

How to add a data volume to a CentOS 7 VM (non-LVM)

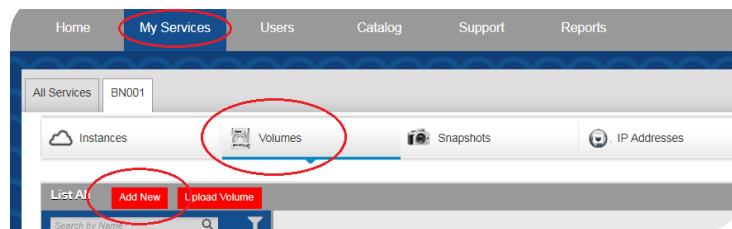
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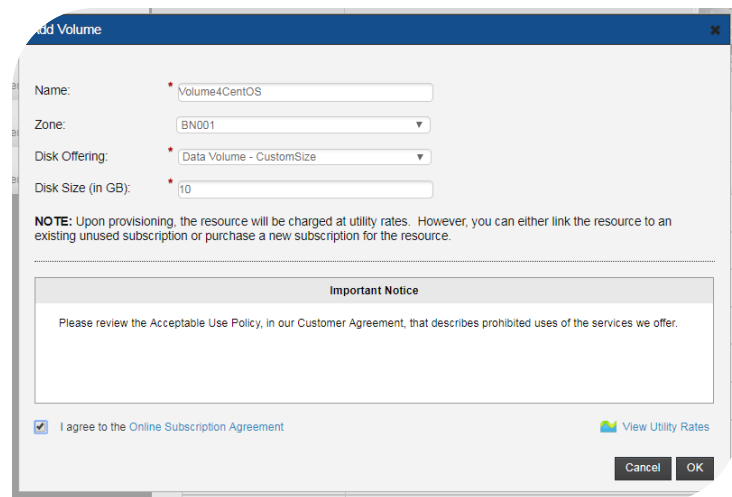
I. Create & attach a new volume on Leap GIO Public

A. Create a new volume

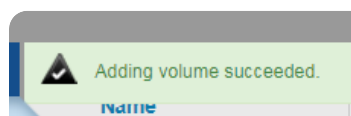
- From the GIOCloud Portal, click on the **My Services** tab located on the top horizontal menu
- Click on **Manage Resources**
- Click on the **Volumes** tab
- Click on **Add New** to add a new data volume



- Fill up the required information, check to agree to the **Online Subscription Agreement**, and click on **OK**

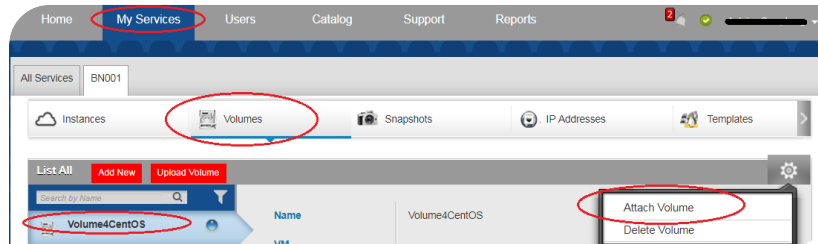


- Wait until the **Adding Volume Succeeded** message appear

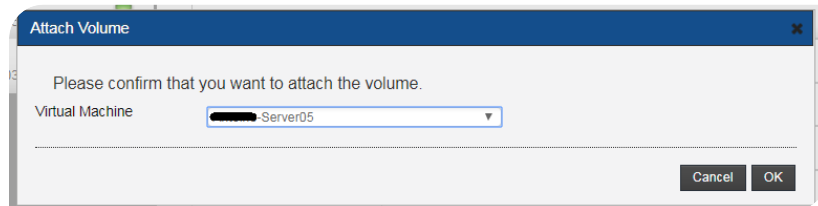


B. Attach a new volume

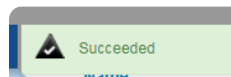
- From the **Volumes** tab, select the data volume that needs to be attached, click on the **gear icon**, and select **Attach Volume**



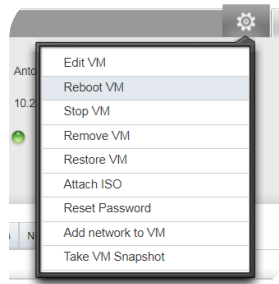
- Select the CentOS VM that the volume needs to be attached to and click on **OK**



- Wait for the **Succeeded** message to appear



- Reboot the VM either by connecting via Putty and typing **reboot now** or by rebooting from the **GIOCloud Portal (Instances tab)**. The reboot will allow the OS to detect the data volume that was attached



- Connect to the CentOS 7 VM via Putty or console and type: **fdisk -l**
You can see that the newly attached data volume is showing after the reboot. Here the name of the volume is **/dev/sdb**, but it could be different

```

login as: root
Authenticating with public key "rsa-key-20170627"
Last login: Thu Jun 29 11:46:24 2017 from [REDACTED]
[root@[REDACTED]-Server05 ~]# fdisk -l

Disk /dev/sdb: 10.7 GB, 10737418240 bytes, 20971520 sectors
Units = sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes

Disk /dev/sda: 53.7 GB, 53687091200 bytes, 104857600 sectors
Units = sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
Disk label type: dos
Disk identifier: 0x000d0284

   Device Boot      Start         End      Blocks   Id  System
/dev/sda1  *           2048     2099199       1048576   83   Linux
/dev/sda2                2099200    104857599       51379200    8e   Linux LVM

Disk /dev/mapper/cl_centos73-root: 50.5 GB, 50457477120 bytes, 98549760 sectors
Units = sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes

Disk /dev/mapper/cl_centos73-swap: 2147 MB, 2147483648 bytes, 4194304 sectors
Units = sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes

