Practical Free Alternatives to Commercial Software

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About the Authors

Steve Oualline is an expert Linux programmer currently living in San Diego, California. He is the author of many books concerning Linux, C++, and open source software.

His hobbies include volunteering at the Orange Empire Railroad Museum, where he restored its Acme Traffic signal, one of 13 known to exist.

Grace Oualline is currently a freshman in high school and lives in San Diego, California, with her father, Steve, and his wife Chi. Grace is known by her peers as an art and math prodigy, with a love for learning. She aspires to work in the field of mathematics and design.

Acknowledgments

This book could not have been written without the efforts of thousands in the open source community who gave their time and effort to make the software we cover in this book.

Introduction

Hundreds of free programs exist that have similar functionality to proprietary software. Here are some of the ones we cover in this book:

Free Program	Proprietary
LibreOffice	Microsoft Office
Firefox	Edge/Internet Explorer
Gimp	Adobe Photoshop
Inkscape	Adobe Illustrator
Dia	Visio
GnuCash	Quicken
Audacity	Many audio editors
OpenShot	Many video editors
LibreOffice	Microsoft Access

In many cases, these free programs are better quality and have more features than their expensive counterparts. So, why aren't they used more? It's because the companies that make free software spend $0 on marketing. Microsoft and other companies spend *millions*.

Personally, I haven't paid for any software program in the past 20 years, until buying a copy of Microsoft Windows to write this book. As such, I haven't missed anything.

Proprietary software is written by people who want money. If a feature is not going to bring in money, it doesn't get produced. Free software is written by people who want programs that work. Because they are using the programs, the features they choose to implement are the ones that are most beneficial to the people using them.

Thus, free software is sometimes on the cutting edge of technology. For example, tabbed browsing first appeared in Firefox in 2001 (back when it was called Mozilla). Microsoft eventually decided to copy this useful feature and include it in its Edge and Internet Explorer browsers.

You will find that the software introduced in this book is not only cheap but highly useful. You are encouraged to download and try the programs presented for free. The publisher's web site at `www.apress.com` contains links to the various programs described as well as the examples used in this book.

—Steve Oualline

CHAPTER 1

Web Browsing with Firefox

Web browsing is the most common activity that users do on computers. Unfortunately, the web browser that comes with Windows is limited, insecure, and not private. Fortunately, there is an open source web browser that is available for free, Firefox, which doesn't have these problems.

In this chapter, we discuss the most useful advanced features of this browser.

- *Tab muting*: This is a way of silencing the autoplay videos and ads, as well as anything else you want to silence.

- *Private browsing*: This is the ability to browse the Web without being tracked.

- *Tab and bookmark synchronization*: This feature makes sure that you have the same information on both your home and office computers.

- *Reading mode*: This is a way of displaying a screen without the clutter.

- *Ad blocking*: You can install an add-on to block ads from appearing on your screen.

- *Video downloader*: You can download videos from YouTube or other places for later viewing.

Note Google Chrome is another popular open source web browser with a comparable set of features, but our preference is Firefox, so we'll focus on that.

Getting Firefox

You can download the Firefox browser by searching for *Firefox* in a different browser and clicking Download in the search results. Or you can go straight to `www.mozilla.org` and then click Get Firefox Today Link. Firefox will detect your language settings and give you a download customized for your language.

After downloading the file, run it (you'll probably have to tell the Windows security system that you do really want to run the program). Then select all the defaults during installation, with one exception. When it comes to making Firefox your default browser, we suggest you answer no. We've encountered programs, especially those made by Microsoft, that get upset if you change this setting.

If you want to create an account, you can do so now. However, you can also wait until you get to the "Setting Up an Account" section, where we cover account creation and what you can do with a Firefox account.

Using Mute Tabs

The Web can be a wonderful place, but video ads that play automatically can be annoying. Firefox has a nice feature called *tab muting* that allows you to shut off the annoying ads, videos, and other sounds without having to turn off the sound for your entire browser.

You will find a small speaker icon that appears on any tab playing sound, as shown in Figure 1-1.
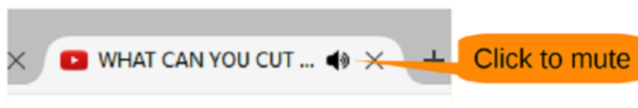
Figure 1-1. *Speaker icon*

Click this icon, and you will see a line across the speaker icon to indicate that the sound is muted, as shown in Figure 1-2. The absence of a loud and annoying sales pitch is a good indicator that the tab muting feature is working.

Figure 1-2. *Mute tab*

2
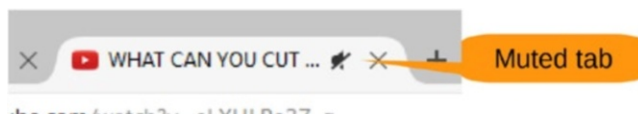
The speaker appears only when the tab is playing sound. You can mute silent tabs that might play sound in the future by right-clicking the tab and selecting Mute Tab, as shown in Figure 1-3.
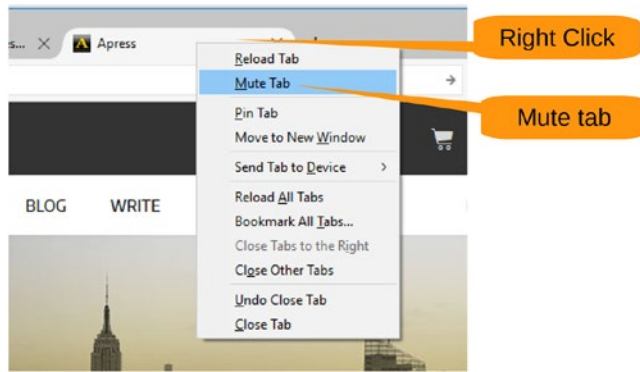
Figure 1-3. *Mute tab*

Although simple, this control is extremely useful when it comes to browsing the Web.

Browsing Privately

The Internet has lots of techniques to track you as you browse. But sometimes you don't want "big data" looking over your shoulder. That's where private browsing comes in. It prevents the browser, and to some extent the Internet, from remembering what you were doing while online.

For example, you've probably noticed that after making a big purchase, such as buying a 3D printer, you'll get bombarded with ads for 3D printers. That's because advertisers go to a great deal of trouble to track every web page you visit and target you with ads for what you just bought. It's annoying.

The browser also remembers your history and uses it to supply helpful suggestions when you are entering web addresses.

If you don't want someone to know where you've been browsing, you need *private mode*.

Private mode does have one drawback. If for some reason the browser crashes, it will not remember what tabs you had open before the crash. This is by design; no record of what's going on in a private window is recorded. This also means your private pages are not shared between computers.

However, not everything is totally secret. If you bookmark a page, that bookmark will be available after the private session is closed. Downloaded files are not erased (just the fact you visited a downloaded page is forgotten).

Private browsing is useful if you don't want people to know you've been at certain sites. In some countries, this means going to blogs or sites that discuss things your government doesn't approve of. In other cases, it could be because you need to search the Web for a private matter. Or it could be just because you don't want "big data" tracking you and selling your information to people for targeted ads or some other reason.

Starting Private Browsing

To open a private window in Firefox, follow these steps:

1. Start Firefox normally.

2. Click the Menu icon (the three lines).

3. Click the New Private Window button, as shown in Figure 1-4.
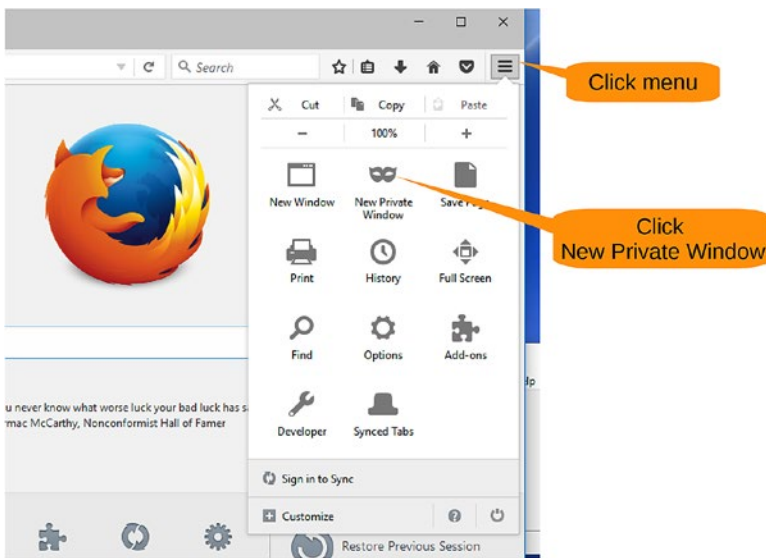
Figure 1-4. *Creating a private window*

You can tell that you are in a private window because there is a little mask in the upper-left corner of the browser. The big purple screen saying that you are now browsing privately is a big giveaway too, as shown in Figure 1-5.
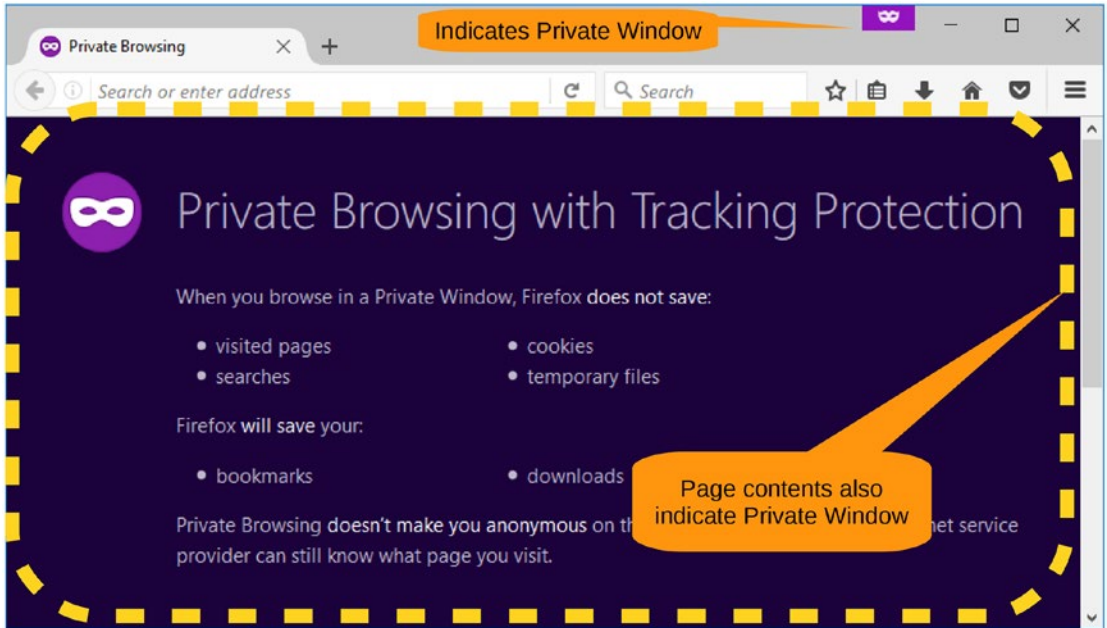
Figure 1-5. *Private window*

Synchronizing Tabs and Bookmarks

Suppose you find that perfect recipe online and want to transfer this bookmark to your home computer. With bookmark synchronization, bookmarks you make on any machine with synchronization enabled are automatically transferred to all other machines using the same synchronization account.

In another example, let's say you get up in the morning and start to work on five different projects using five different tabs in your browser. But then you have to take your daughter to school and go to work. You'd like to continue at the office where you left off at home, but you need those open tabs to do this. With tab synchronization, you can grab the open tab list from one machine and transfer it to another.

To do this, you'll need to set up an account in Firefox. The process is simple, and the result is that your browsing sessions are now portable between machines.

Setting Up an Account

First you need to create an account or sign in to an existing account. Start by clicking the Menu icon and then select Sign in to Sync, as shown in Figure 1-6.
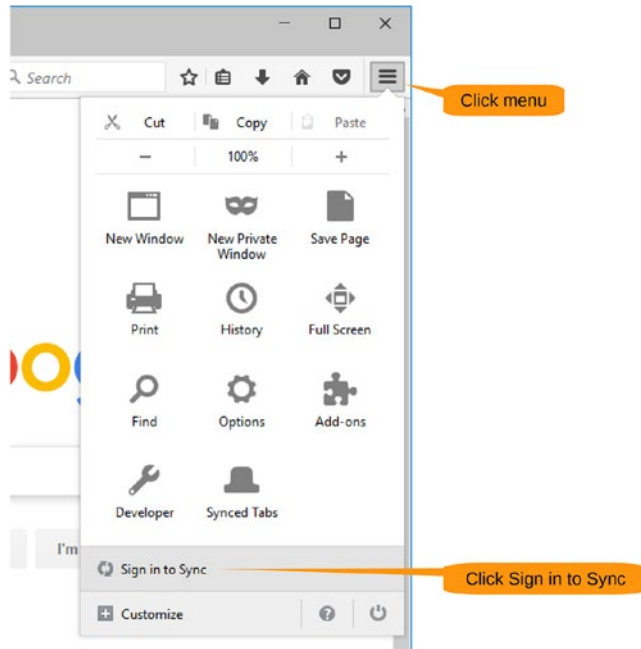
Figure 1-6.   *Signing in to sync*

A welcome screen appears, as shown in Figure 1-7. If you don't have an account, click Create Account. If you do, skip down to where you sign in for the second time.
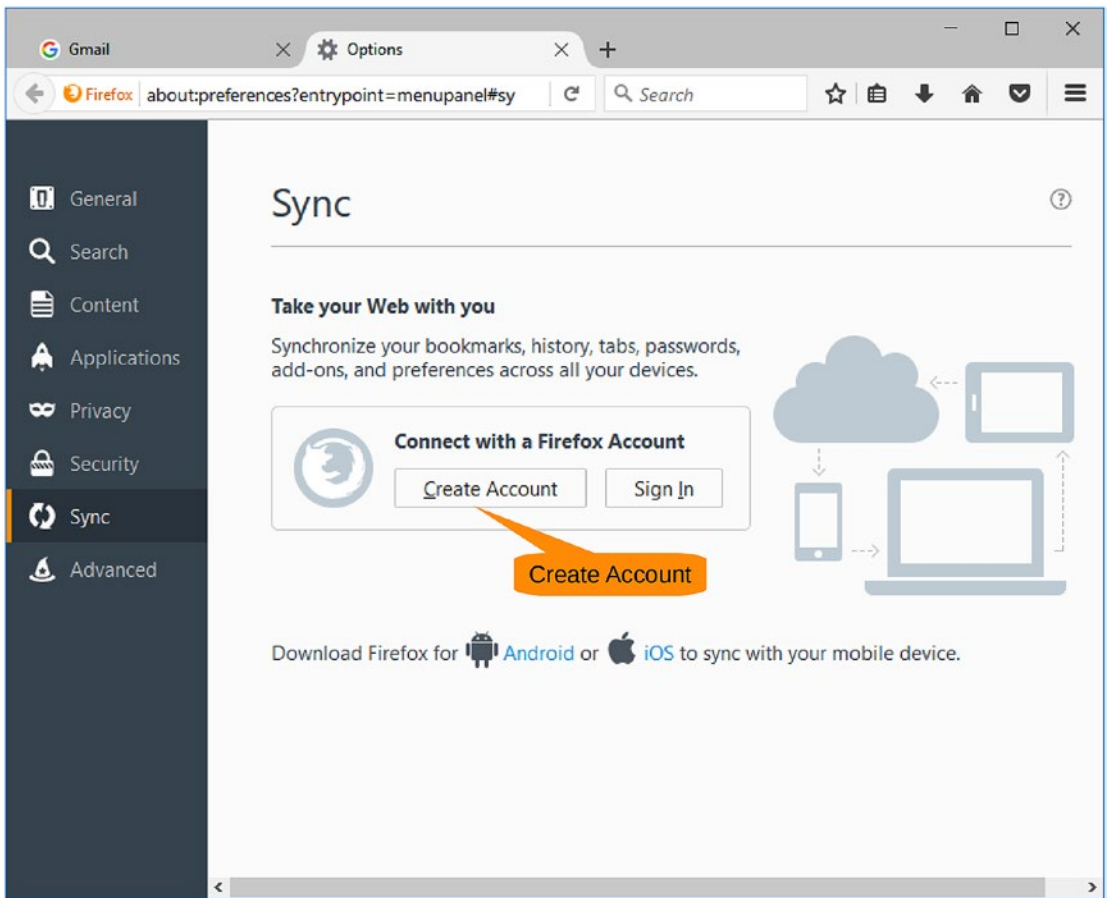
Figure 1-7. *Signing in*

The next screen (shown in Figure 1-8) asks for the information needed to create the account. Fill it in and click "Create account."
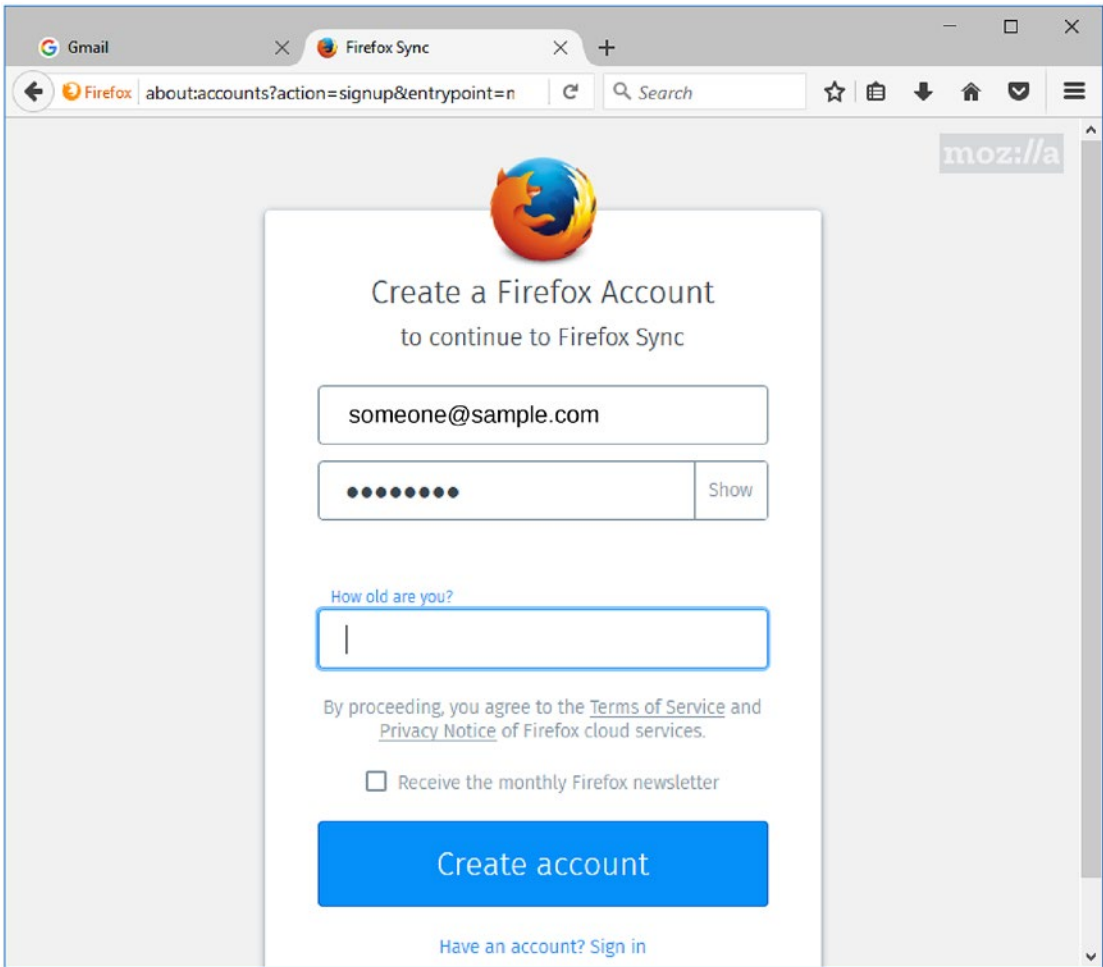
Figure 1-8. *Account creation information request screen*

You now go to a screen asking what you want to sync, as shown in Figure 1-9. You probably want everything, so just click "Save settings."
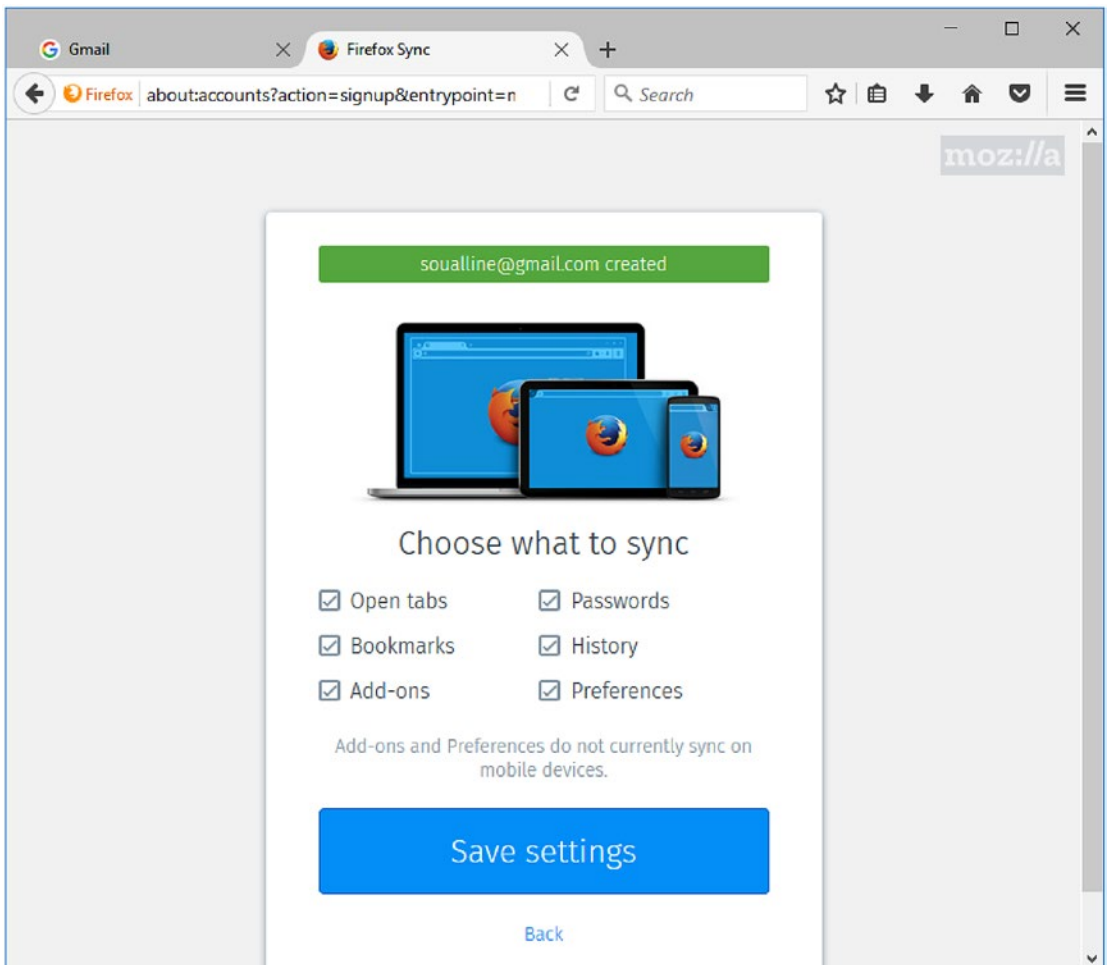
Figure 1-9. *Saving your settings, the final account creation step*

To make sure you are who you say you are, the system will send you a confirmation e-mail. We used a Gmail account for this example, so it gives us the option to go our Gmail box directly, as shown in Figure 1-10.
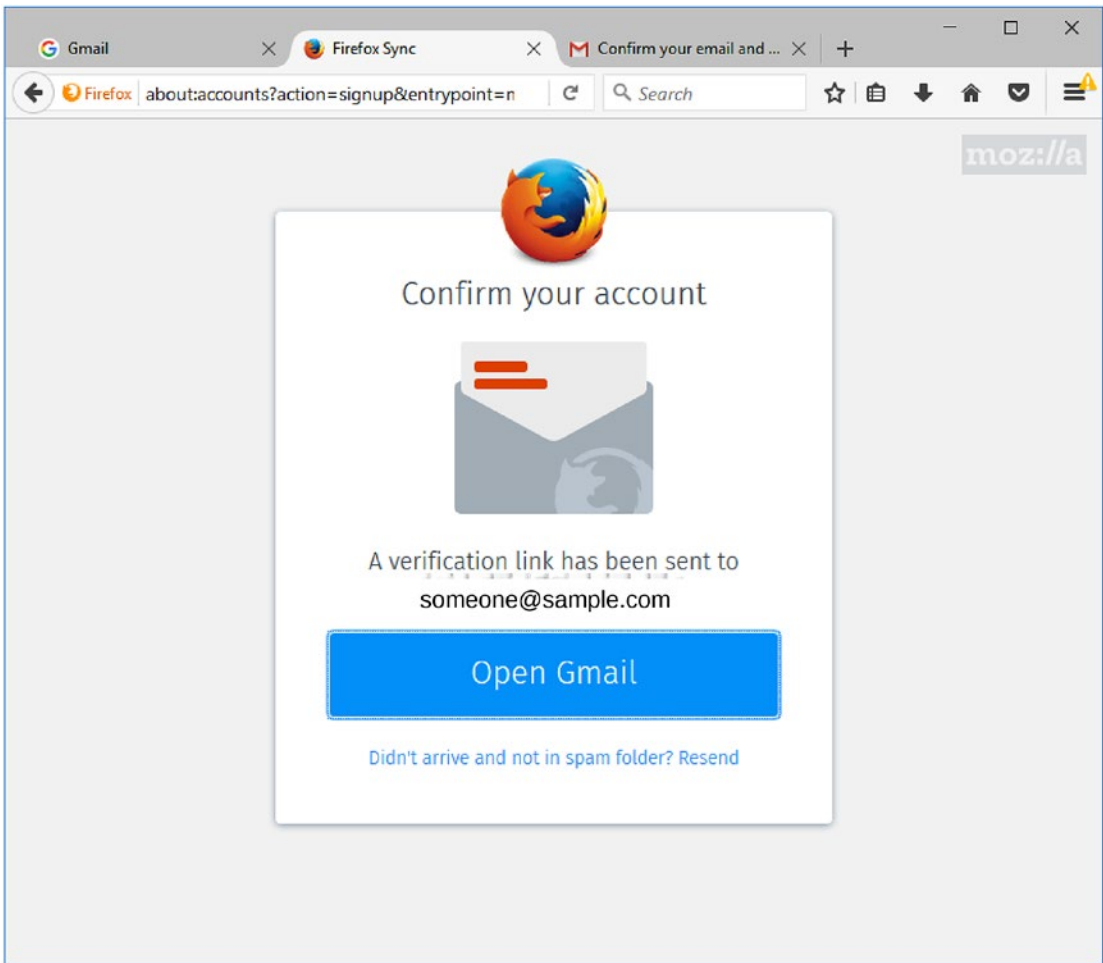
Figure 1-10. *Opening the Gmail screen*

Now all that's needed is to open the message and confirm the account, as shown in Figure 1-11.
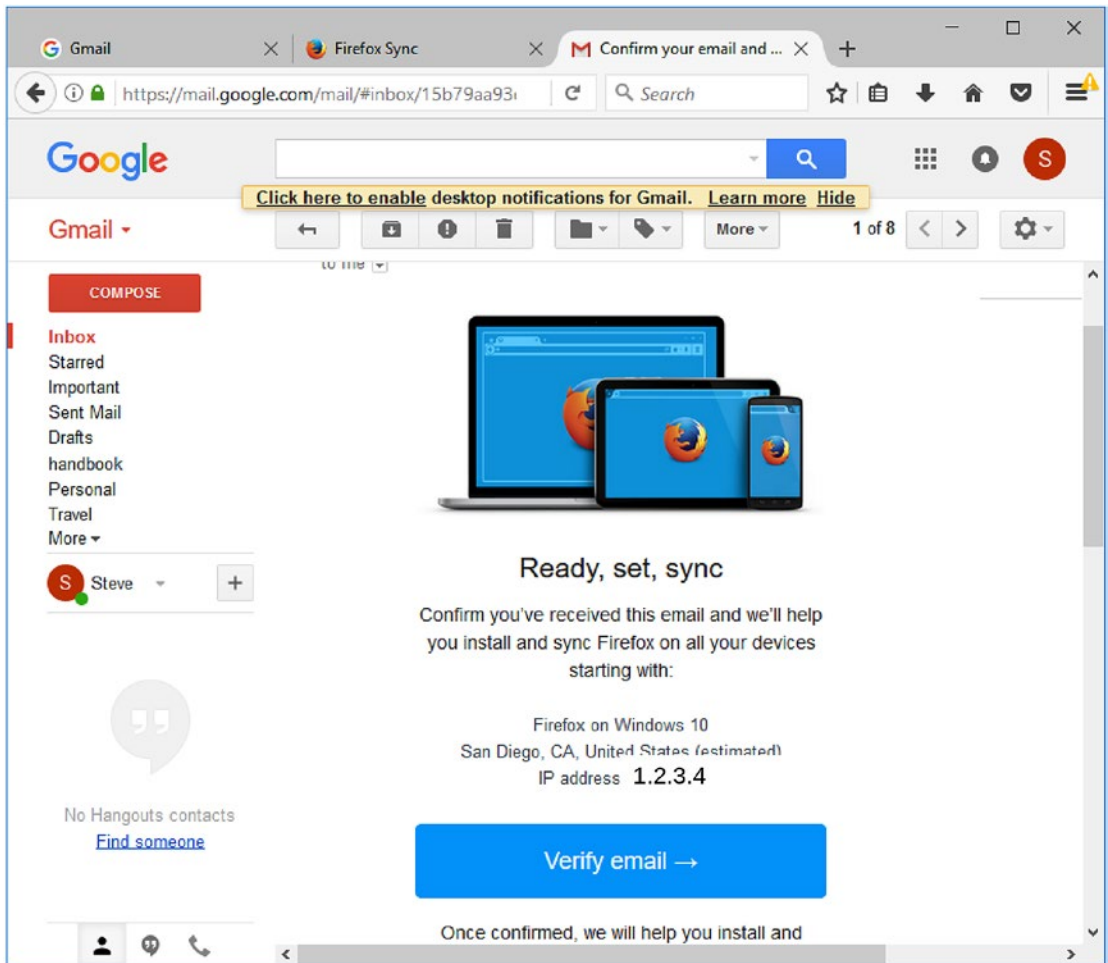
Figure 1-11. *Verification e-mail*

Finally, you are done creating the account and receive the confirmation screen, as shown in Figure 1-12.
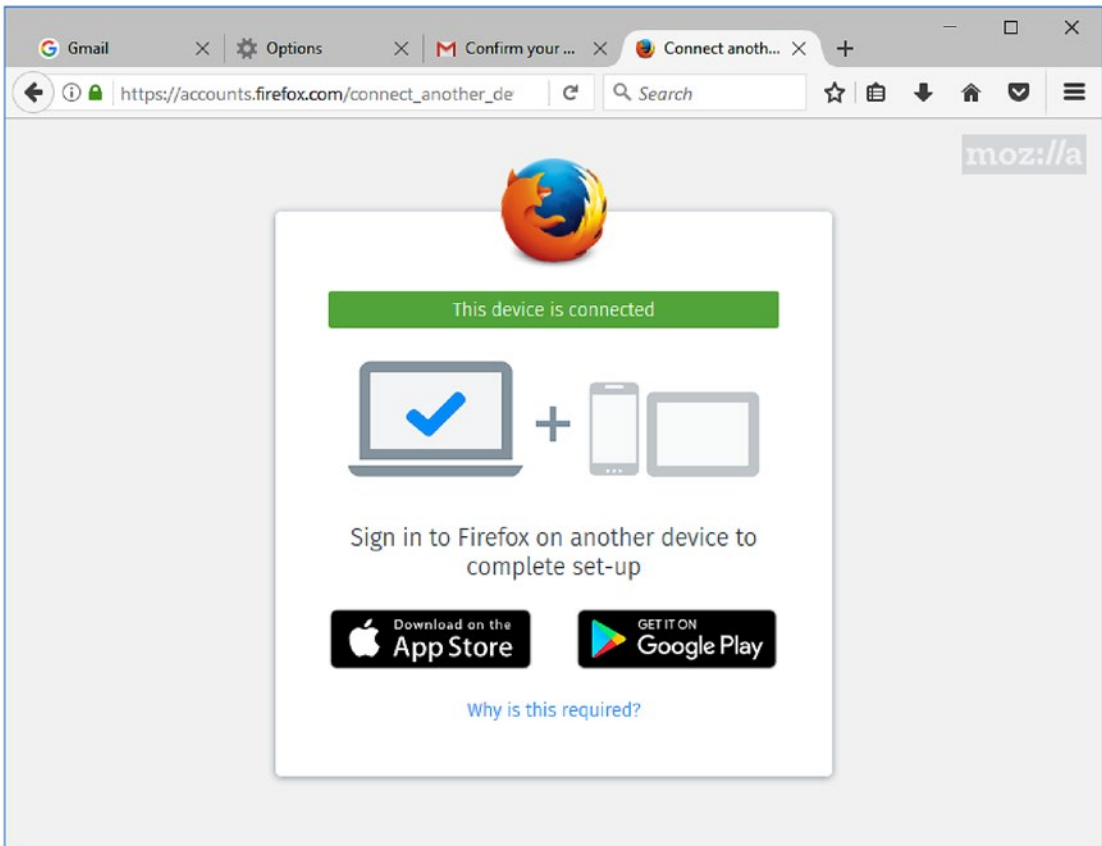
Figure 1-12. *Confirmation*

Performing the Synchronization

Now surf the Web, find lots of interesting places, and bookmark them. Firefox will automatically upload your changes to the Firefox Sync Server on its own internal schedule. If you are nervous and want to make sure your changes are uploaded, click the Menu icon and then click the Manual Sync icon (the circling arrows) next to the account name (e-mail address), as shown in Figure 1-13.
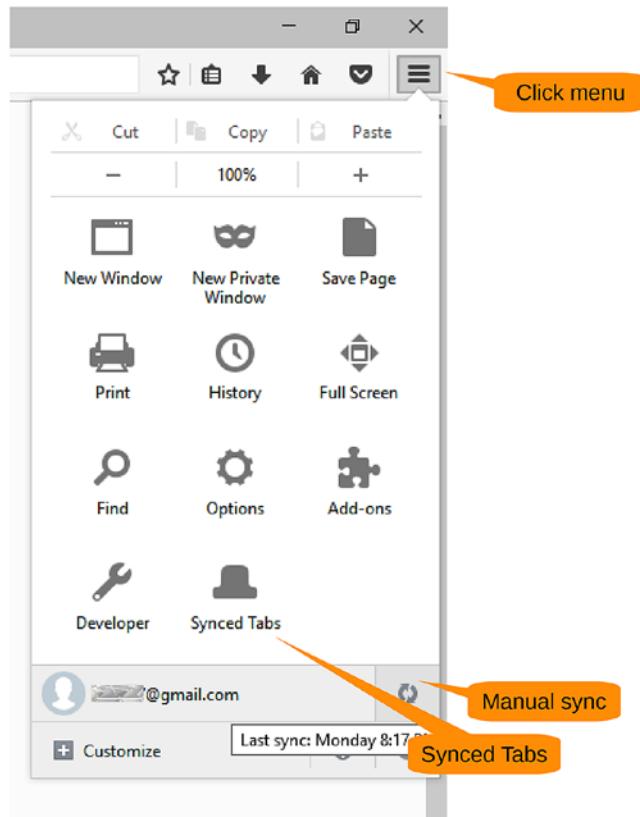
Figure 1-13. *Manual Sync icon*

Now go to another computer, set up Firefox, and sign on to your sync account. Take a look at your bookmarks. Notice that they are the same as your original machine. They have moved from one machine to the other.

Now click the Menu icon and Synced Tabs again (as shown in Figure 1-13).

Firefox displays a list of tabs on the *other* computer, as shown in Figure 1-14. In this example, the other computer is named "user2-PC," and we've opened a lot of tabs on our favorite publisher's web site.
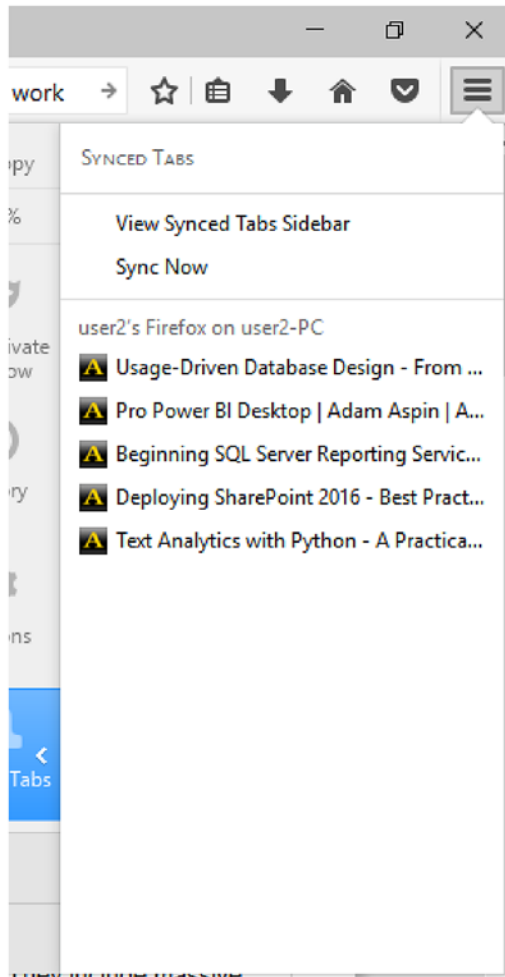
Figure 1-14. *Tabs from the other computer*

Click any of those tabs, and the page will appear in your local browser.

Using Reading Mode in Firefox

On some web pages you will find a banner ad at the top, a navigation bar under that, advertisements on the left, links to related stores on the right, and the actual text you want to read in the middle as an afterthought. Firefox has a feature called *reading mode*, which is designed to put the text you want to read front and center on the screen and get rid of all the other garbage.

Figure 1-15 shows a typical web article. You will notice that there is some clutter on the page from the ~~junk~~ important marketing information on the side.
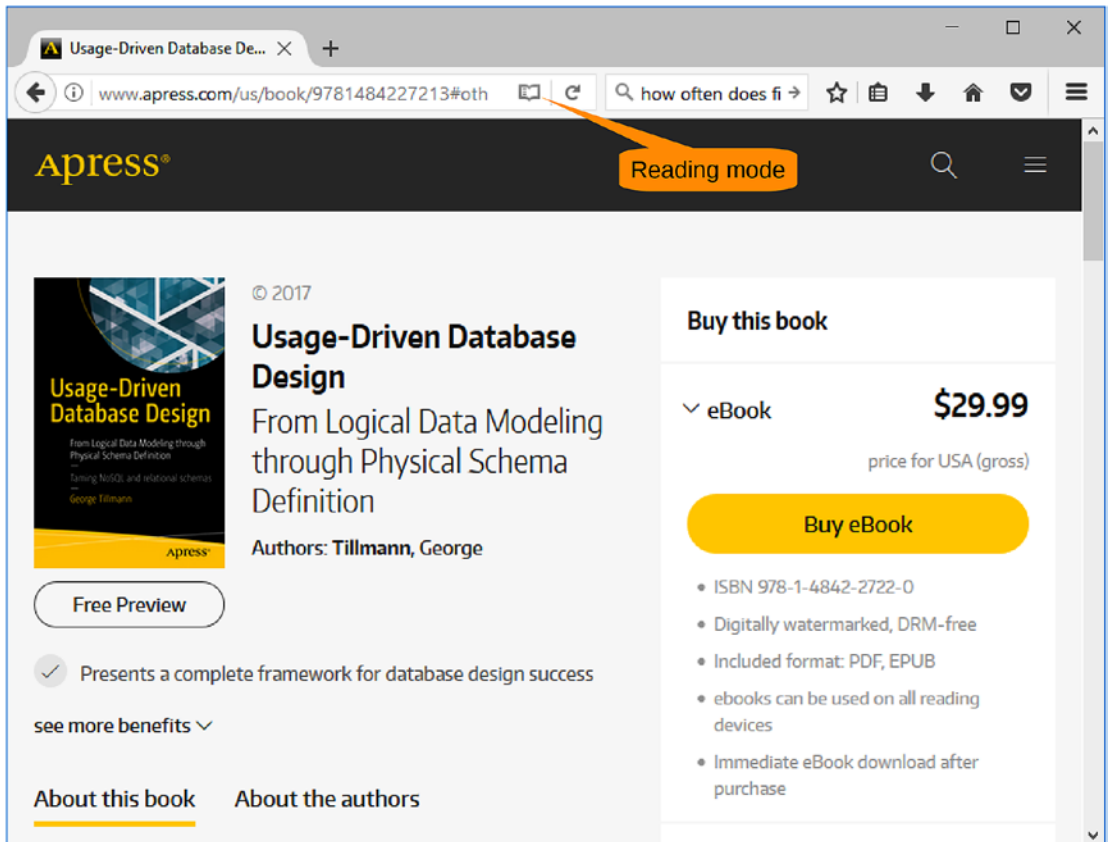
Figure 1-15. *Typical article*

Now click the Reading Mode icon at the top of the page. This causes Firefox to reformat the article to make readable, removing all the clutter in the process, as shown in Figure 1-16.
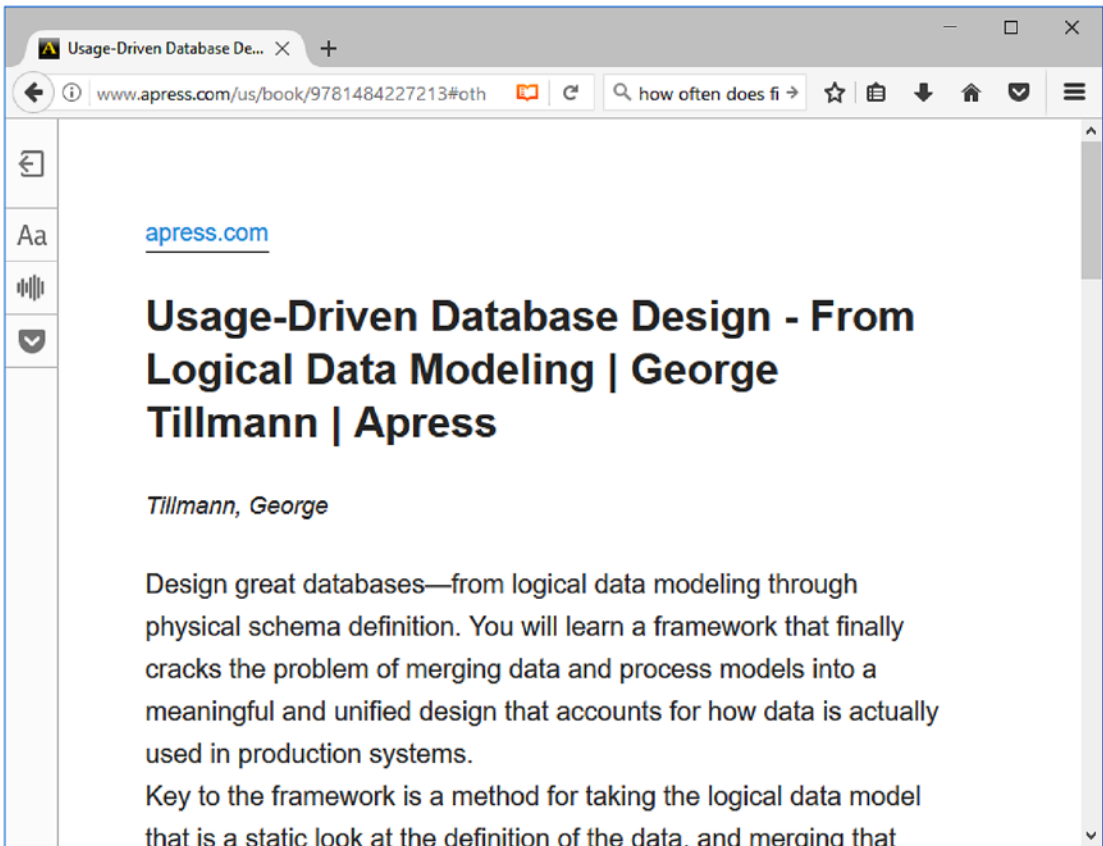
Figure 1-16. *Reading mode view of the same page*

As you can see, Firefox removes all the extra junk on the page and gives you a nice, clean article, making it much easier to read.

