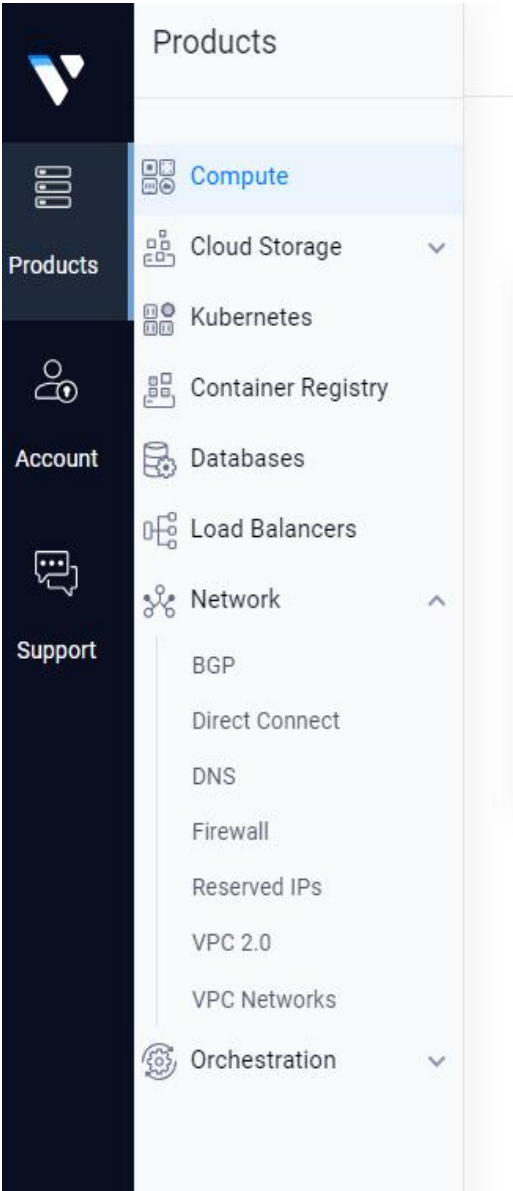


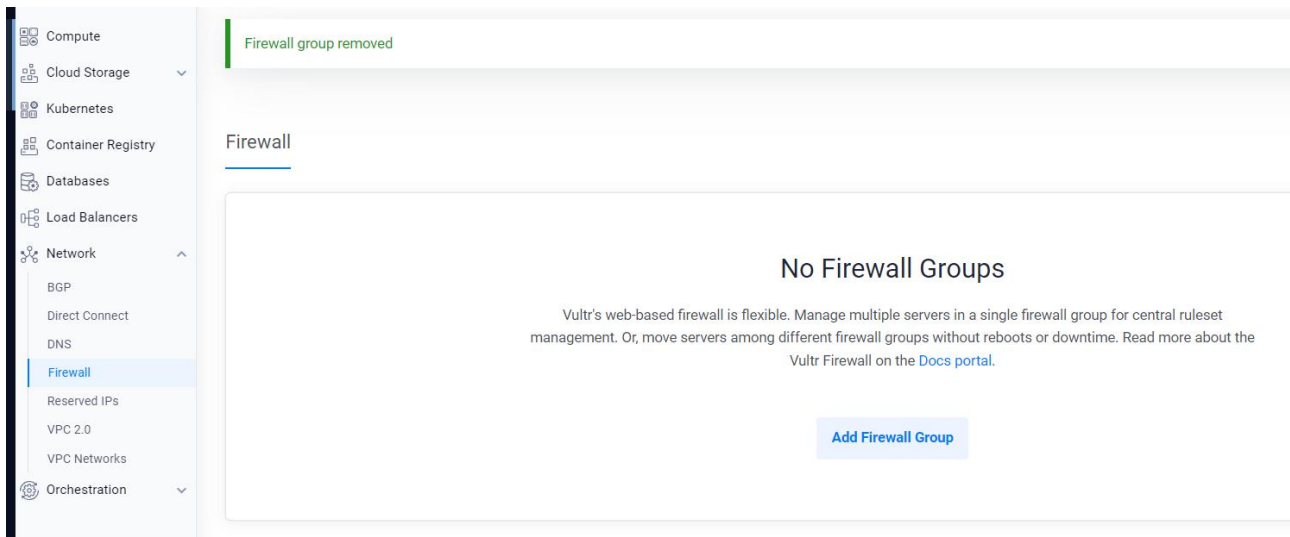
Vultr Node Setup procedure

Log on to your Vultr account.

