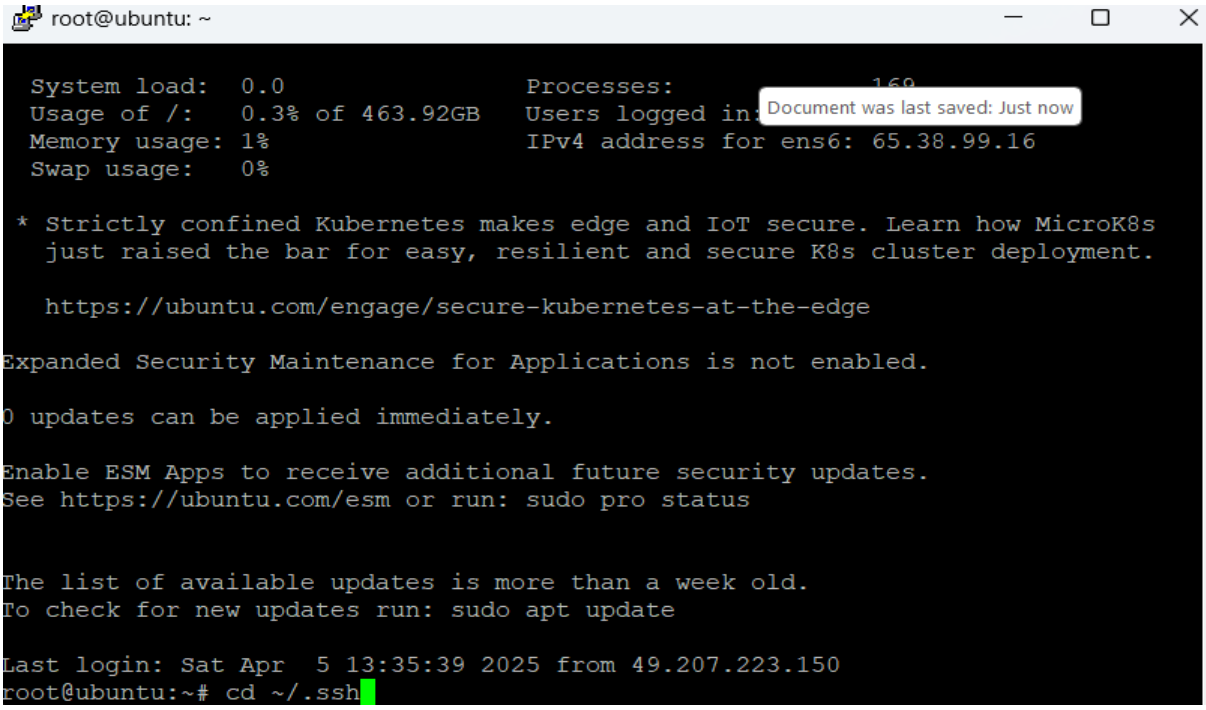
Give the root password which is in the Ionos My VPS section. Please refer Step 2 to get the password



Copy the public key from PuttyGen and paste it in the authorized_keys file on the VPS

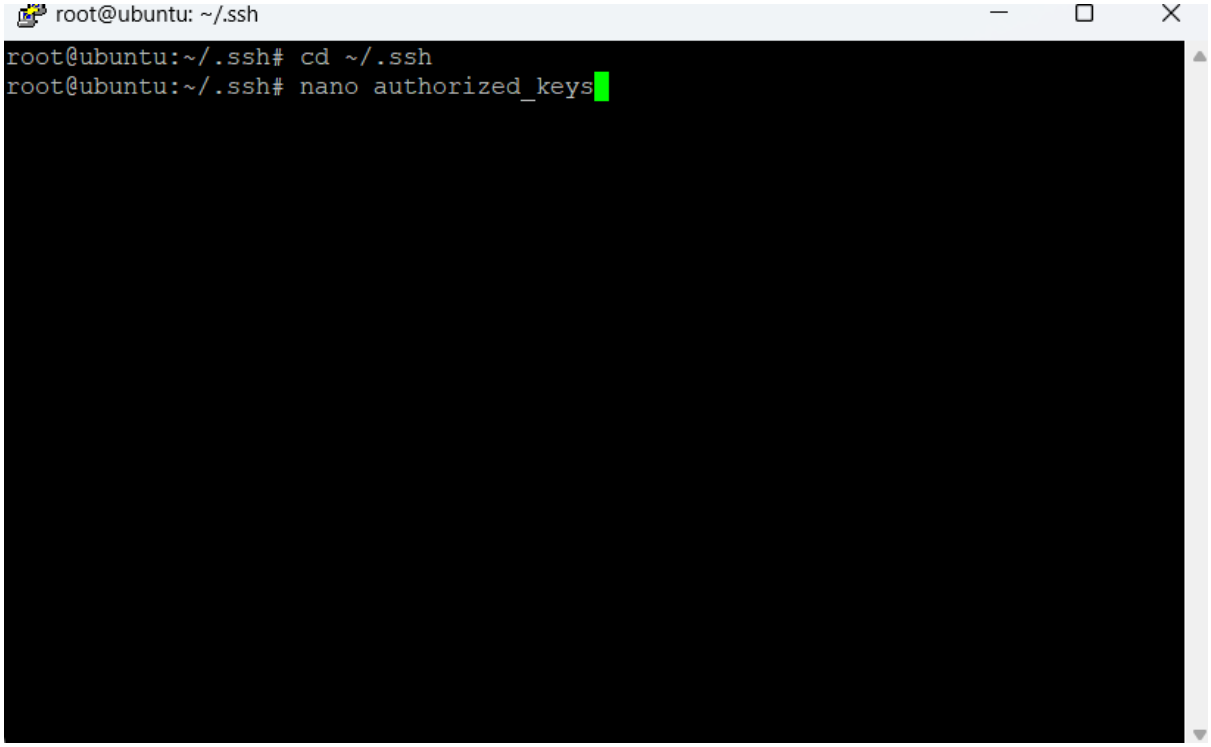
How to access authorized_keys file and paste the ssh public key

