

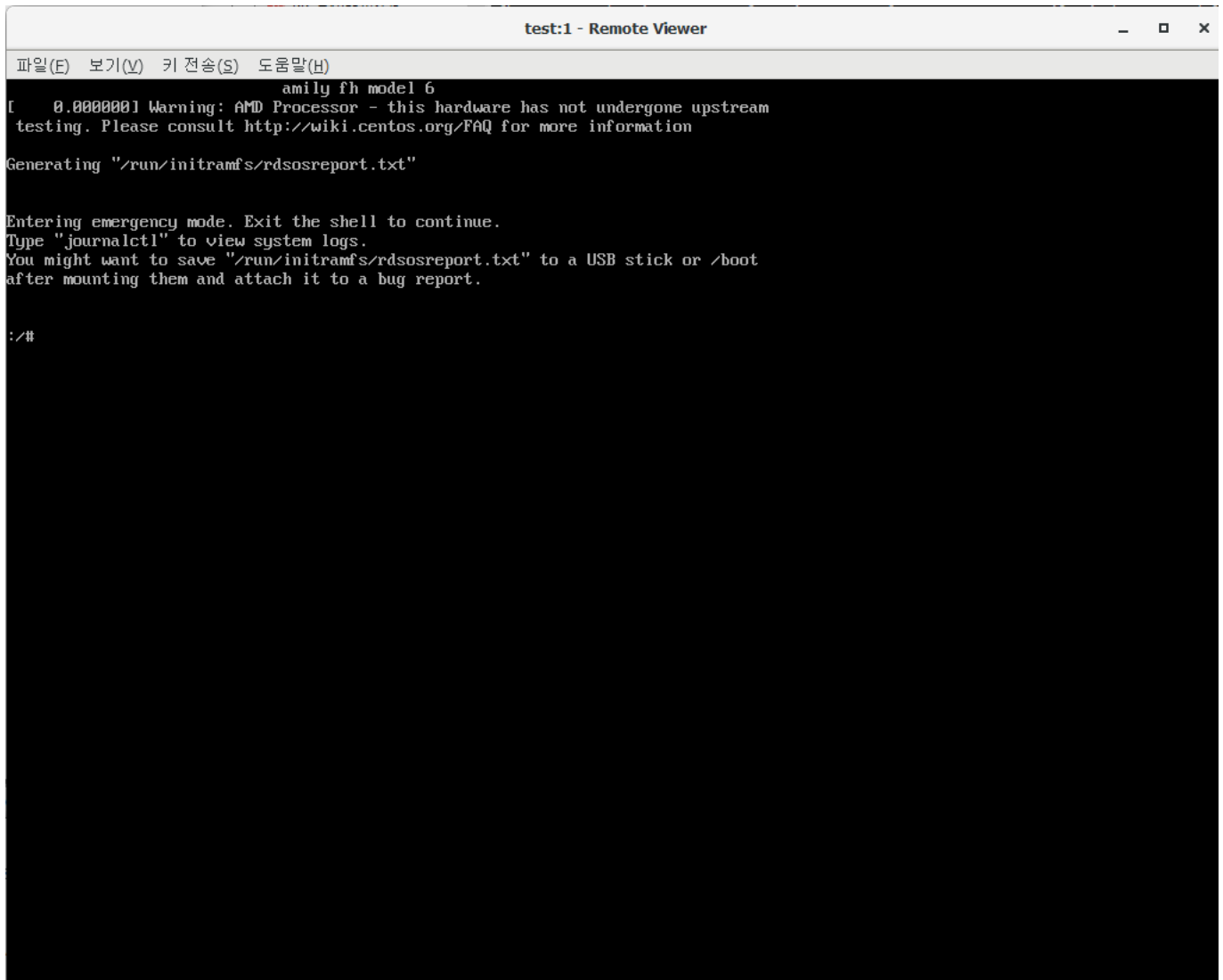
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Failed to mount /sysroot

