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How to Disable and Remove Unnecessary Services on Linux

Matei Cezar | Last Updated: June 20, 2024 | Read Time: 5 mins | CentOS, RedHat | 12 Comments

When you install RHEL 9, the system comes with a minimal set of pre-installed packages and services to keep the system lightweight and secure.

However, over time, as you install new packages and services, your system can become bloated and vulnerable to security threats.

In this article, we will discuss how to disable and remove unwanted services and packages on RHEL-based distributions such as **Rocky Linux**, **AlmaLinux**, and **Fedora**, ensuring that your system remains secure and functional.

If you are planning to use your newly installed RHEL system to host, let's say, a small website that runs on **Apache** or **Nginx**, or to provide network services like **DNS**, **DHCP**, **PXE boot**, FTP server, etc or other services that don't require to run **Postifx MTA**, **CUPS** and **Avahi** daemons, then why we should keep all these unnecessary daemons installed or even running on your server.

The main external services that your server truly requires to run after you perform a minimal installation would be just a SSH daemon, in order to allow remote logins on the system, and, in some cases, NTP service, to accurately synchronize your server's internal clock with external NTP servers.

Installing Useful System Utilities

After the installation finishes, login on your server with a **root** account or a user with root privileges and perform a system update, to make sure that your system is up-to-date with

all packages and security patches.

```
yum update -y
yum upgrade y
```

The next step would be to install some useful system utilities such as **net-tools** (this package provides the older but good ifconfig command), nano text editor, wget for file download and curl for URL transfers, lsof (to list your open files), and **bash-completion**, which auto-completes typed commands.

```
yum install nano bash-completion net-tools wget curl lsof
```

Disable and Remove Unwanted Services in Linux

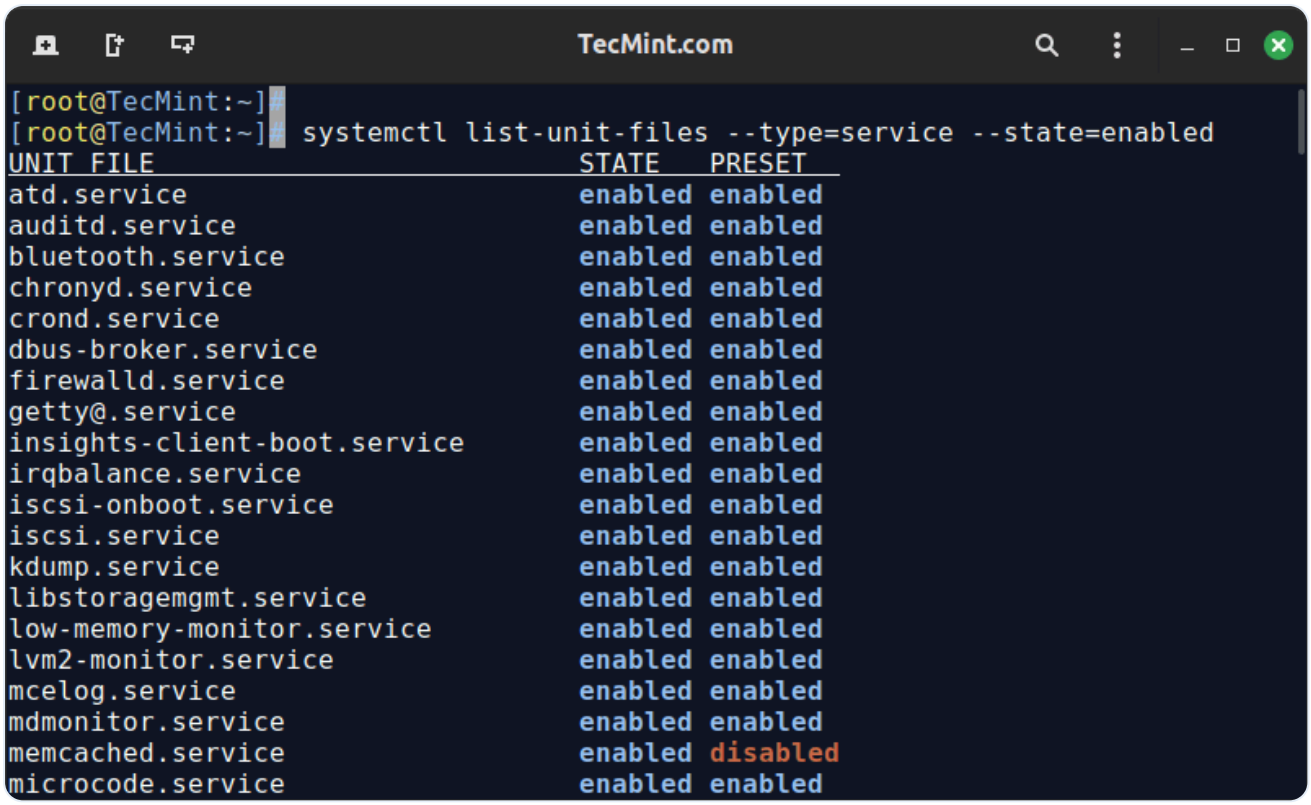
Now you can start disabling and removing pre-installed unwanted services, but before that, you need to get a list of all your enabled and running services on your system.

