

Linux Admin 2 - Lab 1

Name: Muhamad Mamoun Elsaid Hassan

1-

```
mamoun@mamoun-laptop: ~  
(mamoun@mamoun-laptop)-[~]  
$ systemctl status ssh.service  
○ ssh.service - OpenBSD Secure Shell server  
   Loaded: loaded (/usr/lib/systemd/system/ssh.service; disabled)  
   Active: inactive (dead)  
TriggeredBy: ● ssh.socket  
   Docs: man:sshd(8)  
        man:sshd_config(5)  
lines 1-6/6 (END)
```

2-

```
mamoun@mamoun-laptop: ~  
(mamoun@mamoun-laptop)-[~]  
$ systemctl list-units --all -t service  
UNIT                                LOAD  
accounts-daemon.service            loaded  
alsa-restore.service               loaded  
alsa-state.service                 loaded  
anacron.service                    loaded  
apache2.service                    loaded  
apparmor.service                   loaded  
apport-autoreport.service           loaded
```

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```
mamoun@mamoun-laptop: ~  
(mamoun@mamoun-laptop)-[~]  
$ mail root  
Cc:  
Subject: Test Mail  
Hello, World!  
  
(mamoun@mamoun-laptop)-[~]  
$ tail /var/mail/root  
tail: cannot open '/var/mail/root' for reading: Permission denied  
  
(mamoun@mamoun-laptop)-[~]  
$ sudo tail /var/mail/root  
[sudo] password for mamoun:  
id D6444BA0284; Tue, 25 Mar 2025 13:29:08 +0200 (EET)  
To: root@mamoun-laptop  
Subject: Test Mail  
User-Agent: mail (GNU Mailutils 3.17)  
Date: Tue, 25 Mar 2025 13:29:08 +0200  
Message-Id: <20250325112908.D6444BA0284@mamoun-laptop>  
From: Mamoun <mamoun@mamoun-laptop>  
  
Hello, World!  
  
(mamoun@mamoun-laptop)-[~]  
$ _
```

```
mamoun@mamoun-laptop: ~  
(mamoun@mamoun-laptop)-[~]  
$ systemctl stop postfix.service  
(mamoun@mamoun-laptop)-[~]  
$ mail root  
Cc:  
Subject: Test Mail Again  
Hello, World! v2  
  
(mamoun@mamoun-laptop)-[~]  
$ sudo tail /var/mail/root  
id D6444BA0284; Tue, 25 Mar 2025 13:29:08 +0200 (EET)  
To: root@mamoun-laptop  
Subject: Test Mail  
User-Agent: mail (GNU Mailutils 3.17)  
Date: Tue, 25 Mar 2025 13:29:08 +0200  
Message-Id: <20250325112908.D6444BA0284@mamoun-laptop>  
From: Mamoun <mamoun@mamoun-laptop>  
  
Hello, World!  
  
(mamoun@mamoun-laptop)-[~]  
$ _
```

```
mamoun@mamoun-laptop: ~  
(mamoun@mamoun-laptop)-[~]  
$ systemctl start postfix.service  
(mamoun@mamoun-laptop)-[~]  
$ sudo tail /var/mail/root  
    id 52100BA0284; Tue, 25 Mar 2025 13:33:08 +0200 (EET)  
To: root@mamoun-laptop  
Subject: Test Mail Again  
User-Agent: mail (GNU Mailutils 3.17)  
Date: Tue, 25 Mar 2025 13:33:08 +0200  
Message-Id: <20250325113340.52100BA0284@mamoun-laptop>  
From: Mamoun <mamoun@mamoun-laptop>  
  
