

# **RedHat 2**

**Day1**

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# 1. Use systemctl to view the status of all the system services. → sudo systemctl list-units --type=service --all

All the system services (active and inactive, loaded and failed, running or no):

sudo systemctl list-units --type=service --all

UNIT	LOAD	ACTIVE	SUB	DESCRIPTION
UNIT	LOAD	ACTIVE	SUB	DESCRIPTION
accounts-daemon.service	loaded	active	running	Accounts Service
alsa-restore.service	loaded	inactive	dead	Save/Restore Sound Card State
alsa-state.service	loaded	active	running	Manage Sound Card State (restore & suspend)
atd.service	loaded	active	running	Deferred execution scheduler
audited.service	loaded	active	running	Security Auditing Service
● auto-cpufreq.service	not-found	inactive	dead	auto-cpufreq.service
● autofs.service	not-found	inactive	dead	autofs.service
avahi-daemon.service	loaded	active	running	Avahi mDNS/DNS-SD Stack
blk-availability.service	loaded	inactive	dead	Availability of block devices
chronyd.service	loaded	active	running	NTP client/server
colord.service	loaded	active	running	Manage, Install and Generate Color Profiles
cpupower.service	loaded	inactive	dead	Configure CPU power related settings
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
dm-event.service	loaded	inactive	dead	Device-mapper event daemon
dnf-makecache.service	loaded	inactive	dead	dnf makecache
dracut-cmdline.service	loaded	inactive	dead	dracut cmdline hook
dracut-initqueue.service	loaded	inactive	dead	dracut initqueue hook
dracut-mount.service	loaded	inactive	dead	dracut mount hook
dracut-pre-mount.service	loaded	inactive	dead	dracut pre-mount hook
dracut-pre-pivot.service	loaded	inactive	dead	dracut pre-pivot and cleanup hook

## More details

All the system services active:

sudo 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 suspend)
atd.service	loaded	active	running	Deferred execution scheduler
audited.service	loaded	active	running	Security Auditing 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
firewalld.service	loaded	active	running	firewalld - dynamic firewall daemon
fprintd.service	loaded	active	running	Fingerprint Authentication Daemon
fwupd.service	loaded	active	running	Firmware update daemon
gdm.service	loaded	active	running	GNOME Display Manager
geoclue.service	loaded	active	running	Location Lookup Service
irqbalance.service	loaded	active	running	irqbalance daemon
kdump.service	loaded	active	exited	Crash recovery kernel arming
kmod-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 & Volumes
ModemManager.service	loaded	active	running	Modem Manager

## All the system services inactive:

sudo systemctl list-units --type=service --state=inactive

UNIT	LOAD	ACTIVE	SUB	DESCRIPTION
alsa-restore.service	loaded	inactive	dead	Save/Restore Sound Card State
● auto-cpufreq.service	not-found	inactive	dead	auto-cpufreq.service
● autofs.service	not-found	inactive	dead	autofs.service
blk-availability.service	loaded	inactive	dead	Availability of block devices
cpupower.service	loaded	inactive	dead	Configure CPU power related settings
dm-event.service	loaded	inactive	dead	Device-mapper event daemon
dracut-cmdline.service	loaded	inactive	dead	dracut cmdline hook
dracut-initqueue.service	loaded	inactive	dead	dracut initqueue hook
dracut-mount.service	loaded	inactive	dead	dracut mount hook
dracut-pre-mount.service	loaded	inactive	dead	dracut pre-mount hook
dracut-pre-pivot.service	loaded	inactive	dead	dracut pre-pivot and cleanup hook
dracut-pre-trigger.service	loaded	inactive	dead	dracut pre-trigger hook
dracut-pre-udev.service	loaded	inactive	dead	dracut pre-udev hook
dracut-shutdown-onfailure.service	loaded	inactive	dead	Service executing upon dracut-shutdown failure
● ebtables.service	not-found	inactive	dead	ebtables.service
emergency.service	loaded	inactive	dead	Emergency Shell
● exim.service	not-found	inactive	dead	exim.service
● fcoe.service	not-found	inactive	dead	fcoe.service
getty@tty1.service	loaded	inactive	dead	Getty on tty1
initrd-cleanupservice	loaded	inactive	dead	Cleaning Up and Shutting Down Daemons
initrd-parse-etc.service	loaded	inactive	dead	Mountpoints Configured in the Real Root
initrd-switch-root.service	loaded	inactive	dead	Switch Root
initrd-udevadm-cleanup-db.service	loaded	inactive	dead	Cleanup udev Database