Blocking Ads

An *ad blocker* keeps ads from appearing on your screen and has two advantages. The first is that the clutter on the screen is reduced. The second is that you use less bandwidth and therefore your pages load faster. Let's start by going to `http://simple-adblock.com/faq/testing-your-adblocker/`, as shown in Figure 1-17.
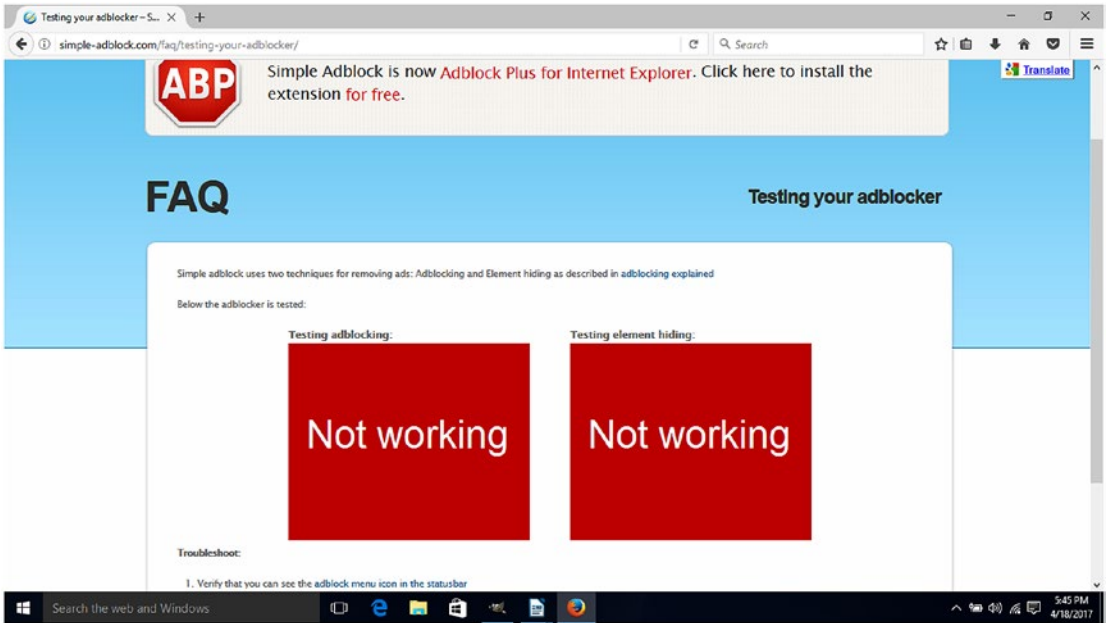
Figure 1-17. *"Ad"-filled web pages*

This page is filled with two big "ads" that say "Not working." (This is not the most effective product name in the world, but it does get the point across.)

Notice that the top of the screen contains a real ad for Adblock Plus for Internet Explorer. Figure 1-17 was taken on Windows 10, which uses the Edge browser and doesn't have Internet Explorer installed.

Now we show how to install an ad blocker and see what happens to this page.

Getting the Ad Blocker

To install an ad blocker extension, click the Menu icon and then Add-ons, as shown in Figure 1-18.
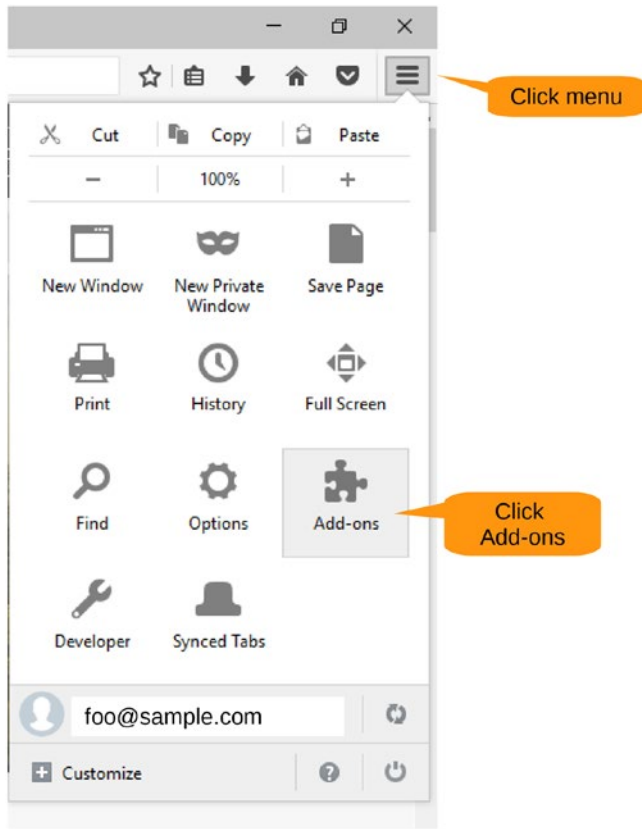
Figure 1-18.   *Getting to the add-ons*

This brings you to the screen shown in Figure 1-19, which lists the add-ons Firefox thinks you might want to install. But the ad blocker is not there. So, scroll to the end and click "See more add-ons!"
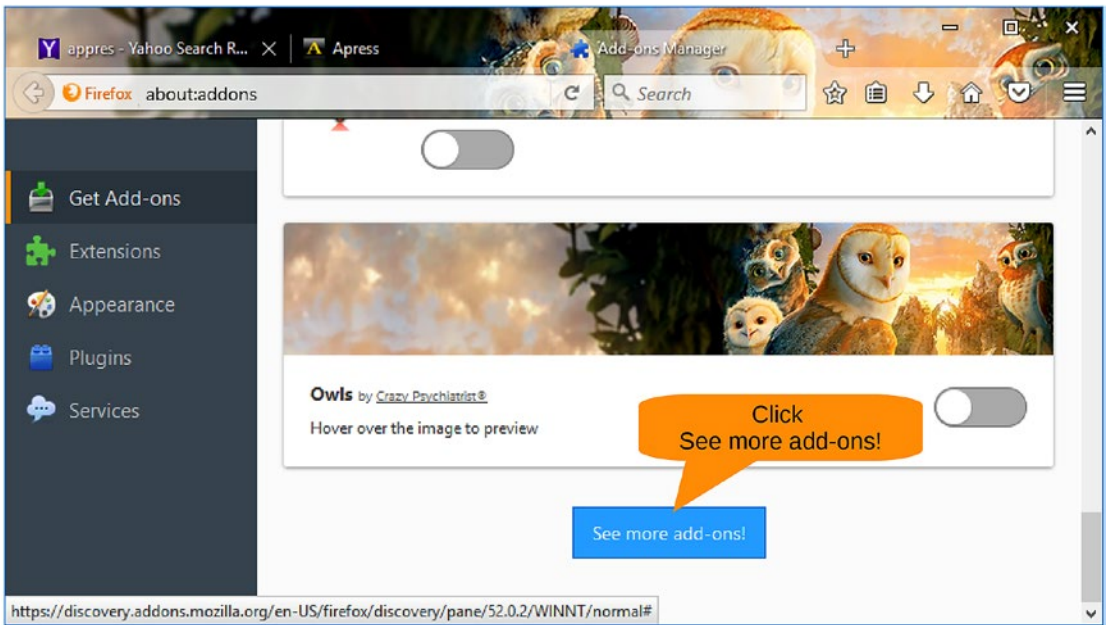
Figure 1-19. *Getting more add-ons*

The next screen allows you to enter a search term. Enter **ad blocker** and click the arrow to perform a search, as shown in Figure 1-20.
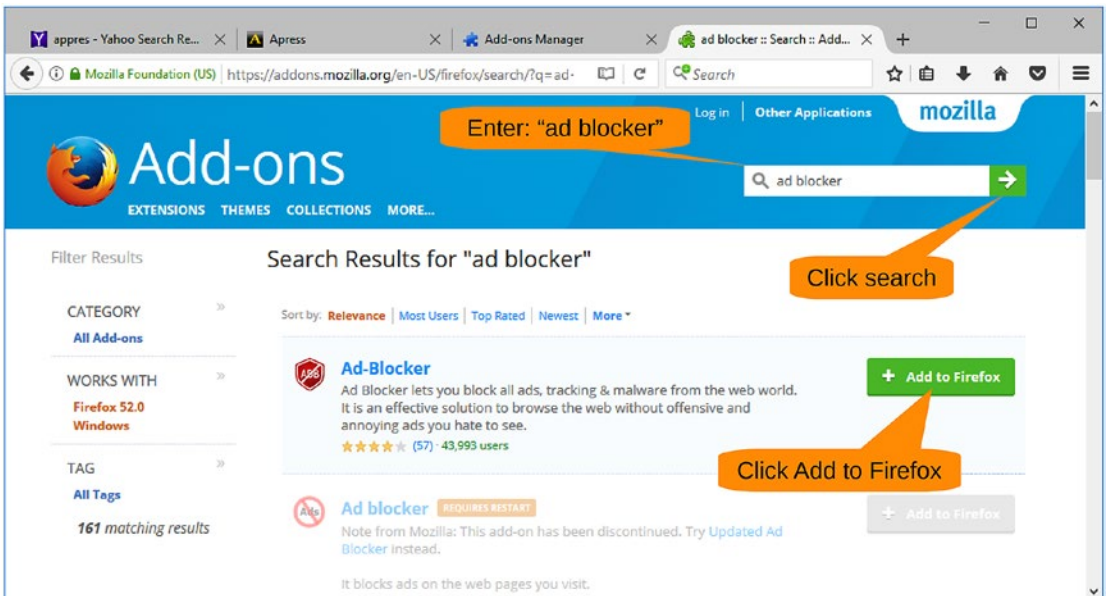
Figure 1-20. *Add-on search/install page*

Click Add to Firefox to install the extension called Ad-Blocker. A confirmation window will appear, as shown in Figure 1-21. Click Install.
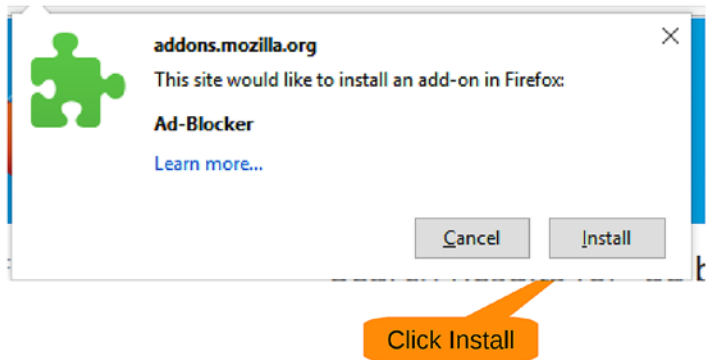
Figure 1-21. *Confirmation screen*

This brings up the Ad-Blocker home page, as shown in Figure 1-22.
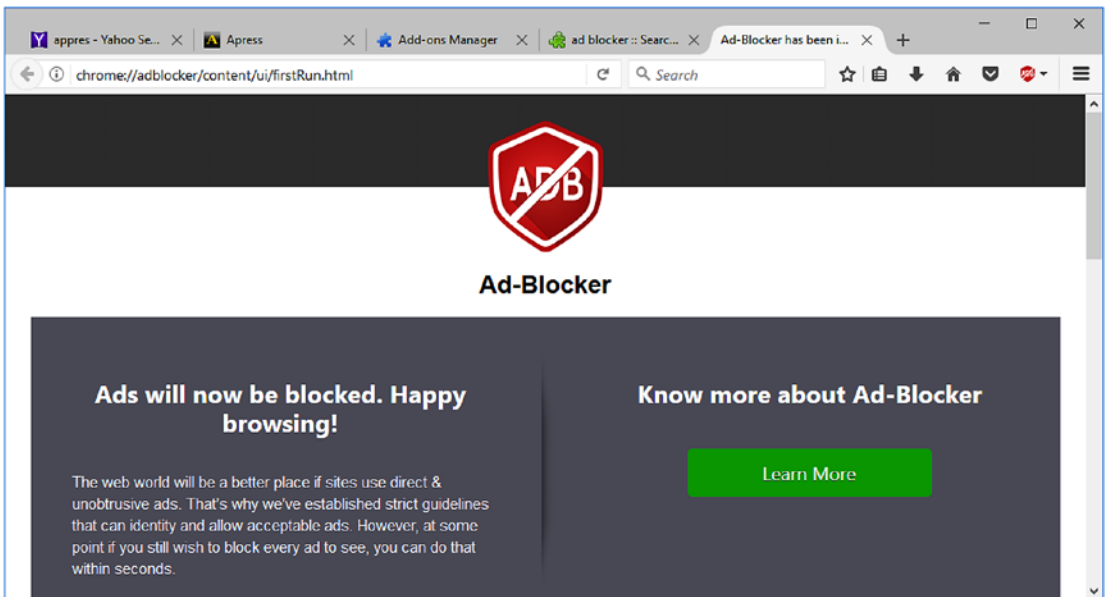
Figure 1-22. *Ad-Blocker home page*

Now go back to the ad test page at http://simple-adblock.com/faq/testing-your-adblocker/. All those red "ads" will have turned to green, indicating that ads are being blocked, as shown in Figure 1-23.
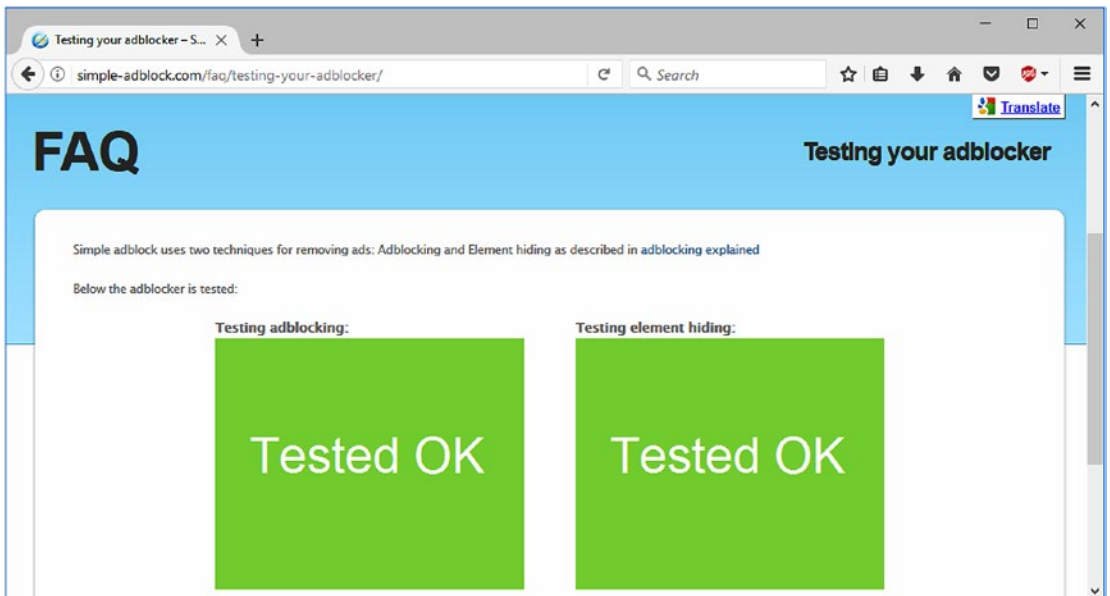
Figure 1-23. *No more ads*

Some web operators are getting smart. They detect ad blockers and refuse to show you their content until you turn them off. To disable the blocker for a single page, click the down arrow next to the blocker icon and select "Disable on this page only." Figure 1-24 shows you the steps.
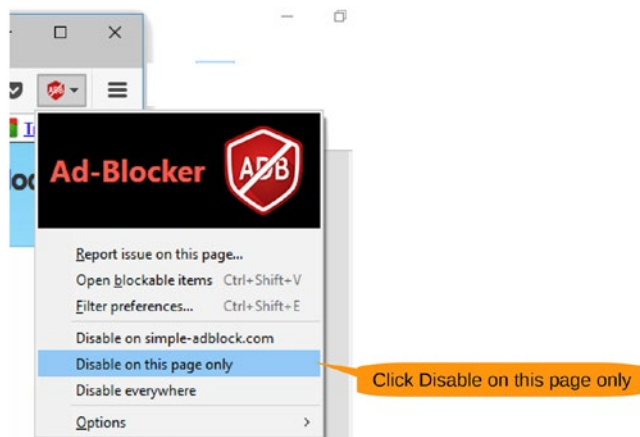
Figure 1-24. *Disabling some ad blocking*

Using Video DownloadHelper

Video DownloadHelper is an add-on designed to combat the "pausing" that occurs when you download shows, and it works on YouTube and most other steaming providers. It also lets you download videos for offline use when you don't have access to the Internet.

For example, have you ever started watching a movie from a slow server in another country and have to deal with the video continually pausing? Video DownloadHelper lets you download your shows and watch them offline with no buffering.

Getting Video DownloadHelper

You can get Video DownloadHelper for Firefox via the Add-ons menu using the same techniques you used to get Ad-Blocker. Searching for *videodownload helper* in the extension manager results in the screen shown in Figure 1-25.
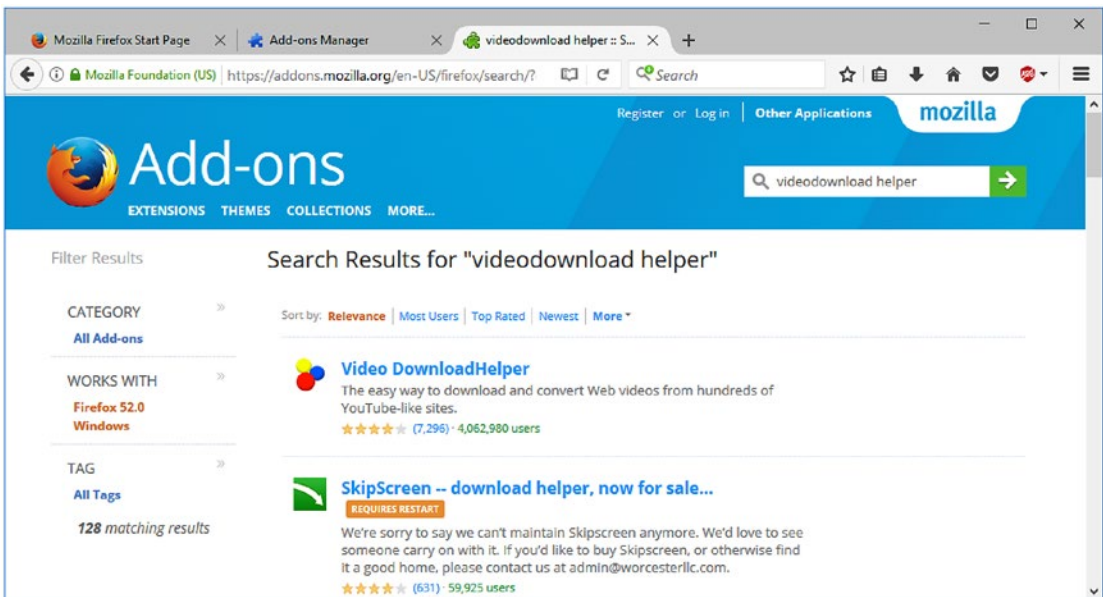
Figure 1-25. *Search results with Video DownloadHelper*

After installation, you will be taken to the Video DownloadHelper home page, as shown in Figure 1-26.
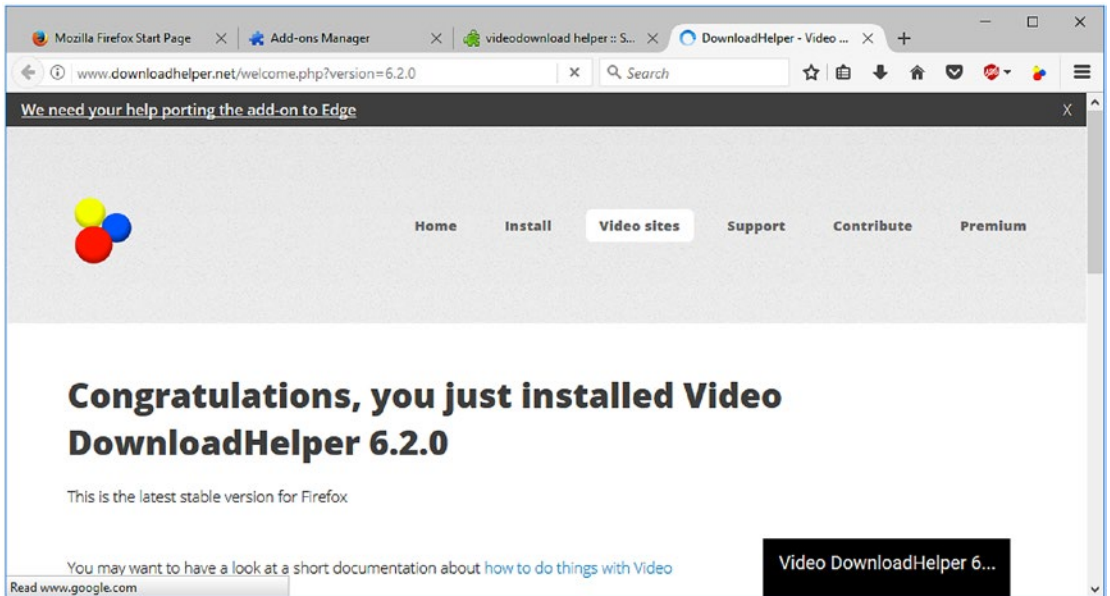
Figure 1-26. *Video DownloadHelper home page*

Now let's go to a web page with video content, such as YouTube, as shown in Figure 1-27.
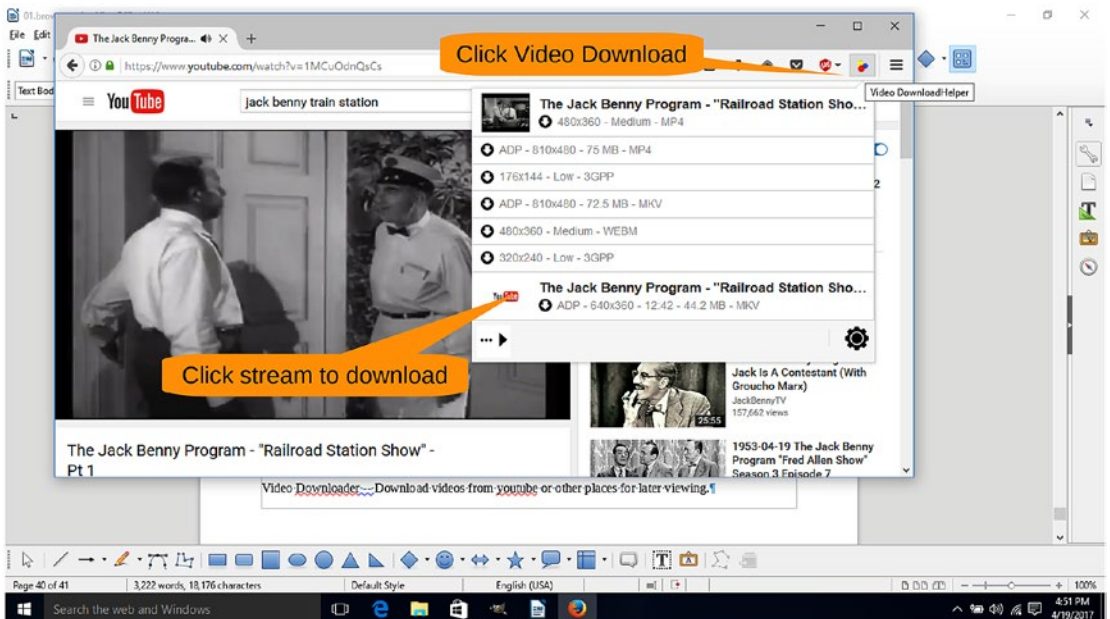
Figure 1-27. *A popular video web site (source: public domain)*

Let's play a video. Notice that the Video DownloaderHelper icon becomes active (changes to a color icon). Click this icon to bring up the download menu. It lists the various videos that are available. Click a selection to download it. This will open a dialog asking you where to save the result, as shown in Figure 1-28.
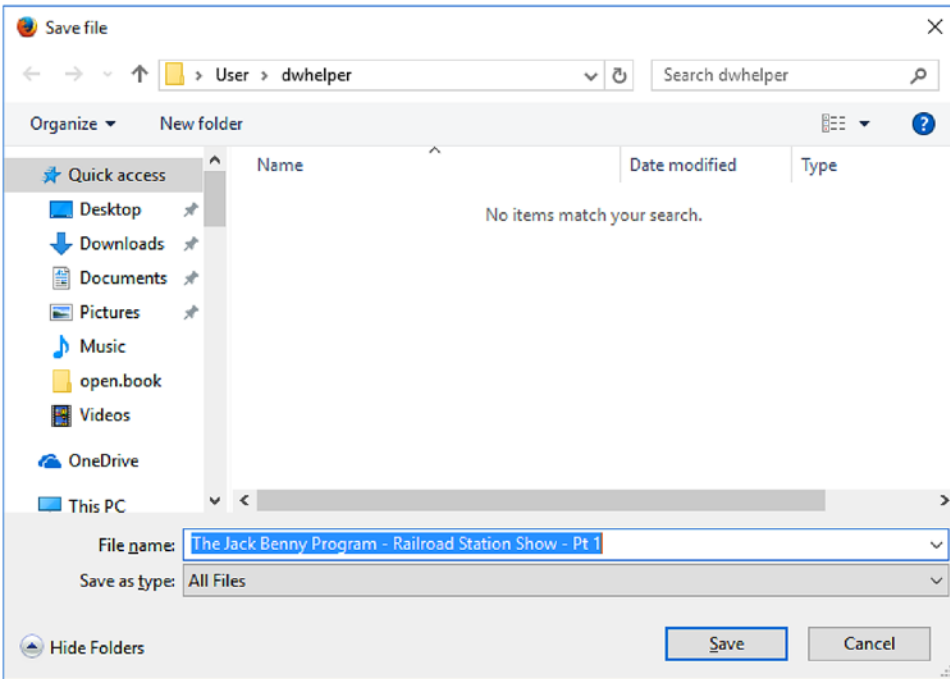
Figure 1-28. *"Save file" dialog*

Sometimes the Video DownloaderHelper needs the help of an external program to convert the video. When that happens, a pop-up dialog (Figure 1-29) will appear asking you to install it.
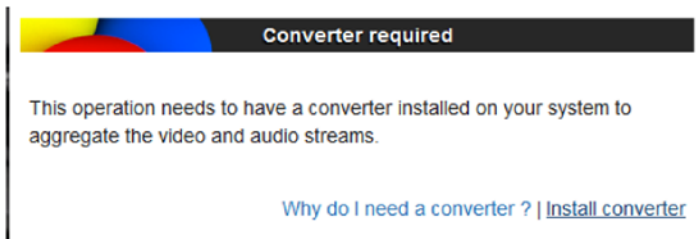
Figure 1-29. *Converter request*

Clicking "Install converter" takes you to the screen in Figure 1-30, which allows you to download the given program.
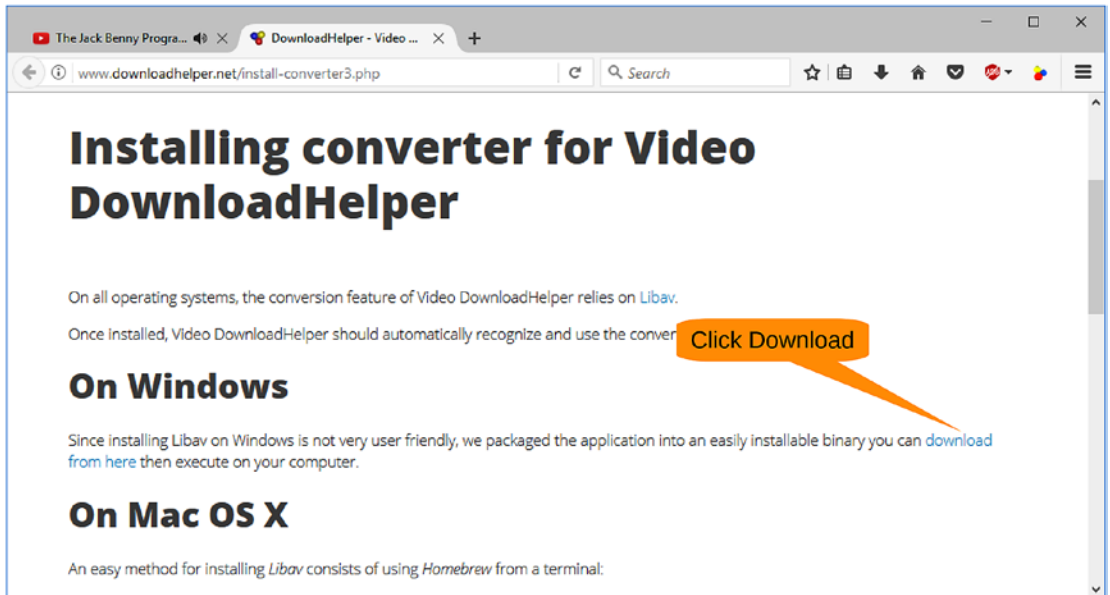
Figure 1-30. *Download page*

After downloading, click the Download icon and select the `ConverterHelper.exe` entry to install it, as shown in Figure 1-31.
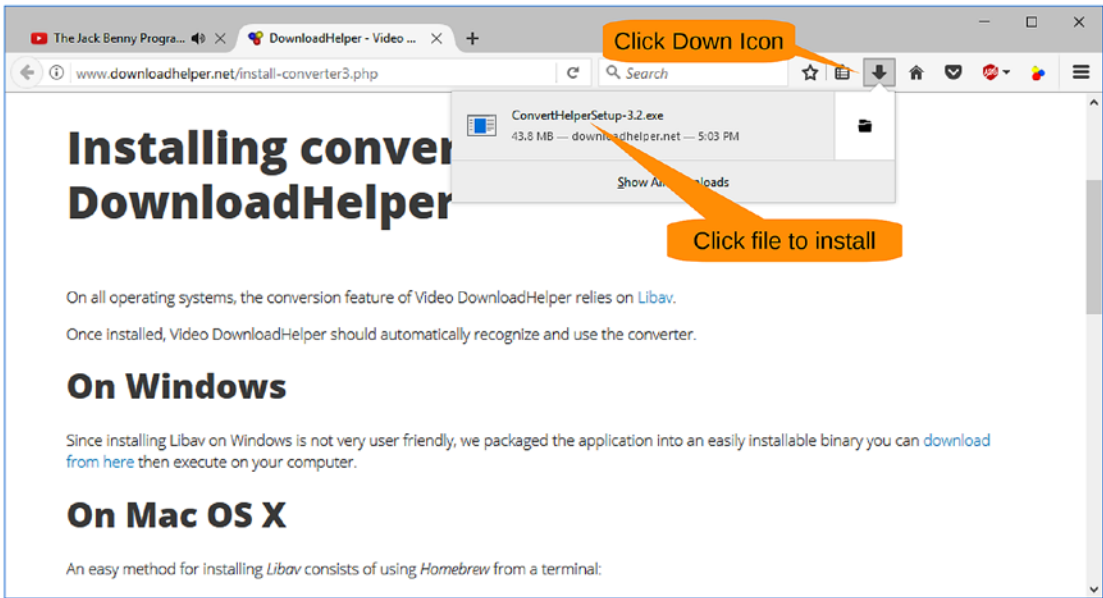
Figure 1-31.   Installing the helper

Now all you have to do is to start a video, and you can download it. Then close the window (but not the browser) and let the download finish. Watch it at your leisure. This avoids the buffering problem and other issues caused by slow servers and a long Internet connection to Hong Kong, for example.

Using Other Firefox Features

There are lots of other features available for Firefox. It has been designed to be highly customizable and highly extensible. In fact, you can customize its appearance until it's almost unrecognizable.

There are thousands of add-ons, including custom search tools, download managers, games, and translation tools.

Summary

The best thing about Firefox is that it was written by people who want a good web browser, not one designed by a marketing department and not one designed to steer you toward certain web pages or search results. The designers wanted a web browser to make web surfing better. For the most part, the Firefox designers have succeeded in that goal.

PART I

LibreOffice

LibreOffice is an office suite with a set of features similar to Microsoft Office. For the most part, you'll be hard-pressed to find a useful feature of Microsoft Office that's not in LibreOffice. The converse is not true. There are useful features contained in LibreOffice not available in Microsoft Office such as the sidebar, gallery, and integrated database. (That's not to say that Microsoft Office doesn't have functions that are not in LibreOffice. But we have yet to find a *useful* feature of Microsoft Office that LibreOffice does not have.)

LibreOffice has an interesting history that shows you how an open source program can survive and grow even in the midst of turbulent times. LibreOffice started out as StarOffice, a proprietary Microsoft Office replacement designed to work on many different types of systems, not just Microsoft Windows. As a commercial product, it never really was a big success.

Sun Microsystems bought StarOffice and ported it to Sun's SPARC line of computers. Sun changed the name to OpenOffice and made it open source, meaning it was freely available to everyone. Sun gave it away because it was in the business of selling SPARC systems, not software, and the company figured it could sell more SPARCs if it had an office suite for its processors. Unfortunately, Sun didn't sell enough systems and got bought by Oracle at a fire-sale price. Oracle didn't care much for OpenOffice and basically turned its back on people who wanted to contribute improvements to this program.

Since OpenOffice was an open source project, users could copy it and produce their own version, with one exception, the word *OpenOffice*. That one word was trademarked by Oracle and couldn't be copied. So, everything but the name was copied in a process called *forking*, and a new name was chosen: LibreOffice. All those people who had their improvements ignored for OpenOffice submitted them to the LibreOffice project where most of them were accepted. The result was the much-improved office suite that we describe in this book. The history of LibreOffice shows how powerful the open source development model is. No one really "owns" the software.

You can download LibreOffice at `www.libreoffice.org`. After downloading it, run the installer, and select all the defaults for the installation.

CHAPTER 2

Getting Started with LibreOffice Writer

LibreOffice Writer is the word processing component of LibreOffice. It does pretty much everything useful that Microsoft Word does. It's been used to write everything from one-page letters to 800-page books. As a matter of fact, this book was originally written using LibreOffice.

You will your adventure with LibreOffice by creating a party invitation. During this process, you will learn about the following:

- Getting started with LibreOffice

- Selecting fonts

- Setting font sizes

- Coloring text and backgrounds

- Coloring paragraphs

- Aligning paragraphs with left, right, and center justification

- Inserting graphics into your documents

Figure 2-1 shows the party invitation you will create.

Figure 2-1. *Party invitation*

Note   If you have a printed copy of this book, you will be unable to see the horrible color choices we've made in this document. You can download the actual sample invitation from the book's web site `https://www.apress.com/us/book/9781484230749`.

Starting LibreOffice

To start LibreOffice on Windows, click Start ➤ LibreOffice ➤ LibreOffice Writer.

To start LibreOffice on an Apple system, go to the Finder, select Applications, and then click LibreOffice. From the initial window, select File ➤ New ➤ Text Document.

The blank document screen will appear, as shown in Figure 2-2.
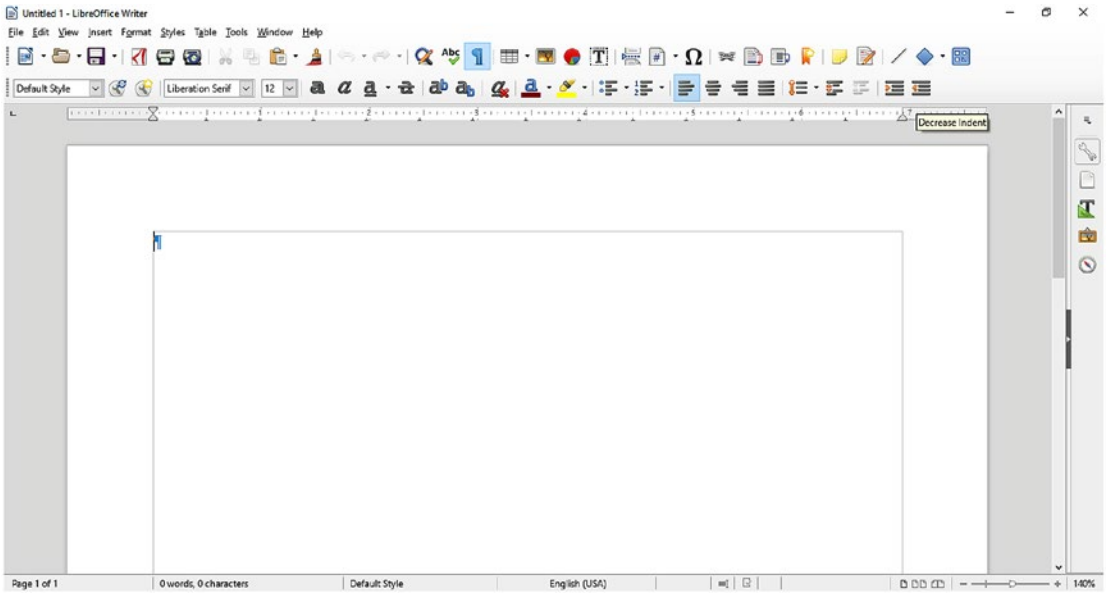
Figure 2-2. *Initial LibreOffice Writer screen*

Figure 2-3 shows the components of the screen.
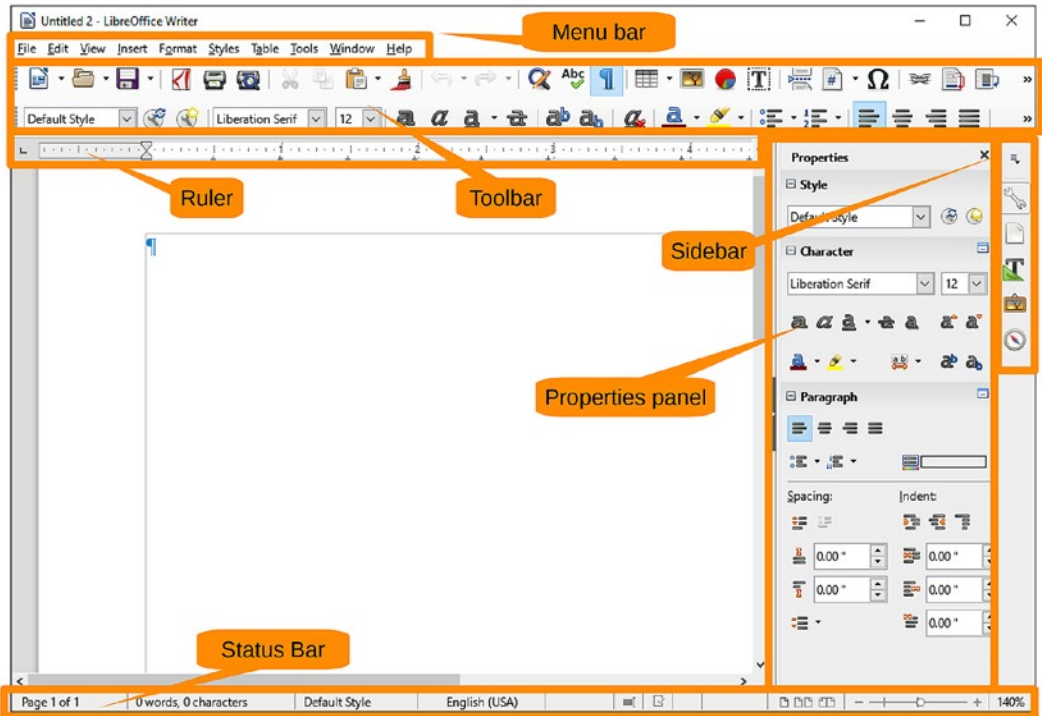
Figure 2-3. *LibreOffice Writer screen components*

At the top is the menu bar with its pull-down menus, similar to most applications you're probably familiar with. Below that you have your typical toolbar that contains icons for common operations.

