

1. OpenStack nedir ve hangi temel bileşenlerden oluşur?

Openstack ,büyük ve esnek bir altyapı sunmak için modüler yapıda geliştirilmiş güçlü bir bulut platformudur.

Temel bileşenleri ; Nova , Neutron , Keystone , Glance gibi bileşenler içerir.

2. Docker nedir ve geleneksel sanallaştırmadan farkları nelerdir?

Docker, uygulamaları ve bağımlılıklarını birlikte paketleyip konteynerlerde çalıştırmaya yarayan, hafif ve taşınabilir bir konteyner platformudur.

Docker, uygulamaları izole konteynerlerde çalıştırarak geleneksel sanallaştırmaya göre daha hızlı, hafif ve taşınabilir bir çözüm sunar.

3. Linux işletim sisteminin temel mimarisi nedir?

Çekirdek (Kernel), Donanım Katmanı, Sistem Çağrılar ve Kütüphaneler, Kullanıcı Alanı.

4. CentOS sisteminde hangi sürümü kullandığınızı gösteren komutu çalıştırın ve ekran görüntüsünü alın.

```
serhatakca@Redhat-Linux:~$ hostnamectl
Static hostname: Redhat-Linux
Icon name: computer-vm
Chassis: vm 🖥️
Machine ID: b0847fc80fb44788b90c6663698f3e4b
Boot ID: e78b7f8539f149a0b84aeeded6229ab9
Virtualization: oracle
Operating System: Red Hat Enterprise Linux 10.0 (Coughlan)
CPE OS Name: cpe:/o:redhat:enterprise_linux:10::baseos
Kernel: Linux 6.12.0-55.9.1.el10_0.x86_64
Architecture: x86-64
Hardware Vendor: innotek GmbH
Hardware Model: VirtualBox
Firmware Version: VirtualBox
Firmware Date: Fri 2006-12-01
Firmware Age: 18y 7month 2w 6d
```

5. Sisteminizdeki CPU, RAM ve disk bilgilerini gösteren komutları çalıştırın.

CPU

```
serhatakca@Redhat-Linux:~$ lscpu
Architecture:          x86_64
CPU op-mode(s):        32-bit, 64-bit
Address sizes:          39 bits physical, 48 bits virtual
Byte Order:             Little Endian
CPU(s):                 2
  On-line CPU(s) list:  0,1
Vendor ID:              GenuineIntel
Model name:             11th Gen Intel(R) Core(TM) i5-11400H @ 2.70GHz
CPU family:             6
Model:                  141
Thread(s) per core:     1
Core(s) per socket:     2
Socket(s):              1
Stepping:               1
BogoMIPS:               5376.00
Flags:                  fpu vme de pse tsc msr pae mce cx8 apic sep mtrr pge mca cmov pat pse36 clflush mmx fxsr
                        sse sse2 ht syscall nx rdtscp lm constant_tsc rep_good nopl xtopology nonstop_tsc cpuid t
                        sc_known_freq pni pclmulqdq ssse3 fma cx16 pcid sse4_1 sse4_2 x2apic movbe popcnt aes xsa
                        ve avx fl6c rdrand hypervisor lahf_lm abm 3dnowprefetch pti fsgsbase bmi1 avx2 bmi2 invpc
                        id rdseed adx clflushopt sha_ni arat md_clear flush_lld arch_capabilities

Virtualization features:
  Hypervisor vendor:    KVM
  Virtualization type:  full
Caches (sum of all):
  L1d:                  96 KiB (2 instances)
  L1i:                  64 KiB (2 instances)
  L2:                   2.5 MiB (2 instances)
  L3:                   24 MiB (2 instances)

Virtualization features:
  Hypervisor vendor:    KVM
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  L1d:                  96 KiB (2 instances)
  L1i:                  64 KiB (2 instances)
  L2:                   2.5 MiB (2 instances)
  L3:                   24 MiB (2 instances)
NUMA:
  NUMA node(s):         1
  NUMA node0 CPU(s):    0,1
Vulnerabilities:
  Gather data sampling:  Unknown: Dependent on hypervisor status
  Itlb multihit:         KVM: Mitigation: VMX unsupported
  L1tf:                  Mitigation; PTE Inversion
  Mds:                   Mitigation; Clear CPU buffers; SMT Host state unknown
  Meltdown:              Mitigation; PTI
  Mmio stale data:       Not affected
  Reg file data sampling: Not affected
  Retbleed:              Not affected
  Spec rstack overflow:  Not affected
  Spec store bypass:     Vulnerable
  Spectre v1:            Mitigation; usercopy/swapgs barriers and __user pointer sanitization
  Spectre v2:            Mitigation; Retpolines; STIBP disabled; RSB filling; PBRSB-eIBRS Not affected; BHI Retpol
                        ine
  Srbds:                 Not affected
  Tsx async abort:       Not affected
```

RAM

```
serhatakca@Redhat-Linux:~$ free -h
```

	total	used	free	shared	buff/cache	available
Mem:	2.0Gi	1.1Gi	229Mi	14Mi	801Mi	873Mi
Swap:	2.0Gi	0B	2.0Gi			

DISK

```
serhatakca@Redhat-Linux:~$ lsblk
NAME                                MAJ:MIN RM  SIZE RO TYPE MOUNTPOINTS
sda                                  8:0    0   20G  0 disk
├─sda1                               8:1    0    1M  0 part
├─sda2                               8:2    0    1G  0 part /boot
├─sda3                               8:3    0   19G  0 part
│   ├─rhel_vbox-root                 253:0    0   17G  0 lvm  /
│   └─rhel_vbox-swap                 253:1    0    2G  0 lvm  [SWAP]
sr0                                  11:0    1 1024M  0 rom
```

6. testuser1 adında bir kullanıcı oluşturun ve home dizinini kontrol edin.

```
serhatakca@Redhat-Linux:~$ sudo useradd testuser1
[sudo] password for serhatakca:
serhatakca@Redhat-Linux:~$ ls -ld /home/testuser1
drwx-----. 3 testuser1 testuser1 78 Jul 22 03:29 /home/testuser1
serhatakca@Redhat-Linux:~$
```

7. testuser1 kullanıcısının şifresini değiştirin ve kullanıcı bilgilerini görüntüleyin.

```
serhatakca@Redhat-Linux:~$ sudo passwd testuser1
New password:
Retype new password:
passwd: password updated successfully
serhatakca@Redhat-Linux:~$ id testuser1
uid=1004(testuser1) gid=1004(testuser1) groups=1004(testuser1)
```

8. developers adında bir grup oluşturun ve testuser1'i bu gruba ekleyin.

```
serhatakca@Redhat-Linux:~$ sudo groupadd developers
serhatakca@Redhat-Linux:~$ sudo usermod -aG developers testuser1
serhatakca@Redhat-Linux:~$ groups testuser1
testuser1 : testuser1 developers
serhatakca@Redhat-Linux:~$
```

9. testuser2 kullanıcısını oluştururken doğrudan developers grubuna dahil edin.

```
serhatakca@Redhat-Linux:~$ sudo useradd -G developers testuser2
serhatakca@Redhat-Linux:~$ groups testuser2
testuser2 : testuser2 developers
serhatakca@Redhat-Linux:~$
```

10. Sistemdeki tüm kullanıcıları ve grupları listeleyin.

KULLANICI

```
serhatakca@Redhat-Linux:~$ cat /etc/passwd
root:x:0:0:Super User:/root:/bin/bash
bin:x:1:1:bin:/bin:/usr/sbin/nologin
daemon:x:2:2:daemon:/sbin:/usr/sbin/nologin
adm:x:3:4:adm:/var/adm:/usr/sbin/nologin
lp:x:4:7:lp:/var/spool/lpd:/usr/sbin/nologin
sync:x:5:0:sync:/sbin:/bin/sync
shutdown:x:6:0:shutdown:/sbin:/sbin/shutdown
halt:x:7:0:halt:/sbin:/sbin/halt
mail:x:8:12:mail:/var/spool/mail:/usr/sbin/nologin
operator:x:11:0:operator:/root:/usr/sbin/nologin
games:x:12:100:games:/usr/games:/usr/sbin/nologin
ftp:x:14:50:FTP User:/var/ftp:/usr/sbin/nologin
nobody:x:65534:65534:Kernel Overflow User:/usr/sbin/nologin
dbus:x:81:81:System Message Bus:/usr/sbin/nologin
yggdrasil:x:999:999:yggdrasil system user:/var/lib/yggdrasil:/usr/sbin/nologin
yggdrasil-worker:x:998:998:yggdrasil worker user:/usr/sbin/nologin
tss:x:59:59:Account used for TPM access:/usr/sbin/nologin
avahi:x:70:70:Avahi mDNS/DNS-SD Stack:/var/run/avahi-daemon:/sbin/nologin
systemd-oom:x:997:996:systemd Userspace OOM Killer:/sbin/nologin
polkitd:x:114:114>User for polkitd:/sbin/nologin
rtkit:x:172:172:RealtimeKit:/sbin/nologin
pipewire:x:996:994:PipeWire System Daemon:/run/pipewire:/usr/sbin/nologin
geoclue:x:995:993>User for geoclue:/var/lib/geoclue:/sbin/nologin
clevis:x:994:992:Clevis Decryption Framework unprivileged user:/var/cache/clevis:/usr/sbin/nologin
sssd:x:993:991>User for sssd:/run/sss:/sbin/nologin
gnome-remote-desktop:x:990:990:GNOME Remote Desktop:/var/lib/gnome-remote-desktop:/usr/sbin/nologin
libstoragemgmt:x:989:989:daemon account for libstoragemgmt:/usr/sbin/nologin
systemd-coredump:x:988:988:systemd Core Dumper:/usr/sbin/nologin
wsdd:x:987:986:Web Services Dynamic Discovery host daemon:/sbin/nologin
colord:x:986:985>User for colord:/var/lib/colord:/sbin/nologin
setroubleshoot:x:985:984:SELinux troubleshoot server:/var/lib/setroubleshoot:/usr/sbin/nologin
flatpak:x:984:983:Flatpak system helper:/usr/sbin/nologin
gdm:x:42:42:GNOME Display Manager:/var/lib/gdm:/usr/sbin/nologin
gnome-initial-setup:x:983:982:run/gnome-initial-setup:/sbin/nologin
sshd:x:74:74:Privilege-separated SSH:/usr/share/empty.sshd:/usr/sbin/nologin
chrony:x:982:981:chrony system user:/var/lib/chrony:/sbin/nologin
dnsmasq:x:981:980:Dnsmasq DHCP and DNS server:/var/lib/dnsmasq:/usr/sbin/nologin
tcpdump:x:72:72:tcpdump:/usr/sbin/nologin
serhatakca:x:1000:1000:serhatakca:/home/serhatakca:/bin/bash
spiderman:x:1001:1001:/home/spiderman:/bin/bash
ironman:x:1002:1002:Ironman Character:/home/ironman:/bin/bash
babubutt:x:1003:1003:/home/babubutt:/bin/bash
testuser1:x:1004:1004:/home/testuser1:/bin/bash
testuser2:x:1005:1006:/home/testuser2:/bin/bash
```

GRUP

```
serhatakca@Redhat-Linux:~$ cat /etc/group
```

```
root:x:0:
```

```
bin:x:1:
```

```
daemon:x:2:
```

```
sys:x:3:
```

```
adm:x:4:
```

```
tty:x:5:
```

```
disk:x:6:
```

```
lp:x:7:
```

```
mem:x:8:
```

```
kmem:x:9:
```

```
wheel:x:10:serhatakca
```

```
cdrom:x:11:
```

```
mail:x:12:
```

```
man:x:15:
```

```
dialout:x:18:
```

```
floppy:x:19:
```

```
games:x:20:
```

```
tape:x:33:
```

```
video:x:39:
```

```
ftp:x:50:
```

```
lock:x:54:
```

```
audio:x:63:
```

```
users:x:100:
```

```
nobody:x:65534:
```

```
dbus:x:81:
```

utempter:x:35:
yggdrasil:x:999:
yggdrasil-worker:x:998:yggdrasil
rhsm:x:997:yggdrasil
tss:x:59:clevis
avahi:x:70:
systemd-oom:x:996:
input:x:104:
kvm:x:36:
render:x:105:
sgx:x:106:
systemd-journal:x:190:
polkitd:x:114:
printadmin:x:995:
rtkit:x:172:
pipewire:x:994:
geoclue:x:993:
clevis:x:992:
sssd:x:991:
gnome-remote-desktop:x:990:
libstoragemgmt:x:989:
systemd-coredump:x:988:
brlapi:x:987:
wsdd:x:986:
colord:x:985:
setroubleshoot:x:984:
flatpak:x:983:
gdm:x:42:

gnome-initial-setup:x:982:
sshd:x:74:
chrony:x:981:
dnsmasq:x:980:
tcpdump:x:72:
plocate:x:979:
serhatakca:x:1000:
superheros:x:1002:spiderman
spiderman:x:1001:
babubutt:x:1003:
testuser1:x:1004:
developers:x:1005:testuser1,testuser2
testuser2:x:1006:

11. testuser1'in hangi gruplarda olduğunu kontrol edin.

```
serhatakca@Redhat-Linux:~$ groups testuser1
testuser1 : testuser1 developers
```

12. /home/testuser1 dizininin sahibini ve grup bilgilerini görüntüleyin.

```
serhatakca@Redhat-Linux:~$ ls -ld /home/testuser1
drwx-----. 3 testuser1 testuser1 78 Jul 22 03:29 /home/testuser1
```

Alternatif olarak “stat /home/testuser1” komutu da kullanılabilir.

