

Cron/Crontabs & “Daemons”

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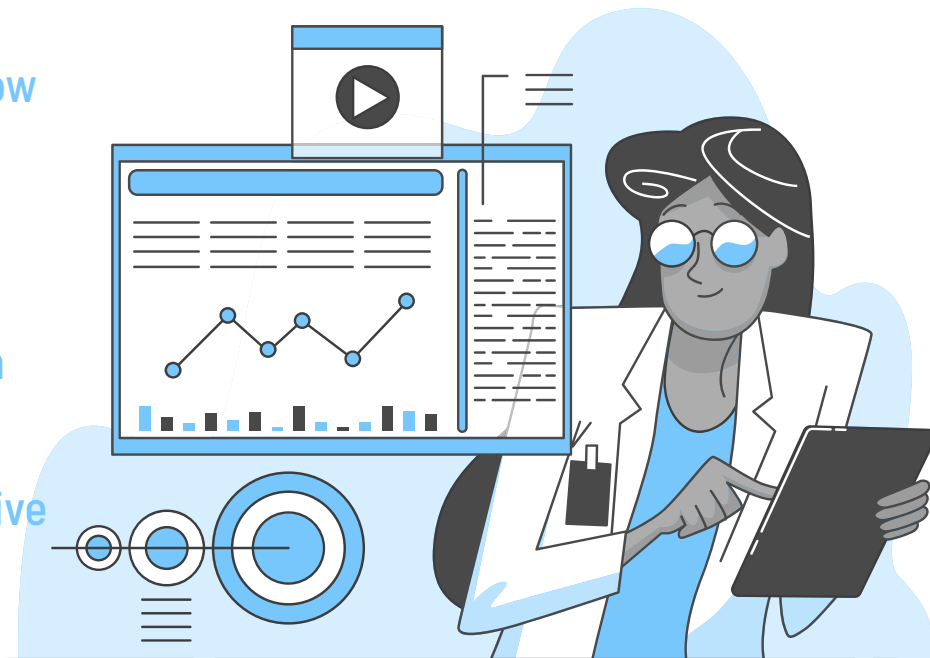
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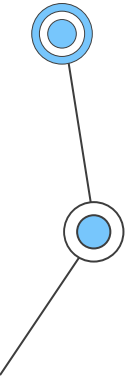
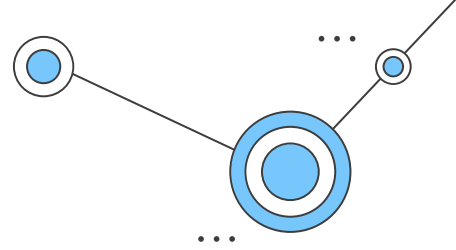
01

Con/Crontabs

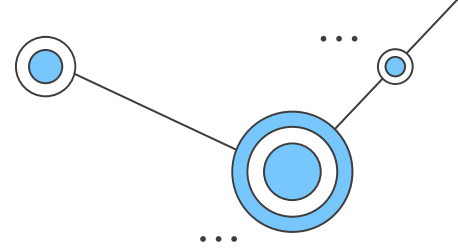


What is Cron?

- **Cron** is a software feature on Linux and other Unix based operating systems that allows the user to run commands and processes on a set time interval/schedule
- When a command (or job) is run using cron, it is called a **Cron Job**
- A **crontab** (short for cron table) is the file in which cron jobs are edited, added, and removed



Accessing Crontabs



- Open the terminal and enter one of the following commands:
 - List cron jobs: `crontab -l`
 - Edit crontab: `crontab -e`
 - Remove crontab: `crontab -r`
 - Verify crontab: `crontab -v`
- To access another user's crontabs, open the terminal of the root and enter one of the following commands:
 - `crontab -u [username] -l`

```
maverick@maverick-Inspiron-5548:~$ crontab -l
# Edit this file to introduce tasks to be run by cron.
#
# Each task to run has to be defined through a single line
# indicating with different fields when the task will be run
# and what command to run for the task
#
# To define the time you can provide concrete values for
# minute (m), hour (h), day of month (dom), month (mon),
# and day of week (dow) or use '*' in these fields (for 'any').#
# Notice that tasks will be started based on the cron's system
# daemon's notion of time and timezones.
#
# Output of the crontab jobs (including errors) is sent through
# email to the user the crontab file belongs to (unless redirected).
#
# For example, you can run a backup of all your user accounts
# at 5 a.m every week with:
# 0 5 * * 1 tar -zcf /var/backups/home.tgz /home/
#
# For more information see the manual pages of crontab(5) and cron(8)
#
# m h dom mon dow   command
maverick@maverick-Inspiron-5548:~$
```

Crontab command format

MIN HOUR DOM MON DOW CMD

MIN: minute (0-59)

HOUR: hour (0-23)

DOM: day of month (1-31)

MON: month (1-12)

DOW: Day of week (0-6) *sunday is 0 or 7 on some cron

CMD: command line (either terminal command or file to a script)

Special characters:

* = any value (ex: * on DOM means every day of the month)

, = value separator (ex: 0, 6 on DOW means saturday and sunday)

/ = every x value (ex: */5 on MIN means every 5 minutes)

- = range of values (ex: 9-17 on HOUR means 9 am to 5 pm)

Use crontab.guru to check format

...

