Shell Scripting main Command for day-to-day activities:

--- >> **awk '{print $2}' -- All lines**

Key Differences: If we use this this will show All lines present in that "**Column = 2 "**

Eg:

```
root@ip-172-31-34-57:~# df -h
Filesystem       Size  Used Avail Use% Mounted on
/dev/root         28G  1.8G   26G   7% /
tmpfs            458M     0  458M   0% /dev/shm
tmpfs            183M  892K  182M   1% /run
tmpfs            5.0M     0  5.0M   0% /run/lock
efivarfs         128K  3.6K  120K   3% /sys/firmware/efi/efivars
/dev/nvme0n1p16  881M   79M  741M  10% /boot
/dev/nvme0n1p15  105M  6.1M   99M   6% /boot/efi
tmpfs             92M   12K   92M   1% /run/user/1000
root@ip-172-31-34-57:~# df -h | awk '{print $2}'
Size
28G
458M
183M
5.0M
128K
881M
105M
92M
root@ip-172-31-34-57:~#
```

--- >> **awk 'NR==2{print $5}'** -- Only the 5th line which means **"ROW = 2 and Column = 5"**

```
root@ip-172-31-34-57:~# df -h | awk 'NR==3{print $2}'
458M
root@ip-172-31-34-57:~# df -h
Filesystem       Size  Used Avail Use% Mounted on
/dev/root         28G  1.8G   26G   7% /
tmpfs            458M     0  458M   0% /dev/shm
tmpfs            183M  888K  182M   1% /run
tmpfs            5.0M     0  5.0M   0% /run/lock
efivarfs         128K  3.6K  120K   3% /sys/firmware/efi/efivars
/dev/nvme0n1p16  881M   79M  741M  10% /boot
/dev/nvme0n1p15  105M  6.1M   99M   6% /boot/efi
tmpfs             92M   12K   92M   1% /run/user/1000
root@ip-172-31-34-57:~# df -h | awk 'NR==3{print $2}'
458M
root@ip-172-31-34-57:~# df -h | awk 'NR==3{print $5}'
0%
root@ip-172-31-34-57:~#
```

--- >> **cut** command

This was used to cut down the values: eg :

O/P: 453% if we need only 453 then we need to use

echo "453%" | cut -d "%" -f1 O/P : 453

```
root@ip-172-31-34-57:~# echo "4555.7%" | cut -d"%" -f1
4555.7
root@ip-172-31-34-57:~# echo "4955.7%" | cut -d"%" -f1 | cut -c3
5
root@ip-172-31-34-57:~# echo "4955.7%" | cut -d"%" -f1 | cut -c1
4
root@ip-172-31-34-57:~# echo "4955.7%" | cut -d"%" -f1 | cut -c1-3
495
root@ip-172-31-34-57:~# echo "4955.7%" | cut -d"." -f1
4955
root@ip-172-31-34-57:~# echo "49.55.7%" | cut -d"." -f1
49
root@ip-172-31-34-57:~# echo "49.55.7%" | cut -d"." -f1,3
49.7%
root@ip-172-31-34-57:~# echo "49.55.7%" | cut -d"." -f1,3 |cut -d"%"
cut: you must specify a list of bytes, characters, or fields
Try 'cut --help' for more information.
root@ip-172-31-34-57:~# echo "49.55.7%" | cut -d"." -f1,3 |cut -d"%" -f1
49.7
root@ip-172-31-34-57:~# echo "apple,banana,grape" | cut -d',' -f1,3
apple,grape
root@ip-172-31-34-57:~#
```

>> echo “4555.7” | cut -c1-3 --- O/P is 433 first 3 numbers

- top / htop - Monitor system performance, including CPU, memory, and active processes, in real-time.
- ps / pgrep / pstree - View running processes, find process IDs, and visualize parent-child relationships.
- netstat or ss - Inspect network connections, listening ports, and interface statistics.