On putty, go to the directory .ssh

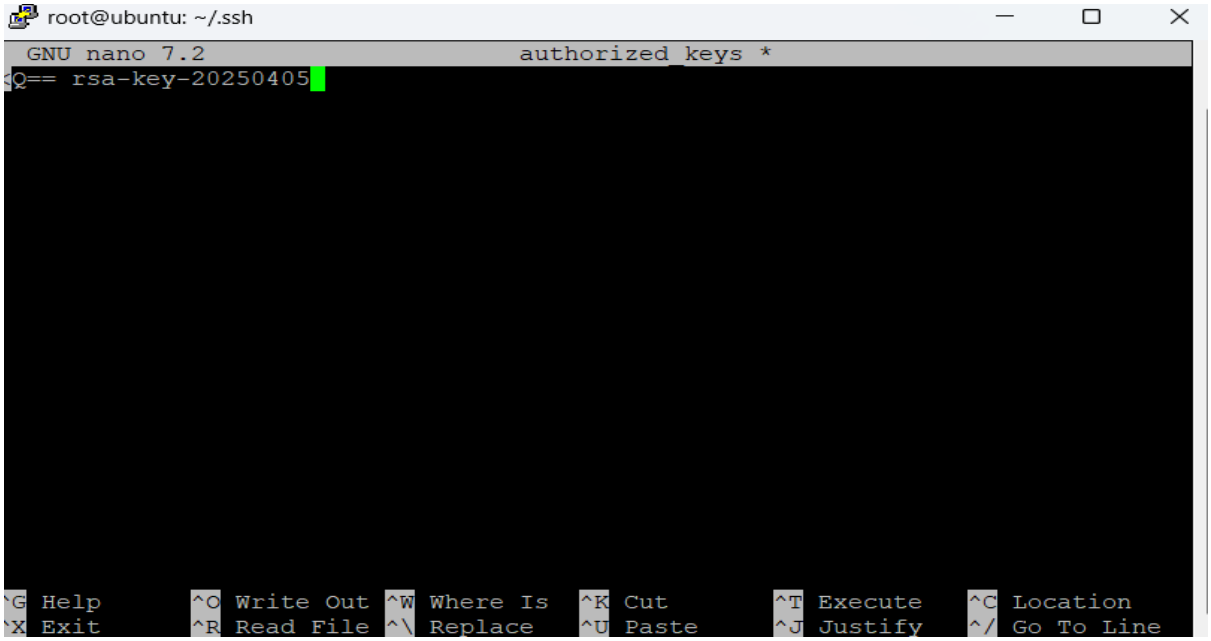


Command: **cd ~/.ssh**

After that open the authorized_keys file

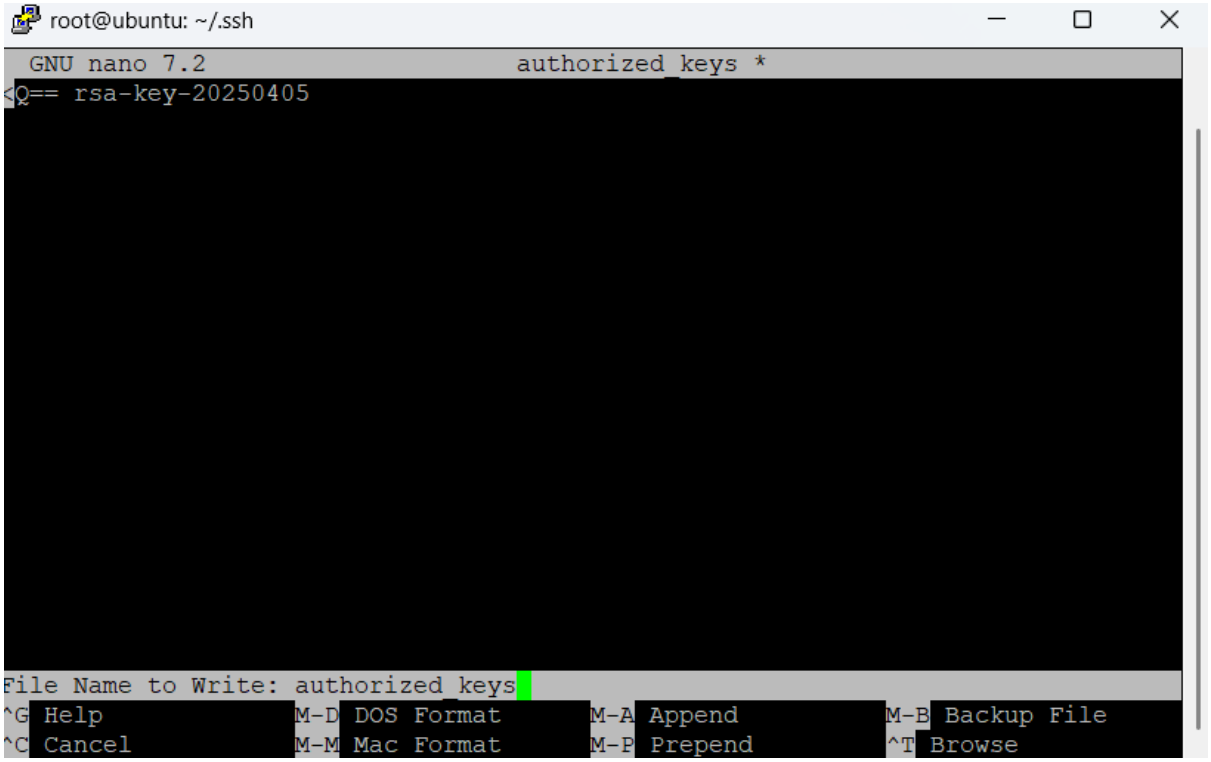


Command: **nano authorized_keys and press <ENTER>**

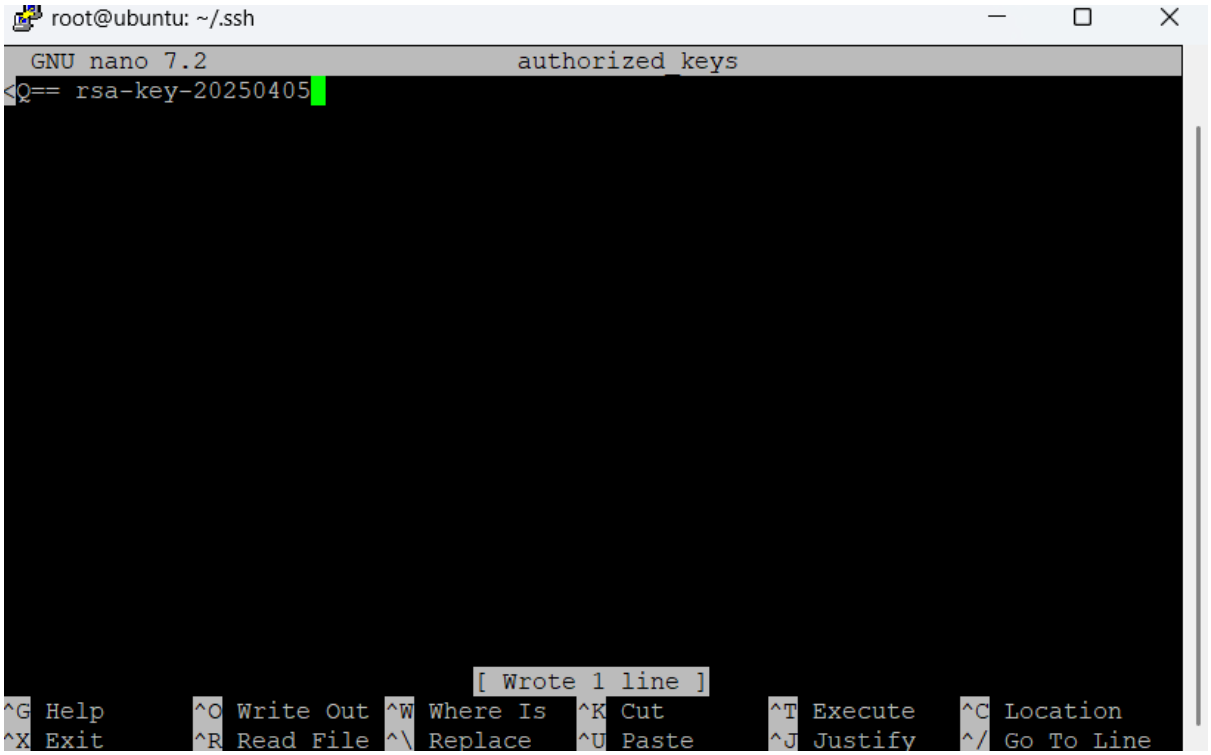


Now right click on the mouse to paste the public key which is already copied previously, so that it will be pasted in the authorized_keys file

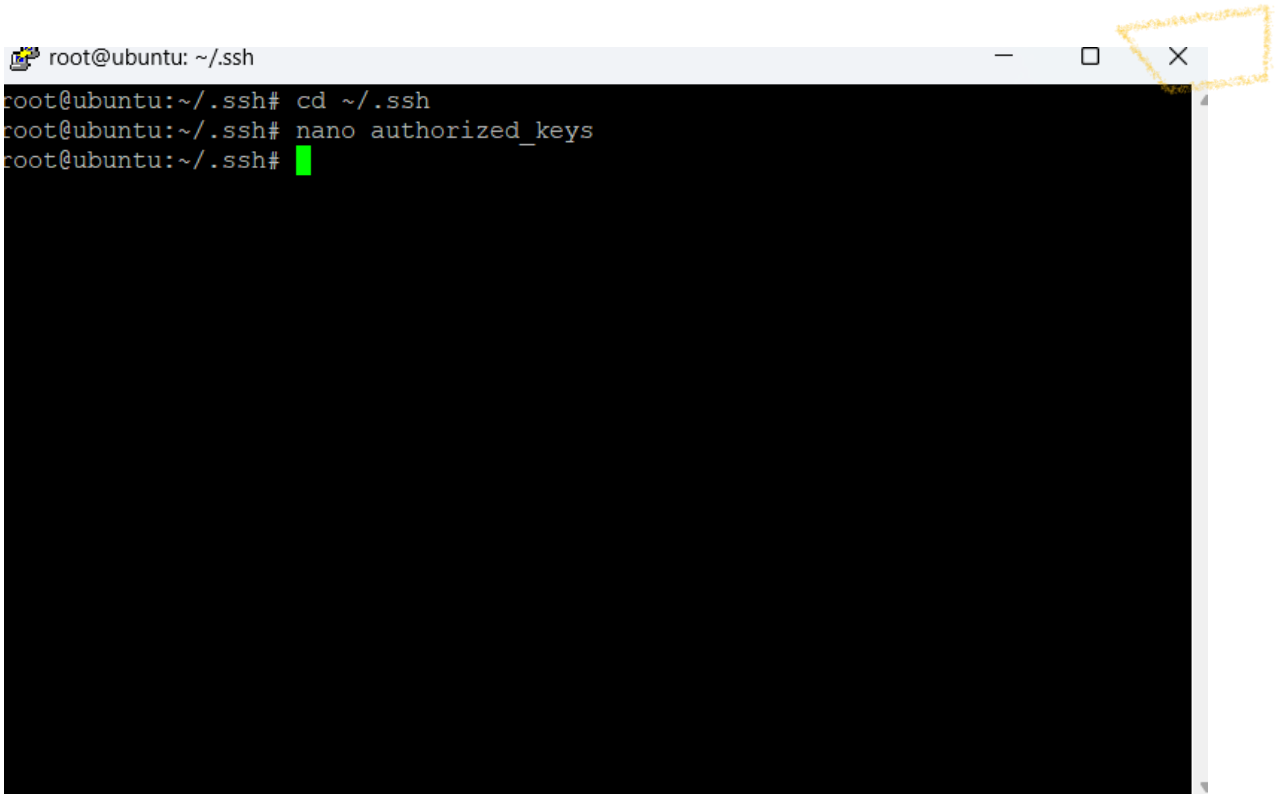
Command to save and Exit from the Nano Editor:



Command to Save: **Ctrl+O**

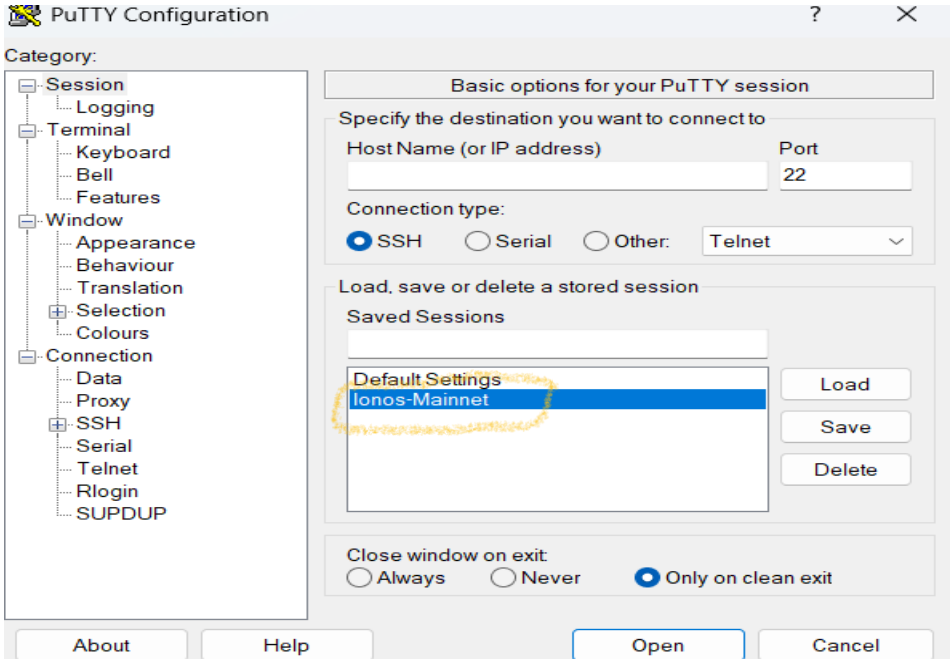


Press <ENTER>

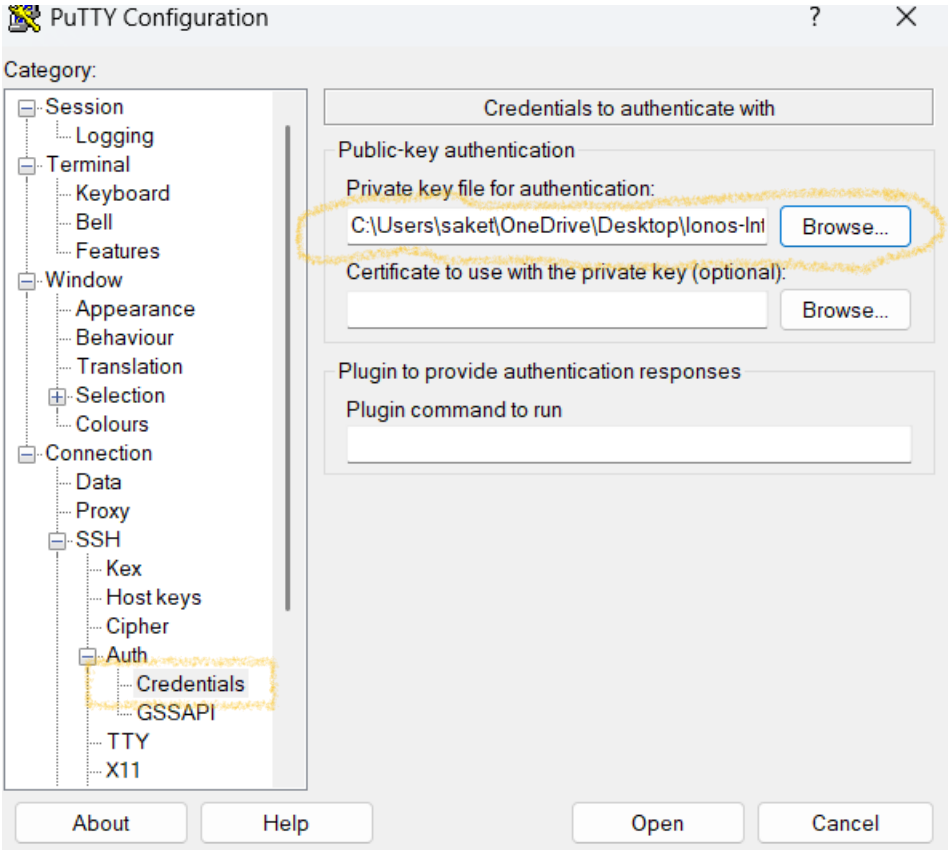


Ctrl+X will bring back the screen to the terminal. Please close this session.

