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Linux: Recover Corrupted Partition From A Bad Superblock

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Q. How can I Recover a bad superblock [2] from a corrupted ext3 partition to get back my data? I'm getting following error:

> /dev/sda2: Input/output error
> mount: /dev/sda2: can't read superblock

How do I fix this error?

[1]

A. Linux ext2/3 filesystem stores superblock at different backup location [2] so it is possible to get back data from corrupted partition.

> ⚠ **WARNING!** Make sure file system is UNMOUNTED.

If your system will give you a terminal type the following command, else boot Linux system from rescue disk (boot from 1st CD/DVD. At boot: prompt type command linux rescue).

Mount partition using alternate superblock

Find out superblock location for /dev/sda2:

```
# dumpe2fs /dev/sda2 | grep superblock
```

Sample output:

```
Primary superblock at 0, Group descriptors at 1-6
Backup superblock at 32768, Group descriptors at 32769-32774
Backup superblock at 98304, Group descriptors at 98305-98310
Backup superblock at 163840, Group descriptors at 163841-163846
Backup superblock at 229376, Group descriptors at 229377-229382
Backup superblock at 294912, Group descriptors at 294913-294918
Backup superblock at 819200, Group descriptors at 819201-819206
Backup superblock at 884736, Group descriptors at 884737-884742
Backup superblock at 1605632, Group descriptors at 1605633-1605638
Backup superblock at 2654208, Group descriptors at 2654209-2654214
Backup superblock at 4096000, Group descriptors at 4096001-4096006
Backup superblock at 7962624, Group descriptors at 7962625-7962630
Backup superblock at 11239424, Group descriptors at 11239425-11239430
Backup superblock at 20480000, Group descriptors at 20480001-20480006
Backup superblock at 23887872, Group descriptors at 23887873-23887878
```

Now check and repair a Linux file system using alternate superblock # 32768:

```
# fsck -b 32768 /dev/sda2
```

Sample output:

```
fsck 1.40.2 (12-Jul-2007)
e2fsck 1.40.2 (12-Jul-2007)
/dev/sda2 was not cleanly unmounted, check forced.
Pass 1: Checking inodes, blocks, and sizes
Pass 2: Checking directory structure
Pass 3: Checking directory connectivity
Pass 4: Checking reference counts
Pass 5: Checking group summary information
```

```
Free blocks count wrong for group #241 (32254, counted=32253).
Fix? yes

Free blocks count wrong for group #362 (32254, counted=32248).
Fix? yes

Free blocks count wrong for group #368 (32254, counted=27774).
Fix? yes
..........
/dev/sda2: ***** FILE SYSTEM WAS MODIFIED *****
/dev/sda2: 59586/30539776 files (0.6% non-contiguous), 3604682/61059048 blocks
```

Now try to mount file system using mount command:

```
# mount /dev/sda2 /mnt
```

You can also use superblock stored at 32768 to mount partition, enter:

```
# mount sb={alternative-superblock} /dev/device /mnt
# mount sb=32768 /dev/sda2 /mnt
```

Try to browse and access file system:

```
# cd /mnt
# mkdir test
# ls -l
# cp file /path/to/safe/location
```

You should always keep backup of all important data including configuration files.

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URLs in this post:

[1] Image: **http://www.cyberciti.biz/faq/faq/category/file-system/**
[2] superblock: **http://www.cyberciti.biz/tips/understanding-unixlinux-filesystem-superblock.html**