Hello, World! v2  
(mamoun@mamoun-laptop)-[~]  
$
```

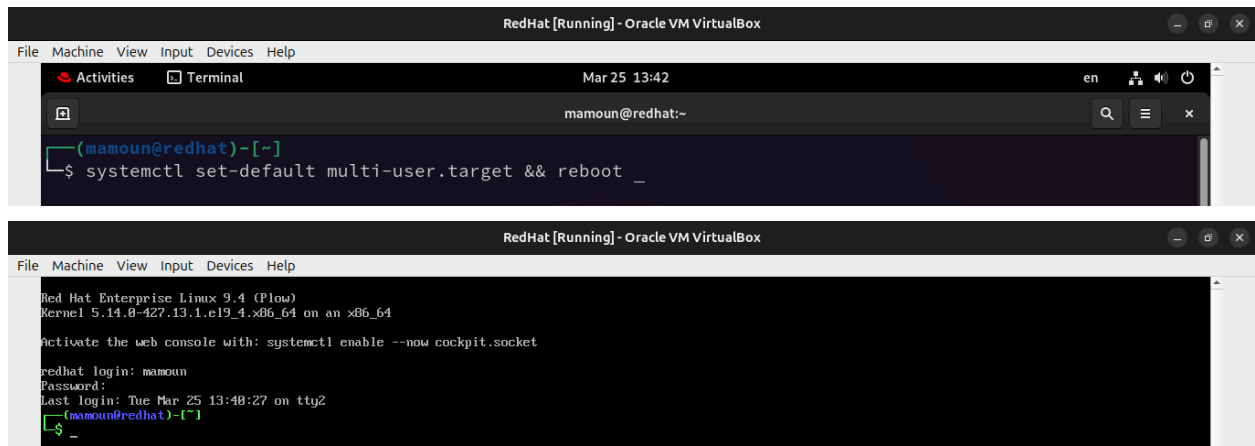
4-

```
mamoun@mamoun-laptop: ~  
(mamoun@mamoun-laptop)-[~]  
$ systemctl isolate multi-user.target
```

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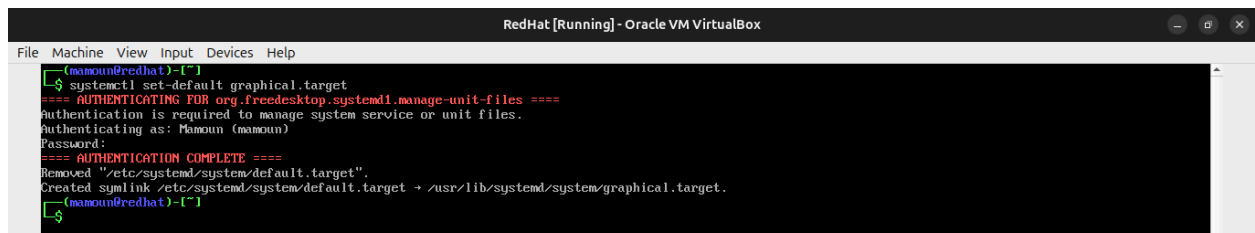
```
mamoun@mamoun-laptop: ~  
(mamoun@mamoun-laptop)-[~]  
$ systemctl get-default  
graphical.target  
(mamoun@mamoun-laptop)-[~]  
$ _
```

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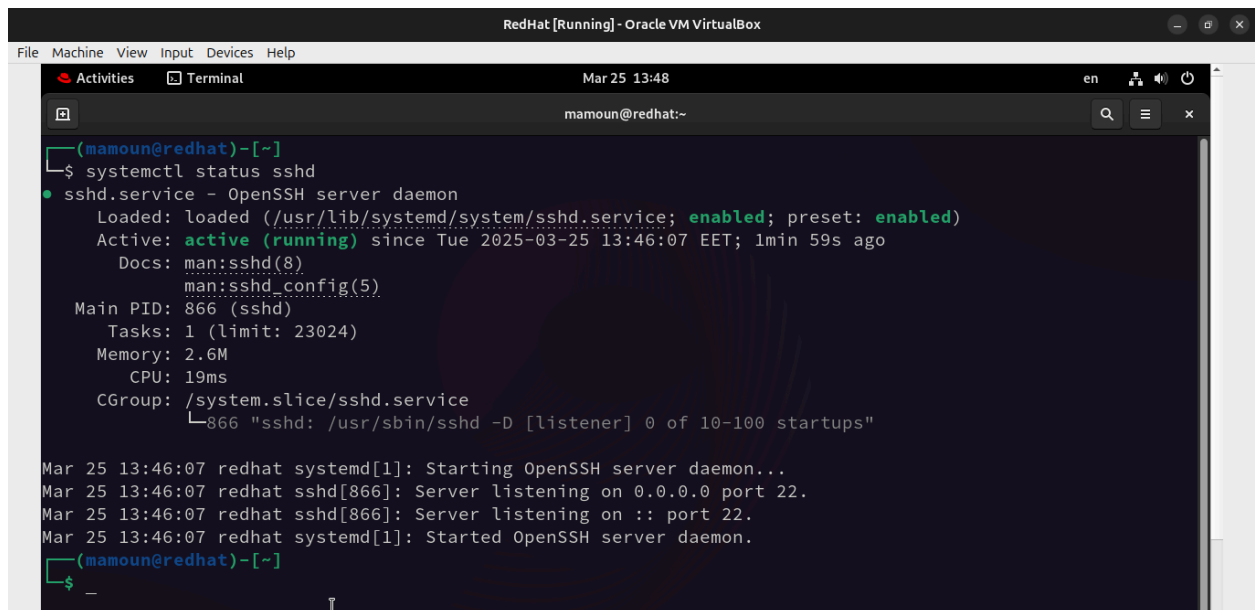
```
RedHat [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Mar 25 13:42
mamoun@redhat:~
(mamoun@redhat)-[~]
$ systemctl set-default multi-user.target && reboot _
```

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```
RedHat [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
(mamoun@redhat)-[~]
$ systemctl set-default graphical.target
==== AUTHENTICATING FOR org.freedesktop.systemd1.manage-unit-files ====
Authentication is required to manage system service or unit files.
Authenticating as: Mamoun (mamoun)
Password:
==== AUTHENTICATION COMPLETE ====
Removed "/etc/systemd/system/default.target".
Created symlink /etc/systemd/system/default.target → /usr/lib/systemd/system/graphical.target.
(mamoun@redhat)-[~]
$
```

