" How to expand FreeBSD HDD on VMWare ESXi with Growfs"

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Your FreeBSD VM must be :

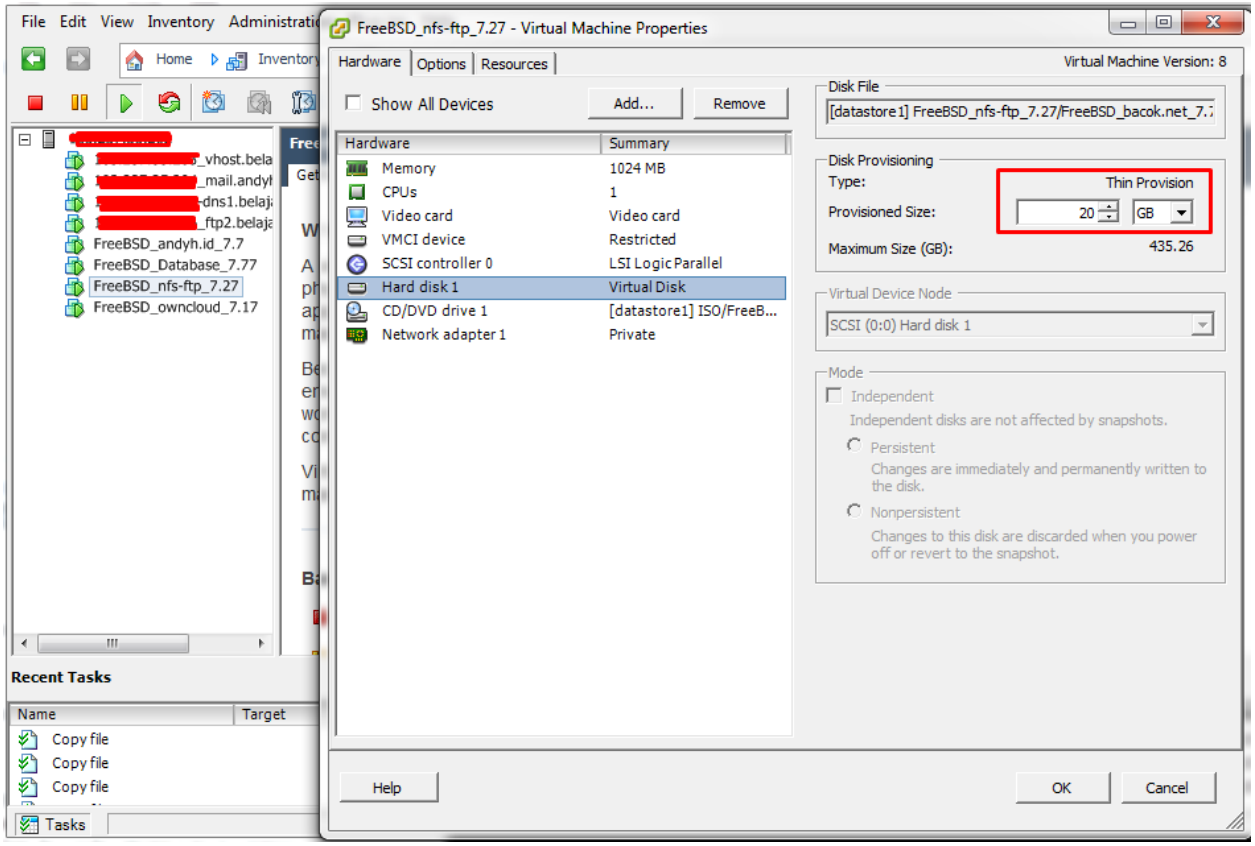
1. **Using FreeBSD 9 / FreeBSD 10 (growfs only on that version)**
2. **Your VM using Thin Provision on HDD**
3. **You have access on VMWare Host & FreeBSD VM too**

