



Debian

Disable Unnecessary Services Debian Linux

2 years ago • by David Adams

This article aims to help you increase performance and decrease vulnerabilities by reducing the number of services at minimal level as possible. By reducing the services instructed in this tutorial, domestic users who need regular access to the internet shouldn't experience problems but only improvements, even if not visible.

This article is optimized for those looking for immediate changes or the syntax to manage services on Debian, additionally you can find descriptive information on Systemd at the end.

To begin let's see what services are running to decide what service to discard, to list all services run:

```
# sudo service --status-all
```



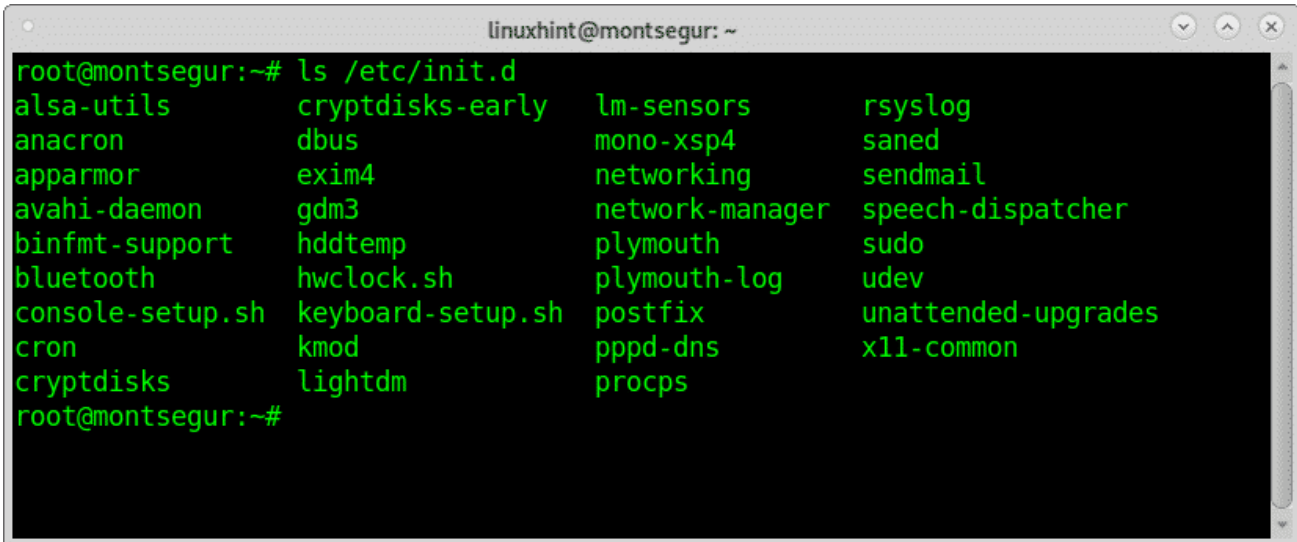
```
Terminal - linuxhint@montsegur: ~
root@montsegur:~# sudo service --status-all
[ - ] alsa-utils
[ - ] anacron
[ + ] apparmor
[ + ] avahi-daemon
[ + ] binfmt-support
[ + ] bluetooth
[ - ] console-setup.sh
[ + ] cron
[ - ] cryptdisks
[ - ] cryptdisks-early
[ + ] dbus
[ + ] exim4
[ - ] gdm3
[ + ] hddtemp
[ - ] hwclock.sh
[ - ] keyboard-setup.sh
[ + ] kmod
[ + ] lightdm
[ + ] lm-sensors
[ + ] mono-xsp4
[ + ] network-manager
[ + ] networking
[ - ] plymouth
[ - ] plymouth-log
[ - ] postfix
[ - ] pppd-dns
[ + ] procs
[ + ] rsyslog
[ - ] saned
[ + ] sendmail
[ - ] speech-dispatcher
[ - ] sudo
[ + ] udev
[ + ] unattended-upgrades
[ - ] x11-common
```

You will see many services with a plus symbol, these are the services running while the services with a minus symbol are not active.

As you can see all listed services are found at **/etc/init.d** which is where services are stored. You can run ls on /etc/init.d to check:

```
# ls /etc/init.d
```



A terminal window titled 'linuxhint@montsegur: ~' showing the output of the command 'ls /etc/init.d'. The output lists various system services in four columns.

```
linuxhint@montsegur: ~  
root@montsegur:~# ls /etc/init.d  
alsa-utils      cryptdisks-early  lm-sensors      rsyslog  
anacron         dbus              mono-xsp4        saned  
apparmor        exim4             networking       sendmail  
avahi-daemon    gdm3              network-manager  speech-dispatcher  
binfmt-support  hddtemp           plymouth         sudo  
bluetooth       hwclock.sh        plymouth-log     udev  
console-setup.sh keyboard-setup.sh postfix          unattended-upgrades  
cron            kmod              pppd-dns         x11-common  
cryptdisks      lightdm           procps  
root@montsegur:~#
```

In my case, a desktop user with a dynamic IP I don't want the mail service because setting UP SPF, DKIM, etc. may not be impossible but messy, therefore I want to disable the active sendmail service. Some other services like ssh, apache, etc. should be removed if you don't use them.