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```
RedHat [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Mar 25 13:48
mamoun@redhat:~
(mamoun@redhat)-[~]
$ systemctl status sshd
● sshd.service - OpenSSH server daemon
   Loaded: loaded (/usr/lib/systemd/system/ssh.service; enabled; preset: enabled)
   Active: active (running) since Tue 2025-03-25 13:46:07 EET; 1min 59s ago
     Docs: man:sshd(8)
           man:sshd_config(5)
   Main PID: 866 (sshd)
      Tasks: 1 (limit: 23024)
     Memory: 2.6M
        CPU: 19ms
    CGroup: /system.slice/ssh.service
            └─866 "sshd: /usr/sbin/sshd -D [listener] 0 of 10-100 startups"

Mar 25 13:46:07 redhat systemd[1]: Starting OpenSSH server daemon...
Mar 25 13:46:07 redhat sshd[866]: Server listening on 0.0.0.0 port 22.
Mar 25 13:46:07 redhat sshd[866]: Server listening on :: port 22.
Mar 25 13:46:07 redhat systemd[1]: Started OpenSSH server daemon.
(mamoun@redhat)-[~]
$
```

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```

RedHat [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Activities Terminal Mar 25 13:49 en
mamoun@redhat:~

(mamoun@redhat)~[~]
$ systemctl restart sshd
(mamoun@redhat)~[~]
$ systemctl status sshd
● sshd.service - OpenSSH server daemon
   Loaded: loaded (/usr/lib/systemd/system/ssh.service; enabled; preset: enabled)
   Active: active (running) since Tue 2025-03-25 13:49:28 EET; 2s ago
     Docs: man:sshd(8)
           man:sshd_config(5)
  Main PID: 2697 (sshd)
    Tasks: 1 (limit: 23024)
   Memory: 1.4M
      CPU: 14ms
   CGroup: /system.slice/ssh.service
           └─2697 "sshd: /usr/sbin/sshd -D [listener] 0 of 10-100 startups"

Mar 25 13:49:28 redhat systemd[1]: Starting OpenSSH server daemon...
Mar 25 13:49:28 redhat sshd[2697]: Server listening on 0.0.0.0 port 22.
Mar 25 13:49:28 redhat sshd[2697]: Server listening on :: port 22.
Mar 25 13:49:28 redhat systemd[1]: Started OpenSSH server daemon.
(mamoun@redhat)~[~]
$