* = any value (ex: * on DOM means every day of the month)
, = value separator (ex: 0, 6 on DOW means saturday and sunday)
/ = every x value (ex: */5 on MIN means every 5 minutes)
- = range of values (ex: 9-17 on HOUR means 9 am to 5 pm)

Skill Check

MIN HOUR DOM MON DOW CMD

0 0 1,15 * 3

Midnight on the 1st and
15th and on wednesday

5 0 * 8 *

At 00:05 of every day
in August

15 14 1 * *

At 2:15 pm on the first
of every month

0 22 * * 1-5

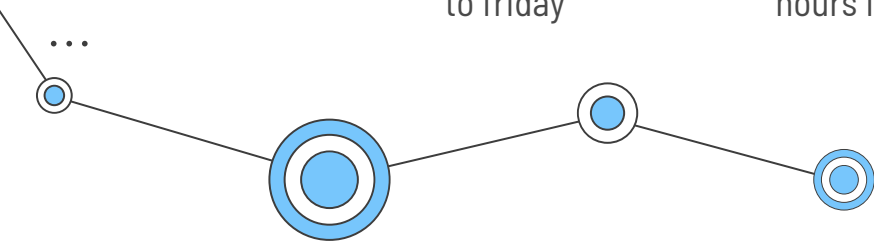
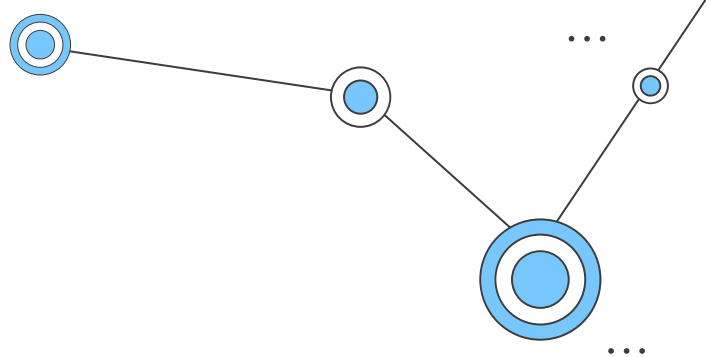
At 10 pm from monday
to friday

23 0-20/2 * * *

On minute 23 every 2
hours from midnight to 10
pm

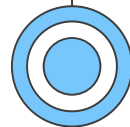
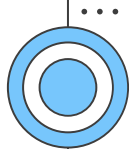
0 0,12 1 */2 *

At midnight and noon
on the 1st every 2
months



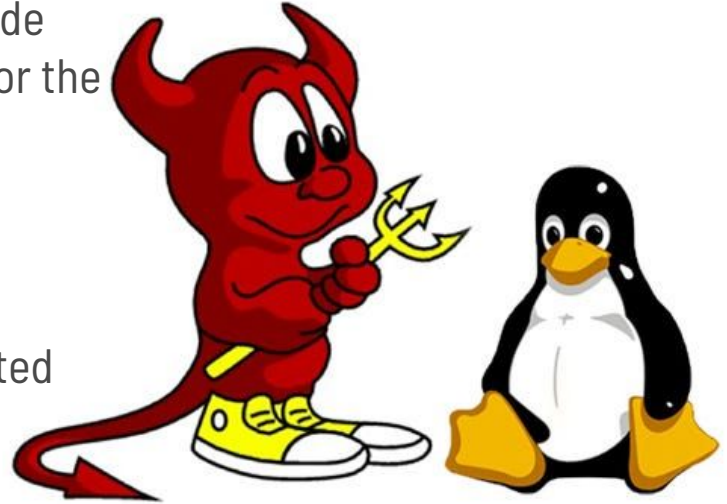
02

Daemons



What are Daemons and how do they operate?

