

Disk Utilities Commands in Linux

Managing disks and file systems in Linux is crucial for performance and data integrity. In this presentation, we will cover essential disk utilities commands that enable efficient disk management, partitioning, file system maintenance, and data protection.

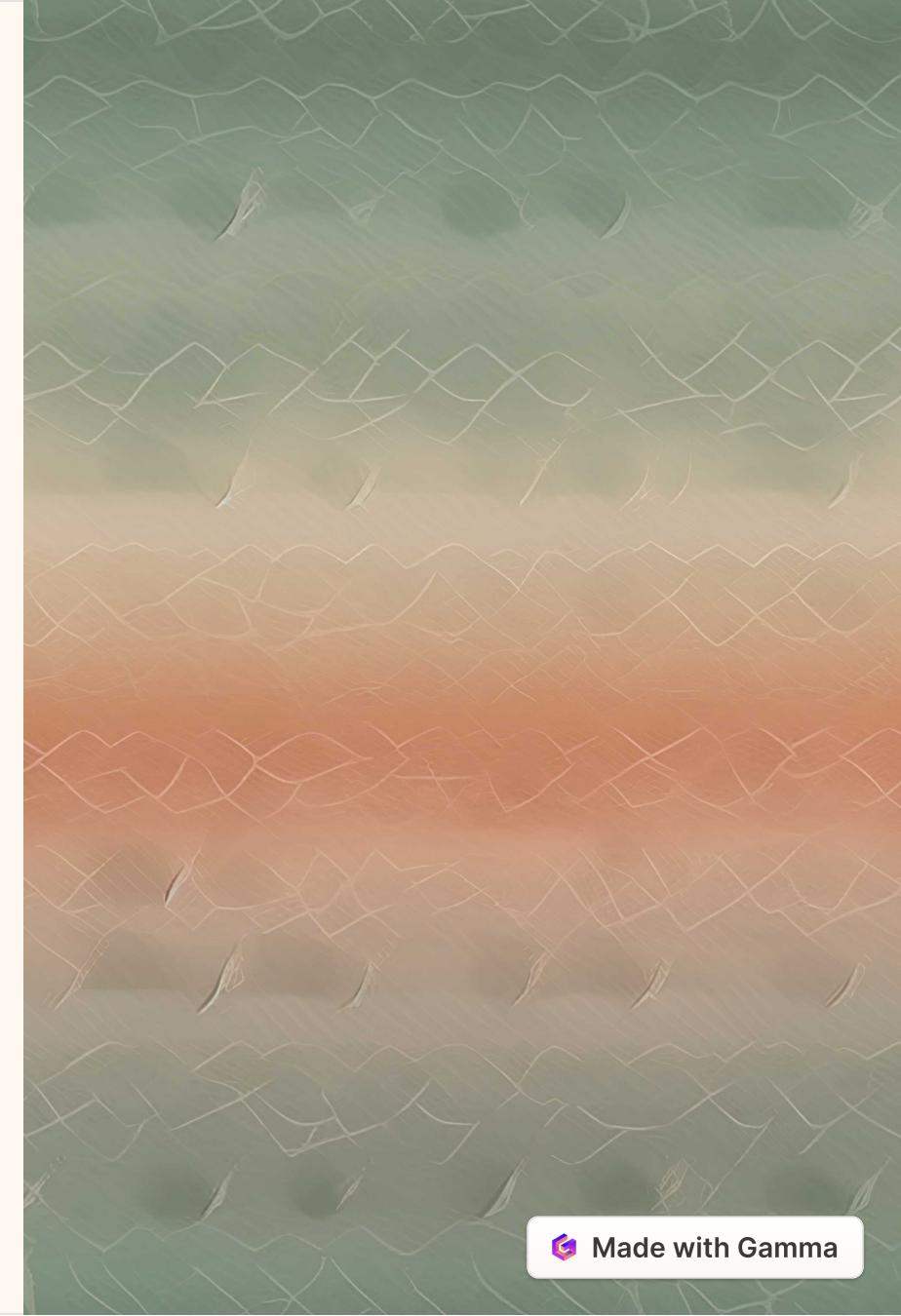
P.Himaswi
21071A7258

```
ayank/Study
ayank/Study/
Study$ ls -l

3 23:20 131026
3 23:22 131026.zip
5 2015 2bba7caff301510c5056f12f
0 04:58 config.bin
8 11:41 Entertainment
9 21:06 Games
9 21:12 Nirav
7 10:36 Programing
9 2014 $RECYCLE.BIN
8 21:08 Sem-1
8 16:19 Sem-2
5 2015 Sem-3
9 08:21 Sem-4
7 18:08 Sem-5
4 2015 Sets.pdf
0 23:02 Side Readings
0 10:42 Software
7 19:29 Sohum Backup
9 2014 System Volume Information
3 07:36 trysht
5 2015 vcredist-MSI_vc_red.msi.txt
Study$ █
```