```

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```

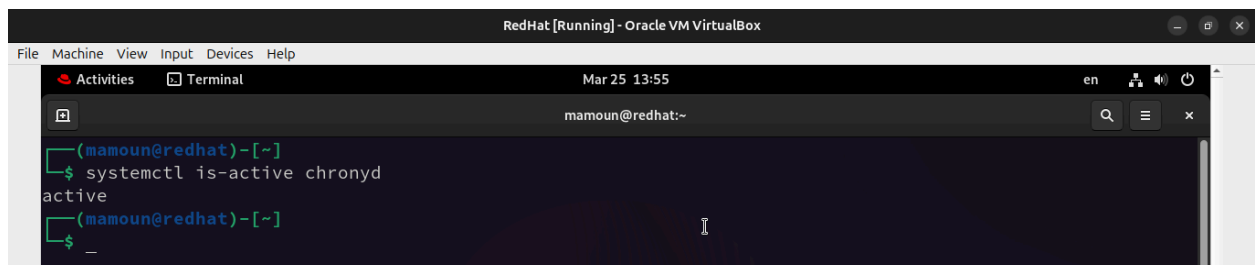
RedHat [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Activities Terminal Mar 25 13:50 en
mamoun@redhat:~

(mamoun@redhat)~[~]
$ systemctl reload sshd
(mamoun@redhat)~[~]
$ systemctl status sshd
● sshd.service - OpenSSH server daemon
   Loaded: loaded (/usr/lib/systemd/system/ssh.service; enabled; preset: enabled)
   Active: active (running) since Tue 2025-03-25 13:49:28 EET; 1min 17s ago
     Docs: man:sshd(8)
           man:sshd_config(5)
  Process: 2775 ExecReload=/bin/kill -HUP $MAINPID (code=exited, status=0/SUCCESS)
  Main PID: 2697 (sshd)
    Tasks: 1 (limit: 23024)
   Memory: 1.4M
      CPU: 36ms
   CGroup: /system.slice/ssh.service
           └─2697 "sshd: /usr/sbin/sshd -D [listener] 0 of 10-100 startups"

Mar 25 13:49:28 redhat systemd[1]: Starting OpenSSH server daemon...
Mar 25 13:49:28 redhat sshd[2697]: Server listening on 0.0.0.0 port 22.
Mar 25 13:49:28 redhat sshd[2697]: Server listening on :: port 22.
Mar 25 13:49:28 redhat systemd[1]: Started OpenSSH server daemon.
Mar 25 13:50:43 redhat systemd[1]: Reloading OpenSSH server daemon...
Mar 25 13:50:43 redhat sshd[2697]: Received SIGHUP; restarting.

