

[Azure][LVM] Root file system extend procedure for Nexthink Appliance

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Preliminary steps

Before applying the procedure, please create a backup of the Engine and/or Portal Appliance(s) you will work on.

This includes:

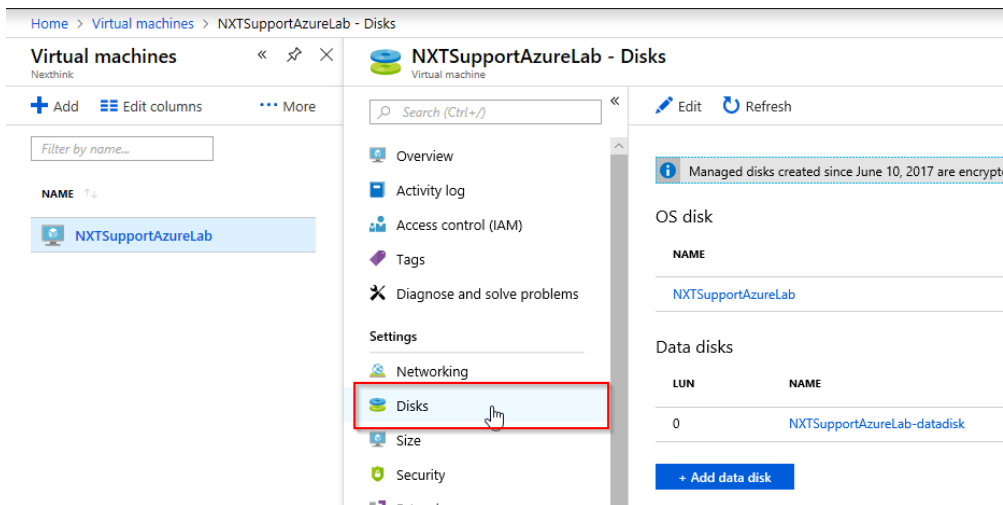
- Prepare for a disaster recovery as per described in our official documentation:
<https://doc.nexthink.com/Documentation/Nexthink/latest/InstallationAndConfiguration/Planningfordisasterrecovery>
- Azure VM/disk snapshot(s)
<https://docs.microsoft.com/en-us/azure/virtual-machines/windows/snapshot-copy-managed-disk>

Considerations

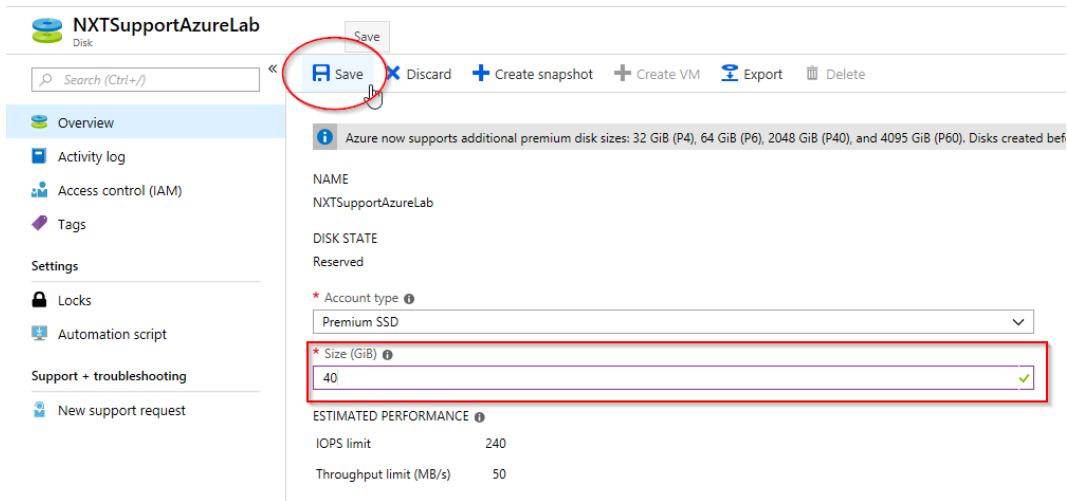
- This procedure should be executed by a Unix/LVM Expert.
- Please make sure you have some free space in the root partition before proceeding (the partition should not be full).
- In this procedure we will consider only the scenario where the current OS disk is expanded, and not the addition on a second disk. So, the only and main disk of this Appliance will be **/dev/sda**.
- In the procedure we have increased the root partition from 5GB to 30GB. Therefore, the output samples and their values displayed in some of the steps of this guide are orientative.

