The Beginner's Guide to Linux Mint 19

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Prefaces

These are prefaces. Read them if you'd like some more information on Linux Mint and would like some handy tips as well.

Why Use Linux Mint?

Linux Mint is a powerful, easy to use, and largely bug and frustration-free Linux distribution for desktop computers. It is faster than Windows in many cases, and offers a polished, simple, and clean interface. Linux Mint comes in three variants, Linux Mint Cinnamon Edition (the default and flagship edition), featuring the Cinammon desktop environment, developed by the people who make Linux Mint, for mid-range to high-end computers, Linux Mint MATE, for lower-end computers and for a faster experience, and Linux Mint XFCE, for very low-end computers, or for making a high-end computer faster when performance really matters (like in a video editing studio).

Features of Linux Mint

- Easy-to-use snapshotting software so if things go wrong it's easy to go back
- Simple application store with plenty of feature-rich applications.
- A good-looking yet themeable desktop with plenty of different themes with different colors to choose from
- Stable desktop that rarely crashes on suitable hardware.

Chapter 1: How Your Computer Works

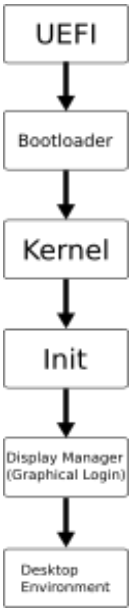
This chapter is a simple reference to how your computer works. It will inform you of how it boots up, how it manages software in Linux Mint, how your computer handles problems when things go wrong, and more.

1.1 How Your Computer Boots Up

Every computer made in the last ten years boots up very similarly, whether it runs Windows, or macOS, or Linux, or BSD. You'll notice I elaborate on Linux a lot more here since that is the focus of this book.

There is a low level component in every standard PC/Mac. This was once the BIOS, or **Basic Input-Output System**, and now there is the UEFI, standing for **Unified Extensible Firmware Interface**. Most computers made in the last 10 years (from 2018) have a UEFI.

Figure 1: A diagram indicating how your computer boots up. BIOS not shown.



Let's understand this diagram in detail. First of all, the UEFI (or BIOS) will start the bootloader, which is a file on a partition[1] on the storage medium. Then, the bootloader lets you select/automatically starts the kernel based on its configuration.

Now, the **kernel** starts up. From the kernel, the **init**[2] program starts. Init starts and sets up important services and devices like wireless cards, graphics cards, and other services. You won't need to worry about init as a user but know what it is.

Next is the **display manager**. This is simply the login screen, known as **LightDM** on Linux Mint. You might have to worry about LightDM if there are broken upgrades. It may also be useful when installing new software.

After you log in, you are greeted by the **desktop environment**, which is simply the desktop where you use Linux Mint the most, launching programs, settings things up, and performing upgrades.

1.2 How Your Computer Manages Software

Almost every large Linux distribution, including Linux Mint, uses something called a **package manager**. A package manager is a piece of software largely integral to the operating system that manages software where each piece of software is separated into a pacakge, and when one piece of software needs another piece of software, for example, a video editor needs a library to process videos, that video editor with **depend** on the video processing library.

You'll need to familiarize yourself with this concept since it is very different from other operating systems like Windows or macOS, since they have each software as a downloadable piece that is copied somewhere with an installer.

When you update software in Linux Mint, the package manager, a program known as apt, installs software by downloading it from a website that hosts trusted software selected by the Linux distribution developers. The tool that does this is known as `apt`.

Below `apt`, there is another piece of software called `dpkg`, that `apt` uses in order to install the packages it downloads. You will use `dpkg`, not `apt`, when downloading your own software like Skype. Software like Skype provides an individual .deb file that can be used with utilities on Linux Mint in order to install it onto your system. When you download a .deb file from the internet, it is an individual package.

There are many different types of package formats for many different Linux distributions. If prompted, download the .deb file for Debian-based distributions.