A terminal window titled 'Terminal - linuxhint@montsegur: ~' showing the output of the command 'sudo service --status-all'. The output lists various system services with their status indicated by brackets and plus/minus signs.

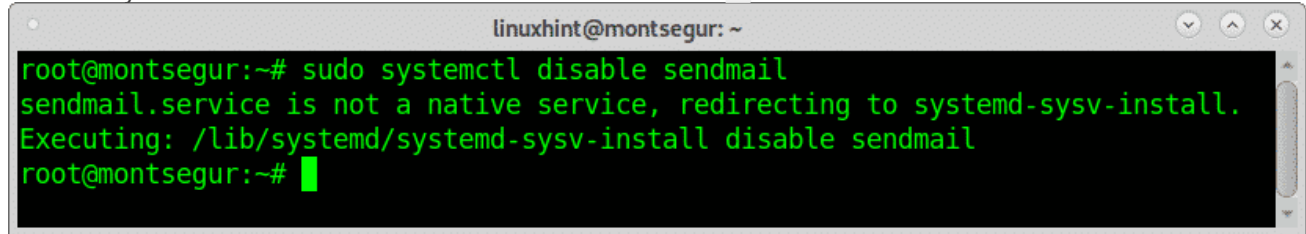
```
Terminal - linuxhint@montsegur: ~  
root@montsegur:~# sudo service --status-all  
[ - ] alsa-utils  
[ - ] anacron  
[ + ] apparmor  
[ + ] avahi-daemon  
[ + ] binfmt-support  
[ + ] bluetooth  
[ - ] console-setup.sh  
[ + ] cron  
[ - ] cryptdisks  
[ - ] cryptdisks-early  
[ + ] dbus  
[ + ] exim4  
[ - ] gdm3  
[ + ] hddtemp  
[ - ] hwclock.sh  
[ - ] keyboard-setup.sh  
[ + ] kmod  
[ + ] lightdm  
[ + ] lm-sensors  
[ + ] mono-xsp4  
[ + ] network-manager  
[ + ] networking  
[ - ] plymouth  
[ - ] plymouth-log  
[ - ] postfix  
[ - ] pppd-dns  
[ + ] procps  
[ + ] rsyslog  
[ - ] saned  
[ + ] sendmail  
[ - ] speech-dispatcher  
[ - ] sudo  
[ + ] udev  
[ + ] unattended-upgrades  
[ - ] x11-common
```

The syntax to disable a service on Debian is:

```
# sudo systemctl disable <service>
```

The command to disable sendmail on Debian is

```
# sudo systemctl disable sendmail
```

A terminal window titled 'linuxhint@montsegur: ~' showing the command 'sudo systemctl disable sendmail' being executed. The output indicates that 'sendmail.service' is not a native service and is being redirected to 'systemd-sysv-install'. The command is then executed successfully, and the prompt returns to the root user.

```
root@montsegur:~# sudo systemctl disable sendmail
sendmail.service is not a native service, redirecting to systemd-sysv-install.
Executing: /lib/systemd/systemd-sysv-install disable sendmail
root@montsegur:~#
```

As you can see now the service is disabled

```
# sudo service --status-all
```

A terminal window titled 'linuxhint@montsegur: ~' showing the command 'sudo service --status-all' being executed. The output lists various services with their status indicated by brackets: '-' for disabled and '+' for enabled. 'sendmail' is listed at the bottom with a '-' status.

```
root@montsegur:/home/linuxhint# sudo service --status-all
[ - ] alsa-utils
[ - ] anacron
[ + ] apparmor
[ + ] avahi-daemon
[ + ] binfmt-support
[ + ] bluetooth
[ - ] console-setup.sh
[ + ] cron
[ - ] cryptdisks
[ - ] cryptdisks-early
[ + ] dbus
[ + ] exim4
[ - ] gdm3
[ + ] hddtemp
[ - ] hwclock.sh
[ - ] keyboard-setup.sh
[ + ] kmod
[ + ] lightdm
[ + ] lm-sensors
[ + ] mono-xsp4
[ + ] network-manager
[ + ] networking
[ - ] plymouth
[ - ] plymouth-log
[ - ] postfix
[ - ] pppd-dns
[ + ] procps
[ + ] rsyslog
[ - ] saned
[ - ] sendmail
```

You can also check for the specific service

```
# sudo service sendmail status
```

```
linuxhint@montsegur: ~  
root@montsegur:~# sudo service sendmail status  
● sendmail.service - LSB: powerful, efficient, and scalable Mail Transport Agent  
   Loaded: loaded (/etc/init.d/sendmail; generated)  
   Active: inactive (dead)  
     Docs: man:systemd-sysv-generator(8)  
root@montsegur:~#
```

Currently most Linux distributions don't use System V anymore but use Systemd. Systemd is a service manager, it is the PID 1, assigns a control group (cgroup) to each service and can be also useful to track the processes.

Through it you can configure services with the system and service manage which initializes in the last boot process step and manages processes executed by the user.

