

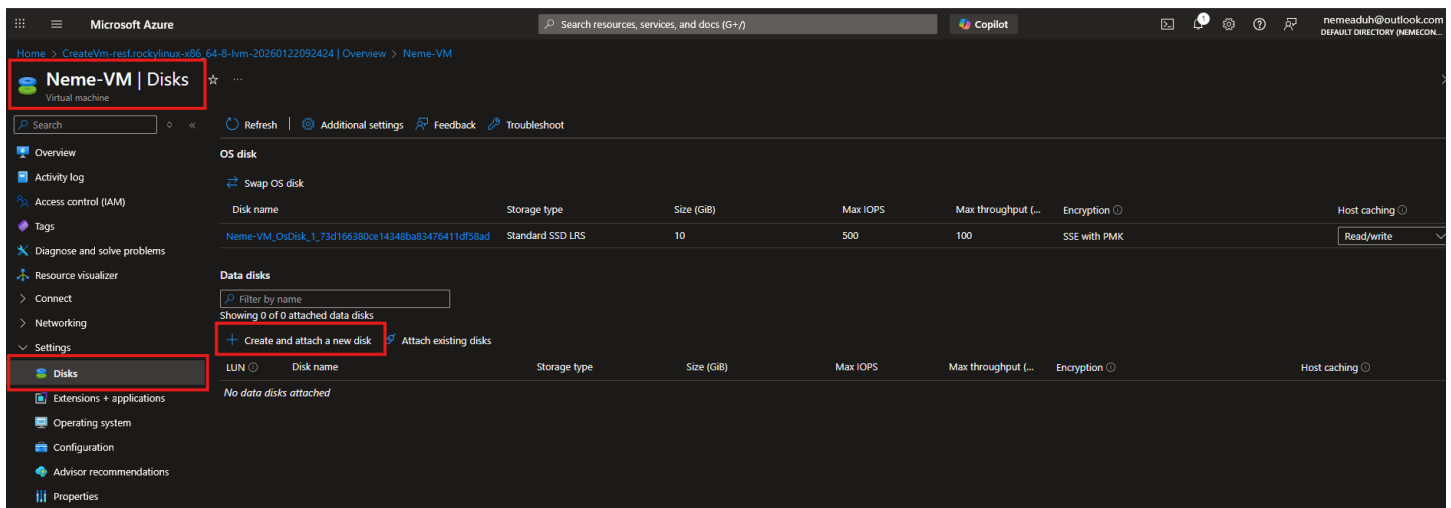
ASSIGNMENT IV

Microsoft Azure Administrator

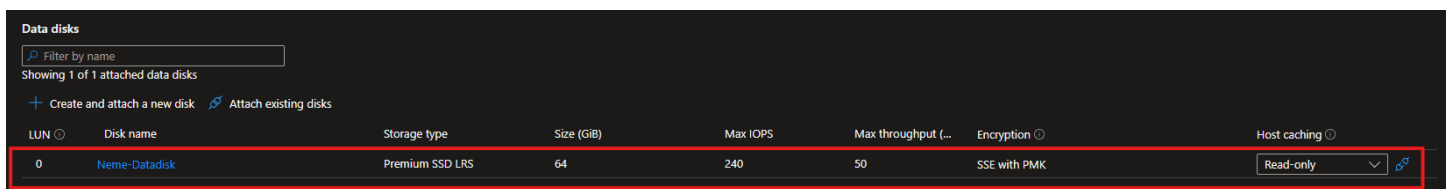
Neme Aduh

How to Add a Data Disk to a Rocky Linux VM using after the VM has been deployed

- Create a Rocky LVM and deploy
- Goto the VM deployed> click on settings>Disk
- Under Data disks - Click 'Create and attach a new disk'



- Define the Disk name, storage type, size etc then hit 'Apply' to deploy the newly created disk



Next Step is to connect to the VM using MobaXterm and Initialize the Disk

- Connect to the LVM using MobaXterm
- For me to become the root user that is the super user to be able to run admin commands without using sudo, I used the command 'sudo passwd root' to change the password then I switch user by running command 'su -'

```
20.200.91.8 (nemeaduh)
Terminal Sessions View X server Tools Games Settings Macros Help
Session Servers Tools Games Sessions View Split MultiExec Tunneling Packages Settings Help
Quick connect...
/home/nemeaduh/
Name
..
.ssh
.bash_logout
.bash_profile
.bashrc
[nemeaduh@Neme-VM ~]$ sudo passwd root
Changing password for user root.
New password:
Retye new password:
passwd: all authentication tokens updated successfully.
[nemeaduh@Neme-VM ~]$ su -
Password:
[root@Neme-VM ~]#
```