## All the system services active (by default):

sudo systemctl list-units --type=service

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 s>
atd.service	loaded	active	running	Deferred execution scheduler
audited.service	loaded	active	running	Security Auditing 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 Pro>
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
firewalld.service	loaded	active	running	firewalld - dynamic firewall daemon
fwupd.service	loaded	active	running	Firmware update daemon
gdm.service	loaded	active	running	GNOME Display Manager
geoclue.service	loaded	active	running	Location Lookup Service
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 >
● mcelog.service	loaded	failed	failed	Machine Check Exception Logging Daemon
ModemManager.service	loaded	active	running	Modem Manager

## All the system units:

**sudo systemctl list-units --all**

```
nada :>sudo systemctl list-units --all
nada_mohamed2243@localhost:~— sudo systemctl list-units --all
 _UNIT                                     LOAD STATE
● boot.automount                           not active
● proc-sys-fs-binfmt_misc.automount         loaded
● dev-cdrom.device                          loaded
● dev-disk-by\2ddiskseq-1.device            loaded
● dev-disk-by\2ddiskseq-3.device            loaded
● dev-disk-by\2did-ata\2dVMware_Virtual_SATA_CDRW_Drive_01000000000000000001.device
● dev-disk-by\2did-dm\2dname\2drhel\2droot.device
● dev-disk-by\2did-dm\2dname\2drhel\2dswap.device
● dev-disk-by\2did-dm\2duuid\2dLVM\2dM86V8PavyUdvYwQlyJSDeoCQGkgUsvQFjzy5s0BRaWghJ729uGmwASu1IRcQuZH.device
● dev-disk-by\2did-dm\2duuid\2dLVM\2dM86V8PavyUdvYwQlyJSDeoCQGkgUsvQFSY3t1tAaiQjiM3LhWXZrOKVQwnDz4SrK.device
● dev-disk-by\2did-lvm\2dpv\2druid\2dssBagK\2dnvz1\2d6972\2dJy6b\2dCd00\2d07ff\2dtDLess.device
● dev-disk-by\2did-nvme\2deui.58fda92a08f12fba000c2969944b5718.device
● dev-disk-by\2did-nvme\2deui.58fda92a08f12fba000c2969944b5718\2dpart1.device
● dev-disk-by\2did-nvme\2deui.58fda92a08f12fba000c2969944b5718\2dpart2.device
● dev-disk-by\2did-nvme\2deui.58fda92a08f12fba000c2969944b5718\2dpart3.device
● dev-disk-by\2did-nvme\2dVMware_Virtual_NVMe_Disk_Vmware_NVME_0000.device
● dev-disk-by\2did-nvme\2dVMware_Virtual_NVMe_Disk_Vmware_NVME_0000\2dpart1.device
● dev-disk-by\2did-nvme\2dVMware_Virtual_NVMe_Disk_Vmware_NVME_0000\2dpart2.device
● dev-disk-by\2did-nvme\2dVMware_Virtual_NVMe_Disk_Vmware_NVME_0000\2dpart3.device
● dev-disk-by\2did-nvme\2dVMware_Virtual_NVMe_Disk_Vmware_NVME_0000_1.device
● dev-disk-by\2did-nvme\2dVMware_Virtual_NVMe_Disk_Vmware_NVME_0000_1\2dpart1.device
● dev-disk-by\2did-nvme\2dVMware_Virtual_NVMe_Disk_Vmware_NVME_0000_1\2dpart2.device
● dev-disk-by\2did-nvme\2dVMware_Virtual_NVMe_Disk_Vmware_NVME_0000_1\2dpart3.device
[lines 1-24]
```

## socket

```
systemd-initctl.socket
systemd-journald-dev-log.socket
systemd-journald.socket
systemd-rfkill.socket
```

## swap

```
systemd-udevd-kernel.socket
dev-disk-by\2did-dm\2dname\2drhel\2dswap.swap
dev-disk-by\2did-dm\2duuid\2dLVM\2dM86V8PavyUdvYwQlyJSDeoCQGkgUsvQFSY3t1tAaiQjiM3LhWXZrOKVQwnDz4SrK.swap
dev-disk-by\2duuid-6ec0a64e\2d0cb9\2d4b05\2db032\2d1f24a0347dc4.swap
```

## target

```
dev-rhel-swap.swap
basic.target
blockdev@dev-disk-by\2duuid-170C\2dA591.target
blockdev@dev-disk-by\2duuid-a346097c\2dacc1\2d4cb8\2d840d\2d0205bc900e47.target
blockdev@dev-dm\2d1.target
```