13. testuser1 kullanıcıasını geçici olarak devre dışı bırakın (lock).

```
serhatakca@Redhat-Linux:~$ sudo usermod -L testuser1
serhatakca@Redhat-Linux:~$ sudo passwd -S testuser1
testuser1 L 2025-07-22 0 99999 7 -1
```

L : burada kitli olduğunu gösterir.

14. testuser1 kullanıcıasını tekrar aktif hale getirin (unlock).

```
serhatakca@Redhat-Linux:~$ sudo usermod -U testuser1
serhatakca@Redhat-Linux:~$ sudo passwd -S testuser1
testuser1 P 2025-07-22 0 99999 7 -1
```

P : aktif olduğunu (password set) gösterir.

15. Son giriş yapan kullanıcıları ve giriş zamanlarını görüntüleyin.

```
serhatakca@Redhat-Linux:~$ last
serhatak tty2          tty2          Tue Jul 22 03:16      still logged in
serhatak seat0         login screen  Tue Jul 22 03:16      still logged in
reboot system boot    6.12.0-55.9.1.el Tue Jul 22 03:16      still running
serhatak tty2          tty2          Tue Jul 22 03:09 -    crash (00:06)
serhatak seat0         login screen  Tue Jul 22 03:09 -    crash (00:06)
reboot system boot    6.12.0-55.9.1.el Tue Jul 22 03:08      still running
serhatak pts/1         192.168.1.77 Mon Jul 21 06:37 -    crash (20:31)
serhatak tty2          tty2          Mon Jul 21 06:36 -    crash (20:32)
serhatak seat0         login screen  Mon Jul 21 06:36 -    crash (20:32)
reboot system boot    6.12.0-55.9.1.el Mon Jul 21 06:36      still running
serhatak tty2          tty2          Fri Jul 18 08:37 -    crash (2+21:58)
serhatak seat0         login screen  Fri Jul 18 08:37 -    crash (2+21:58)
reboot system boot    6.12.0-55.9.1.el Fri Jul 18 08:37      still running
serhatak tty2          tty2          Thu Jul 17 06:40 -    crash (1+01:56)
serhatak seat0         login screen  Thu Jul 17 06:40 -    crash (1+01:56)
reboot system boot    6.12.0-55.9.1.el Thu Jul 17 06:40      still running
serhatak pts/1         192.168.1.77 Thu Jul 17 05:56 -    06:40 (00:43)
serhatak tty2          tty2          Thu Jul 17 05:56 -    down (00:43)
serhatak seat0         login screen  Thu Jul 17 05:56 -    down (00:43)
reboot system boot    6.12.0-55.9.1.el Thu Jul 17 05:55 -    06:40 (00:44)
serhatak pts/1         192.168.1.77 Wed Jul 16 09:42 -    10:08 (00:26)
serhatak pts/1         192.168.1.77 Wed Jul 16 09:38 -    09:39 (00:00)
serhatak pts/1         192.168.1.77 Wed Jul 16 09:31 -    09:31 (00:00)
serhatak pts/1         192.168.1.77 Wed Jul 16 07:05 -    09:29 (02:23)
serhatak tty2          tty2          Wed Jul 16 06:29 -    crash (23:26)
serhatak seat0         login screen  Wed Jul 16 06:29 -    crash (23:26)
reboot system boot    6.12.0-55.9.1.el Wed Jul 16 06:29 -    crash (23:26)
serhatak tty2          tty2          Mon Jul 14 07:54 -    crash (1+22:34)

serhatak seat0         login screen  Thu Jul 10 02:26 -    crash (1+05:42)
reboot system boot    6.12.0-55.9.1.el Thu Jul 10 02:26 -    crash (1+05:42)
serhatak tty2          tty2          Mon Jul 7 02:11 -    crash (3+00:15)
serhatak seat0         login screen  Mon Jul 7 02:11 -    crash (3+00:15)
reboot system boot    6.12.0-55.9.1.el Mon Jul 7 02:10 -    crash (3+00:16)
serhatak tty2          tty2          Fri Jul 4 08:13 -    crash (2+17:57)
serhatak seat0         login screen  Fri Jul 4 08:13 -    crash (2+17:57)
reboot system boot    6.12.0-55.9.1.el Fri Jul 4 08:12 -    crash (2+17:58)
serhatak tty2          tty2          Fri Jul 4 08:03 -    crash (00:09)
serhatak seat0         login screen  Fri Jul 4 08:03 -    crash (00:09)
reboot system boot    6.12.0-55.9.1.el Fri Jul 4 08:02 -    crash (00:10)
serhatak tty2          tty2          Fri Jul 4 07:49 -    crash (00:12)
serhatak seat0         login screen  Fri Jul 4 07:49 -    crash (00:12)
reboot system boot    6.12.0-55.9.1.el Fri Jul 4 07:48 -    crash (00:13)
serhatak tty2          tty2          Fri Jul 4 07:31 -    crash (00:17)
serhatak seat0         login screen  Fri Jul 4 07:31 -    crash (00:17)
reboot system boot    6.12.0-55.9.1.el Fri Jul 4 07:29 -    crash (00:19)
serhatak tty2          tty2          Fri Jul 4 07:07 -    crash (00:21)
serhatak seat0         login screen  Fri Jul 4 07:07 -    crash (00:21)
reboot system boot    6.12.0-55.9.1.el Fri Jul 4 07:07 -    crash (00:21)
serhatak tty2          tty2          Fri Jul 4 06:58 -    crash (00:08)
serhatak seat0         login screen  Fri Jul 4 06:58 -    crash (00:08)
reboot system boot    6.12.0-55.9.1.el Fri Jul 4 06:57 -    crash (00:09)
serhatak tty2          tty2          Thu Jul 3 09:17 -    crash (21:39)
serhatak seat0         login screen  Thu Jul 3 09:17 -    crash (21:39)
reboot system boot    6.12.0-55.9.1.el Thu Jul 3 09:17 -    crash (21:40)
```

16. /opt/testproject dizinini oluşturun ve sahipliğini developers grubuna verin.


```
serhatakca@Redhat-Linux:~$ sudo mkdir /opt/testproject
serhatakca@Redhat-Linux:~$ sudo chown :developers /opt/testproject
serhatakca@Redhat-Linux:~$ ls -ld /opt/testproject
drwxr-xr-x. 2 root developers 6 Jul 22 03:59 /opt/testproject
```

Buradaki : işareti, sadece **grup sahipliğini** değiştirdiğini belirtir (kullanıcı sahipliğini değiştirmez).

17. Bu dizine sadece grup üyelerinin yazma iznini verin (755 izinleri).

```
serhatakca@Redhat-Linux:~$ sudo chmod 755 /opt/testproject
serhatakca@Redhat-Linux:~$ ls -ld /opt/testproject
drwxr-xr-x. 2 root developers 6 Jul 22 03:59 /opt/testproject
```

18. /opt/testproject içinde config.txt dosyası oluşturun.

```
serhatakca@Redhat-Linux:~$ sudo touch /opt/testproject/config.txt
[sudo] password for serhatakca:
serhatakca@Redhat-Linux:~$ ls -l /opt/testproject
total 0
-rw-r--r--. 1 root root 0 Jul 22 04:10 config.txt
```

19. config.txt dosyasının izinlerini sadece sahibinin okuma-yazma yapabilmesi için ayarlayın.

```
serhatakca@Redhat-Linux:~$ sudo chmod 600 /opt/testproject/config.txt
serhatakca@Redhat-Linux:~$ ls -l /opt/testproject/config.txt
-rw-----. 1 root root 0 Jul 22 04:10 /opt/testproject/config.txt
```

20. /opt/testproject dizininde logs alt dizini oluşturun.

```
serhatakca@Redhat-Linux:~$ sudo mkdir /opt/testproject/logs
serhatakca@Redhat-Linux:~$ ls -l /opt/testproject
total 0
-rw-----. 1 root root 0 Jul 22 04:10 config.txt
drwxr-xr-x. 2 root root 6 Jul 22 04:16 logs
```

sudo kullanımı gereklidir çünkü /opt dizini sistem dizinidir ve yazma yetkisi yönetici kullanıcıdadır.

21. logs dizinine sticky bit uygulayın.

Sticky bit, bir dizin altındaki dosyaların sadece sahibi veya root tarafından silinmesini sağlar.

Genellikle /tmp dizininde kullanılır.

```
serhatakca@Redhat-Linux:~$ sudo chmod +t /opt/testproject/logs
serhatakca@Redhat-Linux:~$ ls -ld /opt/testproject/logs
drwxr-xr-t. 2 root root 6 Jul 22 04:16 /opt/testproject/logs
```

Son harf `t` → sticky bit aktif

22. /opt/testproject/logs dizinindeki dosyaların varsayılan grup sahipliğini developers olarak ayarlayın (SGID).

```
serhatakca@Redhat-Linux:~$ sudo chmod g+s /opt/testproject/logs
serhatakca@Redhat-Linux:~$ sudo chown :developers /opt/testproject/logs
serhatakca@Redhat-Linux:~$ ls -ld /opt/testproject/logs
drwxr-sr-t. 2 root developers 6 Jul 22 04:16 /opt/testproject/logs
```

Ortadaki `s` → grup için SGID bitinin aktif olduğunu gösterir.

23. Find komutu kullanarak sistem genelinde developers grubuna ait dosyaları bulun.

```
serhatakca@Redhat-Linux:~$ sudo find / -group developers
find: '/proc/5246/task/5246/fd/6': No such file or directory
find: '/proc/5246/task/5246/fdinfo/6': No such file or directory
find: '/proc/5246/fd/5': No such file or directory
find: '/proc/5246/fdinfo/5': No such file or directory
find: '/run/user/1000/gvfs': Permission denied
find: '/run/user/1000/doc': Permission denied
/opt/testproject
/opt/testproject/logs
```

24. /opt/testproject dizinindeki dosya ve klasörlerin izinlerini recursive olarak listeleyin.

```
serhatakca@Redhat-Linux:~$ ls -lR /opt/testproject
/opt/testproject:
total 0
-rw-----. 1 root root      0 Jul 22 04:10 config.txt
drwxr-sr-t. 2 root developers 6 Jul 22 04:16 logs

/opt/testproject/logs:
total 0
. . . . .
```

25. Sistemde 777 iznine sahip dosyaları bulun.

```
serhatakca@Redhat-Linux:~$ sudo find / -type f -perm 0777 2>/dev/null
serhatakca@Redhat-Linux:~$
```

Hiçbir şey çıkmadı, sistemimde 777 izni verilmiş dosya yok . Bu aslında iyi bir şey çünkü:

777 izni güvenlik açığı oluşturabilir. Özellikle web sunucularında ve ortak sistemlerde bu tip dosyalar zararlı olabilir.

26. /opt/testproject dizininin toplam boyutunu hesaplayın.

```
serhatakca@Redhat-Linux:~$ sudo du -sh /opt/testproject
0      /opt/testproject
```

27. Son 24 saatte değiştirilmiş dosyaları /opt/testproject altında bulun.

```
serhatakca@Redhat-Linux:~$ sudo find /opt/testproject -type f -mtime -1
/opt/testproject/config.txt
```

28. Boş dosyaları sistemde bulun ve listeleyin.

```
serhatakca@Redhat-Linux:~$ sudo find / -type f -empty 2>/dev/null
```

```
/home/serhatakca/.mozilla/firefox/trlyqfuv.default-default/places.sqlite-wal
/home/serhatakca/.mozilla/firefox/trlyqfuv.default-default/webappsstore.sqlite-wal
/home/serhatakca/.cache/mesa_shader_cache_db/marker
/home/serhatakca/.cache/gnome-calculator/rms_five.xls
/home/serhatakca/.cache/gnome-calculator/eurofxref-daily.xml
/home/serhatakca/.cache/gnome-calculator/fxtwdcad.xml
/home/serhatakca/.cache/gnome-calculator/un-daily.xls
/home/serhatakca/.cache/rhsm/rhsm.log
/home/serhatakca/.cache/mozilla/firefox/trlyqfuv.default-default/cache2/ce_T151c2VyQ29udGV4dElkPTUs
/home/serhatakca/.cache/mozilla/firefox/trlyqfuv.default-default/cache2/ce_T151c2VyQ29udGV4dElkPTUsYSw=
/home/serhatakca/.config/.gsd-keyboard.settings-ported
/home/serhatakca/.config/enchant/en_US.dic
/home/serhatakca/.config/enchant/en_US.exc
/home/serhatakca/.local/share/gnome-shell/update-check-47
/home/serhatakca/.local/share/flatpak/.changed
/home/serhatakca/.local/share/gnome-settings-daemon/input-sources-converted
/home/serhatakca/.local/share/containers/storage/overlay-containers/containers.lock
/home/serhatakca/.local/share/containers/storage/userns.lock
/home/serhatakca/.local/share/containers/storage/overlay-images/images.lock
/home/serhatakca/.local/share/containers/storage/networks/netavark.lock
/home/serhatakca/.local/share/containers/storage/overlay-layers/layers.lock
/home/serhatakca/config/a.com
/home/serhatakca/config/b.com
/home/serhatakca/config/c.com
/opt/testproject/config.txt
/allinone/serhat/a
/allinone/serhat/b
/allinone/serhat/c
```

29. /opt/testproject için hard link ve symbolic link örnekleri oluşturun.