Checking Enabled Services

Before disabling services, it is essential to check which services are currently enabled on your system.

For SystemD:

```
systemctl list-unit-files --type=service --state=enabled
```



List Enabled Services

For SysVinit:

```
ls /etc/rc.d/rc3.d/
```

For OpenRC:

```
rc-update show
```

Take note of the services that you want to disable.

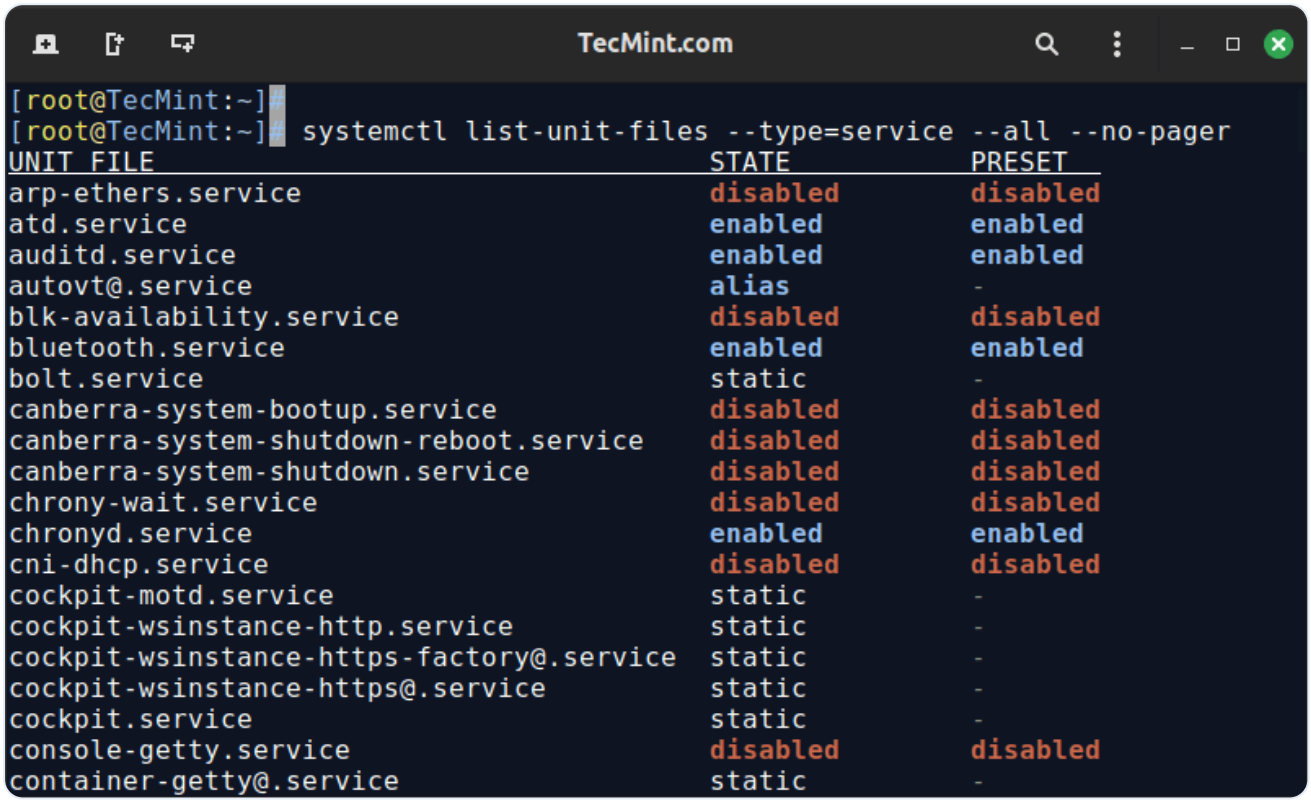
Identifying Unnecessary Services

Before disabling and removing unwanted services, you need to identify which services are necessary and which ones can be safely disabled.