## timer

```
veritysetup.target                                loa>
dnf-makecache.timer                            loa>
logrotate.timer                               loa>
mlocate-updatedb.timer                         loa>
systemd-tmpfiles-clean.timer                  loa>
```

## slice

```
system-getty.slice
system-modprobe.slice
system-sshd\x2dkeygen.slice
```

## Mount , path and service

```
tmp.mount
● var.mount
  cups.path
  systemd-ask-password-console.path
  systemd-ask-password-plymouth.path
  systemd-ask-password-wall.path
  init.scope
  session-2.scope
accounts-daemon.service
alsa-restore.service
alsa-state.service
atd.service
```

And All units name exist here

```
nada :>systemctl -t help
Available unit types:
service
mount
swap
socket
target
device
automount
timer
path
slice
scope
```

## 2. change the default target back to multi-user.target and reboot.

systemctl set-default multi-user.target

reboot

```
nada :>systemctl set-default multi-user.target
Removed "/etc/systemd/system/default.target".
Created symlink /etc/systemd/system/default.target → /usr/lib/systemd/system/multi-user.target.
nada :>reboot
```

Here if we run **systemctl get-default** the result will be **multi-user.target**

```
Red Hat Enterprise Linux 9.5 (Plow)
Kernel 5.14.0-503.21.1.el9_5.x86_64 on an x86_64

Activate the web console with: systemctl enable --now cockpit.socket

localhost login: root
Password:
Last login: Tue Feb 11 14:49:03 on ttym1
[root@localhost ~]# systemctl get-default
multi-user.target
[root@localhost ~]# _
```

We return to **graphical.target** by using

systemctl set-default graphical.target

reboot

```
[root@localhost ~]# systemctl set-default graphical.target
Removed "/etc/systemd/system/default.target".
Created symlink /etc/systemd/system/default.target → /usr/lib/systemd/system/graphical.target.
[root@localhost ~]# reboot_
```

### 3. Use systemctl utility to stop postfix/sendmail service.

We first check the status of the sendmail service.

**sudo systemctl status sendmail**

```
nada :>sudo systemctl status sendmail
[sudo] password for nada_mohamed2243:
● sendmail.service - Sendmail Mail Transport Agent
    Loaded: loaded (/usr/lib/systemd/system/sendmail.service; enabled; preset:>)
    Active: active (running) since Tue 2025-02-11 15:03:06 EET; 7min ago
      Process: 1290 ExecStartPre=/etc/mail/make (code=exited, status=0/SUCCESS)
      Process: 1300 ExecStartPre=/etc/mail/make aliases (code=exited, status=0/SU>
      Process: 1318 ExecStart=/usr/sbin/sendmail -bd $SENDMAIL_OPTS $SENDMAIL_OPT>
    Main PID: 1335 (sendmail)
       Tasks: 1 (limit: 22809)
      Memory: 3.5M
         CPU: 47ms
        CGroup: /system.slice/sendmail.service
                  └─1335 "sendmail: accepting connections"

Feb 11 15:03:06 localhost.localdomain systemd[1]: Starting Sendmail Mail Transp>
Feb 11 15:03:06 localhost.localdomain sendmail[1335]: starting daemon (8.16.1):>
Feb 11 15:03:06 localhost.localdomain systemd[1]: sendmail.service: Can't open >
Feb 11 15:03:06 localhost.localdomain systemd[1]: Started Sendmail Mail Transpo>
[lines 1-17/17 (END)]
```

**sudo systemctl stop sendmail**

```
nada :>sudo systemctl stop sendmail
```

**sudo systemctl status sendmail**

```
nada :>sudo systemctl status sendmail
● sendmail.service - Sendmail Mail Transport Agent
    Loaded: loaded (/usr/lib/systemd/system/sendmail.service; enabled; preset:>)
    Active: inactive (dead) since Tue 2025-02-11 15:17:16 EET; 8s ago
      Duration: 14min 10.427s
        Process: 1290 ExecStartPre=/etc/mail/make (code=exited, status=0/SUCCESS)
        Process: 1300 ExecStartPre=/etc/mail/make aliases (code=exited, status=0/SU>
        Process: 1318 ExecStart=/usr/sbin/sendmail -bd $SENDMAIL_OPTS $SENDMAIL_OPT>
    Main PID: 1335 (code=exited, status=0/SUCCESS)
       CPU: 57ms

Feb 11 15:03:06 localhost.localdomain systemd[1]: Starting Sendmail Mail Transp>
Feb 11 15:03:06 localhost.localdomain sendmail[1335]: starting daemon (8.16.1):>
Feb 11 15:03:06 localhost.localdomain systemd[1]: sendmail.service: Can't open >
Feb 11 15:03:06 localhost.localdomain systemd[1]: Started Sendmail Mail Transpo>
Feb 11 15:17:16 localhost.localdomain systemd[1]: Stopping Sendmail Mail Transp>
Feb 11 15:17:16 localhost.localdomain systemd[1]: sendmail.service: Deactivated>
Feb 11 15:17:16 localhost.localdomain systemd[1]: Stopped Sendmail Mail Transpo>
[lines 1-17/17 (END)]
```