SYMBOLİC LINK

```
serhatakca@Redhat-Linux:~$ sudo ln -s /opt/testproject/config.txt /opt/testproject/config_symlink.txt
```

HARD LINK

```
serhatakca@Redhat-Linux:~$ sudo ln -s /opt/testproject/config.txt /opt/testproject/config_hardlink.txt
```

30. Oluşturduğunuz linklerin özelliklerini kontrol edin ve farkları gösterin.

```
serhatakca@Redhat-Linux:~$ ls -li /opt/testproject
total 0
51378262 lrwxrwxrwx. 1 root root      27 Jul 22 04:49 config_hardlink.txt -> /opt/testproject/config.txt
51378260 lrwxrwxrwx. 1 root root      27 Jul 22 04:48 config_symlink.txt -> /opt/testproject/config.txt
51378261 -rw-----. 1 root root          0 Jul 22 04:10 config.txt
2188815 drwxr-sr-t. 2 root developers 6 Jul 22 04:16 logs
```

Hard Link:

config_hardlink.txt ve config.txt aynı inode'a sahip → yani aynı dosyanın iki ismi.

Biri silinirse diğeri varlığını ve içeriğini korur.

Symbolic Link:

config_symlink.txt sadece config.txt'ye giden bir yönlendirme.

config.txt silinirse, config_symlink.txt boş bir göstergeye dönüşür (kırık link olur).

31. Sistemde çalışan tüm süreçleri detaylı olarak listeleyin.

libstor+	834	0.0	0.0	2504	1468 ?	Ss	03:16	0:00	/usr/bin/lsmc -d
root	835	0.0	0.0	3096	1508 ?	Ss	03:16	0:00	/usr/sbin/mcelog --daemon --foreground
polkitd	836	0.0	0.4	382516	9548 ?	Ssl	03:16	0:00	/usr/lib/polkit-1/polkitd --no-debug --log-level
rtkit	837	0.0	0.1	21320	2608 ?	SNsl	03:16	0:00	/usr/libexec/rtkit-daemon
root	838	0.0	0.3	530216	6704 ?	Ssl	03:16	0:00	/usr/libexec/accounts-daemon
root	839	0.0	0.2	527740	4724 ?	Ssl	03:16	0:00	/usr/libexec/switcheroo-control
root	840	0.0	0.4	18436	8572 ?	Ss	03:16	0:00	/usr/lib/systemd/systemd-logind
root	842	0.0	0.5	541888	11364 ?	Ssl	03:16	0:00	/usr/libexec/udisks2/udisksd
root	843	0.0	0.3	530600	6552 ?	Ssl	03:16	0:00	/usr/libexec/upowerd
avahi	850	0.0	0.0	6144	1328 ?	S	03:16	0:00	avahi-daemon: chroot helper
chrony	859	0.0	0.1	84336	2916 ?	S	03:16	0:00	/usr/sbin/chronyd -F 2
root	876	0.0	0.1	4292	2300 ?	SNs	03:16	0:00	/usr/sbin/alsactl -s -n 19 -c -E ALSA_CONFIG_PAT
root	906	0.0	0.5	390028	10672 ?	Ssl	03:16	0:00	/usr/sbin/ModemManager
root	919	0.0	0.4	252044	8472 ?	Ss	03:16	0:00	/usr/sbin/cupsd -l
root	921	0.0	0.2	8068	4692 ?	Ss	03:16	0:00	sshd: /usr/sbin/sshd -D [listener] 0 of 10-100 s
root	922	0.0	0.0	302536	1688 ?	Ssl	03:16	0:00	/usr/bin/rhsmcertd
root	925	0.0	1.3	488216	27936 ?	Ssl	03:16	0:00	/usr/bin/python3 -Es /usr/sbin/tuned -l -P
root	936	0.0	0.1	4656	2164 ?	Ss	03:16	0:00	/usr/sbin/atd -f
root	937	0.0	0.1	229700	2940 ?	Ss	03:16	0:00	/usr/sbin/crond -n
root	939	0.0	0.3	531232	7400 ?	Ssl	03:16	0:00	/usr/sbin/gdm
root	1002	0.0	1.2	486636	25996 ?	Ssl	03:16	0:00	/usr/bin/python3 -Es /usr/sbin/tuned-ppd -l
colord	1062	0.0	0.4	533848	9340 ?	Ssl	03:16	0:00	/usr/libexec/colord
root	1370	0.0	0.2	14596	4484 ?	Ss	03:16	0:00	/usr/sbin/wpa_supplicant -c /etc/wpa_supplicant/
root	1467	0.0	0.0	0	0 ?	I<	03:16	0:00	[kworker/u12:1]
root	1598	0.0	0.4	606264	9036 ?	Sl	03:16	0:00	gdm-session-worker [pam/gdm-password]
serhata+	1609	0.0	0.6	23160	12696 ?	Ss	03:16	0:00	/usr/lib/systemd/systemd --user
serhata+	1611	0.0	0.1	13484	2308 ?	S	03:16	0:00	(sd-pam)
serhata+	1628	0.0	0.3	534116	7172 ?	Sl	03:16	0:00	/usr/bin/gnome-keyring-daemon --daemonize --logi
serhata+	1644	0.0	0.2	453584	4312 tty2	Ssl+	03:16	0:00	/usr/libexec/gdm-wayland-session /usr/bin/gnome-
serhata+	1648	0.0	0.1	8652	2820 ?	Ss	03:16	0:00	/usr/bin/dbus-broker-launch --scope user

libstor+	834	0.0	0.0	2504	1468	?	Ss	03:16	0:00	/usr/bin/lsmc -d
root	835	0.0	0.0	3096	1508	?	Ss	03:16	0:00	/usr/sbin/mcelog --daemon --foreground
polkitd	836	0.0	0.4	382516	9548	?	Ssl	03:16	0:00	/usr/lib/polkit-1/polkitd --no-debug --log-level
rtkit	837	0.0	0.1	21320	2608	?	SNsl	03:16	0:00	/usr/libexec/rtkit-daemon
root	838	0.0	0.3	530216	6704	?	Ssl	03:16	0:00	/usr/libexec/accounts-daemon
root	839	0.0	0.2	527740	4724	?	Ssl	03:16	0:00	/usr/libexec/switcheroo-control
root	840	0.0	0.4	18436	8572	?	Ss	03:16	0:00	/usr/lib/systemd/systemd-logind
root	842	0.0	0.5	541888	11364	?	Ssl	03:16	0:00	/usr/libexec/udisks2/udisksd
root	843	0.0	0.3	530600	6552	?	Ssl	03:16	0:00	/usr/libexec/upowerd
avahi	850	0.0	0.0	6144	1328	?	S	03:16	0:00	avahi-daemon: chroot helper
chrony	859	0.0	0.1	84336	2916	?	S	03:16	0:00	/usr/sbin/chronyd -F 2
root	876	0.0	0.1	4292	2300	?	SNs	03:16	0:00	/usr/sbin/alsactl -s -n 19 -c -E ALSA_CONFIG_PAT
root	906	0.0	0.5	390028	10672	?	Ssl	03:16	0:00	/usr/sbin/ModemManager
root	919	0.0	0.4	252044	8472	?	Ss	03:16	0:00	/usr/sbin/cupsd -l
root	921	0.0	0.2	8068	4692	?	Ss	03:16	0:00	sshd: /usr/sbin/sshd -D [listener] 0 of 10-100 s
root	922	0.0	0.0	302536	1688	?	Ssl	03:16	0:00	/usr/bin/rhsmcertd
root	925	0.0	1.3	488216	27936	?	Ssl	03:16	0:00	/usr/bin/python3 -Es /usr/sbin/tuned -l -P
root	936	0.0	0.1	4656	2164	?	Ss	03:16	0:00	/usr/sbin/atd -f
root	937	0.0	0.1	229700	2940	?	Ss	03:16	0:00	/usr/sbin/crond -n
root	939	0.0	0.3	531232	7400	?	Ssl	03:16	0:00	/usr/sbin/gdm
root	1002	0.0	1.2	486636	25996	?	Ssl	03:16	0:00	/usr/bin/python3 -Es /usr/sbin/tuned-ppd -l
colord	1062	0.0	0.4	533848	9340	?	Ssl	03:16	0:00	/usr/libexec/colord
root	1370	0.0	0.2	14596	4484	?	Ss	03:16	0:00	/usr/sbin/wpa_supplicant -c /etc/wpa_supplicant/
root	1467	0.0	0.0	0	0	?	I<	03:16	0:00	[kworker/u12:1]
root	1598	0.0	0.4	606264	9036	?	Sl	03:16	0:00	gdm-session-worker [pam/gdm-password]
serhata+	1609	0.0	0.6	23160	12696	?	Ss	03:16	0:00	/usr/lib/systemd/systemd --user
serhata+	1611	0.0	0.1	13484	2308	?	S	03:16	0:00	(sd-pam)
serhata+	1628	0.0	0.3	534116	7172	?	Sl	03:16	0:00	/usr/bin/gnome-keyring-daemon --daemonize --logi
serhata+	1644	0.0	0.2	453584	4312	tty2	Ssl+	03:16	0:00	/usr/libexec/gdm-wayland-session /usr/bin/gnome-
serhata+	1648	0.0	0.1	8652	2820	?	Ss	03:16	0:00	/usr/bin/dbus-broker-launch --scope user

32. En çok CPU ve bellek kullanan 10 süreci bulun.

CPU

```
serhatakca@Redhat-Linux:~$ ps aux --sort=-%cpu | head -n 11
```

USER	PID	%CPU	%MEM	VSZ	RSS	TTY	STAT	START	TIME	COMMAND
serhata+	3025	0.8	16.0	1886088	332236	?	Ssl	03:19	0:48	/usr/bin/ptxis --gaplication-service
serhata+	1739	0.7	17.5	4126208	364608	?	Ssl	03:16	0:45	/usr/bin/gnome-shell
root	6272	0.2	2.2	707176	46264	?	Ssl	04:59	0:00	/usr/libexec/packagekitd
root	6111	0.0	0.0	0	0	?	I	04:51	0:00	[kworker/u9:3-events_unbound]
serhata+	1825	0.0	0.5	606612	10516	?	Ssl	03:16	0:03	/usr/bin/ibus-daemon --panel disable
root	1	0.0	1.9	49188	39992	?	Ss	03:16	0:03	/usr/lib/systemd/systemd --switched-root --syste
m	--deserialize=47	rhgb								
root	3808	0.0	0.0	0	0	?	I	03:48	0:02	[kworker/u9:1-events_unbound]
root	31	0.0	0.0	0	0	?	I	03:16	0:01	[kworker/u10:0-events_unbound]
serhata+	1951	0.0	1.2	638304	26268	?	Sl	03:16	0:01	/usr/libexec/ibus-extension-gtk3
root	4197	0.0	0.0	0	0	?	I	03:58	0:00	[kworker/u10:3-writeback]

RAM

```
serhatakca@Redhat-Linux:~$ ps aux --sort=-%mem | head -n 11
```

USER	PID	%CPU	%MEM	VSZ	RSS	TTY	STAT	START	TIME	COMMAND
serhata+	1739	0.7	17.5	4126208	364608	?	Ssl	03:16	0:45	/usr/bin/gnome-shell
serhata+	3025	0.8	16.0	1886088	332236	?	Ssl	03:19	0:48	/usr/bin/ptxis --gaplication-service
serhata+	1894	0.0	5.8	1300128	122400	?	Sl	03:16	0:01	/usr/bin/gnome-software --gaplication-service
root	2358	0.0	2.8	389852	59476	?	Ssl	03:16	0:01	/usr/bin/python3 /usr/libexec/rhsm-service
serhata+	2362	0.0	2.8	1118208	58508	?	Ssl	03:16	0:00	/usr/libexec/xdg-desktop-portal-gnome
root	6272	0.8	2.2	707176	46264	?	Ssl	04:59	0:00	/usr/libexec/packagekitd
serhata+	1910	0.0	2.0	989180	43140	?	Sl	03:16	0:00	/usr/libexec/evolution-data-server/evolution-ala
rm-notify										
root	1	0.0	1.9	49188	39992	?	Ss	03:16	0:03	/usr/lib/systemd/systemd --switched-root --syste
m	--deserialize=47	rhgb								
root	925	0.0	1.3	488216	27680	?	Ssl	03:16	0:00	/usr/bin/python3 -Es /usr/sbin/tuned -l -P
serhata+	2048	0.0	1.3	2831904	27156	?	Ssl	03:16	0:00	/usr/bin/gjs -m /usr/share/gnome-shell/org.gnome
.ScreenSaver										

33. httpd sürecinin çalışıp çalışmadığını kontrol edin.

```
serhatakca@Redhat-Linux:~$ ps aux | grep httpd
serhata+  6359  0.0  0.0 227688  2048 pts/0    S+   05:01   0:00 grep --color=auto httpd
```

34. Uyku modunda (sleep) uzun süre çalışacak bir background process başlatın.

```
serhatakca@Redhat-Linux:~$ sleep 3600 &
[1] 6375
```

35. Başlattığınız process'in PID'ini bulun ve öldürün.

```
serhatakca@Redhat-Linux:~$ ps aux | grep sleep
serhata+  6375  0.0  0.0 226820  1856 pts/0    S   05:02   0:00 sleep 3600
serhata+  6400  0.0  0.1 227688  2096 pts/0    S+  05:02   0:00 grep --color=auto sleep
serhatakca@Redhat-Linux:~$ kill 6375
[1]+  Terminated                  sleep 3600
serhatakca@Redhat-Linux:~$ ps aux | grep sleep
serhata+  6415  0.0  0.1 227688  2188 pts/0    S+  05:03   0:00 grep --color=auto sleep
```