One way to do this is to examine the list of enabled services and look up their descriptions to determine what they do.

For example, the following command will show a list of all enabled services along with their descriptions on systemd-based distributions:

```
systemctl list-unit-files --type=service --all --no-pager
```



Identifying Unnecessary Services

For SysVinit:

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

For OpenRC:

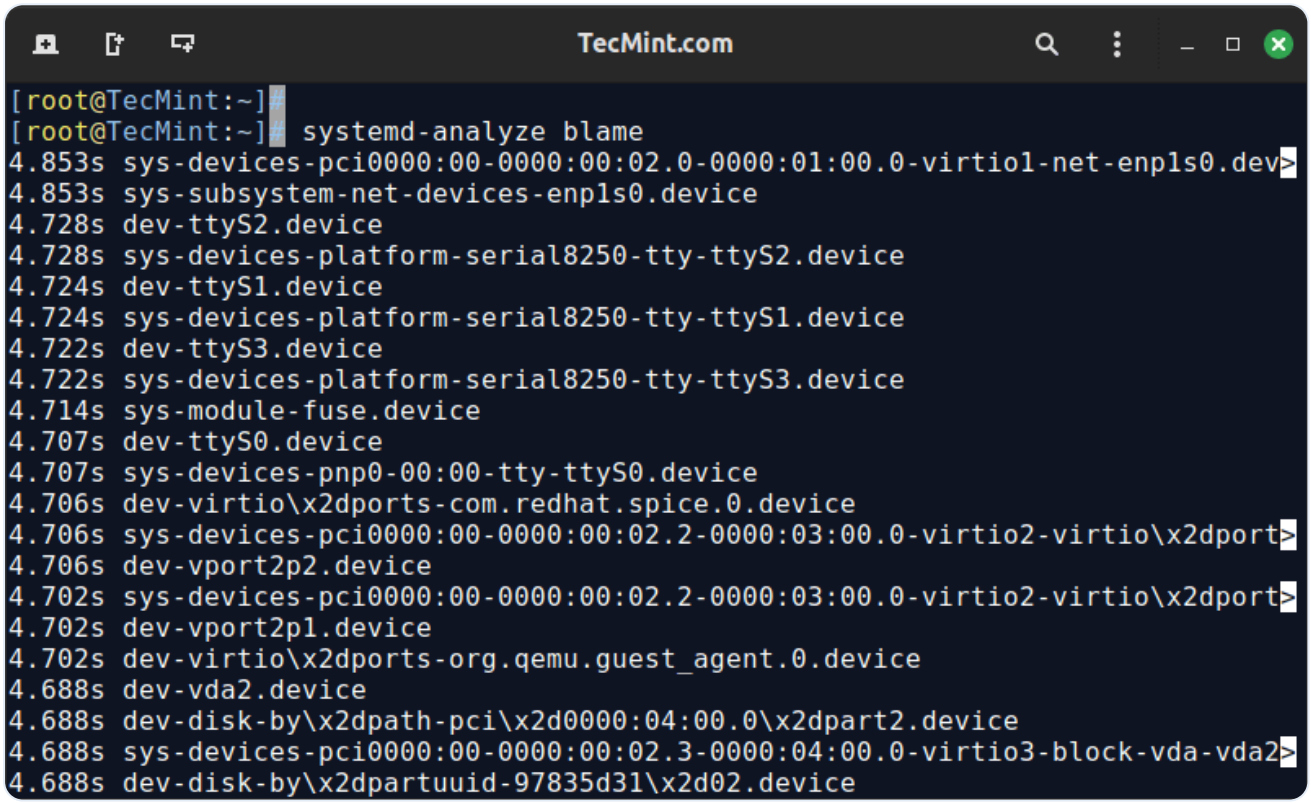
```
rc-status --all
```

You can then examine each service's description to determine whether it is necessary for your system.