Step 1. Create Firewall Group

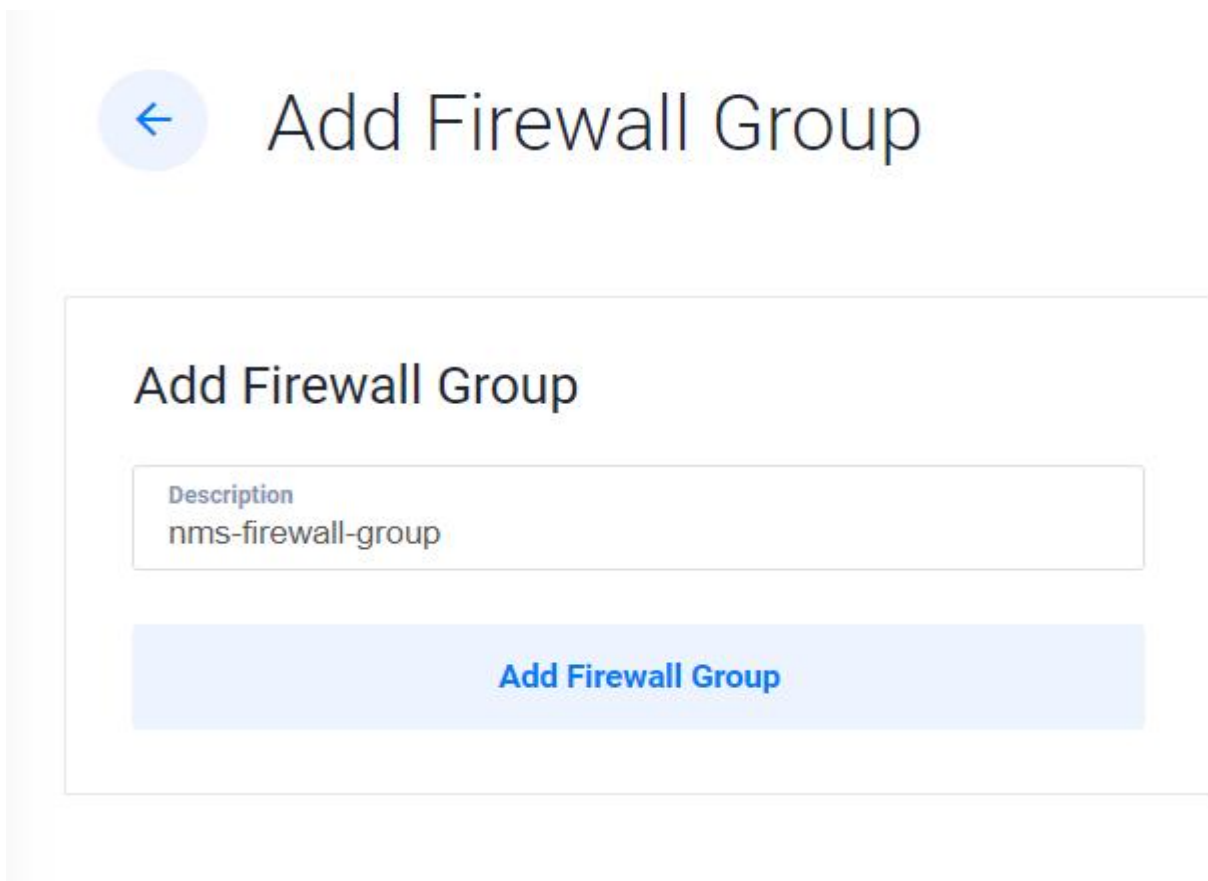


Select Network and click on Firewall



Click on Add Firewall Group.

