# Boot Migration to Larger Disk on Azure AlmaLinux VM

## Objective

Migrate the root and boot partitions of an AlmaLinux 9.5 VM on Azure to a larger, newly attached disk, ensuring full kernel patching support and functional EFI boot.

---

## Initial Conditions

\* Azure VM deployed

\* Larger disk (150GB) attached to the VM.

\* Secure Boot was initially enabled and caused issues with `grub2-install`.

---

## Step-by-Step Procedure

### 1. \*\*Disable Secure Boot via Redeployment\*\*

Terraform was used to recreate the VM with the following parameter:

```hcl

secure\_boot\_enabled = false

```

This ensured compatibility with `grub2-install` and EFI bootloader management.

### 2. \*\*Partition and Format the New Disk (/dev/sdc)\*\*

```bash

sudo fdisk /dev/sdc

# Created: /dev/sdc1 (vfat), /dev/sdc2 (ext4), /dev/sdc3 (ext4)

sudo mkfs.vfat /dev/sdc1

sudo mkfs.ext4 /dev/sdc2

sudo mkfs.ext4 /dev/sdc3

```

### 3. \*\*Mount the New Root Filesystem\*\*

```bash

sudo mount /dev/sdc3 /mnt

```

### 4. \*\*Copy Original System to New Root\*\*

```bash

sudo rsync -aAXv /\* /mnt --exclude={/mnt,/proc,/sys,/tmp,/run,/dev,/boot,/boot/efi}

```

### 5. \*\*Mount System Bind Mounts\*\*

```bash

sudo mkdir -p /mnt/{dev,proc,sys,run,boot/efi}

sudo mount --bind /dev /mnt/dev

sudo mount --bind /proc /mnt/proc

sudo mount --bind /sys /mnt/sys

sudo mount --bind /run /mnt/run

sudo mount --bind /boot/efi /mnt/boot/efi

```

### 6. \*\*Update fstab in New Root\*\*

```bash

sudo blkid /dev/sdc\*

# Edit /mnt/etc/fstab to reflect:

UUID=<sdc3> / ext4 defaults 0 1

UUID=<sdc2> /boot ext4 defaults 0 2

UUID=<sdc1> /boot/efi vfat umask=0077 0 2

```

### 7. \*\*Chroot Into New System\*\*

```bash

sudo chroot /mnt

```

### 8. \*\*Install Required EFI Boot Packages\*\*

```bash

dnf install -y grub2-efi-x64 grub2-efi-x64-modules shim efibootmgr grub2-tools-efi grub2-tools-extra --verbose

```

### 9. \*\*Install EFI Bootloader to /dev/sdc\*\*

```bash

grub2-install --target=x86\_64-efi --efi-directory=/boot/efi --bootloader-id=alma\_grub --recheck --no-nvram --force

```

### 10. \*\*Generate GRUB Configuration\*\*

```bash

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

```

### 11. \*\*Ensure Boot Entry Priority\*\*

```bash

sudo efibootmgr -o <boot\_num\_for\_alma\_grub>,<others>

```

### 12. \*\*Reboot and Verify Boot\*\*

```bash

sudo reboot

```

Post-boot verification:

```bash

uname -r

lsblk -f

mount | grep /boot

```

---

## Issues & Fixes Summary

| Issue | Resolution |

| --------------------------------------------- | --------------------------------------------------------- |

| `grub2-install` failed due to Secure Boot | VM redeployed with Secure Boot disabled via Terraform |

| `/usr/lib/grub/x86\_64-efi/modinfo.sh` missing | Installed `grub2-efi-x64-modules` package |

| Booted into wrong disk | Used `efibootmgr` to reprioritize EFI boot entries |

| `grub.cfg` not found | Confirmed location was `/boot/efi/EFI/almalinux/grub.cfg` |

---

## Outcome

\* Boot is now successfully migrated to the larger 150GB disk.

\* New kernel was installed and is in use.

\* EFI bootloader is correctly configured and operational.

\* The `/boot` partition has more free space to support future kernel upgrades.

---

## Next Steps

\* Snapshot or image the VM in its current stable state.

\* Optionally, remove the original disk after full validation.