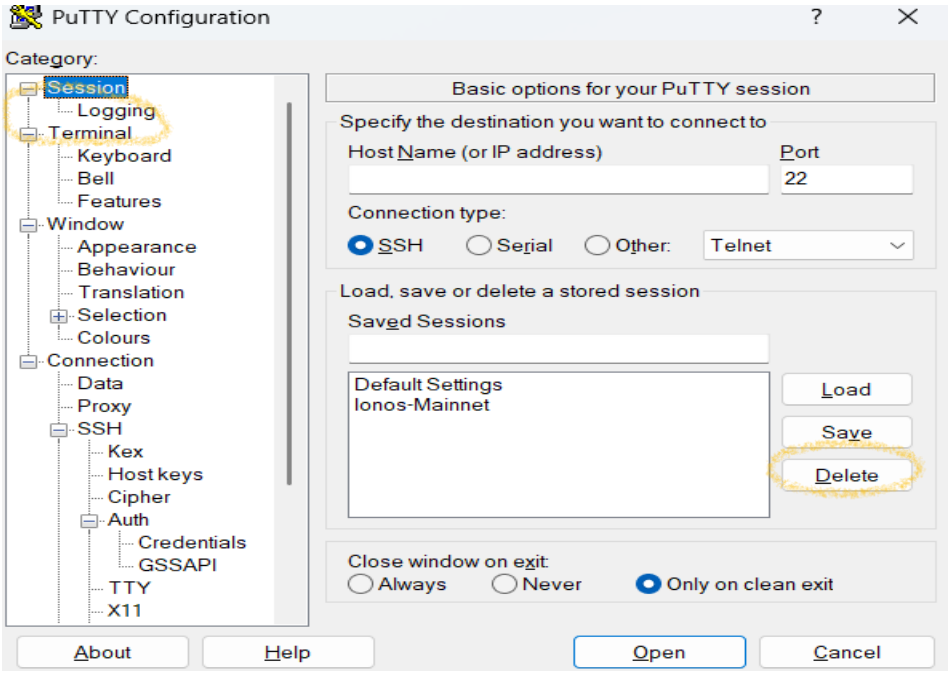
Step 6: Access the node from putty with ssh keys



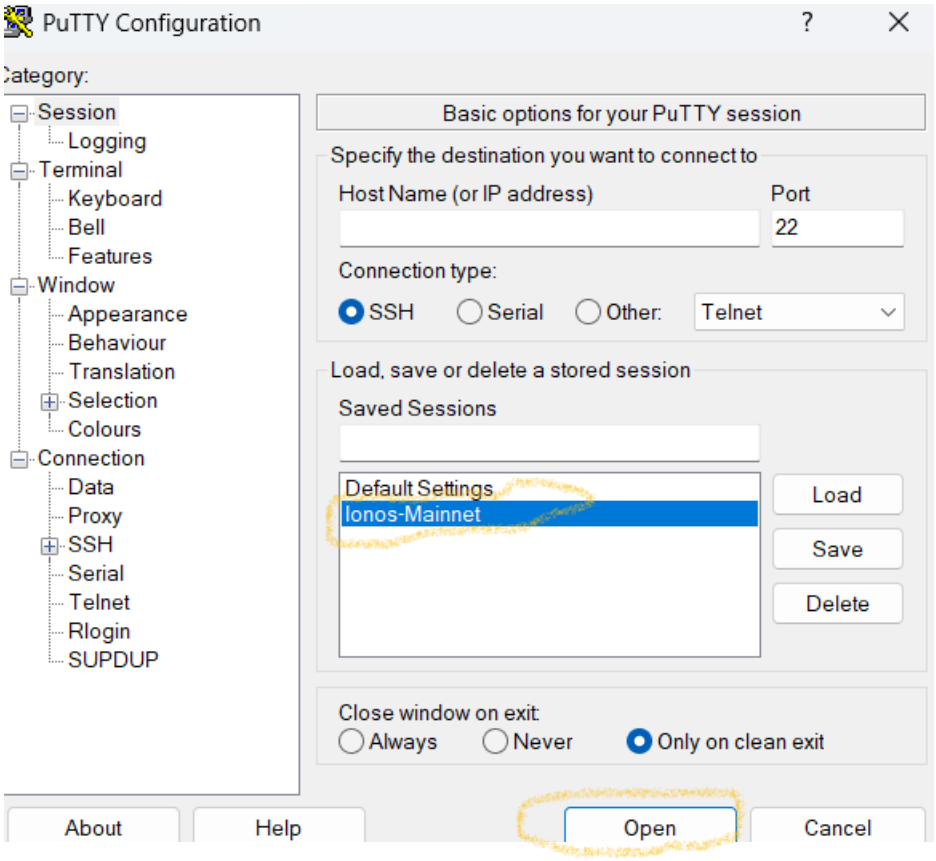
Click on Ionos-Mainnet



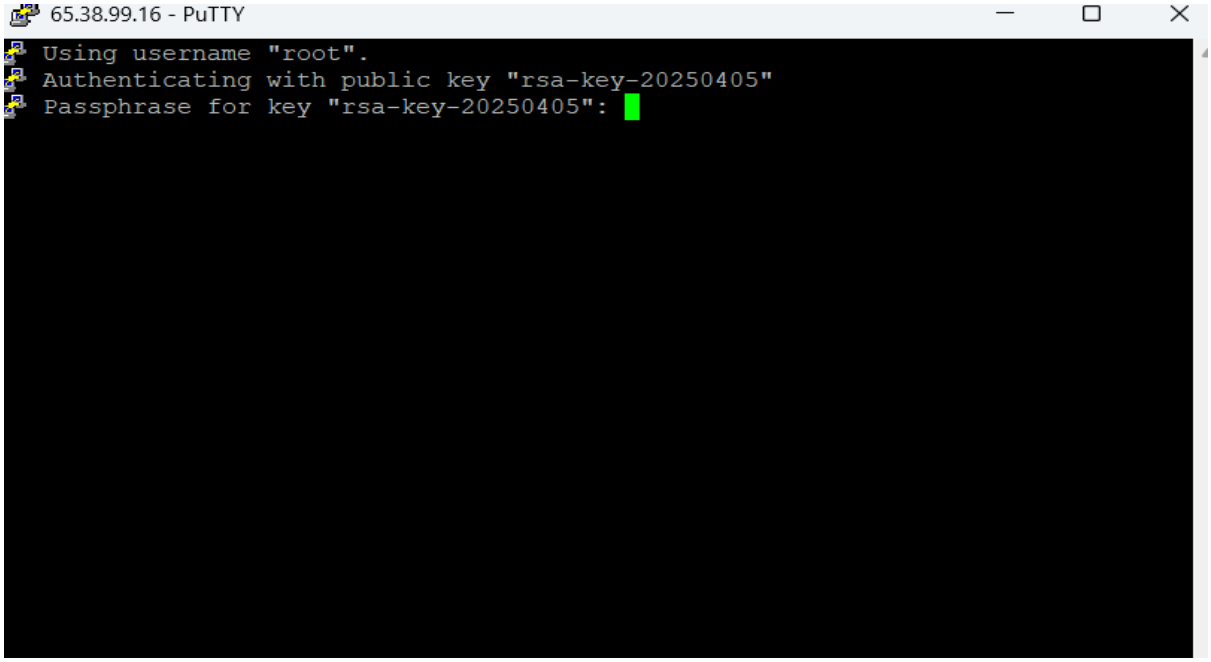
Go to Connection->SSH->Auth->Credentials and Browse the ssh private key file(id_rsa) which is stored in your local computer



Click on Session and Save.



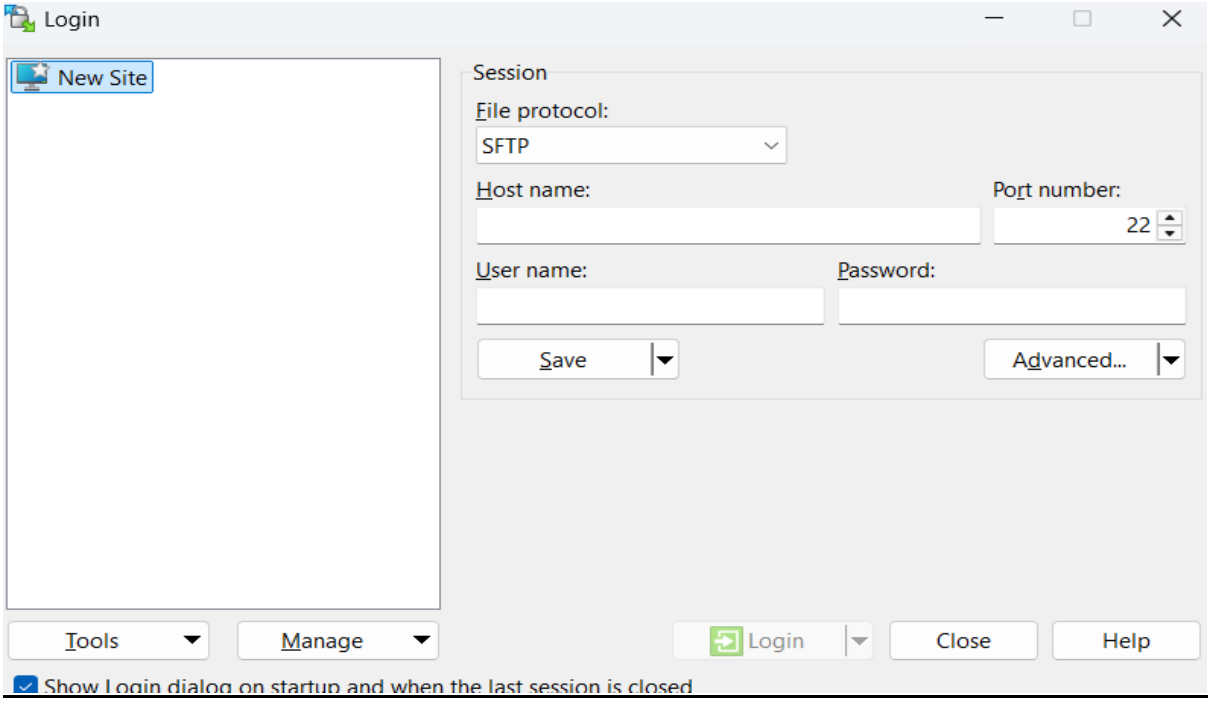
Click on Ionos-Mainnet and click on Open



Give the passphrase and login

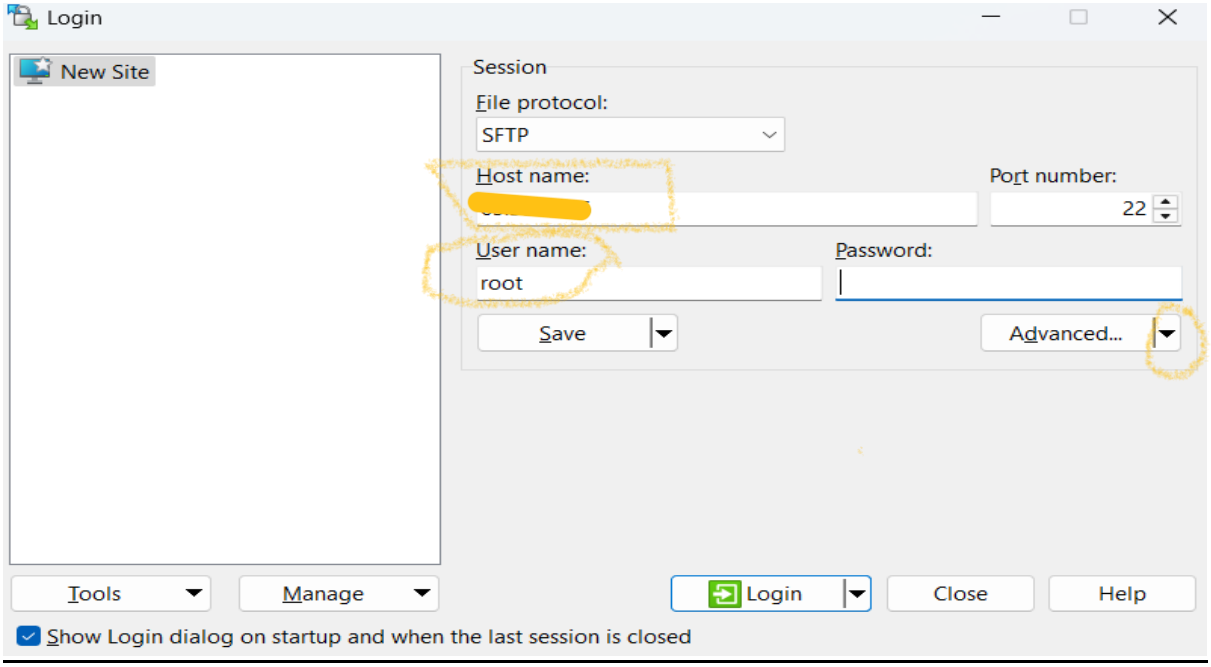
NOTE: No need of Step 7, if you are building a node first time as you don't have p12 file