Introduction to the Importance of Disk Management in Linux

Efficient disk management is crucial for maintaining system performance and data integrity. By utilizing Linux's wide range of disk utilities commands, administrators can perform various tasks related to disks and file systems. This presentation will cover some of the most essential commands.





Agenda

- Disk Information Commands
- Partitioning Commands
- File System Commands
- Mounting and Unmounting Disks
- Logical Volume Management (LVM)
- RAID Configuration
- Disk Maintenance and Monitoring
- Backup and Recovery

```
Xorg      Xtightvnc  Xvnc      Xwayland
open X display. It *is* running, yeah?
IXCreateListener: ...SocketCreateListener() fa...
DTSServerListeners: server already running
sh any listening sockets - Make sure an X server
The X.Org Foundation support
wiki.x.org
eck the log file at "/var/log/Xorg.0.log" for add...
ed with error (1). Closing log file.
IXCreateListener: ...SocketCreateListener() failed
DTSServerListeners: server already running
sh any listening sockets - Make sure an X server is
he X.Org Foundation support
iki.x.org
eck the log file at "/var/log/Xorg.0.log" for addition...
ed with error (1). Closing log file.
d not found
ot found
not found
```

Disk Information Commands

- `df` - Display disk space usage.
 - Syntax: `df [options] [file|directory]`
- `du` - Estimate file and directory space usage.
 - Syntax: `du [options] [file|directory]`
- `lsblk` - List block devices in a tree-like format.
 - Syntax: `lsblk [options]`



```
total 488397168 sectors  
bytes  
es  
ks Id System  
31 de Dell Utility  
63 7 HPFS/NTFS/exFAT  
54 f W95 Ext'd (LBA)  
60 7 HPFS/NTFS/exFAT  
17+ 7 HPFS/NTFS/exFAT  
97+ 7 HPFS/NTFS/exFAT  
37+ 7 HPFS/NTFS/exFAT  
  
total 7866368 sectors  
bytes  
es  
ks Id System  
28 c W95 FAT32 (LBA) u become, the more you are able to hear.
```

Partitioning Commands

- `fdisk` - Manipulate disk partition tables.
 - Syntax: `fdisk [options] device`
- `gdisk` - Interactive GUID partition table (GPT) manipulator.
 - Syntax: `gdisk [options] device`
- `parted` - Create and manage disk partitions.
 - Syntax: `parted [options] device`



File System Commands

- `mkfs` - Create a file system.
 - Syntax: `mkfs [options] device`
- `resize2fs` - Resize an ext2, ext3, or ext4 file system.
 - Syntax: `resize2fs [options] device [size]`
- `fsck` - Check and repair file systems.
 - Syntax: `fsck [options] device`