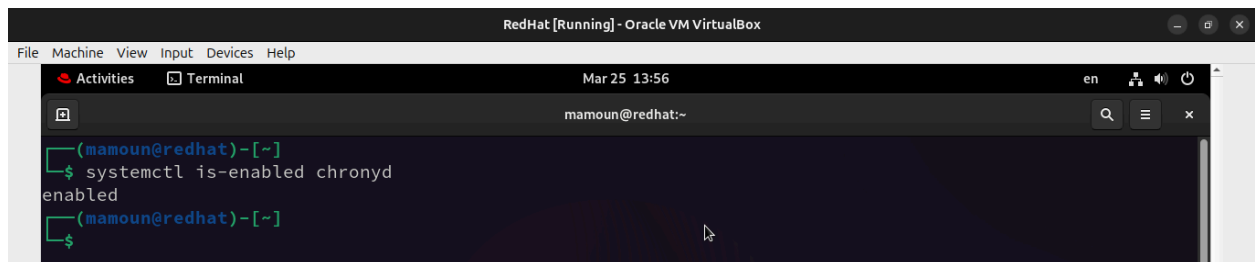
```

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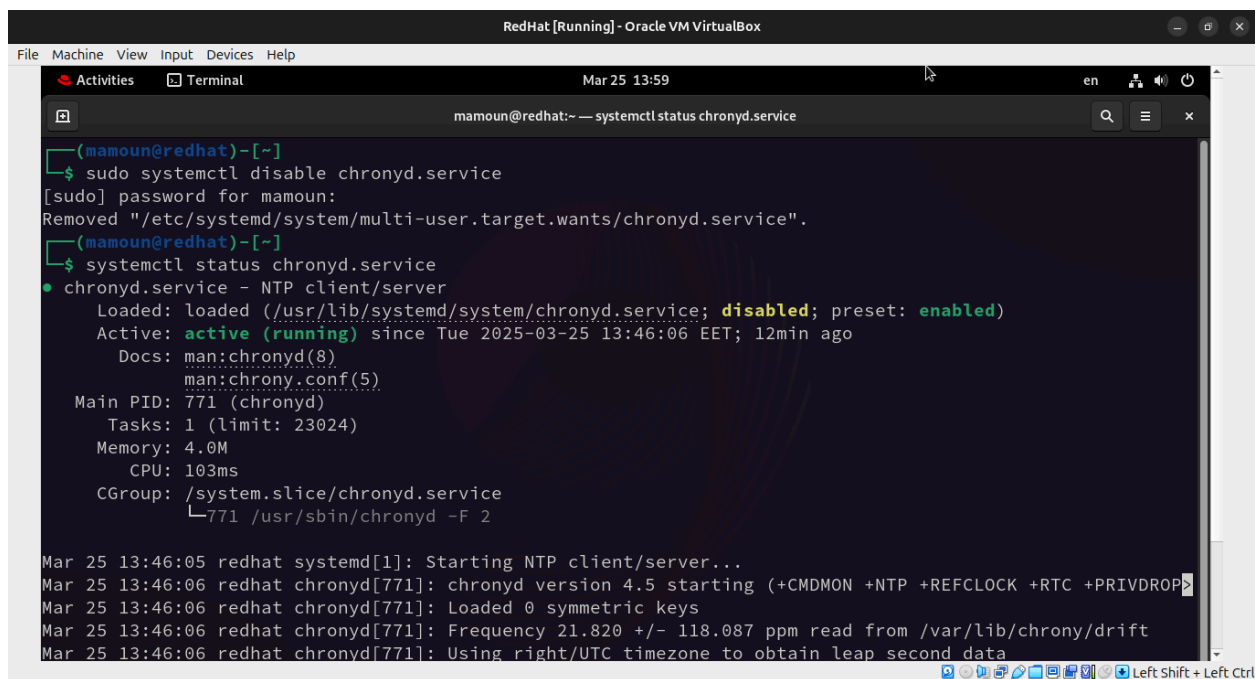
```
RedHat [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Activities Terminal Mar 25 13:55 en
mamoun@redhat:~
(mamoun@redhat)-[~]
$ systemctl is-active chronyd
active
(mamoun@redhat)-[~]
$
```

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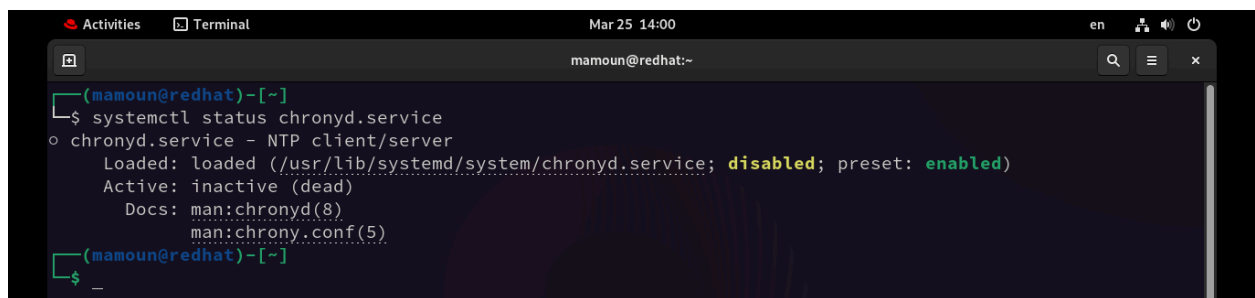
```
RedHat [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Activities Terminal Mar 25 13:56 en
mamoun@redhat:~
(mamoun@redhat)-[~]
$ systemctl is-enabled chronyd
enabled
(mamoun@redhat)-[~]
$
```

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```
RedHat [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Activities Terminal Mar 25 13:59 en
mamoun@redhat:~ — systemctl status chronyd.service
(mamoun@redhat)-[~]
$ sudo systemctl disable chronyd.service
[sudo] password for mamoun:
Removed "/etc/systemd/system/multi-user.target.wants/chronyd.service".
(mamoun@redhat)-[~]
$ systemctl status chronyd.service
● chronyd.service - NTP client/server