1.3 How Your Computer Handles Crashes

Almost every Linux distribution crashes the same way, and that is by either having a program crash in the desktop environment, or to have the kernel (the program that manages the hardware) to crash, usually due to driver issues. When the kernel crashes, it is called a **kernel panic**. **Kernel panics** can happen for many different reasons. Usually, they are caused by faulty drivers, but sometimes the kernel can have bugs and crash, but this is very rare, which is the reason that so many companies use Linux: because it very rarely crashes.

When Lock-Ups Happen

There are many reasons that lock-ups can happen in Linux distributions, and the number one cause is a lack of memory (RAM). A lack of RAM, which is the short term storage for your computer, can prevent applications from running correctly, and, with a legacy software called X, which is a very old protocol designed in the 1980s for displaying graphics (like your desktop), when one application crashes on your computer, your entire computer will lock up (this does not always happen an can be easily recovered from). With a newer protocol called **Wayland**, there is a reduced chance of lock-ups. In general, if too many applications are running with a low amount of RAM, then the computer will lock up quickly. Therefore, it is important to choose the correct Linux distribution for your computer.

Chapter 2: Basic Tasks with Linux Mint

In this chapter, we go over some of the basic tasks in Linux Mint, like checking e-mail, browsing the web, and managing software. Chapter 3 includes step-by-step instructions with pictures to help you follow along.

2.1 Managing Software

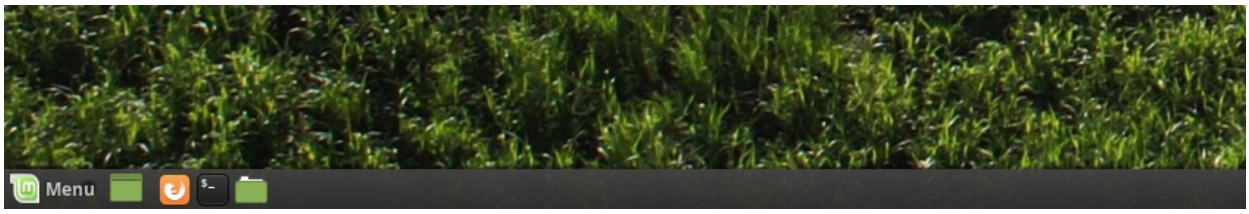
This section consists of three subsections: installing, updating, and removing software from your computer. In each subsection there will be a screen shot and instructions. All screen shots are from a fresh install of Linux Mint Cinnamon 19.

