

Community &gt; Discussions &gt; Migrate standard RHEL installation from one hard disk to another

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Red Hat Enterprise Linux (<https://access.redhat.com/discussions?title=&product=25&category=All&tags=All>)

## Migrate standard RHEL installation from one hard disk to another

Latest response July 11 2018 at 11:10 PM (<https://access.redhat.com/discussions/2158911#comment-1326691>)**\*\*\* DON'T DO ANY OF THIS, AS YOU WILL ALMOST CERTAINLY WRECK YOUR SYSTEM IF YOU DO! \*\*\***

You have one standard installation of RHEL, you need migrate the installation from one hard disk to another, this is required due to technology improvement.

The server is productive and has running critical services, so is important minimize the migration window, this procedure requires only one reboot, if you want to apply all changes immediately but you can program the restart after.

### For x86\_64

Scenario:

```
vda -> Old Disk vdb -> New Disk centos -> root volume group
```

Partitioning:

```
# df -h Filesystem Size Used Avail Use% Mounted on /dev/mapper/centos-root 18G 983M 17G 6% / devtmpfs 487M 0 487M 0% /dev tmpfs 497M 0 497M 0% /dev/shm tmpfs 497M 6.7M 490M 2% /run tmpfs 497M 0 497M 0% /sys/fs/cgroup /dev/vda1 497M 164M 333M 33% /boot tmpfs 100M 0 100M 0% /run/user/0 tmpfs 100M 0 100M 0% /run/user/1000
```

```
# fdisk -l Device Boot Start End Blocks Id System /dev/vda1 * 2048 1026047 512000 83 Linux /dev/vda2 1026048 41943039 20458496 8e Linux LVM
```

Steps:

Clean yum cache:

```
# yum clean all
```

Clone partitioning scheme:

```
# sfdisk -d /dev/vda | sfdisk --force /dev/vdb
```

Move Logical Volume to new disk:

```
# pvcreate /dev/vdb2 # vgextend centos /dev/vdb2 # pvmove /dev/vda2 # vgreduce centos /dev/vda2 # pvremove /dev/vda2
```

Clone /boot:

```
# umount /boot/ # dd if=/dev/vda1 of=/dev/vdb1 bs=512 conv=noerror,sync # mount /boot
```

Copy boot sector:

```
# dd if=/dev/vda of=/dev/vdb bs=1 count=512
```

Install GRUB in new disk:

```
# grub2-install /dev/vdb
```

Sync changes:

```
# sync
```

Reboot your physical or virtual machine, please make sure that your new disk is the default boot device or remove old disk but don't delete data, can be useful in a rollback situation.

### For POWER

Scenario:

```
sda -> Old Disk sdb -> New Disk ca -> root volume group
```

Partitioning:

```
# df -h Filesystem Size Used Avail Use% Mounted on /dev/mapper/ca-root 28G 1.1G 27G 4% / devtmpfs 449M 0 449M 0% /dev tmpfs 495M 0 495M 0% /dev/shm tmpfs 495M 12M 484M 3% /run tmpfs 495M 0 495M 0% /sys/fs/cgroup /dev/sda2 497M 143M 354M 29% /boot tmpfs 99M 0 99M 0% /run/user/0
```

```
# fdisk -l Device Boot Start End Blocks Id System /dev/sda1 * 2048 10239 4096 41 PPC PreP Boot /dev/sda2 10240 1034239 512000 83 Linux /dev/sda3 1034240 62914559 30940160 8e Linux LVM
```

Steps:

Clean yum cache:

```
# yum clean all
```

Clone partitioning scheme:

```
# sfdisk -d /dev/sda | sfdisk --force /dev/sdb
```

Move Logical Volume to new disk:

```
# pvcreate /dev/sdb3 # vgextend centos /dev/sdb3 # pvmove /dev/sda3 # vgreduce centos /dev/sda3 # pvremove /dev/sda3
```

Clone PPC PReP Boot partition:

```
dd if=/dev/sda1 of=/dev/sdb1 bs=512 conv=noerror,sync
```

Clone /boot:

```
# umount /boot/ # dd if=/dev/sda2 of=/dev/sdb2 bs=512 conv=noerror,sync # mount /boot
```

Copy boot sector:

```
# dd if=/dev/sda of=/dev/sdb bs=1 count=512
```

Install GRUB in new disk:

```
# grub2-install /dev/sdb
```

If you receive this message: **grub2-install: error: the chosen partition is not a PReP partition.** maybe you can try with:

```
# grub2-install /dev/sdb1
```

Sync changes:

```
# sync
```

Reboot your physical or virtual machine, please make sure that your new disk is the default boot device or remove old disk but don't delete data, can be useful in a rollback situation.