Below there is a list of commands to manage services through SystemD:

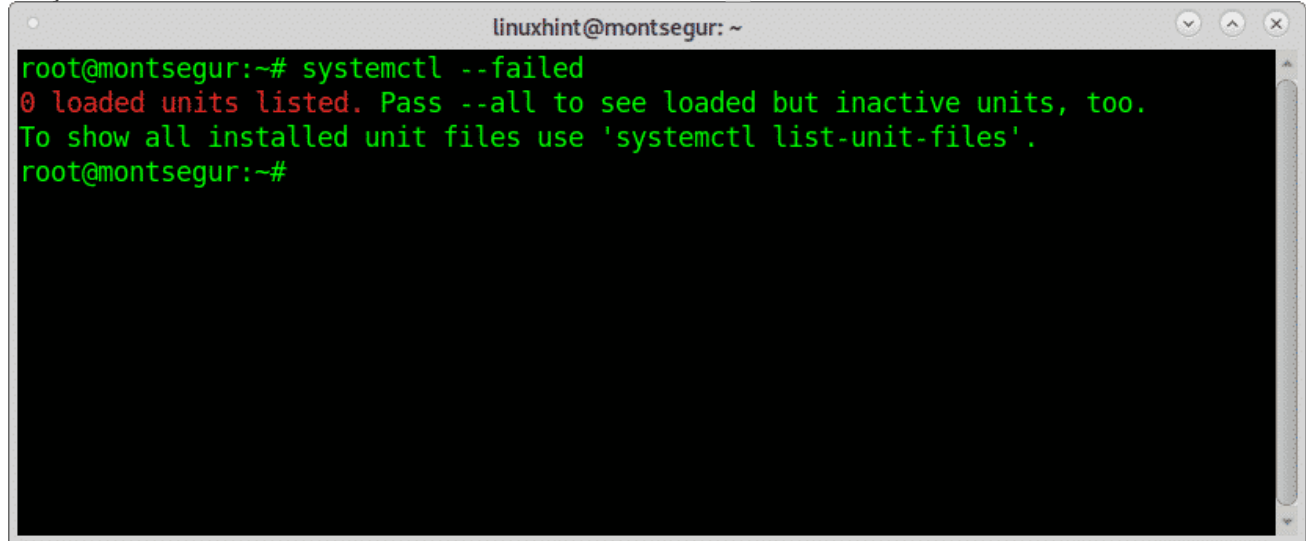
```
# systemctl status  
linuxhint@montsegur: ~  
● montsegur  
   State: running  
   Jobs: 0 queued  
 Failed: 0 units  
 Since: Thu 2020-01-16 10:57:37 -03; 10min ago  
 CGroup: /  
├─user.slice  
│ └─user-1000.slice  
│   └─user@1000.service  
│     ├─gvfs-goa-volume-monitor.service  
│     │ └─1615 /usr/lib/gvfs/gvfs-goa-volume-monitor  
│     ├─evolution-calendar-factory.service  
│     │ └─1786 /usr/lib/evolution/evolution-calendar-factory  
│     ├─pulseaudio.service  
│     │ └─1588 /usr/bin/pulseaudio --daemonize=no  
│     ├─gvfs-daemon.service  
│     │ └─1515 /usr/lib/gvfs/gvfsd  
│     │   └─1520 /usr/lib/gvfs/gvfsd-fuse /run/user/1000/gvfs -f -o big  
│     │   └─1713 /usr/lib/gvfs/gvfsd-trash --spawner :1.6 /org/gtk/gvfs  
│     ├─evolution-source-registry.service  
│     │ └─1746 /usr/lib/evolution/evolution-source-registry  
│     ├─gvfs-udisks2-volume-monitor.service  
│     │ └─1611 /usr/lib/gvfs/gvfs-udisks2-volume-monitor  
lines 1-23
```

As you can see in the output above SystemD is running.

The following commands lists failed units, services or daemons which didn't start properly due a misconfiguration, unmatched dependency, etc.

Running the following command is a way to audit the device's health.

```
# systemctl --failed
```

A terminal window titled 'linuxhint@montsegur: ~' with standard window controls. The terminal shows the command 'root@montsegur:~# systemctl --failed' and its output: '0 loaded units listed. Pass --all to see loaded but inactive units, too. To show all installed unit files use 'systemctl list-unit-files'. root@montsegur:~#'.

```
root@montsegur:~# systemctl --failed
0 loaded units listed. Pass --all to see loaded but inactive units, too.
To show all installed unit files use 'systemctl list-unit-files'.
root@montsegur:~#
```

Unit files contain information on sockets, devices, mount points, swap or partition (.service, .socket, .device, .mount, .automount, .swap, .target, .path, .timer, .slice, or .scope). They may contain information on more options. If Systemd fails to identify an option it will log warnings, options starting by X- are ignored.

To list installed unit files run the following command:

```
# systemctl list-unit-files
```

```

linuxhint@montsegur: ~
UNIT FILE                                STATE
proc-sys-fs-binfmt_misc.automount       static
-.mount                                  generated
boot-efi.mount                           generated
boot.mount                               generated
dev-hugepages.mount                      static
dev-mqueue.mount                         static
media-cdrom0.mount                       generated
proc-sys-fs-binfmt_misc.mount            static
sys-fs-fuse-connections.mount            static
sys-kernel-config.mount                  static
sys-kernel-debug.mount                   static
systemd-ask-password-console.path        static
systemd-ask-password-plymouth.path       static
systemd-ask-password-wall.path           static
session-2.scope                          transient
accounts-daemon.service                  enabled
alsa-restore.service                     static
alsa-state.service                       static
alsa-utils.service                       masked
anacron.service                          enabled
apparmor.service                         enabled
apt-daily-upgrade.service                 static
apt-daily.service                        static
autovt@.service                           enabled
avahi-daemon.service                     enabled
binfmt-support.service                   enabled
bluetooth.service                        enabled
bolt.service                             static
bootlogd.service                         masked
lines 1-30