2.1a Installing Software

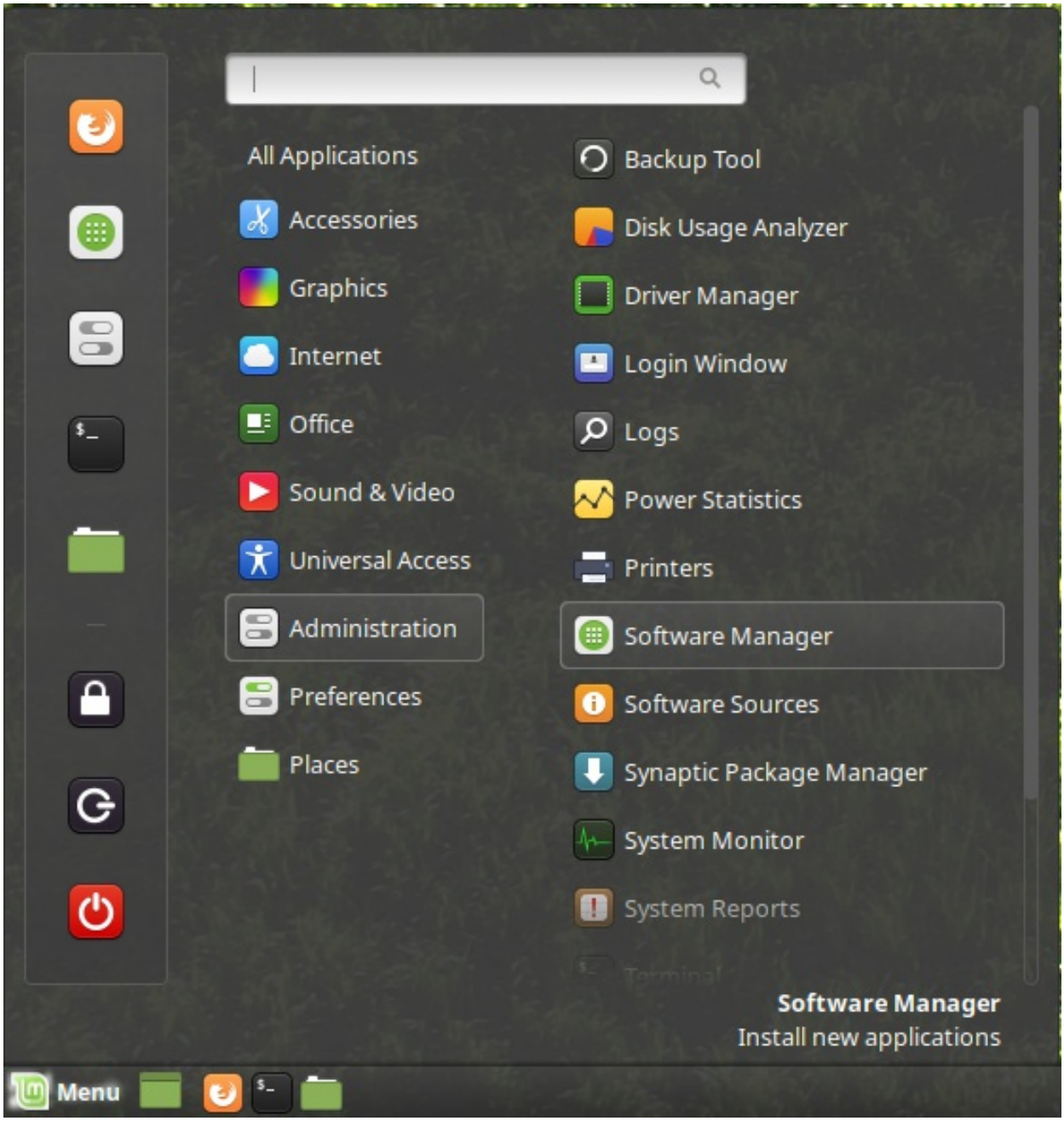
There are several ways to install software in Linux Mint. The two most important ways are through the Software Manager, and through the Synaptic Package Manager. Many applications that you will use can be installed through the Software Manager. Let's look at how to install software this way.

Installing Software through the Software Manager

To get started, click on the menu at the bottom left of your screen.

