

System Administration

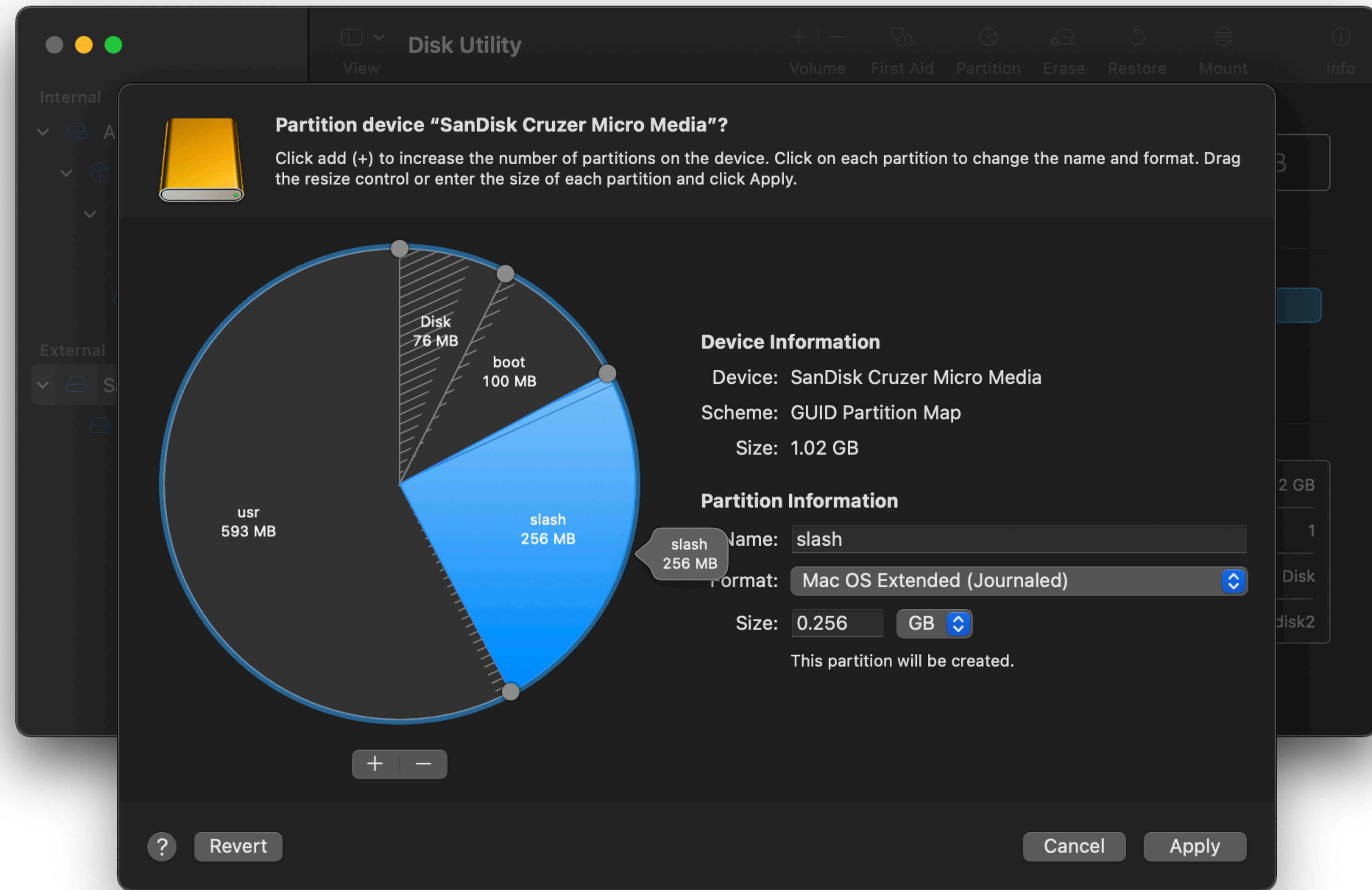
Week 02, Segment 5 Partitions

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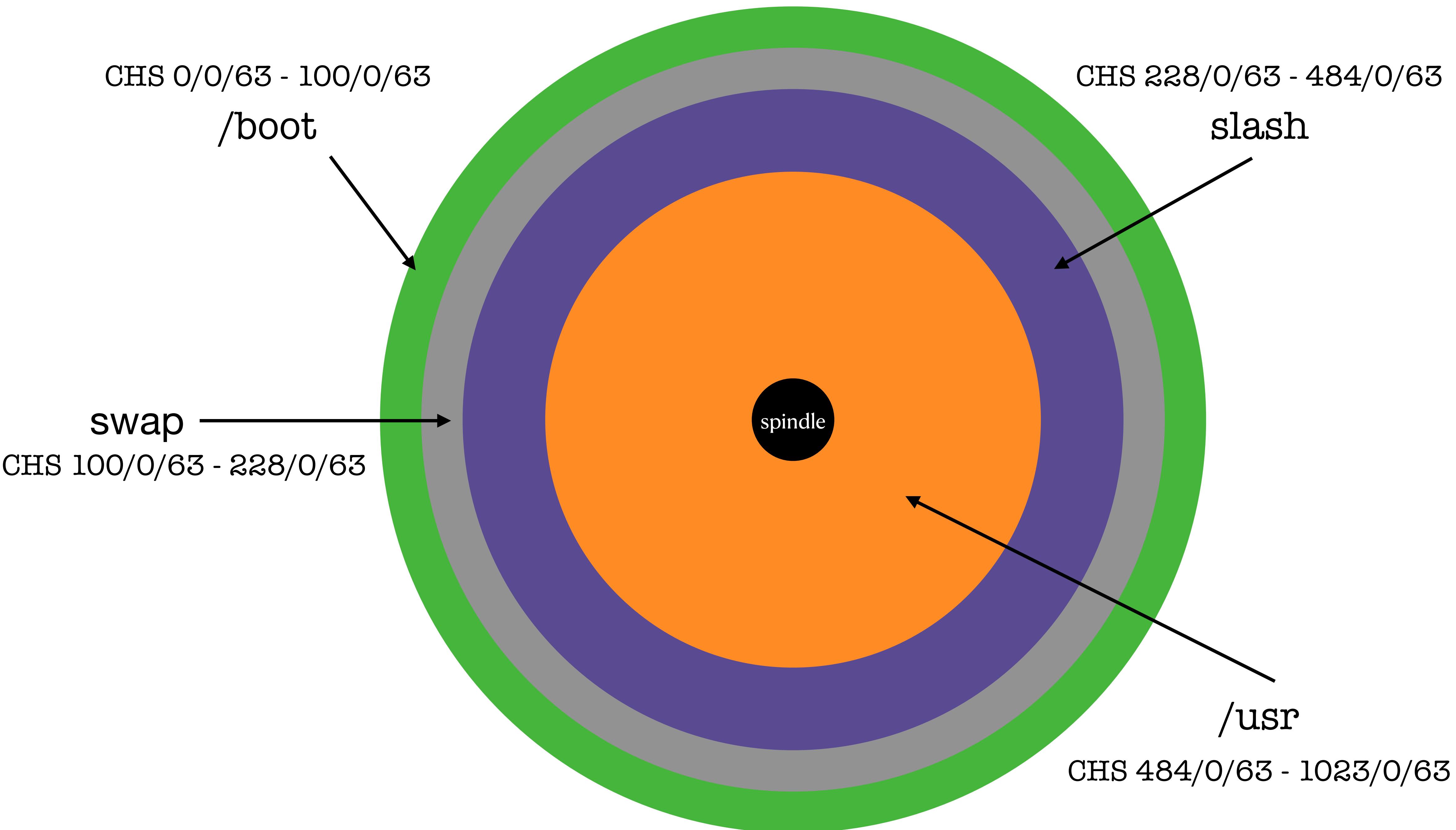
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<https://stevens.netmeister.org/615/>











```
label: fictitious
flags:
bytes/sector: 512
sectors/track: 2048
tracks/cylinder: 1
sectors/cylinder: 2048
cylinders: 1024
total sectors: 2097152
rpm: 3600
interleave: 1
trackskew: 0
cylinderskew: 0
headswitch: 0          # microseconds
track-to-track seek: 0 # microseconds
drivedata: 0
```