At the top of the document is the ruler. This shows you where your margins and tabs are located. On the right side, you'll see something different: the Proprieties panel. The Properties panel lets you view and set the proprieties of the text you are working on. On the right side of that is the sidebar. You'll learn how to use this a little later in the book. Finally, at the bottom of the screen is the status bar.

Creating a Party Invite

Enough with the explanation—it's time to party. Click inside the representation of the page. The insert cursor (a vertical bar) should appear. Now type **Party**. Figure 2-4 shows the results.
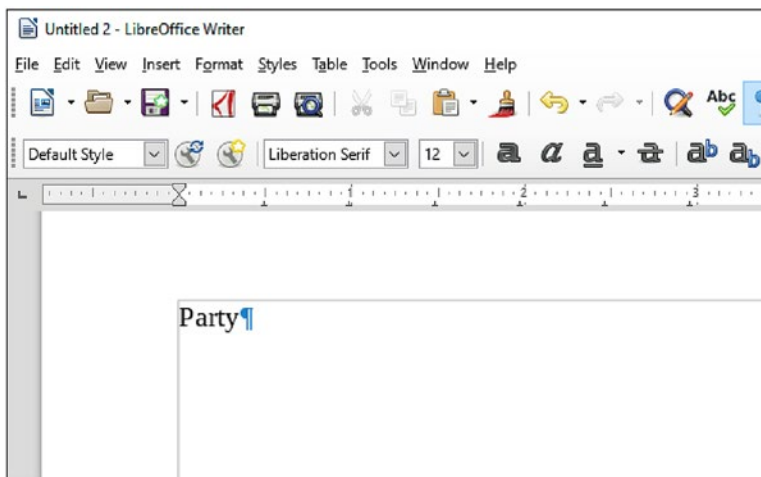
Figure 2-4. *After typing Party*

One thing to notice is that the word *Party* is little and rather plain. Drag the cursor over the word *Party* to highlight it. Now go to the Font pull-down menu on the toolbar and select 48. This will change the size of the word *Party* to 48 points. Figure 2-5 shows the result.
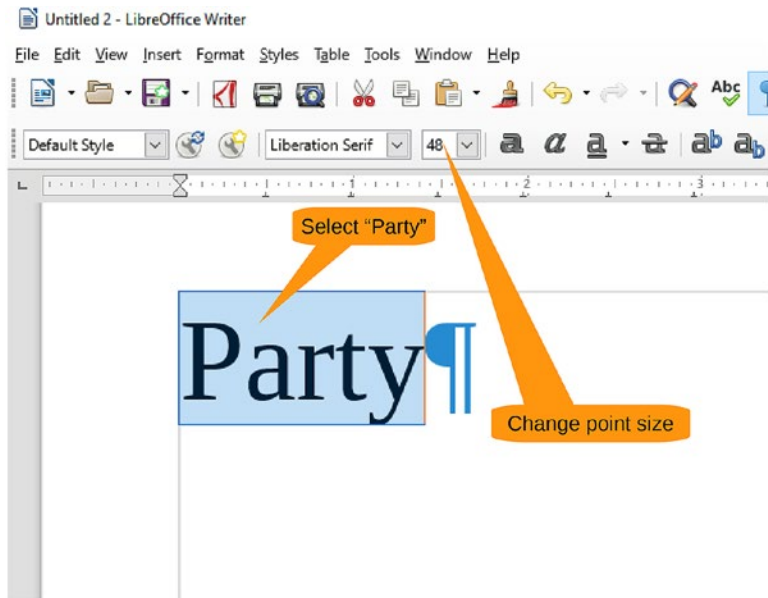
Figure 2-5. *A font size of 48 points*

If you want to change the style of the text to bold, click the Bold icon in the toolbar. To turn off the bold, click the Bold icon again. There are similar icons for italics, underline, and strike-through, as shown in Figure 2-6.
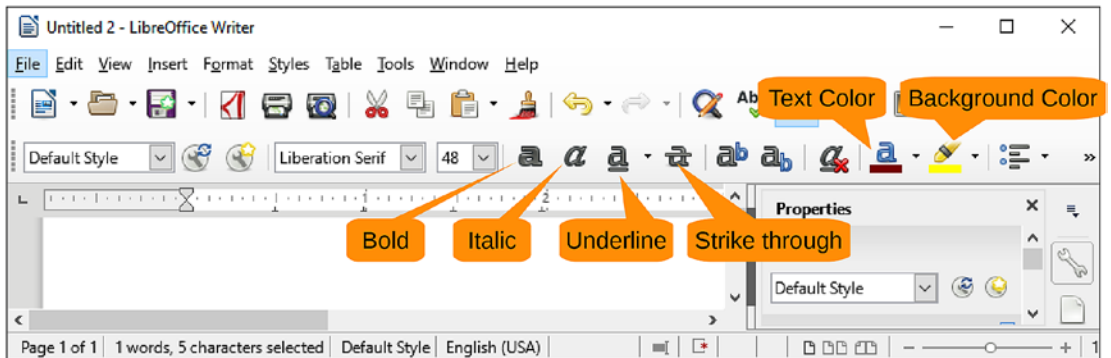
Figure 2-6. *Text style icons*

But the text appears to be a little plain. With the word *Party* still highlighted, click the Background Color icon to change the background color to yellow. Now click the Text Color icon to turn the text a rust color. The resulting color combination is quite noticeable even if a little garish. Figure 2-7 shows the result.
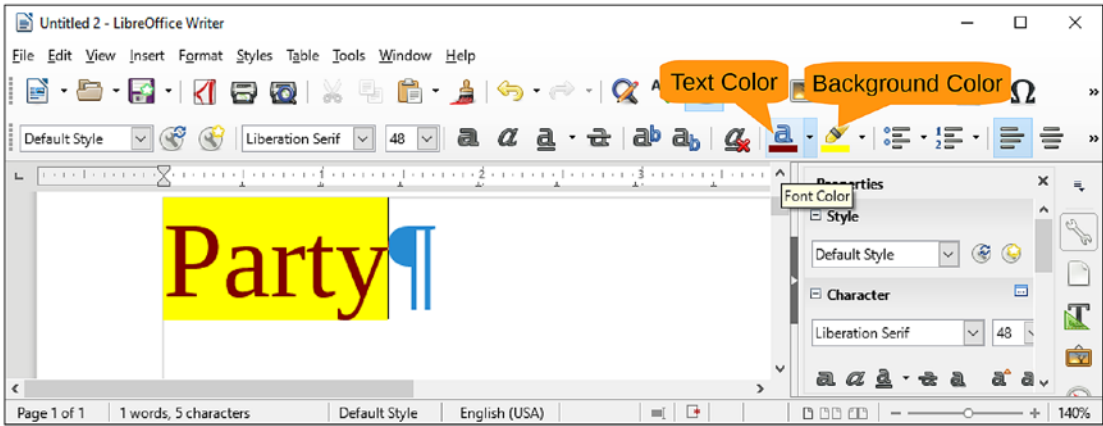
Figure 2-7. *Result of the color change*

Now type **Party** again. You want this text to be a different color, so select it with the cursor, and this time click the little arrow next to the Background Color icon, as shown in Figure 2-8. In this example, we picked light purple, but you can pick any ugly color you want. You can do the same thing for the text color. (Again, click the little arrow, not the icon itself.) In this example, we decided to use cyan, so we have cyan on purple.
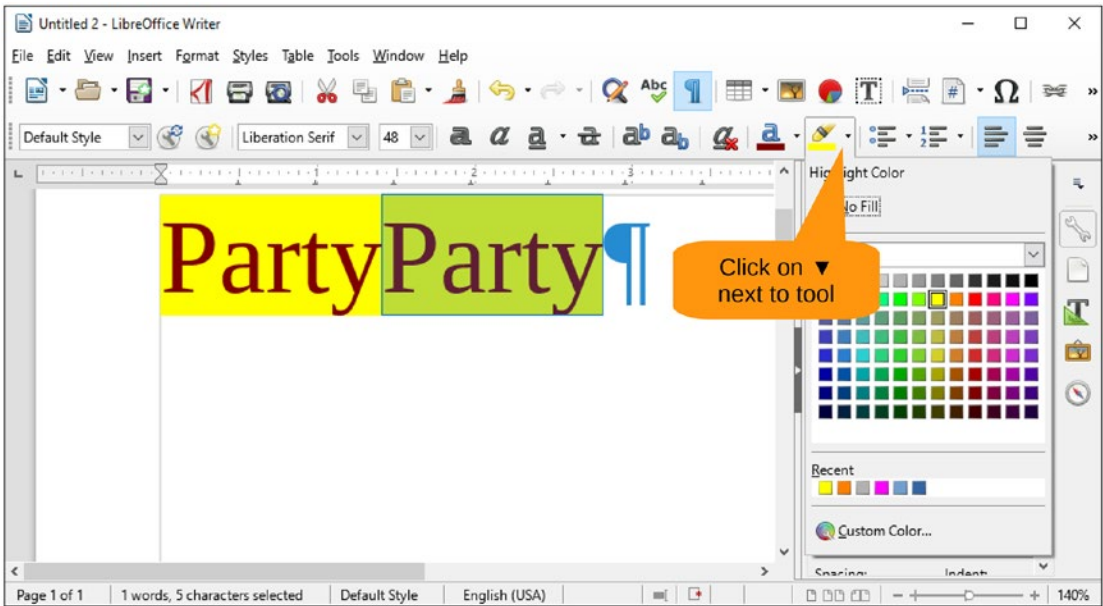
Figure 2-8. *Color selector menu*

Since this going to be a great party, let's mention it three times. Type **Party** one more time and select a new set of "interesting" colors for the text and background.

Now let's center the text by going to the Proprieties panel on the right and, in the Paragraph section, clicking the Center icon, as shown in Figure 2-9.
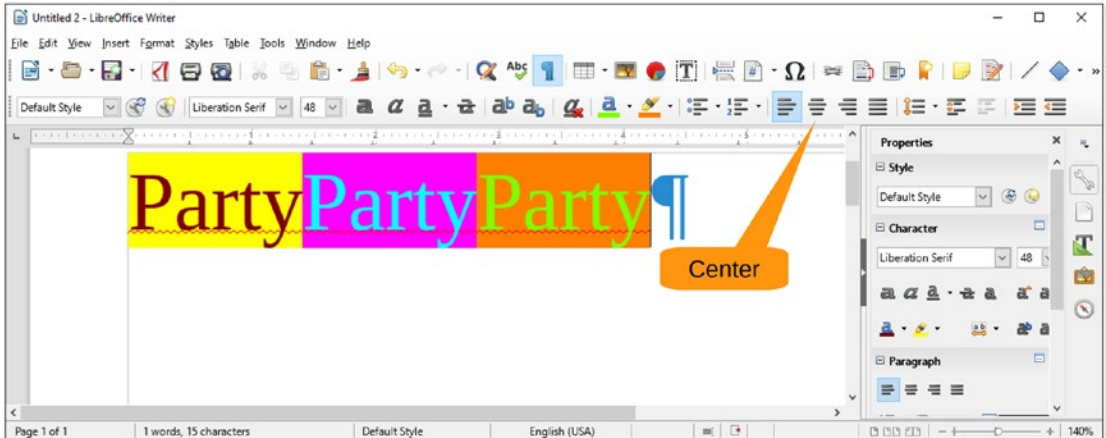
Figure 2-9. *Center icon*

The text is now centered, but it's too close to the top of the page. Let's move it down 1 inch by going to the Properties panel. (If you don't see the Properties panel, click the wrench in the sidebar to display it.) In the Paragraph settings, there is a box called "Space above paragraph." Change that from 0.00" to 1.00" and press Enter to set it. Now the "Party Party Party" paragraph is properly positioned. Figure 2-10 shows the result.
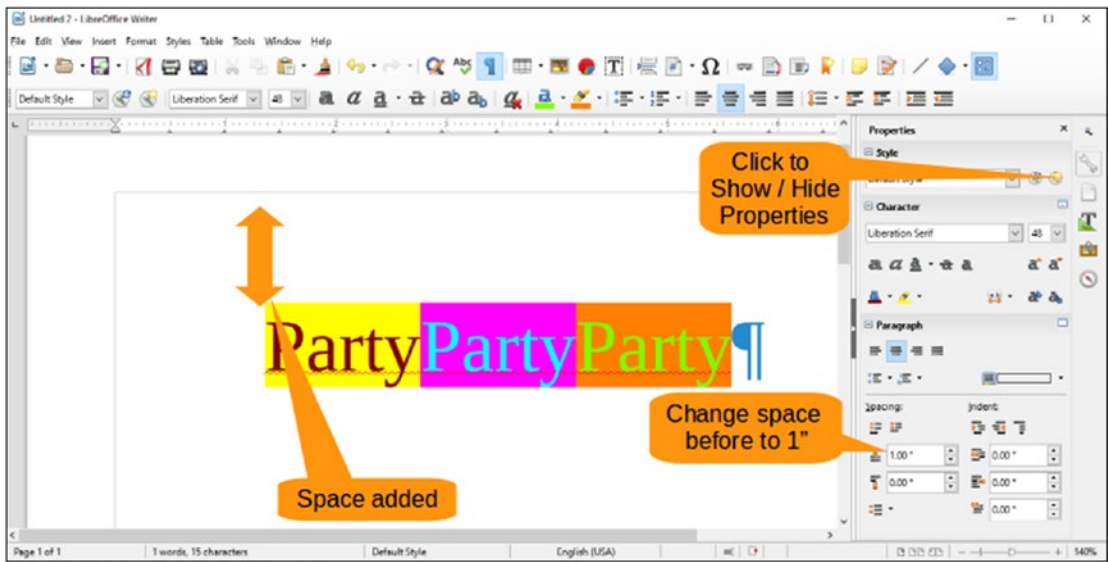
Figure 2-10.   *The party in its proper place*

Adding the "No Good Reason" Paragraph

You've played around with changing the text's background. In this section, you'll change the paragraph's background, which produces a slightly different effect.

Press Enter to start the next paragraph. Also, let's change the text color to black and the background color to no fill (the check box at the top of the pull-down).

For this paragraph you want the point size to be a little bigger, so let's select 72 from the Font pull-down. Type **Party for No Good Reason** for the name of the party. Keep the 1-inch space above the previous paragraph since that's a good spacing for this paragraph.

Now let's change the background color of the *paragraph*. Click the Background Color selector in the Paragraph section of the Proprieties panel, as shown in Figure 2-11. (While you're there, you can scratch your head at LibreOffice's choice of icons.) Clicking the icon causes a pop-up to appear showing you a choice of colors. In this example, we chose mustard yellow.
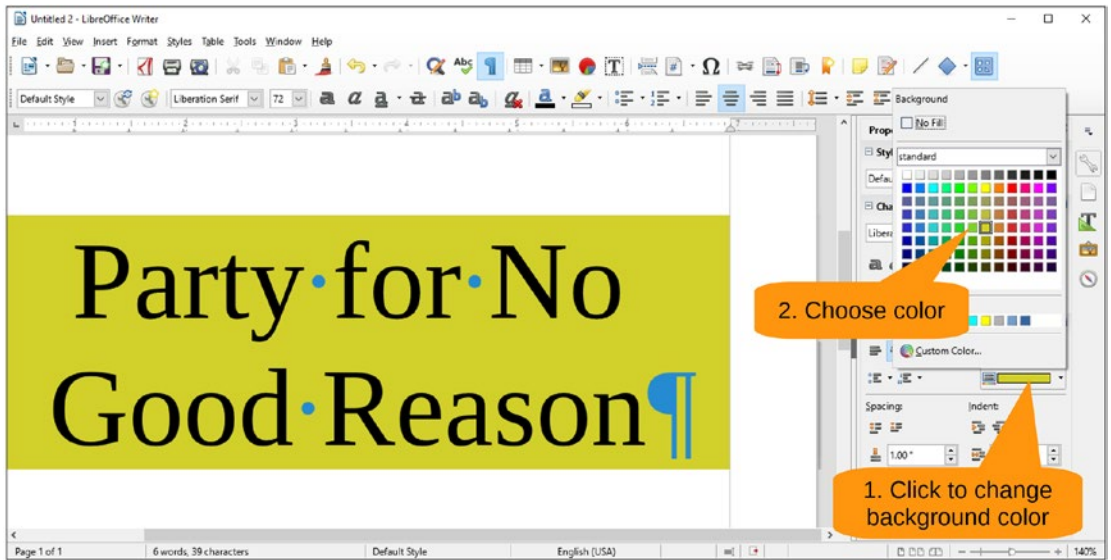
Figure 2-11. *Paragraph background*

Notice that the paragraph's background color extends from margin to margin. The text background color stays with the text. In the "Party Party Party" paragraph, the space on both sides of the paragraph is white, while on the new paragraph, it's yellow.

Indenting and Justifying a Paragraph

You've used the default margins and centered things in the previous paragraphs. In this section, you'll use indentation and justification to put paragraphs at different locations across the page.

Press Enter to go to the next paragraph. This is going to be a normal paragraph consisting of the single word *When* with a colon after it. You'll notice you have the same paragraph background color, space above, and font size as the previous paragraph. This is not what you want; you just want a normal paragraph. Click the Style list and select Default Style. LibreOffice will reset all the paragraph and font values to their defaults for this style, as shown in Figure 2-12.
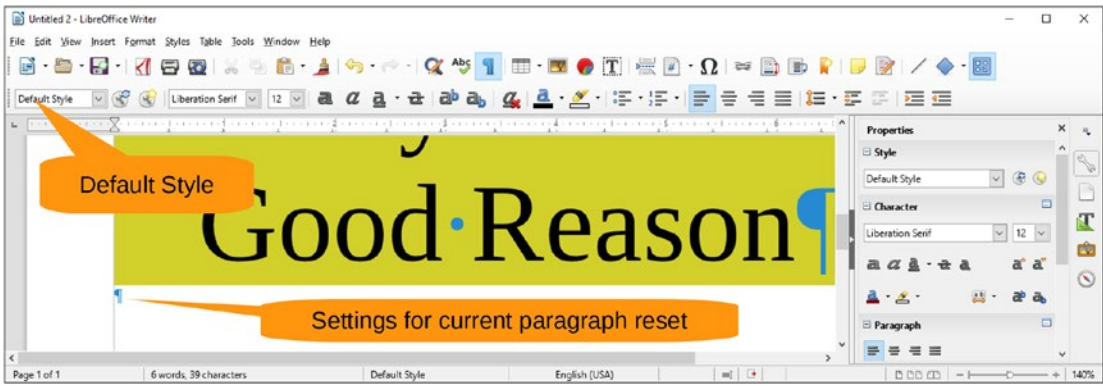
Figure 2-12. *Default style*

You may have noticed that the Style list was already set to Default Style. But by reselecting it, you cleared all the custom settings, resulting in the type of paragraph you want.

Now you can type **When:** and press Enter.

The paragraph after that should be indented a little (0.5"). There are multiple ways of doing this. The first is to grab the margin indicator on the ruler and move it. There is an Increase Indent icon that increases the indentation by a fixed amount. If LibreOffice's idea of a "good indent amount" does not suit you, you can set it using the "Before text" blank in the Properties panel.

Indention Method 1: Moving the Indicator

You can select the bottom margin indicator and drag it to the right to about the half-inch mark, as shown in Figure 2-13.
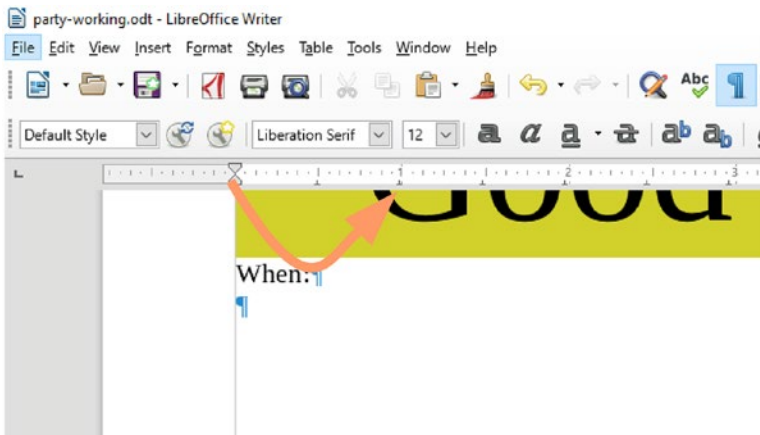
Figure 2-13. *Moving the margin*

Moving the bottom marker will move both the top and bottom markers and thus affect both the first line (top marker) and subsequent lines (bottom marker).

Indention Method 2: Increasing the Indent

There is an icon in the Paragraph section of the Properties panel called Increase Indent, as shown in Figure 2-14. Clicking that icon will increase the current indent by 0.5".
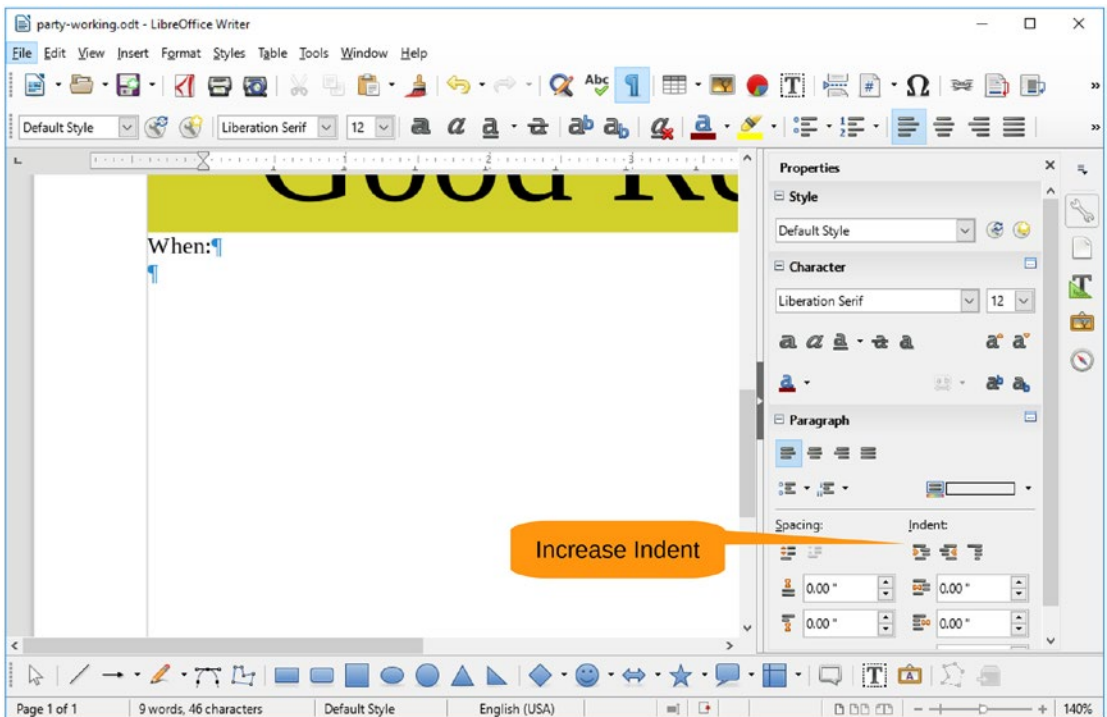
Figure 2-14. *Increasing the indent*

Indention Method 3: Setting the Before Text Indent

Also in the Paragraph section of the Properties panel is a Before Text Indent setting, as shown in Figure 2-15. Enter **0.5"** and press Enter to set the value.
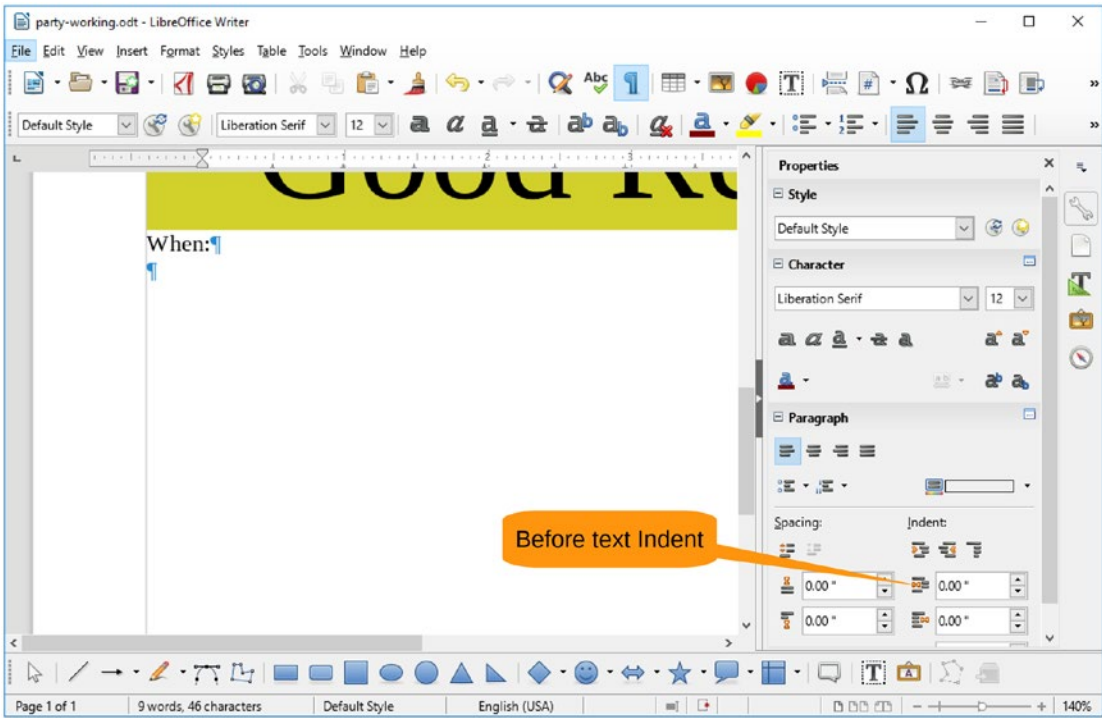
Figure 2-15. *Setting the before text indent*

No matter which way you do it, you'll get an indented paragraph. Let's type two paragraphs describing the time: **Saturday** and **July 7**. Figure 2-16 shows the results.
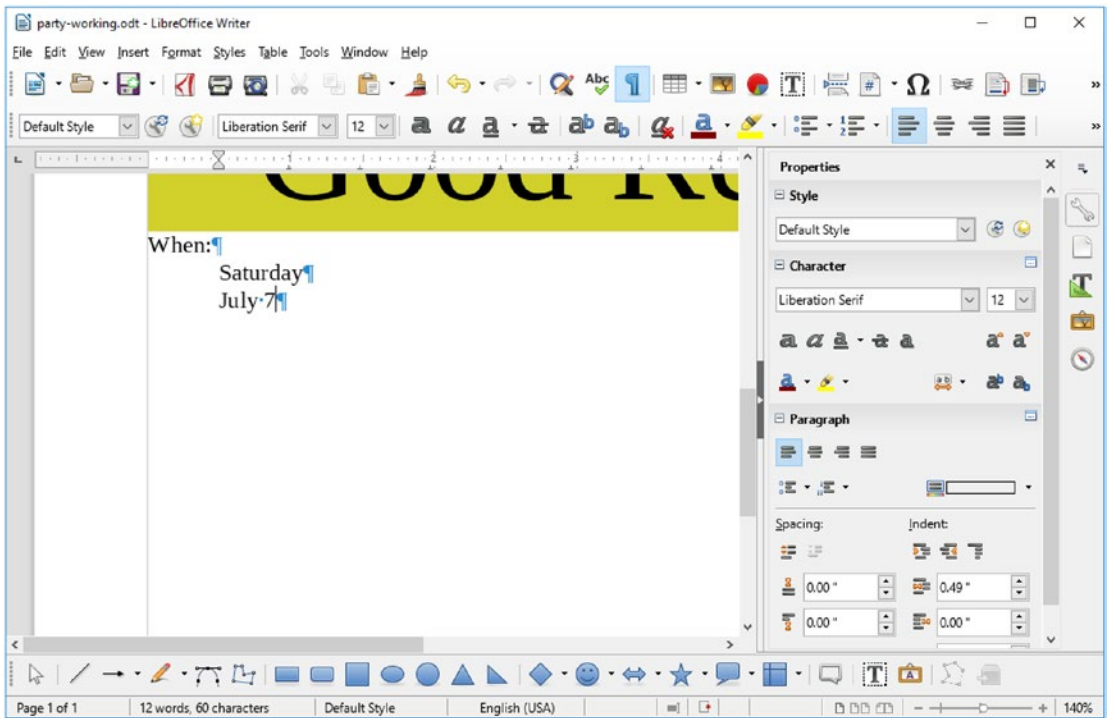
Figure 2-16. *Invitation with date added*

Creating the "Where" Section

Now let's type the word *Where* with a colon after it. But the word *Where:* is not where you want it to be. It's sitting on the left side, and you want it more to the right. To move it, drag the lower margin indicator on the ruler to the right until it's about 75 percent of the way across the page. Figure 2-17 illustrates this process.

Now you can enter the **Where:** line.
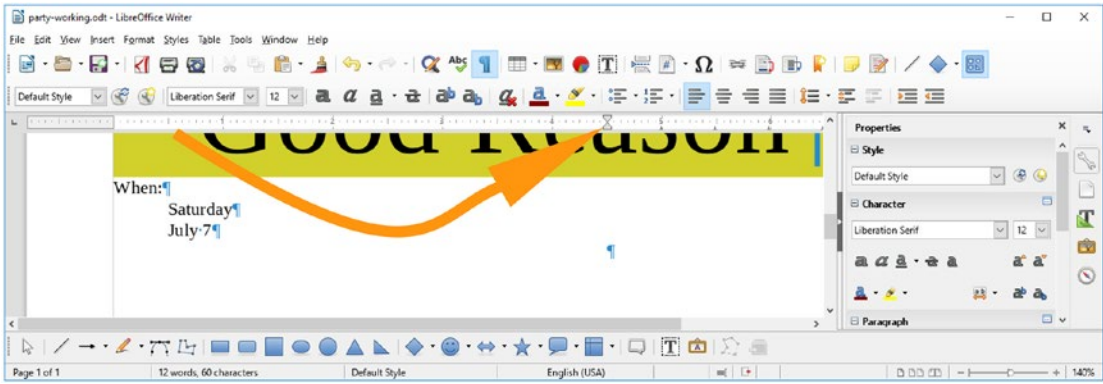
Figure 2-17. *Dragging the margin*

You want the actual address to be lined up on the right side. So, let's click the Align Right icon to make this happen. Actually, there are two Align Right icons; there is one on the toolbar and one on the Properties panel, as shown in Figure 2-18. Either one will work.

Now let's enter the address. Figure 2-19 shows the result.
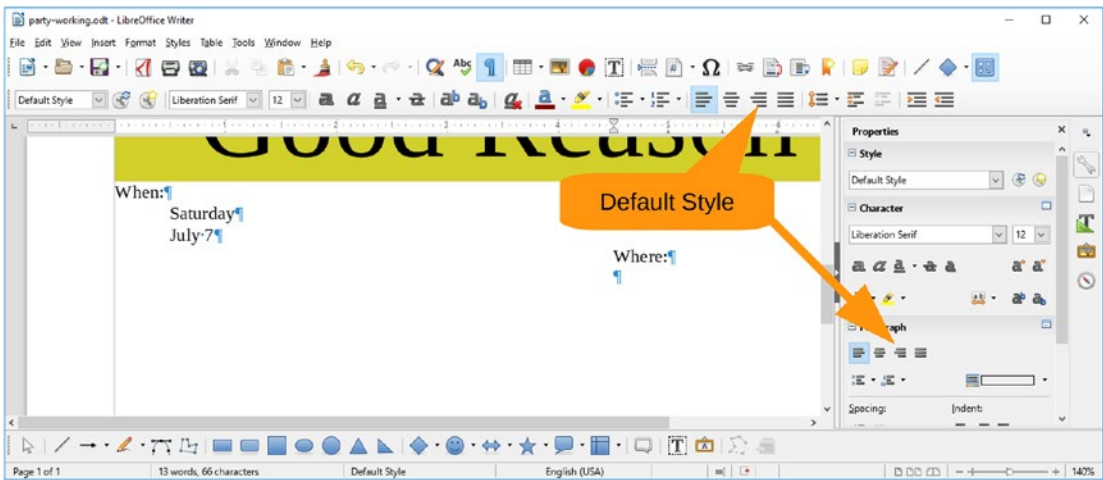
Figure 2-18. *Align Right settings*
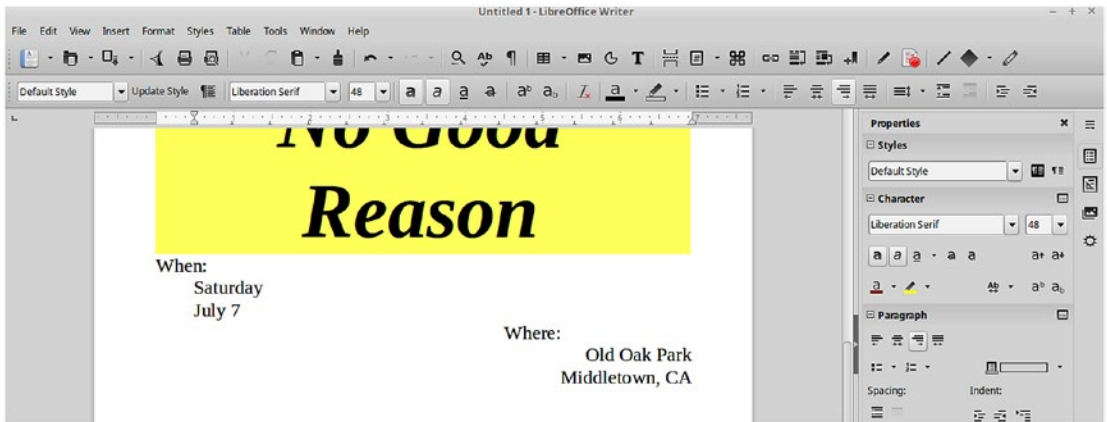
Figure 2-19. *Final text*

Adding Graphics

Now let's decorate things by adding graphics. Click the Gallery icon located on the right sidebar. See Figure 2-20.
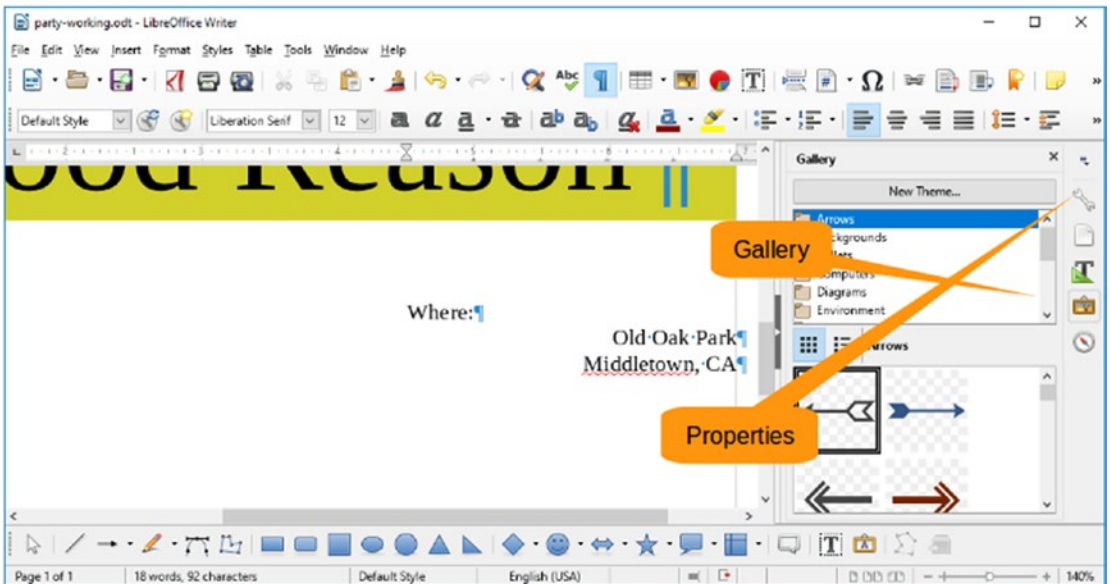
Figure 2-20. *Gallery icon*

The Proprieties panel disappears and is replaced by the Gallery. A quick search through the list of themes yields nothing that looks like it might have a balloon it, so let's click the Properties icon to restore the Properties panel.

Now bring up your browser and do a Google search for *balloon free clip art*. Clicking images displays a set of possible graphics, as shown in Figure 2-21.
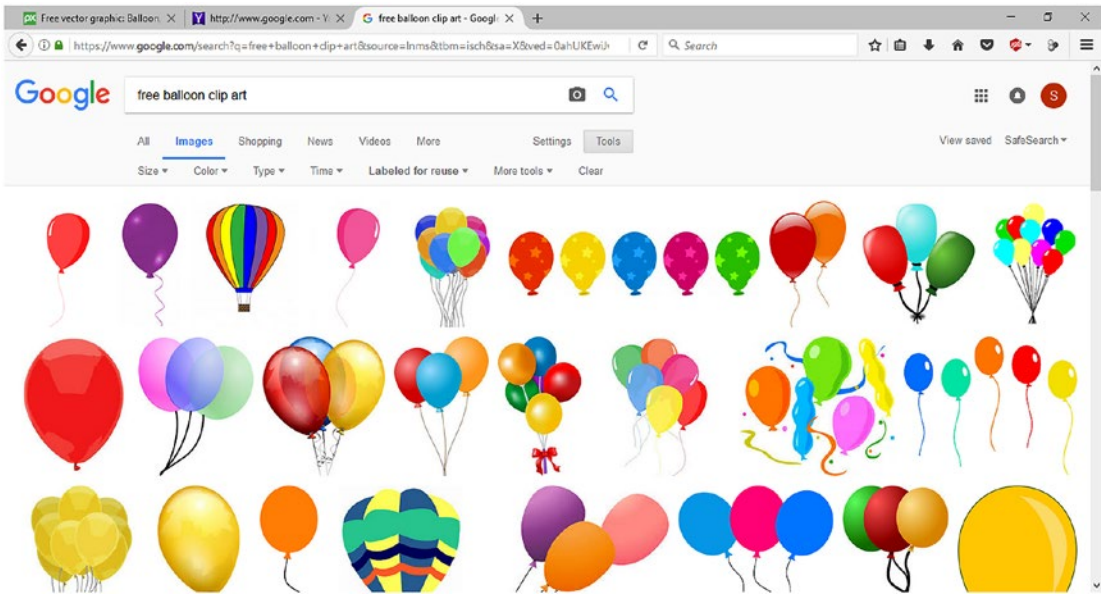
Figure 2-21. Balloons

Click one and then select View Image. Right-click the image and select Copy Image. Now you can go back to the party invitation and move the cursor to the beginning. (Click to the left of the *P* in our first *Party*). Select Edit ➤ Paste from the menu bar or just press Ctrl+V. The balloon appears in the document, as shown in Figure 2-22.
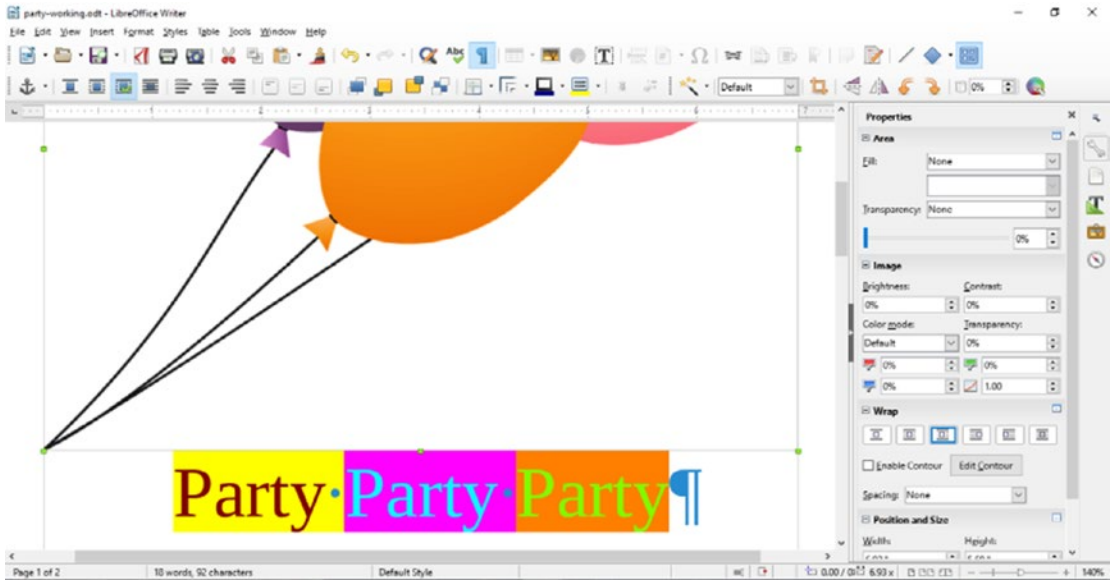
Figure 2-22. *Balloon pasted*

The size of the image is a way too big. Let's position the cursor over one of the green handles. It will change into a resize cursor. If you are on a corner, the cursor looks like an arrow pointing to the corner. If you are on a middle resize handle, the cursor turns into a double-ended arrow. You can now drag the handle to increase or decrease the size of the balloon, as shown in Figure 2-23.
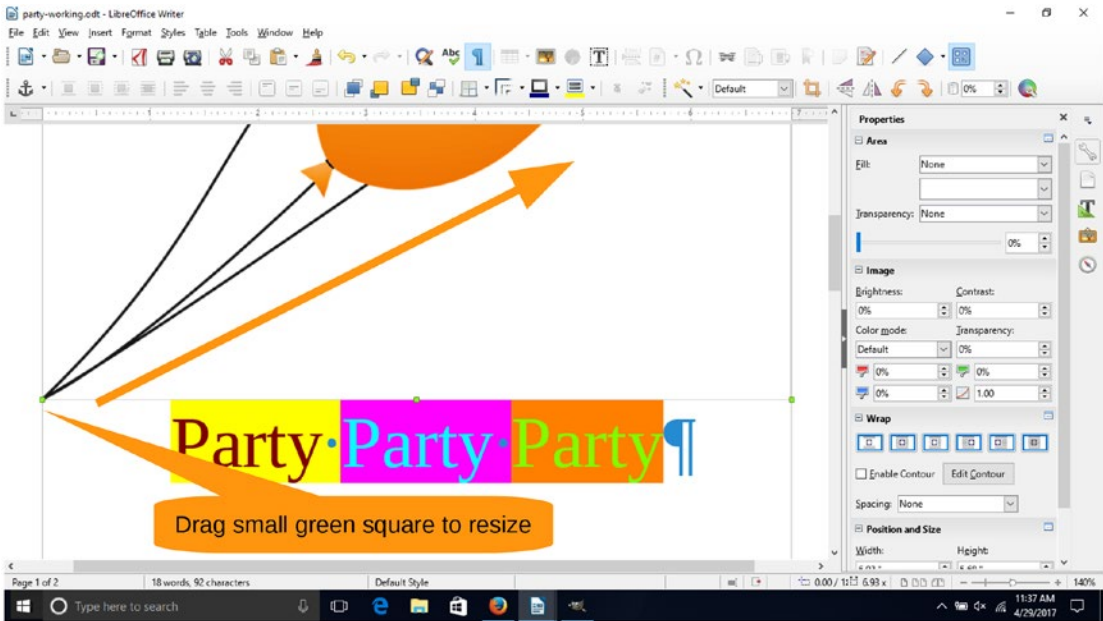
Figure 2-23. *Resizing an image*

Notice that the picture maintains the same aspect ratio, meaning that it does stretch or distort. This is the default in LibreOffice. If you want to stretch the picture in one direction only, you need to hold down the Shift key while resizing.