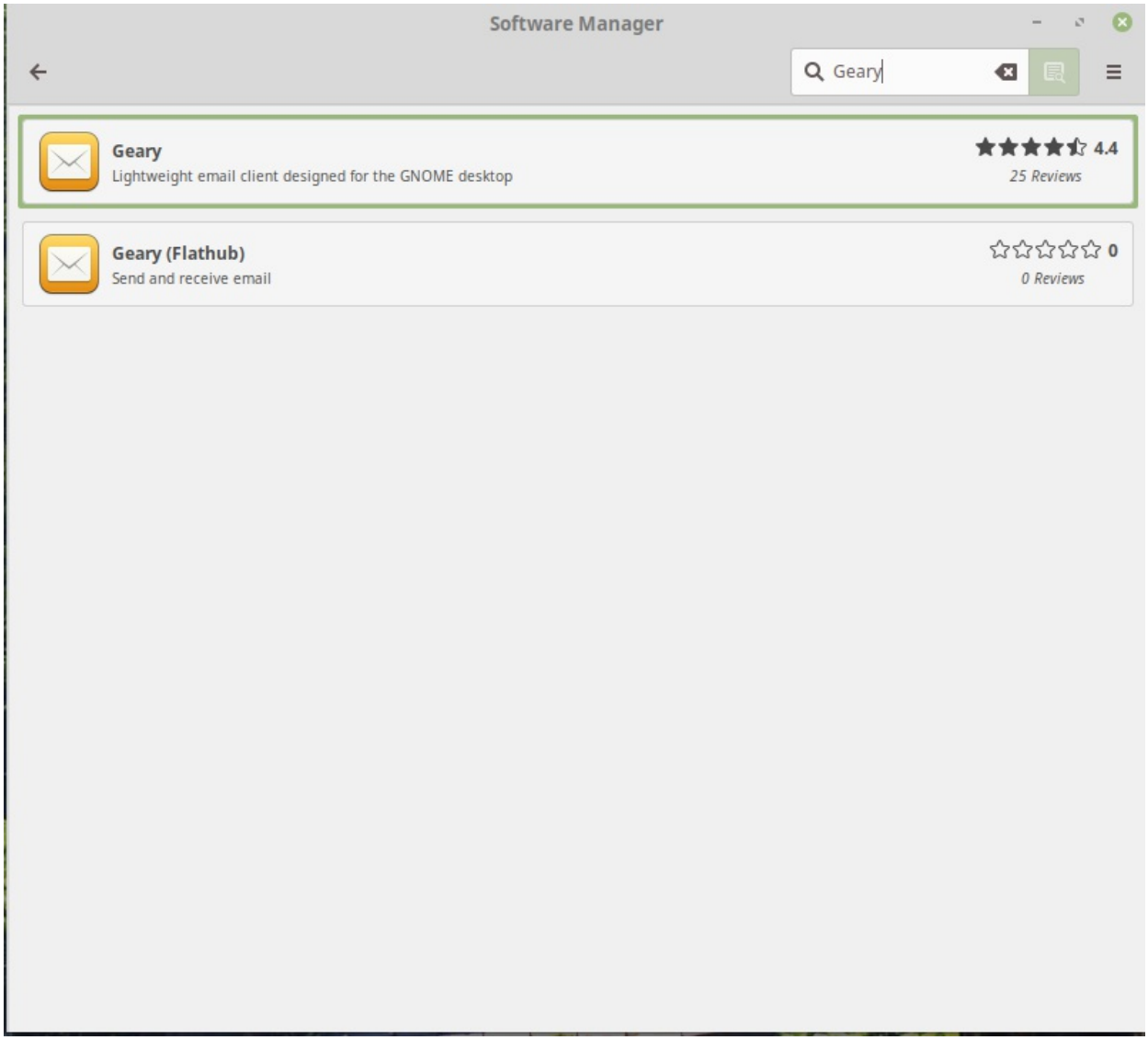


Now, hover your mouse over "Administration", and then click on "Software Manager"