  >> sudo ss -tulnp (-t: TCP,-u: UDP,-l: Listening,-n: Show numeric ports/IPs (no DNS resolution),-p to show process names:)

  To show the open ports and running process

```
root@ip-172-31-34-57:~# netstat -tulnp
Active Internet connections (only servers)
Proto Recv-Q Send-Q Local Address           Foreign Address         State       PID/Program name
tcp        0      0 127.0.0.54:53           0.0.0.0:*               LISTEN      326/systemd-resolve
tcp        0      0 127.0.0.53:53           0.0.0.0:*               LISTEN      326/systemd-resolve
tcp        0      0 0.0.0.0:80              0.0.0.0:*               LISTEN      2418/nginx: master
tcp        0      0 127.0.0.1:6010          0.0.0.0:*               LISTEN      1238/sshd: ubuntu@p
tcp6       0      0 ::1:6010                :::*                    LISTEN      1238/sshd: ubuntu@p
tcp6       0      0 :::80                   :::*                    LISTEN      2418/nginx: master
tcp6       0      0 :::22                   :::*                    LISTEN      1/init
udp        0      0 127.0.0.1:323           0.0.0.0:*                           772/chronyd
udp        0      0 127.0.0.54:53           0.0.0.0:*                           326/systemd-resolve
udp        0      0 127.0.0.53:53           0.0.0.0:*                           326/systemd-resolve
udp        0      0 172.31.34.57:68         0.0.0.0:*                           531/systemd-network
udp6       0      0 ::1:323                 :::*                                772/chronyd
root@ip-172-31-34-57:~# ss -tulnp
Netid       State         Recv-Q        Send-Q                Local Address:Port                Peer Address:Port
Process
udp         UNCONN        0             0                        127.0.0.1:323                      0.0.0.0:*
 users:(("chronyd",pid=772,fd=5))
udp         UNCONN        0             0                       127.0.0.54:53                       0.0.0.0:*
 users:(("systemd-resolve",pid=326,fd=16))
udp         UNCONN        0             0                    127.0.0.53%lo:53                       0.0.0.0:*
 users:(("systemd-resolve",pid=326,fd=14))
udp         UNCONN        0             0                172.31.34.57%ens5:68                       0.0.0.0:*
 users:(("systemd-network",pid=531,fd=11))
udp         UNCONN        0             0                          [::1]:323                          [::]:*
 users:(("chronyd",pid=772,fd=6))
tcp         LISTEN        0             4096                    127.0.0.54:53                       0.0.0.0:*
 users:(("systemd-resolve",pid=326,fd=17))
tcp         LISTEN        0             4096                 127.0.0.53%lo:53                       0.0.0.0:*
 users:(("systemd-resolve",pid=326,fd=15))
tcp         LISTEN        0             511                        0.0.0.0:80                       0.0.0.0:*
```

- tcpdump - Capture and analyze network packets to diagnose connectivity issues.

  This will give complete packer information, on how network was flowing in the interface.

  ___>>>> To know the wiresark

- ping / traceroute / mtr - Test network connectivity and trace the path to a remote host.

```
root@ip-172-31-34-57:~# traceroute google.com
traceroute to google.com (142.250.74.142), 30 hops max, 60 byte packets
 1  240.3.96.12 (240.3.96.12)  3.324 ms  3.601 ms 240.3.96.15 (240.3.96.15)  3.318 ms
 2  * * 242.8.132.7 (242.8.132.7)  3.142 ms
 3  * * *
 4  173.194.124.194 (173.194.124.194)  3.078 ms  3.065 ms  3.051 ms
 5  142.250.236.117 (142.250.236.117)  3.617 ms  3.583 ms  3.567 ms
 6  142.251.48.45 (142.251.48.45)  3.556 ms 142.251.48.43 (142.251.48.43)  3.336 ms 142.251.48.45 (142.251.48.45)  3.580 ms
 7  arn11s11-in-f14.1e100.net (142.250.74.142)  3.072 ms  3.133 ms  3.087 ms
root@ip-172-31-34-57:~# ping google.com
PING google.com (142.250.74.142) 56(84) bytes of data.
64 bytes from arn11s11-in-f14.1e100.net (142.250.74.142): icmp_seq=1 ttl=115 time=3.11 ms
64 bytes from arn11s11-in-f14.1e100.net (142.250.74.142): icmp_seq=2 ttl=115 time=3.14 ms
64 bytes from arn11s11-in-f14.1e100.net (142.250.74.142): icmp_seq=3 ttl=115 time=3.14 ms
64 bytes from arn11s11-in-f14.1e100.net (142.250.74.142): icmp_seq=4 ttl=115 time=3.14 ms
^C
--- google.com ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 3004ms
rtt min/avg/max/mdev = 3.112/3.134/3.143/0.012 ms
root@ip-172-31-34-57:~#
```

- df / du - Check disk space usage and find large directories or files.

  >> du -sh /opt to know mount of particular folder.

- free / vmstat - Monitor memory usage and view virtual memory statistics.
- journalctl - Access system logs managed by systemd to troubleshoot service issues.
- lsof - Identify open files and the processes that opened them.
- tail / less / grep - Inspect and filter log files to find errors or specific patterns