— 이강우 2023/05/28 13:23

간혹 어떠한 오류로 인해서 VM 부팅시에 아래와 같은 화면이 나오면서 VM이 부팅되지 않는 경우가 있다.



```
test:1 - Remote Viewer
파일(E) 보기(V) 키 전송(S) 도움말(H)
family fh model 6
[ 0.000000] Warning: AMD Processor - this hardware has not undergone upstream
testing. Please consult http://wiki.centos.org/FAQ for more information
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.

:/#
```

```
Entering emergency mode. Exit the shell to continue.
Type "journalctl" to view system logs.
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/boot
after mounting them and attach it to a bug report.
```

안내하는 대로 journalctl 을 입력해서 로그 내용을 꼭 확인해보면 맨 마지막부분에 아래와 같은 내용 이 나온다.

```

test:1 - Remote Viewer
파일(F) 보기(V) 키 전송(S) 도움말(H)
May 27 00:46:26 localhost.localdomain kernel: sr 1:0:0:0: [sr0] scsi3-mmc drive: 4x/4x cd/rw xa/form2 tray
May 27 00:46:26 localhost.localdomain kernel: cdrom: Uniform CD-ROM driver Revision: 3.20
May 27 00:46:26 localhost.localdomain kernel: sr 1:0:0:0: Attached scsi CD-ROM sr0
May 27 00:46:26 localhost.localdomain kernel: sd 2:0:0:0: Power-on or device reset occurred
May 27 00:46:26 localhost.localdomain kernel: sd 2:0:0:0: [sda] 62914560 512-byte logical blocks: (32.2 GB/30.0 GiB)
May 27 00:46:26 localhost.localdomain kernel: sd 2:0:0:0: [sda] Write Protect is off
May 27 00:46:26 localhost.localdomain kernel: sd 2:0:0:0: [sda] Mode Sense: 63 00 00 00
May 27 00:46:26 localhost.localdomain kernel: sd 2:0:0:0: [sda] Write cache: enabled, read cache: enabled, doesn't support DPO or FUA
May 27 00:46:26 localhost.localdomain kernel: sda: sda1 sda2
May 27 00:46:26 localhost.localdomain kernel: sd 2:0:0:0: [sda] Attached SCSI disk
May 27 00:46:26 localhost.localdomain systemd[1]: Found device /dev/mapper/centos-root.
May 27 00:46:26 localhost.localdomain systemd[1]: Starting File System Check on /dev/mapper/centos-root...
May 27 00:46:26 localhost.localdomain systemd[1]: /sbin/fsck.xfs: XFS file system.
May 27 00:46:26 localhost.localdomain systemd[1]: Started File System Check on /dev/mapper/centos-root.
May 27 00:46:26 localhost.localdomain systemd[1]: Started dracut initqueue hook.
May 27 00:46:26 localhost.localdomain systemd[1]: Reached target Remote File Systems (Pre).
May 27 00:46:26 localhost.localdomain systemd[1]: Reached target Remote File Systems.
May 27 00:46:26 localhost.localdomain systemd[1]: Mounting /sysroot...
May 27 00:46:26 localhost.localdomain kernel: SGI XFS with ACLs, security attributes, no debug enabled
May 27 00:46:26 localhost.localdomain kernel: XFS (dm-0): Mounting UFS Filesystem
May 27 00:46:26 localhost.localdomain mount[3821]: mount: wrong fs type, bad option, bad superblock on /dev/mapper/centos-root,
May 27 00:46:26 localhost.localdomain mount[3821]: missing codepage or helper program, or other error
May 27 00:46:26 localhost.localdomain mount[3821]: In some cases useful info is found in syslog - try
May 27 00:46:26 localhost.localdomain mount[3821]: dmesg | tail or so.
May 27 00:46:26 localhost.localdomain kernel: XFS (dm-0): Corruption warning: Metadata has LSN (5:3383) ahead of current LSN (5:
May 27 00:46:26 localhost.localdomain kernel: XFS (dm-0): log mount/recovery failed: error -22
May 27 00:46:26 localhost.localdomain kernel: XFS (dm-0): log mount failed
May 27 00:46:26 localhost.localdomain systemd[1]: sysroot.mount mount process exited, code=exited status=32
May 27 00:46:26 localhost.localdomain systemd[1]: Failed to mount /sysroot.
May 27 00:46:26 localhost.localdomain systemd[1]: Dependency failed for Initrd Root File System.
May 27 00:46:26 localhost.localdomain systemd[1]: Dependency failed for Reload Configuration from the Real Root.
May 27 00:46:26 localhost.localdomain systemd[1]: Job initrd-parse-etc.service/start failed with result 'dependency'.
May 27 00:46:26 localhost.localdomain systemd[1]: Triggering OnFailure= dependencies of initrd-parse-etc.service.
May 27 00:46:26 localhost.localdomain systemd[1]: Job initrd-root-fs.target/start failed with result 'dependency'.
May 27 00:46:26 localhost.localdomain systemd[1]: Triggering OnFailure= dependencies of initrd-root-fs.target.
May 27 00:46:26 localhost.localdomain systemd[1]: Unit sysroot.mount entered failed state.
May 27 00:46:26 localhost.localdomain systemd[1]: Stopped dracut pre-udev hook.
May 27 00:46:26 localhost.localdomain systemd[1]: Stopped dracut cmdline hook.
May 27 00:46:26 localhost.localdomain systemd[1]: Stopped dracut initqueue hook.
May 27 00:46:26 localhost.localdomain systemd[1]: Stopped target Basic System.
May 27 00:46:26 localhost.localdomain systemd[1]: Stopped target System Initialization.
May 27 00:46:26 localhost.localdomain systemd[1]: Started Emergency Shell.
May 27 00:46:26 localhost.localdomain systemd[1]: Reached target Emergency Mode.
May 27 00:46:26 localhost.localdomain systemd[1]: Reached target Initrd File Systems.
May 27 00:46:26 localhost.localdomain systemd[1]: Startup finished in 391ms (kernel) + 0 (initrd) + 1.238s (userspace) = 1.629s.
May 27 00:46:26 localhost.localdomain systemd[1]: Received SIGRTMIN+21 from PID 259 (plymouthd).
May 27 00:46:46 localhost.localdomain kernel: random: crng init done
Cannot edit standard input (press RETURN)

