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WORKING WITH SYSTEMD SERVICES

SYSTEMD

- System and service manager for Linux OS from system boot to shutdown.
- Handle **services**, **processes, network, authentication**, **logging** etc...
- Support backward compatibility for **SystemV** and **LSB** start scripts

SYSTEMD UNITS

- Entities or objects managed by **systemd**.
- Unit types that **systemd** can manage :
  - service
  - socket
  - device
  - mount or automount point
  - swap file
  - timer
  - startup target (runlevel)
  - path etc...

UNIT FILE LOCATIONS

/lib/systemd/system   standard systemd unit files

/usr/lib/systemd/system   from locally installed package

/etc/systemd/system   custom unit files

SYSTEMCTL

- To manage services on a **systemd** enabled server.

To list all units listed as "**active**"
$ systemctl list-units

To list all unit installed in BEAUTIFUL way
$ systemctl list-unit-files

To make systemd re-read all unit files
$ systemctl daemon-reload

SYSTEMCTL STATUS COMMAND

To make sure a service is running

$ systemctl status <service_name>

Output:

```
● apache2.service - The Apache HTTP Server
     Loaded: loaded (/lib/systemd/system/apache2.service; enabled; preset: enabled)
     Active: active (running) since Sat 2023-07-15 12:10:48 +04; 13s ago
       Docs: https://httpd.apache.org/docs/2.4/
   Main PID: 13601 (apache2)
      Tasks: 55 (limit: 9059)
     Memory: 5.4M
        CPU: 20ms
     CGroup: /system.slice/apache2.service
             ├─13601 /usr/sbin/apache2 -k start
             ├─13602 /usr/sbin/apache2 -k start
             └─13603 /usr/sbin/apache2 -k start

zil 15 12:10:48 dodoadmin-Inspiron-15-3511 systemd[1]: Starting The Apache HTTP Server...
zil 15 12:10:48 dodoadmin-Inspiron-15-3511 apachectl[13600]: AH00558: apache2: Could not reli
zil 15 12:10:48 dodoadmin-Inspiron-15-3511 systemd[1]: Started The Apache HTTP Server.
~
```

SYSTEMCTL COMMANDS

To start a service

$ systemctl status <service_name>

To stop a service

$ systemctl stop <service_name>

To restart a service

$ systemctl restart <service_name>

To reload a service

$ systemctl reload <service_name>

SYSTEMCTL ENABLE/DISABLE COMMAND

To enable the service to start at boot

$ systemctl enable <service_name>

To disable the service to start at boot

$ systemctl disable <service_name>

DEMO
CREATING A CUSTOM UNIT FILE

MINIMAL SERVICE UNIT FILE EXAMPLE

[Unit]
Description=A very simple service
After=network.target

[Service]
Type=simple
ExecStart=/usr/local/bin/exampleProgram

[Install]
WantedBy=mult-user.target

JOURNALCTL

- Log information from applications and the kernel

To see all log entries from the general system state
$ journalctl

Flags:
- -b (current boot)
- -k (only kernel message)
- -k (only kernel message of current boot)

JOURNALCTL

QUERYING UNIT STATES AND LOGS

To see log entries for a specific unit
$journalctl -u <service_name>

To see log entries for a specific unit of the current boot
$journalctl -b -u <service_name>

To see updated log entries for a specific unit as they are generated
$journalctl -u <service_name> -f