```

List all running services:

```
# systemctl
```



```

linuxhint@montsegur: ~
UNIT                                LOAD    ACTIVE SUB    DESCRIPTION
proc-sys-fs-binfmt_misc.automount loaded active running Arbitrary E
sys-devices-pci0000:00-0000:00:02.0-drm-card0-card0\x2deDP\x2d1-intel backlight.device loaded active plugged /sys/device
sys-devices-pci0000:00-0000:00:14.0-usb1-1\x2d8-1\x2d8:1.0-bluetooth-hci0.device loaded active plugged /sys/device
sys-devices-pci0000:00-0000:00:17.0-ata1-host0-target0:0:0:0:0:0:0:0-block-sda-sda1.device loaded active plugged HFS256G32MN
sys-devices-pci0000:00-0000:00:17.0-ata1-host0-target0:0:0:0:0:0:0:0-block-sda-sda2.device loaded active plugged HFS256G32MN
sys-devices-pci0000:00-0000:00:17.0-ata1-host0-target0:0:0:0:0:0:0:0-block-sda-sda3.device loaded active plugged HFS256G32MN
sys-devices-pci0000:00-0000:00:17.0-ata1-host0-target0:0:0:0:0:0:0:0-block-sda-sda4.device loaded active plugged HFS256G32MN
sys-devices-pci0000:00-0000:00:17.0-ata1-host0-target0:0:0:0:0:0:0:0-block-sda.device loaded active plugged HFS256G32MN
sys-devices-pci0000:00-0000:00:17.0-ata2-host1-target1:0:0:1:0:0:0:0-block-sr0.device loaded active plugged TSSTcorp_CD
sys-devices-pci0000:00-0000:00:1c.4-0000:02:00.0-net-enp2s0.device loaded active plugged RTL8111/816
sys-devices-pci0000:00-0000:00:1c.5-0000:03:00.0-net-wlp3s0.device loaded active plugged RTL8723BE P
sys-devices-pci0000:00-0000:00:1f.3-sound-card0.device loaded active plugged Sunrise Poi
sys-devices-platform-serial8250-tty-ttyS0.device loaded active plugged /sys/device
sys-devices-platform-serial8250-tty-ttyS1.device loaded active plugged /sys/device
sys-devices-platform-serial8250-tty-ttyS2.device loaded active plugged /sys/device
sys-devices-platform-serial8250-tty-ttyS3.device loaded active plugged /sys/device
sys-devices-virtual-block-dm\x2d0.device loaded active plugged /sys/device
sys-devices-virtual-block-dm\x2d1.device loaded active plugged /sys/device
sys-devices-virtual-misc-rfkill.device loaded active plugged /sys/device
sys-module-fuse.device loaded active plugged /sys/module
sys-subsystem-bluetooth-devices-hci0.device loaded active plugged /sys/subsys
sys-subsystem-net-devices-enp2s0.device loaded active plugged RTL8111/816
sys-subsystem-net-devices-wlp3s0.device loaded active plugged RTL8723BE P
-.mount loaded active mounted /
boot-efi.mount loaded active mounted /boot/efi
boot.mount loaded active mounted /boot
dev-hugepages.mount loaded active mounted Huge Pages
dev-mqueue.mount loaded active mounted POSIX Messa
proc-sys-fs-binfmt_misc.mount loaded active mounted Arbitrary E
lines 1-36

```

To start a service using systemd run:

```
# systemctl start <Service-name>
```

```

linuxhint@montsegur: ~
root@montsegur:~# systemctl start sendmail
root@montsegur:~# █

```

Alternatively you can run:

```
# sudo service sendmail start
```

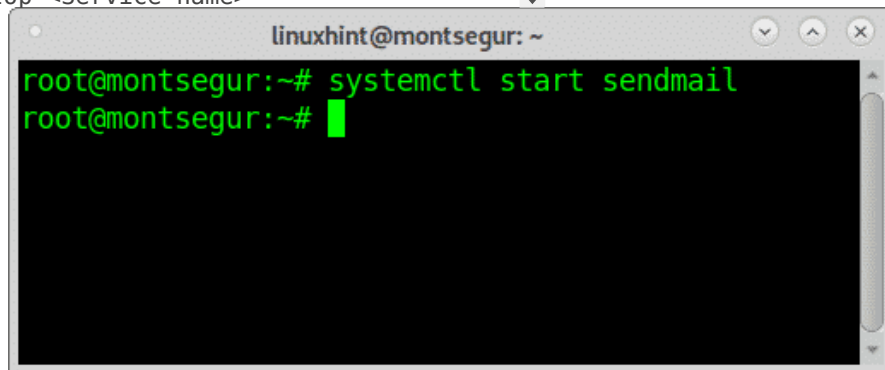
```

linuxhint@montsegur: ~
root@montsegur:~# sudo service sendmail start
root@montsegur:~# █