```

```

mount: wrong fs type, bad option, bad superblock on /dev/mapper/centos-root
missing codepage or helper program, or other error
In some cases useful info is found in syslog - try
dmesg | tail or so
XFS (dm-0): Corruption warning: Metadata has LSN (5:3383) ahead of current
LSN
XFS (dm-0): log mount/recovery failed: error -22
XFS (dm-0): log mount failed
sysroot.mount mount process exited, code=exited status=32
Failed to mount /sysroot.
Dependency failed for Initrd Root File System.
Dependency failed for Reload Configuration from the Real Root.
Job initrd-parse-etc.service/start failed with result 'dependency'.
Triggering OnFailure= dependencies of initrd-parse-etc.service.
Job initrd-root-fs.target/start failed with result 'dependency'.
Triggering OnFailure= dependencies of initrd-root-fs.target.
Unit sysroot.mount entered failed state.

```

XFS (dm-0): log mount/recovery failed: error -22 XFS (dm-0): log mount failed

로그 내용은 위의 부분에서 확인 할수 있듯이 파일 시스템을 마운트 하려고 했는데 XFS파일시스템의 메타데이터가 손상되어 로그 마운트 할수 없다는 내용이다. dm-0 장치에서 해당 오류가 발생했으므로 자동으로 복구를 시도했으나 실패했다는 로그도 함께 출력이 된다.