Mounting and Unmounting Disks

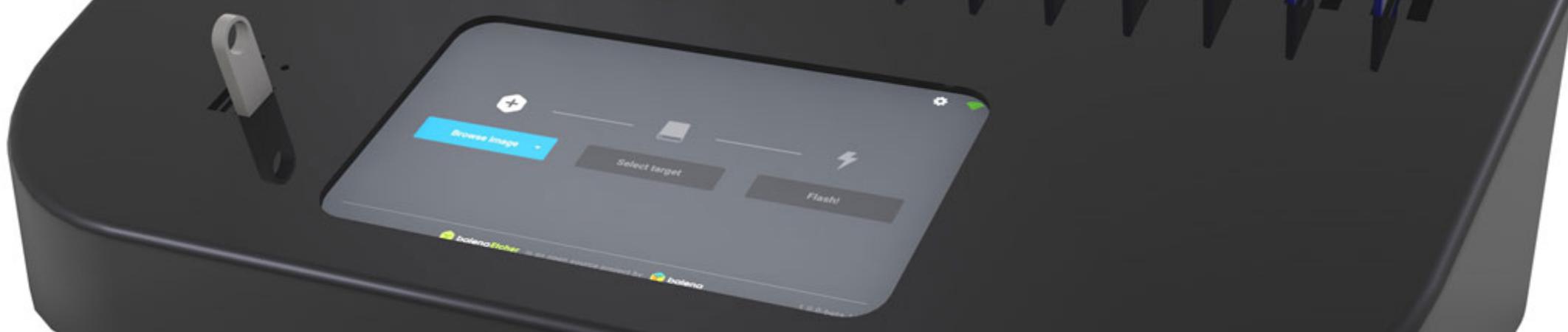
- `mount` - Mount a file system.
 - Syntax: `mount [options] device|directory`
- `umount` - Unmount a file system.
 - Syntax: `umount [options] device|directory`

```
new user: y
: Marquez
:
: (again):
rld
.
. OK, you are logged in.
view
t user [enter = yourself]:
edit
: note 1
 my number one note!
quit
again: y
...
. OK, you are logged in.
> view
t user [enter = yourself]: incal
number one note!
```

Logical Volume Management (LVM)

- `pvcreate` - Create a physical volume.
 - Syntax: `pvcreate [options] device`
- `vgcreate` - Create a volume group.
 - Syntax: `vgcreate [options] vg_name device [device...]`
- `lvcreate` - Create a logical volume.
 - Syntax: `lvcreate [options] vg_name [device...]`
- `lvresize` - Resize a logical volume.
 - Syntax: `lvresize [options] lv_path`





RAID Configuration

RAID is redundant array of independent disks. Different RAID levels, such as RAID 0, RAID 1, have different use cases. mdadm manages software RAID arrays.

- `mdadm` - Manage software RAID arrays.
 - Syntax: `mdadm [options] array devices`

cal

Sa
4
11
18
25

cal -A 2

April 2017							May 2017							
Sa	Su	Mo	Tu	We	Th	Fr	Sa	Su	Mo	Tu	We	Th	Fr	Sa
4					1		1	2	3	4	5			
11	2	3	4	5	6	7	8	7	8	9	10	11	12	1
18	9	10	11	12	13	14	15	14	15	16	17	18	19	2
25	16	17	18	19	20	21	22	21	22	23	24	25	26	2
	23	24	25	26	27	28	29	28	29	30	31			
							30							