Started February 11 2016 at 4:56 PM by Esteban Monge Marin (/user/7237613) Newbie | 12 Points

(/user/7237613)

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## Responses

6 November 2017 7:07 PM (<https://access.redhat.com/discussions/2158911#comment-1238221>)

Matti Kurkela (/user/206423)

Why, this is pretty much identical to what we used to do to migrate SAN-bootable systems from one SAN storage to another, before we installed a storage virtualization device to our SAN that should pretty much remove the requirement to do this. The only missing part is the reconfiguration of FibreChannel or iSCSI HBAs for the new boot LUN, and that is specific to the HBA model.

I think there is only one trick you may have missed: with x86\_64 hardware using traditional MBR boot scheme, before running grub-install, edit /boot/grub/device.map file to make it say that the new boot disk is associated with the GRUB identifier (hd0). Because *that's what it will be* when the old disk is removed and the system is booting from the new one.

(In the MBR boot scheme, the GRUB identifiers map directly to hard disk numbers used with BIOS function calls: (hd0) is BIOS disk 0x80, (hd1) is 0x81, and so on. And in the MBR boot scheme, pretty much the only thing that can be universally relied on when it comes for selecting the hard disk to boot from is "the BIOS and its extensions will rearrange the list of hard disks in such a way that the disk selected for booting will be disk 0x80."

So, whichever hard disk you select in the BIOS settings as the disk to boot from will be (hd0) for GRUB when the system actually makes the boot attempt.)

8 November 2017 8:49 AM (<https://access.redhat.com/discussions/2158911#comment-1238951>)

Sadashiva Murthy M (/user/1879023)

Yes, I assume "Red Hat" wants to say "not supported or recommended". So, instead of saying "Don't try this...", you may better put it as "Not officially supported and you may try at your own risk".

Adding to what "Matti" wrote about, there is another point that i wish mention, which is correcting "/etc/fstab" which points to the new boot device, otherwise, using "UUID" instead of device name there.

8 November 2017 7:50 PM (<https://access.redhat.com/discussions/2158911#comment-1239171>)

Esteban Monge Marin (/user/7237613)

Hello... I repeated this solution a lot of times... always works like a charm... I never need to make any change on /etc/fstab. I will prepare a video to have evidence... =)

10 November 2017 6:27 AM (<https://access.redhat.com/discussions/2158911#comment-1239561>)

Sadashiva Murthy M (/user/1879023)

Right, unless you had labels or UUID in place of block device name

**GURU** (for boot device), otherwise, you would need to edit fstab.  
3751 Points

**FN** 3 May 2018 5:06 AM (<https://access.redhat.com/discussions/2158911#comment-1300621>)  
Felipe Nieves (/user/17665441)

(/user/17665441)  
Hi Guys, I have tried this procedure an it works, but now I'm facing another issue, my source VM has only one disk coming from just one path, and my new volumes will have at least two paths, how can I address this?  
**NEWBIE**  
5 Points

**MC** 7 June 2018 5:06 PM (<https://access.redhat.com/discussions/2158911#comment-1314821>)  
Michal Cichon (/user/17153091)

(/user/17153091)  
Hello, I have a problem. I moved RHEL 6.8 installation with above procedure from SAN disk to local disk /dev/sda. After reboot pv shows /dev/mapper/3600508b1001c346346563636363p2 not /dev/sda2 and command: pvdisplay /dev/sda2 Failed to find device for physical volume "/dev/sda2". I rebooted the system again and now is fine. Device sda is visible and /dev/mapper/3600508b1001c346346563... no visible. Where is the problem?

**SM** 8 June 2018 6:09 AM (<https://access.redhat.com/discussions/2158911#comment-1315071>)

(/user/1879023)  
Sadashiva Murthy M (/user/1879023)  
There is a pvremove command documented in the steps, I presume that you did this and which had removed your earlier pv. Otherwise, run 'pvscan' command see if that can pull the earlier physical volume.

**MC** 11 June 2018 9:08 AM (<https://access.redhat.com/discussions/2158911#comment-1315471>)  
Michal Cichon (/user/17153091)


(/user/17153091)  
Command pvscan does not recover right name; /dev/sda2 After a few machine reboots still is /dev/mapper/3600508b1001c346346563...  
**NEWBIE**  
10 Points

**SM** 11 June 2018 9:55 AM (<https://access.redhat.com/discussions/2158911#comment-1315501>)

(/user/1879023)  
Sadashiva Murthy M (/user/1879023)  
I think I've not understood your statement, do you mean instead of showing the pv as '/dev/sda2' it shows it as '/dev/mapper/3600508b1001c346346563...'?  
**GURU**  
3751 Points

I also advise you to trigger a new thread of your issue so that it would get addressed properly by the community.

