



Linux

Linux Terminal – Installing Software from the Repository – APT

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Alright, you've heard me talk about installing from the repo, and you've probably heard others talking about it as well. So, what is a repo?

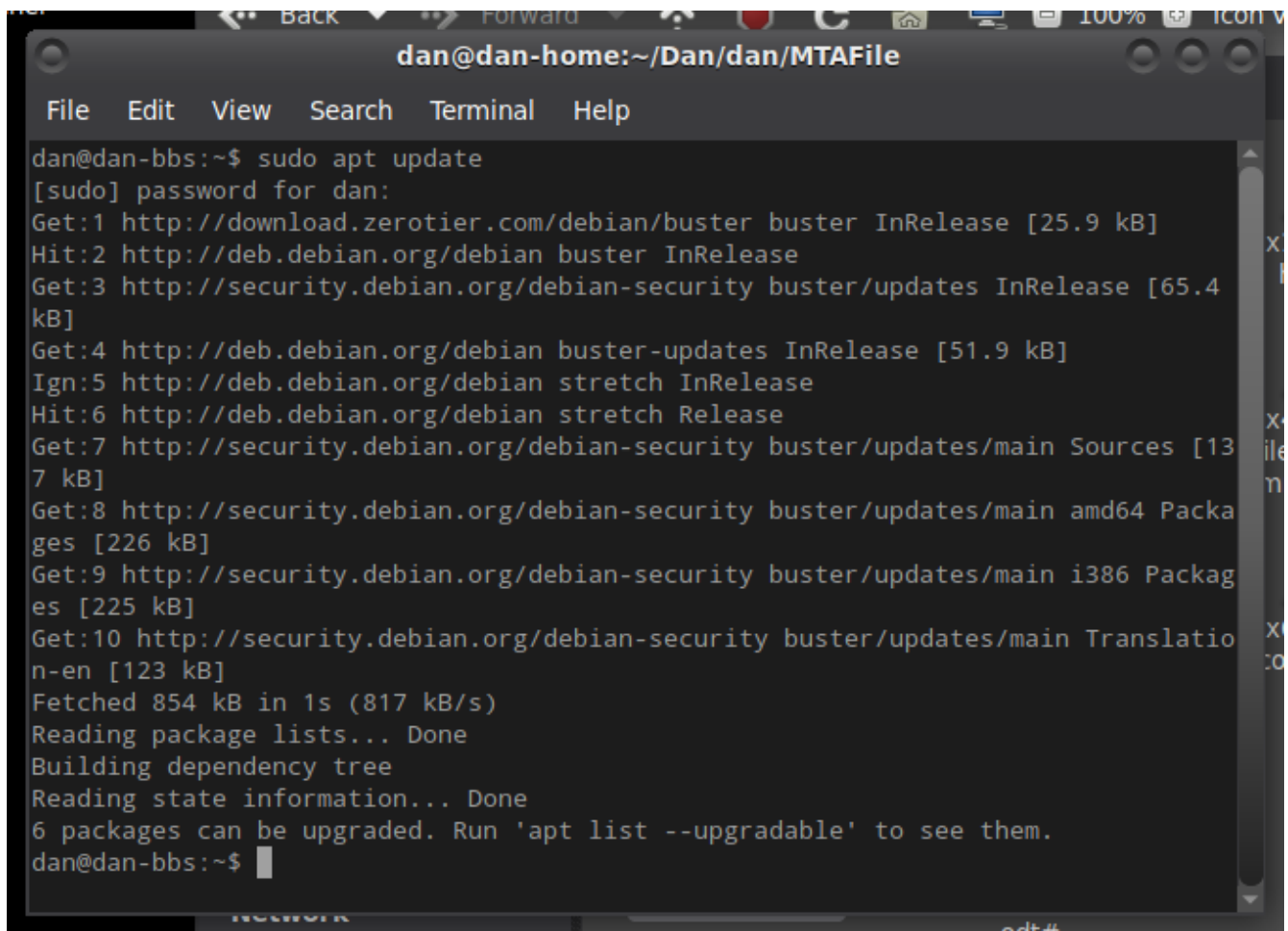
Each distribution, or in some cases, groups of distros, will create a repository that contains officially tested software programs that are known to work with their distro. For example, Debian has an official repository where they make software available to everyone running that version. Ubuntu (based on Debian) will look at what it put into Debian's repo, and make sure it works with Ubuntu before adding it to their repo.