   Loaded: loaded (/usr/lib/systemd/system/chronyd.service; disabled; preset: enabled)
   Active: active (running) since Tue 2025-03-25 13:46:06 EET; 12min ago
     Docs: man:chronyd(8)
           man:chrony.conf(5)
  Main PID: 771 (chronyd)
    Tasks: 1 (limit: 23024)
   Memory: 4.0M
      CPU: 103ms
   CGroup: /system.slice/chronyd.service
           └─771 /usr/sbin/chronyd -F 2

Mar 25 13:46:05 redhat systemd[1]: Starting NTP client/server...
Mar 25 13:46:06 redhat chronyd[771]: chronyd version 4.5 starting (+CMDMON +NTP +REFCLOCK +RTC +PRIVDROP
Mar 25 13:46:06 redhat chronyd[771]: Loaded 0 symmetric keys
Mar 25 13:46:06 redhat chronyd[771]: Frequency 21.820 +/- 118.087 ppm read from /var/lib/chrony/drift
Mar 25 13:46:06 redhat chronyd[771]: Using right/UTC timezone to obtain leap second data
```



```
Activities Terminal Mar 25 14:00 en
mamoun@redhat:~
(mamoun@redhat)-[~]
$ systemctl status chronyd.service
○ chronyd.service - NTP client/server
   Loaded: loaded (/usr/lib/systemd/system/chronyd.service; disabled; preset: enabled)
   Active: inactive (dead)
     Docs: man:chronyd(8)
           man:chrony.conf(5)
(mamoun@redhat)-[~]
$
```