### 4. Use systemctl utility to start postfix/sendmail service

**sudo systemctl start sendmail**

```
nada :>sudo systemctl start sendmail
nada :>sudo systemctl status sendmail
● sendmail.service - Sendmail Mail Transport Agent
    Loaded: loaded (/usr/lib/systemd/system/sendmail.service; enabled; preset:>)
      Active: active (running) since Tue 2025-02-11 15:26:37 EET; 5s ago
        Process: 3327 ExecStartPre=/etc/mail/make (code=exited, status=0/SUCCESS)
        Process: 3328 ExecStartPre=/etc/mail/make aliases (code=exited, status=0/SU>
        Process: 3332 ExecStart=/usr/sbin/sendmail -bd $SENDMAIL_OPTS $SENDMAIL_OPT>
      Main PID: 3333 (sendmail)
         Tasks: 1 (limit: 22809)
        Memory: 3.5M
          CPU: 33ms
        CGroup: /system.slice/sendmail.service
                  └─3333 "sendmail: accepting connections"

Feb 11 15:26:37 localhost.localdomain systemd[1]: Starting Sendmail Mail Transp>
Feb 11 15:26:37 localhost.localdomain sendmail[3333]: starting daemon (8.16.1):>
Feb 11 15:26:37 localhost.localdomain systemd[1]: sendmail.service: Can't open >
Feb 11 15:26:37 localhost.localdomain systemd[1]: Started Sendmail Mail Transpo>
[lines 1-17/17 (END)]
```

## **5. switch to the multi-user target manually without rebooting. → [systemctl isolate multi-user.target](#)**

**First to display the current default systemd target :**

**[systemctl get-default](#)**

```
nada :>systemctl get-default
graphical.target
```

**switches the system to the multi-user.target mode without rebooting**

**[systemctl isolate multi-user.target](#)**

Here if we run `systemctl get-default` the result will be graphical.target also

We return by using `systemctl isolate graphical.target`

```
Red Hat Enterprise Linux 9.5 (Plow)
Kernel 5.14.0-503.21.1.e19_5.x86_64 on an x86_64

Activate the web console with: systemctl enable --now cockpit.socket

localhost login: root
Password:
Last login: Sat Jan 18 22:40:58 on pts/0
[root@localhost ~]# systemctl get-default
graphical.target
[root@localhost ~]# _
```

## 6. set the default systemd target to graphical.target.

`systemctl set-default graphical.target`

```
nada :>systemctl get-default
graphical.target
nada :>systemctl set-default graphical.target
nada :>█
```

## 7. Display the status of sshd service, note the PID of the daemon.

sudo systemctl status sshd

```
nada :>sudo systemctl status sshd
● sshd.service - OpenSSH server daemon
  Loaded: loaded (/usr/lib/systemd/system/sshd.service; enabled; preset: ena>
  Active: active (running) since Tue 2025-02-11 15:39:02 EET; 2min 50s ago
    Docs: man:sshd(8)
          man:sshd_config(5)
  Main PID: 1056 (sshd)
    Tasks: 1 (limit: 22809)
   Memory: 2.6M
      CPU: 16ms
     CGroup: /system.slice/sshd.service
             └─1056 "sshd: /usr/sbin/sshd -D [listener] 0 of 10-100 startups"

Feb 11 15:39:02 localhost.localdomain systemd[1]: Starting OpenSSH server daemo>
Feb 11 15:39:02 localhost.localdomain sshd[1056]: Server listening on 0.0.0.0 p>
Feb 11 15:39:02 localhost.localdomain sshd[1056]: Server listening on :: port 2>
Feb 11 15:39:02 localhost.localdomain systemd[1]: Started OpenSSH server daemon.
```