```


To stop services use the same syntax replacing “start” with “ stop”, to start the <Service-name> run:

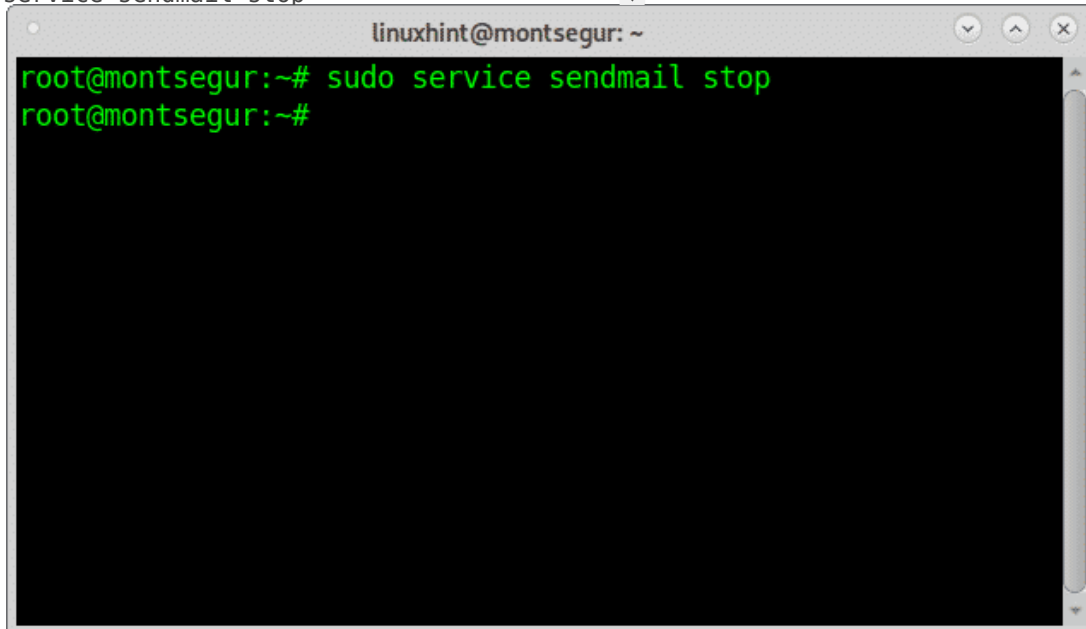
```
# systemctl stop <Service-name>
```

A terminal window titled 'linuxhint@montsegur: ~' showing a root shell prompt. The command 'systemctl start sendmail' has been entered and executed, resulting in a new root shell prompt.

```
linuxhint@montsegur: ~  
root@montsegur:~# systemctl start sendmail  
root@montsegur:~#
```

Similarly, you can use the command “service”:

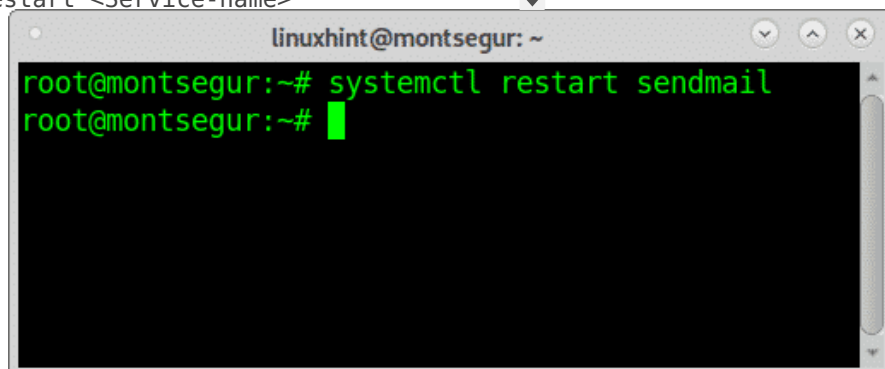
```
# sudo service sendmail stop
```

A terminal window titled 'linuxhint@montsegur: ~' showing a root shell prompt. The command 'sudo service sendmail stop' has been entered and executed, resulting in a new root shell prompt.

```
linuxhint@montsegur: ~  
root@montsegur:~# sudo service sendmail stop  
root@montsegur:~#
```

To restart a service replace “stop” or “start” for “restart”, the following example shows how to start the service “<Service-name>”:

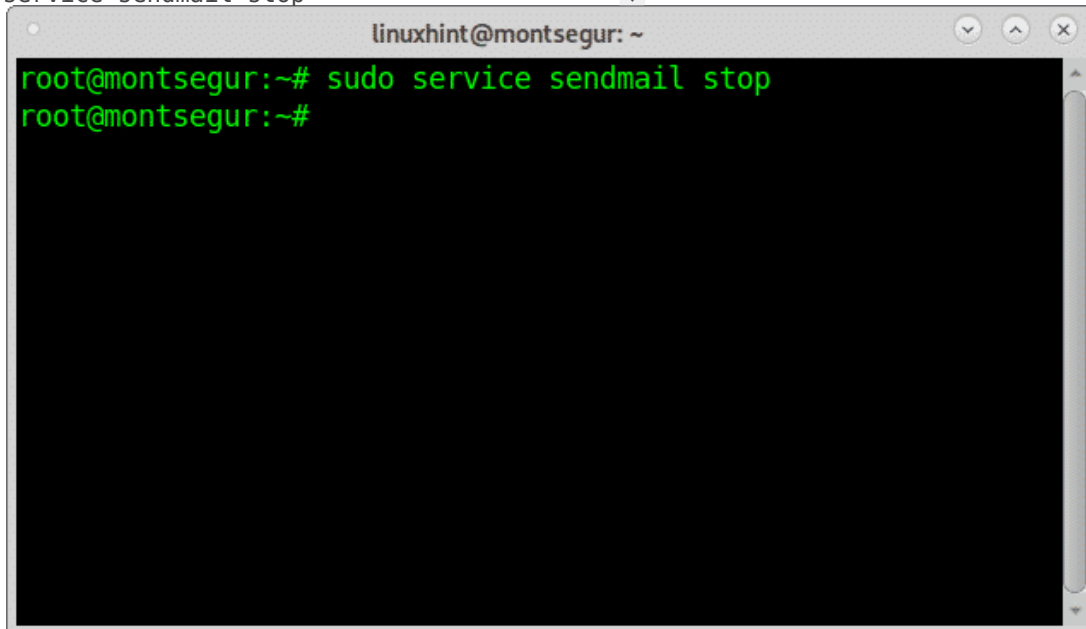
```
# systemctl restart <Service-name>
```

A terminal window titled 'linuxhint@montsegur: ~' showing a root shell prompt. The command 'systemctl restart sendmail' has been entered and executed, resulting in a new root shell prompt.

```
linuxhint@montsegur: ~  
root@montsegur:~# systemctl restart sendmail  
root@montsegur:~#
```

You can also command “service” to restart:

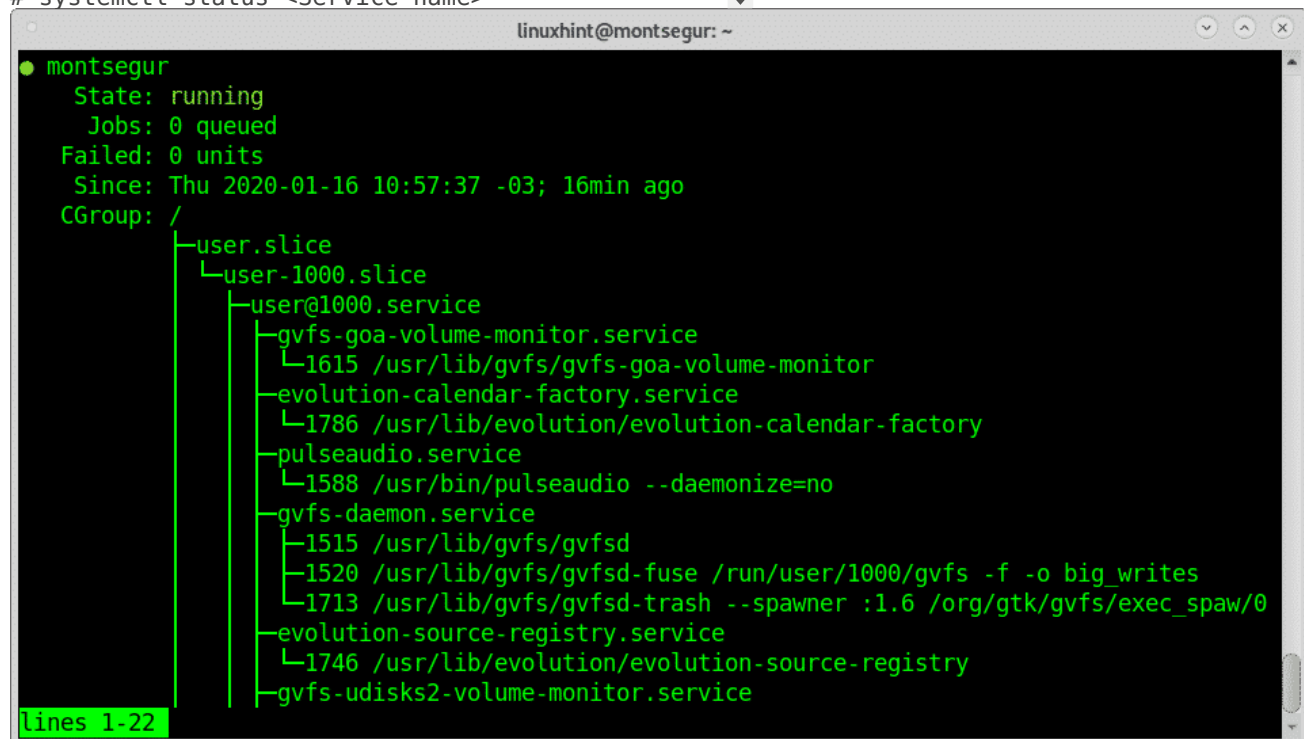
```
# sudo service sendmail stop
```



```
linuxhint@montsegur: ~  
root@montsegur:~# sudo service sendmail stop  
root@montsegur:~#
```