Step 7: Configuring WinSCP and copying the p12 file to VPS

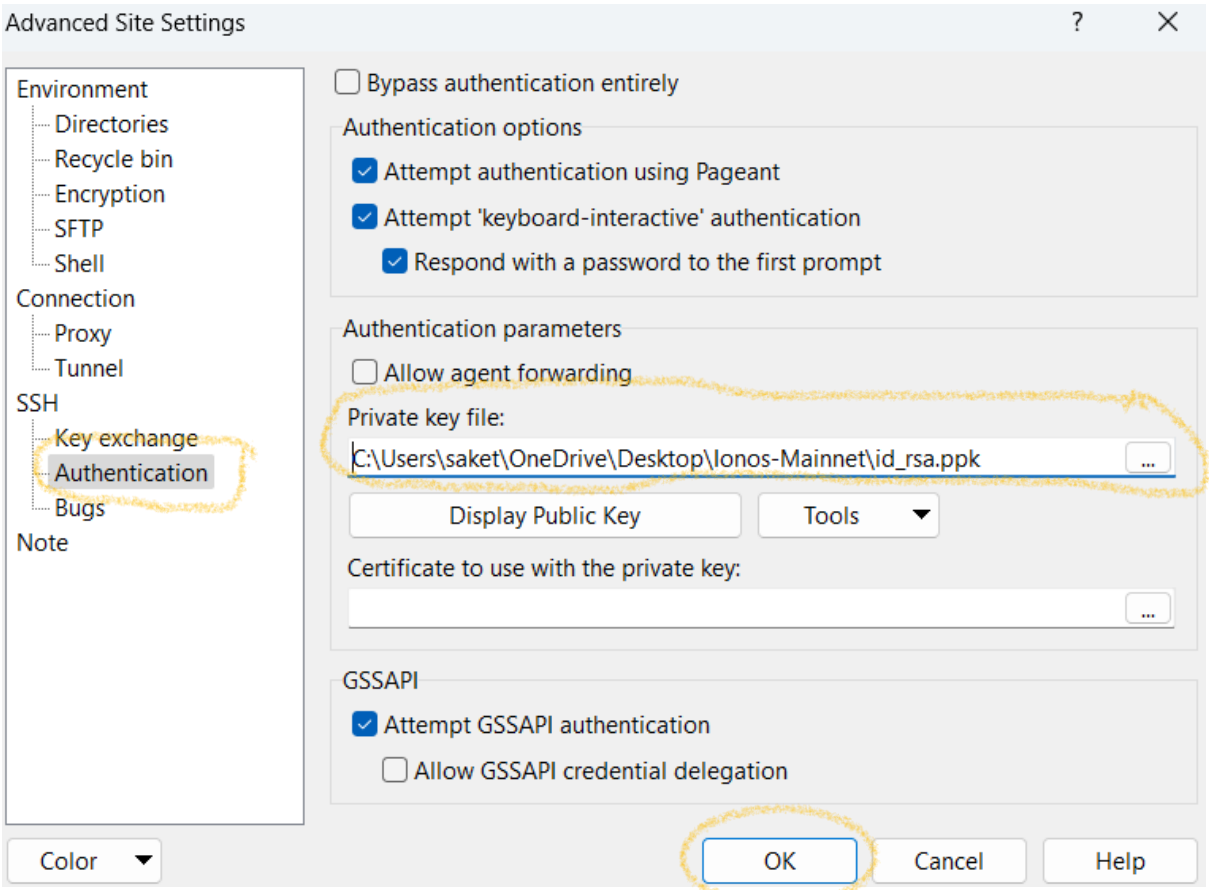


Open Winscp

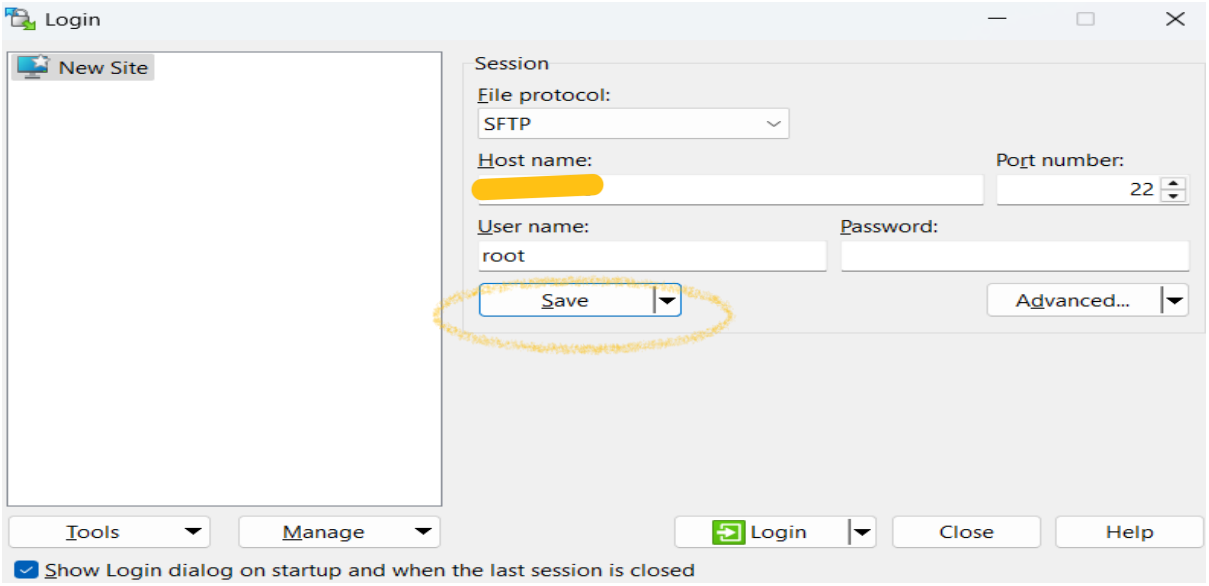
ss



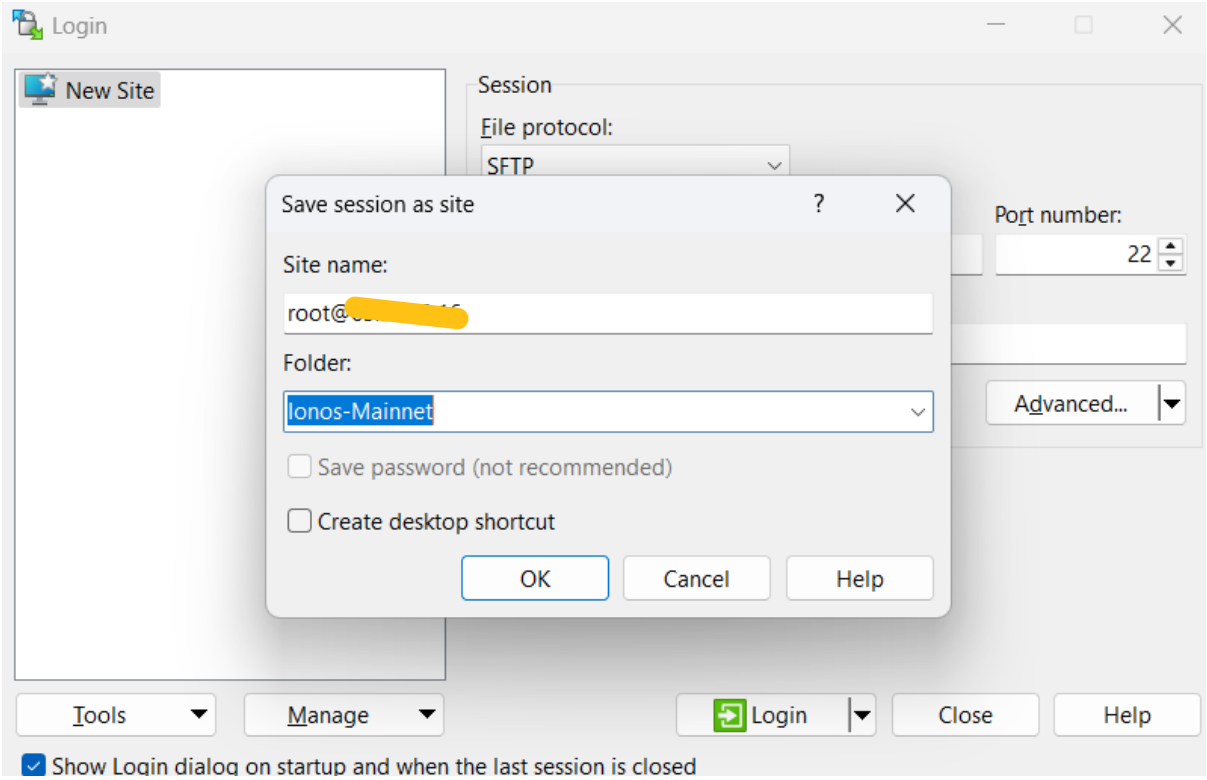
Give your VPS ip address in Host name and User name as root and click on Advanced drop down symbol



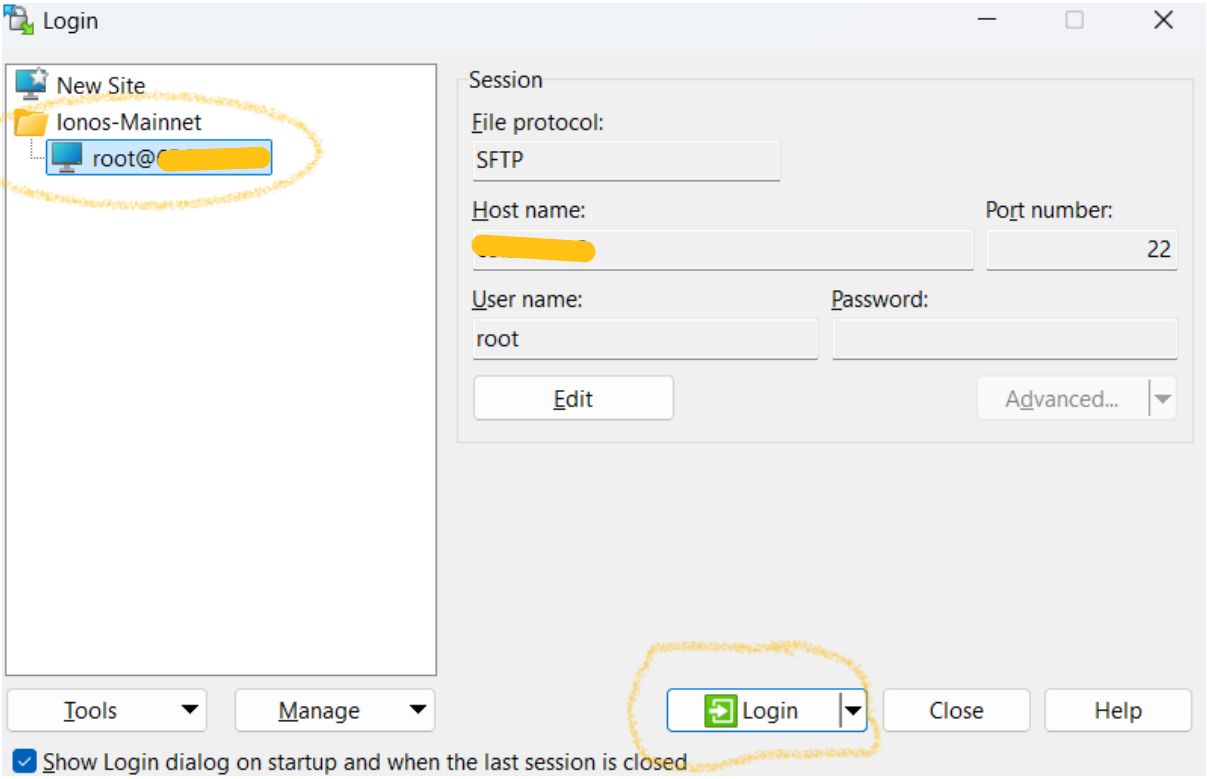
Click on Authentication and browse the private key file(id_rsa) which is saved in your local computer and click on OK