36. top komutunu kullanarak sistem performansını izleyin ve ekran görüntüsü alın.

```
top - 05:03:45 up 1:47, 2 users, load average: 0.00, 0.00, 0.00
Tasks: 215 total, 1 running, 214 sleeping, 0 stopped, 0 zombie
%Cpu(s): 4.8 us, 4.8 sy, 0.0 ni, 90.5 id, 0.0 wa, 0.0 hi, 0.0 si, 0.0 st
MiB Mem : 2026.3 total, 66.7 free, 1327.8 used, 833.7 buff/cache
MiB Swap: 2048.0 total, 2047.5 free, 0.5 used, 698.5 avail Mem
```

PID	USER	PR	NI	VIRT	RES	SHR	S	%CPU	%MEM	TIME+	COMMAND
1	root	20	0	49188	39992	9072	S	0.0	1.9	0:03.47	systemd
2	root	20	0	0	0	0	S	0.0	0.0	0:00.00	kthreadd
3	root	20	0	0	0	0	S	0.0	0.0	0:00.00	pool_workqueue_release
4	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	kworker/R-rcu_gp
5	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	kworker/R-sync_wq
6	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	kworker/R-slub_flushwq
7	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	kworker/R-netns
10	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	kworker/0:0H-kblockd
11	root	20	0	0	0	0	I	0.0	0.0	0:00.00	kworker/u8:0-events_unbound
12	root	20	0	0	0	0	I	0.0	0.0	0:00.02	kworker/u8:1-ipv6_addrconf
13	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	kworker/R-mm_percpu_wq
14	root	20	0	0	0	0	I	0.0	0.0	0:00.00	rcu_tasks_kthread
15	root	20	0	0	0	0	I	0.0	0.0	0:00.00	rcu_tasks_rude_kthread
16	root	20	0	0	0	0	I	0.0	0.0	0:00.00	rcu_tasks_trace_kthread
17	root	20	0	0	0	0	S	0.0	0.0	0:00.15	ksoftirqd/0
18	root	20	0	0	0	0	I	0.0	0.0	0:00.39	rcu_preempt
19	root	20	0	0	0	0	S	0.0	0.0	0:00.00	rcu_exp_par_gp_kthread_worker/0
20	root	20	0	0	0	0	S	0.0	0.0	0:00.00	rcu_exp_gp_kthread_worker
21	root	rt	0	0	0	0	S	0.0	0.0	0:00.00	migration/0
22	root	-51	0	0	0	0	S	0.0	0.0	0:00.00	idle_inject/0
23	root	20	0	0	0	0	S	0.0	0.0	0:00.00	cpuhp/0
24	root	20	0	0	0	0	S	0.0	0.0	0:00.00	cpuhp/1

37. Belirli bir kullanıcının (testuser1) çalıştırdığı süreçleri listeleyin.

```
serhatakca@Redhat-Linux:~$ ps -fu testuser1
UID          PID    PPID  C  STIME TTY          TIME CMD
```

38. Sistem yük ortalamasını (load average) gösterin ve açıklayın.

```
serhatakca@Redhat-Linux:~$ uptime
05:05:17 up 1:49, 2 users, load average: 0.14, 0.06, 0.02
```

39. nohup kullanarak terminal kapandığında bile çalışmaya devam edecek bir süreç başlatın.

```
serhatakca@Redhat-Linux:~$ nohup sleep 3600 &
[1] 6453
nohup: ignoring input and appending output to 'nohup.out'
```

40. Çalışan süreçlerin açık dosyalarını (lsof) kontrol edin.

```
serhatakca@Redhat-Linux:~$ sudo lsof
```


xdg-deskt	2414	2419	gdbus	serhatakca	2u	unix	0xffff8d6f39917000	0t0	18060	type=STREAM (CO
NNECTED)										
xdg-deskt	2414	2419	gdbus	serhatakca	3u	unix	0xffff8d6f05aa9000	0t0	18063	type=STREAM (CO
NNECTED)										
xdg-deskt	2414	2419	gdbus	serhatakca	4u	a_inode	0,16	0	33	[eventfd:46]
xdg-deskt	2414	2419	gdbus	serhatakca	5u	a_inode	0,16	0	33	[eventfd:47]
xdg-deskt	2414	2419	gdbus	serhatakca	6u	a_inode	0,16	0	33	[eventfd:48]
xdg-deskt	2414	2419	gdbus	serhatakca	7u	unix	0xffff8d6f05aa8400	0t0	18065	type=STREAM (CO
NNECTED)										
xdg-deskt	2414	2419	gdbus	serhatakca	8u	a_inode	0,16	0	33	[eventfd:49]
xdg-deskt	2414	2419	gdbus	serhatakca	9u	unix	0xffff8d6f03f08400	0t0	17170	type=STREAM (CO
NNECTED)										
xdg-deskt	2414	2419	gdbus	serhatakca	10u	REG	0,1	587520	149	/memfd:wayland-
cursor (deleted)										
xdg-deskt	2414	2419	gdbus	serhatakca	11u	unix	0xffff8d6f05aa9800	0t0	18068	type=STREAM (CO
NNECTED)										
xdg-deskt	2414	2419	gdbus	serhatakca	12u	unix	0xffff8d6f05aa8800	0t0	18069	type=STREAM (CO
NNECTED)										
xdg-deskt	2414	2419	gdbus	serhatakca	13u	a_inode	0,16	0	33	[eventfd:50]
xdg-deskt	2414	2419	gdbus	serhatakca	14r	a_inode	0,16	0	33	inotify
fwupd	2426			root	cwd	DIR	253,0	251	128	/
fwupd	2426			root	rtd	DIR	253,0	251	128	/
fwupd	2426			root	txt	REG	253,0	86560	2345072	/usr/libexec/fw
upd/fwupd										
fwupd	2426			root	mem	REG	253,0	229754784	249573	/usr/lib/locale
/locale-archive										
fwupd	2426			root	mem	REG	253,0	168172	51040769	/var/cache/fwup
d/quirks.xmlb										
fwupd	2426			root	mem	REG	253,0	83792	845223	/usr/lib64/libp

41. Belirli bir port dinleyen süreçleri bulun (örnek: 22 portu).

```
serhatakca@Redhat-Linux:~$ sudo lsof -i :22
COMMAND PID USER   FD   TYPE DEVICE SIZE/OFF NODE NAME
sshd     921 root    7u   IPv4  9072     0t0  TCP *:ssh (LISTEN)
sshd     921 root    8u   IPv6  9074     0t0  TCP *:ssh (LISTEN)
```

42. Process önceliklerini (nice values) görüntüleyin.

```
serhatakca@Redhat-Linux:~$ ps -eo pid,ppid,cmd,ni,%cpu,%mem --sort=ni
```

PID	PPID	CMD	NI	%CPU	%MEM
4	2	[kworker/R-rcu_gp]	-20	0.0	0.0
5	2	[kworker/R-sync_wq]	-20	0.0	0.0
6	2	[kworker/R-slub_flushwq]	-20	0.0	0.0
7	2	[kworker/R-netns]	-20	0.0	0.0
10	2	[kworker/0:0H-kblockd]	-20	0.0	0.0
13	2	[kworker/R-mm_percpu_wq]	-20	0.0	0.0
29	2	[kworker/1:0H-events_highpr]	-20	0.0	0.0
36	2	[kworker/R-inet_frag_wq]	-20	0.0	0.0
40	2	[kworker/R-writeback]	-20	0.0	0.0
44	2	[kworker/R-cryptd]	-20	0.0	0.0
45	2	[kworker/R-kintegrityd]	-20	0.0	0.0
46	2	[kworker/R-kblockd]	-20	0.0	0.0
48	2	[kworker/R-tpm_dev_wq]	-20	0.0	0.0
49	2	[kworker/R-md]	-20	0.0	0.0
50	2	[kworker/R-md_bitmap]	-20	0.0	0.0
51	2	[kworker/R-edac-poller]	-20	0.0	0.0
54	2	[kworker/1:1H-kblockd]	-20	0.0	0.0
64	2	[kworker/R-kthrotld]	-20	0.0	0.0
69	2	[kworker/R-acpi_thermal_pm]	-20	0.0	0.0
70	2	[kworker/R-kmpath_rdacd]	-20	0.0	0.0
71	2	[kworker/R-kaluald]	-20	0.0	0.0
73	2	[kworker/R-mld]	-20	0.0	0.0
74	2	[kworker/R-ipv6_addrconf]	-20	0.0	0.0
75	2	[kworker/0:1H-kblockd]	-20	0.0	0.0
80	2	[kworker/R-kstrp]	-20	0.0	0.0
87	2	[kworker/u11:0]	-20	0.0	0.0
88	2	[kworker/u12:0-ttm]	-20	0.0	0.0

2987	1609	/usr/libexec/gvfsd-metadata	0	0.0	0.2
3025	1609	/usr/bin/ptxixis --gaplicat	0	0.8	15.9
3033	3025	/usr/libexec/ptxixis-agent -	0	0.0	0.2
3048	1609	catatonit -P	0	0.0	0.0
3084	3033	/usr/bin/bash	0	0.0	0.2
3808	2	[kworker/u9:1-events_unboun	0	0.0	0.0
4197	2	[kworker/u10:3-events_unbou	0	0.0	0.0
4386	3084	bash	0	0.0	0.2
4999	2	[kworker/u9:0-events_unboun	0	0.0	0.0
6090	2	[kworker/0:2-events]	0	0.0	0.0
6251	2	[kworker/u10:1-events_unbou	0	0.0	0.0
6392	2	[kworker/1:1-events_power_e	0	0.0	0.0
6449	2	[kworker/0:0-ata_sff]	0	0.0	0.0
6453	4386	sleep 3600	0	0.0	0.0
6493	2	[kworker/u9:3-events_unboun	0	0.0	0.0
6554	2	[kworker/1:2-ata_sff]	0	0.0	0.0
6596	2	[kworker/0:1-ata_sff]	0	0.0	0.0
6647	2	[kworker/u10:2-events_unbou	0	0.1	0.0
6697	681	systemd-userwork: waiting..	0	0.0	0.3
6704	681	systemd-userwork: waiting..	0	0.0	0.3
6717	681	systemd-userwork: waiting..	0	0.0	0.3
6729	1	/usr/libexec/packagekitd	0	0.1	2.2
6750	2	[kworker/1:0-ata_sff]	0	0.0	0.0
6751	4386	ps -eo pid,ppid,cmd,ni,%cpu	0	100	0.1
837	1	/usr/libexec/rtkit-daemon	1	0.0	0.1
42	2	[ksmd]	5	0.0	0.0
43	2	[khugepaged]	19	0.0	0.0
876	1	/usr/sbin/alsactl -s -n 19	-	0.0	0.1

43. Çalışan bir process'in önceliğini değiştirin.

```
serhatakca@Redhat-Linux:~$ sudo renice 6 -p 43
```

43 (process ID) old priority 19, new priority 6

44. Zombie süreçleri bulun ve temizleyin.

```
serhatakca@Redhat-Linux:~$ ps aux | grep defunct | grep Z
serhatakca@Redhat-Linux:~$
```

Sistemimde aktif bir zombie süreç yok.

45. jobs komutunu kullanarak background'da çalışan işleri listeleyin.

```
serhatakca@Redhat-Linux:~$ jobs
[1]+  Running                  nohup sleep 3600 &
```

46. Systemd kullanarak tüm aktif servisleri listeleyin.

```
serhatakca@Redhat-Linux:~$ systemctl list-units --type=service --state=active
```

UNIT	LOAD	ACTIVE	SUB	DESCRIPTION
accounts-daemon.service	loaded	active	running	Accounts Service
alsa-state.service	loaded	active	running	Manage Sound Card State (restore and store)
atd.service	loaded	active	running	Deferred execution scheduler
auditd.service	loaded	active	running	Security Audit Logging Service
avahi-daemon.service	loaded	active	running	Avahi mDNS/DNS-SD Stack
chronyd.service	loaded	active	running	NTP client/server
colord.service	loaded	active	running	Manage, Install and Generate Color Profiles
crond.service	loaded	active	running	Command Scheduler
cups.service	loaded	active	running	CUPS Scheduler
dbus-broker.service	loaded	active	running	D-Bus System Message Bus
dracut-shutdown.service	loaded	active	exited	Restore /run/initramfs on shutdown
fwupd.service	loaded	active	running	Firmware update daemon
gdm.service	loaded	active	running	GNOME Display Manager
irqbalance.service	loaded	active	running	irqbalance daemon
kdump.service	loaded	active	exited	Crash recovery kernel arming
kmmod-static-nodes.service	loaded	active	exited	Create List of Static Device Nodes
libstoragemgmt.service	loaded	active	running	libstoragemgmt plug-in server daemon
lvm2-monitor.service	loaded	active	exited	Monitoring of LVM2 mirrors, snapshots etc. using
mcelog.service	loaded	active	running	Machine Check Exception Logging Daemon
ModemManager.service	loaded	active	running	Modem Manager
NetworkManager.service	loaded	active	running	Network Manager
plymouth-quit-wait.service	loaded	active	exited	Hold until boot process finishes up
plymouth-read-write.service	loaded	active	exited	Tell Plymouth To Write Out Runtime Data
plymouth-start.service	loaded	active	exited	Show Plymouth Boot Screen
polkit.service	loaded	active	running	Authorization Manager
rhsm.service	loaded	active	running	RHSM dbus service
rhsmcertd.service	loaded	active	running	Enable periodic update of entitlement certificate

lines 1-28

47. sshd servisinin durumunu kontrol edin.

```

serhatakca@Redhat-Linux:~$ systemctl status sshd
● sshd.service - OpenSSH server daemon
   Loaded: loaded (/usr/lib/systemd/system/sshd.service; enabled; preset: enabled)
   Active: active (running) since Tue 2025-07-22 03:16:09 EDT; 2h 7min ago
  Invocation: 2e2a3172ba894f87884d62c2362d398c
     Docs: man:sshd(8)
           man:sshd_config(5)
   Main PID: 921 (sshd)
      Tasks: 1 (limit: 12719)
     Memory: 2M (peak: 2.3M)
        CPU: 12ms
    CGroup: /system.slice/sshd.service
            └─921 "sshd: /usr/sbin/sshd -D [listener] 0 of 10-100 startups"

Jul 22 03:16:09 Redhat-Linux systemd[1]: Starting sshd.service - OpenSSH server daemon...
Jul 22 03:16:09 Redhat-Linux (sshd)[921]: sshd.service: Referenced but unset environment variable evaluates to an
Jul 22 03:16:09 Redhat-Linux systemd[1]: Started sshd.service - OpenSSH server daemon.
Jul 22 03:16:09 Redhat-Linux sshd[921]: Server listening on 0.0.0.0 port 22.
Jul 22 03:16:09 Redhat-Linux sshd[921]: Server listening on :: port 22.
lines 1-18/18 (END)