Step 1 : the first condition of your VM

```
root@ftp:~ # uname -a
FreeBSD ftp.andyh.id 9.3-STABLE FreeBSD 9.3-STABLE #0 r280209: Fri Mar 20 13:00:46 WIB 2015     root@www.jeiden.id:/usr/obj/u
sr/src/sys/STABLE  i386
root@ftp:~ # ifconfig
em0: flags=8843<UP,BROADCAST,RUNNING,SIMPLEX,MULTICAST> metric 0 mtu 1500
        options=9b<RXCSUM,TXCSUM,VLAN_MTU,VLAN_HWTAGGING,VLAN_HWCSUM>
        ether 00:0c:29:c1:80:f7
        inet 192.168.7.27 netmask 0xffffff00 broadcast 192.168.7.255
        inet6 fe80::20c:29ff:fec1:80f7%em0 prefixlen 64 scopeid 0x1
        nd6 options=29<PERFORMNUD,IFDISABLED,AUTO_LINKLOCAL>
        media: Ethernet autoselect (1000baseT <full-duplex>)
        status: active
lo0: flags=8049<UP,LOOPBACK,RUNNING,MULTICAST> metric 0 mtu 16384
        options=600003<RXCSUM,TXCSUM,RXCSUM_IPV6,TXCSUM_IPV6>
        inet6 ::1 prefixlen 128
        inet6 fe80::1%lo0 prefixlen 64 scopeid 0x2
        inet 127.0.0.1 netmask 0xff000000
        nd6 options=21<PERFORMNUD,AUTO_LINKLOCAL>
root@ftp:~ # df -h
Filesystem    Size    Used   Avail Capacity  Mounted on
/dev/da0p2     18G     10G      6G    65%    /
devfs         1.0k    1.0k      0B   100%    /dev
procfs        4.0k    4.0k      0B   100%    /proc
linprocfs     4.0k    4.0k      0B   100%    /compat/linux/proc
root@ftp:~ #
```

Growfs #1

The FreeBSD VM on Growfs #1 has 20GB of HDD (FreeBSD VM View)



Growfs #2

The FreeBSD VM on Growfs #2 has 20GB of HDD (VMWare View)

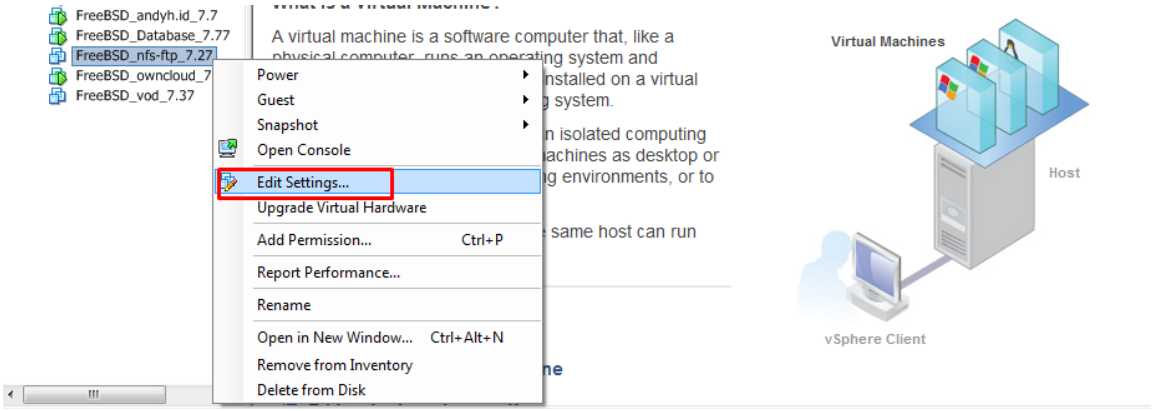
Step 2 : Shutting down the FreeBSD VM

```
root@ftp:/tmp/vmware-tools-distrib # poweroff
Shutdown NOW!
poweroff: [pid 1087]
root@ftp:/tmp/vmware-tools-distrib #
*** FINAL System shutdown message from root@ftp.andyh.id ***

System going down IMMEDIATELY



System shutdown time has arrived
```