- To show the Disk usage, run a command '**df -h**'
- Sda2 is the OS disk
- Sdb1 is the Temporary disk
- So we currently do not have the Data disk showing yet

```
[root@Neme-VM ~]# df -h
Filesystem      Size  Used Avail Use% Mounted on
devtmpfs        3.8G   0 3.8G   0% /dev
tmpfs           3.8G   0 3.8G   0% /dev/shm
tmpfs           3.8G  17M 3.8G   1% /run
tmpfs           3.8G   0 3.8G   0% /sys/fs/cgroup
/dev/mapper/rocky-root 9.0G 1.4G 7.6G  16% /
/dev/sda2       994M  235M 760M  24% /boot
/dev/sda1        99M   5.8M  94M   6% /boot/efi
/dev/sdb1       16G   28K  15G   1% /mnt
tmpfs           769M   0 769M   0% /run/user/1000
```

- But, typing the command '**fdisk -l**' shows the Data Disk which is sdc but it has not been partition

```
[root@Neme-VM ~]# fdisk -l
Disk /dev/sdb: 16 GiB, 17179869184 bytes, 33554432 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 4096 bytes
I/O size (minimum/optimal): 4096 bytes / 4096 bytes
Disklabel type: dos
Disk identifier: 0x01f0d12e

Device      Boot Start          End      Sectors  Size Id Type
/dev/sdb1   2048 33552383 33550336    16G  7 HPFS/NTFS/exFAT

Disk /dev/sda: 10 GiB, 10737418240 bytes, 20971520 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 4096 bytes
I/O size (minimum/optimal): 4096 bytes / 4096 bytes
Disklabel type: gpt
Disk identifier: 1853C561-0084-4B2A-B8F9-9C97DE4DC8E4

Device      Start          End      Sectors  Size Type
/dev/sda1    2048         204799      202752    99M EFI System
/dev/sda2   204800     2252799    2048000 1000M Linux filesystem
/dev/sda3   2252800     2260991      8192     4M PowerPC PReP boot
/dev/sda4   2260992     2263039      2048     1M BIOS boot
/dev/sda5   2265088    20969471   18704384  8.9G Linux LVM

Disk /dev/mapper/rocky-root: 8.9 GiB, 9575596032 bytes, 18702336 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 4096 bytes
I/O size (minimum/optimal): 4096 bytes / 4096 bytes

Disk /dev/sdc: 64 GiB, 68719476736 bytes, 134217728 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 4096 bytes
I/O size (minimum/optimal): 4096 bytes / 4096 bytes
[root@Neme-VM ~]#
```

- Since the name of the DataDisk as seen is 'dev/sdc', we will now go into the disk using command 'fdisk /dev/sdc/
- Type m for help
- So we want to type 'n' to add a new partition

```
[root@Neme-VM ~]# fdisk /dev/sdc

Welcome to fdisk (util-linux 2.32.1).
Changes will remain in memory only, until you decide to write them.
Be careful before using the write command.

Device does not contain a recognized partition table.
Created a new DOS disklabel with disk identifier 0xb91d158a.

Command (m for help): m

Help:

DOS (MBR)
 a  toggle a bootable flag
 b  edit nested BSD disklabel
 c  toggle the dos compatibility flag

Generic
 d  delete a partition
 F  list free unpartitioned space
 l  list known partition types
 n  add a new partition
 p  print the partition table
 t  change a partition type
 v  verify the partition table
 i  print information about a partition

Misc
 m  print this menu
 u  change display/entry units
 x  extra functionality (experts only)

Script
 I  load disk layout from sfdisk script file
 O  dump disk layout to sfdisk script file

Save & Exit
 w  write table to disk and exit
 q  quit without saving changes

Create a new label
 g  create a new empty GPT partition table
 G  create a new empty SGI (IRIX) partition table
 o  create a new empty DOS partition table
 s  create a new empty Sun partition table
```

- In this first partition, we have created 20GB out of the 64GB Data

```
Command (m for help): n
Partition type
  p   primary (0 primary, 0 extended, 4 free)
  e   extended (container for logical partitions)
Select (default p):

Using default response p.
Partition number (1-4, default 1):
First sector (2048-134217727, default 2048):
Last sector, +sectors or +size[K,M,G,T,P] (2048-134217727, default 134217727): +20G

Created a new partition 1 of type 'Linux' and of size 20 GiB.
```

- To save this partition, run 'w' and enter, The partition table been altered means is now saved

```
Command (m for help): p
Disk /dev/sdc: 64 GiB, 68719476736 bytes, 134217728 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 4096 bytes
I/O size (minimum/optimal): 4096 bytes / 4096 bytes
Disklabel type: dos
Disk identifier: 0x3755b223

Device      Boot Start      End  Sectors  Size Id Type
/dev/sdc1                2048 41945087 41943040   20G  0 Empty

Command (m for help): w
The partition table has been altered.
Calling ioctl() to re-read partition table.
Syncing disks.
```