## 8. Restart the sshd service and view the status, The PID of the daemon has changed.

sudo systemctl restart sshd

```
nada :>sudo systemctl restart sshd
nada :>sudo systemctl status sshd
● sshd.service - OpenSSH server daemon
  Loaded: loaded (/usr/lib/systemd/system/sshd.service; enabled; preset: ena>
  Active: active (running) since Tue 2025-02-11 15:43:09 EET; 4s ago
    Docs: man:sshd(8)
          man:sshd_config(5)
  Main PID: 3321 (sshd)
    Tasks: 1 (limit: 22809)
   Memory: 1.4M
      CPU: 9ms
     CGroup: /system.slice/sshd.service
             └─3321 "sshd: /usr/sbin/sshd -D [listener] 0 of 10-100 startups"

Feb 11 15:43:09 localhost.localdomain systemd[1]: Starting OpenSSH server daemo>
Feb 11 15:43:09 localhost.localdomain sshd[3321]: Server listening on 0.0.0.0 p>
Feb 11 15:43:09 localhost.localdomain sshd[3321]: Server listening on :: port 2>
Feb 11 15:43:09 localhost.localdomain systemd[1]: Started OpenSSH server daemon.
```

## 9. Reload the sshd service and view the status, The PID of the daemon has not changed and connection has not be interrupted.

sudo systemctl reload sshd

```
nada :>sudo systemctl reload sshd
nada :>sudo systemctl status sshd
● sshd.service - OpenSSH server daemon
   Loaded: loaded (/usr/lib/systemd/system/sshd.service; enabled; preset: ena>
   Active: active (running) since Tue 2025-02-11 15:43:09 EET; 3min 33s ago
     Docs: man:sshd(8)
           man:sshd_config(5)
  Process: 3350 ExecReload=/bin/kill -HUP $MAINPID (code=exited, status=0/SUC>
 Main PID: 3321 (sshd)
    Tasks: 1 (limit: 22809)
   Memory: 1.4M
      CPU: 20ms
     CGroup: /system.slice/sshd.service
             └─3321 "sshd: /usr/sbin/sshd -D [listener] 0 of 10-100 startups"

Feb 11 15:43:09 localhost.localdomain systemd[1]: Starting OpenSSH server daemo>
Feb 11 15:43:09 localhost.localdomain sshd[3321]: Server listening on 0.0.0.0 p>
Feb 11 15:43:09 localhost.localdomain sshd[3321]: Server listening on :: port 2>
Feb 11 15:43:09 localhost.localdomain systemd[1]: Started OpenSSH server daemon.
Feb 11 15:46:37 localhost.localdomain systemd[1]: Reloading OpenSSH server daem>
Feb 11 15:46:37 localhost.localdomain sshd[3321]: Received SIGHUP; restarting.
Feb 11 15:46:37 localhost.localdomain systemd[1]: Reloaded OpenSSH server daem>
Feb 11 15:46:37 localhost.localdomain sshd[3321]: Server listening on 0.0.0.0 p>
Feb 11 15:46:37 localhost.localdomain sshd[3321]: Server listening on :: port 2>
```

## 10. Verify that the chronyd service is running.

systemctl status chronyd

```
nada :>sudo systemctl status chronyd
● chronyd.service - NTP client/server
   Loaded: loaded (/usr/lib/systemd/system/chronyd.service; enabled; preset: >
   Active: active (running) since Tue 2025-02-11 15:39:02 EET; 10min ago
     Docs: man:chronyd(8)
           man:chrony.conf(5)
  Main PID: 944 (chronyd)
    Tasks: 1 (limit: 22809)
   Memory: 4.2M
      CPU: 68ms
     CGroup: /system.slice/chronyd.service
             └─944 /usr/sbin/chronyd -F 2

Feb 11 15:39:02 localhost systemd[1]: Starting NTP client/server...
Feb 11 15:39:02 localhost chronyd[944]: chronyd version 4.5 starting (+CMDMON +>
Feb 11 15:39:02 localhost chronyd[944]: Loaded 0 symmetric keys
Feb 11 15:39:02 localhost chronyd[944]: Using right/UTC timezone to obtain leap>
Feb 11 15:39:02 localhost chronyd[944]: Frequency 7.376 +/- 1.021 ppm read from>
Feb 11 15:39:02 localhost chronyd[944]: Loaded seccomp filter (level 2)
Feb 11 15:39:02 localhost systemd[1]: started NTP client/server.
Feb 11 15:39:08 localhost.localdomain chronyd[944]: Selected source 196.49.100.>
Feb 11 15:39:08 localhost.localdomain chronyd[944]: System clock TAI offset set>
lines 1-21/21 (END)
```

