

# BTRFS

## References

<https://www.howtoforge.com/a-beginners-guide-to-btrfs>

<https://www.howtoforge.com/how-to-convert-an-ext3-ext4-root-file-system-to-btrfs-on-ubuntu-12.10>

<http://www.oracle.com/technetwork/articles/servers-storage-admin/advanced-btrfs-1734952.html>

### Compression

Create BTRFS filesystem on multiple block devices:

```
mkfs.btrfs /dev/loop0 /dev/loop1
```

```
btrfs filesystem show /dev/loop0
Label: none  uuid: e9a456cd-57d7-4355-a20a-77243d66722e
    Total devices 2 FS bytes used 28.00KiB
    devid    1 size 200.00MiB used 12.00MiB path /dev/loop0
    devid    2 size 200.00MiB used  0.00B path /dev/loop1
```

As you can see, every block belongs to FS can be used. Also for mount:

```
mount /dev/loop0 /BTRFS
```

or

```
mount /dev/loop1 /BTRFS
```

## Swap support

**Current state:** Do not create SWAP files on BTRFS!

Swap support was restored with Kernel 4.21

## Add/remove block devices

Add new block device (extend size)

```
btrfs device add /dev/loop2 /BTRFS
```

Remove device:

```
btrfs device delete /dev/loop0 /BTRFS
```

!!! It is possible to remove any device if there is free space to which data can be moved during removal.

## Scrub

Start foreground, readonly scrub, print statistics at end:

```
btrfs scrub start -B -d -r /  
  
scrub device /dev/sda3 (id 1) done  
  scrub started at Mon Mar  6 07:02:56 2017 and finished after 00:04:06  
  total bytes scrubbed: 18.50GiB with 0 errors  
scrub device /dev/sdc5 (id 2) done  
  scrub started at Mon Mar  6 07:02:56 2017 and finished after 00:06:52  
  total bytes scrubbed: 18.47GiB with 0 errors
```

Get currently running scrub status:

```
btrfs scrub status /
```

## migration to BTRFS

```
apt-get install btrfs-tools
```

## Issues

### Compression type 0x3 not supported

GRUB 2.02 doesn't support ZSTD compression. Solution is to exclude /boot from ZSTD compression (below) or install more recent Grub (from Debian Bullseye)

```
sudo btrfs filesystem defragment -v -r -czlib /boot  
sudo btrfs property set /boot compression zlib  
# disable compression for newly created files  
chattr -Rc /boot
```

### error inheriting props for ino 3336468 (root 264): -28

```
31 #define ENOSPC          28      /* No space left on device */
```

```
# btrfs fi show /mount
Label: none  uuid: 5db83d5e-4f38-40b0-ac5d-dadd9cd1d23f
  Total devices 1 FS bytes used 22.18GiB
  devid    1 size 30.00GiB used 27.58GiB path /dev/mapper/vg_spox-lv_home

# btrfs fi usage /mount
Overall:
  Device size:          30.00GiB
  Device allocated:     27.58GiB
  Device unallocated:   2.42GiB
  Device missing:       0.00B
  Used:                 22.52GiB
  Free (estimated):     5.58GiB   (min: 4.37GiB)
  Data ratio:           1.00
  Metadata ratio:       1.99
  Global reserve:       512.00MiB   (used: 0.00B)

Data,single: Size:25.01GiB, Used:21.84GiB
/dev/mapper/...      25.01GiB

Metadata,single: Size:8.00MiB, Used:0.00B
/dev/mapper/...      8.00MiB

Metadata,DUP: Size:1.25GiB, Used:348.23MiB
/dev/mapper/...      2.50GiB

System,single: Size:4.00MiB, Used:0.00B
/dev/mapper/...      4.00MiB

System,DUP: Size:32.00MiB, Used:16.00KiB
/dev/mapper/...      64.00MiB

Unallocated:
/dev/mapper/...      2.42GiB
```

<https://bbs.archlinux.org/viewtopic.php?id=200817>

<http://www.mail-archive.com/linux-btrfs@vger.kernel.org/msg60637.html>

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Last update: **2021/05/02 11:34**

