Linux Administration

Managing services

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What is a service?

- The generic definition of a service is of an application running on a dedicated system (a server) that is used by various other systems (the clients).
- This doesn’t apply to all services; some services are running in the background on a system (not necessarily a server) just to provide a specific functionality.

Historical context

- Originally, a service running in the background was called a *daemon*.
- This translates into the fact that many services have their main program ending with the letter ‘d'. For instance, the program for the SSH service is */usr/bin/sshd*.

Services components

Beyond the application itself, a service will usually include the following:

- a management script
- one or more configuration files
- a process id file (PID)
- some log files

systemd

- Initially, all services were started independently by the init process, using an architecture called “System V”, in reference to the original UNIX system.
- In 2010, Lennart Poettering started working on a replacement to manage all services and system functions once the system has booted. That application is called *systemd*.
- systemd is now the main initialization system for most Linux distributions.

Managing a service

- Once a service application is installed via a package, it should be integrated with systemd.
- The main operations are to start, stop, enable or disable the service, and check on its status when needed.

systemctl commands

The systemd's *systemctl* command will let you manage any service:

- systemctl start <service>
- systemctl stop <service>
- systemctl enable <service>
- systemctl disable <service>
- systemctl status <service>

systemctl status

- The basic command *systemctl status* will give you an overview of all services running on the system.
- The *systemctl list-unit-files* will summarize the status and state of all services.
- When checking on a specific service, you will find the name of the unit configuration file and the most recent lines from the service log file.

Unit configuration files

- Default unit configuration files are usually located in */usr/lib/systemd/system*.
- Additional unit configuration files specific to the system can be found in */etc/systemd/system*.
- When modifying those files, you must use the *systemctl daemon-reload* command for any change to be effective.

journalctl

- *journalctl* can display the content of the journal, starting with the oldest event (use the *-r* option to start with the most recent one).
- To check on the logs of a specific service, use the *-u* option with the name of the service:

```
journalctl -u sshd
```

PID file

- The PID file is usually used to track the main process for a service.
- It’s also used as a lock: if the service is already running with a valid PID, the program will not launch a second instance.
- The PID can be used for monitoring that a service is running properly.

Most common and useful services

- OpenSSH - remote access, command execution and file transfer
- Apache HTTPD, Apache Tomcat, Nginx - Web service
- Postfix - Email (SMTP)
- OpenLDAP - Directory and authentication
- BIND - Name resolution (DNS)
- ISC DHCPD, ISC Kea - IP addressing (DHCP)
- CUPS - Printing (IPP)
- Samba - File and printer sharing
- NTP - Time synchronization