Growfs #3

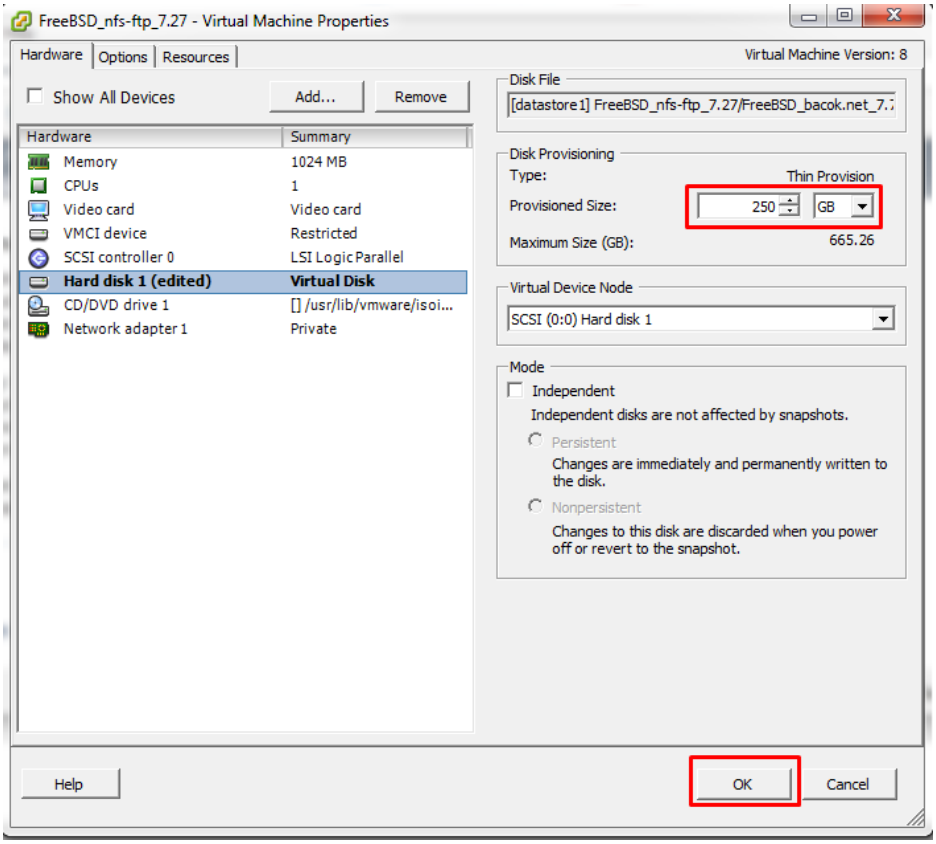
Shutting down the VM from console to expand the HDD (Growfs #3)

Step 3 : Changing the HDD size on VMWare settings



Growfs #4

Right click on the target VM, klik on Edit Settings (Growfs #4)



Growfs #5

Change the size of the HDD, in this case for 250GB (Growfs #5)

Step 4 : Gpart do the magic

```
root@ftp:~ # df -h
Filesystem    Size    Used   Avail Capacity  Mounted on
/dev/da0p2     18G     11G    5.9G    65%    /
devfs         1.0k    1.0k      0B   100%    /dev
procfs        4.0k    4.0k      0B   100%    /proc
linprocfs     4.0k    4.0k      0B   100%    /compat/linux/proc
root@ftp:~ # gpart show da0
=>      34  41942973  da0  GPT  (250G) [CORRUPT]
        34       128    1  freebsd-boot  (64k)
       162  39845760    2  freebsd-ufs  (19G)
  39845922   2097084    3  freebsd-swap  (1G)
  41943006         1       - free -  (512B)

root@ftp:~ # gpart recover da0
da0 recovered
root@ftp:~ # gpart show da0
=>       34  524287933  da0  GPT  (250G)
         34        128    1  freebsd-boot  (64k)
        162   39845760    2  freebsd-ufs  (19G)
   39845922    2097084    3  freebsd-swap  (1G)
   41943006  482344961       - free -  (230G)
```