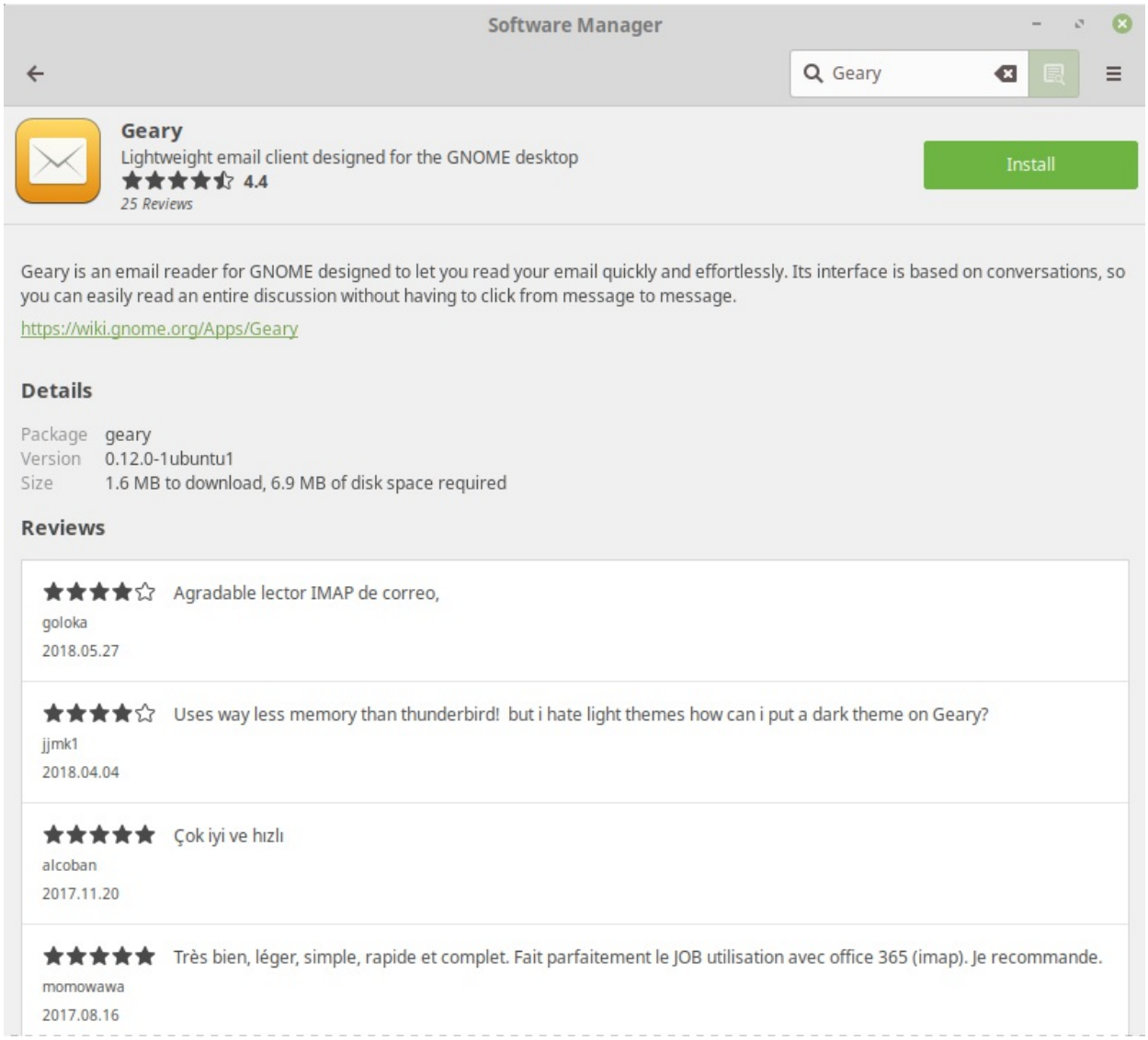


The software manager will open, and present you with a home screen, giving you access to the most popular applications. The software manager is very similar to Google Play and the Windows Store.

At the top, you will see a back button, a search bar, and a hamburger menu (the icon with three horizontal lines). When you type a search term into the search bar, you will see search results for that term. For example, if you type "Geary" into the search bar without the quotes, then you will see results, like this:

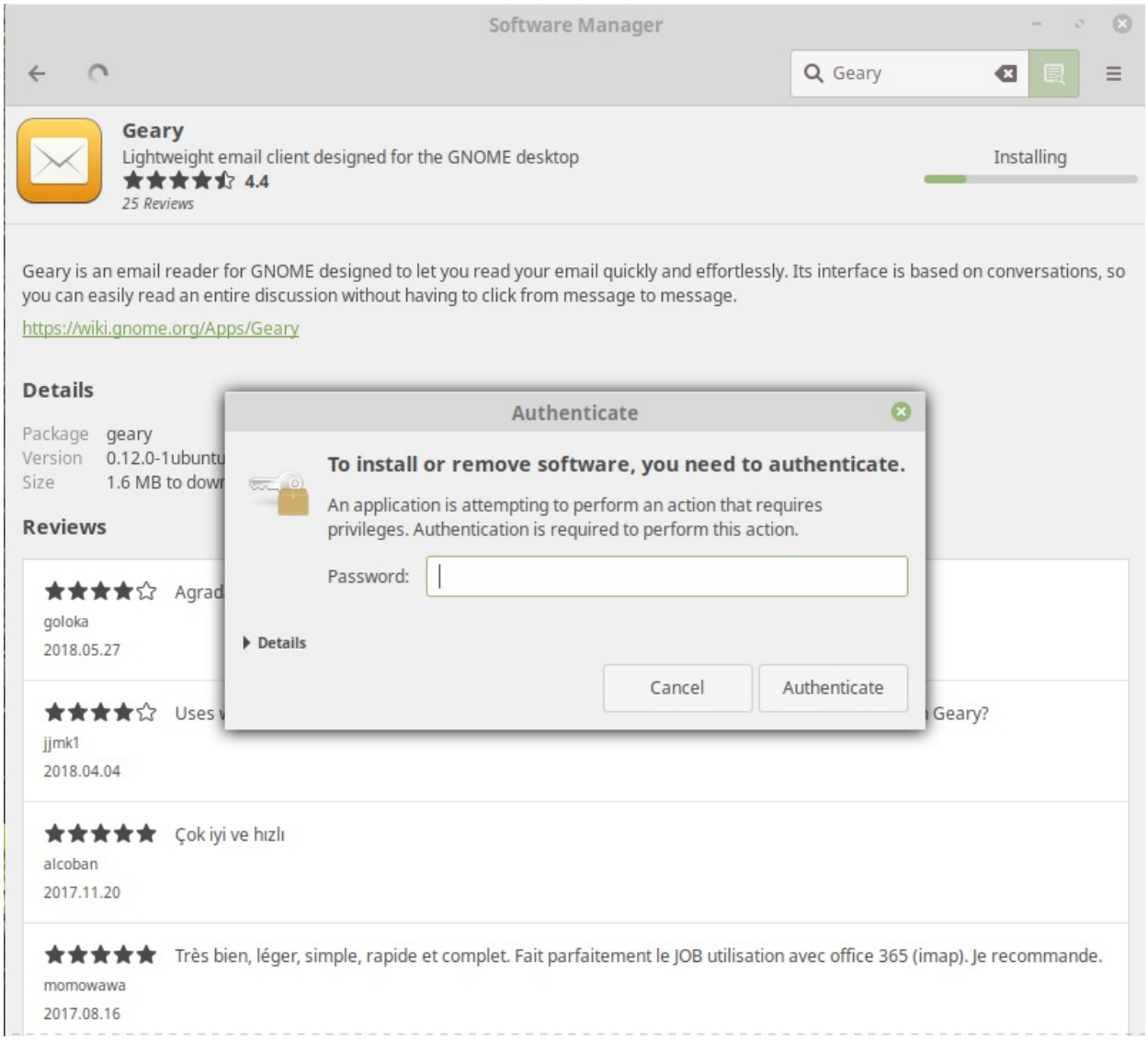


Now, both results look the same. They both have the same icon, and contain similar descriptions. However, you will notice that one says **Geary**, and the other says **Geary (Flathub)**. The difference is the source of the software. Both will deliver the same/similar software, but whenever a software listing contains **(Flathub)**, it means that the software is downloaded from a website called flathub.org. Flathub.org is associated with a type of universal Linux package call *Flatpak* that will run on many different Linux distributions. However, sometimes it is not simple to manage Flatpak packages without venturing into the command line; therefore for a beginner it is best to click on the first listing. Clicking on it brings you to the application listing.