Enter description and click on Add Firewall Group



And add IPV4 rules for Master node as shown below

←

Manage Firewall Group

Group ID: 767d5fb5-5e46-421b-b438-79bf9d7c2c10 Created: 2023-11-22 14:01:39 Updated: 2023-11-22 14:02:34

Description

nms-firewall-group

Group Rules

4/50

Linked Instances

0

IPv4 Rules

IPv6 Rules

Linked Instances

Inbound IPv4 Rules

Action	Protocol	Port (or range) ?	Source	Notes	Action
accept	SSH	22	Anywhere	0.0.0.0/0	Add note +
accept	SSH	22	0.0.0.0/0		
accept	TCP	8000 - 8001	0.0.0.0/0		
accept	TCP	9000 - 9001	0.0.0.0/0		
accept	TCP	19001 - 19004	0.0.0.0/0		
drop	any	0 - 65535	0.0.0.0/0		(default)

Or as shown below for Guardian node

←

Manage Firewall Group

Group ID: 767d5fb5-5e46-421b-b438-79bf9d7c2c10 Created: 2023-11-22 14:01:39 Updated: 2023-11-22 14:04:02

Description

nms-firewall-group

Group Rules

4/50

Linked Instances

0

IPv4 Rules

IPv6 Rules

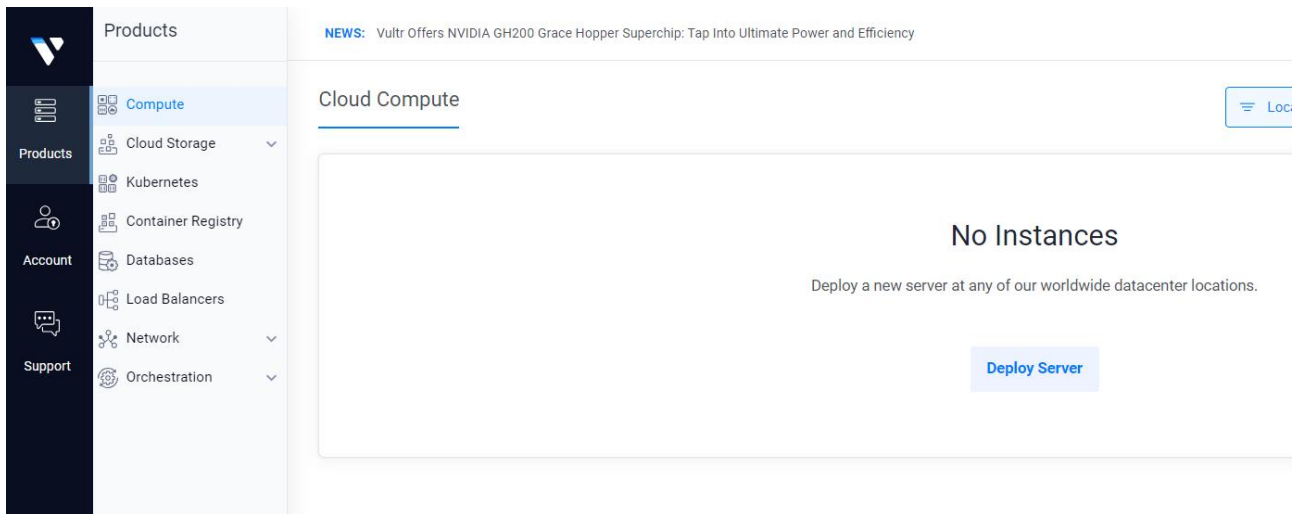
Linked Instances

Inbound IPv4 Rules

Action	Protocol	Port (or range) ?	Source	Notes	Action
accept	SSH	22	Anywhere	0.0.0.0/0	Add note +
accept	SSH	22	0.0.0.0/0		
accept	TCP	8000 - 8001	0.0.0.0/0		
accept	TCP	9000 - 9001	0.0.0.0/0		
accept	TCP	9065 - 9066	0.0.0.0/0		
drop	any	0 - 65535	0.0.0.0/0		(default)