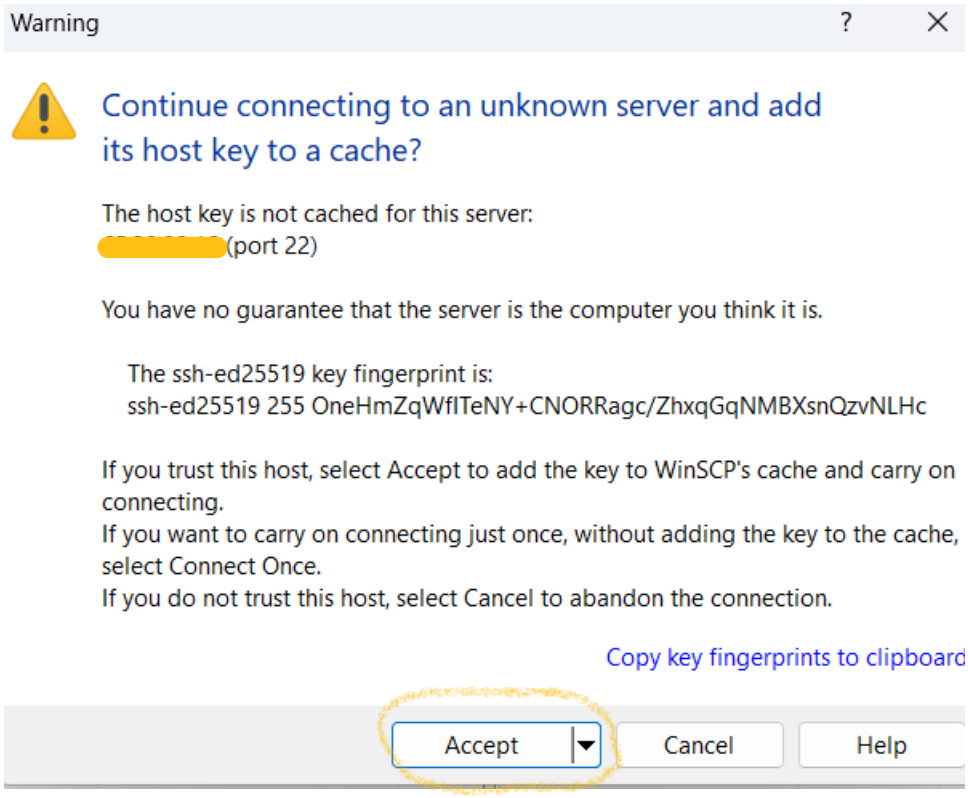
Click on Save



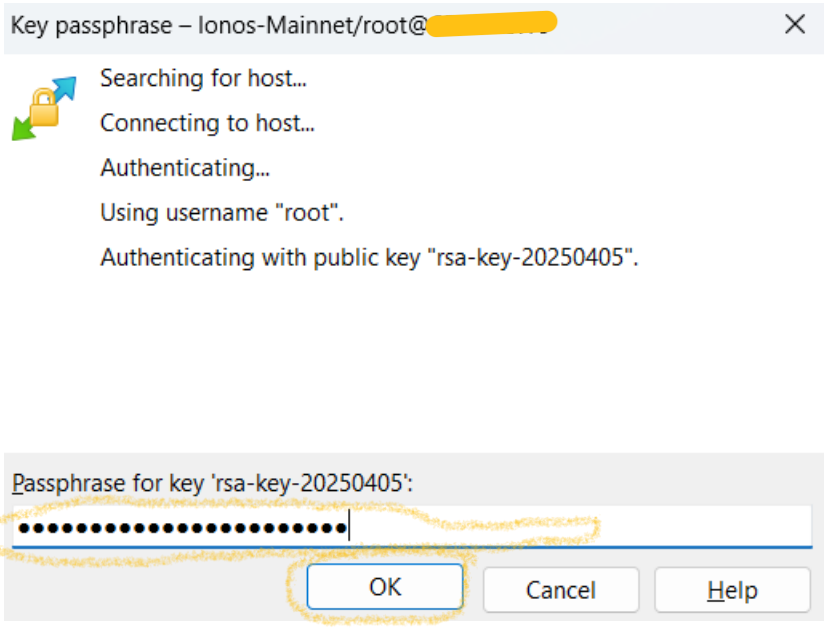
Give folder name of your choice. I have given Ionos-Mainnet



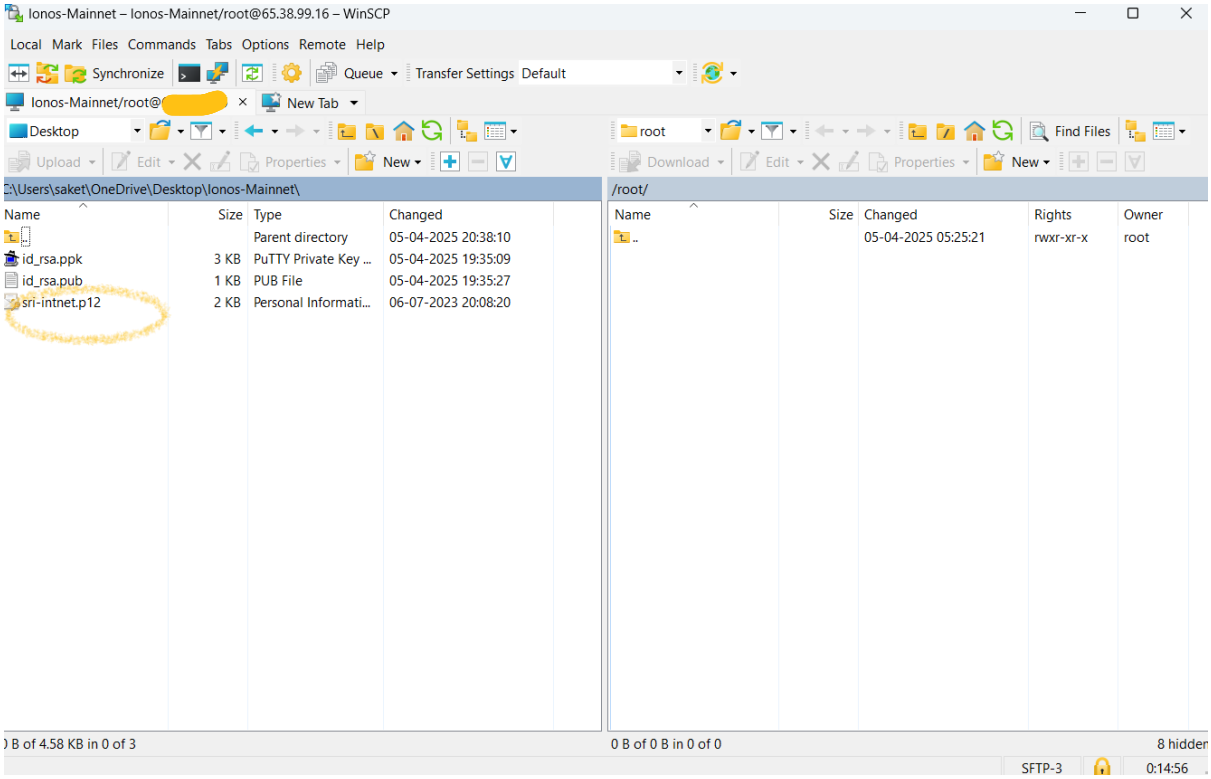
You can see in the left as above. Now click on Login



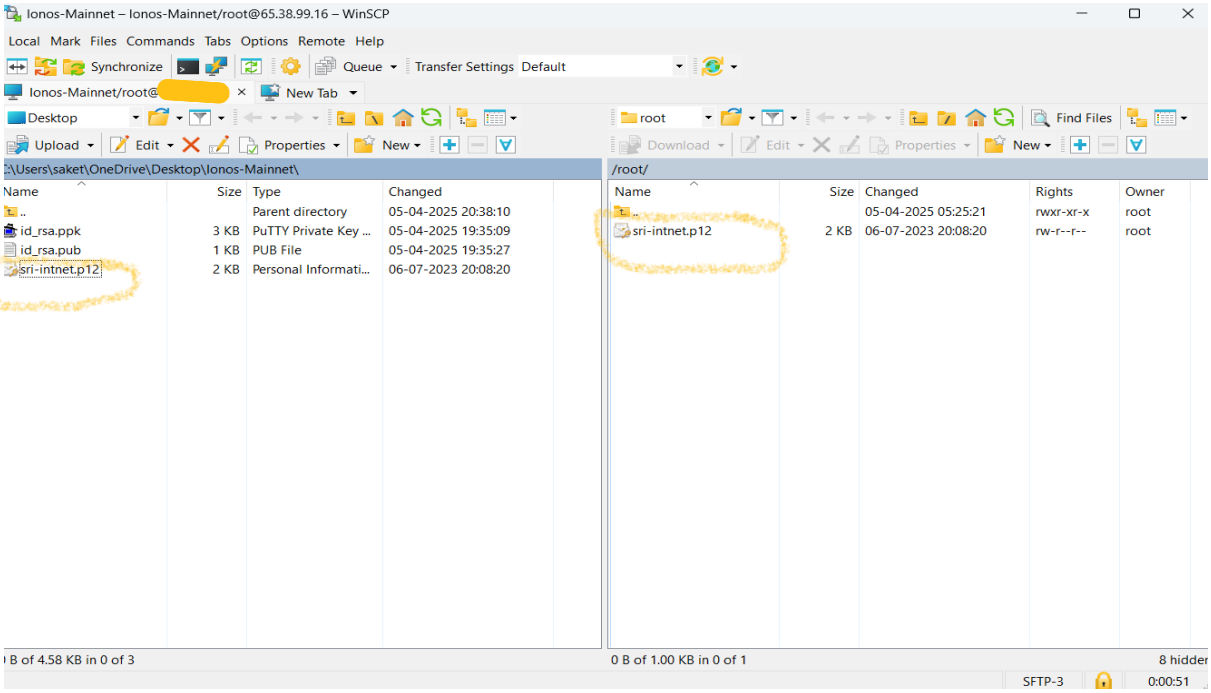
Click on Accept



Give Passphrase and click OK



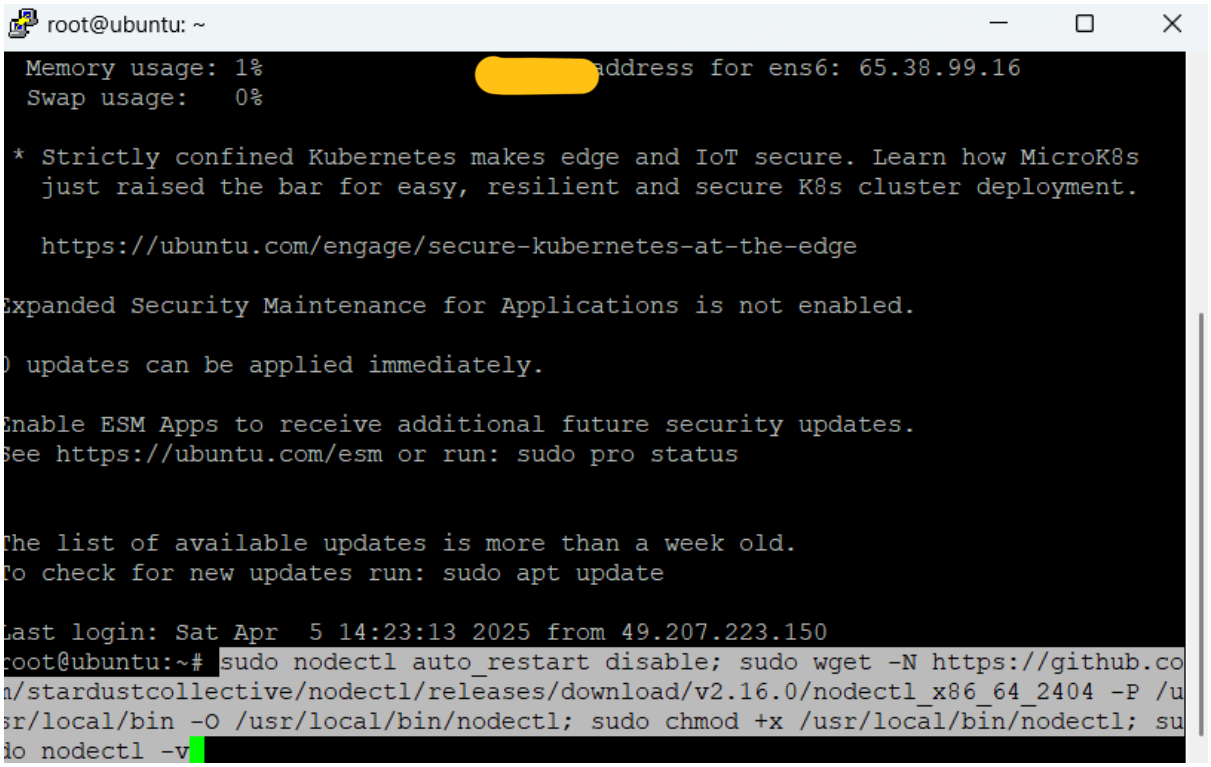
Left side pane shows folders of your local computer, right side shows the directories of your VPS. Drag and drop your p12 file if you are rebuilding your node with existing p12 file.