Since I started with Debian and Ubuntu, and these are also the most popular, let's look at how we can access these repositories and install software. Debian, and its derivatives, use something called APT (Advanced Package Tool) to utilize the repositories. There is also one called APT-GET, but I believe that one is in the process of going away.

We will go over some of the commands that will help you use APT with Debian based distros. As these commands will require you to use 'sudo' to be a superuser, I wanted to let you know a couple things. First, after you hit enter, it will ask you for the sudo password. There are no characters echoed to the screen. Secondly, after you run a command using sudo, if you run another one within a few minutes, it will not ask you for the password each time. Don't be alarmed by this. It is to keep you from having to type it in 15 times in 2 minutes, as some of us would end up doing.

```
sudo apt update
```

Before you do anything with the repositories, you will need to make sure your local database is updated to what is on the servers. When you run 'sudo apt update', your computer will contact all of the databases that are set up on your system, and make sure it has the current information. Yes, you will need to use 'sudo', as this will need to be run as a superuser. Most of the software you install, will end up in directories managed by Linux, and not in your /home directory.



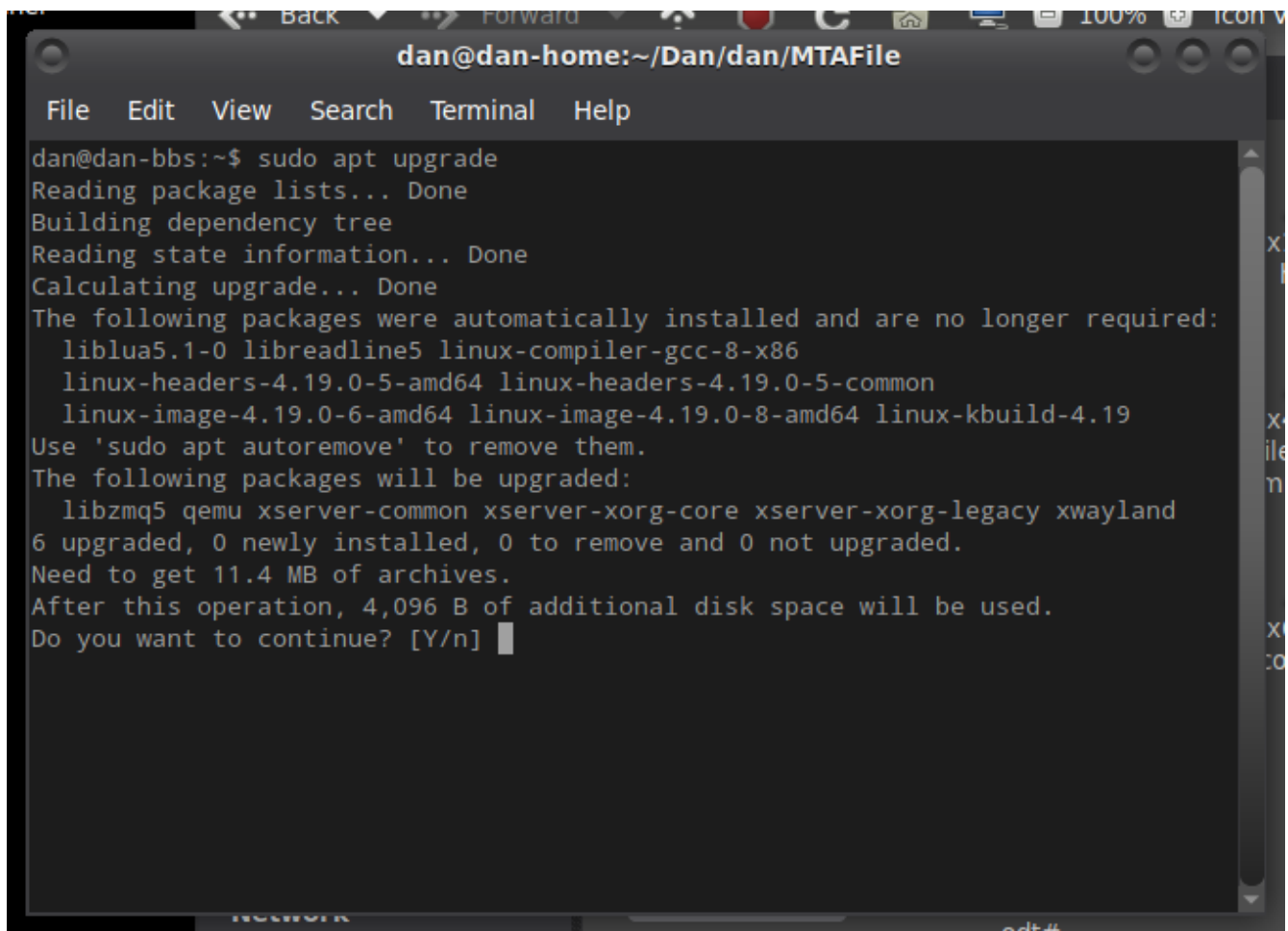
```
dan@dan-home:~/Dan/dan/MTAFile
File Edit View Search Terminal Help

dan@dan-bbs:~$ sudo apt update
[sudo] password for dan:
Get:1 http://download.zerotier.com/debian/buster buster InRelease [25.9 kB]
Hit:2 http://deb.debian.org/debian buster InRelease
Get:3 http://security.debian.org/debian-security buster/updates InRelease [65.4 kB]
Get:4 http://deb.debian.org/debian buster-updates InRelease [51.9 kB]
Ign:5 http://deb.debian.org/debian stretch InRelease
Hit:6 http://deb.debian.org/debian stretch Release