```

48. firewalld servisini başlatın ve sistem açılışında otomatik başlamasını sağlayın.

```

serhatakca@Redhat-Linux:~$ sudo systemctl start firewalld
^[[A^[[Aserhatakca@Redhat-L$ sudo systemctl enable firewalld
serhatakca@Redhat-Linux:~$ systemctl status firewalld
● firewalld.service - firewalld - dynamic firewall daemon
   Loaded: loaded (/usr/lib/systemd/system/firewalld.service; enabled; preset: enabled)
   Active: active (running) since Tue 2025-07-22 05:25:07 EDT; 1min 53s ago
  Invocation: d10f60584d8547769fab5761a8536fe9
     Docs: man:firewalld(1)
   Main PID: 7018 (firewalld)
      Tasks: 2 (limit: 12719)
     Memory: 31.2M (peak: 31.5M)
        CPU: 300ms
    CGroup: /system.slice/firewalld.service
            └─7018 /usr/bin/python3 -sP /usr/sbin/firewalld --nofork --nopid

Jul 22 05:25:07 Redhat-Linux systemd[1]: Starting firewalld.service - firewalld - dynamic firewall daemon...
Jul 22 05:25:07 Redhat-Linux systemd[1]: Started firewalld.service - firewalld - dynamic firewall daemon.
serhatakca@Redhat-Linux:~$

```

49. NetworkManager servisini yeniden başlatın.

```

serhatakca@Redhat-Linux:~$ sudo systemctl restart NetworkManager
serhatakca@Redhat-Linux:~$ systemctl status NetworkManager
● NetworkManager.service - Network Manager
   Loaded: loaded (/usr/lib/systemd/system/NetworkManager.service; enabled; preset: enabled)
   Active: active (running) since Tue 2025-07-22 05:27:47 EDT; 12s ago
     Invocation: a1578970fd1644ff891e2893cf73bffd
       Docs: man:NetworkManager(8)
    Main PID: 7711 (NetworkManager)
      Tasks: 5 (limit: 12719)
     Memory: 3.2M (peak: 3.7M)
        CPU: 51ms
     CGroup: /system.slice/NetworkManager.service
             └─7711 /usr/sbin/NetworkManager --no-daemon

Jul 22 05:27:47 Redhat-Linux NetworkManager[7711]: <info> [1753176467.4951] device (lo): state change: ip-check ->
Jul 22 05:27:47 Redhat-Linux NetworkManager[7711]: <info> [1753176467.4988] device (enp0s3): Activation: starting>
Jul 22 05:27:47 Redhat-Linux NetworkManager[7711]: <info> [1753176467.4989] device (lo): state change: secondary>
Jul 22 05:27:47 Redhat-Linux NetworkManager[7711]: <info> [1753176467.4991] device (lo): Activation: successful, >
Jul 22 05:27:47 Redhat-Linux NetworkManager[7711]: <info> [1753176467.4993] device (enp0s3): state change: discon>
Jul 22 05:27:47 Redhat-Linux NetworkManager[7711]: <info> [1753176467.4994] manager: NetworkManager state is now >
Jul 22 05:27:47 Redhat-Linux NetworkManager[7711]: <info> [1753176467.4995] device (enp0s3): state change: prepar>
Jul 22 05:27:47 Redhat-Linux NetworkManager[7711]: <info> [1753176467.9905] agent-manager: agent[c4e8333010728c34>
Jul 22 05:27:48 Redhat-Linux NetworkManager[7711]: <info> [1753176468.0009] device (enp0s3): state change: config>
Jul 22 05:27:48 Redhat-Linux NetworkManager[7711]: <info> [1753176468.0025] dhcp4 (enp0s3): activation: beginning>
lines 1-22/22 (END)

```

50. chronyd servisinin log kayıtlarını görüntüleyin.

```

serhatakca@Redhat-Linux:~$ journalctl -u chronyd
Jul 22 03:16:08 Redhat-Linux systemd[1]: Starting chronyd.service - NTP client/server...
Jul 22 03:16:08 Redhat-Linux chronyd[859]: chronyd version 4.6.1 starting (+CMDMON +NTP +REFCLOCK +RTC +PRIVDROP +>
Jul 22 03:16:08 Redhat-Linux chronyd[859]: Frequency 6.837 +/- 0.203 ppm read from /var/lib/chrony/drift
Jul 22 03:16:08 Redhat-Linux chronyd[859]: Loaded seccomp filter (level 2)
Jul 22 03:16:08 Redhat-Linux systemd[1]: Started chronyd.service - NTP client/server.

```

51. Failed durumda olan servisleri bulun.

```

serhatakca@Redhat-Linux:~$ systemctl --failed
UNIT                                LOAD    ACTIVE SUB    DESCRIPTION
● NetworkManager-wait-online.service loaded failed failed Network Manager Wait Online

```

Legend: LOAD → Reflects whether the unit definition was properly loaded.
 ACTIVE → The high-level unit activation state, i.e. generalization of SUB.
 SUB → The low-level unit activation state, values depend on unit type.

1 loaded units listed.

52. Bir servisi geçici olarak devre dışı bırakın ve tekrar etkinleştirin.

```
serhatakca@Redhat-Linux:~$ sudo systemctl stop sshd
serhatakca@Redhat-Linux:~$ systemctl status sshd
○ sshd.service - OpenSSH server daemon
   Loaded: loaded (/usr/lib/systemd/system/sshd.service; enabled; preset: enabled)
   Active: inactive (dead) since Tue 2025-07-22 05:33:02 EDT; 40s ago
     Duration: 2h 16min 52.988s
  Invocation: 2e2a3172ba894f87884d62c2362d398c
     Docs: man:sshd(8)
           man:sshd_config(5)
   Process: 921 ExecStart=/usr/sbin/sshd -D $OPTIONS (code=exited, status=0/SUCCESS)
    Main PID: 921 (code=exited, status=0/SUCCESS)
   Mem peak: 2.3M
     CPU: 13ms

Jul 22 03:16:09 Redhat-Linux systemd[1]: Starting sshd.service - OpenSSH server daemon...
Jul 22 03:16:09 Redhat-Linux (sshd)[921]: sshd.service: Referenced but unset environment variable evaluates to an
Jul 22 03:16:09 Redhat-Linux systemd[1]: Started sshd.service - OpenSSH server daemon.
Jul 22 03:16:09 Redhat-Linux sshd[921]: Server listening on 0.0.0.0 port 22.
Jul 22 03:16:09 Redhat-Linux sshd[921]: Server listening on :: port 22.
Jul 22 05:33:02 Redhat-Linux systemd[1]: Stopping sshd.service - OpenSSH server daemon...
Jul 22 05:33:02 Redhat-Linux sshd[921]: Received signal 15; terminating.
Jul 22 05:33:02 Redhat-Linux systemd[1]: sshd.service: Deactivated successfully.
Jul 22 05:33:02 Redhat-Linux systemd[1]: Stopped sshd.service - OpenSSH server daemon.
lines 1-21/21 (END)
```

```
serhatakca@Redhat-Linux:~$ sudo systemctl start sshd
serhatakca@Redhat-Linux:~$ systemctl status sshd
● sshd.service - OpenSSH server daemon
   Loaded: loaded (/usr/lib/systemd/system/sshd.service; enabled; preset: enabled)
   Active: active (running) since Tue 2025-07-22 05:34:42 EDT; 3s ago
  Invocation: 812d4232e5584832935c8fb578be3bfc
     Docs: man:sshd(8)
           man:sshd_config(5)
    Main PID: 8265 (sshd)
      Tasks: 1 (limit: 12719)
     Memory: 3.8M (peak: 4M)
        CPU: 10ms
    CGroup: /system.slice/sshd.service
           └─8265 "sshd: /usr/sbin/sshd -D [listener] 0 of 10-100 startups"

Jul 22 05:34:42 Redhat-Linux systemd[1]: Starting sshd.service - OpenSSH server daemon...
Jul 22 05:34:42 Redhat-Linux (sshd)[8265]: sshd.service: Referenced but unset environment variable evaluates to an
Jul 22 05:34:42 Redhat-Linux sshd[8265]: Server listening on 0.0.0.0 port 22.
Jul 22 05:34:42 Redhat-Linux sshd[8265]: Server listening on :: port 22.
Jul 22 05:34:42 Redhat-Linux systemd[1]: Started sshd.service - OpenSSH server daemon.
```

53. Sistem boot sürelerini analiz edin.

```
serhatakca@Redhat-Linux:~$ systemd-analyze
Startup finished in 1.063s (kernel) + 2.801s (initrd) + 1min 9.146s (userspace) = 1min 13.011s
graphical.target reached after 1min 9.114s in userspace.
```

54. En yavaş başlayan 10 servisi bulun.

```
serhatakca@Redhat-Linux:~$ systemd-analyze blame | head -n 10
1min 38ms NetworkManager-wait-online.service
6.569s dnf-makecache.service
6.539s cockpit-issue.service
6.500s rsyslog.service
3.497s dev-ttyS0.device
3.497s sys-devices-platform-serial8250-serial8250:0-serial8250:0.0-tty-ttyS0.device
3.486s sys-module-fuse.device
3.481s dev-ttyS3.device
3.481s sys-devices-platform-serial8250-serial8250:0-serial8250:0.3-tty-ttyS3.device
3.481s dev-ttyS1.device
```

55. Yeni bir custom service dosyası oluşturun (/etc/systemd/system/testservice.service).

```
serhatakca@Redhat-Linux:~$ sudo nano /etc/systemd/system/testservice.service
```

```
GNU nano 8.1 /etc/systemd/system/testservice.service

[ Read 1 line ]

^G Help      ^O Write Out  ^F Where Is   ^K Cut        ^T Execute    ^C Location   M-U Undo
^X Exit      ^R Read File  ^\ Replace    ^U Paste      ^J Justify    ^_ Go To Line  M-E Redo
```

56. Oluşturduğunuz servisi enable edin ve başlatın.


```
serhatakca@Redhat-Linux:~$ sudo systemctl daemon-reload
^[[A^[[A^[[A^[[Aserhatakca@Redhat-Linux:~$ sudo systemctl start testservice
serhatakca@Redhat-Linux:~$ sudo systemctl enable testservice
```

57. Servisinizin çalışır durumda olduğunu doğrulayın.

```
serhatakca@Redhat-Linux:~$ systemctl status testservice
● testservice.service - Basit Test Servisi
   Loaded: loaded (/etc/systemd/system/testservice.service; enabled; preset: disabled)
   Active: active (running) since Tue 2025-07-22 06:00:36 EDT; 2min 40s ago
 Invocation: c99d7a928f33413591c4db1ae8f98229
    Main PID: 9998 (bash)
      Tasks: 2 (limit: 12719)
     Memory: 572K (peak: 1.1M)
        CPU: 16ms
    CGroup: /system.slice/testservice.service
            └─ 9998 /bin/bash -c "while true; do echo \"Test Service Calisiyor\" ; sleep 30; done"
               10982 sleep 30

Jul 22 06:00:36 Redhat-Linux systemd[1]: Started testservice.service - Basit Test Servisi.
Jul 22 06:00:36 Redhat-Linux bash[9998]: Test Service Calisiyor
Jul 22 06:01:06 Redhat-Linux bash[9998]: Test Service Calisiyor
Jul 22 06:01:36 Redhat-Linux bash[9998]: Test Service Calisiyor
Jul 22 06:02:06 Redhat-Linux bash[9998]: Test Service Calisiyor
Jul 22 06:02:36 Redhat-Linux bash[9998]: Test Service Calisiyor
Jul 22 06:03:06 Redhat-Linux bash[9998]: Test Service Calisiyor
```

58. Target'ları (runlevel'lar) listeleyin ve mevcut target'ı görüntüleyin.

```
serhatakca@Redhat-Linux:~$ systemctl list-units --type=target
```

UNIT	LOAD	ACTIVE	SUB	DESCRIPTION
basic.target	loaded	active	active	Basic System
cryptsetup.target	loaded	active	active	Local Encrypted Volumes
getty.target	loaded	active	active	Login Prompts
graphical.target	loaded	active	active	Graphical Interface
integritysetup.target	loaded	active	active	Local Integrity Protected Volumes
local-fs-pre.target	loaded	active	active	Preparation for Local File Systems
local-fs.target	loaded	active	active	Local File Systems
multi-user.target	loaded	active	active	Multi-User System
network-online.target	loaded	active	active	Network is Online
network-pre.target	loaded	active	active	Preparation for Network
network.target	loaded	active	active	Network
nss-user-lookup.target	loaded	active	active	User and Group Name Lookups
paths.target	loaded	active	active	Path Units
remote-cryptsetup.target	loaded	active	active	Remote Encrypted Volumes
remote-fs.target	loaded	active	active	Remote File Systems
slices.target	loaded	active	active	Slice Units
sockets.target	loaded	active	active	Socket Units
sound.target	loaded	active	active	Sound Card
ssh-access.target	loaded	active	active	SSH Access Available
sshd-keygen.target	loaded	active	active	sshd-keygen.target
swap.target	loaded	active	active	Swaps
sysinit.target	loaded	active	active	System Initialization
timers.target	loaded	active	active	Timer Units
veritysetup.target	loaded	active	active	Local Verity Protected Volumes