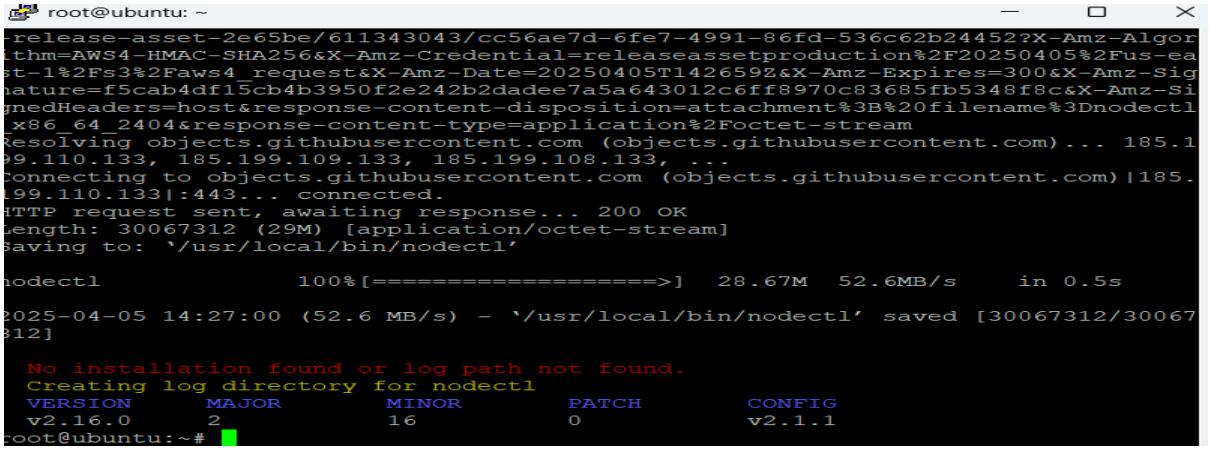
Copied p12 file from local computer to /root/ directory on VPS

Step 8: Install nodectl

You can get the latest release of nodectl from
https://github.com/StardustCollective/nodectl/releases



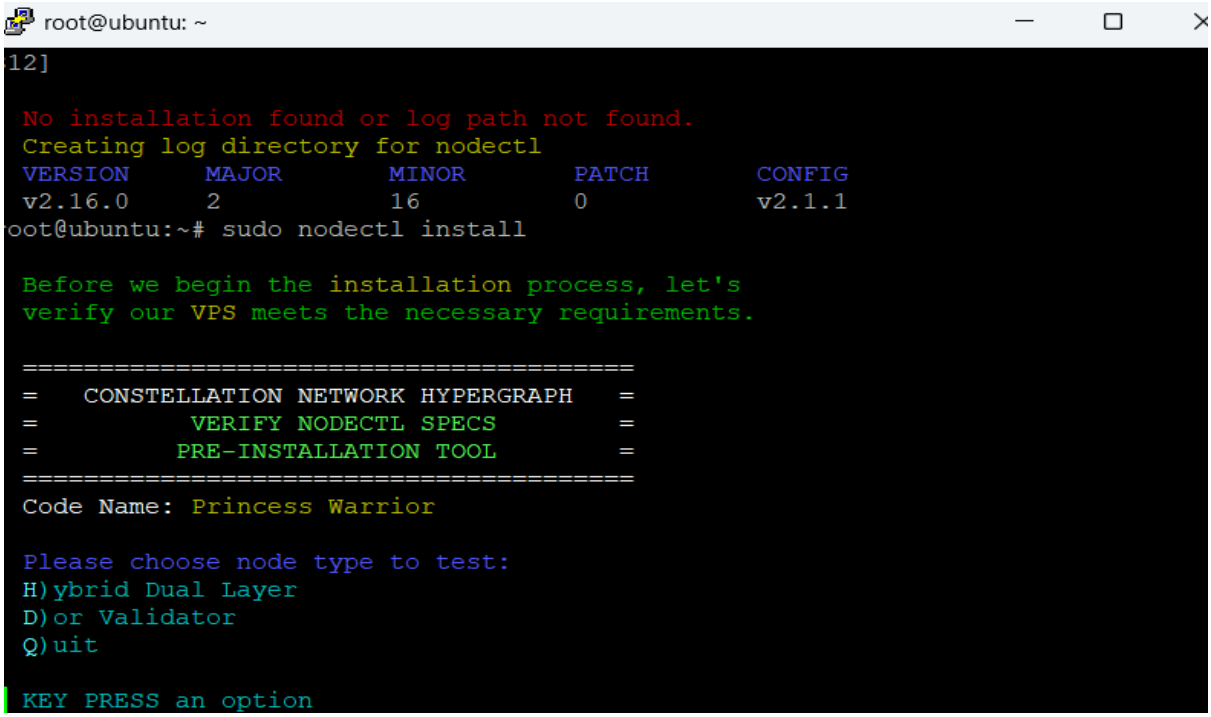
Copy the latest nodectl from the above link and run on putty



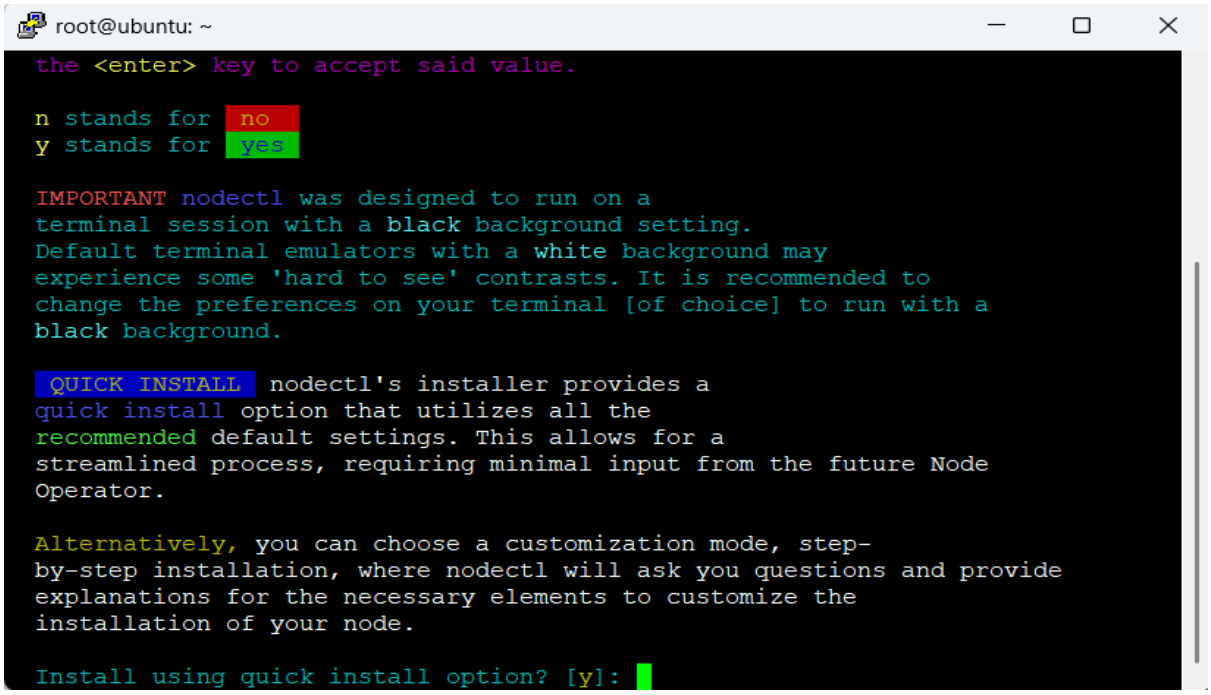
Nodectl installed

Step 9: Install tessellation

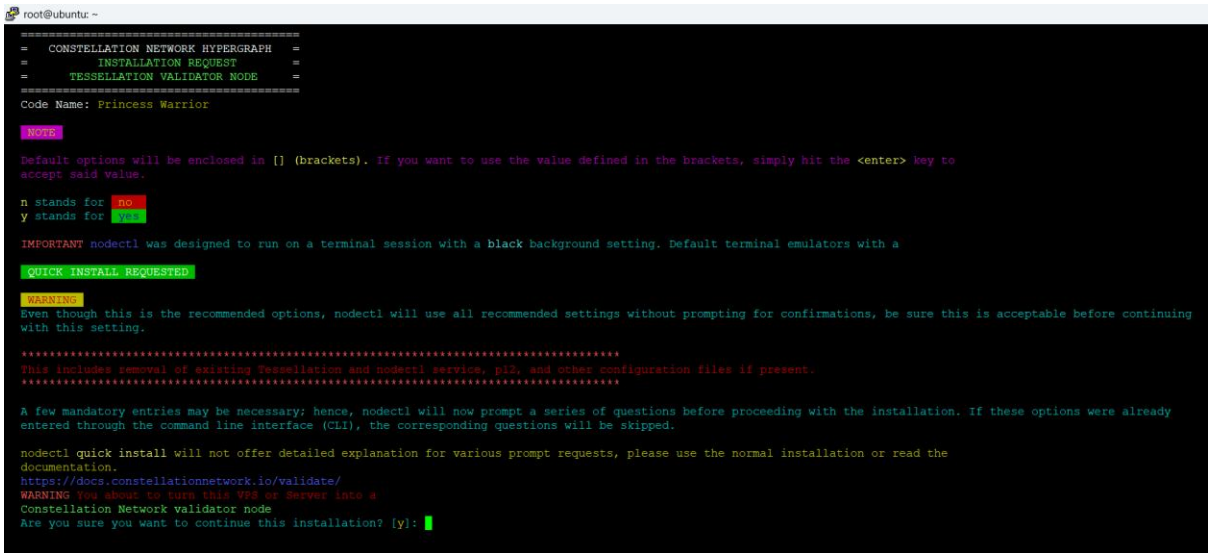
Command to install tessellation: **sudo nodectl install**