cal 2018

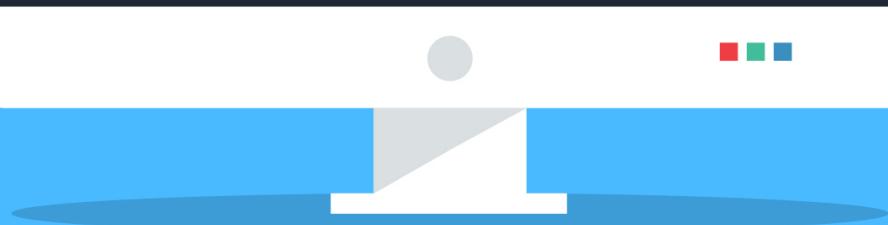
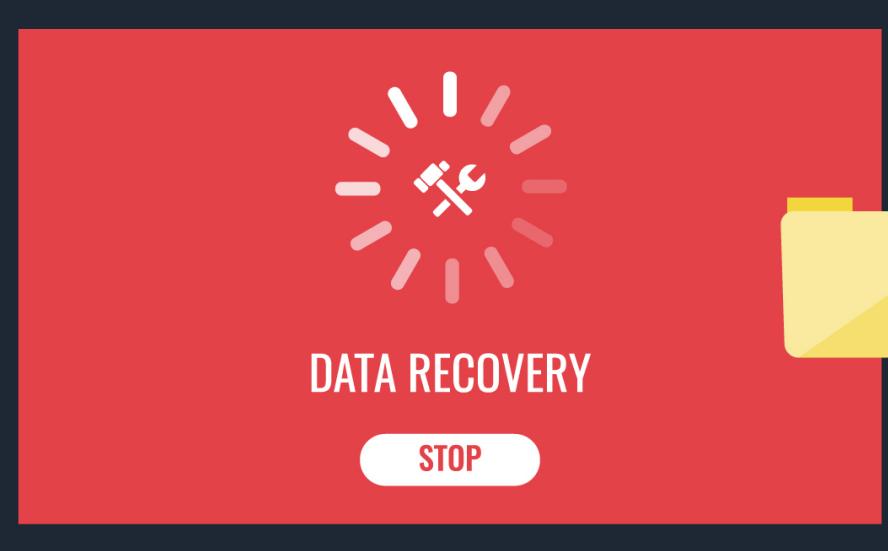
February							March							
Sa	Su	Mo	Tu	We	Th	Fr	Sa	Su	Mo	Tu	We	Th	Fr	Sa
6					1	2	3				1	2		
13	4	5	6	7	8	9	10	4	5	6	7	8	9	1
20	11	12	13	14	15	16	17	11	12	13	14	15	16	1
27	18	19	20	21	22	23	24	18	19	20	21	22	23	2
	25	26	27	28				25	26	27	28	29	30	3

Disk Maintenance and Monitoring

- smartctl - Control and monitor SMART (Self-Monitoring, Analysis, and Reporting Technology) enabled devices.
 - Syntax: `smartctl [options] device`
- iostat - Report CPU and input/output statistics for devices and partitions.
 - Syntax: `iostat [options] [interval [count]]`
- iotop - Monitor I/O usage in real-time.
 - Syntax: `iotop [options]`



DATA RECOVERY



Backup and Recovery

Backing up data is essential in case of system errors or failures. dd copies and converts files. rsync efficiently synchronizes files and directories.

- dd - Copy and convert files.
 - Syntax: dd [options]
- rsync - Efficient file and directory synchronization.
 - Syntax: rsync [options]

Conclusion

Disk utilities commands are essential for Linux system administrators. They enable efficient disk management, partitioning, file system maintenance, and data protection. Understanding these commands is crucial for maintaining system performance and data integrity.

```
led, so not removed
lled, so not removed
alled, so not removed
utomatiquement et ne sont plus nécessaires :
a libatk-wrapper-java libatk-wrapper-java-jni libbonobo2-
mmon libgnomevfs2-0 libgnomevfs2-common libidl-common lib
pour les supprimer.
0 à enlever et 705 non mis à jour.
```

```
.6.0_45-b06)
b01, mixed mode)
ives-- config java
  found
ives --config java
a (qui fournit /usr/bin/java).
```

	Priorité	État

e/jre/bin/java	1074	mode automatique
e/jre/bin/java	1073	mode manuel
e/jre/bin/java	1074	mode manuel
e/jre/bin/java	1072	mode manuel

```
aleur par défaut[*] ou choisissez le numéro sélectionné :
sr/lib/jvm/java-8-oracle/jre/bin/java » pour fournir « /u
```

```
.6.0_45-b06)
b01, mixed mode)
```





Questions and Discussion

Please feel free to ask any questions or share your thoughts.