 11 June 2018 10:10 AM (<https://access.redhat.com/discussions/2158911#comment-1315521>)

ir. Jan Gerrit Kootstra (/user/753723)  Community Leader  
All,  
**WARNING:**  
The original poster describes a method that only works for KVM virtual guests. Still it is on your own risk.  
This does not imply that it works for SAN connected physical servers. Multipath devices are not the same as a VIRTIO disk.  
A multipath devices is "a cluster" of physical paths to a LUN on a storage box. Each sd.. device is a single physical path.  
You should migrate devices like: '/dev/mapper/3600508b1001c346346563...' other wisely you may end up writing LUN content from one path to another, breaking everything.  
Regards,  
Jan Gerrit

**HG** 11 July 2018 10:42 PM (<https://access.redhat.com/discussions/2158911#comment-1326681>)  
Henry Gomez (/user/18588241)

(/user/18588241)  
Hi to all, this is my procedure, if what I do for migrating boot from one storage to other:

**COMMUNITY MEMBER**  
34 Points

Cloning boot disk with EFI:  
Old Disk: mpath0 (360060e8016004000001004d00001201) undef HP  
.OPEN-V size=120G features="1 queue\_if\_no\_path" hwhandler="0" wp=undef  
+- policy='round-robin 0' prio=1 status=undef | - 0:0:2:10 sda 8:0 undef ready running ==== I'll use this path | - 1:0:0:16386 sde 8:64 ur 1:0:1:16386 sdf 8:80 undef ready running

New Disk: mpatha (360060e8012a2d3005040a2d300001240) dm-1 HITACHI  
.OPEN-V size=120G features="0" hwhandler="0" wp=rw  
+- policy='service-time 0' prio=1 status=active | - 0:0:2:10 sdc 8:32 active ready running ==== I'll use this path | - 1:0:3:10 sdh 8:112 act 1:0:2:10 sdg 8:96 active ready running

```
Inxsgtw12:/root> # df -hP Filesystem Size Used Avail Use% Mounted on
/dev/sde4 9.8G 219M 9.0G 3% /dev/mapper/vg00-lvusr 9.8G 4.4G 4.9G 47%
/usr /dev/sde2 976M 228M 682M 25% /boot /dev/sde1 1022M 9.5M 1013M 1%
/boot/efi /dev/mapper/vg00-lvvar 9.8G 2.0G 7.4G 21% /var /dev/mapper/vg00-lvhome 9.8G 37M 9.2G 1% /home /dev/mapper/vg00-lvcrash 16G 45M 15G 1% /var/crash /dev/mapper/vg00-lvperf 2.0G 6.0M 1.8G 1% /var/opt/perf
```

1- Check partitions, New Disk should have not partitions (is new remember?)

New Disk: Inxsgtw12:/root> # fdisk -l /dev/mapper/mpatha

```
Disk /dev/mapper/mpatha: 128.8 GB, 128849018880 bytes, 251658240 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

Old Disk: Inxsgtwl2:/root> # fdisk -l /dev/sda WARNING: fdisk GPT support is
currently new, and therefore in an experimental phase. Use at your own
discretion.

Disk /dev/sda:128.8 GB, 128849018880 bytes, 251658240 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: gpt

Start End Size Type Name
1 2048 2099199 1G EFI System EFI System Partition 2 2099200 4196351 1G
Microsoft basic 3 4196352 71305215 32G Linux swap 4 71305216 92276735
10G Microsoft basic 5 92276736 192948223 48G Linux LVM

DESTINO: Inxsgtwl2:/root> # fdisk -l /dev/sdc

Disk /dev/sdc:128.8 GB, 128849018880 bytes, 251658240 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

2.- move contain from /etc/multipath/ to /root/backup

mkdir /root/backup mv /etc/multipath/* /root/backup
3.- clone whole disk

time dd if=/dev/sda of=/dev/sdc bs=1M

122880+0 records in 122880+0 records out 128849018880 bytes (129 GB)
copied, 362.829 s, 355 MB/s

real 6m2.843s user 0m0.102s sys 1m54.389s

4.- check the partitions in New Disk

Inxsgtwl2:/root> # fdisk -l /dev/sdc WARNING: fdisk GPT support is currently
new, and therefore in an experimental phase. Use at your own discretion.

Disk /dev/sdc:128.8 GB, 128849018880 bytes, 251658240 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: gpt

Start End Size Type Name
1 2048 2099199 1G EFI System EFI System Partition 2 2099200 4196351 1G
Microsoft basic 3 4196352 71305215 32G Linux swap 4 71305216 92276735
10G Microsoft basic 5 92276736 192948223 48G Linux LVM Inxsgtwl2:/root> #

5.- Copy the efi boot manager, the label must be different to previous one
efibootmgr -c --disk /dev/sdc --part 1 -L "Red Hat Enterprise Linux 7.3"

6.- shutdown and remove the old disk (ask to storage guy remove all paths)

7.- power on the server and enjoy.

```



11 July 2018 10:58 PM (<https://access.redhat.com/discussions/2158911#comment-1326691>)

Henry Gomez (/user/18588241)

/user/18588241

Well I write it in my blog <http://hpux-howto.blogspot.com/2018/07/how-to-migrate-boot-partition-to-other.html>

COMMUNITY MEMBER

34 Points