Extending the OS disk size in Azure Portal

1. Go to your Azure Portal and stop your Appliance VM
2. Once successfully stopped, go to the Virtual Machine disks and select the OS disk



3. Add the desired disk space by modifying the Size (GiB) as shown in the picture below. Then, save the changes



4. Start the Virtual Machine

Extending root partition using CLI

1. Detect the expanded disk

Once the physical disk has been increased at the hardware level, reboot the VM and it will detect the changes on boot. we need to check that the new unallocated disk space is detected by the VM, you can use "fdisk -l" to list the primary disk

```
fdisk -l
```

2. Partition the new disk space

Use fdisk to create a new primary partition to make use of the new expanded disk space

```

fdisk /dev/sda

#Create new partition
n

#Select partition to primary (p)
p

#Leave first sector as default (press Enter)

#Leave last sector as default (press Enter)

#Set partition type
t

#Select the partition 4 (or press Enter, as it will be the default
one)

#Set Hex code 8e for 'Linux LVM' partition type
8e

#Apply changes
w

```

3. Check if new partition is created using the new expanded disk space

```
fdisk -l /dev/sda
```

The output should look like this:

```

Disk /dev/sda: 32.2 GB, 32212254720 bytes, 62914560 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 label type: dos
Disk identifier: 0x0000d6df

   Device Boot      Start         End      Blocks   Id  System
/dev/sda1            2048         4095        1024    83  Linux
/dev/sda2            4096      2052095     1024000    83  Linux
/dev/sda3           2052096     10239999     4093952    8e  Linux LVM
/dev/sda4           10240000     62914559     26337280    8e  Linux
LVM-----> Newly created partitioned disk

```

4. Re-scan the partitions

```
partprobe /dev/sda
```

5. Use the pvcreate command which creates a physical volume

```
pvcreate /dev/sda4  
  
#List the physical volume  
pvs  
  
#Check the VG size  
vgs
```

The output should look like this:

```
VG          #PV #LV #SN Attr   VSize   VFree  
nxt         1  1  0 wz--n-  3.90g   0  
nxtdatapool 1  1  0 wz--n- <100.00g 0
```

6. Extend the VG by adding the newly created partition

```
vgextend nxt /dev/sda4  
  
#Check the VG size if the VG nxt size has been increased  
vgs
```

The output should look like this:

```
VG          #PV #LV #SN Attr   VSize   VFree  
nxt         2  1  0 wz--n- <29.02g 25.11g  
nxtdatapool 1  1  0 wz--n- <100.00g 0
```

7. Check the logical volume for / file system

```
ls -ltr /dev/nxt/root
```

8. The logical volume is then extended using the lvextend command

```
lvextend /dev/nxt/root /dev/sda4
```

The output should look like this:

```
Size of logical volume nxt/root changed from 3.90 GiB (999 extents)
to <29.02 GiB (7428 extents).
Logical volume nxt/root successfully resized.
```

9. Resize the file system so that it can take advantage of this additional space

```
resize2fs /dev/nxt/root
```

Output:

```
old_desc_blocks = 1, new_desc_blocks = 4
The filesystem on /dev/nxt/root is now 7606272 blocks long.
```

10. Now with the 'df' command we can see that the total available disk space has been increased for root partition

```
df -h
```

11. Reboot the server just to make sure everything is in place (optional)

```
shutdown -r now
```