To show the status of a specific service use the option “status”, the following example shows how to start the service <Service-Name>:

```
# systemctl status <Service-name>
```



```
linuxhint@montsegur: ~  
● montsegur  
   State: running  
   Jobs: 0 queued  
  Failed: 0 units  
   Since: Thu 2020-01-16 10:57:37 -03; 16min ago  
  CGroup: /  
          └─user.slice  
              └─user-1000.slice  
                  └─user@1000.service  
                      ├─gvfs-goa-volume-monitor.service  
                      │   └─1615 /usr/lib/gvfs/gvfs-goa-volume-monitor  
                      ├─evolution-calendar-factory.service  
                      │   └─1786 /usr/lib/evolution/evolution-calendar-factory  
                      ├─pulseaudio.service  
                      │   └─1588 /usr/bin/pulseaudio --daemonize=no  
                      ├─gvfs-daemon.service  
                      │   ├──1515 /usr/lib/gvfs/gvfsd  
                      │   ├──1520 /usr/lib/gvfs/gvfsd-fuse /run/user/1000/gvfs -f -o big_writes  
                      │   └─1713 /usr/lib/gvfs/gvfsd-trash --spawner :1.6 /org/gtk/gvfs/exec_spaw/0  
                      ├─evolution-source-registry.service  
                      │   └─1746 /usr/lib/evolution/evolution-source-registry  
                      └─gvfs-udisks2-volume-monitor.service  
lines 1-22
```

You can check a service status using the command “service”:

```
# sudo service postfix status
```

```

linuxhint@montsegur: ~
root@montsegur:~# sudo service postfix status
● postfix.service
   Loaded: masked (Reason: Unit postfix.service is masked.)
   Active: inactive (dead)
root@montsegur:~#

```

As you can see the service says to be masked which means it is strongly disabled and can't be enabled even manually (it can be unmasked but it won't be shown in this tutorial). The following instructions show how to enable services are meant for disabled services, not for masked ones.

To enable a service to be activated every time the device boots use the option **enable**, the following example shows how to enable the <Service-Name> to be started on boot:

```
# systemctl enable <Service-name>
```

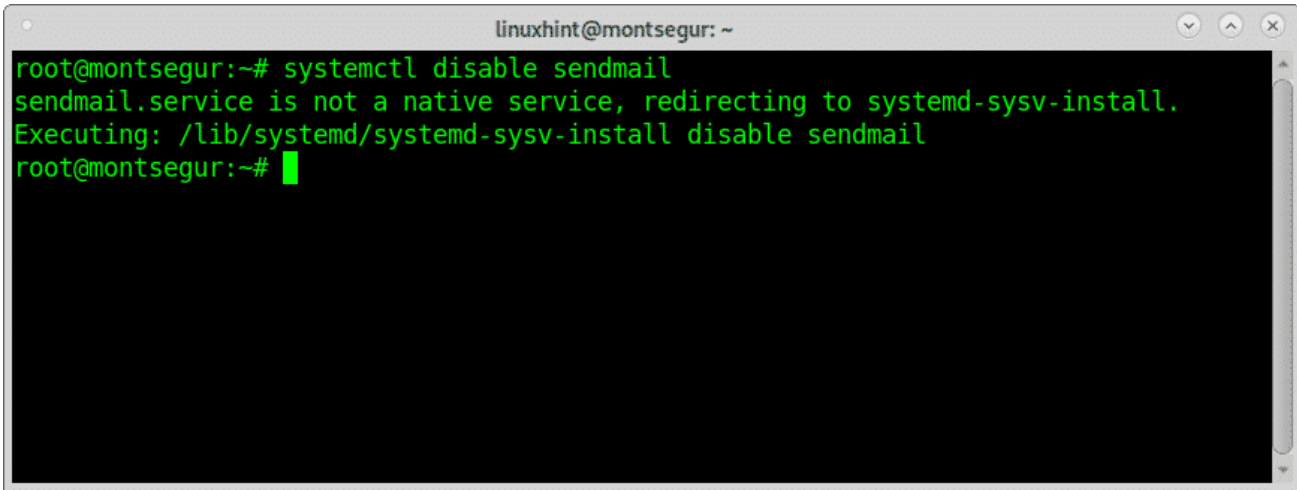
```

linuxhint@montsegur: ~
● montsegur
   State: running
   Jobs: 0 queued
   Failed: 0 units
   Since: Thu 2020-01-16 10:57:37 -03; 16min ago
   CGroup: /
           └─user.slice
               └─user-1000.slice
                   └─user@1000.service
                       └─gvfs-goa-volume-monitor.service
                           └─1615 /usr/lib/gvfs/gvfs-goa-volume-monitor
                       └─evolution-calendar-factory.service
                           └─1786 /usr/lib/evolution/evolution-calendar-factory
                       └─pulseaudio.service
                           └─1588 /usr/bin/pulseaudio --daemonize=no
                       └─gvfs-daemon.service
                           └─1515 /usr/lib/gvfs/gvfsd
                           └─1520 /usr/lib/gvfs/gvfsd-fuse /run/user/1000/gvfs -f -o big_writes
                           └─1713 /usr/lib/gvfs/gvfsd-trash --spawner :1.6 /org/gtk/gvfs/exec_spaw/0
                       └─evolution-source-registry.service
                           └─1746 /usr/lib/evolution/evolution-source-registry
                       └─gvfs-udisks2-volume-monitor.service

```

To disable a service to remain inactive even after the device boots use the option **disable**, the following example shows how to enable the <Service-Name> **no** to be started on boot:

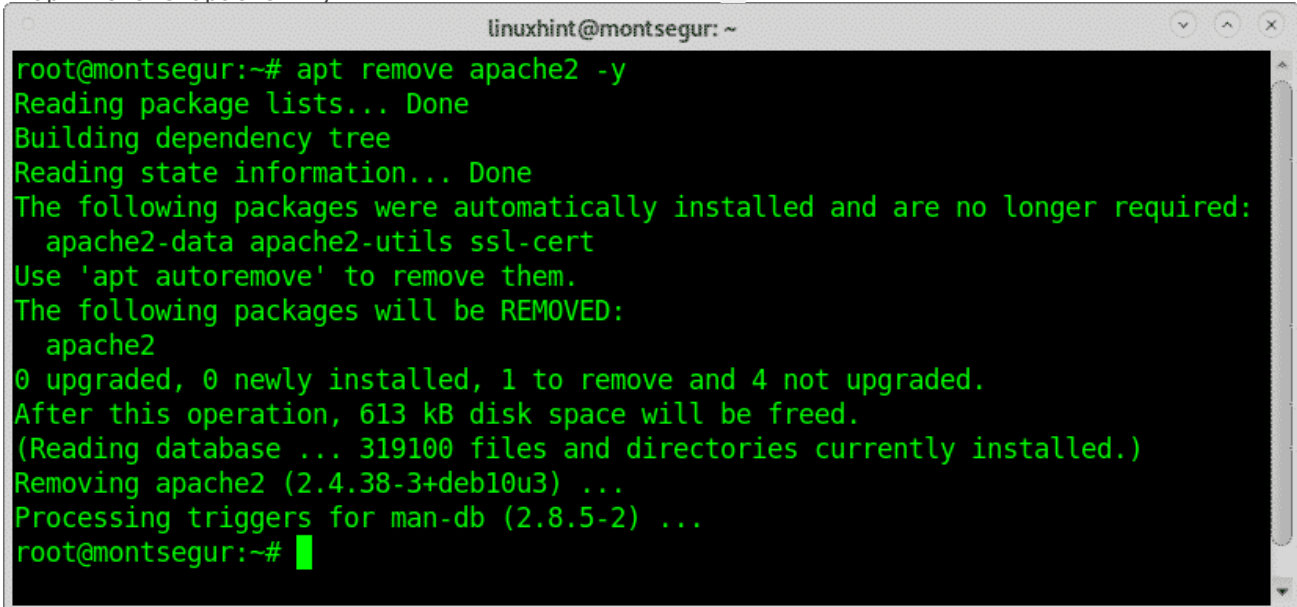
```
# systemctl disable <Service-name>
```

A terminal window titled 'linuxhint@montsegur: ~' with a black background and green text. The user is root at montsegur. The command 'systemctl disable sendmail' is entered. The output shows that 'sendmail.service' is not a native service and is redirected to 'systemd-sysv-install'. The command is then executed successfully.

```
linuxhint@montsegur: ~  
root@montsegur:~# systemctl disable sendmail  
sendmail.service is not a native service, redirecting to systemd-sysv-install.  
Executing: /lib/systemd/systemd-sysv-install disable sendmail  
root@montsegur:~#
```

Additionally to disabling services you can also, and it is recommended, to uninstall any service you are sure you won't use, and even if you plan in the future you can install it, to remove a service, rather than disabling or stopping it, for example to uninstall Apache on Debian run:

```
# apt remove apache2 -y
```

A terminal window titled 'linuxhint@montsegur: ~' with a black background and green text. The user is root at montsegur. The command 'apt remove apache2 -y' is entered. The output shows the package lists being read, the dependency tree being built, and state information being read. It then lists packages that were automatically installed and are no longer required: 'apache2-data', 'apache2-utils', and 'ssl-cert'. It suggests using 'apt autoremove' to remove them. The packages to be removed are listed as 'apache2'. The summary shows 0 upgraded, 0 newly installed, 1 to remove, and 4 not upgraded. It states that 613 kB of disk space will be freed. The database contains 319100 files and directories. The removal of 'apache2 (2.4.38-3+deb10u3)' is shown, followed by processing triggers for 'man-db (2.8.5-2)'.

```
linuxhint@montsegur: ~  
root@montsegur:~# apt remove apache2 -y  
Reading package lists... Done  
Building dependency tree  
Reading state information... Done  
The following packages were automatically installed and are no longer required:  
  apache2-data apache2-utils ssl-cert  
Use 'apt autoremove' to remove them.  
The following packages will be REMOVED:  
  apache2  
0 upgraded, 0 newly installed, 1 to remove and 4 not upgraded.  
After this operation, 613 kB disk space will be freed.  
(Reading database ... 319100 files and directories currently installed.)  
Removing apache2 (2.4.38-3+deb10u3) ...  
Processing triggers for man-db (2.8.5-2) ...  
root@montsegur:~#
```

You can do the same with all installed services you don't use such as ssh, cups, etc.

There are additional options for systemctl you can find on its man page or online at <http://man7.org/linux/man-pages/man1/systemctl.1.html>.

I hope you found this article on Disabling Unnecessary Services Debian Linux useful.

ABOUT THE AUTHOR



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David Adams is a System Admin and writer that is focused on open source technologies, security software, and computer systems.

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