



How to move /var to a different disk/partition.

🔒 **SOLUTION VERIFIED** - Updated January 13 2021 at 9:54 AM - English ▼

Environment

- Red Hat Enterprise Linux 7
- Red Hat Enterprise Linux 8

Issue

- Moving var from root [/] to a different partition on Red Hat Enterprise Linux.
- How to move the contents of /var directory to a separate LVM?

Resolution

Disclaimer: *This information has been provided by Red Hat, but is outside the scope of our posted Service Level Agreements and support procedures. The information is provided as-is and any configuration settings or installed applications made from the information in this solution could make your Operating System unsupported by Red Hat Support Services. The intent of this solution is to provide you with information to accomplish your system needs. Use the information in this solution at your own risk.*

Important: *Take a complete backup before starting this activity and test these steps in test environment first. Also, perform the below steps in a single-user mode.*

In the following example, I am moving existing /var to /dev/sdb .

1. Check if the destination disk is presented to the server.

```
# lsblk
NAME                MAJ:MIN RM  SIZE RO TYPE MOUNTPOINT
sda                  8:0    0   20G  0 disk
├─sda1                8:1    0    1G  0 part /boot
└─sda2                8:2    0   19G  0 part
   ├─rhel-root        253:0    0    8G  0 lvm  /
   ├─rhel-swap        253:1    0    1G  0 lvm  [SWAP]
   └─rhel-var         253:1    0    1G  0 lvm  /var
sdb                  8:16    0    5G  0 disk
sr0                 11:0    1 1024M  0 rom
```

2. Create LVM structure on the disk /dev/sdb

```
# pvcreate /dev/sdb
```

3. Create a volume group and a logical volume.

```
# vgcreate vg_var /dev/sdb
# lvcreate -n lv_var -l 100%FREE vg_var
```

4. Create file-system

```
# mkfs.xfs /dev/mapper/vg_var-lv_var
```

5. Mount the file-system and complete the following steps.

```
# mkdir /var1
# mount /dev/mapper/vg_var-lv_var /var1
# cd /var1
# cp -dpRx * /var1/
# umount /var1
# cd ..
# umount /var1
# mount /dev/mapper/vg_var-lv_var /var
```

6. Add an entry to /etc/fstab and restore the selinux context of /var

```
# cat /proc/mounts | grep /var >> /etc/fstab
# restorecon -vvFR /var
```

7. Make changes to the /etc/default/grub file as shown below.

Existing entry:

```
GRUB_CMDLINE_LINUX="crashkernel=auto rd.lvm.lv=rhel/root rd.lvm.lv=rhel/swap rhgb quiet"
```

New entry:

```
GRUB_CMDLINE_LINUX="crashkernel=auto rd.lvm.lv=rhel/root rd.lvm.lv=rhel/swap  
rd.lvm.lv=vgrub_var/lv_var rhgb quiet"
```

8. Changes to /etc/default/grub require rebuilding the grub.cfg file as follows:

On BIOS-based machines, issue the following command as root:

```
# grub2-mkconfig -o /boot/grub2/grub.cfg
```

- On UEFI-based machines, issue the following command as root:

```
# grub2-mkconfig -o /boot/efi/EFI/redhat/grub.cfg
```

9. Take backup of current initramfs file and rebuild initramfs image:

```
# cp /boot/initramfs-$(uname -r).img /boot/initramfs-$(uname -r).img.$(date +%m-%d-  
%H%M%S).bak  
# dracut -v -f /boot/initramfs-$(uname -r).img $(uname -r)
```

10. Reboot the system

```
# shutdown -r now
```

Product(s) Red Hat Enterprise Linux **Component** lvm2 systemd

Category Troubleshoot **Tags** file_systems lvm2 systemd

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Jul 29, 2019 4:46 PM

JEREMEY WISE

This set of instructions related to moving /var on a system.. but no mention that the above would only work if you had the system in single user / recovery mode. But with hundreds of file locks, this does nothing to address the main issues with moving such a mount point.