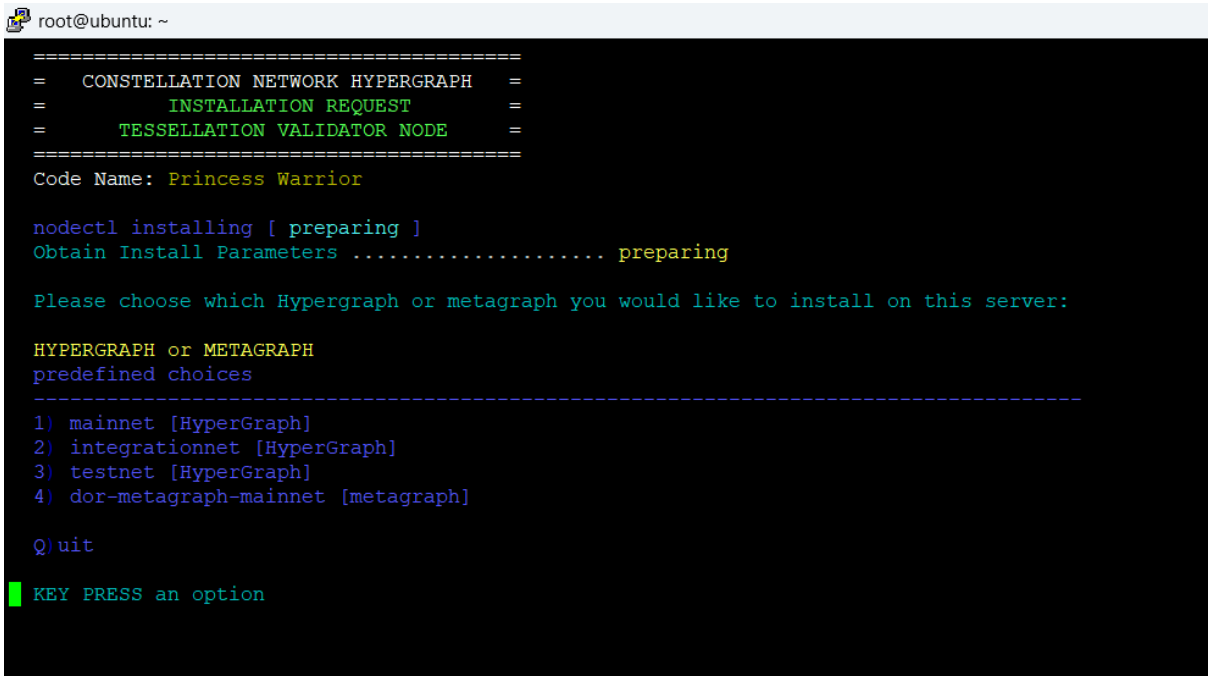
Select node type



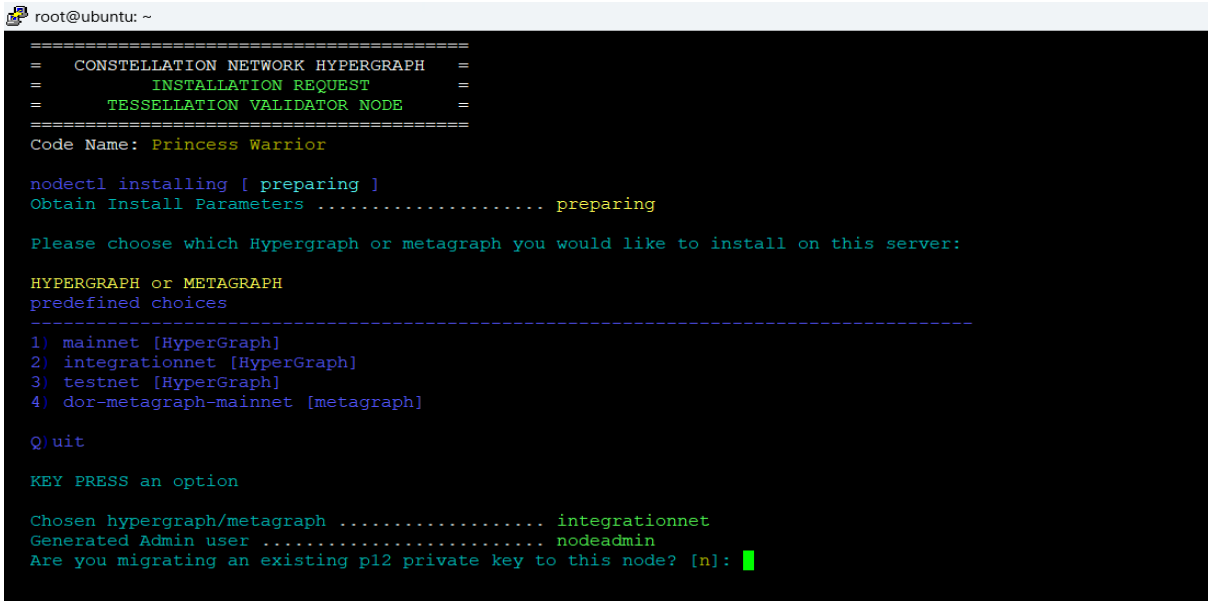
Give y



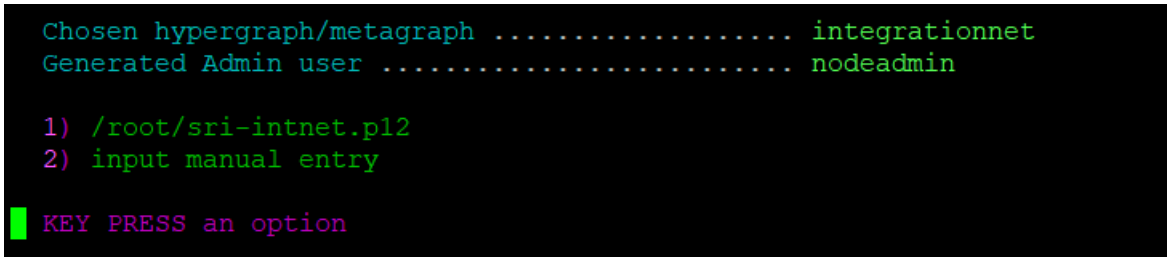
Give y



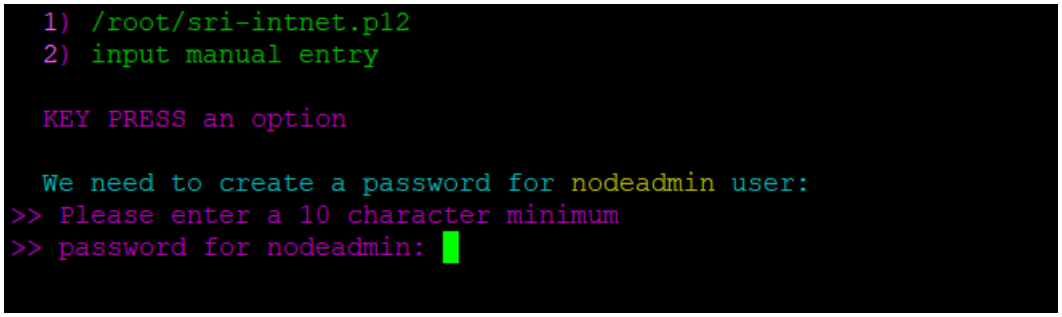
Select your choice



If you are building your node for first time, it should be n, else y



If you are rebuilding your node with existing p12 file, It will show as above. Else this is not shown



Enter nodeadmin password of your choice with minimum 10 characters

```
  We need to create a password for nodeadmin user:
>> Please enter a 10 character minimum
>> password for nodeadmin:
>> Please confirm nodeadmin's password:
  We need to verify the passphrase for our p12 file.
>> Please enter P12 private key passprhase:
```

If you are installing node for first time, please give a p12 passphrase of your choice.

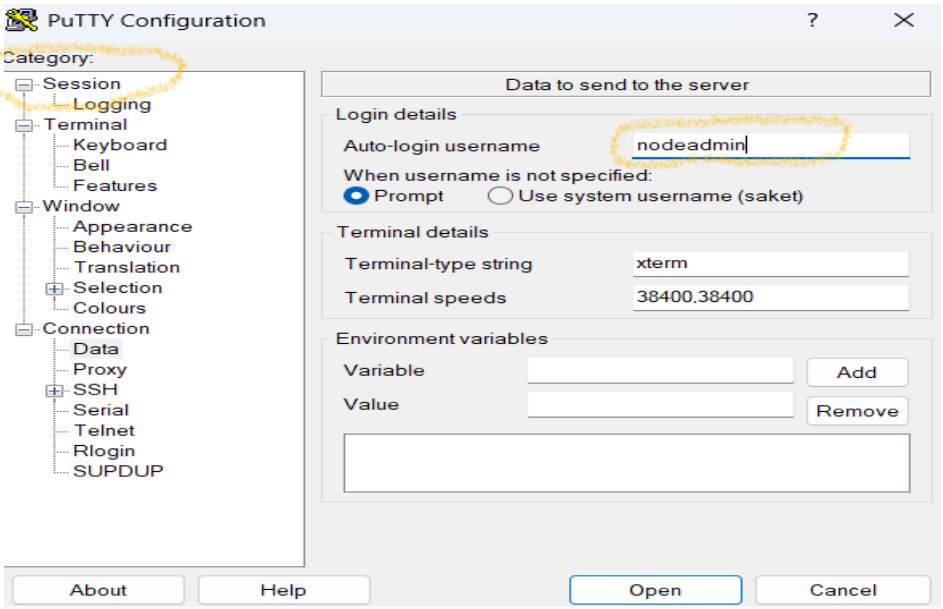
If you are installing node with an already existing p12 file, give the same passphrase as previous one

```
Code Name: Princess Warrior

------ * INSTALLATION COMPLETE * -------

 CONGRATULATIONS!
Below you will find your nodeid which was derived from your p12 file
Please report this nodeid to administrative staff to gain access to the network via the access list permissions.

HyperGraph/metagraph ........................ hypergraph
Environment ................................. integrationnet
P12 Location ................................ /home/nodeadmin/tessellation
P12 Name .................................... sri-intnet.p12
P12 Alias ................................... sri-intnet.p12

----- * CHECK SEED LIST REQUEST * ------

NODE ID
(                                                                    )
NODE ID FOUND ON SEED LIST
True
DAG WALLET ADDRESS
DAG138fzgR4uRHjEdVgPFAVf1SZ1wXjw2sGCSmxQ

Please review the next Steps in order to gain access to the hypergraph -> integrationnet environment.

If your node is found as False on the check seed list(s) output above, you will need to submit your node ID for acceptance.

Please follow the instructions below, as indicated.

1) Submit nodeid to Constellation Network Discord Admins.
2) Update your Lattice account to provide:
   - DAG wallet to prove collateralize requirements.
   - integrationnet nodeid.
3) Stay logged in to this VPS terminal session.
4) Open new terminal.
5) Confirm ability to log in as: nodeadmin.
6) Log out of this original terminal session.
7) Wait for next cluster restart.
8) Confirm your node's status:
   - Command: sudo nodectl check_seedlist -p intnet-10
   - Command: sudo nodectl restart -p all

enod!

Total installation time: 2.914 minutes
```

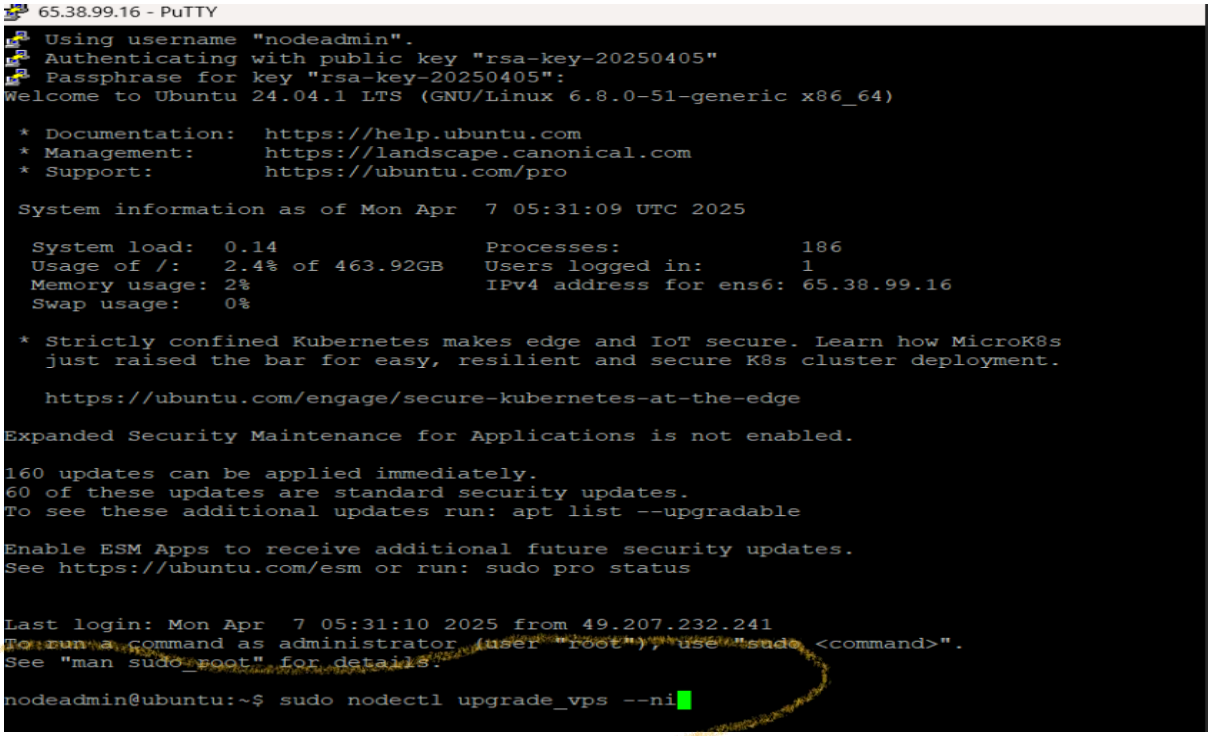
After installation completes, you will find this screen. Copy the NODE ID and give it to your Team Lead if you have built node for the first time