You need to move the image where you want it to be and change its size. But before you do that, you need to change its anchor point. The *anchor point* controls where the image appears on the page. Right now it's set to Paragraph, meaning if the paragraph it is attached to moves, the image moves.

Right-click the image and select Anchor ➤ To Page. This makes the image stick to wherever you want it on the page, as shown in Figure 2-24.
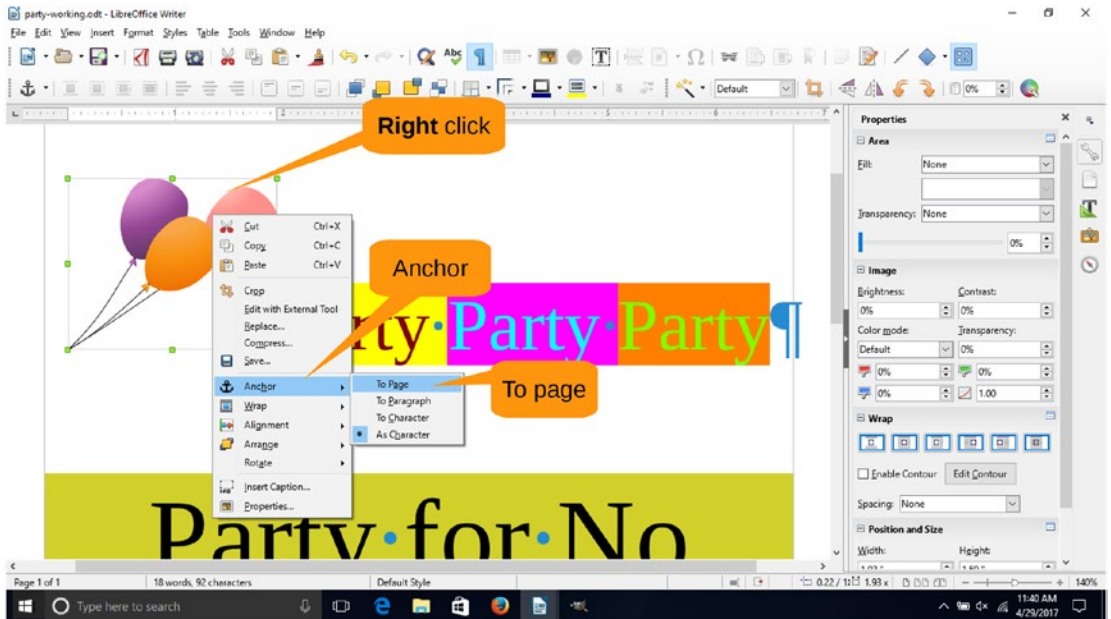
Figure 2-24. *Anchoring an image on a page*

Now let's move the cursor over the image. It will change from a pointer to a hand. You can now drag the image any place on the page you want it to be. In this example, that's the upper-right corner, as shown in Figure 2-25.
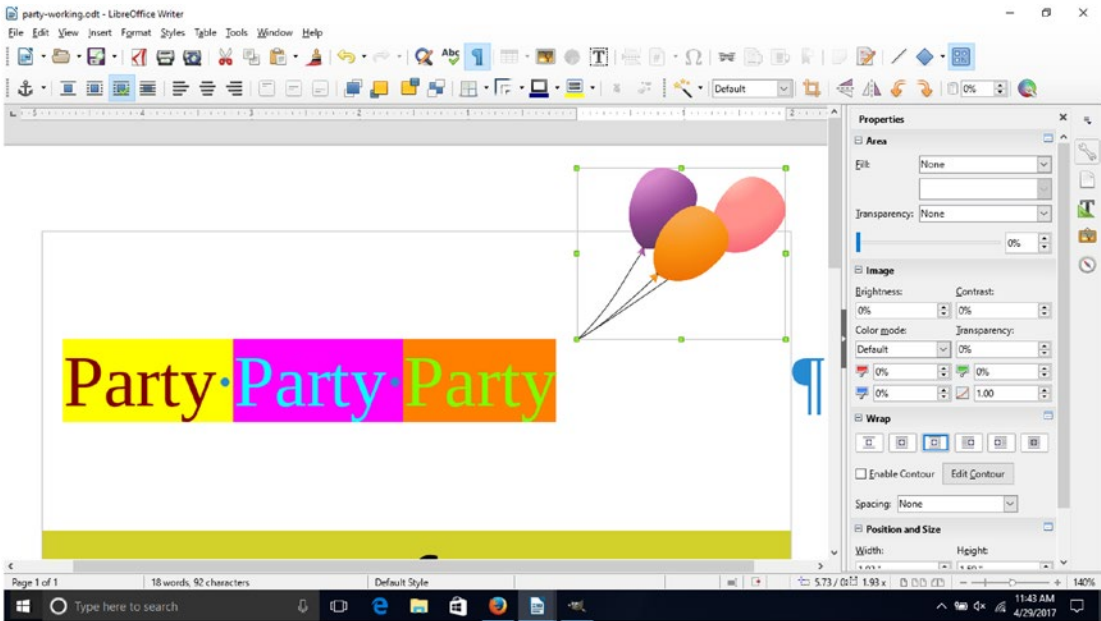
Figure 2-25. *Image in its proper location*

You'll notice that the text keeps moving out of the way of the figure. You don't want that because you put the text in the proper place when you created it. You can fix that by selecting the figure, right-clicking, and selecting Wrap ➤ Wrap Through, as shown in Figure 2-26.
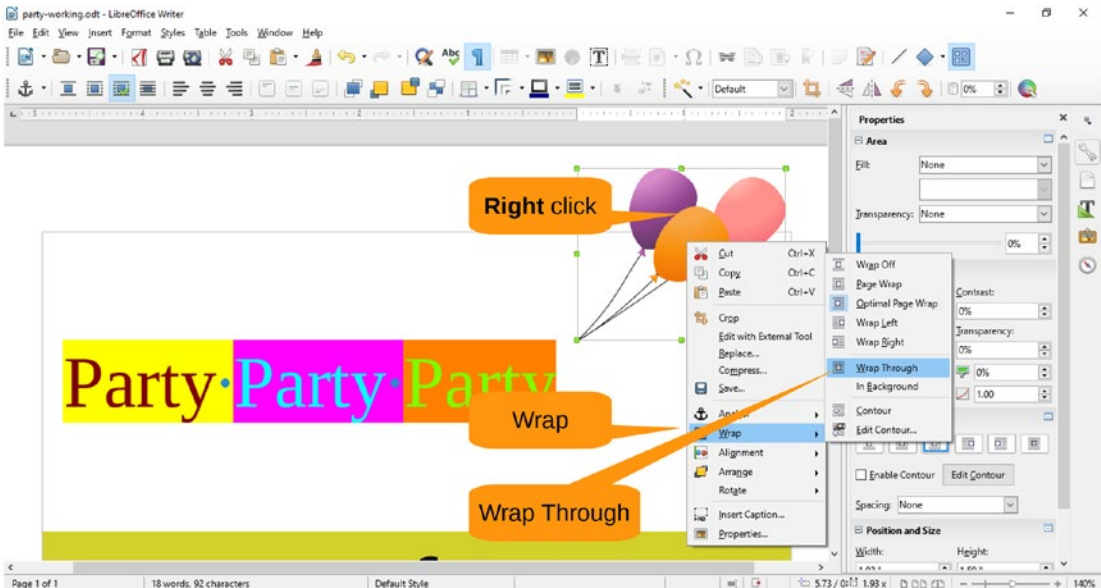
Figure 2-26. *Wrapping through*

You now have the image the right shape and size. Let's duplicate it by selecting it and then copying it (press Ctrl+C or select Edit ➤ Copy). Click outside the margin to deselect the image you just copied. (This is important because if you don't deselect it, then when you paste, you will overwrite the original image.) Now you can paste in your copy (press Ctrl+V or select Edit ➤ Paste). Now you can move it to the right side of the screen.

Things look better when they are symmetrical, and this image is facing the wrong way. So, let's fix that by selecting from the menu Format ➤ Flip ➤ Flip Horizontally, as shown in Figure 2-27.
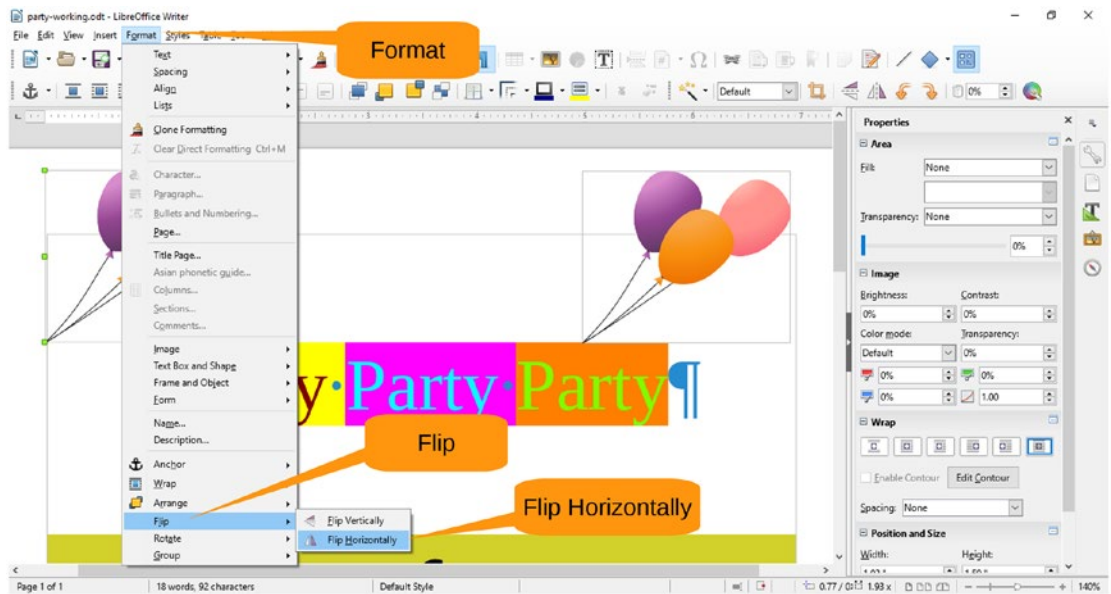
Figure 2-27. *Flipping an image vertically*

Now you can move it by dragging it with the cursor and change the size using the resize handles as you did with the first balloon.

Now you are ready to party, except for the details…printing 100 copies of the invitation, handing them out, buying the food and drink, reserving the location, inviting the people, and everything else. But the invitation is ready!

Summary

The party invitation was designed to be a fun introduction to the basics of LibreOffice Writer. There's a lot you can play around with in this word processor. In the next few chapters, you'll take a look at how to do useful work with this tool.

For now, if you're interested, you can explore some of the more frivolous aspects of this program, including the following:

- *Fontworks*: Creating fancy text effects

- *Gradients*: Changing color backgrounds

- *Drawing tools*: Drawing things on your document

Since this is not a 400-page book on LibreOffice, we'll let you explore these topics on your own.

Writing Business Letters with LibreOffice Writer

In the previous chapter, you learned the basics (and a few fun features) of LibreOffice by creating your party invitation. Now you'll put LibreOffice to work. In this chapter, you'll learn how to write a business letter with LibreOffice Writer.

Specifically, you'll do the following:

- Create and use custom styles

- Apply indents

- Format paragraphs

- Format pages

Creating a Business Letter

In this section, you'll create a simple business letter similar to the one shown in Figure 3-1 (although we hope your letter will cover a different subject matter).

Mrs. Smith
Second Grade Teacher
Hilltop Elementary School
100 School Place
Grandview, LA 34582
January 3, 2017

Farmer Brown
The Working Farm Museum
456 Old Oak Street
Grandview, LA 34588

Dear Mr. Brown,

All of us in the second grade class here at Hilltop Elementary School would like to thank you for the wonderful time we had during our last visit.

Timmy is really sorry about what he did. He didn't know that hay could catch fire so fast. I'm glad to hear that none of your animals were hurt when the barn burned down.

Also I want you to know that all of were far enough away so that we were unaffected by the explosion. Who knew propane tanks contained so much power.

We were sorry we had to leave early, but I understand how unexpectedly busy you were especially after the fire caused all the animal to stampede. On the bright side, the students have never seen such a big fire and were especially thrilled by the sight of the areal tankers doing their drops.

But in spite of the explosion, the fire, and the stampede we all had a great time at The Working Farm.

Also I'm glad you're no longer mad at us and want to thank you for the free tickets to the Learning Farm.   It's nice to know that you are over your fierce rivalry with Farmer John at the Learning Farm and want us to visit with him while you and your insurance company are rebuilding your farm.

So here's hoping you get out of the hospital soon and a big thanks from all of us in the second grade class.

Sincerely,

Miss. Smith

Figure 3-1. *Business letter*

Creating the "From" Section

Let's start with a new document. Open LibreOffice and select File ➤ New Text Document. You'll notice that the "From" section is formatted with these attributes:

- Paragraphs are indented 4.5".

- There is no space between paragraphs.

Since you have more than one paragraph, you'll define your own paragraph style. You will reuse this style later in the chapter.

Start by opening the Properties panel and clicking the New Style icon (Figure 3-2).
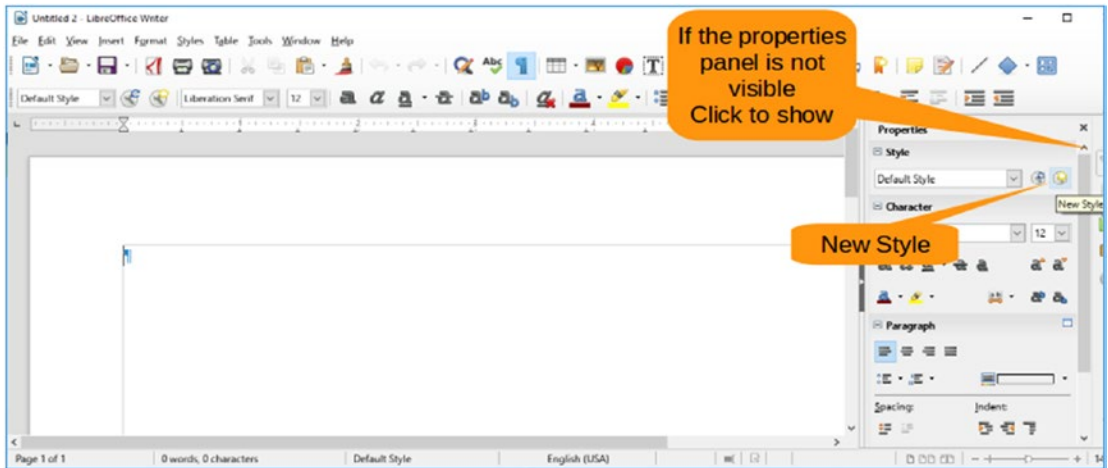
Figure 3-2. New Style icon

The Create Style dialog appears. Enter a name for the new style such as **From Address** and then click OK. Figure 3-3 illustrates these steps.
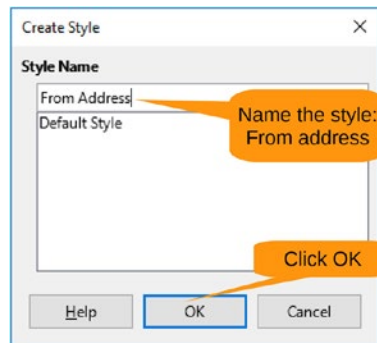
Figure 3-3. Create Style dialog

Now you need to update the paragraph settings to reflect the style you want. The settings that need changing are listed in the Properties panel. They are as follows:

- *Before Text Indent*: 4.5"

- *Above Paragraph Spacing*: 0.0"

- *Below Paragraph Spacing*: 0.0"

Figure 3-4 shows the location of these settings.

Figure 3-4. *Paragraph settings*

So far you've changed the properties just for the current paragraph. You want to change the properties for every paragraph of this style, so click the Update Style icon to change the From Address style, as shown in Figure 3-5.

Figure 3-5. *Update Style icon*

Now let's enter the "From" information, as shown in Figure 3-6.

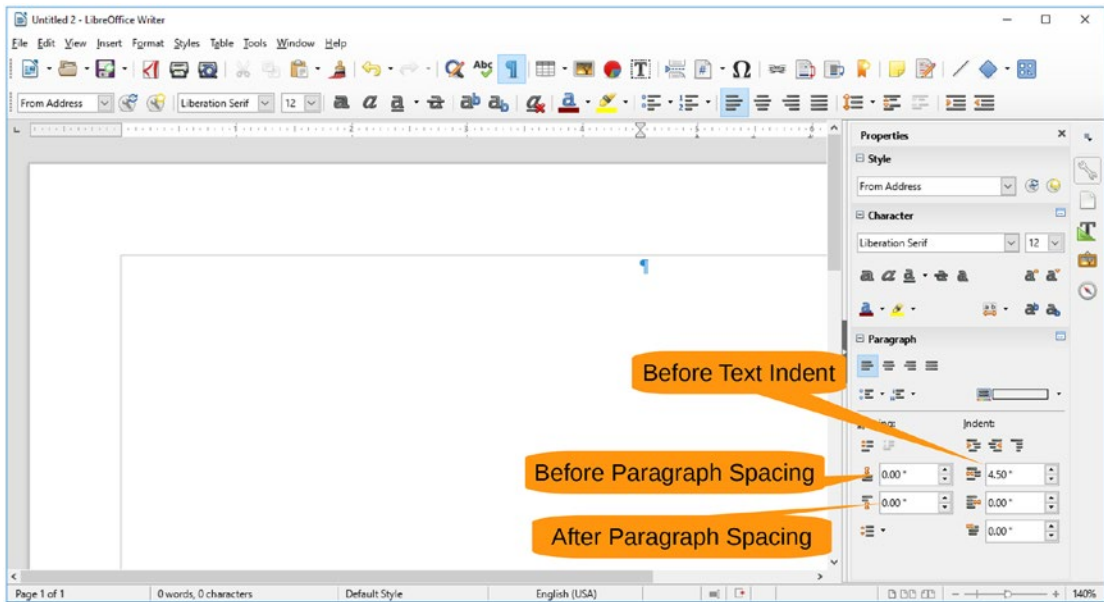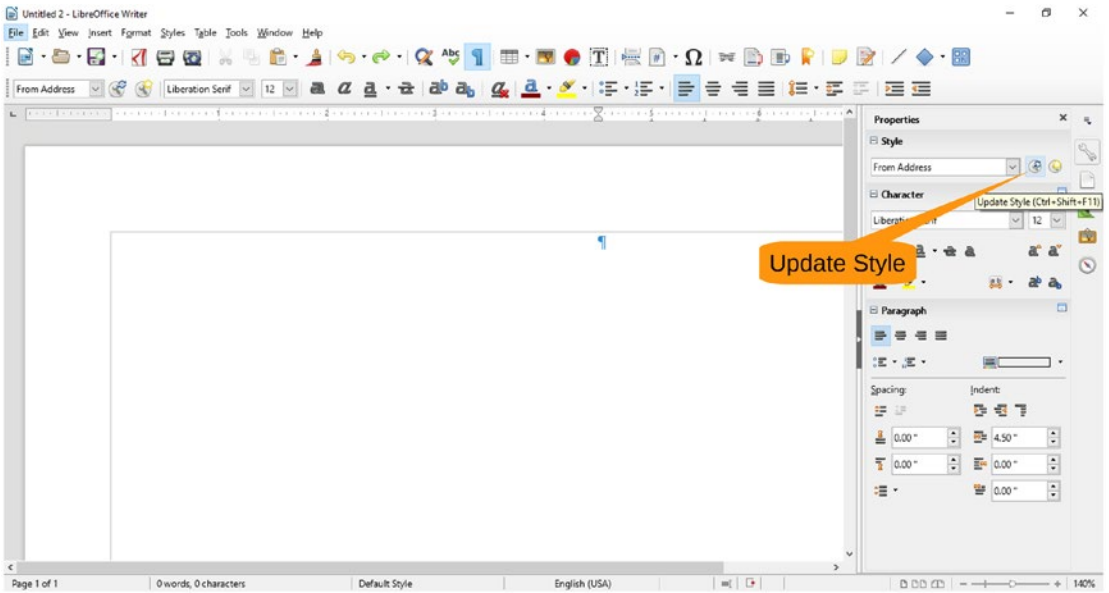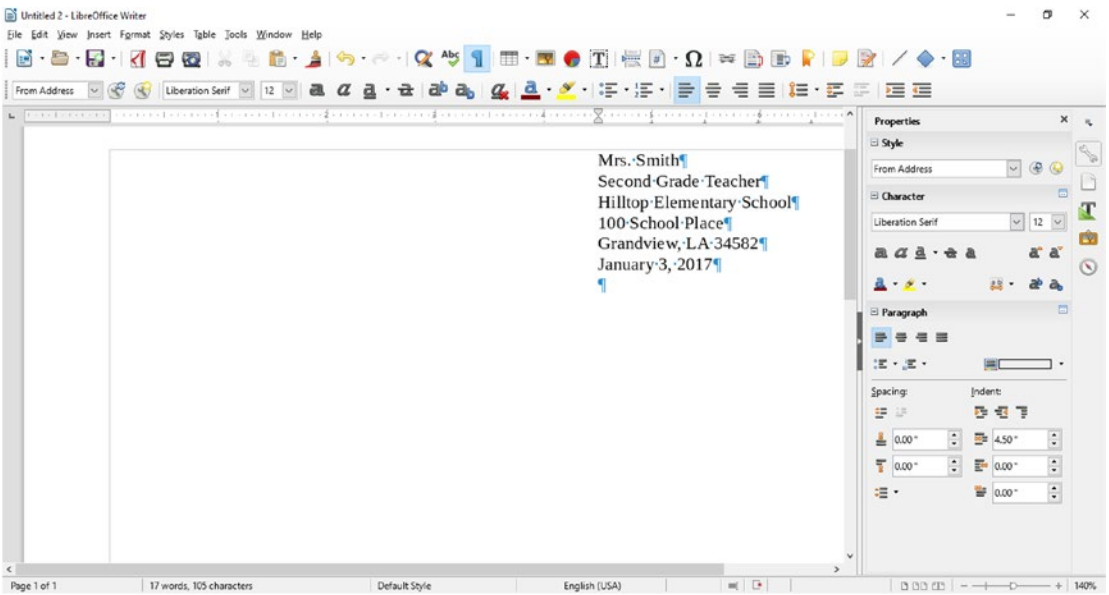*Figure 3-6.* *"From" section complete*

Creating the "To" Section

The "To" section is just like the "From" section only you need to define a different text style. In this case, it's just like the From Address style only with a Before Text Indent setting of 0.00". The steps to create this style are as follows:

1. Click New Style.

2. Enter the name **To address** for the style name. Click OK.

3. Change the Before Text Indent setting to 0.00".

4. Click Update Style.

Completing the "Dear" Line and Text Body

Now you need to write the "Dear" line and the body of the text. You want some blank space between the last line of the address and the "Dear" line, so let's change the Below Paragraph Spacing setting to 0.14". *Do not click Update Style because you want the change to affect this paragraph only.* Now you can enter your "Dear" line. The screen should now look similar to Figure 3-7.
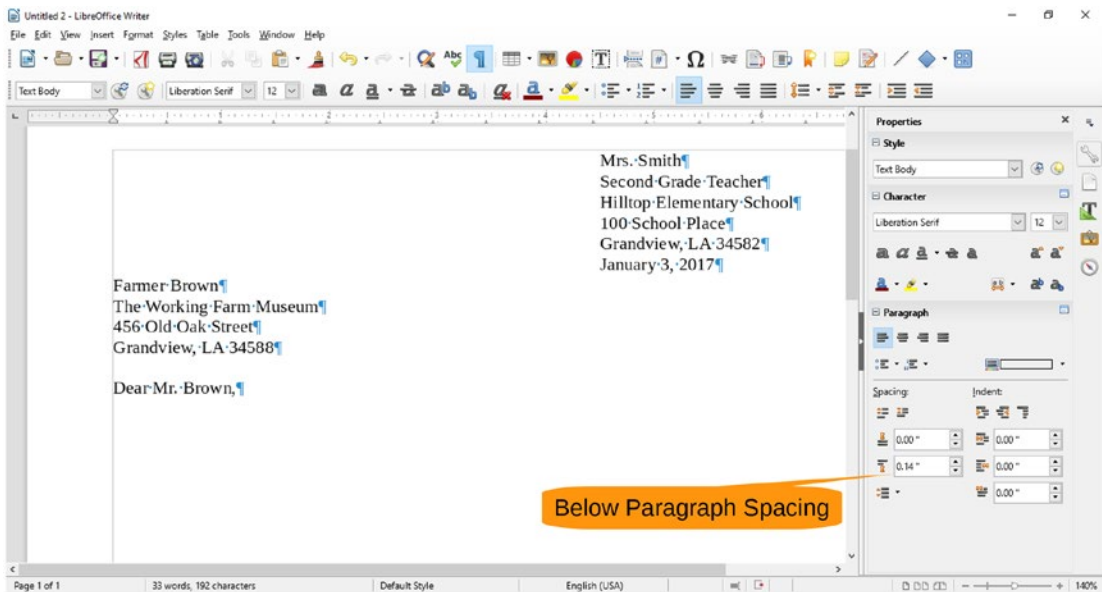
***Figure 3-7.** "Dear" line*

From the Style pull-down, select the style Text Body for the body of the letter. There are actually two Style pull-downs, as shown in Figure 3-8; either one will work.
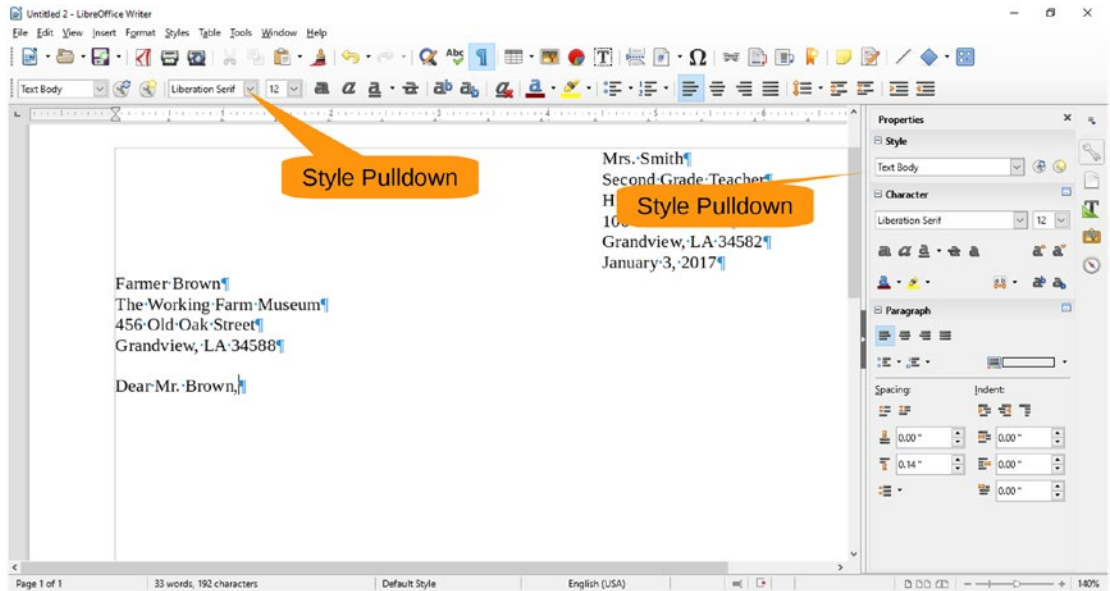
Figure 3-8. *Changing a style*

The default Text Body style does not provide enough space between paragraphs. Change the Below Paragraph Space setting to 0.14" and click Update Style. Next type the body text of the letter. Figure 3-9 shows the result.

Figure 3-9. *Body of the letter*

Now all you need is the ending. For this you indent the same amount as the "From" section, so let's reuse that style. Select the style From Address from either of the two pull-downs and type **Sincerely**. Figure 3-10 shows the result.
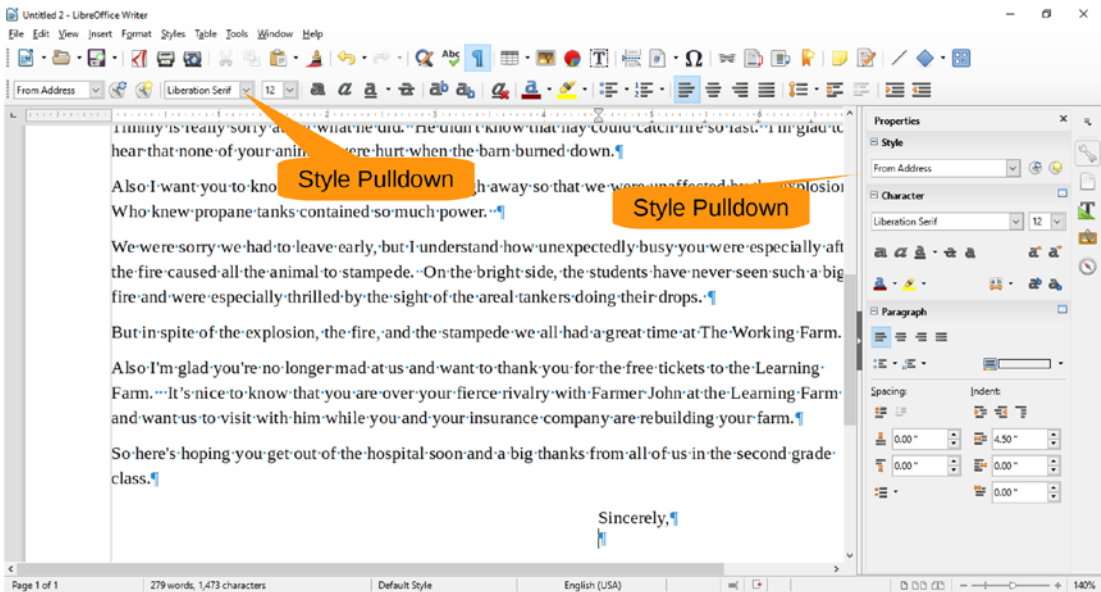
Figure 3-10. *Finishing up*

You want about three to five lines of blank space below this line for the signature. Ideally, you should change the Below Paragraph Space setting. But this time, let's cheat and just press Enter three times. Then enter your name for the signature.
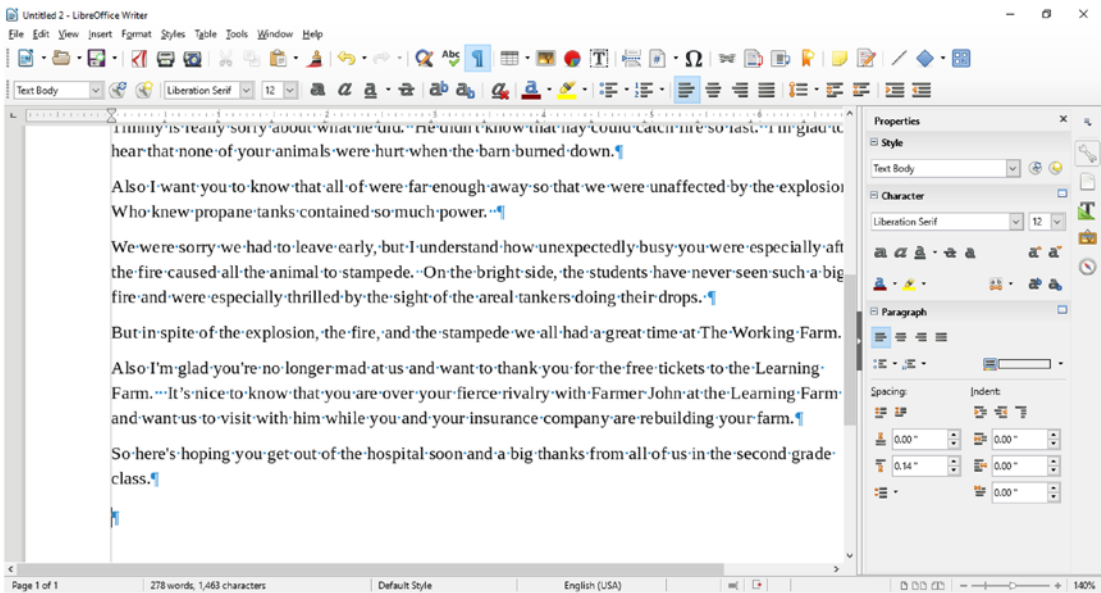
You can see the final result in Figure 3-11.
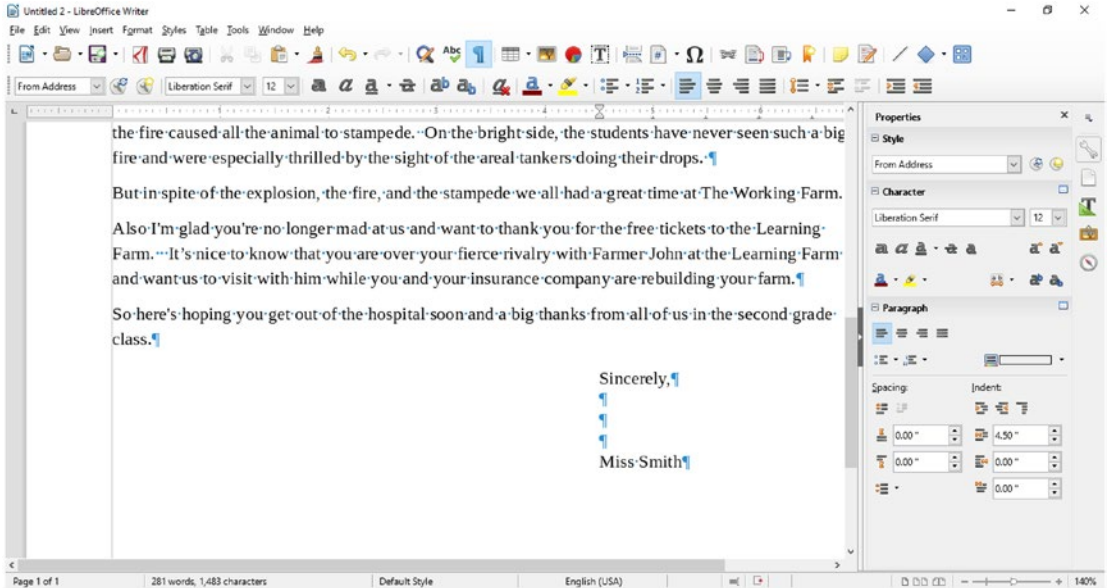
Figure 3-11. *Finished letter*

Creating an Envelope

Now you need an envelope to go with your letter. After all, a letter such as this one should not arrive in a handwritten envelope. To start, select File ➤ New Text Document to get a blank document.

By default, the paper size is that of a standard letter. You want an envelope, so you need to change the page format; select Format ➤ Page, as shown in Figure 3-12.
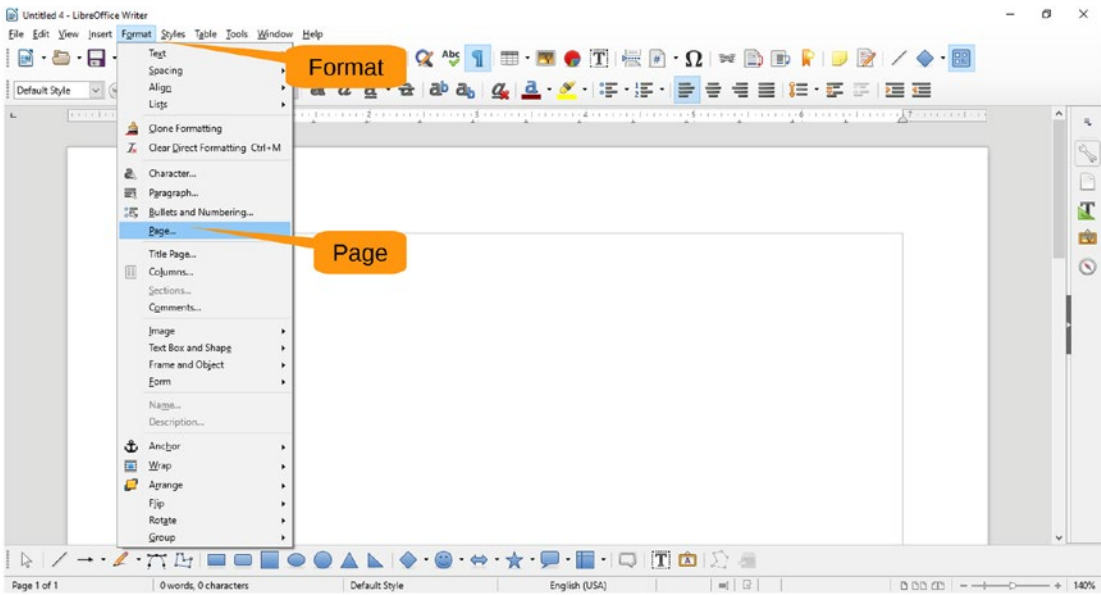
Figure 3-12. *Changing the page format*

This brings up the Page Style Default Style dialog. Click the Page tab to select the paper size, as shown in Figure 3-13.
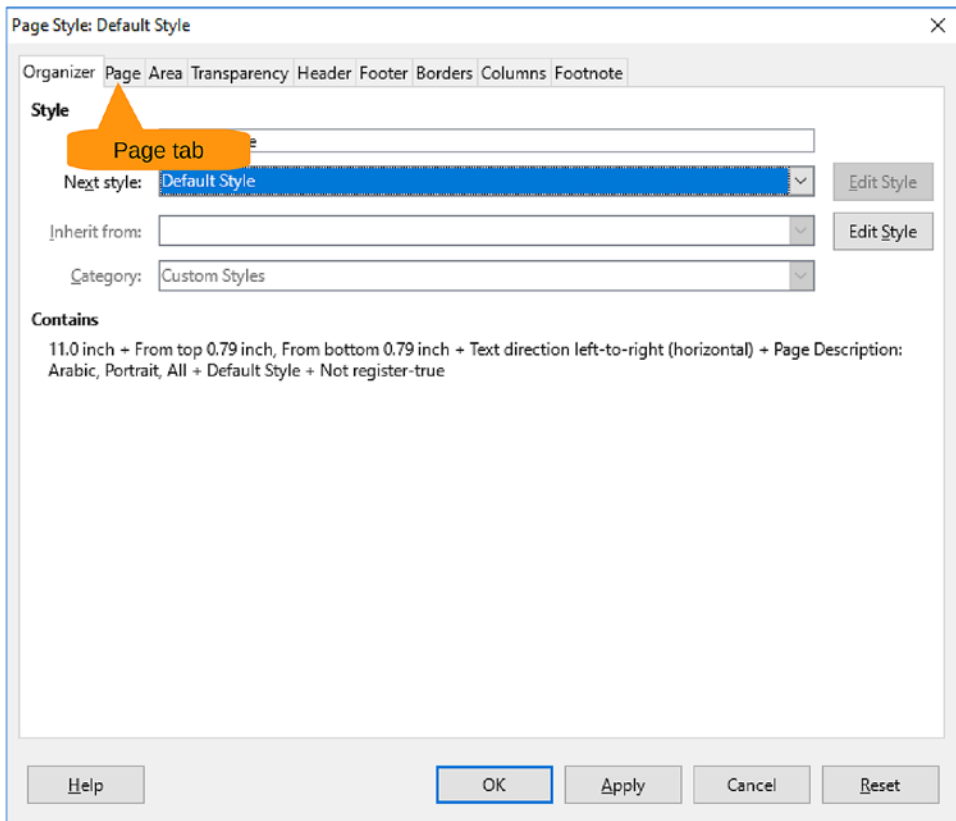
Figure 3-13. Setting the page style

For Format, select an envelope size. In this case, this is a standard business envelope, so select #10 Envelope. For Orientation, select Landscape. (Otherwise, you would have a tall, narrow envelope.) The page margins default to ones that look nice on a letter but lousy on an envelope. Change all to 0.50". See Figure 3-14 for details.
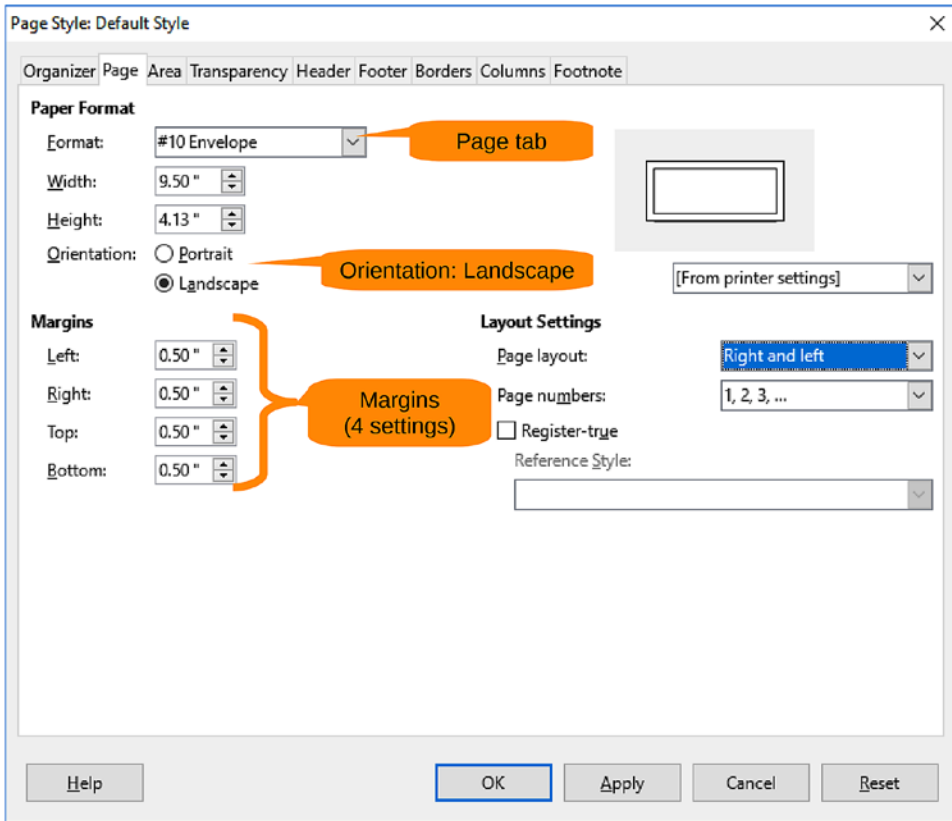
Figure 3-14. *Page style settings*

Click OK and then enter the "From" and "To" addresses using the techniques just covered. To save time, you can copy and paste them from the original letter, which brings along the styles too. Because this is a letter, the From Address style works for the "To" address lines, and the To Address style works for the "From" address lines. (Try playing around with the software to understand this better.)