수동으로 복구 하기 위해 먼저 아래 명령어를 입력한다.

```
xfs_repair -v /dev/dm-0
```

하지만 보통 아래처럼 복구가 제대로 되지 않는다.

```
test:1 - Remote Viewer
파일(F) 보기(V) 키 전송(S) 도움말(H)
May 27 00:46:26 localhost.localdomain systemd[1]: Mounting /sysroot...
May 27 00:46:26 localhost.localdomain kernel: SGI XFS with ACLs, security attributes, no debug enabled
May 27 00:46:26 localhost.localdomain kernel: XFS (dm-0): Mounting U5 Filesystem
May 27 00:46:26 localhost.localdomain mount[382]: mount: wrong fs type, bad option, bad superblock on /dev/mapper/centos-root,
May 27 00:46:26 localhost.localdomain mount[382]: missing codepage or helper program, or other error
May 27 00:46:26 localhost.localdomain mount[382]: In some cases useful info is found in syslog - try
May 27 00:46:26 localhost.localdomain mount[382]: dmesg | tail or so.
May 27 00:46:26 localhost.localdomain kernel: XFS (dm-0): Corruption warning: Metadata has LSN (5:3383) ahead of current LSN (5:
May 27 00:46:26 localhost.localdomain kernel: XFS (dm-0): log mount/recovery failed: error -22
May 27 00:46:26 localhost.localdomain kernel: XFS (dm-0): log mount failed
May 27 00:46:26 localhost.localdomain systemd[1]: sysroot.mount mount process exited, code=exited status=32
May 27 00:46:26 localhost.localdomain systemd[1]: Failed to mount /sysroot.
May 27 00:46:26 localhost.localdomain systemd[1]: Dependency failed for Initrd Root File System.
May 27 00:46:26 localhost.localdomain systemd[1]: Dependency failed for Reload Configuration from the Real Root.
May 27 00:46:26 localhost.localdomain systemd[1]: Job initrd-parse-etc.service/start failed with result 'dependency'.
May 27 00:46:26 localhost.localdomain systemd[1]: Triggering OnFailure= dependencies of initrd-parse-etc.service.
May 27 00:46:26 localhost.localdomain systemd[1]: Job initrd-root-fs.target/start failed with result 'dependency'.
May 27 00:46:26 localhost.localdomain systemd[1]: Triggering OnFailure= dependencies of initrd-root-fs.target.
May 27 00:46:26 localhost.localdomain systemd[1]: Unit sysroot.mount entered failed state.
May 27 00:46:26 localhost.localdomain systemd[1]: Stopped dracut pre-udev hook.
May 27 00:46:26 localhost.localdomain systemd[1]: Stopped dracut cmdline hook.
May 27 00:46:26 localhost.localdomain systemd[1]: Stopped dracut initqueue hook.
May 27 00:46:26 localhost.localdomain systemd[1]: Stopped target Basic System.
May 27 00:46:26 localhost.localdomain systemd[1]: Stopped target System Initialization.
May 27 00:46:26 localhost.localdomain systemd[1]: Started Emergency Shell.
May 27 00:46:26 localhost.localdomain systemd[1]: Reached target Emergency Mode.
May 27 00:46:26 localhost.localdomain systemd[1]: Reached target Initrd File Systems.
May 27 00:46:26 localhost.localdomain systemd[1]: Startup finished in 391ms (kernel) + 0 (initrd) + 1.238s (userspace) = 1.629s.
May 27 00:46:26 localhost.localdomain kernel: random: crng init done
:/# xfs_repair -v dm-0
dm-0: No such file or directory
dm-0: No such file or directory

fatal error -- couldn't initialize XFS library
:/# xfs_repair -v /dev/dm-0
Phase 1 - find and verify superblock...
- block cache size set to 82024 entries
Phase 2 - using internal log
- zero log...
zero_log: head block 3269 tail block 3252
ERROR: The filesystem has valuable metadata changes in a log which needs to
be replayed. Mount the filesystem to replay the log, and unmount it before
re-running xfs_repair. If you are unable to mount the filesystem, then use
the -L option to destroy the log and attempt a repair.
Note that destroying the log may cause corruption -- please attempt a mount
of the filesystem before doing this.
:/# ss
```

```
:/# xfs_repair -v /dev/dm-0
Phase 1 - find and verify superblock...
- block cache size set to 82024 entries
Phase 2 - using internal log
- zero log...
zero_log: head block 3269 tail block 3252
ERROR: The filesystem has valuable metadata changes in a log which needs to
be replayed. Mount the filesystem to replay the log, and unmount it before
re-running xfs_repair. If you are unable to mount the filesystem, then use
the -L option to destroy the log and attempt a repair.
```

