

UEFI enabled server fails to boot after BMR

Symptom

Following a successful Bare Metal Restore of a UEFI enabled server, the server can fail to fully boot if the drivers aren't available for the UEFI/Secure Boot subsystem. Instead of booting normally, the server will boot directly to a dracut prompt, and additional configuration will be necessary

```
Warning: /dev/almalinux/root does not exist
Warning: /dev/almalinux/swap does not exist
Warning: /dev/mapper/almalinux-root does not exist

Generating "/run/initramfs/rdsosreport.txt"

Entering emergency mode. Exit the shell to continue.
Type "journalctl" to view system logs.
You might want to save "/run/initramfs/rdsosreport.txt" to a USB stick or /boot
after mounting them and attach it to a bug report.

dracut:/# _
```

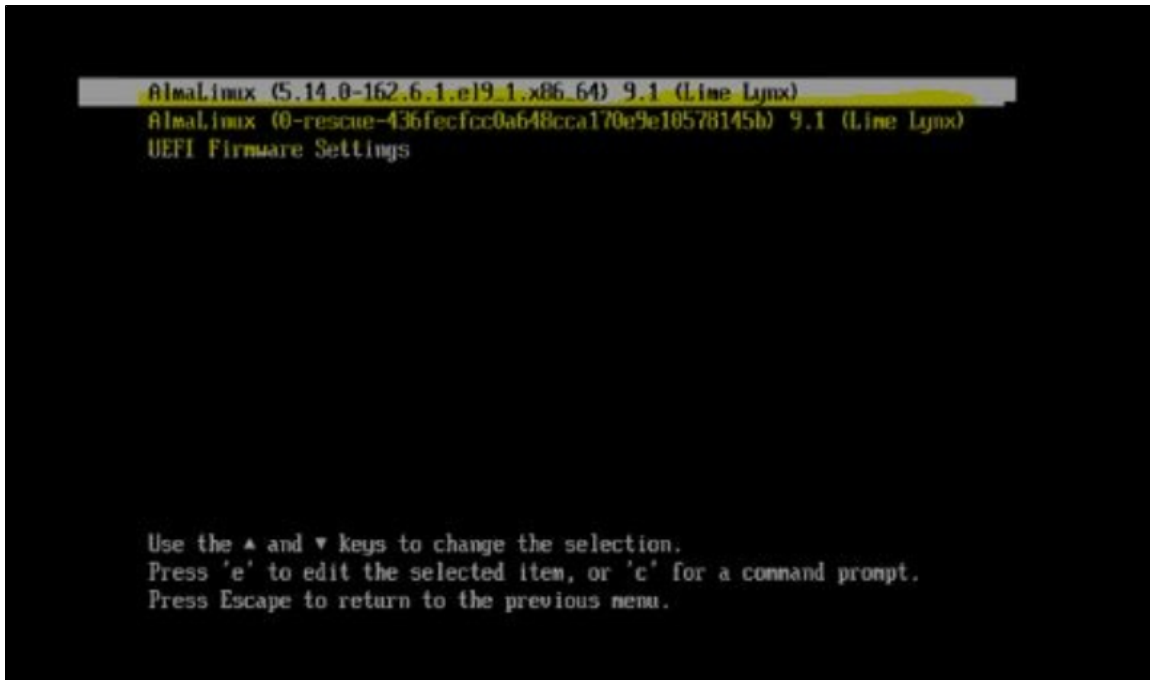
Cause

R1Soft offers kernel module support for select Linux kernels running on systems with UEFI / Secure Boot enabled. While backing up select systems is possible, the current BMR ISO does not currently contain all the drivers necessary to configure the restored root file system following a successful Bare Metal Restore.

Resolution

In order to complete the BMR, and allow the restored server to boot normally, the initramfs must be manually rebuilt. This step must be taken from the emergency console.

1. Reboot the Bare Metal Restored server.
2. From the boot selection menu, choose the rescue option that corresponds to the kernel you wish to use (second option from the image below):



3. Navigate to the `/boot` directory and locate the `initramfs img` file that matches your desired kernel.

4. Rebuild the `initramfs` using the following command as an example. Substitute the path for your desired kernel:

Example :

```
# dracut -f /boot/initramfs-5.14.0-162.6.1.el9_1.x86_64.img
```

```

root@localhost:/boot
dump.img
drwxr-xr-x. 2 root root    6 Aug  8 08:32 1
drwxr-xr-x. 2 root root    6 Aug  8 08:32 2
drwxr-xr-x. 2 root root    6 Aug  8 08:32 a
drwxr-xr-x. 2 root root    6 Aug  8 08:32 b
drwx-----, 3 root root   50 Aug  8 06:17 grub2
-rw-----, 1 root root  56M Jul 19 08:05 initramfs-5.14.0-162.6.1.el9_1.x86_64.
img
-rw-----, 1 root root 120M Jul 19 08:02 initramfs-0-rescue-436fecfcc0a648cca17
0e9e10578145b.img
-rwxr-xr-x. 1 root root   12M Jul 19 08:01 vmlinuz-0-rescue-436fecfcc0a648cca170e
9e10578145b
lrwxrwxrwx. 1 root root    51 Jul 19 08:01 symvers-5.14.0-162.6.1.el9_1.x86_64.gz
-> /lib/modules/5.14.0-162.6.1.el9_1.x86_64/symvers.gz
drwxr-xr-x. 3 root root    21 Jul 19 08:00 loader
-rw-r--r--. 1 root root 208K Nov 15 2022 config-5.14.0-162.6.1.el9_1.x86_64
-rw-----, 1 root root  5.1M Nov 15 2022 System.map-5.14.0-162.6.1.el9_1.x86_64
-rwxr-xr-x. 1 root root   12M Nov 15 2022 vmlinuz-5.14.0-162.6.1.el9_1.x86_64
drwx-----, 3 root root  4.0K Dec 31 1969 efi
[root@localhost boot]# uname -r
5.14.0-162.6.1.el9_1.x86_64
[root@localhost boot]# dracut -f /boot/initramfs-5.14.0-162.6.1.el9_1.x86_64.img
[root@localhost boot]# reboot

```

5. Reboot the system. The system should now boot normally.

Alternate steps may be needed when Bare Metal Restoring RHEL 9.2 and equivalent operating systems

If a driver is missing that is required to boot, you may see the following message in the boot logs :

```

[FAILED] Failed to start Load Kernel Modules.
modprobe : FATAL : Module <kernel module> not found in directory
/lib/modules/<kernelVersion>

```

To rebuild the initramfs with the missing kernel module from the message above:

1. Boot the server in Secure Boot mode
2. Make a backup copy of the initramfs :

```
# cp /boot/initramfs-<kernelVersion>.img /boot/<kernelVersion>.bak
```

3. Use the --add-drivers option and specify the module name [without.ko extension] when manually building the initramfs with dracut:

```
# dracut -fv --add-drivers <kernel module> /boot/initramfs-<kernelVersion>.img <kernelVersion>
```

4. Reboot the server