Step 10: Accessing the server after installation of tessellation

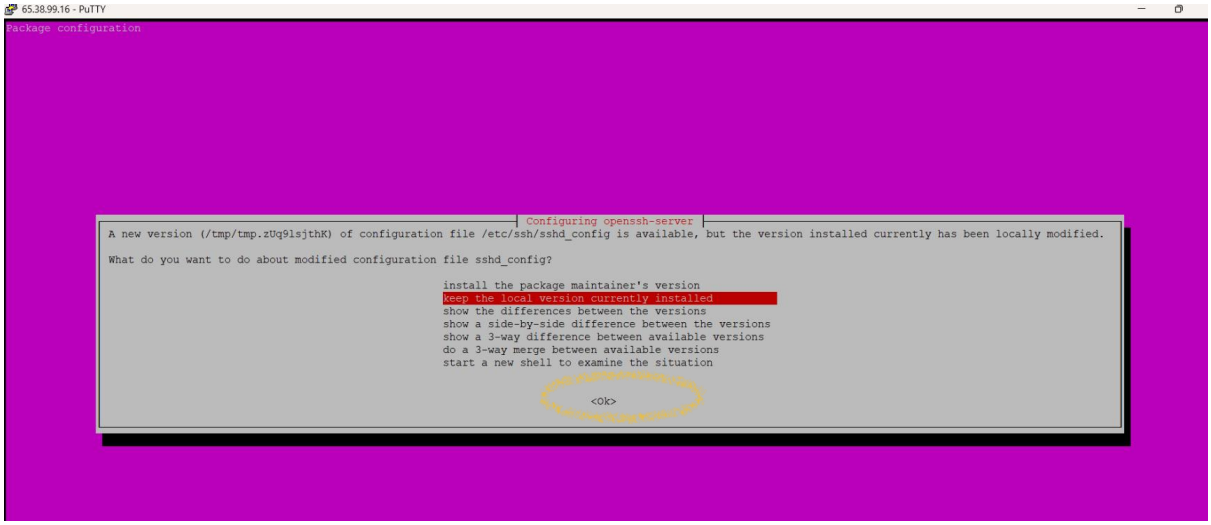
After installation of tessellation, root access will be disabled. We can access the node only with **nodeadmin**



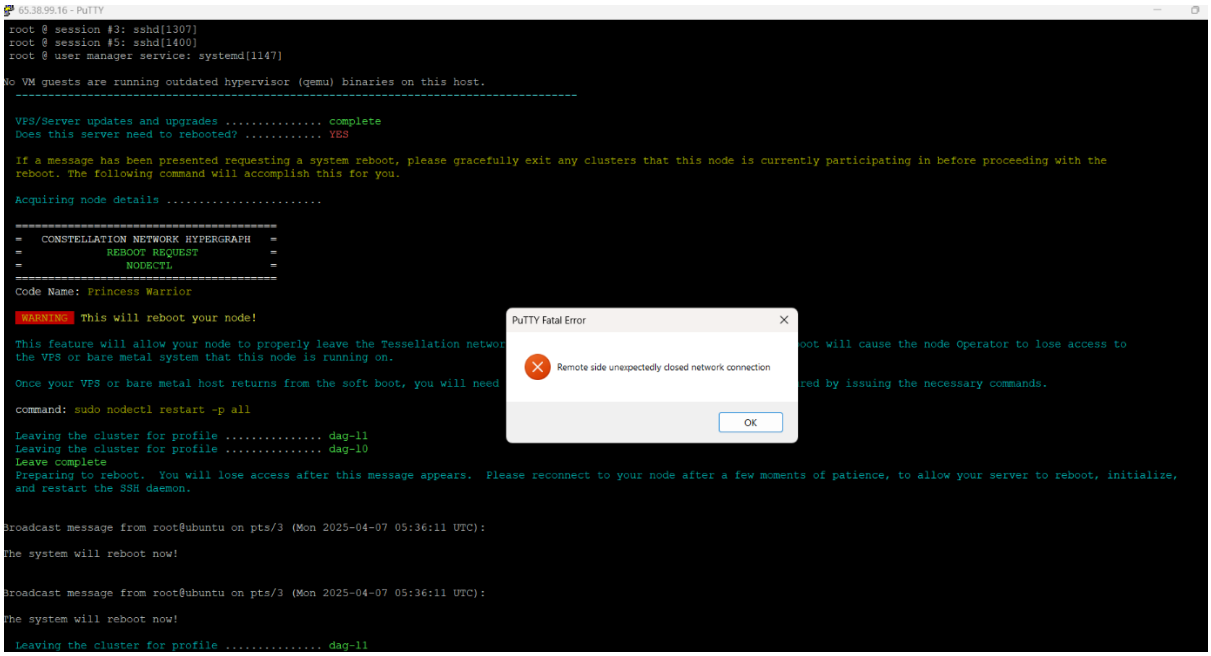
Got to putty and change the Auto-login username to nodeadmin, Click on session and save it. Login to the server.



After logging in to the server, do security updates with the nodectl command "**sudo nodectl upgrade_vps –ni**"



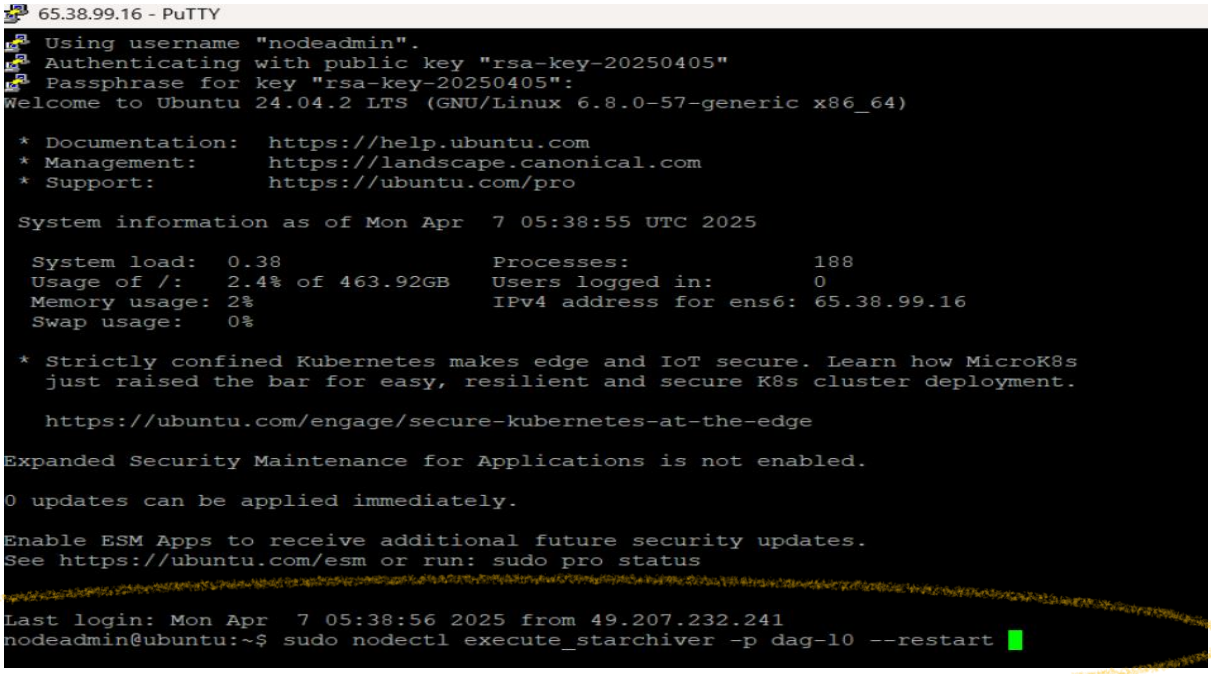
While the security updates are running, if this screen pops up, then press <Tab> key on your laptop, so that <Ok> will be highlighted on the screen, then press <ENTER>



When security updates complete, sometimes it will reboot the server if needed. You can see this screen. The session gets disconnected. Wait for 2-3 mins and login back using Putty.

Step 11: Run Starchiver script to download all the snapshots and do a restart to join the cluster

Login back to the server from putty

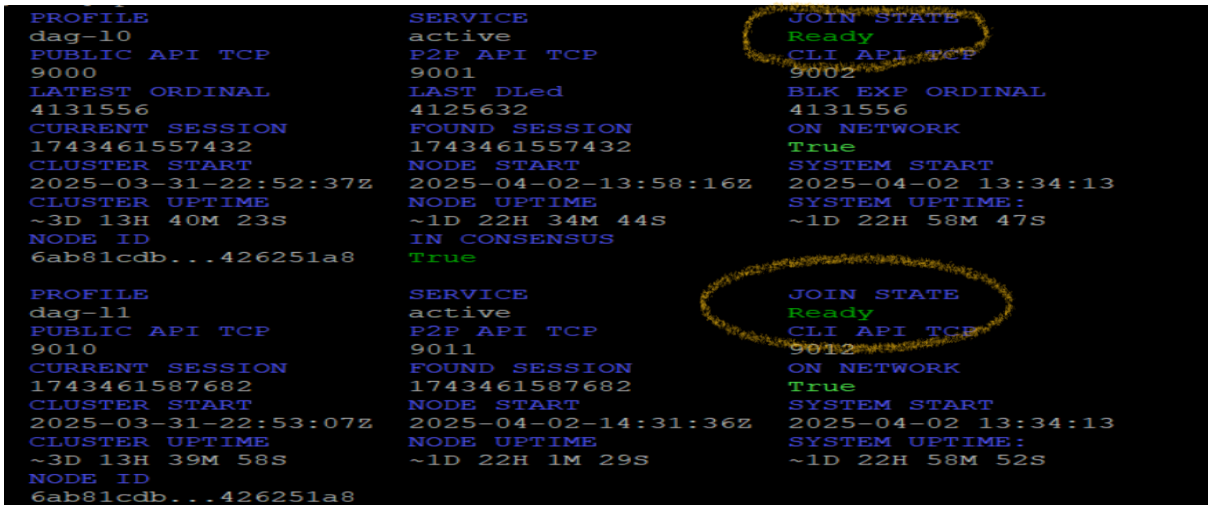


Command: **sudo nodectl execute_starchiver -p dag-l0 –restart**

- The session should be connected until the execution of this script completes

- After execution of the above script, all the snapshots will be downloaded and the node gets restarted to join the cluster. L0 will initially go to DownloadInProgress state followed by Ready state on L0 and L1

- Check the status after few mins using the command **sudo nodectl status** , the node should show Ready/Ready state



If L1 is in ReadytoJoin state, issue the command **sudo nodectl join -p dag-l1** on the terminal

Congratulations!!!

You can always refer the constellation docs for granular level information on running a node created by our one and only great Netmet https://docs.constellationnetwork.io/run-a-node