Note that destroying the log may cause corruption -- please attempt a mount of the filesystem before doing this.

```
:/#
```

결론은 파일시스템의 로그가 손상되어서 복구가 안된다는건데 일단 마운트를 해서 복구를 시도하라는 얘기이다. 즉 다른 시스템에 해당 디스크를 붙여서 복구를 시도해보라는 얘기이다. 그러나 마운트조차도 안된다면 -L 옵션을 주어서 로그를 초기화 할 수 있다는 얘기인데 문제는 로그를 초기화 할 시에는 **데이터 손상이 발생할수도 있다**는 경고를 보여준다.

OS영역(dm-0디스크 장치)은 그렇게 중요한데이터가 없고 부팅만 되면 상관 없는 경우는 바로 아래처럼 -L 옵션을 줘서 복구를 시도하면 되고 해당 디스크에 아주 중요한 데이터가 있는 경우에는 다른 머신에 디스크를 붙여서 마운트를 시도하여 복구를 하면 된다.

```
xfs_repair -v -L /dev/dm-0
```

```

ERROR: The filesystem has valuable metadata changes in a log which needs to
be replayed. Mount the filesystem to replay the log, and unmount it before
re-running xfs_repair. If you are unable to mount the filesystem, then use
the -L option to destroy the log and attempt a repair.
Note that destroying the log may cause corruption -- please attempt a mount
of the filesystem before doing this.
:/# xfs_repair -vL /dev/dm-0
Phase 1 - find and verify superblock...
- block cache size set to 82024 entries
Phase 2 - using internal log
- zero log...
zero_log: head block 3269 tail block 3252
ALERT: The filesystem has valuable metadata changes in a log which is being
destroyed because the -L option was used.
- scan filesystem freespace and inode maps...
- found root inode chunk
Phase 3 - for each AG...
- scan and clear agi unlinked lists...
- process known inodes and perform inode discovery...
- agno = 0
- agno = 1
- agno = 2
- agno = 3
- process newly discovered inodes...
Phase 4 - check for duplicate blocks...
- setting up duplicate extent list...
- check for inodes claiming duplicate blocks...
- agno = 0
- agno = 1
- agno = 2
- agno = 3
Phase 5 - rebuild AG headers and trees...
- agno = 0
- agno = 1
- agno = 2
- agno = 3
- reset superblock...
Phase 6 - check inode connectivity...
- resetting contents of realtime bitmap and summary inodes
- traversing filesystem ...
- agno = 0
- agno = 1
- agno = 2
- agno = 3
- traversal finished ...
- moving disconnected inodes to lost+found ...
Phase 7 - verify and correct link counts...
Maximum metadata LSN (5:3383) is ahead of log (1:2).
Format log to cycle 8.

XFS_REPAIR Summary      Sat May 27 01:11:12 2023

Phase      Start          End          Duration
Phase 1:    05/27 01:11:10  05/27 01:11:10
Phase 2:    05/27 01:11:10  05/27 01:11:11  1 second
Phase 3:    05/27 01:11:11  05/27 01:11:11
Phase 4:    05/27 01:11:11  05/27 01:11:11
Phase 5:    05/27 01:11:11  05/27 01:11:11
Phase 6:    05/27 01:11:11  05/27 01:11:11
Phase 7:    05/27 01:11:11  05/27 01:11:11

Total run time: 1 second
done
:/#

```

복구가 완료되었다.

exit를 입력하여 emergency mode를 종료하면 정상 부팅되는것을 확인할 수 있다.

참조링크

- <https://blog.naver.com/yexx/221995836137>
- https://access.redhat.com/documentation/en-us/red_hat_enterprise_linux/8/html-single/managing_file_systems/index#proc_repairing-an-xfs-file-system-with-xfs_repair_checking-and-repairing-a-file-system

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