Get:7 http://security.debian.org/debian-security buster/updates/main Sources [137 kB]
Get:8 http://security.debian.org/debian-security buster/updates/main amd64 Packages [226 kB]
Get:9 http://security.debian.org/debian-security buster/updates/main i386 Packages [225 kB]
Get:10 http://security.debian.org/debian-security buster/updates/main Translation-en [123 kB]
Fetched 854 kB in 1s (817 kB/s)
Reading package lists... Done
Building dependency tree
Reading state information... Done
6 packages can be upgraded. Run 'apt list --upgradable' to see them.
dan@dan-bbs:~$
```

If you look at the above output, you will see the computer contacted all of those servers, and updated its list of current software and versions. It also keeps track of any dependencies that the software might require.

The last line, says there are 6 packages that can be upgraded. If you were to run the ‘`sudo apt list --upgradable`’, it would just give you a list of what these 6 packages are.

`sudo apt upgrade`



```
dan@dan-bbs:~$ sudo apt upgrade
Reading package lists... Done
Building dependency tree
Reading state information... Done
Calculating upgrade... Done
The following packages were automatically installed and are no longer required:
  liblua5.1-0 libreadline5 linux-compiler-gcc-8-x86
  linux-headers-4.19.0-5-amd64 linux-headers-4.19.0-5-common
  linux-image-4.19.0-6-amd64 linux-image-4.19.0-8-amd64 linux-kbuild-4.19
Use 'sudo apt autoremove' to remove them.
The following packages will be upgraded:
  libzmq5 qemu xserver-common xserver-xorg-core xserver-xorg-legacy xwayland
6 upgraded, 0 newly installed, 0 to remove and 0 not upgraded.
Need to get 11.4 MB of archives.
After this operation, 4,096 B of additional disk space will be used.
Do you want to continue? [Y/n]
```

This command will also give you a list of the 6 packages that can be upgraded. It will then ask you if you want to install these now.

Once you hit Enter, or Y, it will install all 6 of the upgradable packages. This process can take some time based on how many upgrades there are at the time.