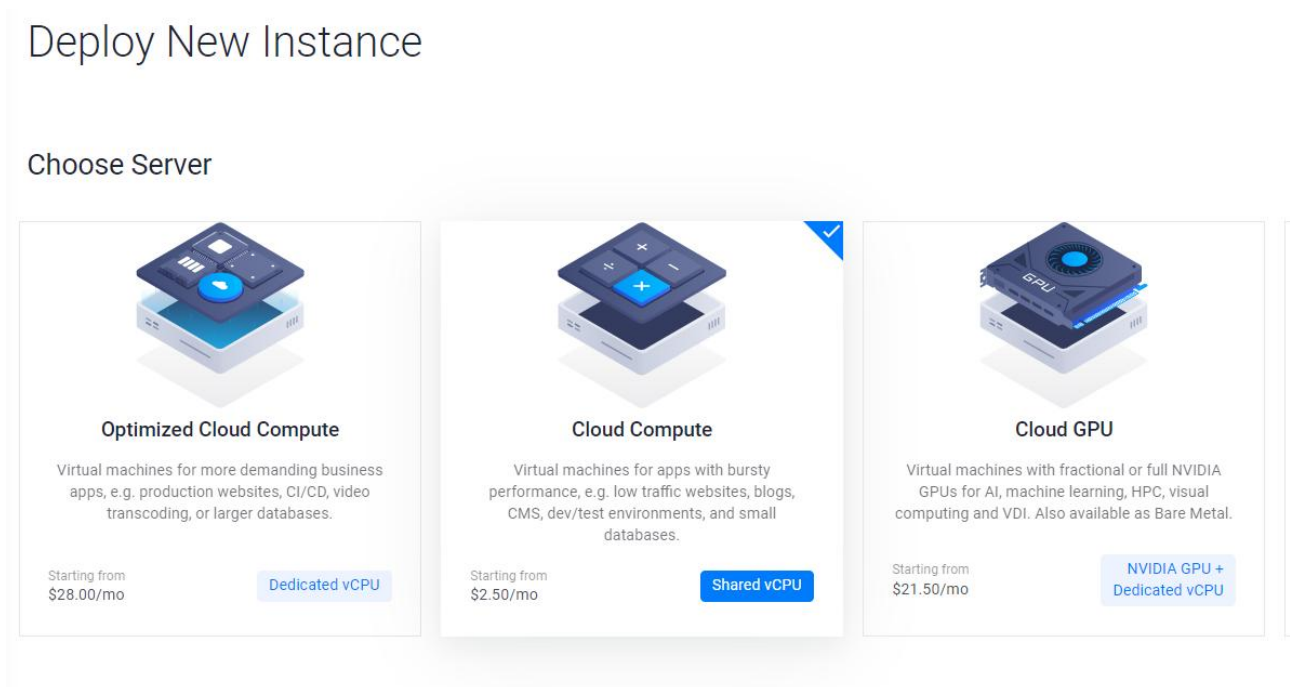
2. Create VPS

Now click on Compute



Click on Deploy Server

Choose server as shown below



Select AMD CPU and London location as shown below

CPU & Storage Technology

NEW

AMD High Performance

Powered by latest generation AMD EPYC CPUs and NVMe SSD.







NEW

intel High Performance

Powered by new generations of Intel Xeon CPUs and NVMe SSD.