Thank You!

Thank you for your attention. Please let us know if you have any further questions or comments.

PID	USER	PRI	NI	VIRT	RES	SHR	S	CPU%	MEM%	TIME+	Command
2705	ubuntu	20	0	25820	4808	3060	R	0.0	0.5	0:00.02	htop
1		20	0	37668	5616	3912	S	0.0	0.6	0:02.76	/sbin/init
402		20	0	28352	2648	2348	S	0.0	0.3	0:00.60	/lib/systemd/systemd-journald
441		20	0	94772	1516	1344	S	0.0	0.1	0:00.00	/sbin/lvmetad -f
473		20	0	42812	4328	3092	S	0.0	0.4	0:00.10	/lib/systemd/systemd-udevd
536		20	0	97M	2508	2300	S	0.0	0.2	0:00.00	/lib/systemd/systemd-timesyncd
917		20	0	15996	856	0	S	0.0	0.1	0:00.00	/sbin/dhclient -1 -v -pf /run/dhclient.eth0.pid -lf /var/lib/dhcp/dhclient.eth0.leases -I -df /var/lib/dhcp/dhclient6.eth0.leases eth0
1078		20	0	4396	1268	1180	S	0.0	0.1	0:00.00	/usr/sbin/acpid
1082		20	0	28544	3080	2780	S	0.0	0.3	0:00.02	/lib/systemd/systemd-logind
1100		20	0	157M	1444	1308	S	0.0	0.1	0:00.00	/usr/bin/lxcs /var/lib/lxcs/
1101		20	0	157M	1444	1308	S	0.0	0.1	0:00.00	/usr/bin/lxcs /var/lib/lxcs/
1085		20	0	157M	1444	1308	S	0.0	0.1	0:00.00	/usr/bin/lxcs /var/lib/lxcs/
1088		20	0	26044	2124	1932	S	0.0	0.2	0:00.00	/usr/sbin/atd -f
1089		20	0	42892	3752	3340	S	0.0	0.4	0:00.08	/usr/bin/dbus-daemon --system --address=systemd: --nofork --nrepidfile --systemd-activation
1110		20	0	26068	2524	2268	S	0.0	0.2	0:00.00	/usr/sbin/cron -f
1151		20	0	266M	5828	5164	S	0.0	0.6	0:00.02	/usr/lib/accounts-service/accounts-daemon
1154		20	0	266M	5828	5164	S	0.0	0.6	0:00.00	/usr/lib/accounts-service/accounts-daemon
1113		20	0	266M	5828	5164	S	0.0	0.6	0:00.02	/usr/lib/accounts-service/accounts-daemon
1148		20	0	254M	3312	2844	S	0.0	0.3	0:00.00	/usr/sbin/rsyslogd -n
1149		20	0	254M	3312	2844	S	0.0	0.3	0:00.00	/usr/sbin/rsyslogd -n
1150		20	0	254M	3312	2844	S	0.0	0.3	0:00.00	/usr/sbin/rsyslogd -n
1118		20	0	254M	3312	2844	S	0.0	0.3	0:00.01	/usr/sbin/rsyslogd -n
1140		20	0	5220	116	4	S	0.0	0.0	0:00.02	/sbin/iscsid
1141		10	-10	5720	351	2472	●	0.0	0.0	0:00.00	Linux command line complete tutorial: https://linuxize.com/post/basic-linux-commands/
1158		20	0	13372	160	20	S	0.0	0.0	0:00.00	/sbin/maddm --monitor --pid-file /run/maddm.pid --cpu-cpu --disk-disk --mem-mem
1171		20	0	270M	6008	5340	S	0.0	0.6	0:00.00	/usr/lib/polkit-1/polkitd --no-debug