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```

(mamoun@redhat)-[~]
$ systemctl list-unit-files | grep static
proc-sys-fs-binfmt_misc.automount          static -
dev-hugepages.mount                       static -
dev-mqueue.mount                          static -
sys-fs-fuse-connections.mount             static -
sys-kernel-config.mount                   static -
sys-kernel-debug.mount                    static -
sys-kernel-tracing.mount                  static -
systemd-ask-password-console.path         static -
systemd-ask-password-plymouth.path        static -
systemd-ask-password-wall.path            static -
alsa-restore.service                     static -
alsa-state.service                       static -
bolt.service                             static -
cockpit-motd.service                     static -
cockpit-wsinstance-http.service          static -
cockpit-wsinstance-https-factory@.service static -
cockpit-wsinstance-https@.service        static -
cockpit.service                          static -
colord.service                           static -
configure-printer@.service                static -
container-getty@.service                  static -
dm-event.service                         static -
dnf-makecache.service                    static -
dnf-system-upgrade-cleanup.service        static -
dracut-cmdline.service                   static -
dracut-initqueue.service                  static -

```

15- Enable: make the service runs automatically at the startup

Disable: remove the service from the startup apps

Mask: make the service can't be started or enabled

Static: used with the helper service that will be started by another service

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```

(mamoun@redhat)-[~]
$ journalctl -b
Mar 25 13:59:29 localhost kernel: Linux version 5.14.0-427.13.1.el9_4.x86_64 (mockbuild@x86-038.build.en>
Mar 25 13:59:29 localhost kernel: The list of certified hardware and cloud instances for Red Hat Enterpr>
Mar 25 13:59:29 localhost kernel: Command line: BOOT_IMAGE=(hd0,msdos1)/vmlinuz-5.14.0-427.13.1.el9_4.x8>
Mar 25 13:59:29 localhost kernel: x86/fpu: Supporting XSAVE feature 0x001: 'x87 floating point registers'
Mar 25 13:59:29 localhost kernel: x86/fpu: Supporting XSAVE feature 0x002: 'SSE registers'
Mar 25 13:59:29 localhost kernel: x86/fpu: Supporting XSAVE feature 0x004: 'AVX registers'
Mar 25 13:59:29 localhost kernel: x86/fpu: xstate_offset[2]: 576, xstate_sizes[2]: 256
Mar 25 13:59:29 localhost kernel: x86/fpu: Enabled xstate features 0x7, context size is 832 bytes, using>
Mar 25 13:59:29 localhost kernel: signal: max sigframe size: 1776
Mar 25 13:59:29 localhost kernel: BIOS-provided physical RAM map:
Mar 25 13:59:29 localhost kernel: BIOS-e820: [mem 0x0000000000000000-0x00000000000009fbff] usable
Mar 25 13:59:29 localhost kernel: BIOS-e820: [mem 0x00000000000009fc00-0x00000000000009ffff] reserved
Mar 25 13:59:29 localhost kernel: BIOS-e820: [mem 0x000000000000f0000-0x000000000000ffff] reserved
Mar 25 13:59:29 localhost kernel: BIOS-e820: [mem 0x00000000000100000-0x000000000000dffff] usable
Mar 25 13:59:29 localhost kernel: BIOS-e820: [mem 0x00000000000dfff0000-0x00000000000dffffff] ACPI data
Mar 25 13:59:29 localhost kernel: BIOS-e820: [mem 0x00000000fec00000-0x00000000fec00fff] reserved
Mar 25 13:59:29 localhost kernel: BIOS-e820: [mem 0x00000000fee00000-0x00000000fee00fff] reserved
Mar 25 13:59:29 localhost kernel: BIOS-e820: [mem 0x00000000fffc0000-0x00000000ffffff] reserved
Mar 25 13:59:29 localhost kernel: BIOS-e820: [mem 0x00000000100000000-0x0000000011ffffff] usable
Mar 25 13:59:29 localhost kernel: NX (Execute Disable) protection: active
Mar 25 13:59:29 localhost kernel: SMBIOS 2.5 present.
Mar 25 13:59:29 localhost kernel: DMI: innotek GmbH VirtualBox/VirtualBox, BIOS VirtualBox 12/01/2006
Mar 25 13:59:29 localhost kernel: Hypervisor detected: KVM
Mar 25 13:59:29 localhost kernel: kvm-clock: Using msrs 4b564d01 and 4b564d00
Mar 25 13:59:29 localhost kernel: kvm-clock: using sched offset of 5409064455 cycles
Mar 25 13:59:29 localhost kernel: clocksource: kvm-clock: mask: 0xffffffffffffffff max_cycles: 0x1ed42e4N

```


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```
Activities Terminal Mar 25 14:11
mamoun@redhat:~
(mamoun@redhat)-[~]
$ journalctl -u sshd.service
Mar 25 13:59:37 redhat systemd[1]: Starting OpenSSH server daemon...
Mar 25 13:59:37 redhat sshd[863]: Server listening on 0.0.0.0 port 22.
Mar 25 13:59:37 redhat sshd[863]: Server listening on :: port 22.
Mar 25 13:59:37 redhat systemd[1]: Started OpenSSH server daemon.
(mamoun@redhat)-[~]
$
```

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```
Activities Terminal Mar 25 14:17
mamoun@redhat:~ — journalctl -u sshd.service -f
(mamoun@redhat)-[~]
$ journalctl -u sshd.service -f
Mar 25 13:59:37 redhat systemd[1]: Starting OpenSSH server daemon...
Mar 25 13:59:37 redhat sshd[863]: Server listening on 0.0.0.0 port 22.
Mar 25 13:59:37 redhat sshd[863]: Server listening on :: port 22.
Mar 25 13:59:37 redhat systemd[1]: Started OpenSSH server daemon.
-
```