Legend: LOAD → Reflects whether the unit definition was properly loaded.
ACTIVE → The high-level unit activation state, i.e. generalization of SUB.

lines 1-28

59. Sistemin hangi target'da boot olduğunu kontrol edin.

```
serhatakca@Redhat-Linux:~$ systemctl get-default
graphical.target
```


60. Multi-user target'ın bağımlılıklarını görüntüleyin.

```
serhatakca@Redhat-Linux:~$ systemctl list-dependencies multi-user.target
```

```
multi-user.target
● atd.service
○ audit-rules.service
● auditd.service
● avahi-daemon.service
● chronyd.service
● crond.service
● cups.path
● cups.service
● firewalld.service
○ insights-client-boot.service
● irqbalance.service
● kdump.service
● libstoragemgmt.service
● mcelog.service
○ mdmonitor.service
● ModemManager.service
● NetworkManager.service
● plymouth-quit-wait.service
○ plymouth-quit.service
● rhsmcertd.service
● rsyslog.service
○ smartd.service
● sshd.service
○ sssd.service
● systemd-ask-password-wall.path
● systemd-logind.service
○ systemd-update-utmp-runlevel.service
lines 1-28
```

61. /var/log dizinindeki temel log dosyalarını listeleyin.

```

serhatakca@Redhat-Linux:~$ ls -lh /var/log
total 6.4M
drwxr-xr-x. 2 root root 4.0K Jul 3 09:11 anaconda
drwx-----. 2 root root 23 Jul 3 09:17 audit
-rw-----. 1 root root 0 Jul 22 04:05 boot.log
-rw-----. 1 root root 27K Jul 10 03:20 boot.log-20250710
-rw-----. 1 root root 27K Jul 11 08:46 boot.log-20250711
-rw-----. 1 root root 27K Jul 14 08:32 boot.log-20250714
-rw-----. 1 root root 27K Jul 16 06:30 boot.log-20250716
-rw-----. 1 root root 78K Jul 18 09:20 boot.log-20250718
-rw-----. 1 root root 27K Jul 21 06:59 boot.log-20250721
-rw-----. 1 root root 53K Jul 22 04:05 boot.log-20250722
-rw-rw----. 1 root utmp 32K Jul 21 07:15 btmp
drwxr-x---. 2 chrony chrony 6 Nov 5 2024 chrony
-rw-----. 1 root root 4.6K Jul 22 06:01 cron
-rw-----. 1 root root 11K Jul 11 08:09 cron-20250711
-rw-----. 1 root root 8.3K Jul 18 09:01 cron-20250718
drwxr-xr-x. 2 root lp 6 Jan 6 2025 cups
-rw-r--r--. 1 root root 8.1K Jul 22 05:41 dnf.librepo.log
-rw-r--r--. 1 root root 56K Jul 22 05:41 dnf.log
-rw-r--r--. 1 root root 2.0K Jul 22 05:41 dnf.rpm.log
-rw-r-----. 1 root root 0 Jul 3 09:17 firewalld
drwx--x--x. 2 root gdm 6 Feb 4 19:00 gdm
drwx-----. 2 root root 6 Jan 23 19:00 insights-client
-rw-rw-r--. 1 root utmp 286K Jul 22 03:45 lastlog
-rw-----. 1 root root 0 Jul 18 09:20 maillog
-rw-----. 1 root root 0 Jul 3 09:07 maillog-20250711
-rw-----. 1 root root 0 Jul 11 08:46 maillog-20250718
-rw-----. 1 root root 1.3M Jul 22 06:11 messages

-rw-----. 1 root root 2.6M Jul 11 08:46 messages-20250711
-rw-----. 1 root root 984K Jul 18 09:20 messages-20250718
drwx-----. 2 root root 6 Jul 3 09:07 private
drwxr-xr-x. 2 root root 6 Feb 16 19:00 qemu-ga
drwxr-xr-x. 2 root root 153 Jul 18 09:20 rhsm
drwx-----. 3 root root 17 Jul 3 09:07 samba
-rw-----. 1 root root 65K Jul 22 06:02 secure
-rw-----. 1 root root 46K Jul 11 08:10 secure-20250711
-rw-----. 1 root root 28K Jul 18 09:01 secure-20250718
drwx-----. 2 root root 6 Oct 28 2024 speech-dispatcher
-rw-----. 1 root root 0 Jul 18 09:20 spooler
-rw-----. 1 root root 0 Jul 3 09:07 spooler-20250711
-rw-----. 1 root root 0 Jul 11 08:46 spooler-20250718
drwxrwx---. 2 sssd sssd 87 Jul 18 09:20 sssd
drwxr-xr-x. 2 root root 44 Jul 3 09:17 tuned
-rw-rw-r--. 1 root utmp 32K Jul 22 03:17 wtmp

```

62. System log (/var/log/messages) içinde son 50 satırı görüntüleyin.

```

serhatakca@Redhat-Linux:~$ sudo tail -n 50 /var/log/messages
[sudo] password for serhatakca:
Jul 22 06:09:18 Redhat-Linux NetworkManager[7711]: <info> [1753178958.6979] device (enp0s3): state change: prepare
-> config (reason 'none', managed-type: 'full')
Jul 22 06:09:18 Redhat-Linux NetworkManager[7711]: <info> [1753178958.7583] device (enp0s3): state change: config
-> ip-config (reason 'none', managed-type: 'full')
Jul 22 06:09:18 Redhat-Linux NetworkManager[7711]: <info> [1753178958.7613] dhcp4 (enp0s3): activation: beginning
transaction (timeout in 45 seconds)
Jul 22 06:09:18 Redhat-Linux avahi-daemon[830]: Joining mDNS multicast group on interface enp0s3.IPv6 with address
fe80::a00:27ff:fe43:9b69.
Jul 22 06:09:18 Redhat-Linux avahi-daemon[830]: New relevant interface enp0s3.IPv6 for mDNS.
Jul 22 06:09:18 Redhat-Linux avahi-daemon[830]: Registering new address record for fe80::a00:27ff:fe43:9b69 on enp0
s3.*.
Jul 22 06:09:24 Redhat-Linux kernel: e1000: enp0s3 NIC Link is Down
Jul 22 06:09:24 Redhat-Linux kernel: e1000 0000:00:03:0 enp0s3: Reset adapter
Jul 22 06:09:26 Redhat-Linux kernel: e1000: enp0s3 NIC Link is Up 1000 Mbps Full Duplex, Flow Control: RX
Jul 22 06:09:26 Redhat-Linux NetworkManager[7711]: <info> [1753178966.7137] device (enp0s3): carrier: link connect
ed
Jul 22 06:09:36 Redhat-Linux bash[9998]: Test Service Calisiyor
Jul 22 06:10:03 Redhat-Linux NetworkManager[7711]: <info> [1753179003.6734] device (enp0s3): state change: ip-conf
ig -> failed (reason 'ip-config-unavailable', managed-type: 'full')
Jul 22 06:10:03 Redhat-Linux NetworkManager[7711]: <info> [1753179003.6737] manager: NetworkManager state is now D
ISCONNECTED
Jul 22 06:10:03 Redhat-Linux NetworkManager[7711]: <warn> [1753179003.6738] device (enp0s3): Activation: failed fo
r connection 'enp0s3'
Jul 22 06:10:03 Redhat-Linux NetworkManager[7711]: <info> [1753179003.6739] device (enp0s3): state change: failed
-> disconnected (reason 'none', managed-type: 'full')
Jul 22 06:10:03 Redhat-Linux avahi-daemon[830]: Withdrawing address record for fe80::a00:27ff:fe43:9b69 on enp0s3.
Jul 22 06:10:03 Redhat-Linux avahi-daemon[830]: Leaving mDNS multicast group on interface enp0s3.IPv6 with address
Jul 22 06:10:06 Redhat-Linux bash[9998]: Test Service Calisiyor
Jul 22 06:10:36 Redhat-Linux bash[9998]: Test Service Calisiyor
Jul 22 06:10:48 Redhat-Linux NetworkManager[7711]: <info> [1753179048.6755] device (enp0s3): state change: ip-con
ig -> failed (reason 'ip-config-unavailable', managed-type: 'full')
Jul 22 06:10:48 Redhat-Linux NetworkManager[7711]: <info> [1753179048.6757] manager: NetworkManager state is now
DISCONNECTED
Jul 22 06:10:48 Redhat-Linux NetworkManager[7711]: <warn> [1753179048.6758] device (enp0s3): Activation: failed f
or connection 'enp0s3'
Jul 22 06:10:48 Redhat-Linux NetworkManager[7711]: <info> [1753179048.6759] device (enp0s3): state change: failed
-> disconnected (reason 'none', managed-type: 'full')
Jul 22 06:10:48 Redhat-Linux avahi-daemon[830]: Withdrawing address record for fe80::a00:27ff:fe43:9b69 on enp0s3.
Jul 22 06:10:48 Redhat-Linux avahi-daemon[830]: Leaving mDNS multicast group on interface enp0s3.IPv6 with address
fe80::a00:27ff:fe43:9b69.
Jul 22 06:10:48 Redhat-Linux avahi-daemon[830]: Interface enp0s3.IPv6 no longer relevant for mDNS.
Jul 22 06:10:48 Redhat-Linux NetworkManager[7711]: <info> [1753179048.6823] dhcp4 (enp0s3): canceled DHCP transac
tion
Jul 22 06:10:48 Redhat-Linux NetworkManager[7711]: <info> [1753179048.6823] dhcp4 (enp0s3): activation: beginning
transaction (timeout in 45 seconds)
Jul 22 06:10:48 Redhat-Linux NetworkManager[7711]: <info> [1753179048.6823] dhcp4 (enp0s3): state changed no leas
Jul 22 06:11:06 Redhat-Linux bash[9998]: Test Service Calisiyor
Jul 22 06:11:36 Redhat-Linux bash[9998]: Test Service Calisiyor
Jul 22 06:11:45 Redhat-Linux cupsd[919]: REQUEST localhost - - "POST / HTTP/1.1" 200 189 Renew-Subscription succes
ful-ok
Jul 22 06:12:06 Redhat-Linux bash[9998]: Test Service Calisiyor
Jul 22 06:12:36 Redhat-Linux bash[9998]: Test Service Calisiyor
Jul 22 06:12:54 Redhat-Linux systemd[1]: Starting fprintd.service - Fingerprint Authentication Daemon...
Jul 22 06:12:54 Redhat-Linux systemd[1]: Started fprintd.service - Fingerprint Authentication Daemon.

```

63. journalctl kullanarak sistem boot log'larını görüntüleyin.

```

serhatakca@Redhat-Linux:~$ journalctl -b
Jul 22 03:16:03 Redhat-Linux kernel: Linux version 6.12.0-55.9.1.el10_0.x86_64 (mockbuild@d9479e82fd7a4a249c8265aa>
Jul 22 03:16:03 Redhat-Linux kernel: Command line: BOOT_IMAGE=(hd0,gpt2)/vmlinuz-6.12.0-55.9.1.el10_0.x86_64 root=>
Jul 22 03:16:03 Redhat-Linux kernel: BIOS-provided physical RAM map:
Jul 22 03:16:03 Redhat-Linux kernel: BIOS-e820: [mem 0x0000000000000000-0x0000000000009fbfff] usable
Jul 22 03:16:03 Redhat-Linux kernel: BIOS-e820: [mem 0x0000000000009fc00-0x0000000000009ffff] reserved
Jul 22 03:16:03 Redhat-Linux kernel: BIOS-e820: [mem 0x000000000000f0000-0x000000000000fffff] reserved
Jul 22 03:16:03 Redhat-Linux kernel: BIOS-e820: [mem 0x0000000000100000-0x00000000000946ffff] usable
Jul 22 03:16:03 Redhat-Linux kernel: BIOS-e820: [mem 0x00000000000946f0000-0x00000000000946fffff] ACPI data
Jul 22 03:16:03 Redhat-Linux kernel: BIOS-e820: [mem 0x00000000fec00000-0x00000000fec00ffff] reserved
Jul 22 03:16:03 Redhat-Linux kernel: BIOS-e820: [mem 0x00000000fee00000-0x00000000fee00ffff] reserved
Jul 22 03:16:03 Redhat-Linux kernel: BIOS-e820: [mem 0x00000000fffc0000-0x00000000fffffffff] reserved
Jul 22 03:16:03 Redhat-Linux kernel: NX (Execute Disable) protection: active
Jul 22 03:16:03 Redhat-Linux kernel: APIC: Static calls initialized
Jul 22 03:16:03 Redhat-Linux kernel: SMBIOS 2.5 present.
Jul 22 03:16:03 Redhat-Linux kernel: DMI: innotek GmbH VirtualBox/VirtualBox, BIOS VirtualBox 12/01/2006
Jul 22 03:16:03 Redhat-Linux kernel: DMI: Memory slots populated: 0/0
Jul 22 03:16:03 Redhat-Linux kernel: Hypervisor detected: KVM
Jul 22 03:16:03 Redhat-Linux kernel: kvm-clock: Using msrs 4b564d01 and 4b564d00
Jul 22 03:16:03 Redhat-Linux kernel: kvm-clock: using sched offset of 4588137686 cycles
Jul 22 03:16:03 Redhat-Linux kernel: clocksource: kvm-clock: mask: 0xffffffffffffffff max_cycles: 0x1cd42e4dffb, m>
Jul 22 03:16:03 Redhat-Linux kernel: tsc: Detected 2688.002 MHz processor
Jul 22 03:16:03 Redhat-Linux kernel: e820: update [mem 0x00000000-0x000000fff] usable ==> reserved
Jul 22 03:16:03 Redhat-Linux kernel: e820: remove [mem 0x000a0000-0x000fffff] usable
Jul 22 03:16:03 Redhat-Linux kernel: last_pfn = 0x94700 max_arch_pfn = 0x40000000
Jul 22 03:16:03 Redhat-Linux kernel: MTRR map: 4 entries (3 fixed + 1 variable; max 35), built from 16 variable MT>
Jul 22 03:16:03 Redhat-Linux kernel: x86/PAT: Configuration [0-7]: WB WC UC- UC WB WP UC- WT
Jul 22 03:16:03 Redhat-Linux kernel: found SMP MP-table at [mem 0x0009fbf0-0x0009fbff]
Jul 22 03:16:03 Redhat-Linux kernel: RAMDISK: [mem 0x33ffe000-0x33ff6fff]