1173		20	0	270M	6008	5340	S	0.0	0.6	0:00.00	/usr/lib/polkit-1/polkitd --no-debug
1162		20	0	270M	6008	5340	S	0.0	0.6	0:00.00	/usr/lib/polkit-1/polkitd --no-debug
1246		20	0	14656	1808	1680	S	0.0	0.2	0:00.06	/sbin/agetty --noclear tty1 linux
1254		20	0	12840	1812	1680	S	0.0	0.2	0:00.02	/sbin/agetty --keep-baud 115200 38400 9600 tty50 vt220
1279		20	0	65512	5430	4740	●	0.0	0.0	0:00.00	How to monitor disk I/O usage: https://www.cyberciti.biz/hardware/howto-linux-disk-performance-limits-io-performance/
1515		20	0	240M	31152	16736	S	0.0	3.1	0:00.10	/usr/lib/snapd/snapd
1516		20	0	240M	31152	16736	S	0.0	3.1	0:00.00	/usr/lib/snapd/snapd
1517		20	0	240M	31152	16736	S	0.0	3.1	0:00.00	/usr/lib/snapd/snapd
1519		20	0	240M	31152	16736	S	0.0	3.1	0:00.03	/usr/lib/snapd/snapd
1520		20	0	240M	31152	16736	S	0.0	3.1	0:00.01	/usr/lib/snapd/snapd
1521		20	0	240M	31152	16736	S	0.0	3.1	0:00.13	/usr/lib/snapd/snapd
1540		20	0	240M	31152	16736	S	0.0	3.1	0:00.00	/usr/lib/snapd/snapd
1542		20	0	240M	31152	16736	S	0.0	3.1	0:00.01	/usr/lib/snapd/snapd
1550		20	0	240M	31152	16736	S	0.0	3.1	0:00.02	/usr/lib/snapd/snapd
1509		20	0	240M	31152	16736	S	0.0	3.1	0:00.78	/usr/lib/snapd/snapd
1714		20	0	201M	13248	10948	S	0.0	1.3	0:00.05	/snap/amazon-ssm-agent/930/amazon-ssm-agent
1715		20	0	201M	13248	10948	S	0.0	1.3	0:00.00	/snap/amazon-ssm-agent/930/amazon-ssm-agent
1717		20	0	201M	13248	10948	S	0.0	1.3	0:00.01	/snap/amazon-ssm-agent/930/amazon-ssm-agent
1723		20	0	201M	13248	10948	S	0.0	1.3	0:00.01	/snap/amazon-ssm-agent/930/amazon-ssm-agent
1744		20	0	201M	13248	10948	S	0.0	1.3	0:00.00	/snap/amazon-ssm-agent/930/amazon-ssm-agent
1745		20	0	201M	13248	10948	S	0.0	1.3	0:00.00	/snap/amazon-ssm-agent/930/amazon-ssm-agent
1692		20	0	201M	13248	10948	S	0.0	1.3	0:00.73	/snap/amazon-ssm-agent/930/amazon-ssm-agent
1780		20	0	92800	6912	5984	S	0.0	0.7	0:00.00	sshd: ubuntu [priv]
1782	ubuntu	20	0	45148	4736	4028	S	0.0	0.5	0:00.00	/lib/systemd/systemd --user
1785	ubuntu	20	0	61120	1816	0	S	0.0	0.2	0:00.00	(sd-pam)
1842	ubuntu	20	0	92800	3308	2384	S	0.0	0.3	0:00.03	sshd: ubuntu@pts/0
1849	ubuntu	20	0	21420	5376	3404	S	0.0	0.5	0:00.07	-bash
2687	ubuntu	20	0	19556	2924	2680	S	0.0	0.3	0:00.00	tmux