## 11. Stop the service and view the status.

**sudo systemctl stop chronyd**

**sudo systemctl status chronyd**

```
nada :>sudo systemctl stop chronyd
nada :>sudo systemctl status chronyd
○ chronyd.service - NTP client/server
    Loaded: loaded (/usr/lib/systemd/system/chronyd.service; enabled; preset: >
    Active: inactive (dead) since Tue 2025-02-11 15:50:19 EET; 2s ago
      Duration: 11min 17.608s
        Docs: man:chronyd(8)
               man:chrony.conf(5)
    Main PID: 944 (code=exited, status=0/SUCCESS)
      CPU: 71ms

Feb 11 15:39:02 localhost chronyd[944]: Using right/UTC timezone to obtain leap>
Feb 11 15:39:02 localhost chronyd[944]: Frequency 7.376 +/- 1.021 ppm read from>
Feb 11 15:39:02 localhost chronyd[944]: Loaded seccomp filter (level 2)
Feb 11 15:39:02 localhost systemd[1]: Started NTP client/server.
Feb 11 15:39:08 localhost.localdomain chronyd[944]: Selected source 196.49.100.>
Feb 11 15:39:08 localhost.localdomain chronyd[944]: System clock TAI offset set>
Feb 11 15:50:19 localhost.localdomain chronyd[944]: chronyd exiting
Feb 11 15:50:19 localhost.localdomain systemd[1]: Stopping NTP client/server...
Feb 11 15:50:19 localhost.localdomain systemd[1]: chronyd.service: Deactivated >
Feb 11 15:50:19 localhost.localdomain systemd[1]: Stopped NTP client/server.
lines 1-19/19 (END)
```

## 12. Determine if the chronyd service is enabled to start at the system boot

**sudo systemctl status chronyd**

```
nada :>sudo systemctl status chronyd
○ chronyd.service - NTP client/server
    Loaded: loaded (/usr/lib/systemd/system/chronyd.service; enabled; preset: >
    Active: inactive (dead) since Tue 2025-02-11 15:50:19 EET; 2s ago
      Duration: 11min 17.608s
        Docs: man:chronyd(8)
               man:chrony.conf(5)
    Main PID: 944 (code=exited, status=0/SUCCESS)
      CPU: 71ms
```

Or

**sudo systemctl list-unit-files | grep chronyd**

nada :>sudo systemctl list-unit-files   grep chronyd		
<b>chronyd-restricted.service</b>	disabled	disabled
<b>chronyd.service</b>	enabled	enabled

**13. Reboot the system, then view the status of the chronyd service.**

## **Before rebooting**

```
nada :~>sudo systemctl status chronyd
● chronyd.service - NTP client/server
    Loaded: loaded (/usr/lib/systemd/system/chronyd.service; enabled; preset: >
    Active: inactive (dead) since Tue 2025-02-11 15:50:19 EET; 5min ago
      Duration: 11min 17.608s
```

## After rebooting

```
nada :~>sudo systemctl status chronyd
[sudo] password for nada_mohamed2243:
● chronyd.service - NTP client/server
    Loaded: loaded (/usr/lib/systemd/system/chronyd.service; enabled; preset: >
              Active: active (running) since Tue 2025-02-11 15:57:35 EET; 1min 5s ago
                Docs: man:chronyd(8)
                      man:chrony.conf(5)
```

**14. Disable the chronyd service so that it doesn't start at system boot, then view the status of the service.**

```
nada :>sudo systemctl disable chronyd
Removed "/etc/systemd/system/multi-user.target.wants/chronyd.service".
nada :>sudo systemctl status chronyd
● chronyd.service - NTP client/server
    Loaded: loaded (/usr/lib/systemd/system/chronyd.service; disabled; preset:>)
    Active: active (running) since Tue 2025-02-11 15:57:35 EET; 4min 3s ago
      Docs: man:chronyd(8)
            man:chrony.conf(5)
```

If we reboot → will be inactive

```
nada :~>sudo systemctl status chronyd
[sudo] password for nada_mohamed2243:
● chronyd.service - NTP client/server
  Loaded: loaded (/usr/lib/systemd/system/chronyd.service; disabled; preset:>)
  Active: inactive (dead)
    Docs: man:chronyd(8)
          man:chrony.conf(5)
lines 1-5/5 (END)
```

## 15. Create your Customer Service.

### serviceScript.sh

```
nada_mohamed2243@localhost:~— /usr/bin/vim serviceScript.sh

#!/bin/bash
x=0
while true;do
    echo "hello $x">>> outputservice
    ((x++))
    sleep 10
done
~
```