Server Location















All Locations America Europe Australia Asia Africa

 London United Kingdom	 Amsterdam Netherlands
 Manchester United Kingdom	 Paris France
 Miami United States	 Atlanta United States

in Server image select ubuntu 20.04 LTS x64

Server Image

Operating System Marketplace Apps Upload ISO ISO Library Backup Snapshot

 AlmaLinux Select Version	 Alpine Linux Latest x64	 Arch Linux Latest x64	 CentOS Select Version
 Debian Select Version	 Fedora Select Version	 Fedora CoreOS Select Version	 Flatcar Container Linux Select Version
 FreeBSD Select Version	 OpenBSD Select Version	 Rocky Linux Select Version	 Ubuntu 20.04 LTS x64
 Windows Core Standard Select Version	 Windows Standard Select Version		23.10 x64 23.04 x64 22.04 LTS x64 20.04 LTS x64

Server Size

Select 350Gb, 8 CPU and 16Gb Ram size as shown below

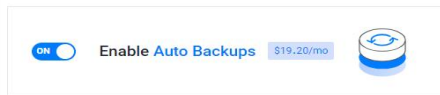
Server Size

<p>25 GB NVMe</p> <p>\$6/month</p> <p>\$0.009/hour</p> <p>1 vCPU</p> <p>1 GB Memory</p> <p>2 TB Bandwidth</p>	<p>50 GB NVMe</p> <p>\$12/month</p> <p>\$0.018/hour</p> <p>1 vCPU</p> <p>2 GB Memory</p> <p>3 TB Bandwidth</p>	<p>60 GB NVMe</p> <p>\$18/month</p> <p>\$0.027/hour</p> <p>2 vCPUs</p> <p>2 GB Memory</p> <p>4 TB Bandwidth</p>	<p>100 GB NVMe</p> <p>\$24/month</p> <p>\$0.036/hour</p> <p>2 vCPUs</p> <p>4 GB Memory</p> <p>5 TB Bandwidth</p>
<p>180 GB NVMe</p> <p>\$48/month</p> <p>\$0.071/hour</p> <p>4 vCPUs</p> <p>8 GB Memory</p> <p>6 TB Bandwidth</p>	<p>260 GB NVMe</p> <p>\$72/month</p> <p>\$0.107/hour</p> <p>4 vCPUs</p> <p>12 GB Memory</p> <p>7 TB Bandwidth</p>	<p>350 GB NVMe</p> <p>\$96/month</p> <p>\$0.143/hour</p> <p>8 vCPUs</p> <p>16 GB Memory</p> <p>8 TB Bandwidth</p>	<p>500 GB NVMe</p> <p>\$144/month</p> <p>\$0.214/hour</p> <p>12 vCPUs</p> <p>24 GB Memory</p> <p>12 TB Bandwidth</p>