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```
Activities Terminal Mar 25 14:21
mamoun@redhat:~
(mamoun@redhat)-[~]
$ journalctl -u sshd --since "30 minutes ago"
Mar 25 13:59:37 redhat systemd[1]: Starting OpenSSH server daemon...
Mar 25 13:59:37 redhat sshd[863]: Server listening on 0.0.0.0 port 22.
Mar 25 13:59:37 redhat sshd[863]: Server listening on :: port 22.
Mar 25 13:59:37 redhat systemd[1]: Started OpenSSH server daemon.
(mamoun@redhat)-[~]
$
```

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```
Activities Terminal Mar 25 14:23
mamoun@redhat:~ — systemctl list-units --state running --type service
(mamoun@redhat)-[~]
$ systemctl list-units --state running --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 store)
atd.service                        loaded active running Deferred execution scheduler
auditd.service                    loaded active running Security Auditing Service
avahi-daemon.service               loaded active running Avahi mDNS/DNS-SD Stack
colord.service                     loaded active running Manage, Install and Generate Color Profiles
crond.service                      loaded active running Command Scheduler
```

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```
Activities Terminal Mar 25 14:49 en mamoun@redhat:~ — vim my-service.sh

#!/bin/bash

touch /home/mamoun/logs.txt

declare -i counter=0

while true
do
    counter=$((counter+1))
    echo "$counter- Hello from my-service.sh" >> /home/mamoun/logs.txt
    sleep 5
done
```

```
Activities Terminal Mar 25 14:33 en mamoun@redhat:~ — sudo vim /etc/systemd/system/my-service.service

[Unit]
Description=My first custom service

[Service]
ExecStart=/home/mamoun/my-service.sh
User=mamoun

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

```
Activities Terminal Mar 25 14:35 en mamoun@redhat:~

(mamoun@redhat)-[~]
$ sudo vim /etc/systemd/system/my-service.service
[sudo] password for mamoun:
(mamoun@redhat)-[~]
$ systemctl daemon-reload
(mamoun@redhat)-[~]
$
```

```
mamoun@mamoun-laptop:~

(mamoun@mamoun-laptop)-[~]
$ sudo vim /etc/systemd/system/my-service.service
[sudo] password for mamoun:
(mamoun@mamoun-laptop)-[~]
$ systemctl daemon-reload
(mamoun@mamoun-laptop)-[~]
$ systemctl start my-service.service
(mamoun@mamoun-laptop)-[~]
$ systemctl status my-service.service
● my-service.service - My Custom Service
   Loaded: loaded (/etc/systemd/system/my-service.service; disabled; preset: enabled)
   Active: active (running) since Tue 2025-03-25 15:32:48 EET; 5s ago
     Main PID: 26744 (my-service.sh)
       Tasks: 2 (limit: 13951)
      Memory: 556.0K (peak: 996.0K)
         CPU: 9ms
        CGroup: /system.slice/my-service.service
                └─26744 /bin/bash /home/mamoun/my-service.sh
                  26766 sleep 4

Mar 25 15:32:48 mamoun-laptop systemd[1]: Started my-service.service - My Custom Service.
(mamoun@mamoun-laptop)-[~]
$ tail -f logs.txt
2- Hello from my-service.sh
3- Hello from my-service.sh
4- Hello from my-service.sh
5- Hello from my-service.sh
6- Hello from my-service.sh
7- Hello from my-service.sh
8- Hello from my-service.sh
9- Hello from my-service.sh
```