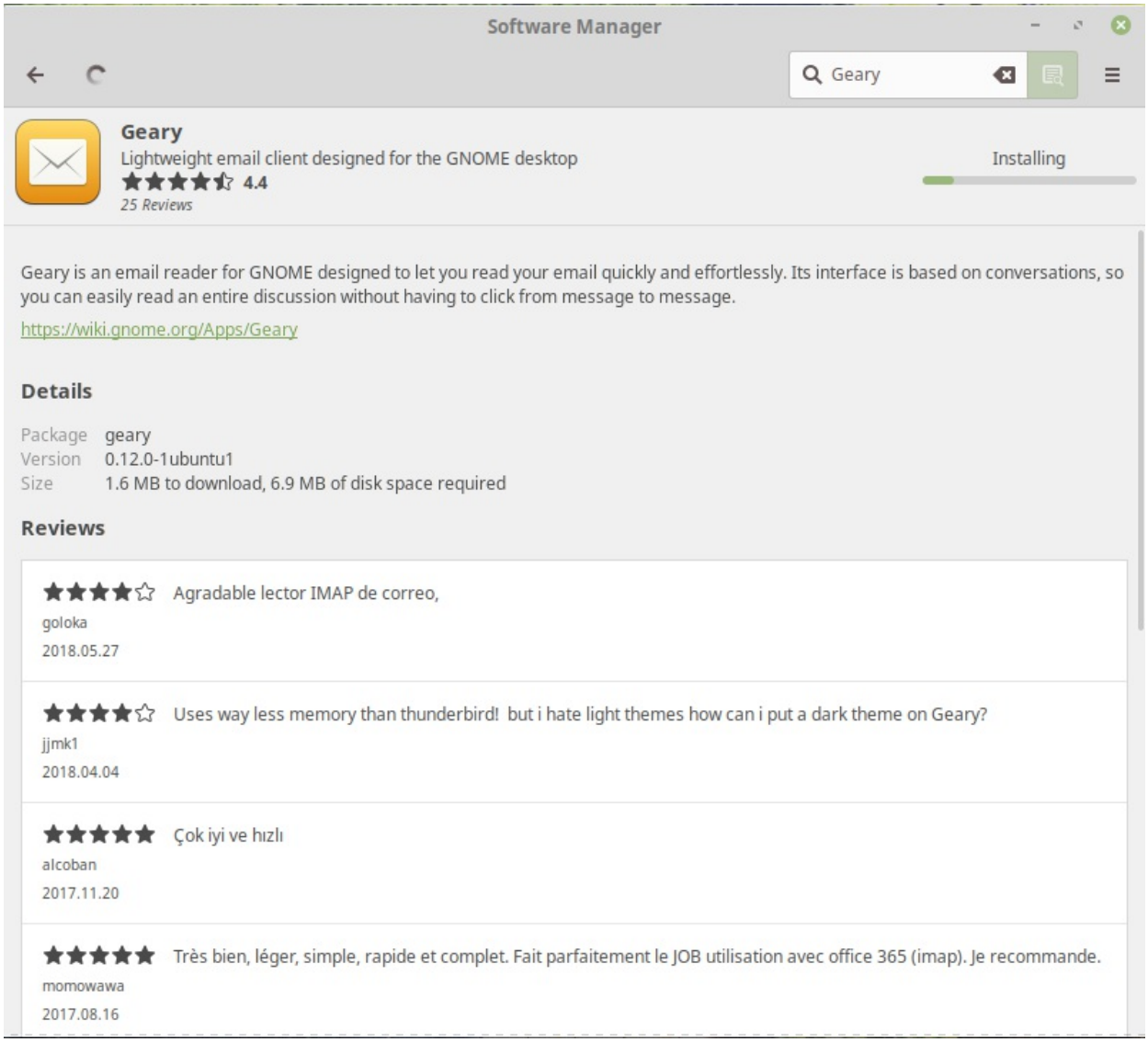
The application listing has a lot of information about the application. To the right is a green install button that allows you to install the application if you would like. Below that is a description, then a link to the website of the application. Below that, there is information about the application, like its name, version, and amount of storage it will take up on your disk (this would be 6.9MB of disk space). Furthermore, there are reviews of the application, albeit not in just one language.

To install this application, press "Install." In a few moments, you will be asked for your password, since in Linux Mint (and other Linux distrbutions), to access files and folders required to install programs you need to provide administrator (root) privileges, and this requires your password.

