**Rebuilding of “initialramfs”**

**Rebuilding of “initramfs” is required whenever we are making any modifications for driver/module settings to any hardware**

* initrd is used by kernel as temporary root file system until kernel is booted and the real root file system is mounted. It also contains necessary drivers compiled inside, which helps it to access the hard drive partitions, and other hardware.
* Initrd provides the capability to load a RAM disk by the bootloader. This RAM disk can then be mounted as the root file system and programs can be run from it. Afterwards, a new root file system can be mounted from a different device. The previous root (from initrd) is then moved to a directory and can be subsequently unmounted. initrd is mainly designed to allow system startup to occur in two phases, where the kernel comes up with a minimum set of compiled-in drivers, and where additional modules are loaded from initrd.

**One need to mention name of kernel version against ramfs being built.For OS prior rhel6 we use command “mkinitrd” and for rhel6/7  “dracut”. Initial ramfs in Rhel 5 is with name “initrd” and in Rhel6/7 we have name as “initramfs”.**

**Commands to rebuild initial ram are as:**

**Rhel5**

# mkinitrd -f -v /boot/initrd-$(uname -r).img $(uname -r)

# mkinitrd -f -v /boot/initrd-2.6.18-348.2.1.el5.img 2.6.18-348.2.1.el5        **>>> if you are booted with diff kernel**

**Rhel6/7**

# dracut -f -v /boot/initramfs-$(uname -r).img $(uname -r)

# dracut -f -v /boot/initramfs-2.6.32-220.7.1.el6.x86\_64.img 2.6.32-220.7.1.el6.x86\_64    **>>> if you are booted with diff kernel**

**OR**

**Simply run:**

# dracut -f –v

**If in any case recreation of initrd/initramfs image doesn’t work it can be manually created as well. Since backup of the original initramfs/initrd image is always there.**

**For example we have made some settings modification under module/driver file: /etc/modprobe.d/mlx4.conf**

**###create a dir to unpack initrd/initramfs image**

# mkdir ramdisk

# cd ramdisk

**####uncompress and extract the initrd/initramfs**

# zcat /boot/initramfs-version.img | cpio -idmv --> unpacking

**###edit/add contents inside /ramdisk/etc/modprob.d/ ,  same as done in /etc/modprob.d/file.cfg**

**###Finally repack and compress the initrd/initramfs image**

#find . | cpio -o -c | gzip -9 > /boot/test.img     ---> repacking

To only list the contents of an initramfs image file, you can run **lsinitrd**:

**Detail Steps:**

1. **Modify the required driver settings: as below example**

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[root@cman1 ~]# vi /etc/modprobe.d/mlx4.conf                                                                                 

[root@cman1 ~]# cat /etc/modprobe.d/mlx4.conf|grep "log\_num\_mgm\_entry\_size"

**options mlx4\_core debug\_level=1 log\_num\_mgm\_entry\_size=-1 probe\_vf=0 num\_vfs=0**

1. **Unpack the relevant kernel initramfs**

[root@cman1 ~]# uname -r

**2.6.32-696.3.1.el6.x86\_64**

[root@cman1 ~]# ls -ld /boot/ini\* /boot/vm\*

-rw-------. 1 root root 17484470 Jun  9  2017 /boot/initramfs-2.6.32-431.el6.x86\_64.img

-rw-------. 1 root root 22668870 Jun  9  2017 **/boot/initramfs-2.6.32-696.3.1.el6.x86\_64.img**

-rwxr-xr-x. 1 root root  4128368 Nov 21  2013 /boot/vmlinuz-2.6.32-431.el6.x86\_64

-rwxr-xr-x. 1 root root  4277456 May 30  2017 **/boot/vmlinuz-2.6.32-696.3.1.el6.x86\_64**

[root@cman1 ~]# mkdir ramdisk

[root@cman1 ~]# cd ramdisk/

[root@cman1 ramdisk]# cp -p /boot/initramfs-2.6.32-696.3.1.el6.x86\_64.img /boot/initramfs-2.6.32-696.3.1.el6.x86\_64.img-backup

[root@cman1 ramdisk]# **zcat /boot/initramfs-2.6.32-696.3.1.el6.x86\_64.img | cpio –idmv   >>> unpacking of original initramfs image**

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proc

pre-pivot

pre-pivot/30crypt-cleanup.sh

pre-pivot/31crypt-cleanup.sh

pre-pivot/50selinux-loadpolicy.sh

pre-pivot/90plymouth-newroot.sh

lib64

lib64/libdevmapper-event-lvm2.so.2.02

lib64/libexpat.so.1

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pre-trigger

pre-trigger/30parse-md.sh

pre-trigger/10plymouth-pretrigger.sh

pre-trigger/30parse-biosdevname.sh

pre-trigger/30parse-dm.sh

init

sysroot

initqueue

**124976 blocks**

[root@cman1 ramdisk]# pwd

/root/ramdisk

[root@cman1 ramdisk]# ls

bin      dracut-004-409.el6\_8.2  init                initqueue-settled  lib64    pre-mount    pre-udev  sys      usr

cmdline  emergency               initqueue           initqueue-timeout  mount    pre-pivot    proc      sysroot  var

dev      etc                     initqueue-finished  lib                netroot  pre-trigger  sbin      tmp

1. **Make same setting for drivers under same extracted module/driver file of initramfs**

[root@cman1 ramdisk]# cat /root/ramdisk/etc/modprobe.d/mlx4.conf|grep "log\_num\_mgm\_entry\_size"

**options mlx4\_core debug\_level=1 log\_num\_mgm\_entry\_size=-1 probe\_vf=0 num\_vfs=0**

[root@cman1 ramdisk]#

1. **Manually Repack the modified extracted initramfs contents**

[root@cman1 ramdisk]# find . | cpio -o -c | gzip -9 > /boot/test.img  124979 blocks

[root@cman1 ramdisk]# ls -ld /boot/test.img

-rw-r--r-- 1 root root 22669741 Jul  3 13:18 /boot/test.img

1. **Replace the newly built initramfs with original old name.**

[root@cman1 test]# cp -p /boot/test.img /boot/initramfs-2.6.32-696.3.1.el6.x86\_64.img

**skipcpio** tool is used to extract initram on RHEL7,   
# mkdir /tmp/initramfs

# cd /tmp/initramfs

# /usr/lib/dracut/skipcpio /boot/initramfs-3.10.0-229.el7.x86\_64.img | zcat | cpio -idmv