Figure 3-15 shows the completed envelope.

Figure 3-15.   *Final envelope*

Summary

In this chapter, you continued working with LibreOffice. The skills you learned here work for letters, memos, agendas, and other short business documents. In the next chapter, you'll learn how to produce longer works.

Writing a Report with LibreOffice Writer

In this chapter, you will write a college-level report. This report will have all the bells and whistles needed to impress the instructor and get a good grade. These include the following and more:
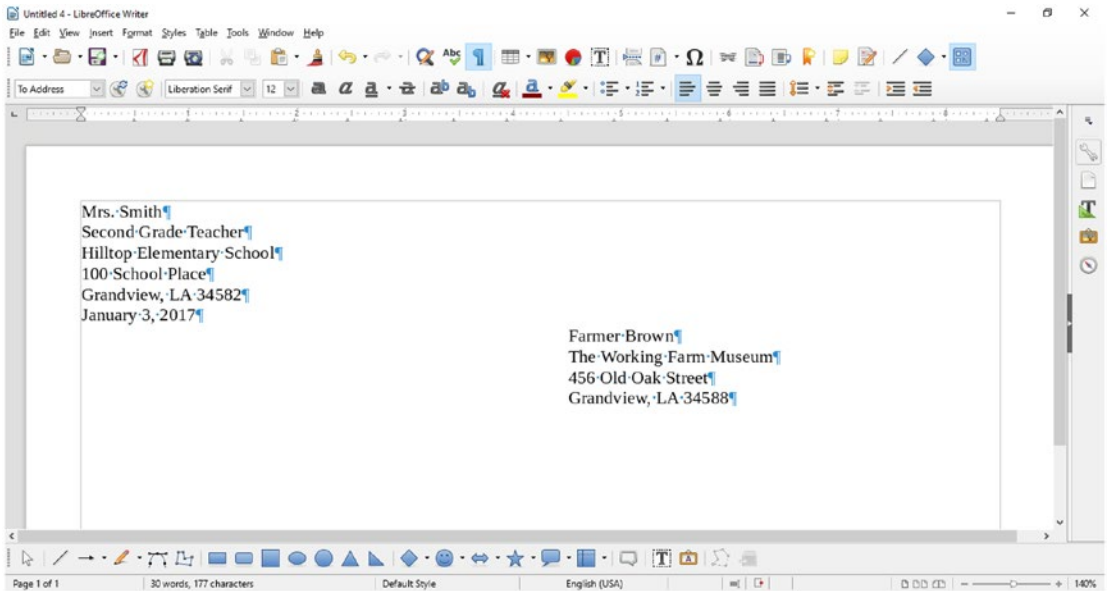
- Bullet lists
- Footnotes
- Quotes
- End notes/bibliography
- Tables
- Graphics

In this chapter, you will create a report about how to write a report. Unlike most college reports (we hope), the quotes and sources will be made up.

Starting the Report

Begin by running LibreOffice Writer and selecting File ➤ New ➤ Text Document. Now every good report should start with a good title. From the Style selection box in the upper-right corner, select the Title style and then type in the title of the report: **A statistical analysis of the structure of college essays and their relationship to the grade received**. Long-winded perhaps, but that certainly is an A or at least A- paper based on the title. Figure 4-1 shows the result.
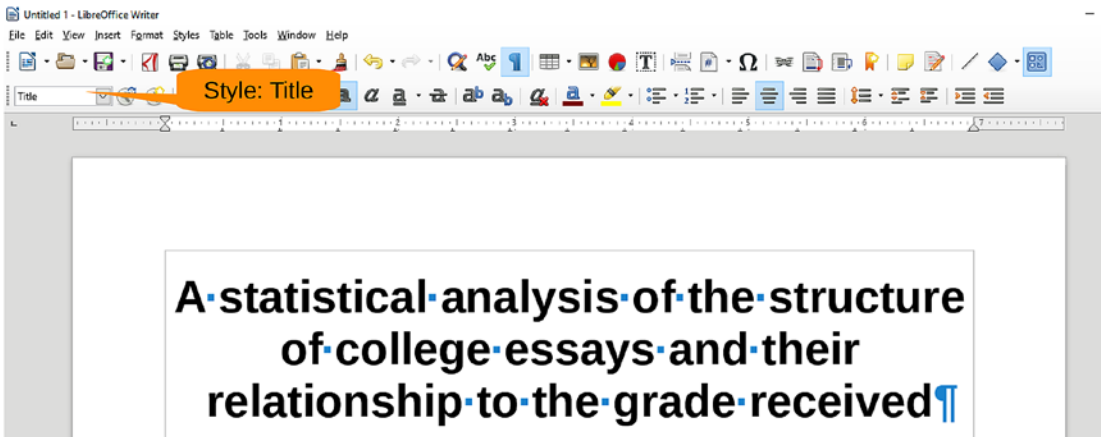
Figure 4-1. *The title*

Now let's get to the next line by pressing Enter. This is where you put the author's information. Let's select the Subtitle style from the Style pull-down and type the author's name. You will get something that looks like Figure 4-2.
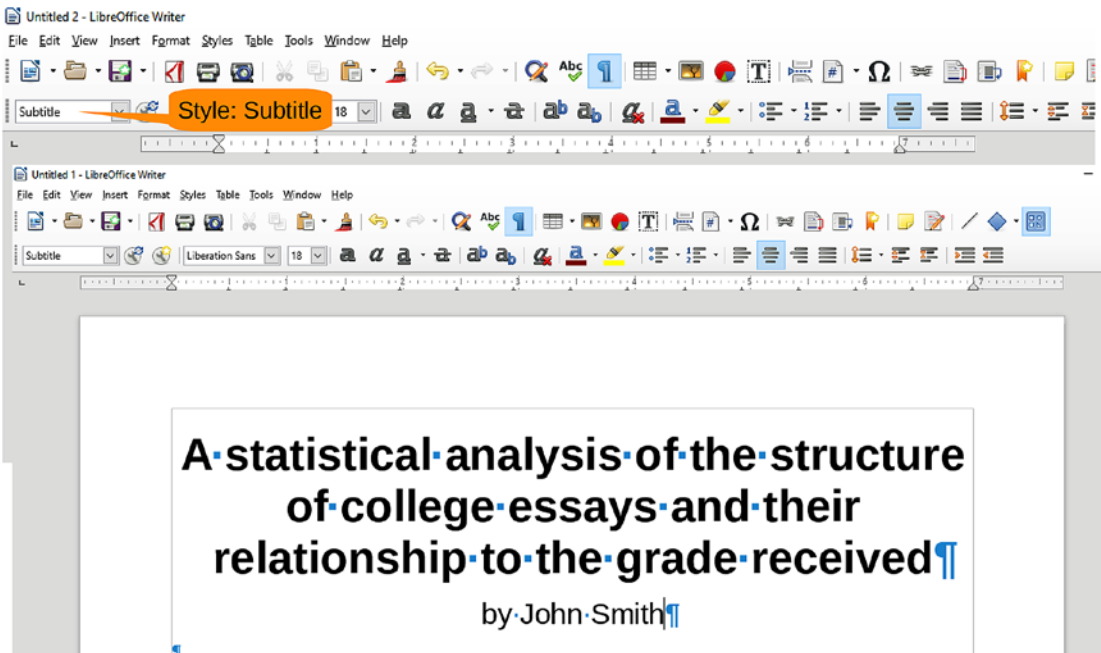

Figure 4-2. *Author's name*

For this particular report, you will use structured numbered headings. It's a school requirement we just made up so we could show you structured headings.

Press Enter to go to the next line, and select the style Heading 1. Enter **Level 1 Heading** for the text of this heading (not the most imaginative heading, but it does get the point across). Now, click the number icon, just a little left of center on the toolbar. Figure 4-3 shows the numbered heading.
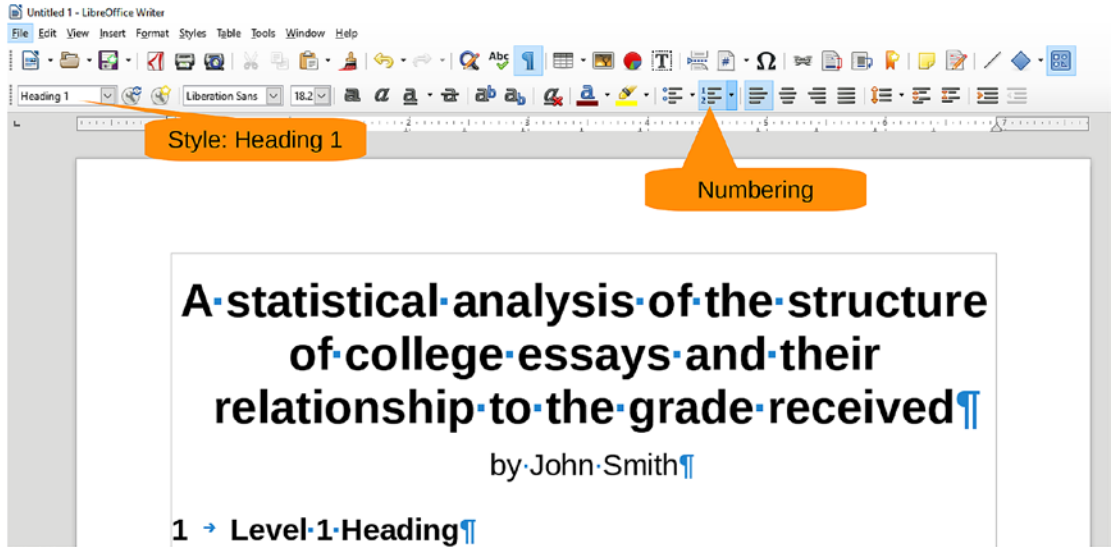

Figure 4-3. *Heading 1 style*

Let's add a couple more headings. The first one is a Heading 2 paragraph, and the one after that is Heading 3. In Figure 4-4 you can see that LibreOffice has added structured numbers to the paragraphs.
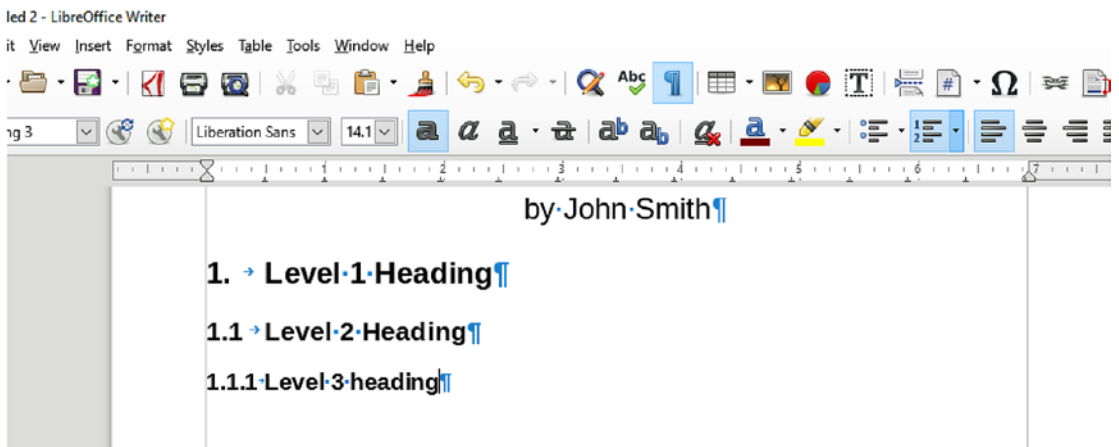

Figure 4-4. *Structured numbers*

Try as you might, you can't make an essay entirely of headings. You'll have to add some text. Let's write a sentence or two under the first heading. So, type some text: **This paper discusses the relationship between measurable structural elements of an essay and a student's grade.**

The report now looks like Figure 4-5.
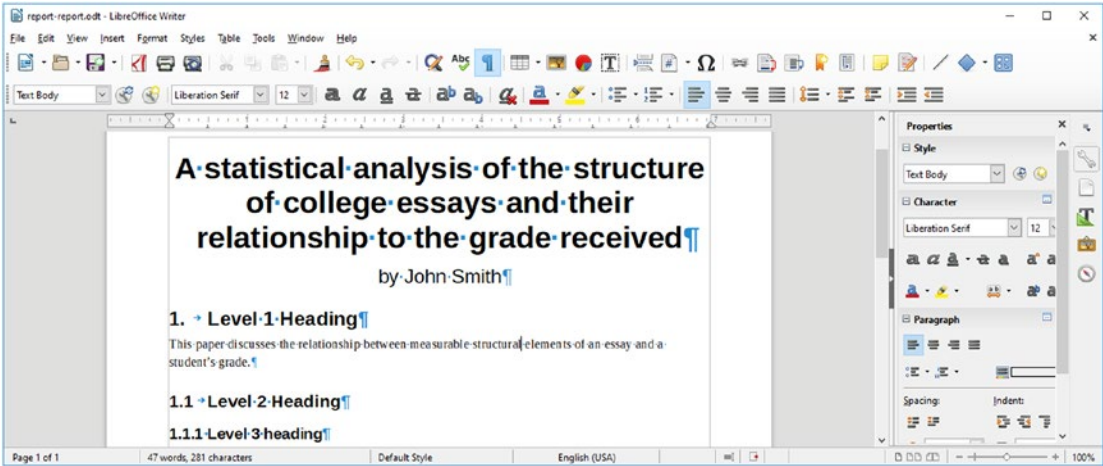
Figure 4-5. *Report with paragraph added*

Adding Footnotes

Professors like footnotes, so let's add a footnote just after the word *structural* in the sentence you just typed. First move the cursor to just after the word and click after *structural*. Now select Insert ➤ Footnote or Endnote ➤ Footnote. You'll notice that the cursor jumps to the bottom of the page and lets you type in your footnote. See Figures 4-6 and 4-7 for the results.
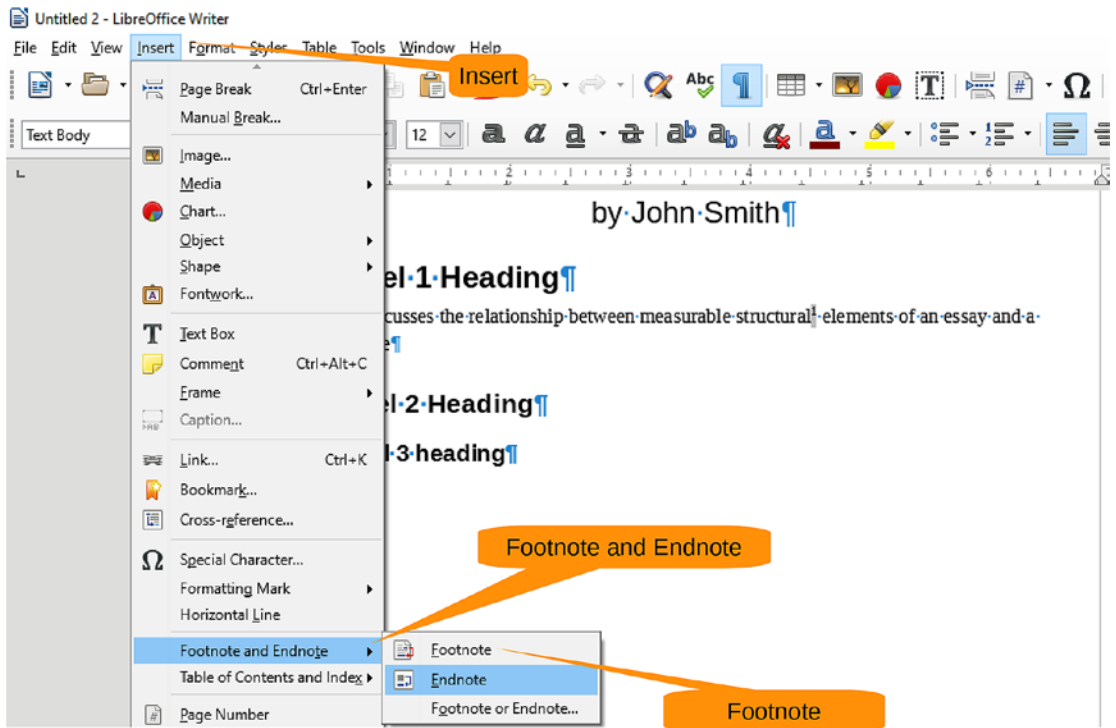
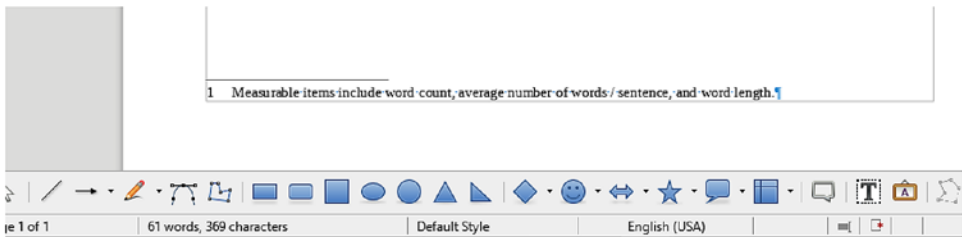***Figure 4-6.*** *Inserting a footnote*

Figure 4-7. *Footnote at the bottom of the page*

Adding Quotes: Styles and Custom Styles

Since you are writing a college paper, you need a few quotes. Not only do professors like quotes, but they let you reach your page count without having to write your own material. (To save time and effort, we will make up our own.)

According to the style guide supplied by the teacher, "Quotation paragraphs should be indented half an inch from the regular text on both the left and right sides. Text should appear in *italics*."

When you look through your list of styles, you won't see one labeled Quote. Selecting More Styles brings up the Styles and Formatting panel, as shown in Figure 4-8.
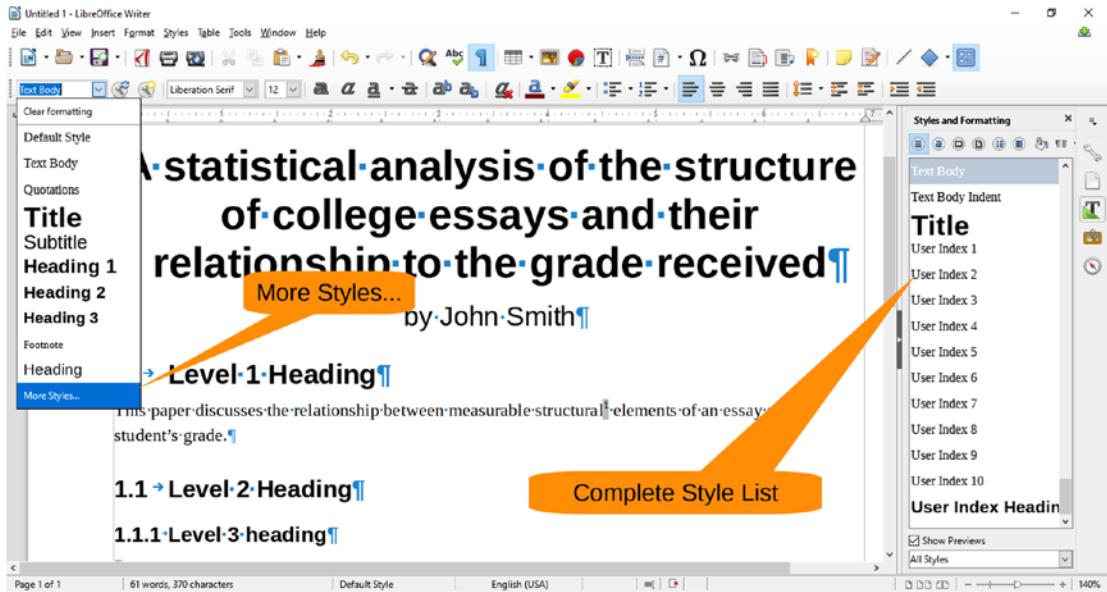
Figure 4-8. *More Styles option*

There is one labeled Quotations, but that indents the wrong amount and uses the wrong font. So, you'll have to make a quote style yourself.

Click the Properties icon (the wrench) to open the Properties panel. Then move the margins in 0.50" (on both sides) and make the font italic. Figure 4-9 shows you where the controls are.

Figure 4-9. *Adjusting the paragraph and font*

Now click the New Style icon and give your new style the name **Quote**. Figure 4-10 shows this process.

Figure 4-10. *New style*

Now you can type in the quote:

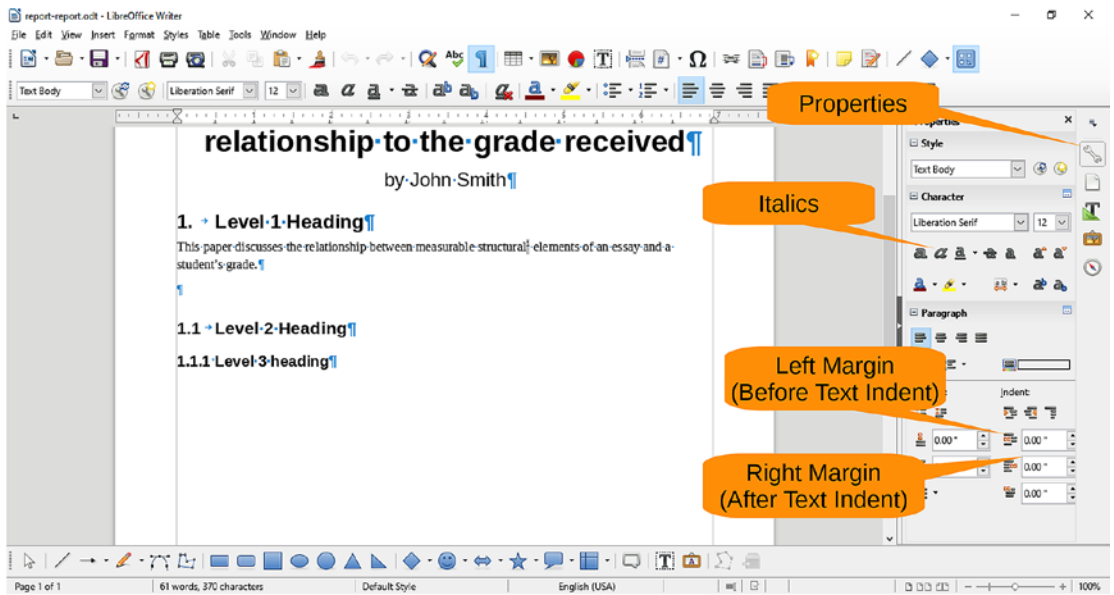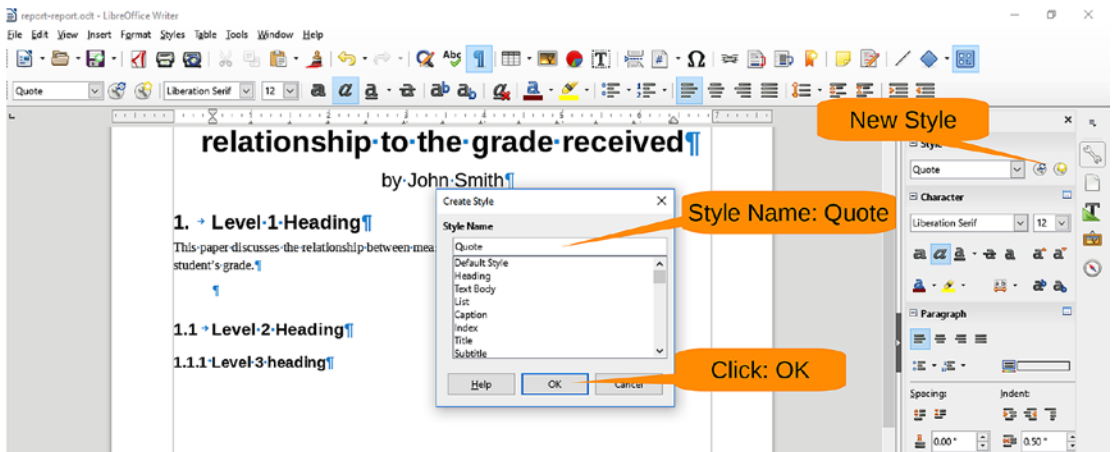> *Quotes are the key to writing an authoritative sounding paper. If other people reinforce your ideas then it makes it sound like you know what you are talking about.*

After entering the quote, you need an attribution line. Type **Steve Oualline** for the attribution and then click the Align Right icon to move the text to the right. Then click New Style and enter the name **Quote Who**. Figure 4-11 illustrates the basic steps.
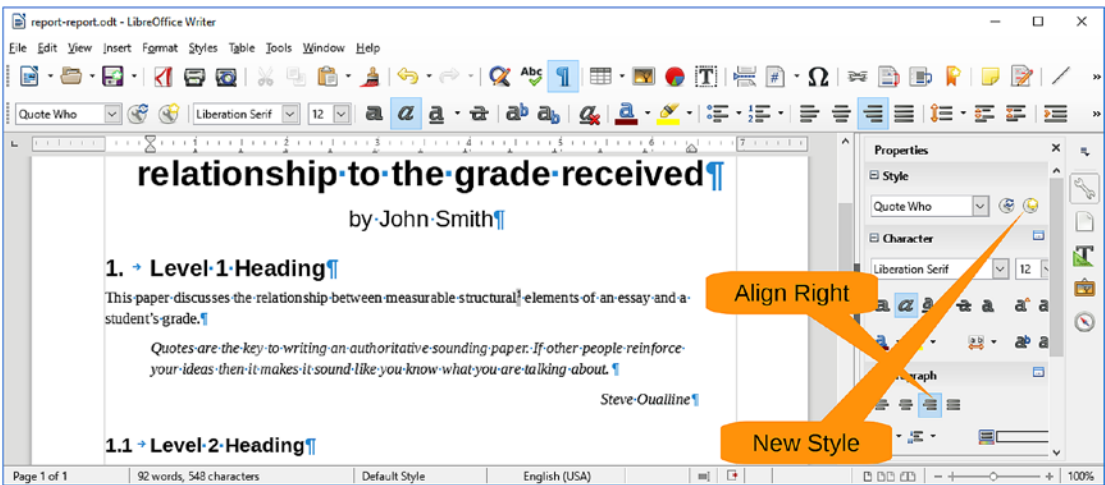
Figure 4-11. *Creating the Quote Who style*

By default, the next paragraph after a Quote Who paragraph is a Quote Who paragraph. Instead, you want it to be the Text Body style. Select Format ➤ Styles or press F11 to bring up the Style list. Locate the Quote Who style, right-click, and select Modify. Figure 4-12 shows the significant steps.
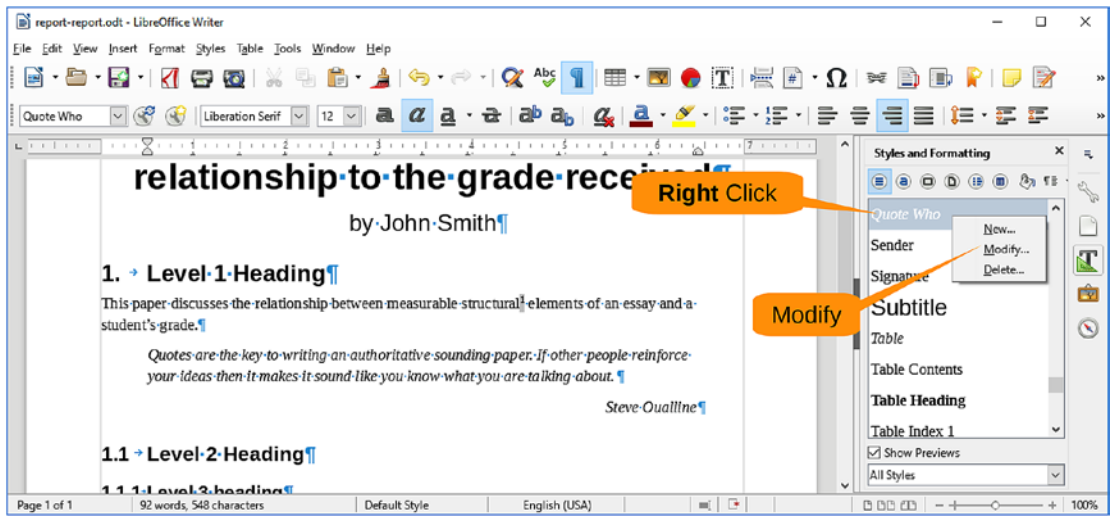
Figure 4-12. *Modifying the style*

The style modification dialog will appear. Click the Organizer tab. Then use the "Next style" pull-down to select Text Body (the default text format), as shown in Figure 4-13.
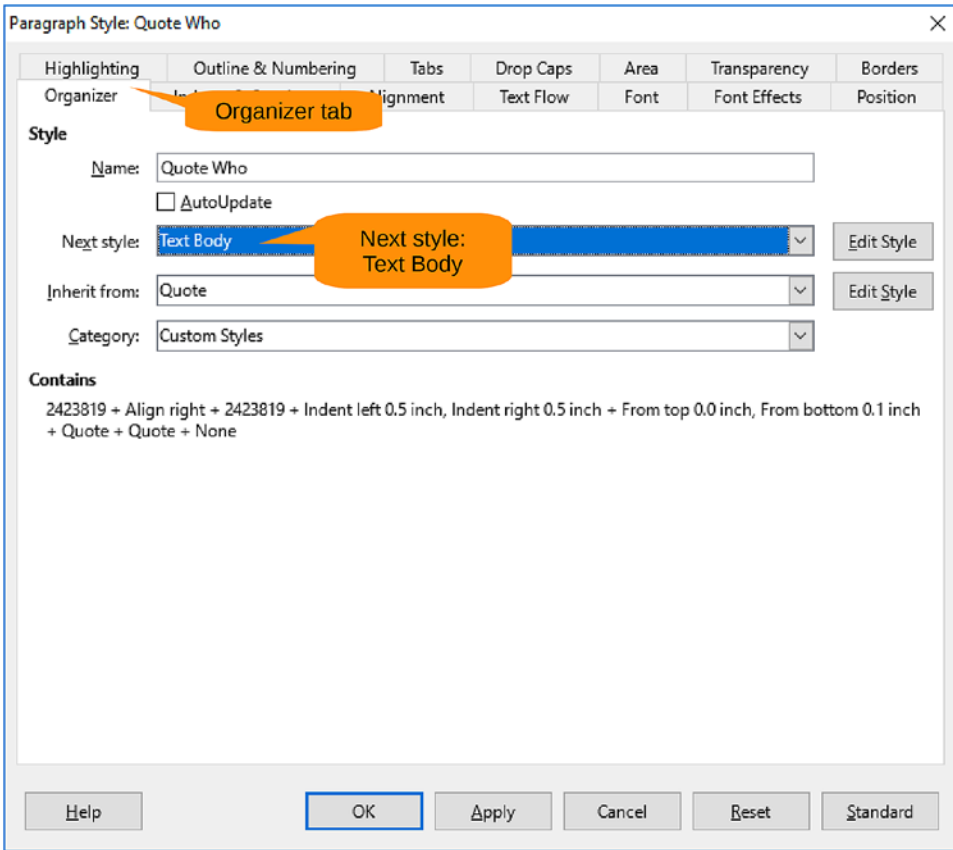
Figure 4-13. *Style modification*

Click OK to save your changes. Now when you press Enter after the Quote Who paragraph, the paragraph style will change to Text Body.

Adding End Notes

The quote needs a bibliography entry. That means an end note. Place the cursor just after the attribution, at the end of the line, and select Insert ➤ Footnote and Endnote ➤ Endnote. Figure 4-14 shows the operation.

Figure 4-14. *Inserting an end note*

The end note marker is inserted, and you are taken to the end of the document where you can enter your end note, as shown in Figure 4-15.

Figure 4-15. *Entering the end note*

Formatting Footnotes and Endnotes

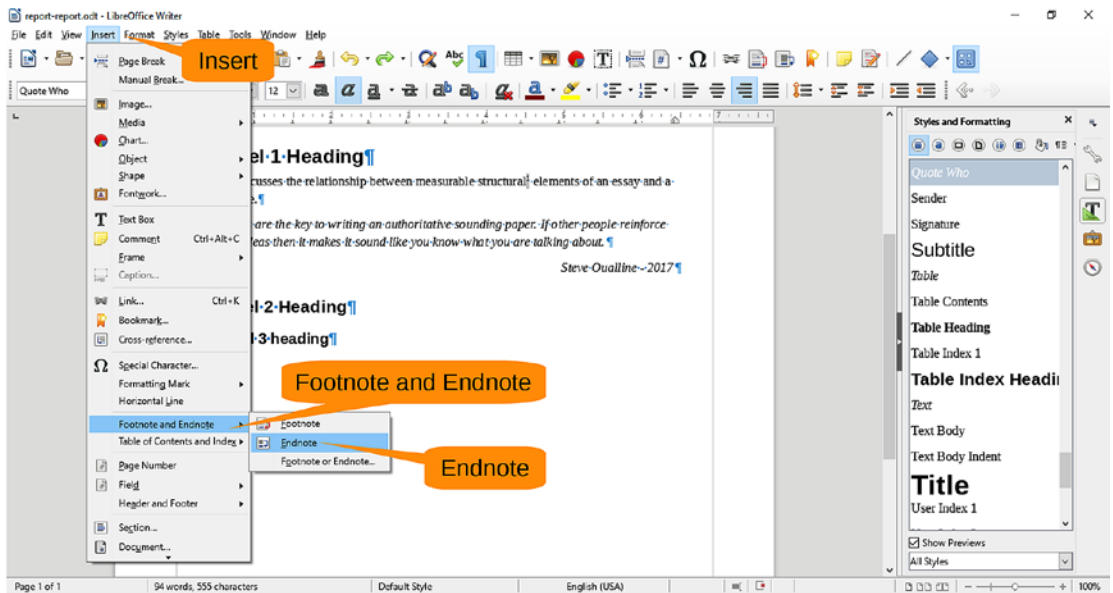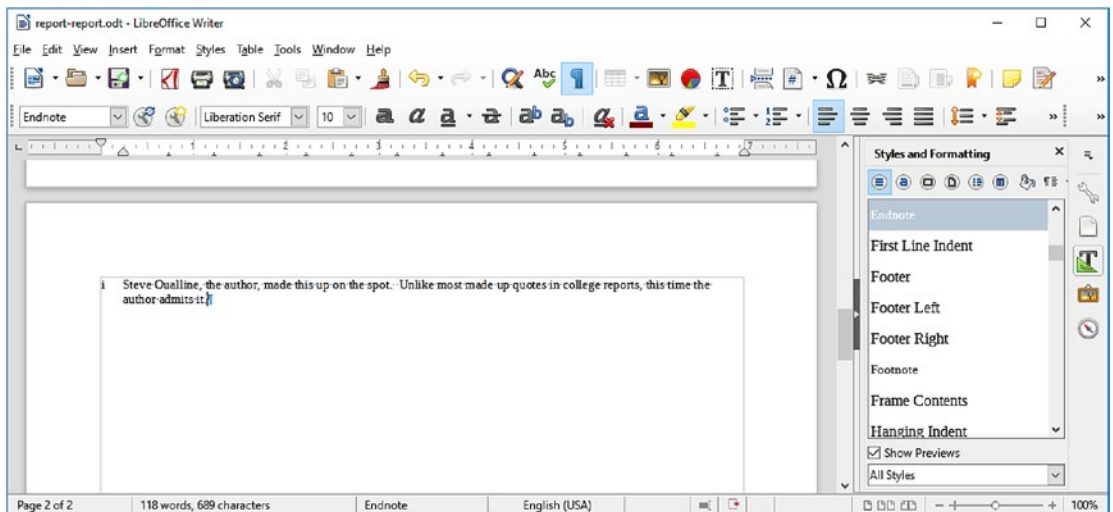You may have noticed that footnotes are numbered 1, 2, 3, …, and endnotes are numbered 1, 2, 3, …. This may lead to some confusion because you have a footnote numbered 1 and an endnote numbered 1 on the same page. You need to change the numbering of one of these items.

The Format menu item contains commands that format just about everything except footnotes and endnotes. To format them, you need to select Tools ➤ Footnotes and Endnotes, as shown in Figure 4-16.
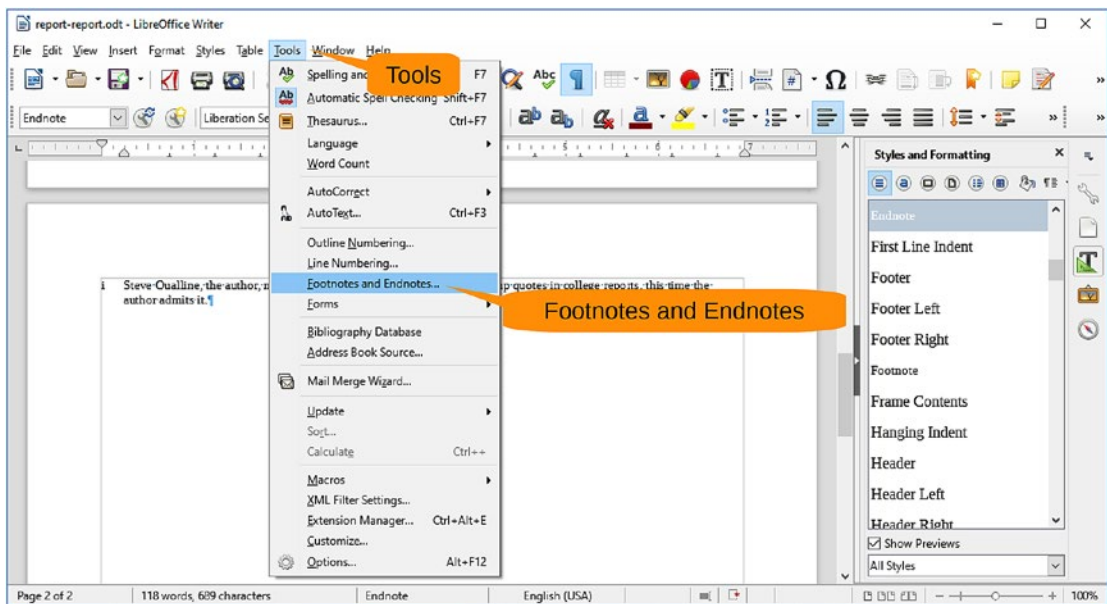

Figure 4-16. *Footnotes and Endnotes menu item*

This brings up a dialog that allows you to modify the way footnotes work. Click the Footnotes tab and then change Numbering to "a, b, c, …" and change Counting to "Per page," as demonstrated by Figure 4-17. Finally, click OK.
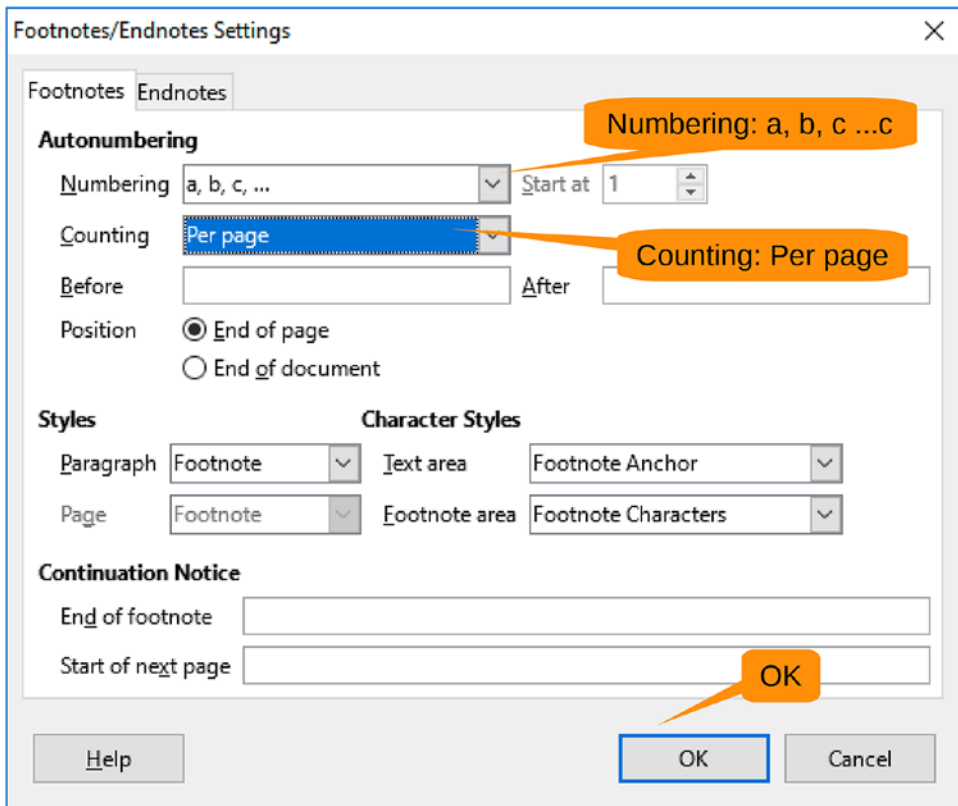
Figure 4-17. *Footnotes/Endnotes Settings dialog*

Now the footnotes and endnotes look different. And everyone can tell it's a great paper because you've got them both.