Another approach is to use a tool like **systemd-analyze** to analyze your system's boot time and identify services that are slowing down the boot process.

```
systemd-analyze
systemd-analyze blame
```

The above command will display a list of all running systemd units (services) sorted by the time they took to initialize.



Analyze Boot Services

Services that are not critical to system operation and are slowing down the boot process can often be safely disabled.

Disable Unnecessary Services

Once you've identified a service that is not critical and might be slowing down boot time, you can disable and stop it using the following commands.

For SystemD:

```
sudo systemctl disable <service_name>
sudo systemctl stop <service_name>
```

For SysVinit:

```
sudo service <service_name> stop
sudo chkconfig <service_name> off
```

For OpenRC:

```
sudo rc-service <service_name> stop
sudo rc-update del <service_name> default
```

While the services that you need to disable or remove will depend on your specific use case, there are a few common services that you may want to consider disabling or removing on a minimal installation of RHEL.

Postfix

Postfix is a mail transfer agent (MTA) that is used to send and receive email on your system. If you are not using your system for email, you can disable and remove this service.

```
sudo systemctl stop postfix
sudo systemctl disable postfix
sudo yum remove postfix
```

Avahi

Avahi is a service that is used for zero-configuration networking, allowing devices to discover and communicate with each other on the same network.

If you do not require this functionality, you can disable and remove avahi service.

```
sudo systemctl stop avahi-daemon.socket
sudo systemctl disable avahi-daemon.socket
sudo yum remove avahi-autoipd avahi-libs avahi-tools
```

Cups

The cups service is used for printing. If your system does not require printing capabilities, you can disable and stop it:

```
sudo systemctl disable cups
sudo systemctl stop cups
suod yum remove cups
```

Removing Unwanted Services

In addition to removing unwanted services, you may also want to remove any packages that are no longer needed. Unused packages can take up disk space and potentially create security vulnerabilities.

First, list the installed packages to identify which ones are associated with unwanted services:

```
rpm -qa
```

To find out which package provides a particular service, use:

```
rpm -qf /usr/lib/systemd/system/<service_name>.service
```

To remove a package and its associated files, use.

```
sudo yum remove <package_name>
```

Best Practices for Disabling and Removing Services

When disabling and removing services, it is essential to follow best practices to ensure that your system remains secure and functional.

Here are some guidelines to follow:

- Before removing a service, disable it to prevent it from running in the background, which can be done using the `systemctl disable` command.
- Stop the service to prevent it from running in the current session, which can be done using the `systemctl stop` command.
- Remove any packages that are no longer needed to free up disk space and reduce security vulnerabilities, which can be done using the `yum remove` command.
- After disabling or removing services, refresh the systemd daemon to ensure that the changes take effect, which can be done using the `systemctl daemon-reload` command.
- After removing services, check for ghost services that may still be running, which can be done using the `systemctl list-units` command.

Conclusion

Disabling and removing unwanted services and packages on RHEL is an essential step in maintaining system security and performance.

By following the steps outlined in this article, you can ensure that your system remains secure and functional. Remember to always follow best practices when disabling and removing services, and be cautious when removing packages to avoid potential security vulnerabilities.