[← Reply](#)**RED HAT****NEWBIE**

10 Points

Jul 30, 2019 5:31 AM

[Vishwajeet Velankar](#)

Hello Jeremy, The KCS has been updated according to your comments.

Thank you.

[← Reply](#)**COMMUNITY
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29 Points

Nov 26, 2019 4:23 PM

[Aaren](#)

If /var fails to unmount, should this be done not in single user mode, you'll want to inspect /etc/fstab before the reboot for mounting /var on only the new logical volume intended, and not the old volume any more (comment out the old volume for /var).

[← Reply](#)**NEWBIE**

19 Points

Feb 9, 2020 7:22 PM

[Ashley](#)

Its highly unlikely that you will be able to unmount /var in step 5 unless you have rebooted into single user mode. Just dropping to single usermode from the console using 'init s' and root password or via systemd (ie: systemctl rescue) may not give you a state where you can unmount /var and rebooting direct into single user mode may not give you access to LVM's.

There should be details on how to boot to single user mode with access to LVM's. eg: I tried many various methods. The only one that seemed to

work consistently on various systems (for me) was:

During bootup, when the GRUB2 menu shows up, press the e key for edit.
Then edit the linux16/linuxefi line insert any LVM's you want to access:

eg : rd.lvm.lv=vg-root/var rd.lvm.lv=vg-data/lv-apps rd.lvm.lv=vg-data/lv-data

and add the following parameter at the end :

systemd.unit=emergency.target

Then press ctrl+X Then enter root password

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NEWBIE

5 Points

Aug 12, 2020 5:58 AM

[Hanief Harun](#)

Tested in AWS ec2 instance. Work like a charm!

[↩ Reply](#)



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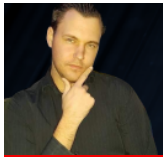
45 Points

Aug 12, 2020 7:51 AM

[JEREMEY WISE](#)

One more comment I think worth mention is to do a move vs copy. Many times this sequence is done to free up disk space as well as move volume for new install. If space issue. Move. Or at least clean up post move

[↩ Reply](#)



RED HAT

NEWBIE

15 Points

May 20, 2021 7:00 PM

[Ryan Coe](#) • [RHCSA](#) • [RHCE](#) • [RHCOE](#) • [RHCVA](#)

I've used this article in practice, /var will not unmount as its always in use.

Also the "reboot" command should be used not "shutdown -r"

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NEWBIE

5 Points

Jun 3, 2021 3:19 PM

[Jonathan](#)

Will this process work if /var isn't mounted to an LVM by default? For example if my lsblk looks like the following:

```

NAME                                MAJ:MIN RM  SIZE RO TYPE MOUNTPOINT
sda                                  8:0    0  100G  0 disk
├─sda1                              8:1    0   600M  0 part /boot/efi
├─sda2                              8:2    0    1G   0 part /boot
└─sda3                              8:3    0  98.4G  0 part
   ├─rhel_dc1--vd--nixtemp01-root 253:0    0  63.5G  0 lvm  /
   ├─rhel_dc1--vd--nixtemp01-swap 253:1    0    4G   0 lvm  [SWAP]
   └─rhel_dc1--vd--nixtemp01-home 253:2    0   31G  0 lvm  /home
sr0                                 11:0    1  1024M  0 rom

```

I have an application that writes/commits a bunch of data to the /var folder and I want to put var to a different disk in case of future expansion requirements. Baseline need is 500 gigs of space for /var and I'd rather not put everything onto the primary partition of this specific VM.

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Sep 23, 2021 6:34 AM

[Ramodhya](#)

Its Works like a charm!

NEWBIE

11 Points

[← Reply](#)**EXPERT**

919 Points

Dec 18, 2023 2:53 PM

[Charles Slivkoff](#)

With /var already being an LV, its extents can be pvmove to sdb without any file copies or messing with fstab.

```
pvcreate /dev/sdb
vgextend rhel /dev/sdb
pvmove /dev/rhel/var
```

Of course, this leaves a single VG spread across partition sda2 and whole disk sdb which is probably not ideal.

It does, though answer the exact question as the contents of LV /var is now located on disk sdb.

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