**sudo vi  
/etc/systemd/system/my\_first\_servive.service**

```
[Unit]
Description=My first Custom Service
After=network.target

[Service]
ExecStart=/home/nada_mohamed2243/serviceScript.sh
Restart=always
User=nada_mohamed2243
Group=nada_mohamed2243

[Install]
WantedBy=multi-user.target
~
```

```
nada :>sudo systemctl status my_first_servive.service
● my_first_servive.service - My first Custom Service
   Loaded: loaded (/etc/systemd/system/my_first_servive.service; enabled; preset: disabled)
   Active: active (running) since Tue 2025-02-11 18:35:38 EET; 20min ago
     Main PID: 3487 (serviceScript.s)
        Tasks: 2 (limit: 22809)
       Memory: 620.0K
          CPU: 208ms
        CGroup: /system.slice/my_first_servive.service
                  └─3487 /bin/bash /home/nada_mohamed2243/serviceScript.sh
                      ├─4018 sleep 10
```

```
sudo systemctl daemon-reload
```

```
sudo systemctl restart my_first_servive.service
```

```
sudo systemctl status my_first_servive.service
```

UNIT	FILE	STATE	PRESET
my_first_servive.service		enabled	disabled

## 16. View logs since the last boot

```
sudo journalctl -b
```

```
nada :>sudo journalctl -b
Feb 11 16:02:45 localhost kernel: Linux version 5.14.0-503.21.1.el9_5.x86_64 (mockbuild@x86-64-04.build.eng.rdu2.redhat.com) (gcc (GCC) >
Feb 11 16:02:45 localhost kernel: The list of certified hardware and cloud instances for Red Hat Enterprise Linux 9 can be viewed at the >
Feb 11 16:02:45 localhost kernel: Command line: BOOT_IMAGE=(hd0,gpt2)/vmlinuz-5.14.0-503.21.1.el9_5.x86_64 root=/dev/mapper/rhel-root ro >
Feb 11 16:02:45 localhost kernel: [Firmware Bug]: TSC doesn't count with P0 frequency!
Feb 11 16:02:45 localhost kernel: BIOS-provided physical RAM map:
Feb 11 16:02:45 localhost kernel: BIOS-e820: [mem 0x0000000000000000-0x000000000000ffff] ACPI NVS
Feb 11 16:02:45 localhost kernel: BIOS-e820: [mem 0x0000000000001000-0x0000000000001fff] reserved
Feb 11 16:02:45 localhost kernel: BIOS-e820: [mem 0x0000000000002000-0x0000000000009ffff] usable
Feb 11 16:02:45 localhost kernel: BIOS-e820: [mem 0x0000000000c000-0x000000000000ffff] reserved
Feb 11 16:02:45 localhost kernel: BIOS-e820: [mem 0x000000000010000-0x00000000009f9bfff] usable
Feb 11 16:02:45 localhost kernel: BIOS-e820: [mem 0x0000000009f9c000-0x0000000009f9cffff] ACPI data
```

## 17. View logs for a specific systemd unit (e.g., sshd)

```
sudo journalctl -u sshd
```

```
nada :>sudo journalctl -u sshd
Feb 11 16:02:50 localhost.localdomain systemd[1]: Starting OpenSSH server daemon...
Feb 11 16:02:50 localhost.localdomain sshd[1055]: Server listening on 0.0.0.0 port 22.
Feb 11 16:02:50 localhost.localdomain sshd[1055]: Server listening on :: port 22.
Feb 11 16:02:50 localhost.localdomain systemd[1]: Started OpenSSH server daemon.
nada :>
```

## 18. View logs for the last 10 minutes

```
sudo journalctl --since "10 minutes ago"
```

```
nada :>sudo journalctl --since "10 minutes ago"
Feb 11 16:08:28 localhost.localdomain PackageKit[1966]: daemon quit
Feb 11 16:08:28 localhost.localdomain systemd[1]: packagekit.service: Deactivated successfully.
Feb 11 16:08:28 localhost.localdomain systemd[1]: packagekit.service: Consumed 3.882s CPU time.
Feb 11 16:08:49 localhost.localdomain systemd[2309]: Created slice User Background Tasks Slice.
Feb 11 16:08:49 localhost.localdomain systemd[2309]: Starting Cleanup of User's Temporary Files and Directories...
```

## 19. Schedule a Task to Run in 10 Minutes

First Check the existence of at

```
nada :>sudo systemctl status atd
● atd.service - Deferred execution scheduler
  Loaded: loaded (/usr/lib/systemd/system/atd.service; enabled; preset: enabled)
  Active: active (running) since Tue 2025-02-11 16:02:50 EET; 26min ago
    Docs: man:atd(8)
   Main PID: 1068 (atd)
      Tasks: 1 (limit: 22809)
     Memory: 304.0K
        CPU: 5ms
       CGroup: /system.slice/atd.service
           └─1068 /usr/sbin/atd -f

Feb 11 16:02:50 localhost.localdomain systemd[1]: Started Deferred execution scheduler.
nada :>
```