Adding Tables

Any good report should have a few tables. They are nice ways of presenting a lot of data in an organized format. They stand out in a report and tell your professor "Hey, this guy has got a lot of data," whether your data is useful or not.

To create a table, select Table ➤ Insert Table, as shown in Figure 4-18.
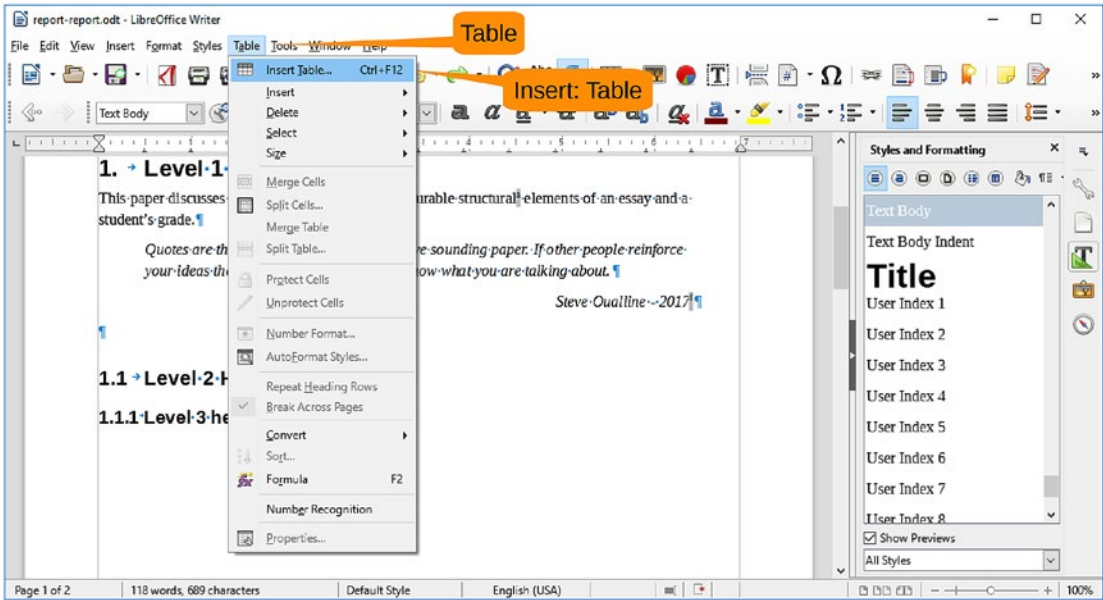
Figure 4-18. *Inserting a table*

The Insert Table dialog appears. Let's leave the defaults as they are. Specifically, you want to create a table with two rows and two columns. (You can adjust this later.) Click the Insert button to create the table, as shown in Figure 4-19.
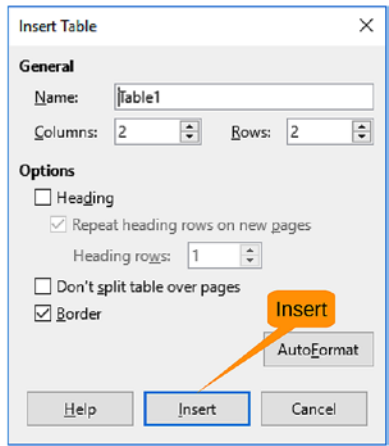
Figure 4-19. *Inserting a table*

Now let's enter some data. Specifically, type the following and press Tab (not Enter) after each line:

Length<tab>

Grade<tab>

24<tab>

A+

Note that after each Tab, you go to the next cell in the table. Figure 4-20 displays the results.
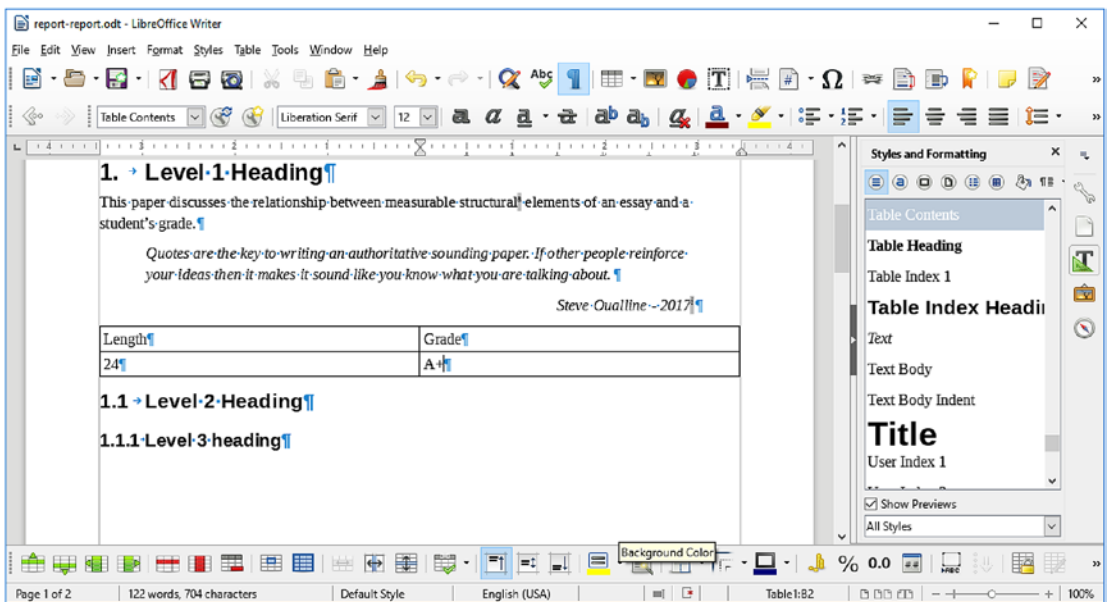
Figure 4-20. *Table entry*

Now let's press Tab again. A new row opens. Continue to enter data until the table looks like this:

Length	Grade
24	A+
19	A
18	B
16	C
9	F

The problem with this table is that you have a lot of white space. Let's fix that. First select the table by clicking Table ➤ Select ➤ Table, as demonstrated in Figure 4-21.

Figure 4-21. *Selecting a table*

Now let's adjust the column size with Table ➤ Size ➤ Optimal Column Width, as shown in Figure 4-22.
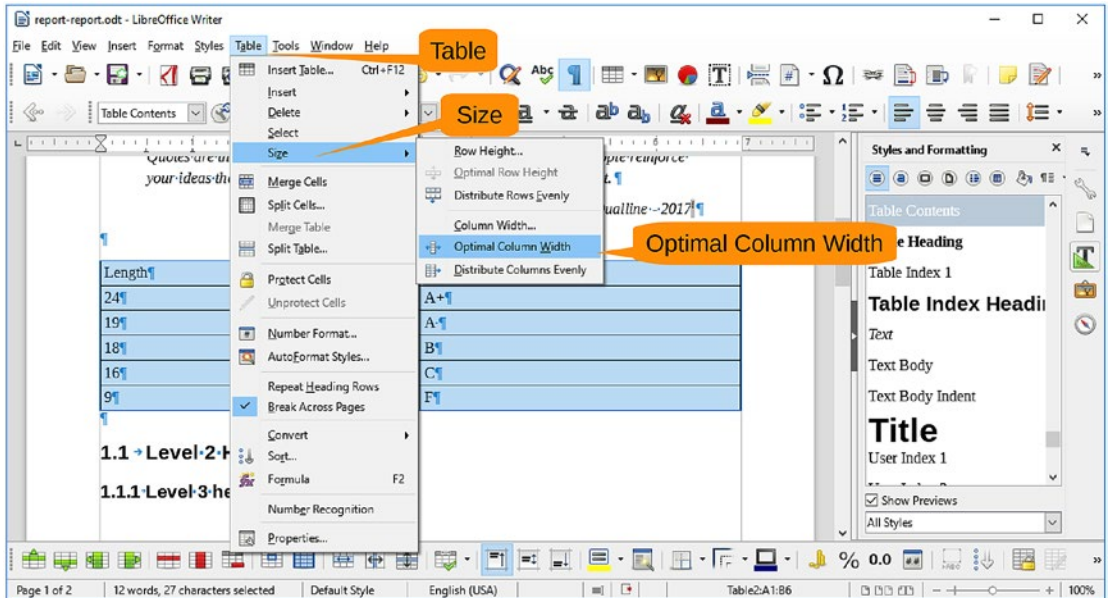
Figure 4-22. *Adjusting the column size*

The result is a much nicer-looking table (Figure 4-23).
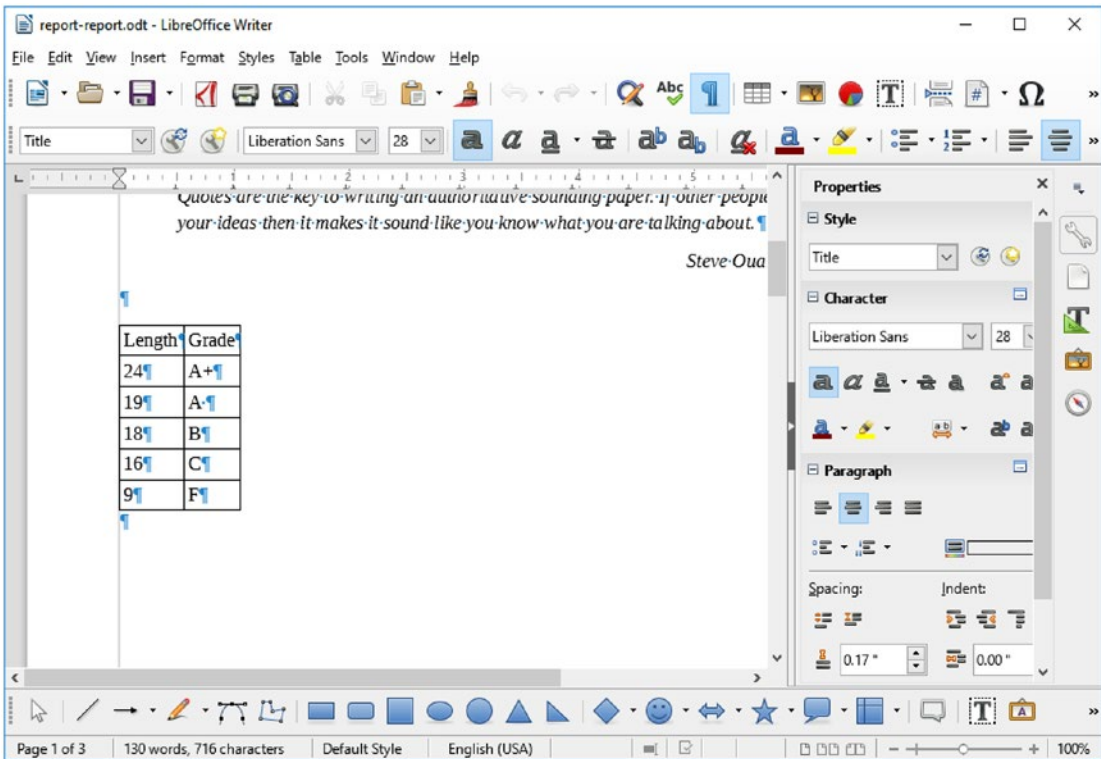
Figure 4-23. *Nice table*

Inserting Graphics

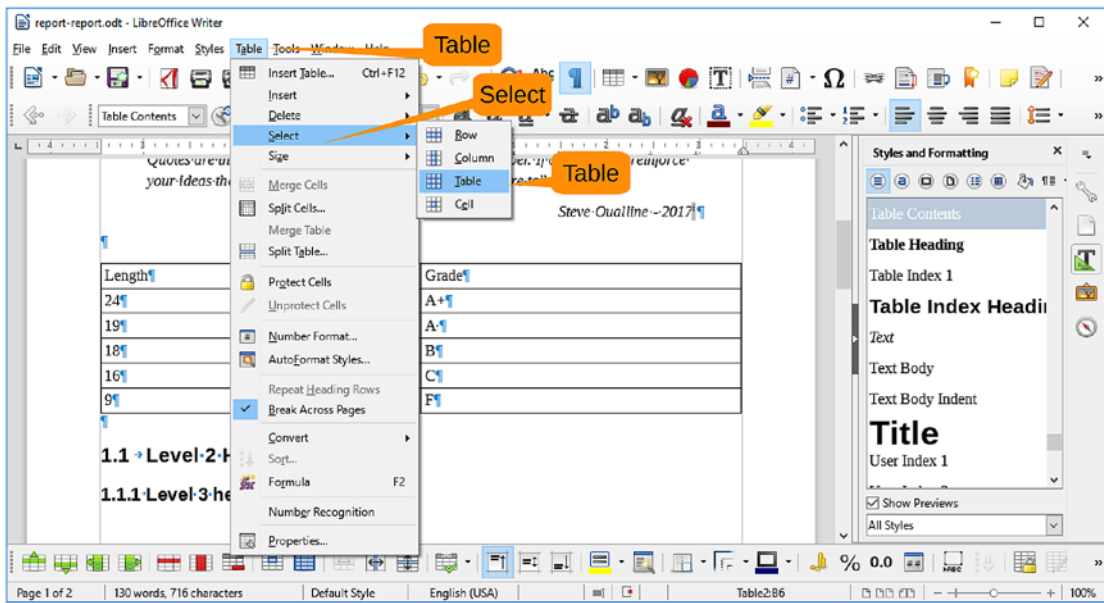Pictures are nice in reports because humans are graphical animals and respond to pictures better than words. Besides, graphics are an easy way of increasing the page count without having to write anything.

Let's start by adding a cute picture of a kitten to the paper. We're not sure how this fits into the theme of the subject, but a cute kitten can't hurt, so take a look at the one in Figure 4-24 that we've added to the report.
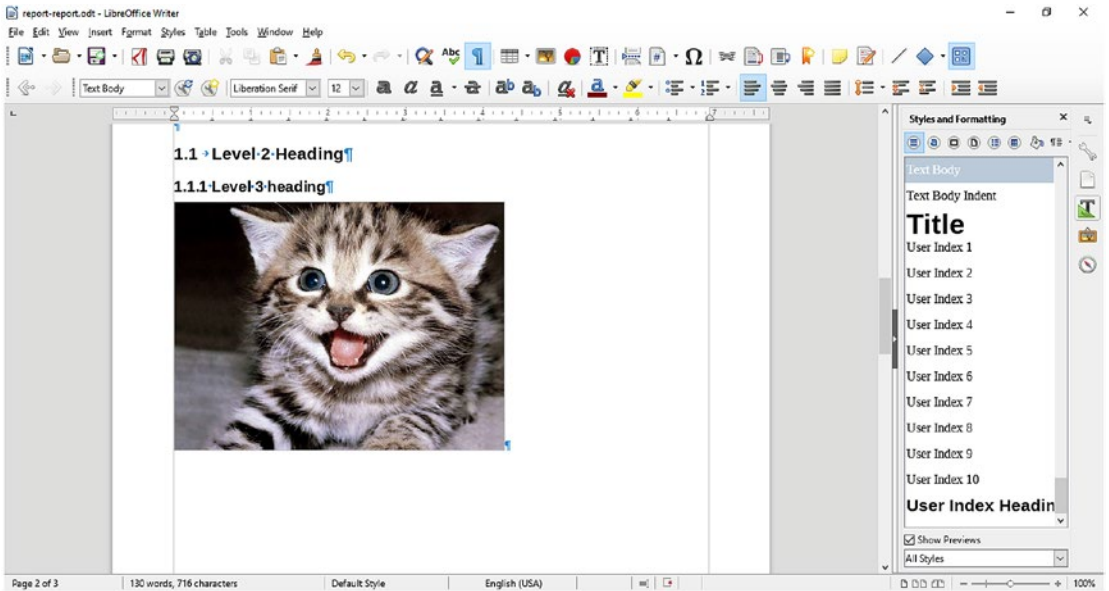
Figure 4-24. *A sneaky way of getting a cute kitten into the book*

To insert a figure into the report, copy it to the clipboard, click where you want the picture to be, and select Edit ➤ Paste. Then click the picture to select it, right-click, and select Anchor ➤ As Character. We covered this in Chapter 2 if you need a more visual explanation.

However, since this is a serious report and the people reading it might not understand what they are looking at, let's add a few graphics. First bring up the Drawing toolbar using the command View ➤ Toolbar ➤ Drawing, as shown in Figure 4-25.
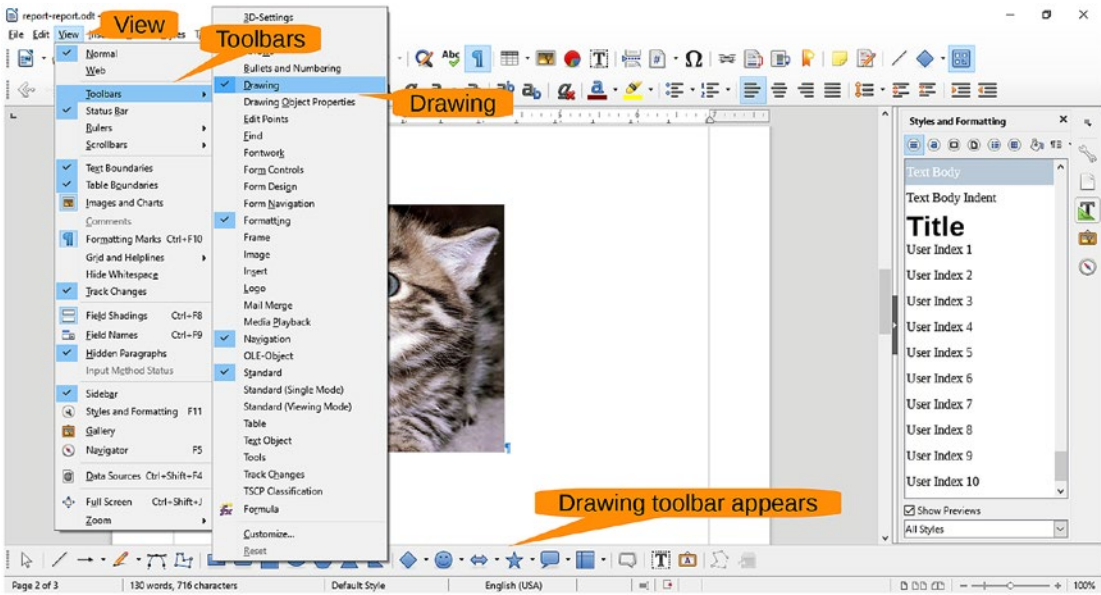
Figure 4-25. *Drawing toolbar*

Click the circle on the Drawing toolbar; then click the upper left of the cat's face and drag the cursor to the lower right. A circle will be generated covering up the cat's face, as illustrated by the ugly picture in Figure 4-26.
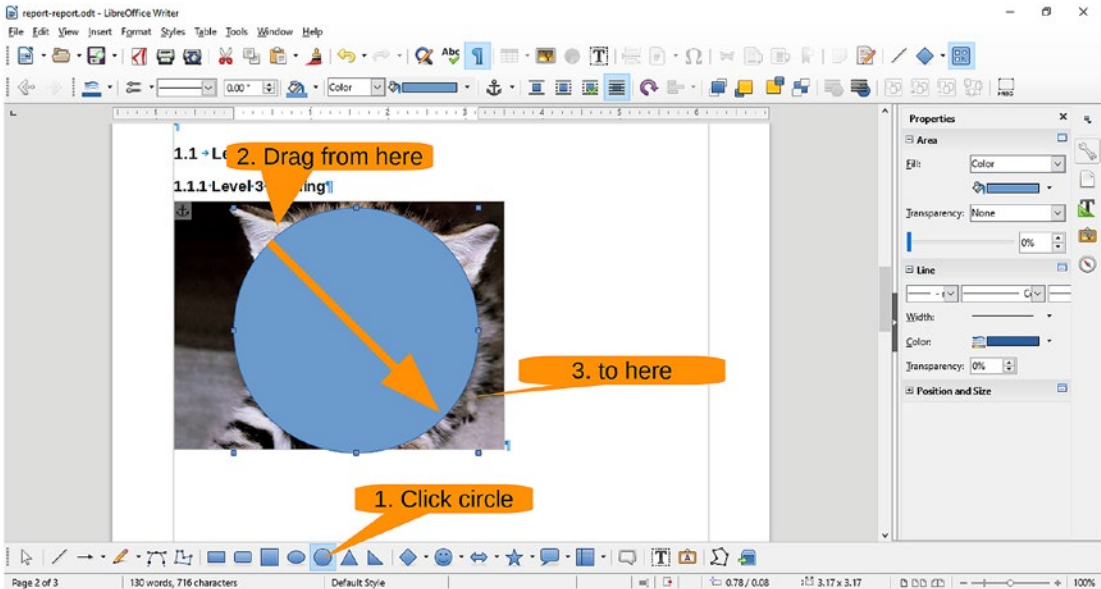
Figure 4-26. *Circle drawn*

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Now let's bring the kitten back. In the Properties panel, under Area, change Fill to None. Under Line, change Width to 2.3 and Color to a yellow. The result is a circle around a kitten's face, as shown in Figure 4-27.
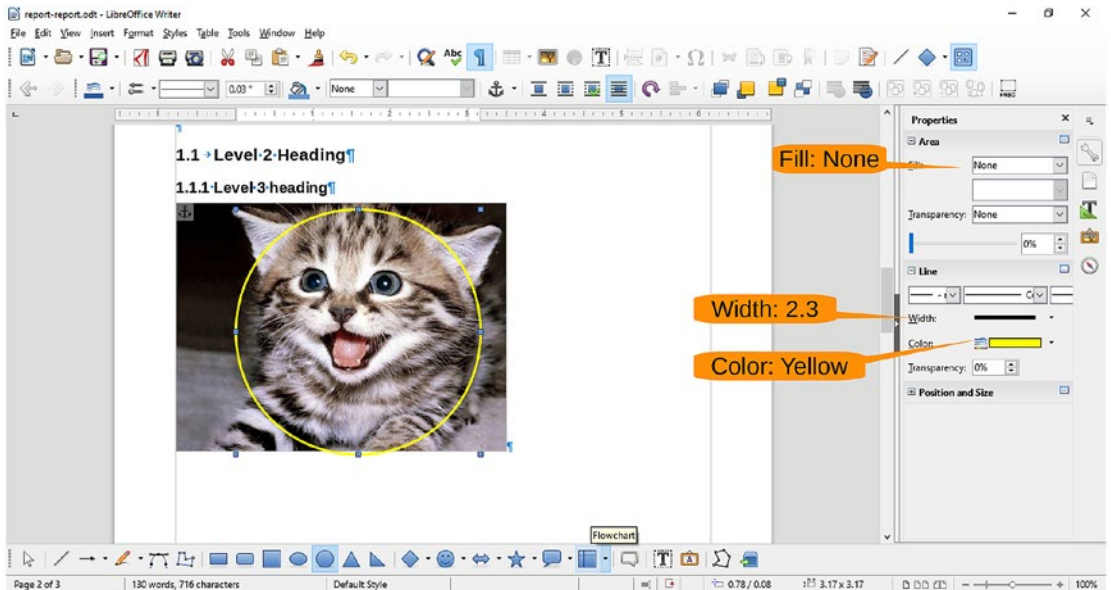
Figure 4-27. *Cat with circle*

Now let's click the Callout icon and draw a square to the right of the picture about a half-inch high and 2 inches wide, as shown in Figure 4-28.
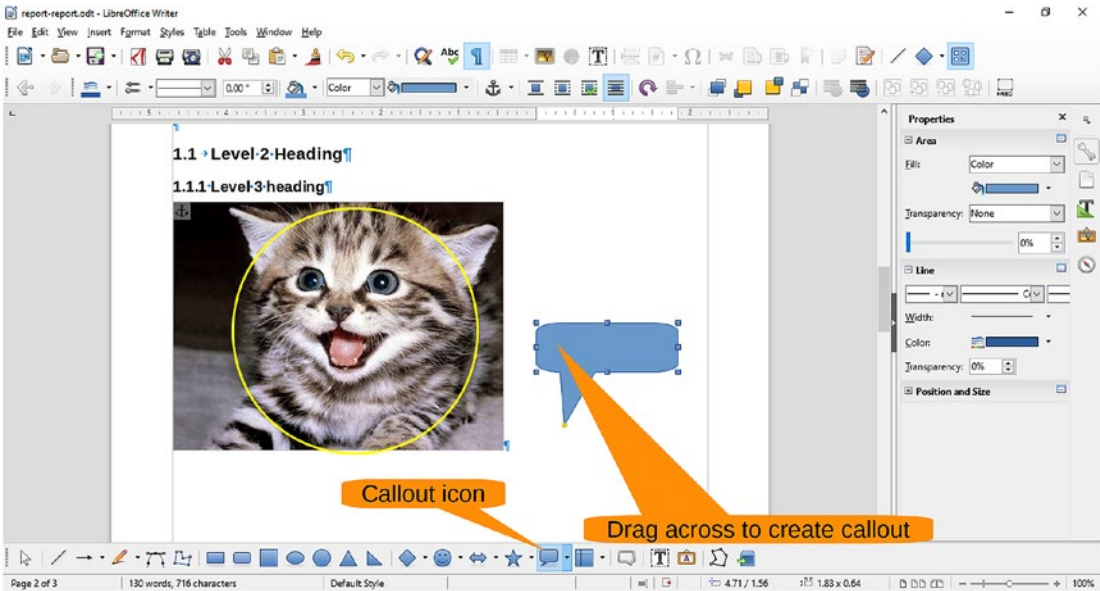
Figure 4-28. *Creating the callout*

Now drag the handle for the callout pointer (the little yellow dot) to the circle. Click the callout and enter the text **Cute Kitten**. Figure 4-29 shows the labeled kitten. Click outside the caption to stop editing it. Double-click it if you want to change the text.
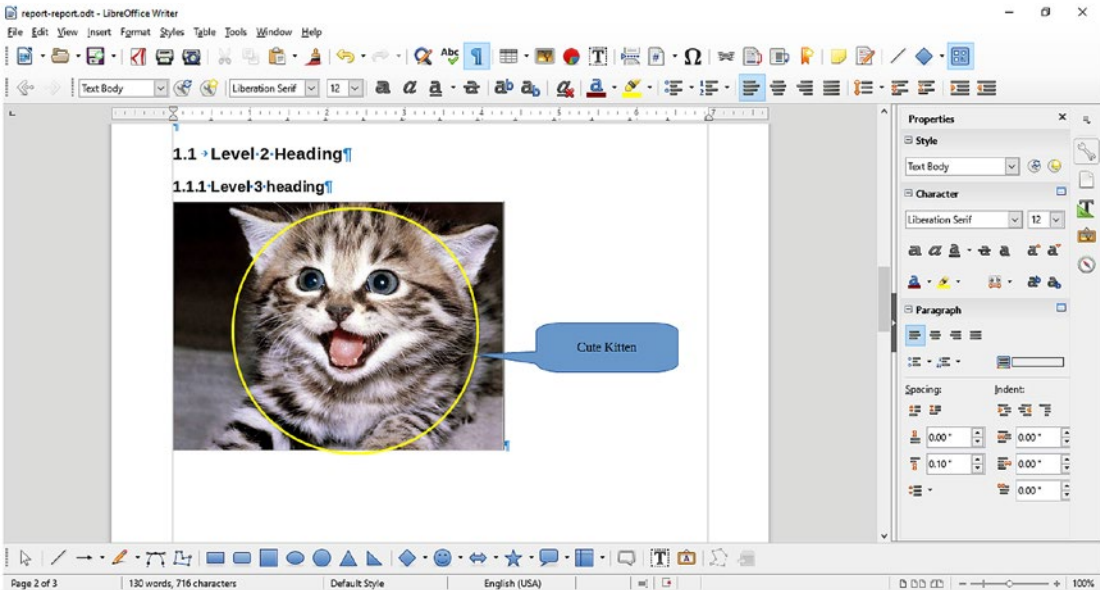
Figure 4-29. *Labeled kitten*

Summary

We've only touched on a fraction of the features available in LibreOffice yet you've been able to produce a report that pretty much has everything, including footnotes, endnotes, tables, custom paragraph styles, pictures, and graphics. About the only thing it doesn't have is any meaningful content. But as they say in college, "The proof is left to the student."

Working with Spreadsheets in LibreOffice Calc

In the 1970s a fellow by the name of Dan Bricklin was at Harvard watching a professor teach finance. The professor had written a grid of numbers on the blackboard and was explaining some sort of financial model. When he changed a number, he had to erase and recalculate all the numbers that depended on it.

Dan thought that it would be nice to write a program that did that automatically, and the first spreadsheet, called VisiCalc, was born. In 1979 it became available for the Apple II. It was an instant hit, causing some people to buy a $2,000 computer just to run a $100 copy of VisiCalc.

Since then, many people have copied the concept, and today spreadsheets are an essential business tool.

In this chapter, we will introduce you to the basics of LibreOffice Calc. You will learn how to do the following:

- Use basic spreadsheet functions

- Balance a checkbook

- Use multiple sheets

- Use more complex formulas to create a budget

- Use cut and paste to put a spreadsheet inside a text document to create an invoice

If you haven't done so already, download and install the LibreOffice program from www.libreoffice.org. During the installation, just select the defaults for each option.

Balancing Your Checkbook

You will start by balancing your checkbook. This is the process by which you write down all your withdrawals and deposits and add them up. Then you try to figure out why you think you have $83,237.92 in the account while your bank lists the balance as $0.98.

Start the program LibreOffice Calc, or start LibreOffice and select New ➤ Spreadsheet. You'll see a blank spreadsheet, as shown in Figure 5-1.
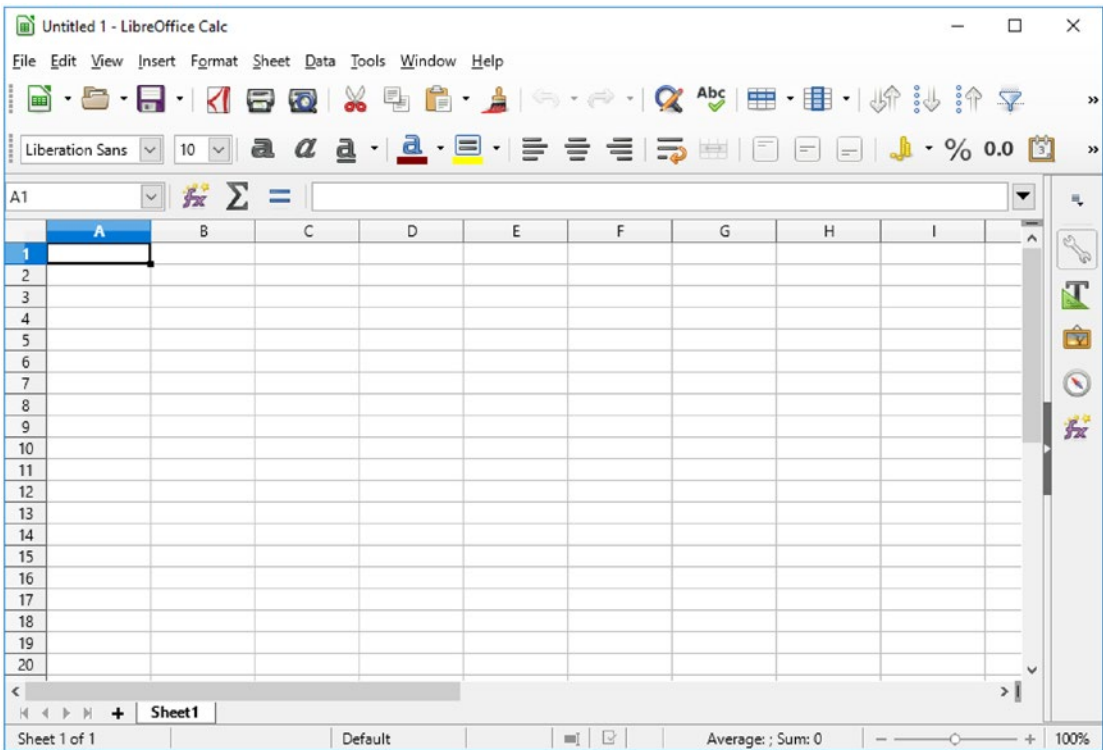

Figure 5-1. *Initial Calc screen*

You'll notice that the program displays a grid of cells. The first cell is A1 in the upper-left corner, and then going across, they are A2, A3, A4, and so on. This will be important later.

You will want a set of headings for your checkbook, so let's start by typing in the following:

Date

Check Number

Description

Amount

Balance

After each entry, press Tab. Do not press Enter. If you make a mistake, just click in middle of a cell to start over in that cell. The result should look something like Figure 5-2.
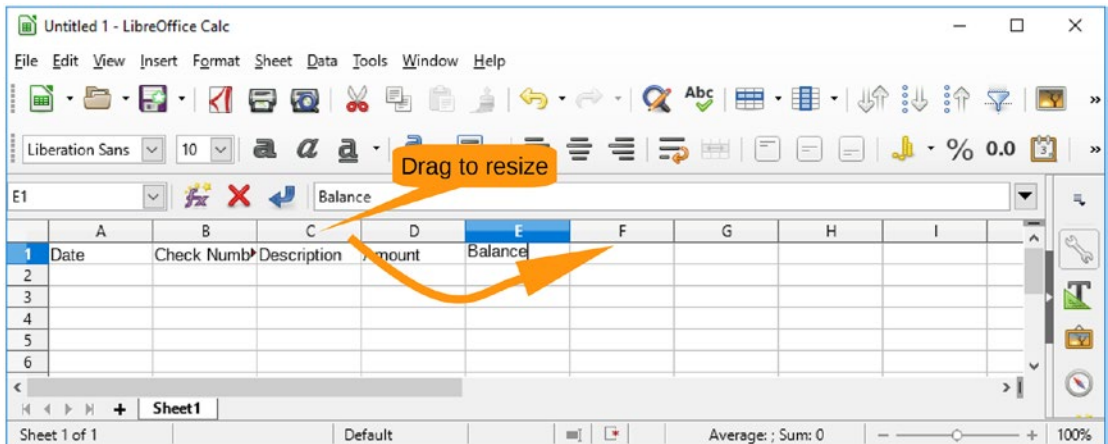

Figure 5-2. *Headings entered*

You'll notice that things are getting a little crowded, especially in the Check Number column. Let's spread things out a little. Place the cursor on the line between the C and D columns and drag the line to the right to give you more room for the description. Now do the same for the check number.
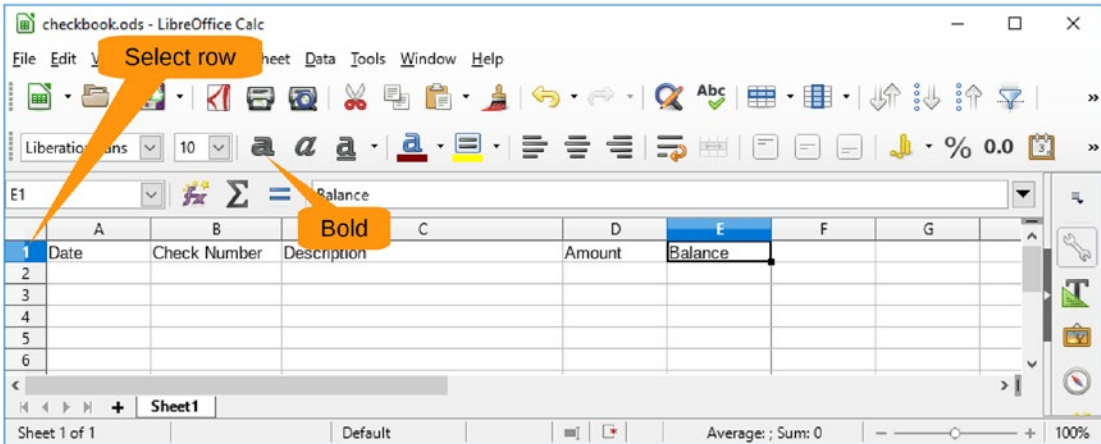
Figure 5-3 shows the result.

Figure 5-3. *Spreadsheet after column adjustments*

Now let's give the headings a little "oomph." Click 1 on the left side to select the row and click the Bold icon to turn the text bold. Figure 5-4 shows the nicer-looking headings.
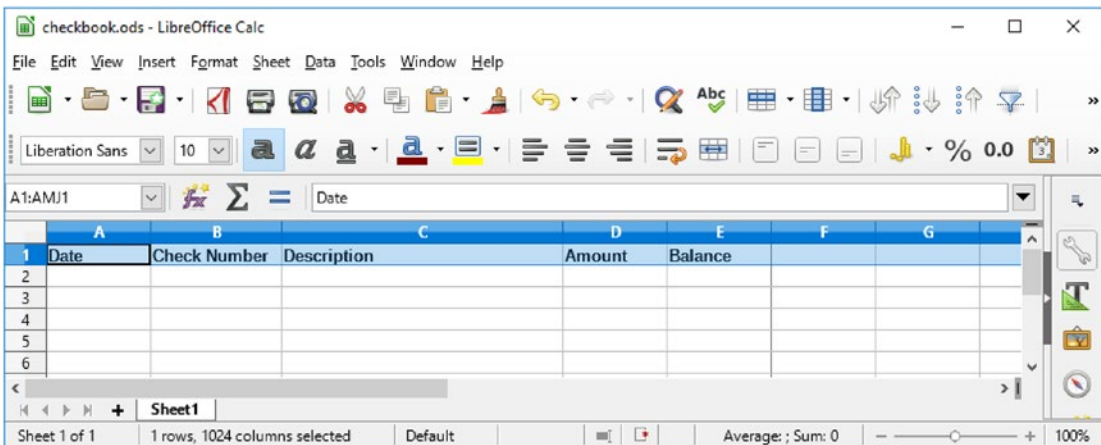

Figure 5-4. *Bold headings*

Next, let's enter some data. Click in C2 and enter **Initial balance**. Now go to E2 and enter what's in the bank, **1234.50**. As you can see in Figure 5-5, something does not look right in cell E2. You are missing the 0 at the end.
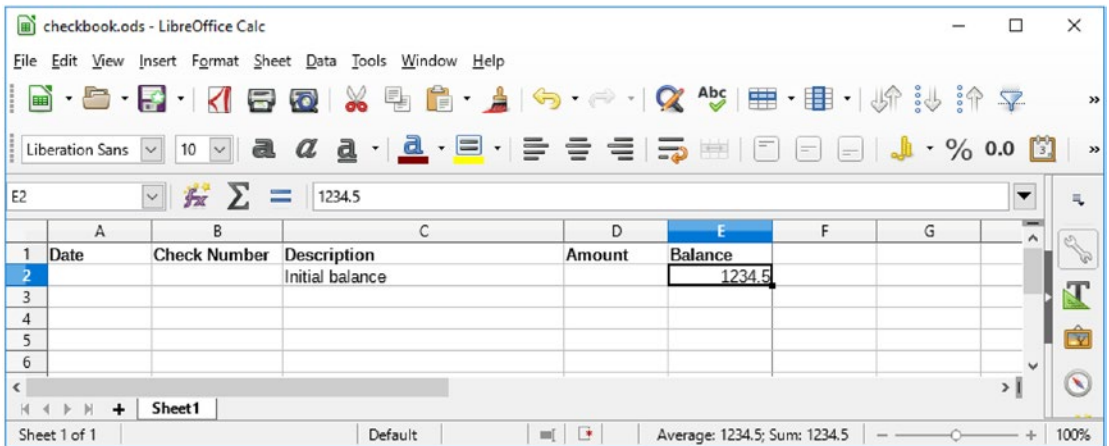
Figure 5-5. *Initial balance: funny money*

The program thinks you are dealing with simple numbers and is displaying .50 as .5. People usually want to use two decimal points when working with money, so you need to change the way Calc formats the cells. You will do this for both columns D and E since both contain money. Click the D in the column headings and then Shift+click E. Both should be selected, as shown in Figure 5-6.
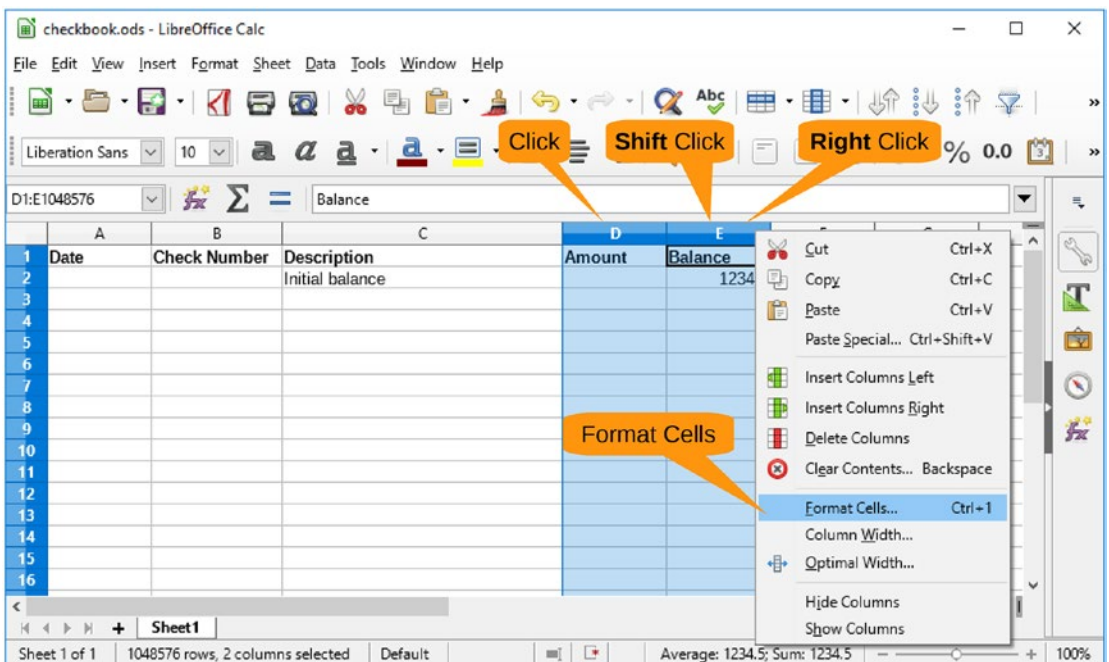

Figure 5-6. *Formatting the row*

Now right-click and select Format Cells.