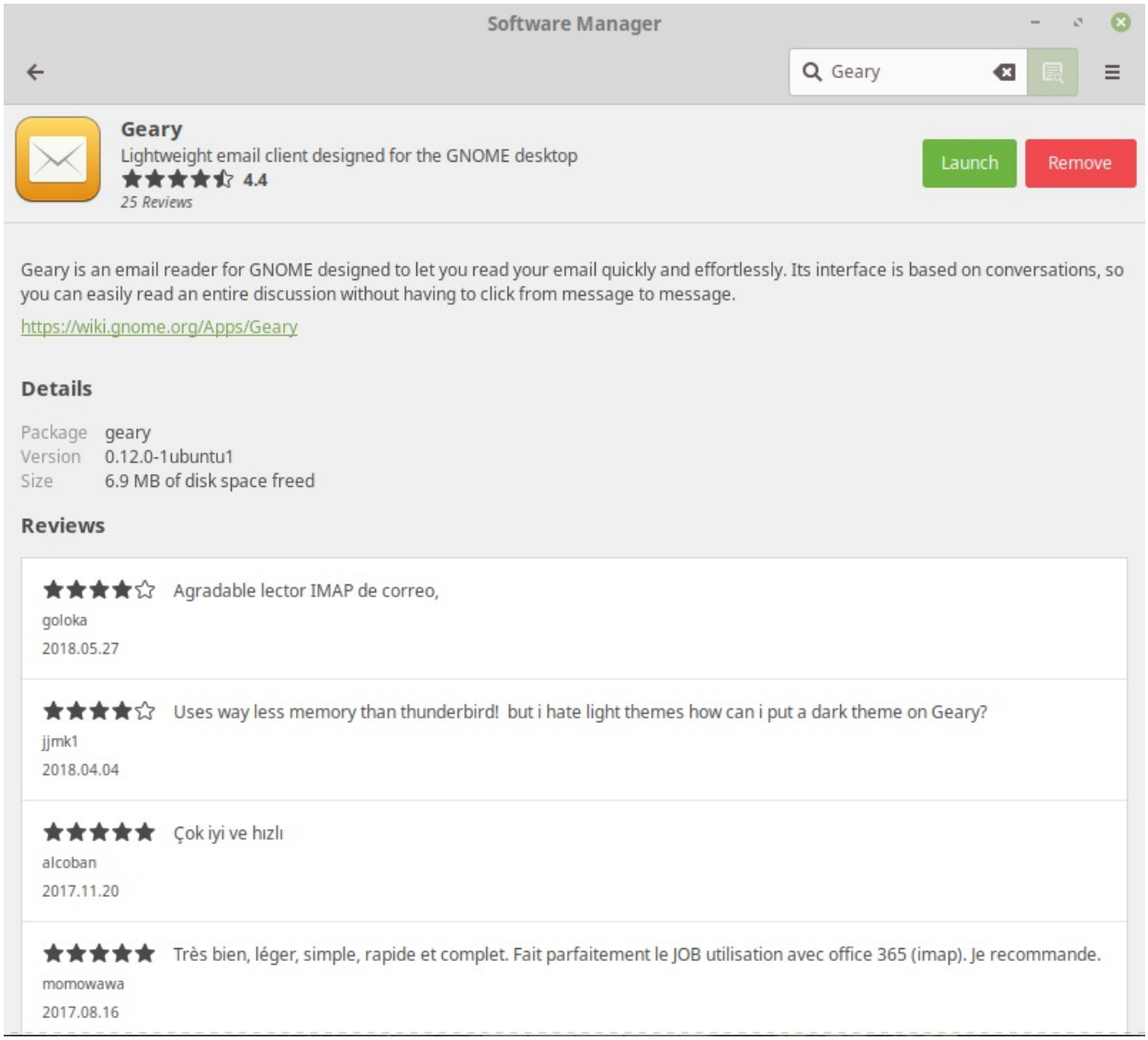


Once your password is typed in, press "Authenticate." You do not need to worry about the "Details" collapsible box.

After a short while of installing,



Your application will be installed.


Software Manager
Geary
Geary
Lightweight email client designed for the GNOME desktop
4.4
25 Reviews
Launch
Remove
Geary is an email reader for GNOME designed to let you read your email quickly and effortlessly. Its interface is based on conversations, so you can easily read an entire discussion without having to click from message to message.
https://wiki.gnome.org/Apps/Geary
Details
Package geary
Version 0.12.0-1ubuntu1
Size 6.9 MB of disk space freed
Reviews
Agradable lector IMAP de correo,
goloka
2018.05.27
Uses way less memory than thunderbird! but i hate light themes how can i put a dark theme on Geary?
jjmk1
2018.04.04
Çok iyi ve hızlı
alcoban
2017.11.20
Très bien, léger, simple, rapide et complet. Fait parfaitement le JOB utilisation avec office 365 (imap). Je recommande.
momowawa
2017.08.16