Growfs #6

after we turn on the machine again & go to console. do these command to see the changes (Growfs #6)

 # df -h

 # gpart show da0 <-- adjust with your HDD /dev/devicename

 # gpart recover da0

```
root@ftp:~ # swapoff /dev/da0p3
root@ftp:~ # gpart delete -i 3 da0
da0p3 deleted
root@ftp:~ # gpart show da0
=>       34  524287933  da0  GPT  (250G)
         34        128    1  freebsd-boot  (64k)
        162   39845760    2  freebsd-ufs  (19G)
   39845922  484442045       - free -  (231G)

root@ftp:~ # sysctl kern.geom.debugflags=16
kern.geom.debugflags: 0 -> 16
root@ftp:~ # gpart resize -i 2 -a 4k -s 248G da0
da0p2 resized
root@ftp:~ # df -h
Filesystem    Size    Used   Avail Capacity  Mounted on
/dev/da0p2     18G     11G    5.9G    65%    /
devfs         1.0k    1.0k      0B   100%    /dev
procfs        4.0k    4.0k      0B   100%    /proc
linprocfs     4.0k    4.0k      0B   100%    /compat/linux/proc
root@ftp:~ # gpart show da0
=>       34  524287933  da0  GPT  (250G)
         34        128    1  freebsd-boot  (64k)
        162  520093694    2  freebsd-ufs  (248G)
  520093856    4194111       - free -  (2G)
```

Growfs #7

We will see the changes of our HDD. Delete swap drive, resize the drive with these command (Growfs #8)

 # swapoff /dev/da0p3 <-- da0p3 it means slice/partition #3

 # gpart delete -i 3 da0

 # sysctl kern.geom.debugflags=16

 # gpart resize -i 2 -a 4k -s 248G da0 <-- 2G spare for swap

Step 5 : Growfs do the magic

```
root@ftp:~ # gpart add -t freebsd-swap -a 4k da0
da0p3 added
root@ftp:~ # swapon /dev/da0p3
root@ftp:~ # growfs /dev/da0p2
Device is mounted read-write; resizing will result in temporary write suspension for /.
It's strongly recommended to make a backup before growing the file system.
OK to grow filesystem on /dev/da0p2, mounted on /, from 19GB to 248GB? [Yes/No] yes
```

Growfs #8

let's create the swap drive that we've delete before with this command (Growfs #8)
 # gpart add -t freebsd-swap -a 4k da0 <-- 2G free for swap
 # swapon /dev/da0p3
 # growfs /dev/da0p2 <-- root slice/partition on da0p2 from 20GB to 250GB, just answer Yes for the changes.

```
root@ftp:~ # gpart show da0
=>       34  524287933  da0  GPT  (250G)
         34        128    1  freebsd-boot  (64k)
        162  520093694    2  freebsd-ufs  (248G)
  520093856    4194104    3  freebsd-swap  (2G)
  524287960          7       - free -  (3.5k)

root@ftp:~ # df -h
Filesystem    Size    Used   Avail Capacity  Mounted on
/dev/da0p2    240G     11G    210G     5%    /
devfs         1.0k    1.0k      0B   100%    /dev
procfs        4.0k    4.0k      0B   100%    /proc
linprocfs     4.0k    4.0k      0B   100%    /compat/linux/proc
root@ftp:~ # reboot
```

Growfs #9

wait untill finish & we are done. Reboot your machine and Your HDD is expand now. cheers...

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