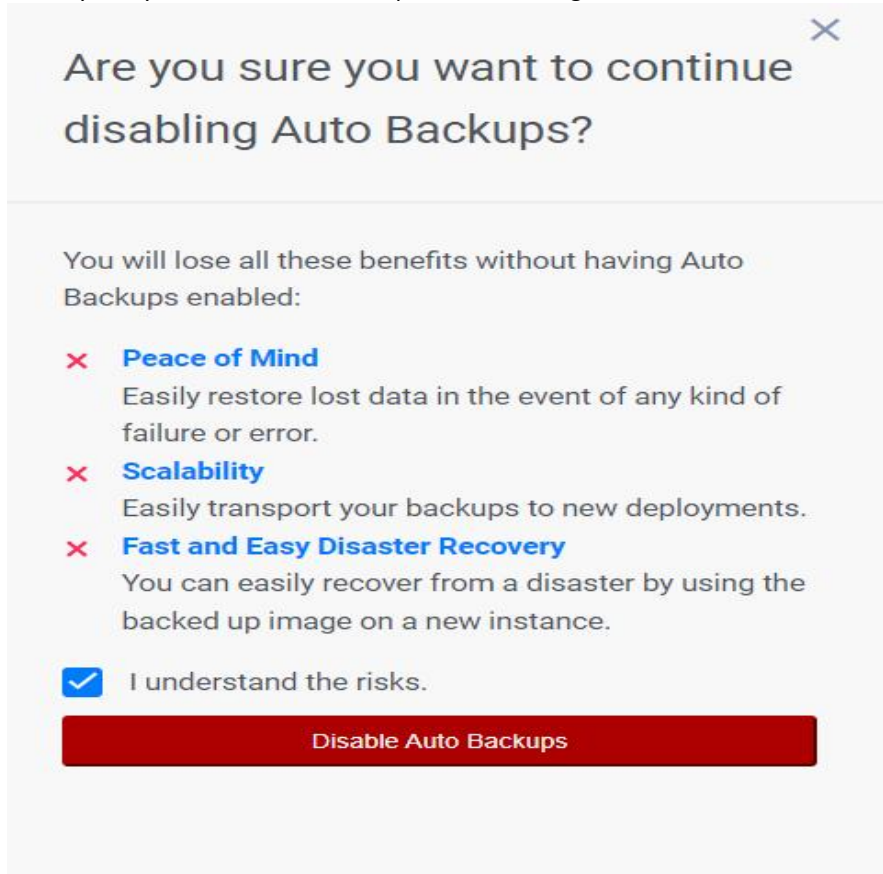
Disable Auto Backups

Add Auto Backups RECOMMENDED

Vultr offers automatic backup, which we highly recommend for mission-critical systems. Once backed up, you can easily recover from disaster by spinning up a new instance from a saved image.



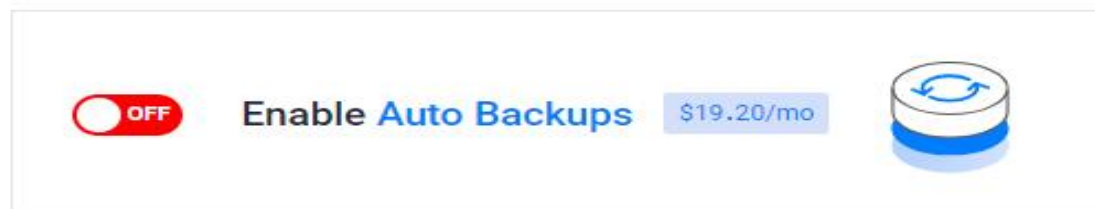
When you try to disable Auto backup, it shows dialog box as below



Select "I understand the risks." and click on Disable Auto Backups.

Add Auto Backups RECOMMENDED

Vultr offers automatic backup, which we highly recommend for mission-critical



Backups are now disabled.

Make sure IPV6 is NOT selected in additional features , as shown below.

Additional Features

☐ Enable IPv6 ?

☐ Enable DDOS Protection \$10/mo

☐ Enable Cloud-Init User-Data ?

☐ Enable Virtual Private Clouds ?

☐ Enable VPC 2.0 ?

☐ Enable Limited User Login ?

Now select firewall group created earlier and enter host name

Firewall Group [\(Manage\)](#)

767d5fb5-5e46-421b-b438-79bf9d7c2c10: nms-firewall-group

Server Hostname & Label

Enter server hostname (8/63)
nms-node

Enter server label
nms-node

Servers Qty:

- 1 +

Summary:

\$115.20/month (\$0.171/hour)

Deploy Now

Click on Deploy Now to create the VPS




Server added successfully!

