

# Incompatible rescue mode kernel with AlmaLinux 9 XFS partition

## [ Issue Description ]:

The rescue mode kernel is incompatible with the AlmaLinux 9 root partition file system type. When you try to `mount` the root partition, the system fails to do so and returns the following error message:

language-bash

```
mount -t xfs /dev/sdb4 /mnt/tmp
```

```
mount: /mnt/tmp: wrong fs type, bad option, bad superblock on /dev/sdb4,  
missing codepage or helper program, or other error.
```

This is probably due to the fact that the VFS is not able to apply the xfs partition mount options, as seen in the "dmesg -T" command output down below.

```
[Thu Oct 12 02:36:15 2023] SGI XFS with ACLs, security attributes, realtime, no debug enabled  
[Thu Oct 12 02:36:15 2023] XFS (sdb4): Superblock has unknown read-only compatible features (0x8) enabled.  
[Thu Oct 12 02:36:15 2023] XFS (sdb4): Attempted to mount read-only compatible filesystem read-write.  
[Thu Oct 12 02:36:15 2023] XFS (sdb4): Filesystem can only be safely mounted read only.  
[Thu Oct 12 02:36:15 2023] XFS (sdb4): SB validate failed with error -22.
```

According to the kernel messages it is only possible to mount the partition in read-only which would not serve the purpose of making changes to the data, which is often the case when customers want to change their forgotten passwords or maybe fix misconfigurations.

However, even after trying to mount the partition in read-only the system fails to do so.

```
chris@localhost... #1 [RESCUE] root@vps-4596d6f9:~ $ mount -t xfs -o ro /dev/sdb4 /mnt/sdb4/  
..ts/Python/OVH... #2 mount: /mnt/sdb4: wrong fs type, bad option, bad superblock on /dev/sdb4, missing codepage or helper program, or other error.  
root@54.39.22.... #3 [RESCUE] root@vps-4596d6f9:~ $
```

There are a few reports regarding this issue for Linux 4.19 - 4.9 kernels running on x86\_64 CPUs. An update to a 5.x kernel would most probably fix the problem, but maybe there is a workaround.

```
[RESCUE] root@vps-4596d6f9:~ $ echo -e "\n\n$(uname -rvn)\n\n"

vps-4596d6f9 4.19.0-21-amd64 #1 SMP Debian 4.19.249-2 (2022-06-30)
```

I have ran tests on two different OVHcloud VPSs and documented the entire process as seen in the screenshot below.

```
chris@localhost... #1 [RESCUE] root@vps-4596d6f9:~ $ lsblk
NAME MAJ:MIN RM SIZE RO TYPE MOUNTPOINT
sda 8:0 0 2.5G 0 disk
└─sda1 8:1 0 2.5G 0 part /
sdb 8:16 0 40G 0 disk
├─sdb1 8:17 0 1M 0 part
├─sdb2 8:18 0 200M 0 part
├─sdb3 8:19 0 512M 0 part
└─sdb4 8:20 0 39.3G 0 part
[RESCUE] root@vps-4596d6f9:~ $ blkid /dev/sdb* | grep --color root
/dev/sdb4: UUID="280b97cf-dfc4-4d92-8670-aa43d13f5b51" TYPE="xfs" PARTLABEL="root" PARTUUID="5c70c77c-8e6b-48aa-b0a8-31766634f6a1"
[RESCUE] root@vps-4596d6f9:~ $ mkdir -p /mnt/sdb4
[RESCUE] root@vps-4596d6f9:~ $ mount -t xfs /dev/sdb4 /mnt/sdb4
mount: /mnt/sdb4: wrong fs type, bad option, bad superblock on /dev/sdb4, missing codepage or helper program, or other error.
[RESCUE] root@vps-4596d6f9:~ $
```

Even after installing xfsprogs 4.20.0-1 to the rescue mode system the mounting does not work.

[ Conclusion ]:

We could either inform the customers about the incompatibility of the rescue mode with AlmaLinux 9 in the following guide:

[https://help.ovhcloud.com/csm/en-ca-vps-root-password?id=kb\\_article\\_view&sysparm\\_article=KB0047679#changing-the-password-if-you-have-lost-it](https://help.ovhcloud.com/csm/en-ca-vps-root-password?id=kb_article_view&sysparm_article=KB0047679#changing-the-password-if-you-have-lost-it)

Or we try a newer kernel version (5.x+) and see if the mounting works there.

Otherwise there is also the option to change the filesystem type for AlmaLinux partitions with a more compatible one like ext4.