- Next Step, In as much this sdc has been partitioned, if you run a command 'df -h' you won't still see it which means it is yet to be 'cooked'
- So to cook this we run a command 'mkfs.xfs /dev/sdc1'

```
[root@Neme-VM ~]# df -h
Filesystem      Size  Used Avail Use% Mounted on
devtmpfs        3.8G   0  3.8G   0% /dev
tmpfs           3.8G   0  3.8G   0% /dev/shm
tmpfs           3.8G  17M  3.8G   1% /run
tmpfs           3.8G   0  3.8G   0% /sys/fs/cgroup
/dev/mapper/rocky-root 9.0G  1.4G  7.6G  16% /
/dev/sda2       994M  235M  760M  24% /boot
/dev/sda1       99M   5.8M   94M   6% /boot/efi
/dev/sdb1       16G   28K   15G   1% /mnt
tmpfs           769M   0  769M   0% /run/user/1000

[root@Neme-VM ~]# mkfs.xfs /dev/sdc1
meta-data=/dev/sdc1               isize=512    agcount=4, agsize=1310720 blks
=                               sectsz=4096  attr=2, projid32bit=1
=                               crc=1        finobt=1, sparse=1, rmapbt=0
=                               reflink=1    bigtime=0 inobtcount=0
data      =                       bsize=4096  blocks=5242880, imaxpct=25
=                               sunit=0       swidth=0 blks
naming    =version 2             bsize=4096  ascii-ci=0, ftype=1
log       =internal log         bsize=4096  blocks=2560, version=2
=                               sectsz=4096  sunit=1 blks, lazy-count=1
realtime  =none                 extsz=4096  blocks=0, rtextents=0
Discarding blocks...Done.
```

- In as much as this has been cooked, we still need to mount the partition data disk for it to display
- So we are going to make a directory where we want to mount the data disk by running the command **'mkdir /nemeData'**
- Once a directory has been made, we can then run the command **'mount /dev/sdc1 /nemeData/**

```
[root@Neme-VM /]# mount /dev/sdc1 /nemeData/
```

- To confirm the mount has been done, run **'df -h'**

```
[root@Neme-VM /]# df -h
Filesystem      Size  Used Avail Use% Mounted on
devtmpfs        3.8G   0 3.8G   0% /dev
tmpfs           3.8G   0 3.8G   0% /dev/shm
tmpfs           3.8G  17M 3.8G   1% /run
tmpfs           3.8G   0 3.8G   0% /sys/fs/cgroup
/dev/mapper/rocky-root 9.0G  1.4G 7.6G  16% /
/dev/sda2       994M  235M 760M  24% /boot
/dev/sda1        99M   5.8M  94M   6% /boot/efi
/dev/sdb1       16G   28K  15G   1% /mnt
tmpfs          769M   0 769M   0% /run/user/1000
/dev/sdc1       20G  176M  20G   1% /nemeData
```

- But this mount has not been saved permanently, so to do this, we run the command **'echo "/dev/sdc1 /nemeData xfs defaults 0 0" >> /etc/fstab'**
- To confirm this is now mounted by default/permanently, run the command **'cat /etc/fstab'**

Validation check: **'/dev/sdc1 /nemeData xfs defaults 0 0'** displays which shows this is now mounted by defaulted into fstab

```
[root@Neme-VM /]# echo "/dev/sdc1 /nemeData xfs defaults 0 0" >> /etc/fstab
[root@Neme-VM /]# df -h
Filesystem      Size  Used Avail Use% Mounted on
devtmpfs        3.8G   0 3.8G   0% /dev
tmpfs           3.8G   0 3.8G   0% /dev/shm
tmpfs           3.8G  17M 3.8G   1% /run
tmpfs           3.8G   0 3.8G   0% /sys/fs/cgroup
/dev/mapper/rocky-root 9.0G  1.4G 7.6G  16% /
/dev/sda2       994M  235M 760M  24% /boot
/dev/sda1        99M   5.8M  94M   6% /boot/efi
/dev/sdb1       16G   28K  15G   1% /mnt
tmpfs          769M   0 769M   0% /run/user/1000
/dev/sdc1       20G  176M  20G   1% /nemeData
[root@Neme-VM /]# cat /etc/fstab
#
# /etc/fstab
# Created by anaconda on Sun Nov 19 14:47:37 2023
#
# Accessible filesystems, by reference, are maintained under '/dev/disk/'.
# See man pages fstab(5), findfs(8), mount(8) and/or blkid(8) for more info.
#
# After editing this file, run 'systemctl daemon-reload' to update systemd
# units generated from this file.
#
/dev/mapper/rocky-root / xfs defaults 0 0
UUID=13ced322-b2af-49d5-a9de-49ade19ac569 /boot xfs defaults 0 0
UUID=006E-25E5 /boot/efi vfat defaults,uid=0,gid=0,umask=077,shortname=winnt 0 2
/dev/disk/cloud/azure_resource-part1 /mnt auto defaults,nofail,x-systemd.requires=cloud-init.service,_netdev,comment=cloudconfig 0 2
/dev/sdc1 /nemeData xfs defaults 0 0
```

We can unmount using command **'umount /nemeData'**

We can mount it back using the command **'mount -a'**