Resize disks

Contents

1. Resizing guest disk

General considerations

When you resize the disk of a VM, to avoid confusion and disasters think the process like adding or removing a disk platter.

If you **enlarge** the hard disk, once you have added the disk plate, your partition table and file system knows nothing about the new size, so you have to act inside the VM to fix it.

If you **reduce** (shrink) the hard disk, of course removing the last disk plate will probably **destroy** your file system and remove the data in it! So in this case it is paramount to act in the VM in **advance**, reducing the file system and the partition size. SystemRescueCD comes very handy for it, just add its iso as cdrom of your VM and set boot priority to CD-ROM.

Shrinking disks is not supported by the PVE API and has to be done manually.

Another page (deleted) with overlapping content was Resizing disks | Archive (http://web.archive.org/web/20150914170505/http://pve.proxmox.com/wiki/Resize_disks)

qm command

You can resize your disks online or offline with command line:

```
qm resize <vmid> <disk> <size>
```

exemple: to add 5G to your virtio0 disk on vmid100:

```
qm resize 100 virtio0 +5G
```

For virtio disks:

Linux should see the new size online without reboot with kernel >= 3.6

Windows should see the new size online without reboot with last virtio drivers.

for virtio-iscsi disk:

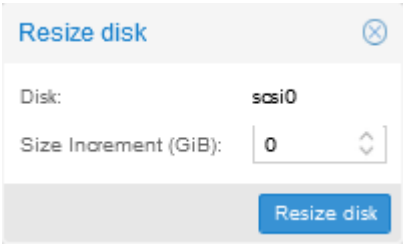
Linux should see the new size online without reboot with kernel >= 3.7

Windows should see the new size online without reboot with last virtio drivers.

Using GUI

You can also select your VM from the list > Hardware > Hard Disk > Disk Action > Resize

You will be presented with the option of increasing the disk size:



Increase disk size

2. Enlarge the partition(s) in the virtual disk

Depending on the installed guest there is several diffent ways to resize the partions

Offline for all guests

Use **gparted** or similar tool (recommended)
In gparted and possibly most other tools, **LVM and Windows dynamic disc is not supported**

Boot the virtual machine with gparted or similar tool, enlarge the partion and optionally the file system. With som linux clients you often need to enlarge the extended partion, move the swappartion, shrink the extended partion and enlarge the root partion. (or simple delete the swap and partion andre create it again - but remember to activwate the swap agin (last step).
Gparted have some warnings about some specific operations not well supported with windows guest - outside the scope of this document but read the warnings in gparted.

Online for Windows Guests

- Guest is Windows 7, Windows Vista or Windows Server 2008
- logon as administrator and extend the disk and filesystem (Using Disk manager)
- For more info www.petri.co.il/extend-disk-partition-vista-windows-server-2008.htm (http://www.petri.co.il/extend-disk-partition-vista-windows-server-2008.htm)
- Guest is Windows 10: logon as administrator and extend the disk and filesystem (Using Disk manager). If you do not see the ability to extend the disk (i.e. nothing seems to have happened as a result of using the resize command), go to the Windows command prompt and do a: shutdown -s -t 0 (This is a "normal" shutdown, as opposed to the "fast" shutdown that's the default for Win 8 and onwards.) After a reboot, you'll now see the ability to expand the disk.

Online for Linux Guests

Here we will enlarge a LVM PV partition, but the procedure is the same for every kind of partitions. Note that the partition you want to enlarge should be at the end of the disk. If you want to enlarge a partition which is anywhere on the disk, use the offline method.

- Check that the kernel has detected the change of the hard drive size

(here we use VirtIO so the hard drive is named vda)

```
dmesg | grep vda
[ 3982.979046] vda: detected capacity change from 34359738368 to 171798691840
```

Example with EFI

- Print the current partition table

```
fdisk -l /dev/vda | grep ^/dev
GPT PMBR size mismatch (67108863 != 335544319) will be corrected by w(rite).
/dev/vda1      34     2047     2014 1007K BIOS boot
/dev/vda2    2048   262143   260096  127M EFI System
/dev/vda3  262144 67108830 66846687 31.9G Linux LVM
```

- Resize the partition 3 (LVM PV) to occupy the whole remaining space of the hard drive)

```
parted /dev/vda
(parted) print
Warning: Not all of the space available to /dev/vda appears to be used, you can
fix the GPT to use all of the space (an extra 268435456 blocks) or continue
with the current setting?
Fix/Ignore? F
```

```
(parted) resizepart 3 100%
(parted) quit
```

Example without EFI

Another example without EFI using parted:

```
parted /dev/vda
```

```
(parted) print
```

```
Number  Start   End     Size    Type      File system  Flags
1       1049kB  538MB   537MB   primary   fat32        boot
2       539MB   21.5GB  20.9GB  extended
3       539MB   21.5GB  20.9GB  logical               lvm
```

Yoy will want to resize the 2nd partition first (extended):

```
(parted) resizepart 2 100%
(parted) resizepart 3 100%
```

- Check the new partition table

```
(parted) print
```

```
Number  Start   End     Size    Type      File system  Flags
1       1049kB  538MB   537MB   primary   fat32        boot
2       539MB   26.8GB  26.3GB  extended
3       539MB   26.8GB  26.3GB  logical               lvm
```

```
(parted) quit
```

3. Enlarge the filesystem(s) in the partitions on the virtual disk

If you did not resize the filesystem in step 2

Online for Linux guests with LVM

Enlarge the physical volume to occupy the whole available space in the partition:

```
pvresize /dev/vda3
```

List logical volumes:

```
lvdisplay
```

```
  --- Logical volume ---
  LV Path                /dev/{volume group name}/root
  LV Name                root
  VG Name                {volume group name}
  LV UUID                DXSq3l-Rufb-...
  LV Write Access        read/write
  LV Creation host, time ...
  LV Status              available
  # open                 1
  LV Size                <19.50 GiB
  Current LE             4991
  Segments               1
  Allocation             inherit
  Read ahead sectors     auto
  - currently set to     256
```

```
  Block device           253:0
```

Enlarge the logical volume and the filesystem (the file system can be mounted, works with ext4 and xfs). Replace "{volume group name}" with your specific volume group name:

```
#This command will increase the partition up by 20GB
lvresize --size +20G --resizefs /dev/{volume group name}/root
```

```
#Use all the remaining space on the volume group
lvresize --extents +100%FREE --resizefs /dev/{volume group name}/root
```

Online for Linux guests without LVM

Enlarge the filesystem (in this case root is on vda1)

```
resize2fs /dev/vda1
```

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