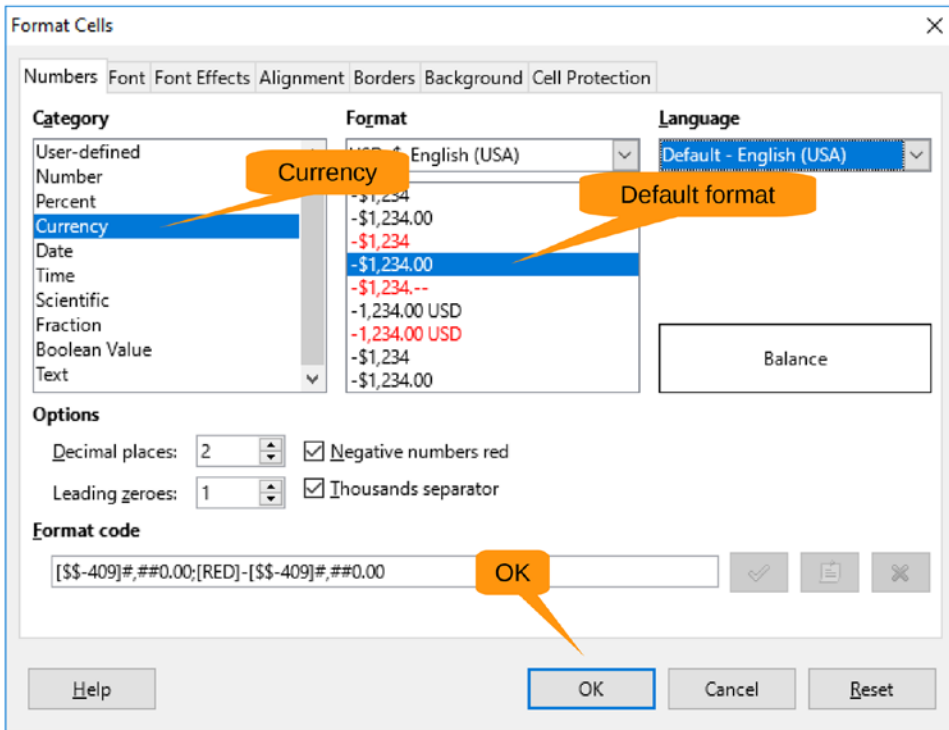This opens the Format Cells dialog, as shown in Figure 5-7.

Figure 5-7. *Formatting cells*

In the Category column, select Currency. The Format pull-down allows you to select different currency symbols. The default for this installation is the U.S. dollar ($), so leave that alone. (Your installation may have a different default depending on your Locale settings.) Let's keep the format simple, so select -$1,234.00. This displays the dollars and cents and uses a minus (-) sign to indicate negative.

Click OK to format the cells. Now let's enter some data, as shown here:

A3	1/1/2017
B3	0063
C3	Fred's Diner
D3	-4.75
E3	=E2+D3

Figure 5-8 shows the result after typing **=E2+D3** and just *before* pressing Enter.
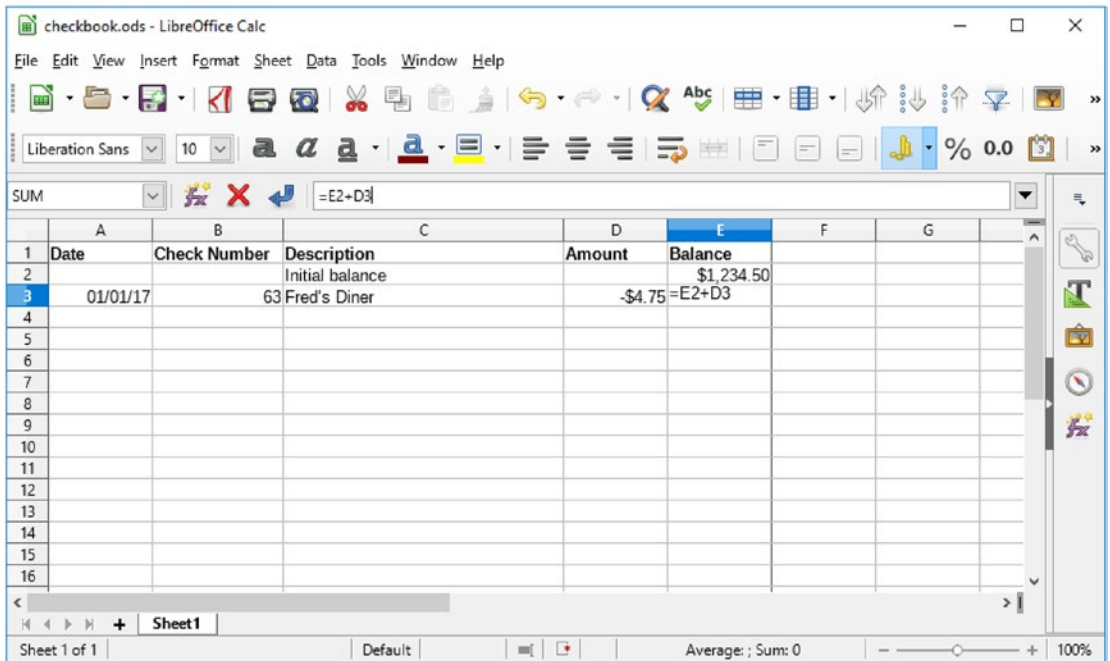

Figure 5-8. *Your first check*

Now press Enter to register the contents of your last cell. Notice that the contents change the value of the calculation. If you click the cell, you'll see the original formula in the input line at the top of the sheet.

You'll also notice that although you entered 1/1/2017, the spreadsheet reformatted it to 01/01/17. You can change this by changing the format of this column to another date format.

The check number 0063 got changed as well. Formatting won't help this problem. Instead, you need to tell LibreOffice that this text is *not* a number. Let's go back to that cell and enter a single quote mark (') and the number. This is what it looks like:

```
'0063
```

There are two key characters that LibreOffice Calc looks for at the beginning of any entry. The first is a single quote, which indicates text. The second is an equal (=) sign, which indicates a formula. Anything else causes LibreOffice to guess at the type of data that's being entered.

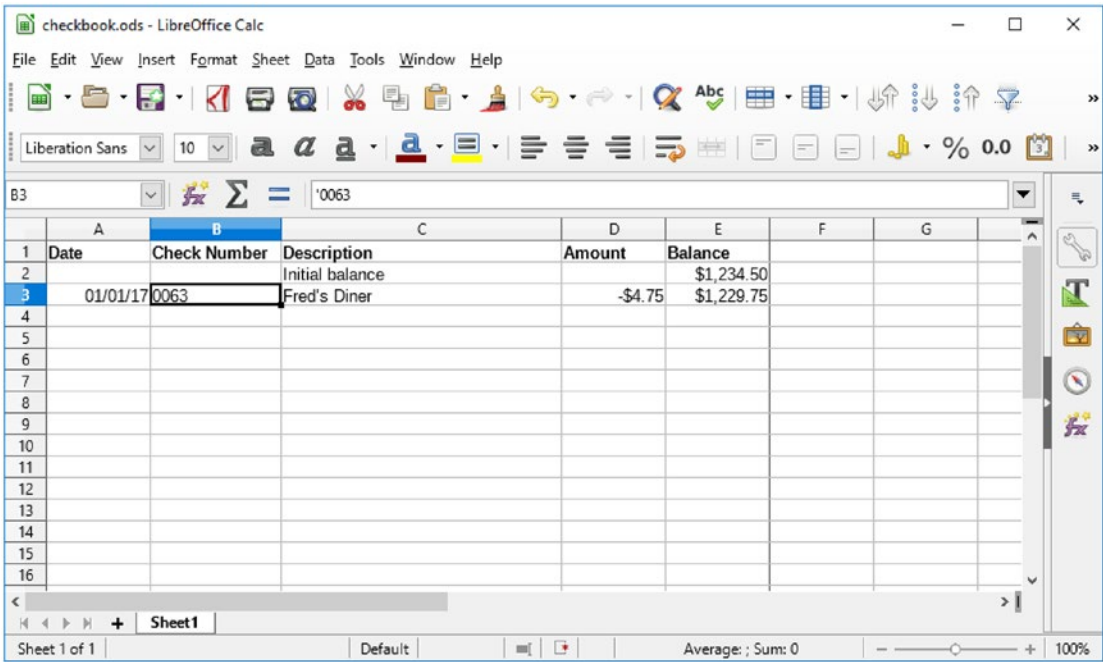Figure 5-9 shows the result of the fixes.

Figure 5-9. *Corrected entries*

Now's let's add a new check to the spreadsheet, as shown in Figure 5-10.
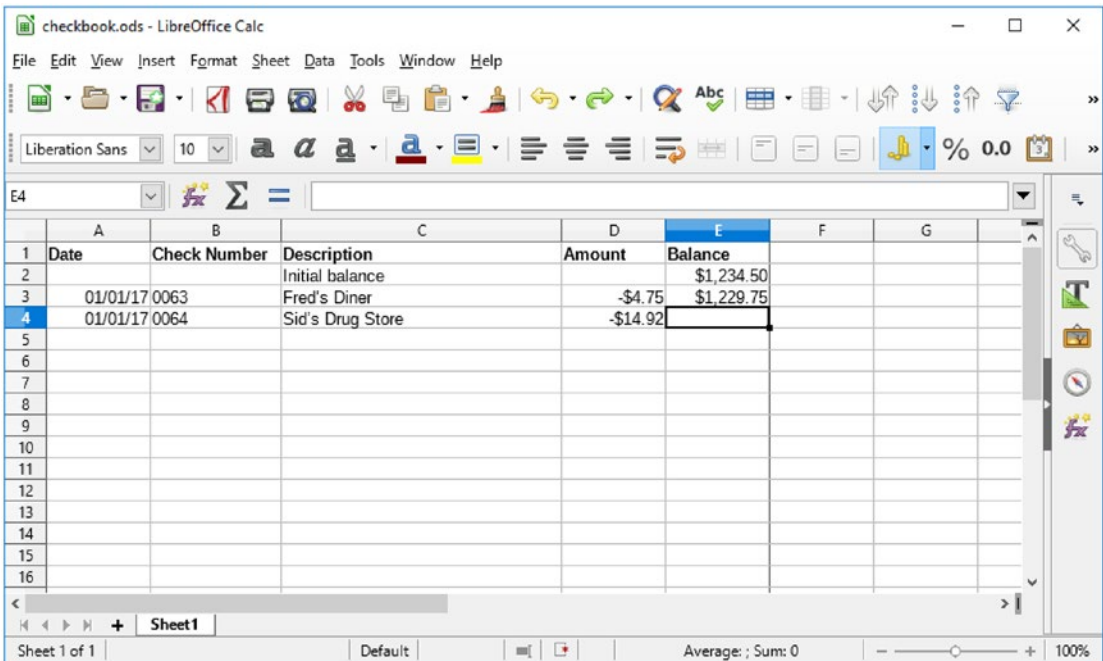

Figure 5-10. *Second check*

After entering the information shown in Figure 5-10, put the cursor in E3 and select Edit ➤ Copy. (Or press Ctrl+C.) Now put the cursor in E4 and select Edit ➤ Paste (or press Ctrl+V). The result is that a new balance is computed, as shown in Figure 5-11.
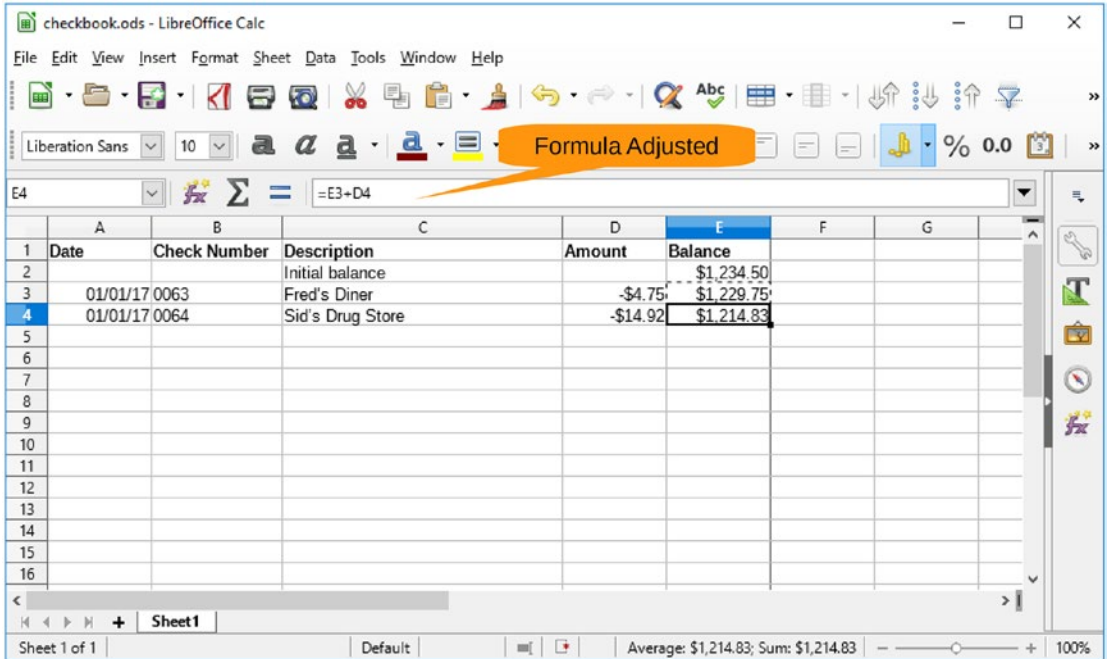

Figure 5-11. *New balance*

Notice that in the input bar the formula has been adjusted. Now all you have to do is repeat the process each time a check is written or a deposit is made, and you have yourself an automatic checkbook.

Creating a Double-Entry Checkbook

A classic ledger system has two entry columns, one for deposits and one for withdrawals. Let's change your checkbook spreadsheet to handle these two types of entries.

Let's start by adding a column for deposits. Right-click the Amount column and select Insert Column Left, as shown in Figure 5-12.
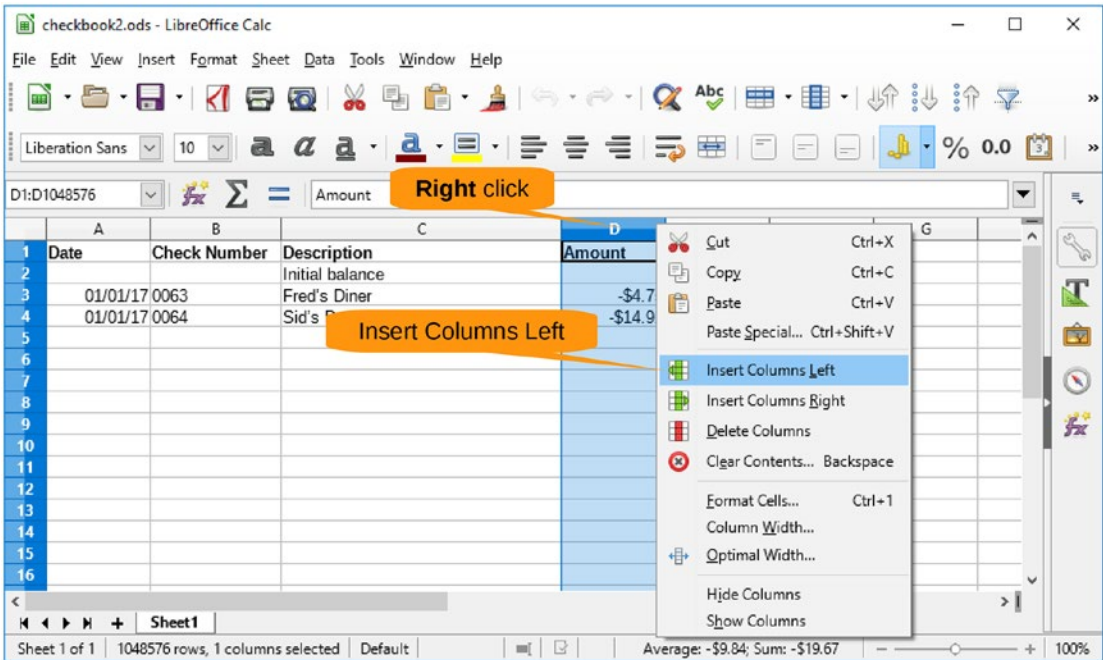
Figure 5-12. *Inserting a column for deposits*

Now you have a new column. Change the heading of the new column to **Deposit** and the old one, currently marked Amount, to **Withdrawal**. The result should look like Figure 5-13.

Figure 5-13. *New column headings*

Change the format of the new column (Deposit) to money like you did with the other money columns.

Change the amounts in cells E3 and E4 to positive numbers. Specifically, change the formula in cell F3 to F2+D3-E3. In other words, the new balance (the current cell) equals the old balance (F2) + deposits (D3) – withdrawals (E3). Then copy the formula from F3 to F4.

Now let's add a new line to the bottom because you just got a check in from your employer. For the date, let's use 1/5/17. For the description, enter **Pay** and put **1000** in the Deposit column. Copy cell F4 and paste it into F5 to complete the line, and you get the spreadsheet in Figure 5-14.
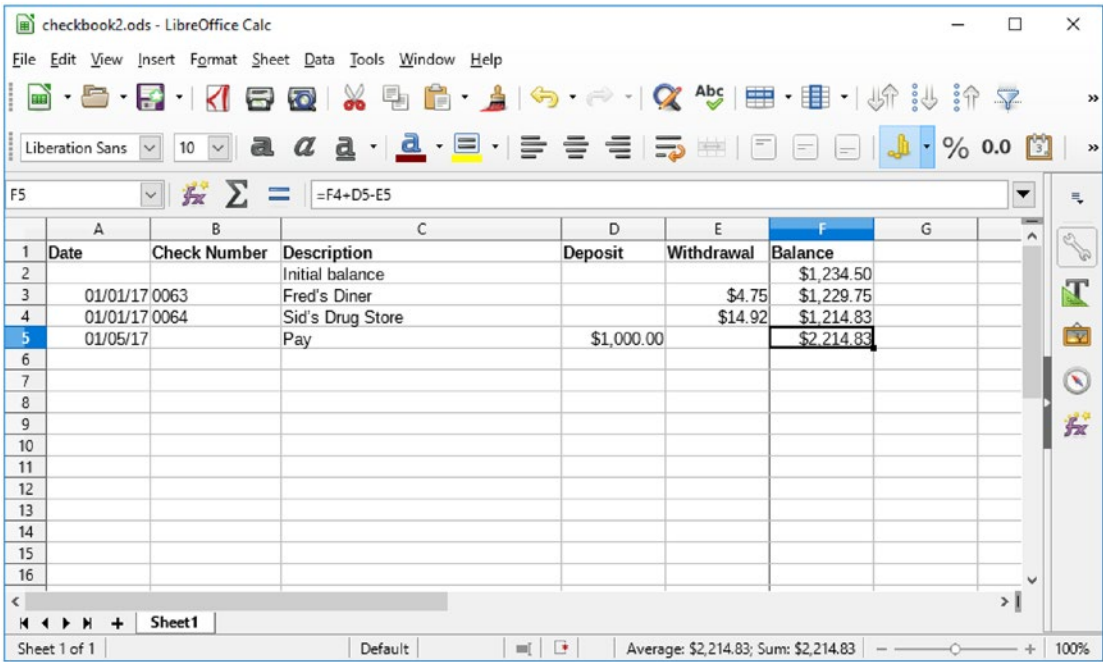
Figure 5-14. *Completed checkbook spreadsheet*

Creating a Budget

In this section, you'll create a simple budget in a spreadsheet. Actually, you will make an over-simplified budget. A full budget is a wonderfully complex thing that covers everything you could possibly spend money on. In this section, we'll show you the concepts needed to make a budget and leave the details to you and whatever financial advice you can find through Google.

The basic idea of a budget is to show what income you have and what you are spending your money on. Ideally, the former is bigger than the latter. If not, you use the budget to make adjustments.

Creating a Basic Budget

Let's start by creating a spreadsheet with some basic information in it. On the left you will have income. On the right you will have spending with some basic entries. Your basic spreadsheet will look like Figure 5-15.

Figure 5-15. *Basic budget*

Note   At this time, we have not filled in any of the cells containing formulas.

Let's start by cleaning up the headings. The Income section covers columns A and B. Let's get the heading to cover these columns as well. First click cell A1, then Shift+click A2, and finally select Merge Cells, as shown in Figure 5-16.
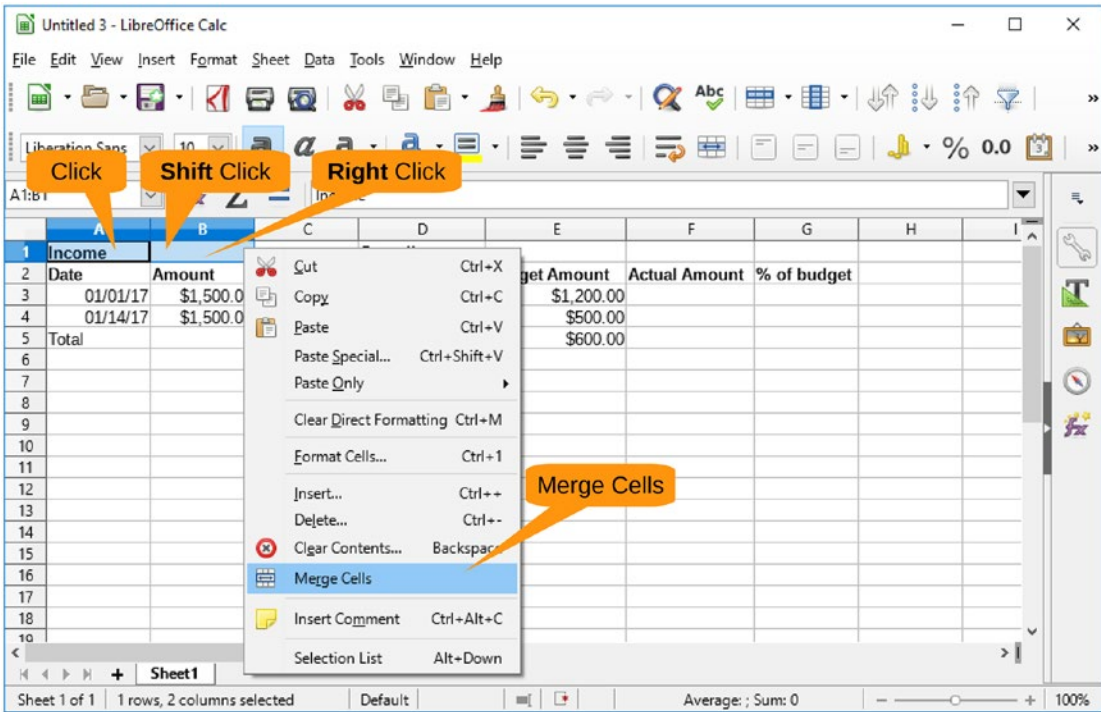
Figure 5-16. *Merging cells*

Let's center the text by clicking cell A1 (or should we call it AB1?) and clicking the Center icon in the toolbar.

Now let's do the same thing to the Spending cell. Click D1, Shift+click G1, right-click, and select Merge Cells. Now center this text.

While you are at it, let's change the background to light yellow to make the section headings stand out. You can do this by clicking the Background Color icon. You now have a spreadsheet that looks something like Figure 5-17.
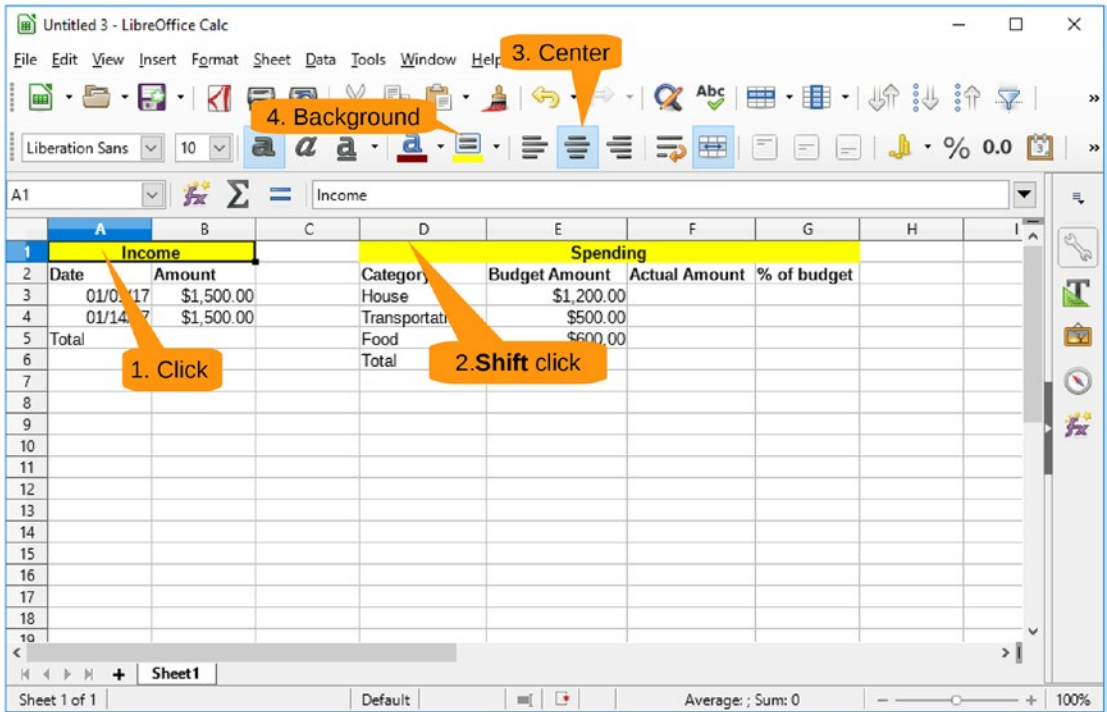
Figure 5-17. *Spreadsheet with headings*

Computing Totals

It's time to compute some totals. You can get the total income by clicking cell B5 and clicking the Sum icon on the toolbar. LibreOffice will make an intelligent guess at what you want to add up. In this case, it thinks you want to add the column starting with B3 and ending with B4, so it fills in the formula as =SUM(B3:B4). It also draws a line around the cells it is going to sum up to give you a visual indication of what's happening, as shown in Figure 5-18.
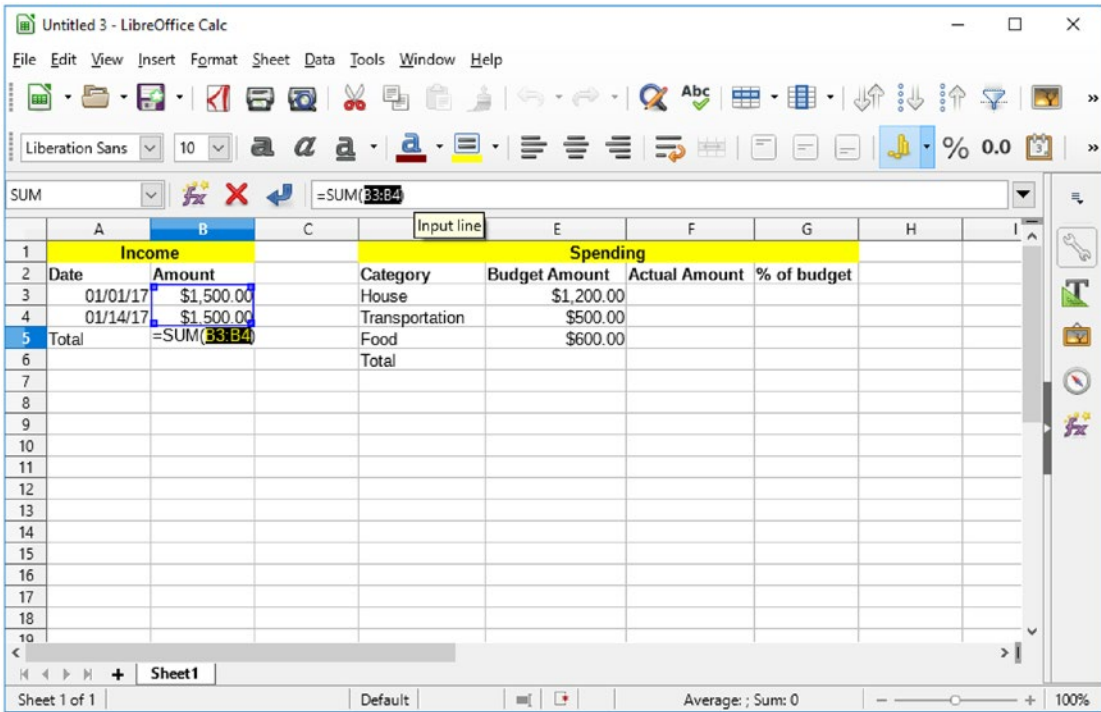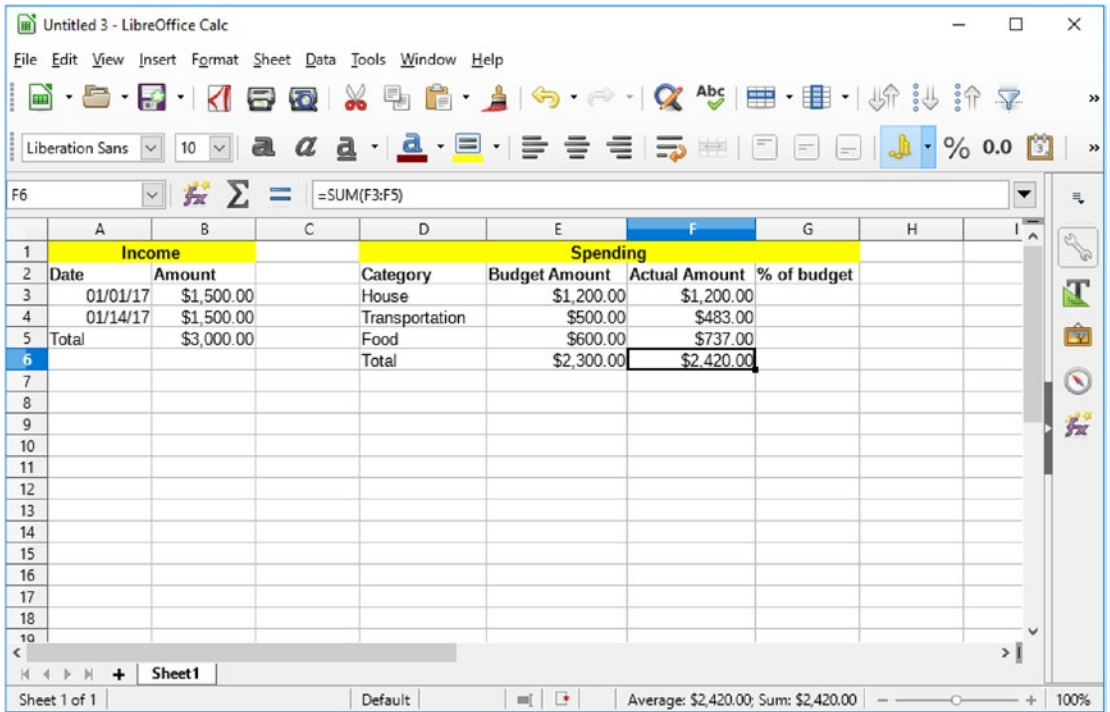
Figure 5-18. *Summing up*

Press Enter to accept this guess.

Now let's add sums to the spending columns (actual and budgeted). Figure 5-19 shows the result that includes the entry of some actual numbers.

Figure 5-19.   Budget with totals

Now let's see how well you stuck to your budget. Click cell G3 and enter the formula for the percent spent. That is, enter **=E3/D3**. The answer is 1. But you want a percentage. So, click the G3 cell to select it again, and click the "percent" symbol to turn the number into a percentage (100%), as shown in Figure 5-20.
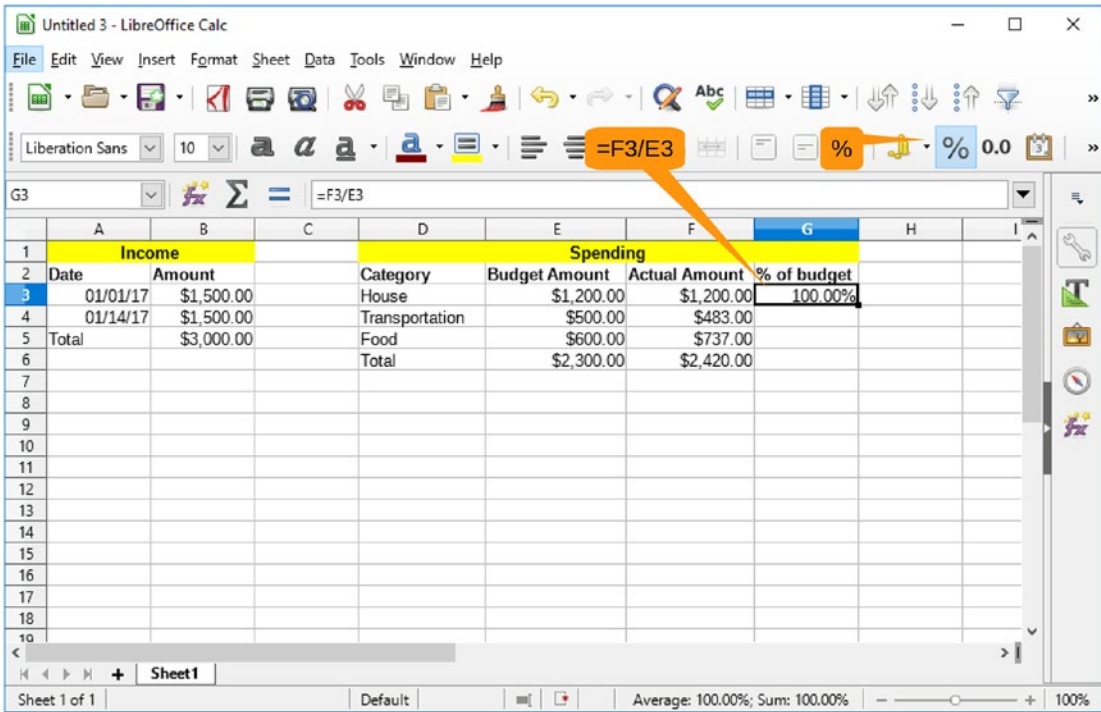
Figure 5-20. *Percentage*

Copy and paste the formula from G3 into G4, G5, and G6. Uh-oh, you're over budget. Figure 5-21 shows the damage.

Figure 5-21. *Final single-month budget*

It looks like one problem area is food, so to meet your budget for next month, all you have to do is stop eating…or maybe stop eating out so much.

So far, we've covered just the month of January. What about next month and beyond? Let's work on it.

Setting Up Multiple Sheets

Spreadsheets have a concept of multiple pages or sheets. So far, you have only one sheet, called imaginatively Sheet1. Let's rename it to Jan17 and then copy it to a Feb17 sheet.

Right-click the sheet tab and select Rename Sheet, as demonstrated in Figure 5-22.
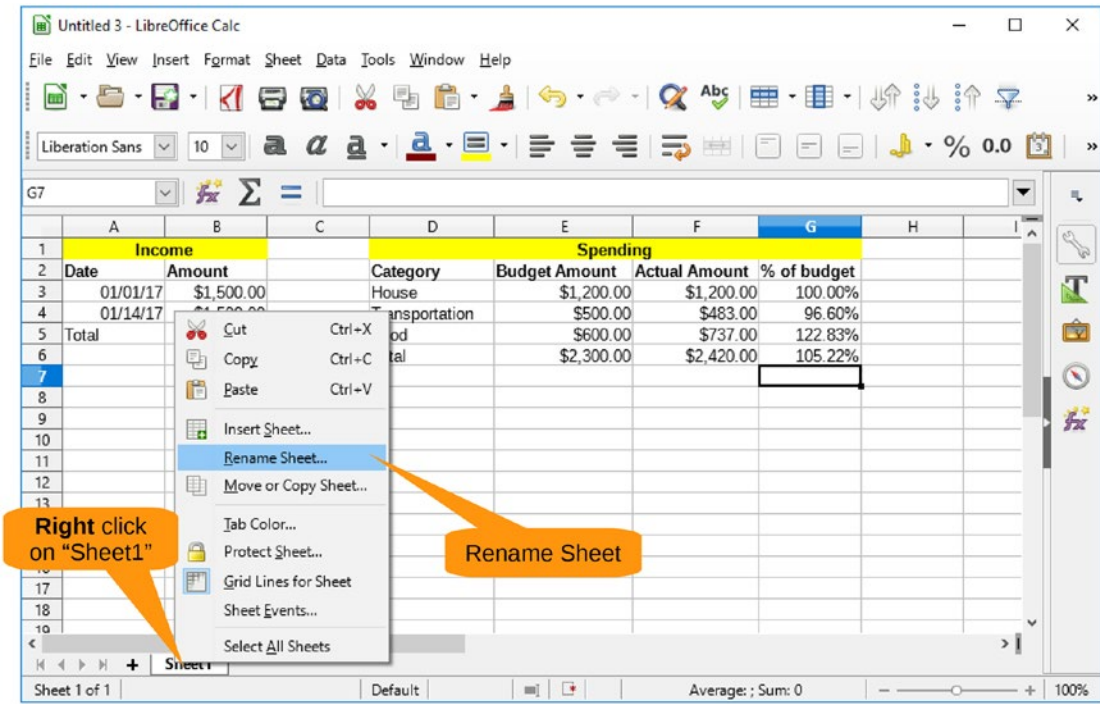
Figure 5-22. *Renaming a sheet*

The Rename Sheet dialog appears, as shown in Figure 5-23. Enter **Jan17** and click OK to rename the sheet.
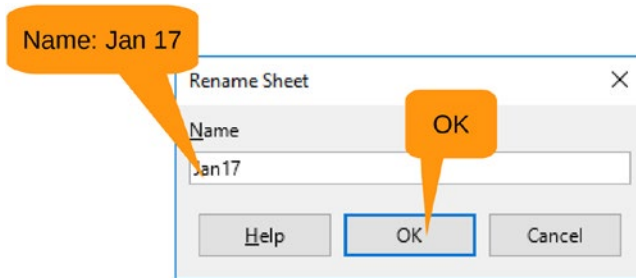
Figure 5-23. *Rename Sheet dialog*

Notice that the sheet name on the bottom tab is different. Now right-click the tab again, and as shown in Figure 5-24, select Move or Copy Sheet.
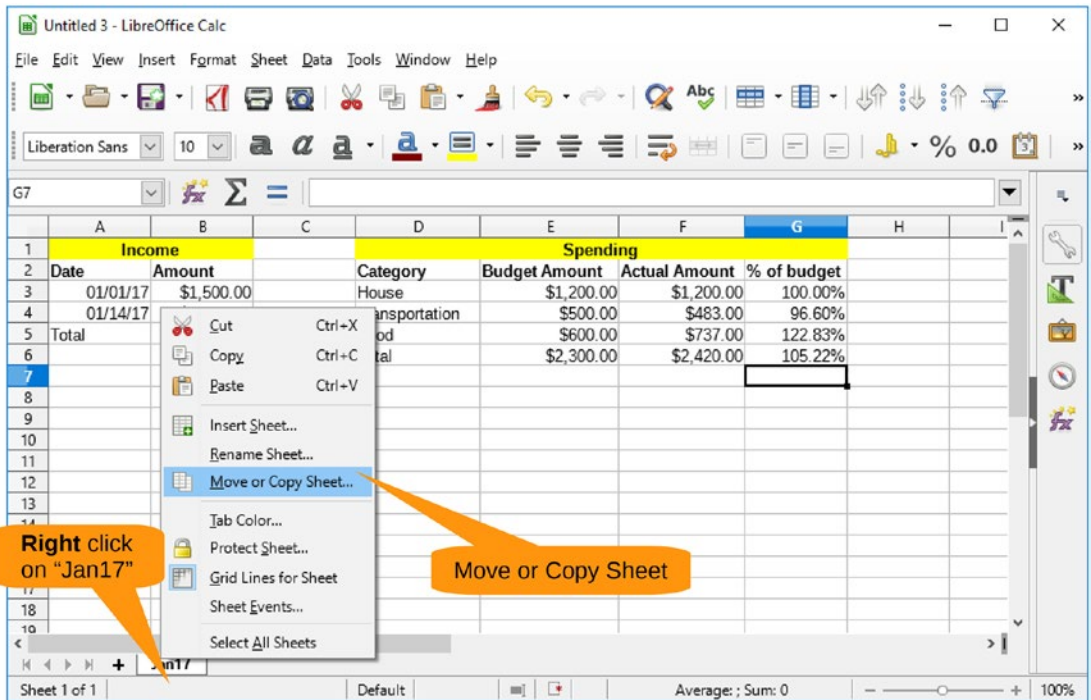
Figure 5-24. *Getting ready to copy the sheet*

The Move/Copy Sheet dialog appears, as shown in Figure 5-25. In this case, Copy is already selected for you. (It's hard to change the sheet order in a one-sheet spreadsheet, so the Copy choice is forced upon you.) The document you want to copy into is the current document, so do not change the "To document" setting. Leave the "Insert before" setting at Jan17. You always want your newest budget to appear on top. Change the name to **Feb17** and click OK.