- **Daemons** are computer programs that provide services to other applications, other hosts, or the user
 - Usually runs in the background
 - Traditionally end with a d
- They can also be started, stopped, or restarted through the terminal



Examples of Common Daemons

- **anacron:** It runs delayed cron actions at the start-up time.
- **crond:** It is a task scheduler daemon.
- **cupsd:** It stands for CUPS printer daemon.
- **httpd:** It is a Web Server Daemon.
- **mysql:** It is a database server daemon.
- **routed:** It handles routing tables.
- **sendmail:** It is a mail transfer agent daemon.
- **squid:** It is a web page caching proxy server daemon.
- **syncd:** It can keep various file systems synchronized along with system memory.
- **sshd:** It is a Secure Shell Server Daemon.
- **syslogd:** It stands for system logging daemon.
- **xntd:** It is a Network Time Server Daemon.

Full list: <https://www.javatpoint.com/linux-daemon#:~:text=A%20daemon%20is%20also%20called,that%20manages%20the%20Apache%20server.>

What are Daemons and how do they operate?

- You can start Daemons and restart Daemons by using this command (Ubuntu):

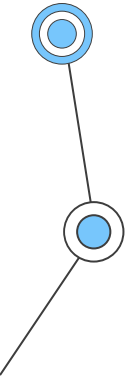
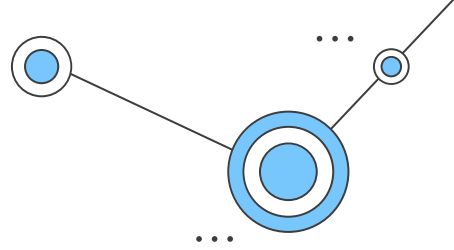
EXAMPLE:

```
service daemon-name-here start  
service daemon-name-here stop  
service daemon-name-here restart
```

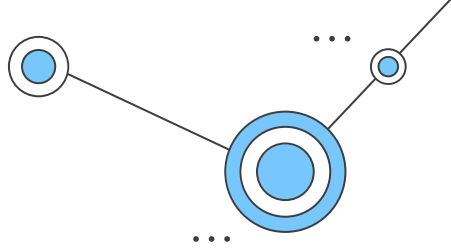
```
service httpd start  
service httpd stop  
service httpd restart
```

Why restart a Daemon?

- In case there was something you changed in the System Configuration



How can you view an active Daemon from the CLI (a.k.a Command-Line Interface)?



- On Ubuntu, which is what we're using for the Proxmox- to check for active daemons and their status we can use "service --status-all command"
- When you use the command a list of services will appear and it will look something like this:

This command will return a list of all services, along with their statuses. The output will look something like this:

```
[ + ] apache2
[ - ] mysql
[ ? ] sshd
```

2:10

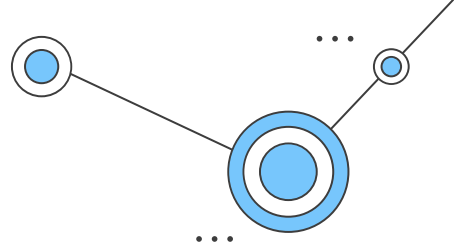


In the output:

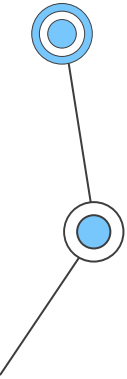
- [+] indicates the service is running.
 - [-] indicates the service is not running.
 - [?] indicates the service status is unknown.
- **REMINDER:** When looking at the services, most times when something ends with a "d" then that's how you know it's a Daemon



Where are Daemons located in the file system?



- **Daemons** are located inside the Linux configuration file `/etc/init.d`
- Often at starting time, Linux begins **daemons** and those various shell scripts are saved inside the Configuration directory.





Sources about Crontabs & Daemons:



- Cron: <https://www.ibm.com/docs/en/aix/7.2?topic=c-crontab-command>
 - Cron command reader: <https://crontab.guru/>
 - Daemon info:
<https://www.techtarget.com/whatis/definition/daemon#:~:text=Daemons%20are%20started%20on%20the,up%20and%20go%20into%20action.>
 - How to list running Daemons and their statuses in Ubuntu:
<https://devicetests.com/list-running-daemons-statuses-ubuntu#:~:text=To%20list%20running%20daemons%20and%20their%20statuses%20in%20Ubuntu%2C%20you,list%20services%20managed%20by%20Upstart.>
 - Linux Configuration File:
<https://medium.com/@sujaypillai/docker-daemon-configuration-file-f577000da655#:~:text=The%20default%20location%20of%20the,specify%20a%20non%20default%20location.>
 - How to start and restart services for Linux
<https://www.javatpoint.com/linux-daemon#:~:text=Often%2C%20Linux%20begins%20daemons%20at%20starting%20ime.&text=Various%20shell%20scripts%20are%20saved,for%20starting%20and%20stopping%20daemons.>
- 



Thank You