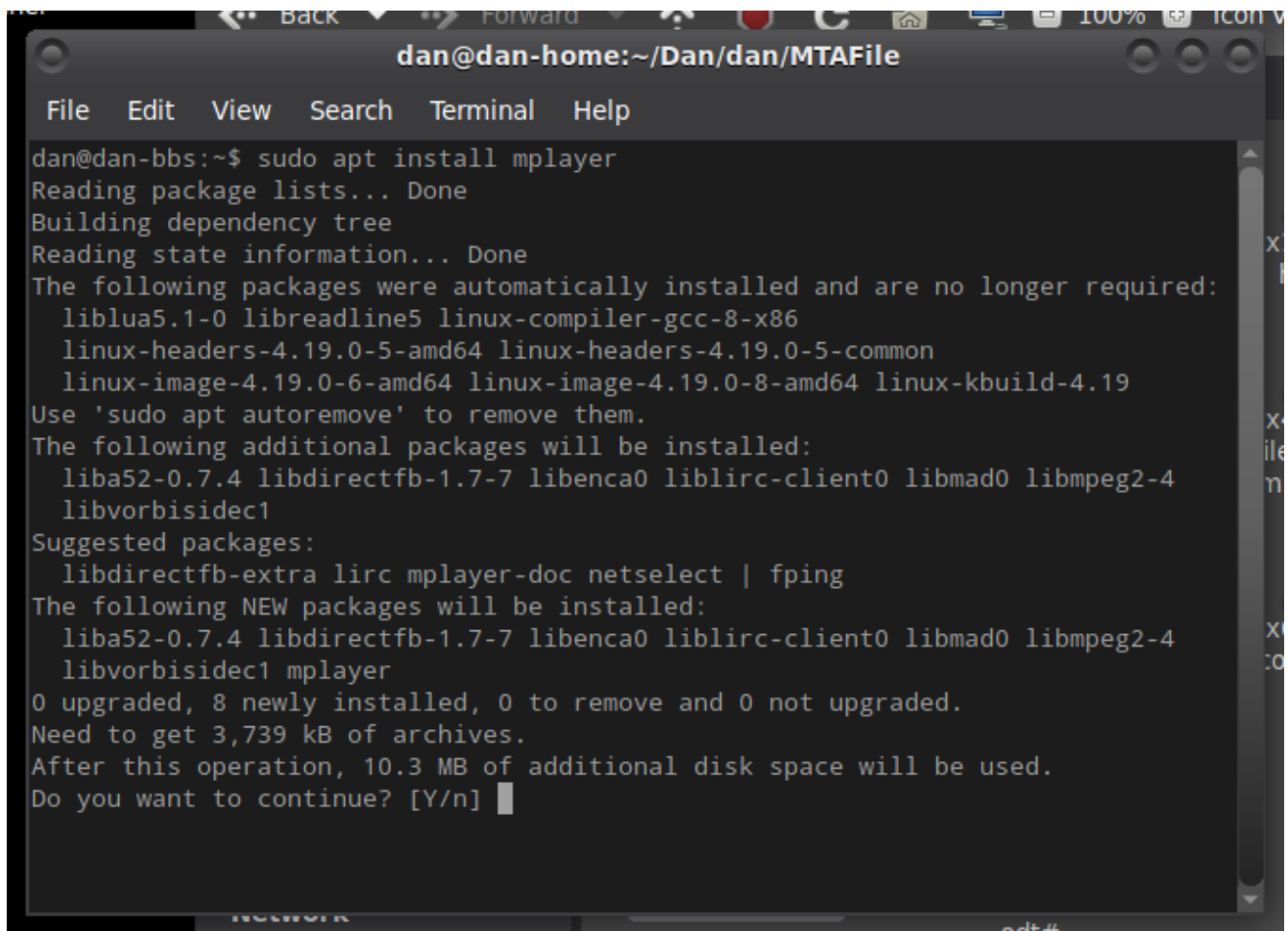
`sudo apt search <package_name>`

This command will search the local database of packages available, and try to find the program you are looking for. If you are looking for a program called mplayer, you would type in ‘sudo apt search mplayer’.