We can use at by 3 methods

**Method1:**

At now+1min

at>echo "hello"

```
nada :>at now+10min
warning: commands will be executed using /bin/sh
at> echo "hello nada"
at> <EOT>
job 2 at Tue Feb 11 16:45:00 2025
nada :>atq
1      Tue Feb 11 16:45:00 2025 a nada_mohamed2243
2      Tue Feb 11 16:45:00 2025 a nada_mohamed2243
nada :>■
```

**Method2:**

```
echo "cat /etc/passwd > /home/nada_mohamed2243/methodAt2" | at now+10min
```

```
nada :>echo "cat /etc/passwd > /home/nada_mohamed2243/methodAt2" | at now+10min
warning: commands will be executed using /bin/sh
job 5 at Tue Feb 11 17:03:00 2025
nada :>atq
1      Tue Feb 11 16:45:00 2025 a nada_mohamed2243
4      Tue Feb 11 16:59:00 2025 a nada_mohamed2243
5      Tue Feb 11 17:03:00 2025 a nada_mohamed2243
```

### Method3:

**at now+10min < ./methodAt.sh**

```
nada :>at now+10min < ./method3At.sh
warning: commands will be executed using /bin/sh
job 4 at Tue Feb 11 16:59:00 2025
nada :>atq
1      Tue Feb 11 16:45:00 2025 a nada_mohamed2243
4      Tue Feb 11 16:59:00 2025 a nada_mohamed2243
```

**After 10 min →**

```
nada :>atq
1      Tue Feb 11 16:45:00 2025 a nada_mohamed2243
nada :>ls
nada_mohamed2243@nada-mohamed2243:~$ ls
Desktop          Documents        Downloads       Music          Pictures        Templates      Videos
Desktop          Documents        Downloads       mycasestr.sh  mycd.sh        mymail.sh    testdir
Documents        Downloads       Downloads       method3At.sh  mtemplate     mymod.sh     sortedUsers
Downloads       Downloads       mycasestr.sh  method3At.sh  myinfo.sh    mymod.sh     test3dir
mycasestr.sh    method3At.sh  mycd.sh        myinfo.sh    mymod.sh    mymenu.sh   testdir
method3At.sh    myinfo.sh    mymod.sh      mymod.sh    mymenu.sh  mytalk.sh   testnoper
myinfo.sh       mymod.sh    mymod.sh      mymod.sh    mytalk.sh  myteam     test1.txt
mymod.sh        myteam     myteam      myteam     myteam     myteam     test2dir
myteam         myteam     myteam      myteam     myteam     myteam     text2.txt
nada :>cat method3At.sh
root:x:0:0:root:/root:/bin/bash
bin:x:1:1:bin:/bin:/sbin/nologin
daemon:x:2:2:daemon:/sbin:/sbin/nologin
adm:x:3:4:adm:/var/adm:/sbin/nologin
```

```
nada_mohamed2243@localhost:~ -- /usr/bin/vim method3At.sh
#!/usr/bin/bash

echo "hello method3 at executed"
cat /etc/passwd > /home/nada_mohamed2243/method3at
~
```

## 20. list all scheduled at job

**atq**

```
nada :>atq
1      Tue Feb 11 16:45:00 2025 a nada_mohamed2243
4      Tue Feb 11 16:59:00 2025 a nada_mohamed2243
5      Tue Feb 11 17:03:00 2025 a nada_mohamed2243
```

## 21. Remove a Scheduled Job

Atrm 5 →Atrm (job no)

```
nada :>atq
1      Tue Feb 11 16:45:00 2025 a nada_mohamed2243
4      Tue Feb 11 16:59:00 2025 a nada_mohamed2243
5      Tue Feb 11 17:03:00 2025 a nada_mohamed2243
nada :>atrm 5
nada :>atq
1      Tue Feb 11 16:45:00 2025 a nada_mohamed2243
4      Tue Feb 11 16:59:00 2025 a nada_mohamed2243
nada :>
```

## 22. add a new cron job to run this script every minute

1- make script contain echo “hello”

```
nada :>vi cronScript.sh
```

2- crontab -e

```
* * * * * ./cronScript.sh >> result
```

The result →

```
nada :>tail -f result
hello
hello

VM, move the mouse pointer inside or press Ctrl+G.
```

```
nada :>tail -f result
hello
hello
hello

VM, move the mouse pointer inside or press Ctrl+G.
```