Cloud Compute

Location

Search

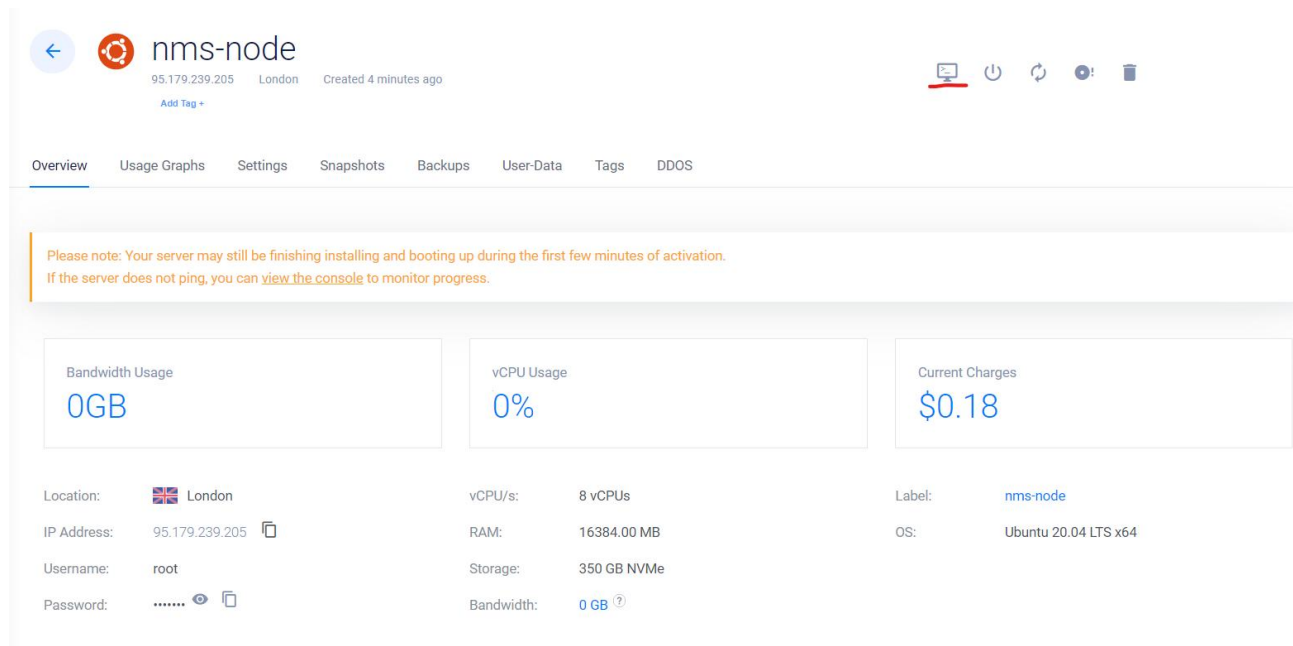
+ Deploy

<input type="checkbox"/>	Name	OS	Location	Charges	Status	
<input type="checkbox"/>	nms-node 16384.00 MB AMD High Performance - 95.179.239.205		 London	\$0.18	 Running	...

Server is successfully created

NMS Install Procedure (Vultr).

Click on the server which is created in the previous step



The screenshot shows the Vultr NMS Node overview page for a server named 'nms-node'. The server is located in London, has an IP address of 95.179.239.205, and was created 4 minutes ago. The page includes a navigation bar with tabs for Overview, Usage Graphs, Settings, Snapshots, Backups, User-Data, Tags, and DDOS. A note states: 'Please note: Your server may still be finishing installing and booting up during the first few minutes of activation. If the server does not ping, you can [view the console](#) to monitor progress.' The main content area displays three metrics: Bandwidth Usage (0GB), vCPU Usage (0%), and Current Charges (\$0.18). Below these metrics, the server's location (London), IP Address (95.179.239.205), Username (root), Password (masked), vCPU/s (8 vCPUs), RAM (16384.00 MB), Storage (350 GB NVMe), Bandwidth (0 GB), Label (nms-node), and OS (Ubuntu 20.04 LTS x64) are listed.