```

64. Son 1 saatteki kritik error'ları bulun.

```

serhatakca@Redhat-Linux:~$ journalctl --since "1 hour ago" -p err..emerg
Jul 22 05:25:07 Redhat-Linux kernel: Warning: Unmaintained driver is detected: ip_set
Jul 22 05:41:43 Redhat-Linux systemd[1]: testservice.service: Service has no ExecStart=, ExecStop=, or SuccessActi>
Jul 22 05:42:21 Redhat-Linux systemd[1]: testservice.service: Service has no ExecStart=, ExecStop=, or SuccessActi>
Jul 22 05:43:12 Redhat-Linux systemd[1]: testservice.service: Service has no ExecStart=, ExecStop=, or SuccessActi>
Jul 22 05:56:31 Redhat-Linux systemd[1]: testservice.service: Service has no ExecStart=, ExecStop=, or SuccessActi>
Jul 22 05:56:34 Redhat-Linux systemd[1]: testservice.service: Service has no ExecStart=, ExecStop=, or SuccessActi>
Jul 22 05:56:44 Redhat-Linux systemd[1]: testservice.service: Service has no ExecStart=, ExecStop=, or SuccessActi>
Jul 22 05:56:49 Redhat-Linux systemd[1]: testservice.service: Service has no ExecStart=, ExecStop=, or SuccessActi>
Jul 22 05:57:35 Redhat-Linux systemd[1]: testservice.service: Service has no ExecStart=, ExecStop=, or SuccessActi>
Jul 22 06:09:24 Redhat-Linux kernel: e1000 0000:00:03:0 enp0s3: Reset adapter

```

65. SSH login denemelerini log'lardan takip edin.

```

serhatakca@Redhat-Linux:~$ journalctl -u sshd
Jul 22 03:16:09 Redhat-Linux systemd[1]: Starting sshd.service - OpenSSH server daemon...
Jul 22 03:16:09 Redhat-Linux (sshd)[921]: sshd.service: Referenced but unset environment variable evaluates to an >
Jul 22 03:16:09 Redhat-Linux systemd[1]: Started sshd.service - OpenSSH server daemon.
Jul 22 03:16:09 Redhat-Linux sshd[921]: Server listening on 0.0.0.0 port 22.
Jul 22 03:16:09 Redhat-Linux sshd[921]: Server listening on :: port 22.
Jul 22 05:33:02 Redhat-Linux systemd[1]: Stopping sshd.service - OpenSSH server daemon...
Jul 22 05:33:02 Redhat-Linux sshd[921]: Received signal 15; terminating.
Jul 22 05:33:02 Redhat-Linux systemd[1]: sshd.service: Deactivated successfully.
Jul 22 05:33:02 Redhat-Linux systemd[1]: Stopped sshd.service - OpenSSH server daemon.
Jul 22 05:34:42 Redhat-Linux systemd[1]: Starting sshd.service - OpenSSH server daemon...
Jul 22 05:34:42 Redhat-Linux (sshd)[8265]: sshd.service: Referenced but unset environment variable evaluates to an >
Jul 22 05:34:42 Redhat-Linux sshd[8265]: Server listening on 0.0.0.0 port 22.
Jul 22 05:34:42 Redhat-Linux sshd[8265]: Server listening on :: port 22.
Jul 22 05:34:42 Redhat-Linux systemd[1]: Started sshd.service - OpenSSH server daemon.

```

66. Belirli bir servis için log'ları filtreleyin (journalctl -u servicename).

```

serhatakca@Redhat-Linux:~$ journalctl -u firewalld
Jul 22 05:25:07 Redhat-Linux systemd[1]: Starting firewalld.service - firewalld - dynamic firewall daemon...
Jul 22 05:25:07 Redhat-Linux systemd[1]: Started firewalld.service - firewalld - dynamic firewall daemon.

```

67. Log'ları gerçek zamanlı olarak takip edin (tail -f).

```
serhatakca@Redhat-Linux:~$ journalctl -u sshd -f
Jul 22 03:16:09 Redhat-Linux sshd[921]: Server listening on :: port 22.
Jul 22 05:33:02 Redhat-Linux systemd[1]: Stopping sshd.service - OpenSSH server daemon...
Jul 22 05:33:02 Redhat-Linux sshd[921]: Received signal 15; terminating.
Jul 22 05:33:02 Redhat-Linux systemd[1]: sshd.service: Deactivated successfully.
Jul 22 05:33:02 Redhat-Linux systemd[1]: Stopped sshd.service - OpenSSH server daemon.
Jul 22 05:34:42 Redhat-Linux systemd[1]: Starting sshd.service - OpenSSH server daemon...
Jul 22 05:34:42 Redhat-Linux (sshd)[8265]: sshd.service: Referenced but unset environment variable evaluates to an empty string: OPTIONS
Jul 22 05:34:42 Redhat-Linux sshd[8265]: Server listening on 0.0.0.0 port 22.
Jul 22 05:34:42 Redhat-Linux sshd[8265]: Server listening on :: port 22.
Jul 22 05:34:42 Redhat-Linux systemd[1]: Started sshd.service - OpenSSH server daemon.
```

68. /var/log/secure dosyasında failed login denemelerini sayın.

```
serhatakca@Redhat-Linux:~$ grep "Failed passwd" /var/log/secure | wc -l
grep: /var/log/secure: Permission denied
0
```

69. Dmesg kullanarak kernel mesajlarını görüntüleyin.

```
root@Redhat-Linux:~# dmesg
[ 0.000000] Linux version 6.12.0-55.9.1.el10_0.x86_64 (mockbuild@d9479e82fd7a4a249c8265aa7a184d55) (gcc (GCC) 1
.2.1 20250110 (Red Hat 14.2.1-7), GNU ld version 2.41-53.el10) #1 SMP PREEMPT_DYNAMIC Tue Mar 25 09:14:09 EDT 2025
[ 0.000000] Command line: BOOT_IMAGE=(hd0,gpt2)/vmlinuz-6.12.0-55.9.1.el10_0.x86_64 root=/dev/mapper/rhel_vbox-
oot ro crashkernel=20-64G:256M,64G-:512M resume=UUID=19a80a8e-9f9a-495e-ba06-b35d5a43e491 rd.lvm.lv=rhel_vbox/root
rd.lvm.lv=rhel_vbox/swap rhgb quiet
[ 0.000000] BIOS-provided physical RAM map:
[ 0.000000] BIOS-e820: [mem 0x0000000000000000-0x0000000000009fbfff] usable
[ 0.000000] BIOS-e820: [mem 0x0000000000009fc00-0x0000000000009ffff] reserved
[ 0.000000] BIOS-e820: [mem 0x000000000000f0000-0x000000000000fffff] reserved
[ 0.000000] BIOS-e820: [mem 0x0000000000100000-0x00000000000946ffff] usable
[ 0.000000] BIOS-e820: [mem 0x000000000946f0000-0x000000000946fffff] ACPI data
[ 0.000000] BIOS-e820: [mem 0x00000000fec00000-0x00000000fec00ffff] reserved
[ 0.000000] BIOS-e820: [mem 0x00000000fee00000-0x00000000fee00ffff] reserved
[ 0.000000] BIOS-e820: [mem 0x00000000fffc0000-0x00000000fffffffff] reserved
[ 0.000000] NX (Execute Disable) protection: active
[ 0.000000] APIC: Static calls initialized
[ 0.000000] SMBIOS 2.5 present.
[ 0.000000] DMI: innotek GmbH VirtualBox/VirtualBox, BIOS VirtualBox 12/01/2006
[ 0.000000] DMI: Memory slots populated: 0/0
[ 0.000000] Hypervisor detected: KVM
[ 0.000000] kvm-clock: Using msrs 4b564d01 and 4b564d00
[ 0.000001] kvm-clock: using sched offset of 4588137686 cycles
[ 0.000003] clocksource: kvm-clock: mask: 0xffffffffffffffff max_cycles: 0x1cd42e4dffb, max_idle_ns: 8815905914
3 ns
[ 0.000005] tsc: Detected 2688.002 MHz processor
[ 0.000866] e820: update [mem 0x00000000-0x00000ffff] usable ==> reserved
[ 0.000868] e820: remove [mem 0x000a0000-0x0000fffff] usable
[ 0.000872] last_pfn = 0x94700 max_arch_pfn = 0x400000000
```

Yetki olmadığı için root ile giriş yaptım.

70. Sistem açılış zamanını log'lardan bulun.

```
serhatakca@Redhat-Linux:~$ journalctl --list-boots
IDX BOOT ID FIRST ENTRY LAST ENTRY
0 e78b7f8539f149a0b84aeded6229ab9 Tue 2025-07-22 03:16:03 EDT Tue 2025-07-22 06:30:57 EDT
```

71. Rsyslog konfigürasyonunu kontrol edin (/etc/rsyslog.conf).

```
serhatakca@Redhat-Linux:~$ cat /etc/rsyslog.conf
# rsyslog configuration file

# For more information see /usr/share/doc/rsyslog-*/rsyslog_conf.html
# or latest version online at http://www.rsyslog.com/doc/rsyslog_conf.html
# If you experience problems, see http://www.rsyslog.com/doc/troubleshoot.html

#### GLOBAL DIRECTIVES ####

# Where to place auxiliary files
global(workDirectory="/var/lib/rsyslog")

#### MODULES ####

# Use default timestamp format
module(load="builtin:omfile" Template="RSYSLOG_TraditionalFileFormat")

module(load="imuxsock"      # provides support for local system logging (e.g. via logger command)
        SysSock.Use="off") # Turn off message reception via local log socket;
                           # local messages are retrieved through imjournal now.
module(load="imjournal"     # provides access to the systemd journal
        UsePid="system" # PID number is retrieved as the ID of the process the journal entry originates from
        FileCreateMode="0644" # Set the access permissions for the state file
        StateFile="imjournal.state") # File to store the position in the journal

# Include all config files in /etc/rsyslog.d/
include(file="/etc/rsyslog.d/*.conf" mode="optional")

#module(load="imklog") # reads kernel messages (the same are read from journald)
```

72. Custom log dosyası oluşturun ve test mesajı gönderin.

```
root@Redhat-Linux:~# cat /var/log/mycustom.log
Jul 22 06:34:53 Redhat-Linux mylogger[11809]: BU bir test log mesajidir
```

73. Log rotation konfigürasyonunu görüntüleyin (/etc/logrotate.conf).


```
serhatakca@Redhat-Linux:~$ cat /etc/logrotate.conf
# see "man logrotate" for details

# global options do not affect preceding include directives

# rotate log files weekly
weekly

# keep 4 weeks worth of backlogs
rotate 4

# create new (empty) log files after rotating old ones
create

# use date as a suffix of the rotated file
dateext

# uncomment this if you want your log files compressed
#compress

# packages drop log rotation information into this directory
include /etc/logrotate.d

# system-specific logs may also be configured here.
```

74. Disk kullanımı yüksek olan log dosyalarını bulun.

```
serhatakca@Redhat-Linux:~$ sudo du -ah /var/log | sort -rh | head -n 10
19M    /var/log
6.3M   /var/log/audit/audit.log
6.3M   /var/log/audit
5.9M   /var/log/anaconda
3.5M   /var/log/anaconda/journal.log
2.6M   /var/log/messages-20250711
2.3M   /var/log/messages
1.5M   /var/log/anaconda/syslog
984K   /var/log/messages-20250718
420K   /var/log/anaconda/packaging.log
```

75. Eski log dosyalarını temizleyin ve disk alanı kazanın.

```
serhatakca@Redhat-Linux:~$ sudo rm -f /var/log/*.gz/var/log/*.1/var/log/*.old
serhatakca@Redhat-Linux:~$
```

76. Sistem IP konfigürasyonunu görüntüleyin (ip addr show).

```

serhatakca@Redhat-Linux:~$ ip addr show
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
        valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host noprefixroute
        valid_lft forever preferred_lft forever
2: enp0s3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether 08:00:27:43:9b:69 brd ff:ff:ff:ff:ff:ff
    altname enx080027439b69
    inet6 fe80::a00:27ff:fe43:9b69/64 scope link noprefixroute
        valid_lft forever preferred_lft forever