The screen will show you all of the matches that even come close to what you are looking for. You may only have 1 or 2 listed, or you may get 500 matches, depending on your search.

`sudo apt install <package_name>`

After you find the package you’re looking for, you can type in ‘sudo apt install mplayer’, and apt will install the software you chose.

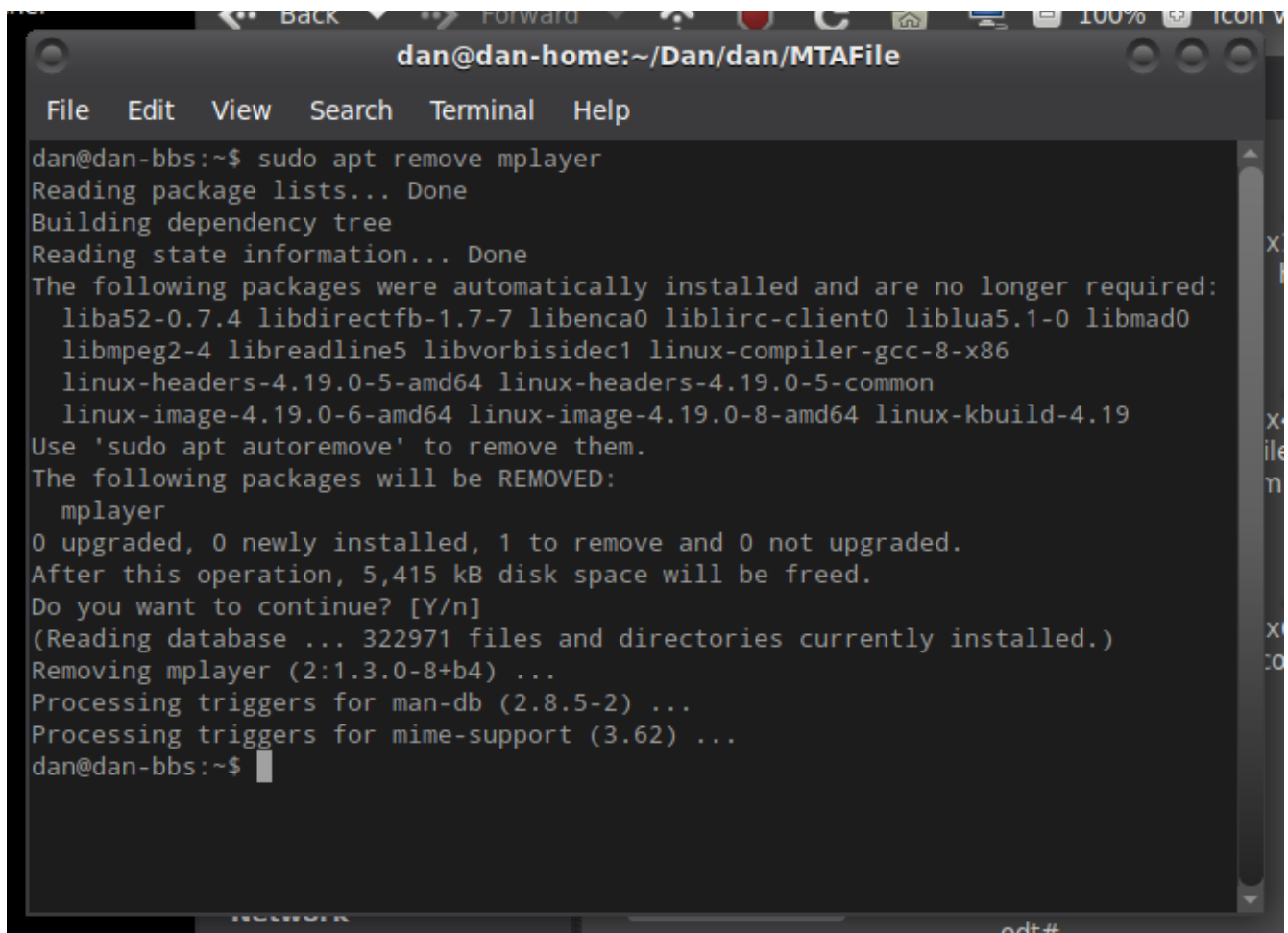


The screenshot shows a terminal window titled 'dan@dan-home:~/Dan/dan/MTAFile'. The terminal displays the output of the command 'sudo apt install mplayer'. The output includes the following text:

```
dan@dan-bbs:~$ sudo apt install mplayer
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following packages were automatically installed and are no longer required:
  liblua5.1-0 libreadline5 linux-compiler-gcc-8-x86
  linux-headers-4.19.0-5-amd64 linux-headers-4.19.0-5-common
  linux-image-4.19.0-6-amd64 linux-image-4.19.0-8-amd64 linux-kbuild-4.19
Use 'sudo apt autoremove' to remove them.
The following additional packages will be installed:
  liba52-0.7.4 libdirectfb-1.7-7 libenca0 liblirc-client0 libmad0 libmpeg2-4
  libvorbisidec1
Suggested packages:
  libdirectfb-extra lirc mplayer-doc netselect | fping
The following NEW packages will be installed:
  liba52-0.7.4 libdirectfb-1.7-7 libenca0 liblirc-client0 libmad0 libmpeg2-4
  libvorbisidec1 mplayer
0 upgraded, 8 newly installed, 0 to remove and 0 not upgraded.
Need to get 3,739 kB of archives.
After this operation, 10.3 MB of additional disk space will be used.
Do you want to continue? [Y/n]
```

`sudo apt remove <program_name>`

If you decide that the program you installed either wasn't what you thought it was, or doesn't work the way you'd like, you can remove it. If the mplayer package we just installed isn't what you wanted, we can type in 'sudo apt remove mplayer', and apt will remove the package.