16 partitions:

#	size	offset	fstype	[fsize	bsize	cpg/sgs]			
a:	100/0/0	0/0/63	4.2BSD	0	0	0 # (Cyl.	0*-	100*)	
b:	128/0/0	100/0/63	swap			# (Cyl.	100*-	228*)	
d:	1024/0/0	0/0/0	unused	0	0	# (Cyl.	0 -	1023)	
e:	256/0/0	228/0/63	4.2BSD	0	0	0 # (Cyl.	228*-	484*)	
f:	539/0/1985	484/0/63	4.2BSD	0	0	0 # (Cyl.	484*-	1023)	



```
[root@ip-10-10-0-13:~# prtvtoc /dev/dsk/c1t5d0s0
* /dev/dsk/c1t5d0s0 partition map
*
* Dimensions:
*      512 bytes/sector
*      32 sectors/track
*      64 tracks/cylinder
*    2048 sectors/cylinder
*    1023 cylinders
*    1021 accessible cylinders
*
* Flags:
*    1: unmountable
*   10: read-only
*
*
*          First        Sector       Last
* Partition Tag  Flags    Sector     Count    Sector Mount Directory
*            0          0        204800    204799
*            1          3        204800    524288    729087
*            2          5        2091008   2091007
*            3          2        466944    524288    991231
*            4          4        991232    1099776   2091007
*            8          1        2048      2048      2047
```



Device	Boot	Start	End	Sectors	Size	Id	Type
/dev/xvdf1		2048	196607	194560	95M	83	Linux
/dev/xvdf2		196608	446463	249856	122M	82	Linux swap / Solaris
/dev/xvdf3		446464	946175	499712	244M	83	Linux
/dev/xvdf4		946176	2097151	1150976	562M	83	Linux

[Do you want to write this to disk? [Y]es/[N]o: Y]

The partition table has been altered.

Calling ioctl() to re-read partition table.

Syncing disks.

[[fedora@ip-10-10-0-62 ~]\$ sudo cfdisk /dev/xvdf]

[[fedora@ip-10-10-0-62 ~]\$ lsblk]

NAME	MAJ:MIN	RM	SIZE	R0	TYPE	MOUNTPOINT
xvda	202:0	0	6G	0	disk	
└─xvda1	202:1	0	6G	0	part	/
xvdf	202:80	0	1G	0	disk	
└─xvdf1	202:81	0	95M	0	part	
└─xvdf2	202:82	0	122M	0	part	
└─xvdf3	202:83	0	244M	0	part	
└─xvdf4	202:84	0	562M	0	part	

[fedora@ip-10-10-0-62 ~]\$]

Summary

- Partitions are groupings of cylinder groups into contiguous regions.
- Different partition schemes allow for different numbers and types of partitions. (MBR vs. GPT; *primary* partition vs. *extended* partition, etc.)
- Different OS use different tools / traditional default layout, but the concepts remain the same.
- BIOS partitions are distinct from OS partitions.
- OS partitions describe different regions of the disk and may overlap.
- OS may use partitions to, e.g.:
 - separate user- and system data
 - allow for different file systems
 - allow for different mount flags

Links

File Systems and Storage Models:

<https://www.netmeister.org/book/04-file-systems.pdf>

Disk partitioning:

https://en.wikipedia.org/wiki/Disk_partitioning

Linux Partition HOWTO:

<https://tldp.org/HOWTO/Partition/index.html>

Oracle Solaris 11 System Administration: Administering Storage Devices:

<https://www.informit.com/articles/article.aspx?p=2103810>