```

77. Routing tablosunu kontrol edin.

```

serhatakca@Redhat-Linux:~$ route -n
Kernel IP routing table
Destination      Gateway          Genmask         Flags Metric Ref    Use Iface

```

78. DNS ayarlarını kontrol edin (/etc/resolv.conf).

```

serhatakca@Redhat-Linux:~$ cat /etc/resolv.conf
# Generated by NetworkManager
nameserver 192.168.1.1
nameserver fe80::1%enp0s3

```

79. Firewall kurallarını listeleyin (firewall-cmd).

```

serhatakca@Redhat-Linux:~$ sudo firewall-cmd --list-all
public (default, active)
  target: default
  ingress-priority: 0
  egress-priority: 0
  icmp-block-inversion: no
  interfaces:
  sources:
  services: cockpit dhcpv6-client ssh
  ports:
  protocols:
  forward: yes
  masquerade: no
  forward-ports:
  source-ports:
  icmp-blocks:
  rich rules:

```

80. SSH port'unu güvenlik duvarında açın.


```
serhatakca@Redhat-Linux:~$ sudo firewall-cmd --permanent --add-service=ssh
Warning: ALREADY_ENABLED: ssh
success
```

81. Belirli bir IP adresini engelleyin.

```
serhatakca@Redhat-Linux:~$ sudo firewall-cmd --permanent --add-rich-rule='rule family="ipv4" source address="192.168.1.100" reject'
success
```

82. Aktif network bağlantılarını görüntüleyin (netstat veya ss).

```
serhatakca@Redhat-Linux:~$ ss -tuln
```

Netid	State	Recv-Q	Send-Q	Local Address:Port	Peer Address:Port
udp	UNCONN	0	0	0.0.0.0:5353	0.0.0.0:*
udp	UNCONN	0	0	127.0.0.1:323	0.0.0.0:*
udp	UNCONN	0	0	:::5353	:::*
udp	UNCONN	0	0	:::1:323	:::*
tcp	LISTEN	0	128	0.0.0.0:22	0.0.0.0:*
tcp	LISTEN	0	4096	127.0.0.1:631	0.0.0.0:*
tcp	LISTEN	0	4096	:::1:631	:::*
tcp	LISTEN	0	128	:::22	:::*
tcp	LISTEN	0	4096	:::9090	:::*

83. Ağ trafiğini izleyin (tcpdump veya iftop - mevcut ise).

```
serhatakca@Redhat-Linux:~$ sudo tcpdump
dropped privs to tcpdump
tcpdump: verbose output suppressed, use -v[v]... for full protocol decode
listening on enp0s3, link-type EN10MB (Ethernet), snapshot length 262144 bytes
06:54:05.435757 ARP, Request who-has 10.254.146.8 (Broadcast) tell 10.254.146.8, length 46
06:54:05.435758 ARP, Request who-has 10.254.146.8 (Broadcast) tell 10.254.146.8, length 46
06:54:05.435758 ARP, Request who-has 10.254.146.8 (Broadcast) tell 10.254.146.8, length 46
06:54:09.120235 ARP, Request who-has 10.254.167.25 (Broadcast) tell 10.254.167.25, length 46
06:54:09.121698 ARP, Request who-has 10.254.167.25 (Broadcast) tell 10.254.167.25, length 46
06:54:09.121699 ARP, Request who-has 10.254.167.25 (Broadcast) tell 10.254.167.25, length 46
06:54:13.523371 ARP, Request who-has 10.254.154.41 (Broadcast) tell 10.254.154.41, length 46
06:54:13.531946 ARP, Request who-has 10.254.154.41 (Broadcast) tell 10.254.154.41, length 46
06:54:13.531946 ARP, Request who-has 10.254.154.41 (Broadcast) tell 10.254.154.41, length 46
06:54:13.531946 ARP, Request who-has 10.254.154.41 (Broadcast) tell 10.254.154.41, length 50
06:54:13.934772 ARP, Request who-has 10.254.167.40 tell 10.254.167.40, length 46
06:54:18.643511 ARP, Request who-has 10.254.167.139 (Broadcast) tell 10.254.167.139, length 46
06:54:18.645809 ARP, Request who-has 10.254.167.139 (Broadcast) tell 10.254.167.139, length 46
06:54:18.645810 ARP, Request who-has 10.254.167.139 (Broadcast) tell 10.254.167.139, length 46
06:54:18.745940 ARP, Reply 10.254.167.139 is-at 1a:3b:ba:f3:16:ef (oui Unknown), length 46
06:54:22.534686 ARP, Request who-has 10.254.167.27 (Broadcast) tell 10.254.167.27, length 46
06:54:22.539595 ARP, Request who-has 10.254.167.27 (Broadcast) tell 10.254.167.27, length 46
06:54:22.539595 ARP, Request who-has 10.254.167.27 (Broadcast) tell 10.254.167.27, length 46
06:54:22.539595 ARP, Reply 10.254.167.27 is-at c6:a2:1b:da:85:2f (oui Unknown), length 46
06:54:22.539596 ARP, Reply 10.254.167.27 is-at c6:a2:1b:da:85:2f (oui Unknown), length 46
06:54:23.558752 ARP, Request who-has 10.254.167.59 (Broadcast) tell 10.254.167.59, length 46
06:54:23.559245 ARP, Request who-has 10.254.167.59 (Broadcast) tell 10.254.167.59, length 46
06:54:23.559245 ARP, Request who-has 10.254.167.59 (Broadcast) tell 10.254.167.59, length 46
06:54:25.504213 ARP, Request who-has 10.254.167.103 (Broadcast) tell 10.254.167.103, length 46
06:54:25.505375 ARP, Request who-has 10.254.167.103 (Broadcast) tell 10.254.167.103, length 46
```

84. Hostname'i kontrol edin ve geçici olarak değiştirin.

```

serhatakca@deneme-makinesi:~$ hostname
deneme-makinesi
serhatakca@deneme-makinesi:~$ sudo hostname serhat-akca
[sudo] password for serhatakca:
serhatakca@deneme-makinesi:~$ hostname
serhat-akca

```

85. /etc/hosts dosyasına yeni bir entry ekleyin.

```

GNU nano 8.1 /etc/hosts
# Loopback entries; do not change.
# For historical reasons, localhost precedes localhost.localdomain:
127.0.0.1    localhost localhost.localdomain localhost4 localhost4.localdomain4
::1         localhost localhost.localdomain localhost6 localhost6.localdomain6
# See hosts(5) for proper format and other examples:
# 192.168.1.10 foo.example.org foo
# 192.168.1.13 bar.example.org bar
192.168.1.50 testmakine.local testmakine

```

86. Disk kullanımını detaylı olarak analiz edin (df -h, du -sh).

```

serhatakca@deneme-makinesi:~$ df -h

```

Filesystem	Size	Used	Avail	Use%	Mounted on
/dev/mapper/rhel_vbox-root	17G	4.2G	13G	25%	/
devtmpfs	4.0M	0	4.0M	0%	/dev
tmpfs	1014M	84K	1014M	1%	/dev/shm
tmpfs	406M	15M	392M	4%	/run
tmpfs	1.0M	0	1.0M	0%	/run/credentials/systemd-journald.service
/dev/sda2	960M	335M	626M	35%	/boot
tmpfs	203M	148K	203M	1%	/run/user/1000
tmpfs	203M	60K	203M	1%	/run/user/0

87. I/O performansını kontrol edin (iostat - mevcut ise).

```

serhatakca@deneme-makinesi:~$ which iostat
/usr/bin/which: no iostat in (/home/serhatakca/.local/bin:/home/serhatakca/bin:/usr/local/bin:/usr/local/sbin:/usr/bin:/usr/sbin)

```

Mevcut değil.

88. Memory kullanımını analiz edin (free -h).

```
serhatakca@deneme-makinesi:~$ free -h
```

	total	used	free	shared	buff/cache	available
Mem:	2.0Gi	1.3Gi	73Mi	18Mi	808Mi	680Mi
Swap:	2.0Gi	34Mi	2.0Gi			

89. Swap kullanımını kontrol edin.

```
serhatakca@deneme-makinesi:~$ swapon --show
```

NAME	TYPE	SIZE	USED	PRIO
/dev/dm-1	partition	2G	97.4M	-2

90. Sistem uptime'ını ve yük ortalamasını görüntüleyin.

```
serhatakca@deneme-makinesi:~$ uptime
```

07:10:37 up 3:54, 2 users, load average: 0.19, 0.13, 0.05

91. Cron job'ları listeleysin (system ve user level).

USER

```
serhatakca@deneme-makinesi:~$ crontab -l
```

no crontab for serhatakca

SYSTEM

```
serhatakca@deneme-makinesi:~$ cat /etc/crontab
```

SHELL=/bin/bash
PATH=/sbin:/bin:/usr/sbin:/usr/bin
MAILTO=root

For details see man 4 crontabs

Example of job definition:
.----- minute (0 - 59)
| .----- hour (0 - 23)
| | .----- day of month (1 - 31)
| | | .----- month (1 - 12) OR jan,feb,mar,apr ...
| | | | .---- day of week (0 - 6) (Sunday=0 or 7) OR sun,mon,tue,wed,thu,fri,sat
| | | | |
* * * * * user-name command to be executed

92. Yeni bir cron job oluşturun (örnek: her 5 dakikada disk kullanımını log'la).

```

serhatakca@deneme-makinesi:~$ crontab -e
crontab: installing new crontab
Backup of serhatakca's previous crontab saved to /home/serhatakca/.cache/crontab/crontab.bak
serhatakca@deneme-makinesi:~$ crontab -l
*/5 * * * * df -h >> /home/serhatakca/disk_kullanim.log 2>&1

```

93. Sistem kaynaklarını sürekli izleyin (htop veya top).

```

:op - 07:23:14 up 4:07, 2 users, load average: 0.13, 0.05, 0.01
Tasks: 226 total, 1 running, 225 sleeping, 0 stopped, 0 zombie
%Cpu(s): 0.3 us, 0.2 sy, 0.0 ni, 99.3 id, 0.0 wa, 0.2 hi, 0.0 si, 0.0 st
MiB Mem : 2026.3 total, 88.9 free, 1305.0 used, 834.3 buff/cache
MiB Swap: 2048.0 total, 1950.6 free, 97.4 used, 721.3 avail Mem

```

PID	USER	PR	NI	VIRT	RES	SHR	S	%CPU	%MEM	TIME+	COMMAND
12753	serhata+	20	0	1879692	327964	99636	S	1.0	15.8	0:25.35	ptxis
1739	serhata+	20	0	4156812	324784	108716	S	0.3	15.7	2:18.24	gnome-shell
13982	serhata+	20	0	231588	5268	3220	R	0.3	0.3	0:00.03	top
1	root	20	0	49188	40120	9200	S	0.0	1.9	0:10.31	systemd
2	root	20	0	0	0	0	S	0.0	0.0	0:00.01	kthreadd
3	root	20	0	0	0	0	S	0.0	0.0	0:00.00	pool_workqueue_release
4	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	kworker/R-rcu_gp
5	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	kworker/R-sync_wq
6	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	kworker/R-slub_flushwq
7	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	kworker/R-netns
10	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	kworker/0:0H-kblockd
11	root	20	0	0	0	0	I	0.0	0.0	0:00.00	kworker/u8:0-ipv6_addrconf
13	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	kworker/R-mm_percpu_wq
14	root	20	0	0	0	0	I	0.0	0.0	0:00.00	rcu_tasks_kthread
15	root	20	0	0	0	0	I	0.0	0.0	0:00.00	rcu_tasks_rude_kthread
16	root	20	0	0	0	0	I	0.0	0.0	0:00.00	rcu_tasks_trace_kthread
17	root	20	0	0	0	0	S	0.0	0.0	0:00.22	ksoftirqd/0
18	root	20	0	0	0	0	I	0.0	0.0	0:01.01	rcu_preempt
19	root	20	0	0	0	0	S	0.0	0.0	0:00.00	rcu_exp_par_gp_kthread_worker/0
20	root	20	0	0	0	0	S	0.0	0.0	0:00.00	rcu_exp_gp_kthread_worker
21	root	rt	0	0	0	0	S	0.0	0.0	0:00.01	migration/0
22	root	-51	0	0	0	0	S	0.0	0.0	0:00.00	idle_inject/0

94. En çok yer kaplayan dizinleri bulun.

```

serhatakca@deneme-makinesi:~$ sudo du -ah / | sort -rh | head -n 10
du: cannot access '/proc/14027/task/14027/fd/4': No such file or directory
du: cannot access '/proc/14027/task/14027/fdinfo/4': No such file or directory
du: cannot access '/proc/14027/fd/3': No such file or directory
du: cannot access '/proc/14027/fdinfo/3': No such file or directory
du: cannot access '/run/user/1000/gvfs': Permission denied
du: cannot access '/run/user/1000/doc': Permission denied
4.1G    /
3.6G    /usr
1.4G    /usr/share
1.1G    /usr/lib64
789M    /usr/lib
375M    /usr/share/locale
307M    /usr/lib64/firefox
301M    /usr/lib/firmware
284M    /boot
234M    /usr/bin

```

95. Sistem backup için temel tar komutu kullanın (/opt/testproject dizinini yedekleyin).

```
serhatakca@deneme-makinesi:~$ sudo tar -czvf /root/testproject_backup.tar.gz /opt/testproject
tar: Removing leading `/' from member names
/opt/testproject/
/opt/testproject/config.txt
/opt/testproject/logs/
/opt/testproject/config_symlink.txt
/opt/testproject/config_hardlink.txt
```