```

II. Create & mount a new partition on CentOS 7

A. Create a new partition

- Connect to the CentOS 7 VM and create a new partition on the volume by typing: **fdisk /dev/sdb**
 - o Type **n** to create a new partition on **sdb**
 - o Type **p** to create a primary partition on **sdb**
 - o Press the **Enter** for default partition
 - o Press the **Enter** for default first sector
 - o Press the **Enter** for default last sector
 - o Type **p** to show the partition table: You can see that **/dev/sdb1** has been created with file system **Linux**
 - o Type **w** to save and exit

```

[Server05 ~]# fdisk /dev/sdb
Come to fdisk (util-linux 2.23.2).

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
Building a new DOS disklabel with disk identifier 0x5220d292.

Command (m for help): n
Partition type:
   p  primary (0 primary, 0 extended, 4 free)
   e  extended
Select (default p): p
Partition number (1-4, default 1):
First sector (2048-20971519, default 2048):
Using default value 2048
Last sector, +sectors or +size(K,M,G) (2048-20971519, default 20971519):
Using default value 20971519
Partition 1 of type Linux and of size 10 GiB is set

Command (m for help): p

Disk /dev/sdb: 10.7 GB, 10737418240 bytes, 20971520 sectors
Units = sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
Disk label type: dos
Disk identifier: 0x5220d292

   Device Boot      Start         End      Blocks   Id  System
  /dev/sdb1                2048     20971519     10484736   83   Linux

Command (m for help):

```

- Check if the partition has been created by typing: **ls /dev/sd***
We see that **/dev/sdb1** has been created and that it is the only partition on **/dev/sdb**

```

[root@Server05 ~]# ls /dev/sd*
/dev/sda  /dev/sda1  /dev/sda2  /dev/sdb  /dev/sdb1

```

- Create a file system on the partition with **ext4** type by typing: **mkfs.ext4 /dev/sdb1**

```

[root@centos7-Server05 ~]# mkfs.ext4 /dev/sdb1
mke2fs 1.42.9 (28-Dec-2013)
Filesystem label=
OS type: Linux
Block size=4096 (log=2)
Fragment size=4096 (log=2)
Stride=0 blocks, Stripe width=0 blocks
655360 inodes, 2621184 blocks
131059 blocks (5.00%) reserved for the super user
First data block=0
Maximum filesystem blocks=2151677952
80 block groups
32768 blocks per group, 32768 fragments per group
8192 inodes per group
Superblock backups stored on blocks:
    32768, 98304, 163840, 229376, 294912, 819200, 884736, 1605632

Allocating group tables: done
Writing inode tables: done
Creating journal (32768 blocks): done
Writing superblocks and filesystem accounting information: done

```

B. Mount the new partition

- Mount the new partition to the folder **/home/partition** by typing: **mount /dev/sdb1 /home/partition**
- Check if the partition has been mounted correctly into the correct folder by typing: **df -h**

```

[root@centos7-Server05 ~]# mount /dev/sdb1 /home/partition
[root@centos7-Server05 ~]# df -h

```

Filesystem	Size	Used	Avail	Use%	Mounted on
/dev/mapper/cl_centos73-root	47G	1.3G	46G	3%	/
devtmpfs	230M	0	230M	0%	/dev
tmpfs	241M	0	241M	0%	/dev/shm
tmpfs	241M	4.5M	236M	2%	/run
tmpfs	241M	0	241M	0%	/sys/fs/cgroup
/dev/sda1	1014M	184M	831M	19%	/boot
tmpfs	49M	0	49M	0%	/run/user/0
/dev/sdb1	9.8G	37M	9.2G	1%	/home/partition

- Once the above steps are completed, the partition has been mounted and can be used. However, if the VM was restarted, the partition would need to be mounted manually again.
- To have the partition mounted automatically once the VM is rebooted, edit the file **/etc/fstab** by typing: **vi /etc/fstab**

```

[root@centos7-Server05 ~]# vi /etc/fstab

```

- Add the line **/dev/sdb1 /home/partition ext4 defaults 0 0**
- Save and exit

```
# 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
#
/dev/mapper/cl_centos73-root /          xfs     defaults 0 0
/dev/sda1 /boot      xfs     defaults 0 0
/dev/mapper/cl_centos73-swap swap      swap    defaults 0 0
/dev/sdb1 /home/partition ext4    defaults 0 0
```

- Your partition will now be automatically mounted each time your machine is rebooted
- The above is if you are using an **ext4** type file system. For other file system, you would need to adapt the above.

If you have any questions please check our FAQ section. If you still cannot find what you are looking for or believe that there is a careless mistake in this document, please contact our support at support@leapsolutions.co.th or send us your inquiry through our [Inquiry Form](#) located on your Web Portal.