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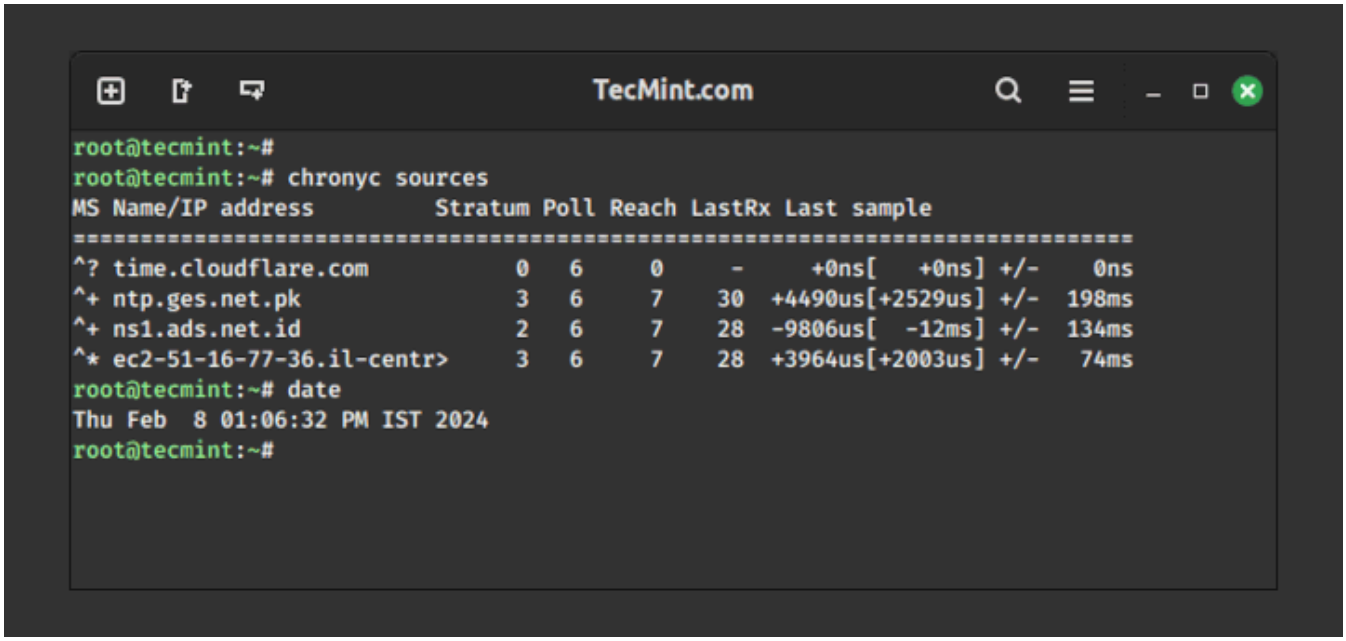

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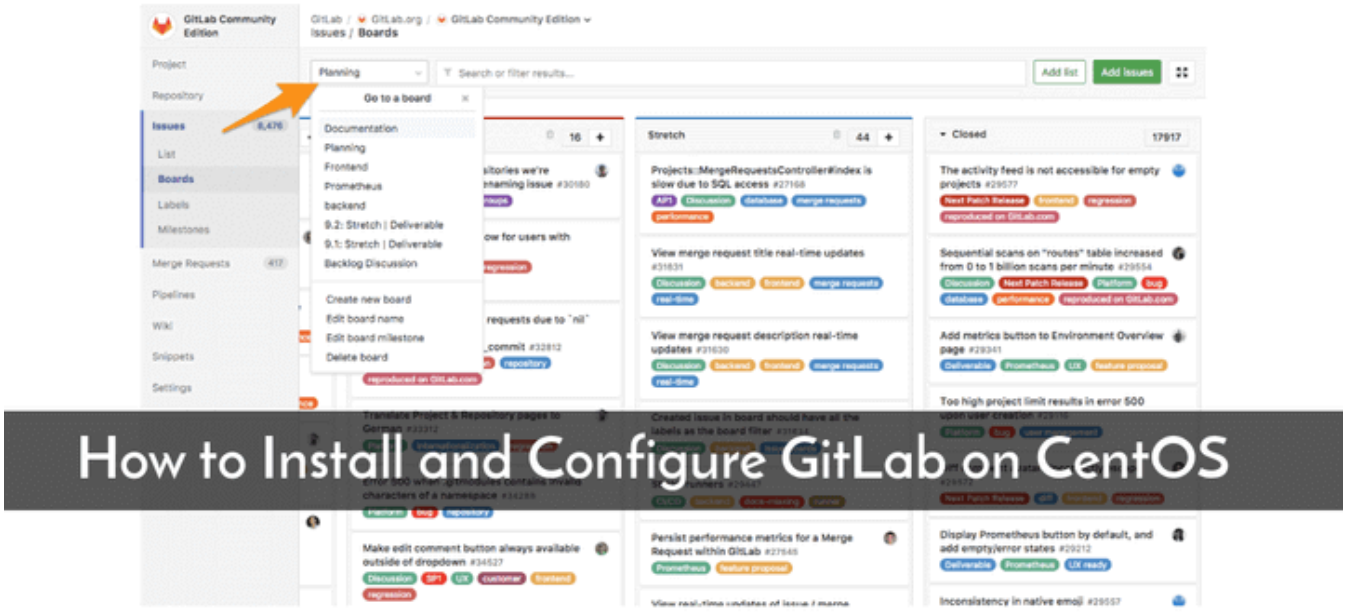