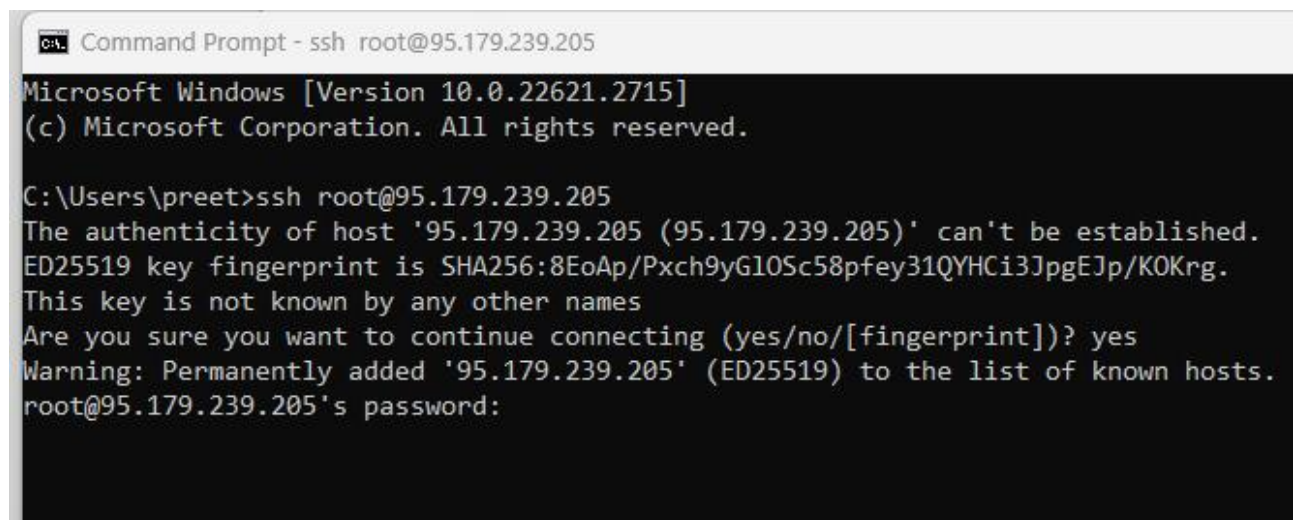
Metric	Value
Bandwidth Usage	0GB
vCPU Usage	0%
Current Charges	\$0.18

Property	Value
Location	London
IP Address	95.179.239.205
Username	root
Password
vCPU/s	8 vCPUs
RAM	16384.00 MB
Storage	350 GB NVMe
Bandwidth	0 GB
Label	nms-node
OS	Ubuntu 20.04 LTS x64

copy the ip address and password above to connect to server

From command line connect to server as below

ssh root@<IP Address>



The screenshot shows a Windows Command Prompt window titled 'Command Prompt - ssh root@95.179.239.205'. The prompt displays the output of the 'ssh root@95.179.239.205' command. It shows the authenticity of the host '95.179.239.205' cannot be established, followed by the ED25519 key fingerprint: 'SHA256:8EoAp/Pxch9yG10Sc58pfey31QYHCi3JpgEJp/KOKrg.'. The user is prompted to confirm the connection, and they respond 'yes'. A warning message states: 'Warning: Permanently added '95.179.239.205' (ED25519) to the list of known hosts.' The prompt then asks for the password: 'root@95.179.239.205's password:'.

```
Command Prompt - ssh root@95.179.239.205
Microsoft Windows [Version 10.0.22621.2715]
(c) Microsoft Corporation. All rights reserved.

C:\Users\preet>ssh root@95.179.239.205
The authenticity of host '95.179.239.205 (95.179.239.205)' can't be established.
ED25519 key fingerprint is SHA256:8EoAp/Pxch9yG10Sc58pfey31QYHCi3JpgEJp/KOKrg.
This key is not known by any other names
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added '95.179.239.205' (ED25519) to the list of known hosts.
root@95.179.239.205's password:
```

Enter password copied from above

```
root@nms-node: ~  
  
System information as of Wed 22 Nov 2023 02:40:55 PM UTC  
  
System load: 0.0          Processes:                200  
Usage of /:  3.5% of 327.59GB  Users logged in:        0  
Memory usage: 3%          IPv4 address for enp1s0: 95.179.239.205  
Swap usage:  0%  
  
Expanded Security Maintenance for Applications is not enabled.  
  
47 updates can be applied immediately.  
To see these additional updates run: apt list --upgradable  
  
Enable ESM Apps to receive additional future security updates.  
See https://ubuntu.com/esm or run: sudo pro status  
  
The list of available updates is more than a week old.  
To check for new updates run: sudo apt update  
  
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@nms-node:~#
```

Now run commands:

```
echo "ubuntu ALL=(ALL) NOPASSWD:ALL" >> /etc/sudoers
```

```
sudo su - ubuntu
```

```
sudo ufw disable
```

```
ubuntu@nms-node:~/node_setup$ sudo ufw disable  
Firewall stopped and disabled on system startup  
ubuntu@nms-node:~/node_setup$
```