A terminal window titled 'dan@dan-home:~/Dan/dan/MTAFile' with a menu bar (File, Edit, View, Search, Terminal, Help). The terminal shows the execution of 'sudo apt remove mplayer'. It lists several packages that were automatically installed and are no longer required, including liba52-0.7.4, libdirectfb-1.7-7, libenca0, liblirc-client0, liblua5.1-0, libmad0, libmpeg2-4, libreadline5, libvorbisidec1, linux-compiler-gcc-8-x86, linux-headers-4.19.0-5-amd64, linux-headers-4.19.0-5-common, linux-image-4.19.0-6-amd64, linux-image-4.19.0-8-amd64, and linux-kbuild-4.19. It asks if the user wants to continue, and then shows the removal of mplayer (2:1.3.0-8+b4) and processing of triggers for man-db (2.8.5-2) and mime-support (3.62). The prompt returns to 'dan@dan-bbs:~\$'.

```
dan@dan-bbs:~$ sudo apt remove mplayer
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following packages were automatically installed and are no longer required:
  liba52-0.7.4 libdirectfb-1.7-7 libenca0 liblirc-client0 liblua5.1-0 libmad0
  libmpeg2-4 libreadline5 libvorbisidec1 linux-compiler-gcc-8-x86
  linux-headers-4.19.0-5-amd64 linux-headers-4.19.0-5-common
  linux-image-4.19.0-6-amd64 linux-image-4.19.0-8-amd64 linux-kbuild-4.19
Use 'sudo apt autoremove' to remove them.
The following packages will be REMOVED:
  mplayer
0 upgraded, 0 newly installed, 1 to remove and 0 not upgraded.
After this operation, 5,415 kB disk space will be freed.
Do you want to continue? [Y/n]
(Reading database ... 322971 files and directories currently installed.)
Removing mplayer (2:1.3.0-8+b4) ...
Processing triggers for man-db (2.8.5-2) ...
Processing triggers for mime-support (3.62) ...
dan@dan-bbs:~$
```

That's the basic commands to use APT for any of the Debian based distributions. There are many other switches that can be used to manage your system.