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12 Comments

Leave a Reply

dragonmouth

June 19, 2024 at 5:11 pm

"How to Disable and Remove Unnecessary Services on Linux"

Please change your title to show the actual scope of the article – "In this article, we will discuss how to disable and remove unwanted services and packages on RHEL-based distributions"

And this article does not address how to stop unnecessary services on non-systemd distros which also part of Linux.

Reply

Admin

Ravi Saive

June 20, 2024 at 10:00 am

@Dragonmouth,

Thank you for your feedback. I have now included instructions for disabling and removing unnecessary services on non-systemd distributions as well.

The article now covers both systemd and non-systemd systems, ensuring a comprehensive guide for various Linux environments.

Please let me know if you have any further suggestions or questions!

Reply

Tech

November 13, 2015 at 1:00 am

Thank you for your time – excellent tuts on this site!

Reply

Tech

November 13, 2015 at 12:59 am

I was also able to disable and remove the Avahi daemon with no issues. IS there something that I should keep an eye on just in case? Why are you using ntp instead of chrony?

Reply

Matei Cezar

November 15, 2015 at 12:34 am

If you are running a server, removing Avahi daemon is a good security practice. Using ntp instead of crony is a personal choice, anyway if you just want to sync time with upstream ntp servers you can use ntpdate command from crontab.

Reply

Pedro Rodrigues

May 20, 2015 at 2:02 am

Well, I just removed the Avahi daemon from a fresh Centos 7 install while connected with SSH, and there was no problem at all. Did a netinstall with a minimal software configuration, maybe that makes a difference. Chrony was not installed, also. Anyway, thanks for the article, very informative. Am just getting my feet wet on Centos 7 and it helped me quite a bit.

Reply

Olivier

January 7, 2015 at 7:50 pm

Why are you using ntp instead of chrony ???

ps: happy new year :)

Reply

Alex wang

December 30, 2014 at 1:53 am

sorry for the redundant and unnecessary absolutely word :)

Reply

Alex wang

December 30, 2014 at 1:37 am

Hi Cezar , nice article, for a minmal install,

very handy even for virtual box,vmware labs when you can clone a base vm with absolutely minimal ,then create a handful of nodes and work on those nodes necessary for your network topology/service requirements(for example internal

and external network router dmz scenario), no need to clone a bloated system with huge ram requirements(given that if your host machine suffers from it)

I have two question what is the absolutely minimal ram for your minimal installation will be? and what is absolutely minimal ram for server with gui with no package selected installation

Thanks

Reply

Matei Cezar

October 21, 2014 at 3:19 pm

@Joseph Bloe: you are wrong...if you remove Avahi daemon you can lose SSH connectivity because Avahi daemon removes NetworkManager also...so no Network Manager no connection...that's the point!

Reply

Amardeep

February 16, 2015 at 6:38 pm

What is the top -M alternative in EL7?? I need to see the memory usage in Megabytes when I run top.

Reply

Joseph Bloe

October 19, 2014 at 11:26 pm

LMFAO @ “Caution: Do not attempt to remove Avahi daemon if you connected through SSH.”

That’s not even close to being realistic, since Avahi isn’t required for SSH to function.

Reply

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