Figure 5-25. *Move/Copy Sheet dialog*

The new sheet, Feb17, appears on top. Now let's fill in the numbers for February. Since it is a short month, you spent less, so you can be proud of the numbers in Figure 5-26.
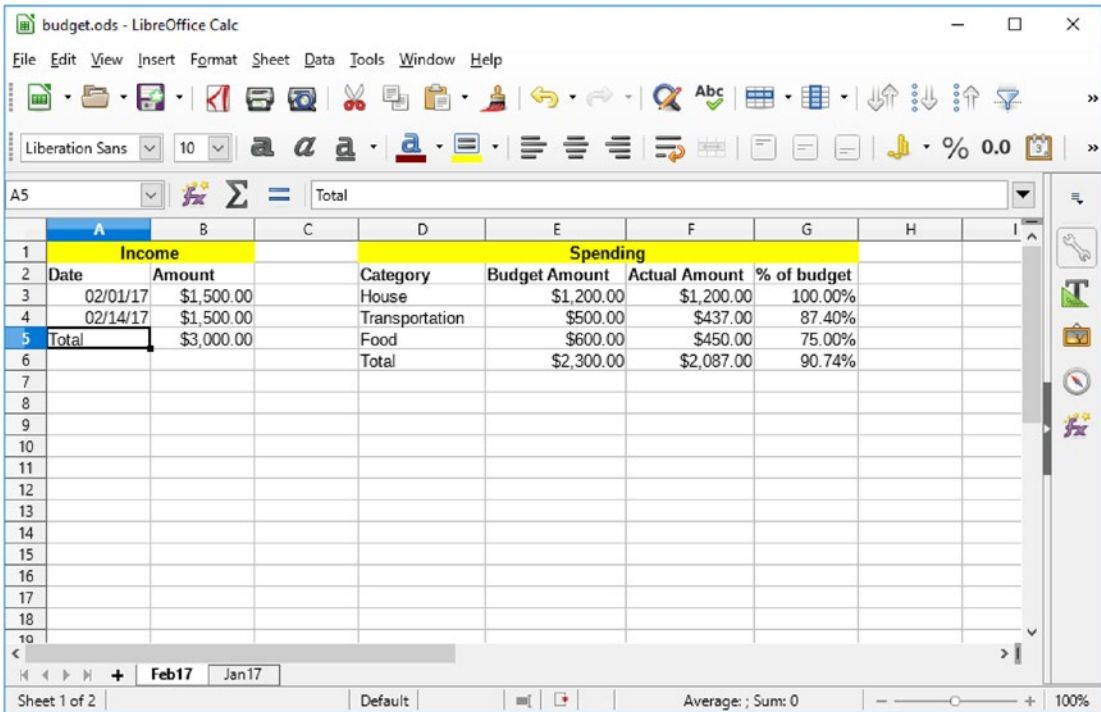
Figure 5-26. *February's numbers*

Now let's add a section in which you reference last month's numbers. Figure 5-27 shows the spreadsheet after entering the headings and the row label for Jan17. Note you have to put a single quote at the beginning of Jan17; otherwise, LibreOffice will think it's a date and format at as 1/1/17.
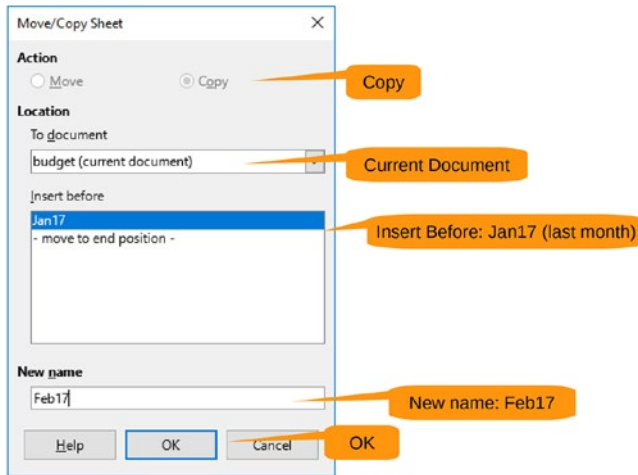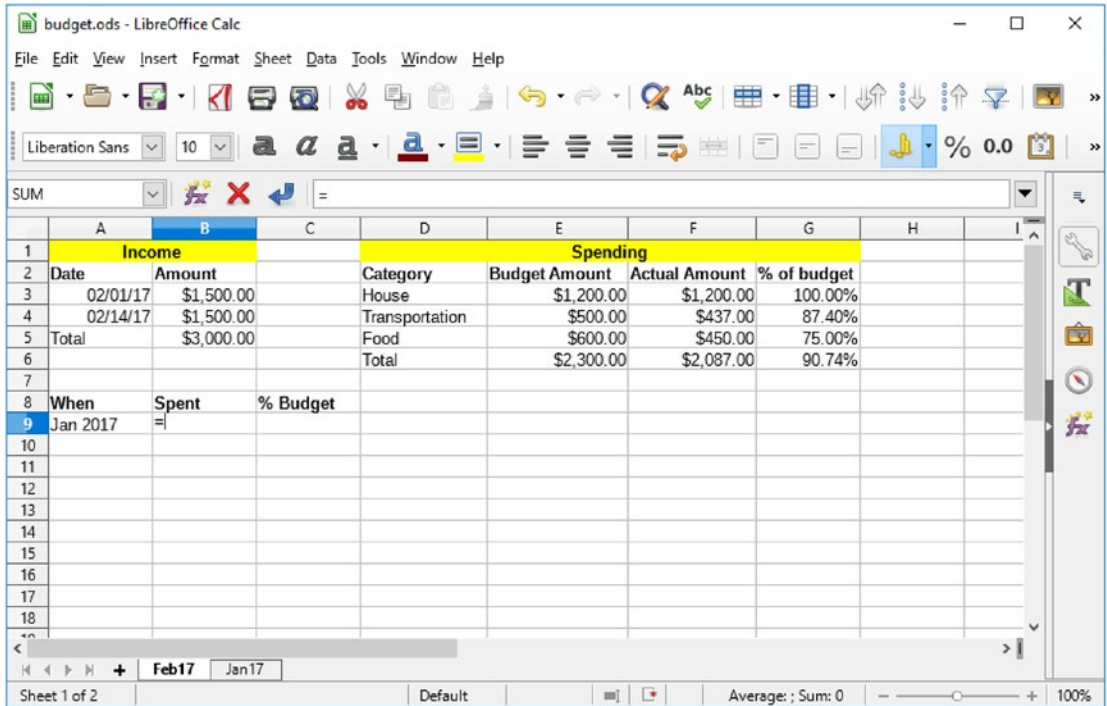

Figure 5-27. *Starting to reference previous months*

Under Spent (cell B9), type = and nothing else.

Now you need to get the value of the total spent from Jan17. But it's not a cell on the current sheet, so there is no A1, B2 type reference that you can use. But LibreOffice will fill in the cell reference automatically for you.

Click Jan17 to go to the Jan17 sheet and then click the F6 cell to select the total. Notice that the input bar now reads =Jan17.F6 and the cell is bordered with a purple rectangle. See Figure 5-28 for details.
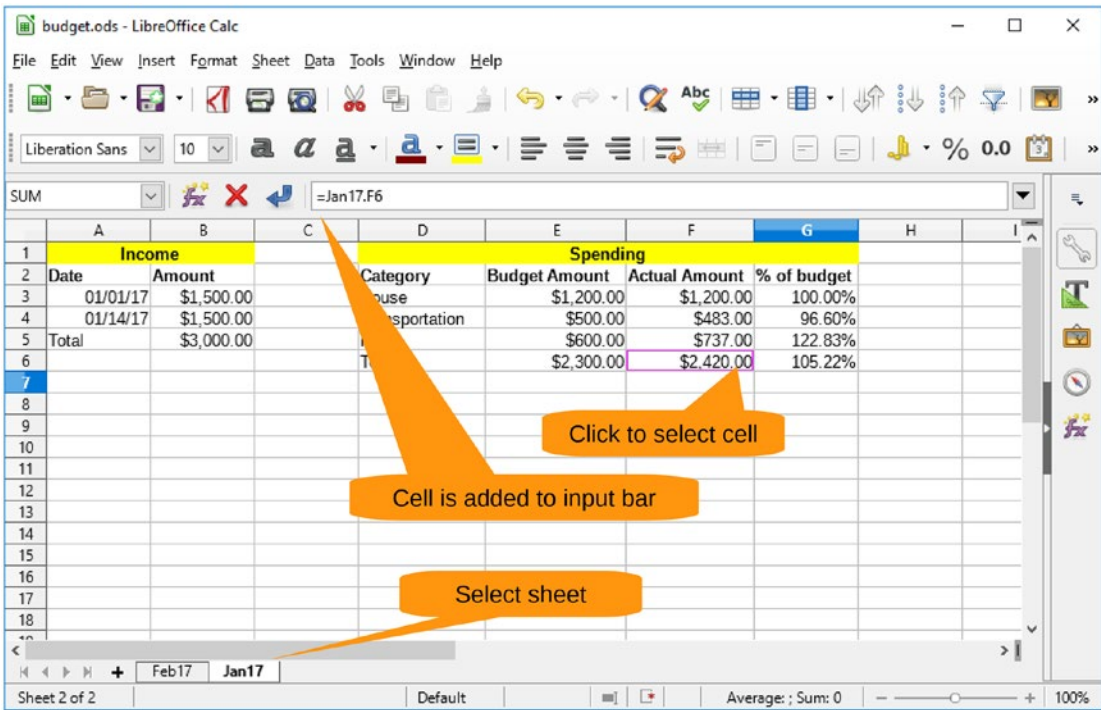
Figure 5-28. *Referencing the Jan17 value*

No go back to the original sheet (Feb17) and press Enter. The value of that cell is automatically filled in. You can repeat this for the "% Budget" value as well.

Now all you need to do is create a "Feb 2017" line below the "Jan 2017" line and you have section giving you a two-month comparison of your spending. Figure 5-29 displays the final result.

Figure 5-29. *Two months budgeted*

Creating Charts

Now let's insert a chart. There's no good reason for inserting a chart in this budget, but we haven't demonstrated the graphics features of LibreOffice Calc yet, so why not? First select cells D3 through D5 by clicking D3 and then Shift+clicking D5. Now let's select cells F3 to F5 by Ctrl+clicking each of the three cells. Finally, as shown in Figure 5-30, you select Insert ➤ Chart.
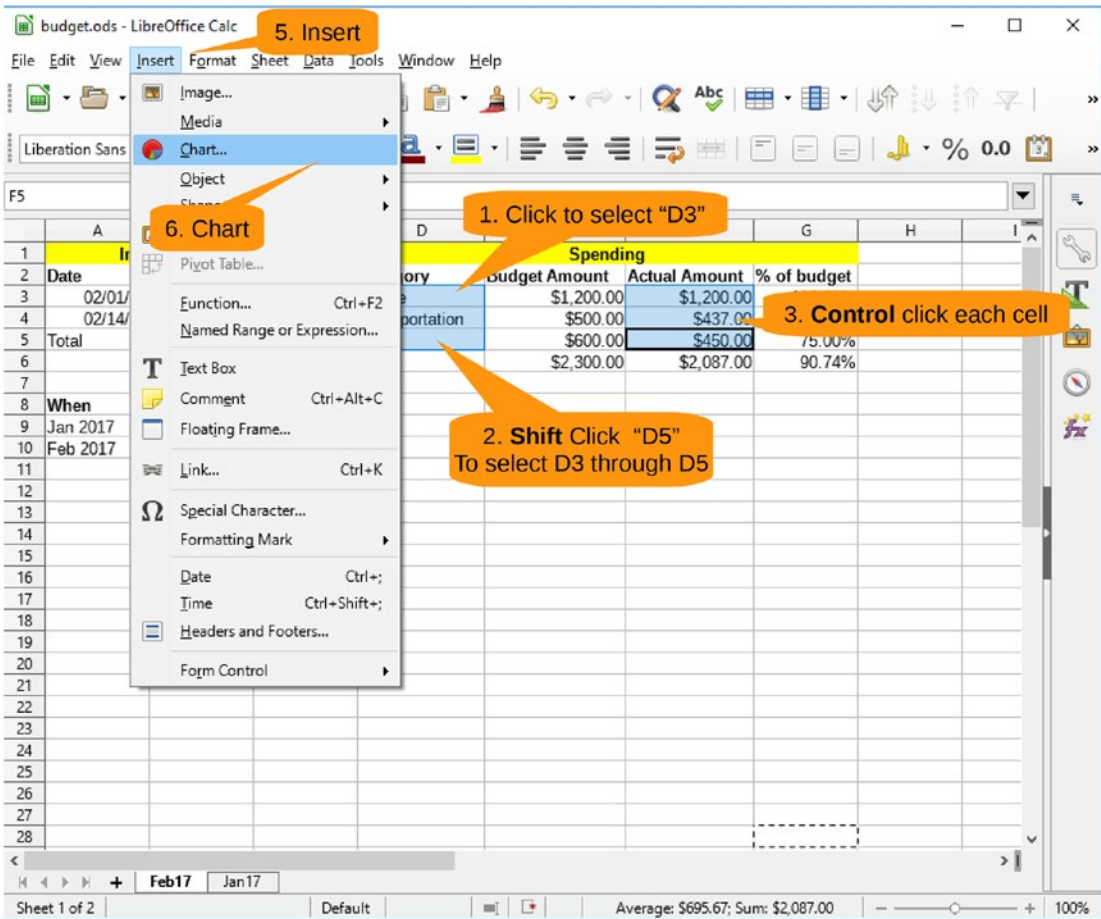
Figure 5-30. *Starting to insert a chart*

The Chart Wizard shown in Figure 5-31 appears. Under Choose a Chart Type, select Pie and then click Finish.
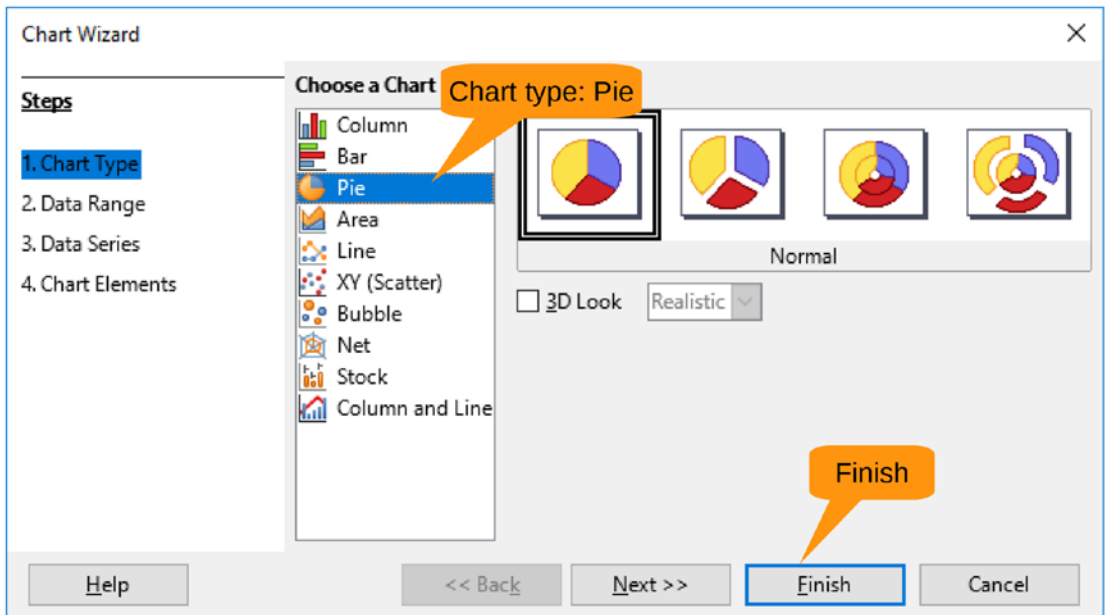
Figure 5-31. *Chart Wizard*

Note that LibreOffice Calc has a complex charting system with hundreds of options. Going through them all would take another book. We're after a quick-and-dirty chart, so we're taking a lot of the defaults here.

After clicking Finish, the chart is inserted. Figure 5-32 shows you that the default location is right over your important data. So, you need to use the cursor to grab the edge of the chart and move it down.
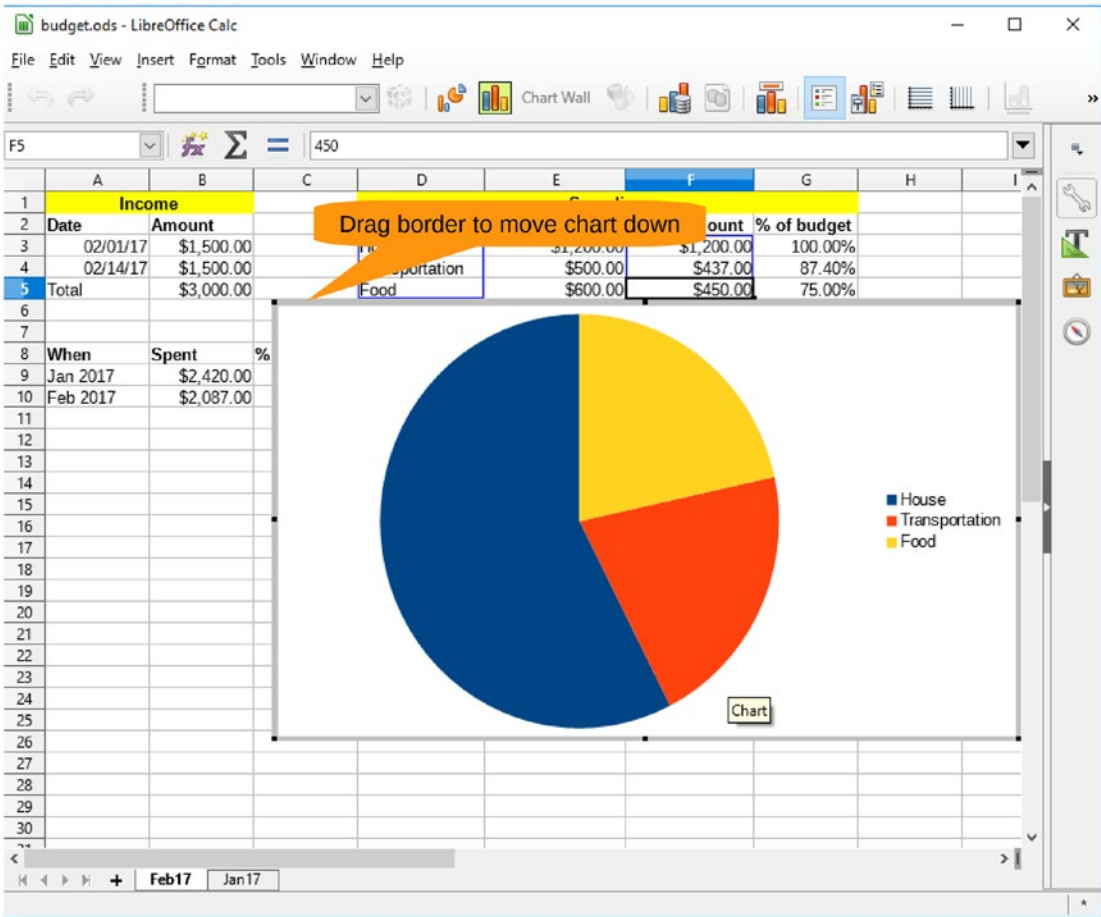
Figure 5-32. *Chart inserted*

Dragging the chart down exposes all those lovely numbers that you worked so hard to come up, as shown in Figure 5-33. It also shows that we are paying far too much for housing, which should be no more than one-third of the budget. But that's what we get for residing in such a grand fictional house. We probably should adjust our imagination and move into a less expensive home.
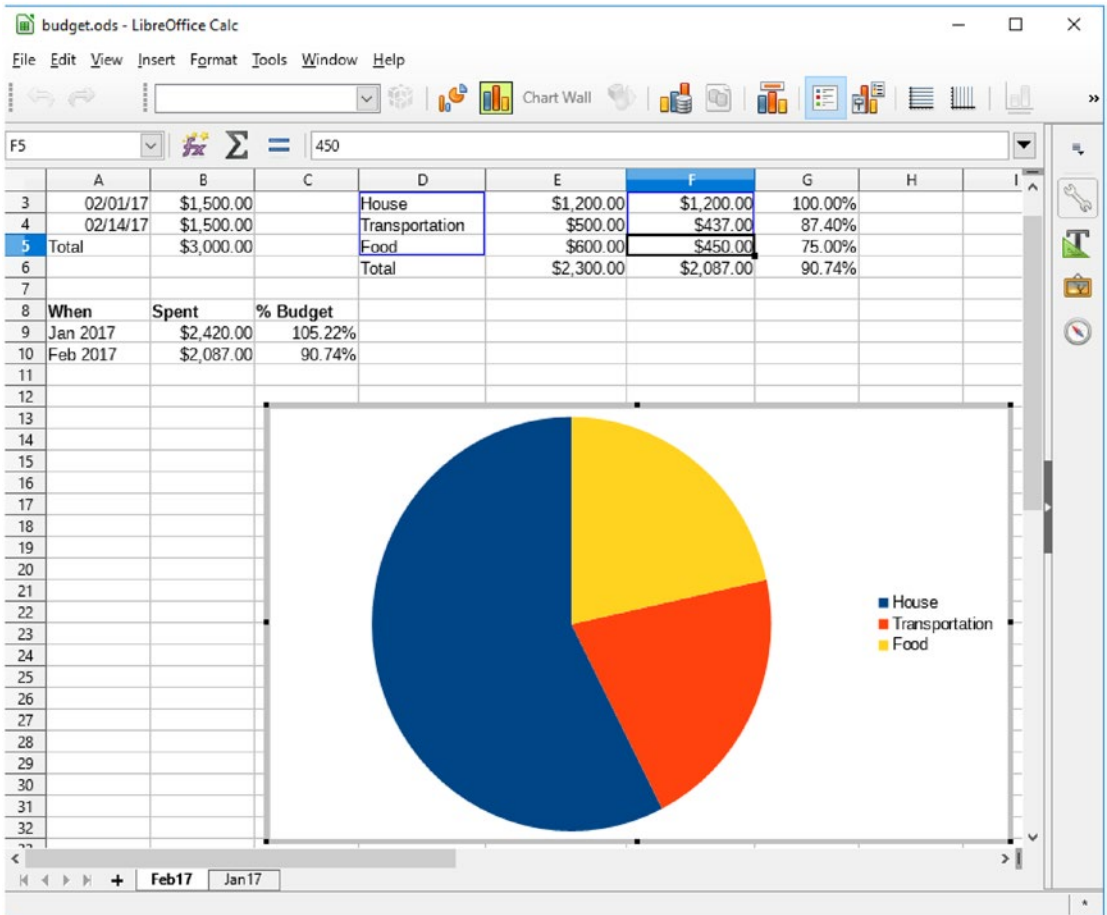
Figure 5-33. *Final budget*

Summary

LibreOffice Calc provides a full-featured spreadsheet. In this chapter, we covered the basic concepts that you'll encounter in most simple spreadsheets. As you can see, LibreOffice Calc has all the useful features of the more expensive, proprietary spreadsheets but without the cost (and without the advertising budget).

Creating Presentations with LibreOffice Impress

Doing something well is half the battle. Selling it is the other half. That means getting in from of a room and telling people how great your idea is. Humans are visual animals. They react to pictures much better than words, which is the reason people use slide presentations.

LibreOffice Impress lets you create great multimedia slides containing not only words and pictures but animation and sound. In this chapter, you'll create a presentation called "How to Make Great Presentations."

In this chapter, you'll learn the following:

- How to make slides

- How to add graphics

- How to animate the elements of a slide

- How to create slide transitions

- How to use the presenter's console

What you'll *not* learn is how to include meaningful content in your presentation. But given the quality of most presentations, decent content is not a requirement.

Creating a Presentation

Start LibreOffice and select File ➤ New ➤ Presentation. A blank presentation will appear and immediately be covered up by the Select a Template dialog, as shown in Figure 6-1.

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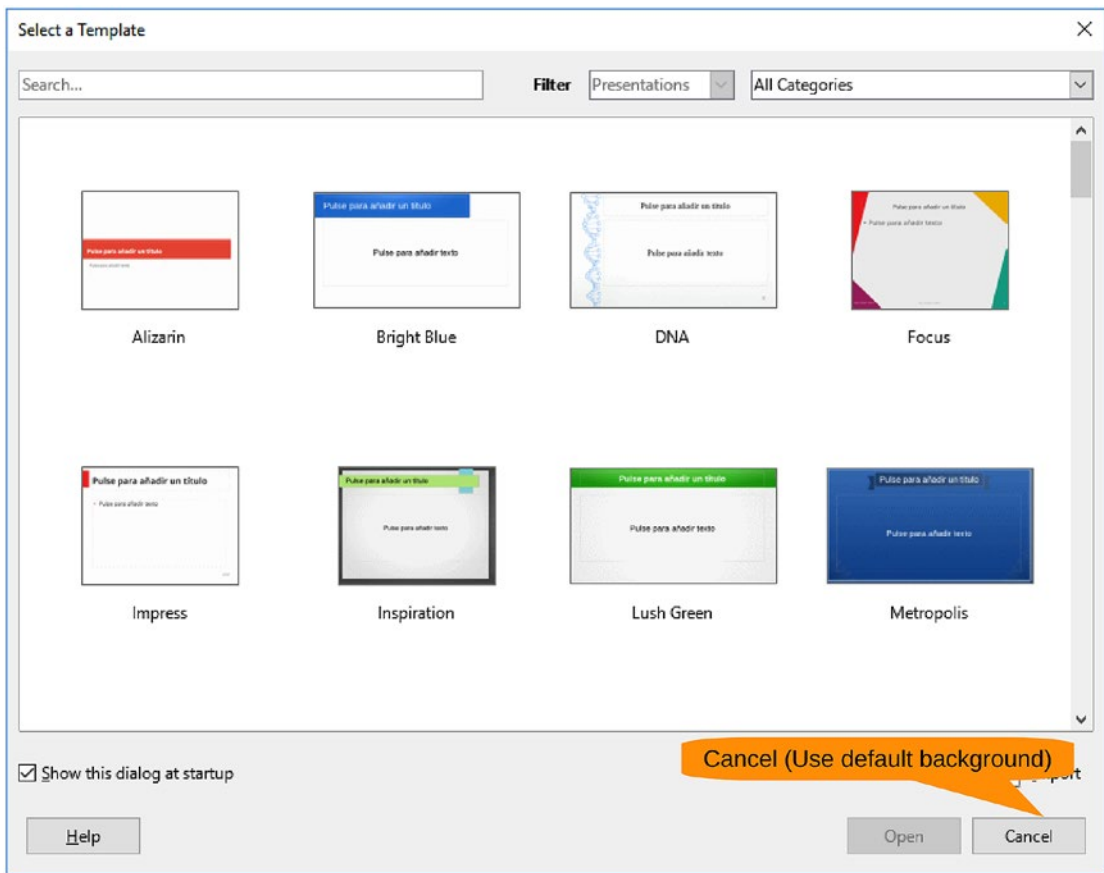
Figure 6-1. *Selecting a template*

LibreOffice comes with a nice set of good-looking templates. More are available from various web sites on the Internet. All have one thing in common, which is a fancy background that makes the presentation look good.

Unfortunately, this fancy background obscures the various elements described in this book, and for the purpose of illustrating the features of LibreOffice, a blank background is better. So, click Cancel to start with a clean slate. The result, in all its boring glory, looks like Figure 6-2.

Figure 6-2. *Initial Impress screen*

On the left you'll see the list of slides. In this case, one slide is in the list. In the middle is the slide itself. On the right is the Properti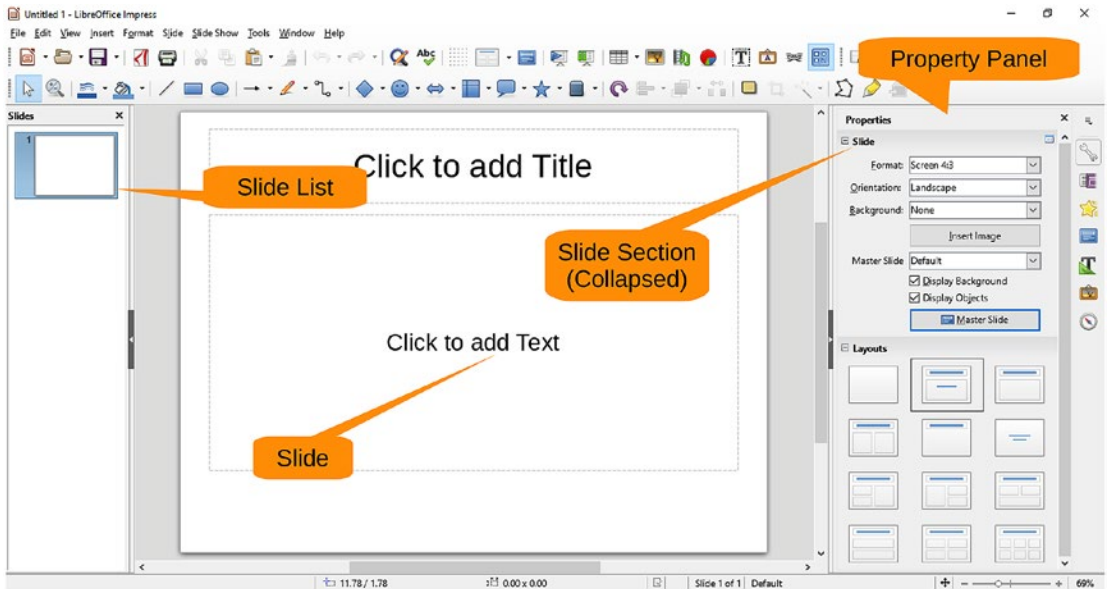es panel. Since you don't care about the Slide section of this panel, click the minus (-) sign next to the word *Slide* to collapse the section, as shown in Figure 6-3.
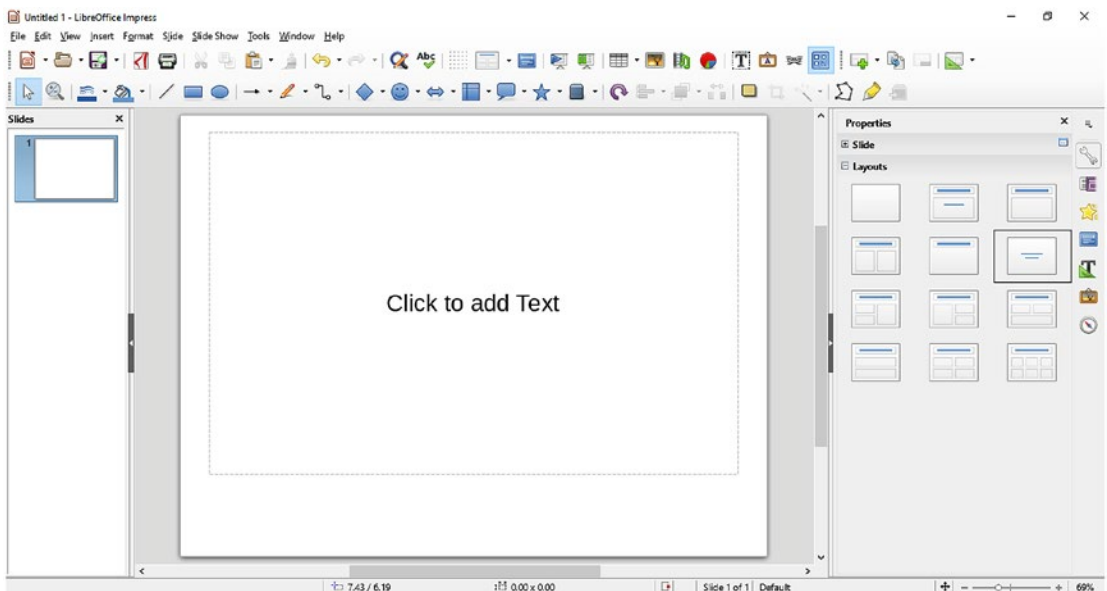

Figure 6-3. *Section collapsed*

The Properties panel on the right shows the various layouts available. This is the title slide, so let's select the layout with the big title in the middle. Next, click in the middle of the slide where the helpful message "Click to add Text" appears and enter the title **Great Presentation**.

The default font size leaves a lot of white space around the text. This is not a great presentation; it's a great presentation! So, to show your greatness, you need to drag the cursor over the text to select it and then click the Increase Font Size icon a number of times until the title matches the greatness of your ego. Figure 6-4 shows just how big our ego is.
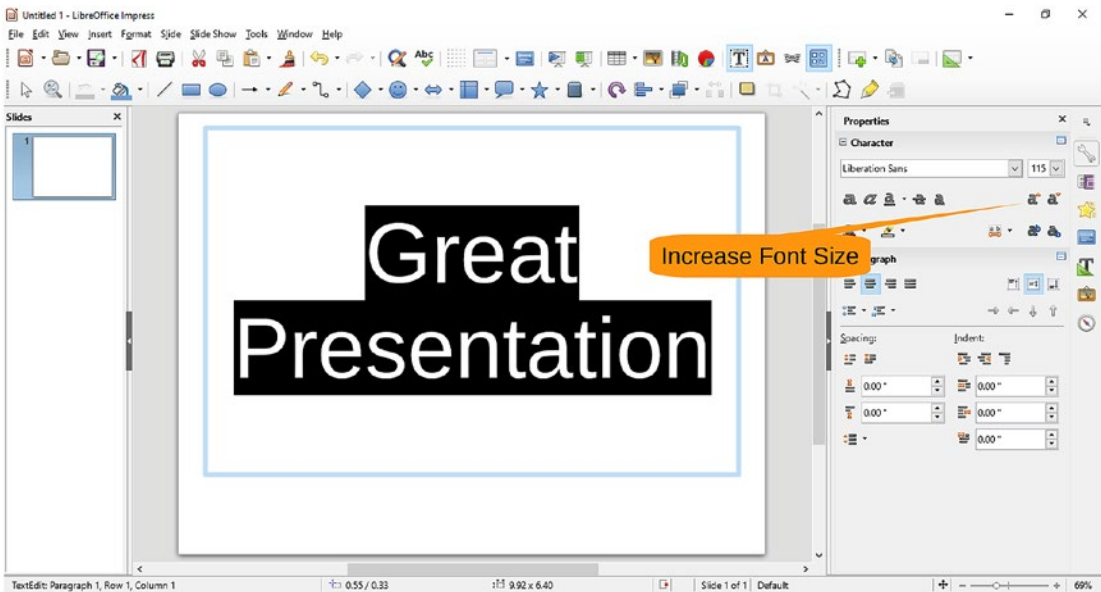
Figure 6-4. *Expanding the font size to fit our ego*

Adding Graphics

A big font doesn't show the true greatness, though. Let's add some graphics to make things better. Click the triangle next to the arrow icon to bring up a selection of arrows. Click the big right arrow and then drag the mouse diagonally to draw a big arrow, as shown in Figure 6-5.

Figure 6-5. *Creating the arrow*

The arrow doesn't point to the big title. Let's fix that now. Right-click the arrow and select Position and Size, as shown in Figure 6-6.
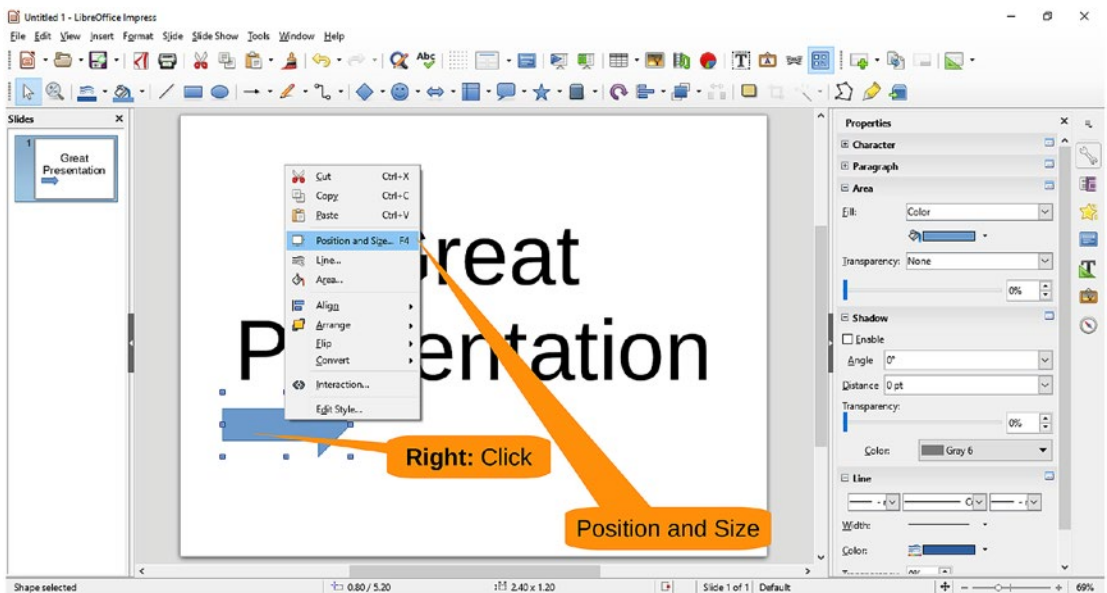
Figure 6-6. *Position and Size menu item*

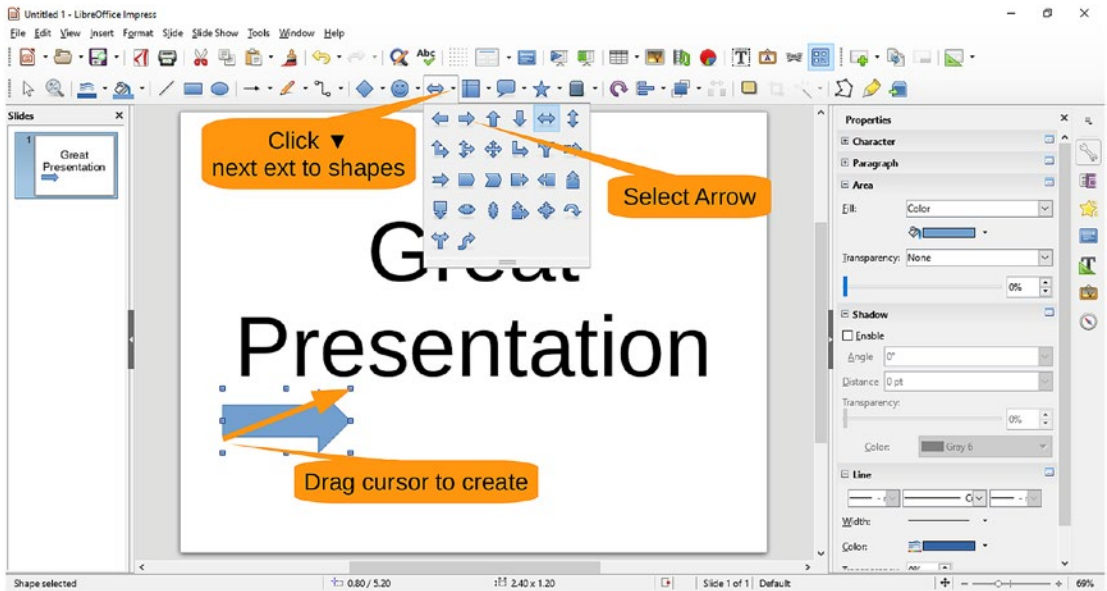A Position and Size dialog (Figure 6-7) appears. Click the Rotation tab, go down to the "Default settings" circle, and drag the indicator up so the arrow points to the title. Then click OK to set the rotation.
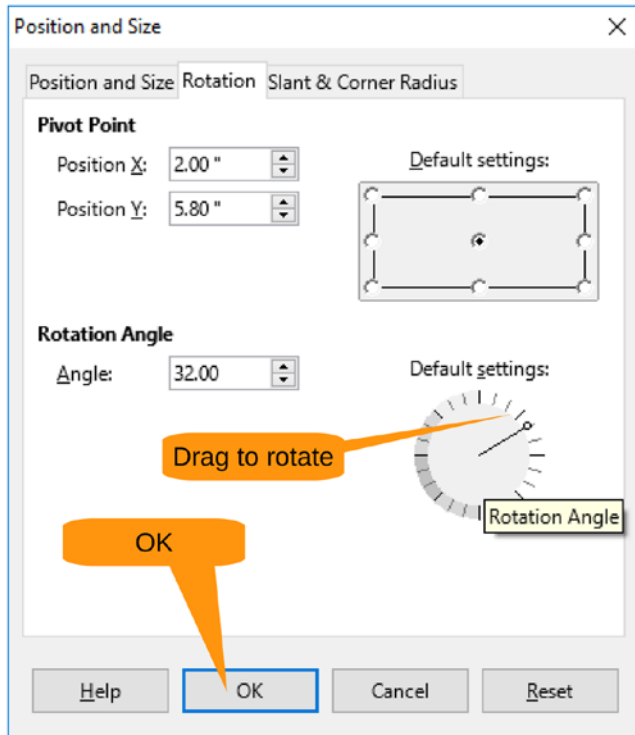
Figure 6-7. *Changing the rotation*

As you can see in Figure 6-8, the arrow now points to the title. Let's now click the fill color in the Properties panel's Area section and change the color to orange. The title is starting to look a little exciting.

Figure 6-8. *Title with arrow*

You want three more arrows, so let's copy and paste, paste, paste. Then move the arrows where you want them and change their angles and area colors. The four-arrow version of the title should look like Figure 6-9.
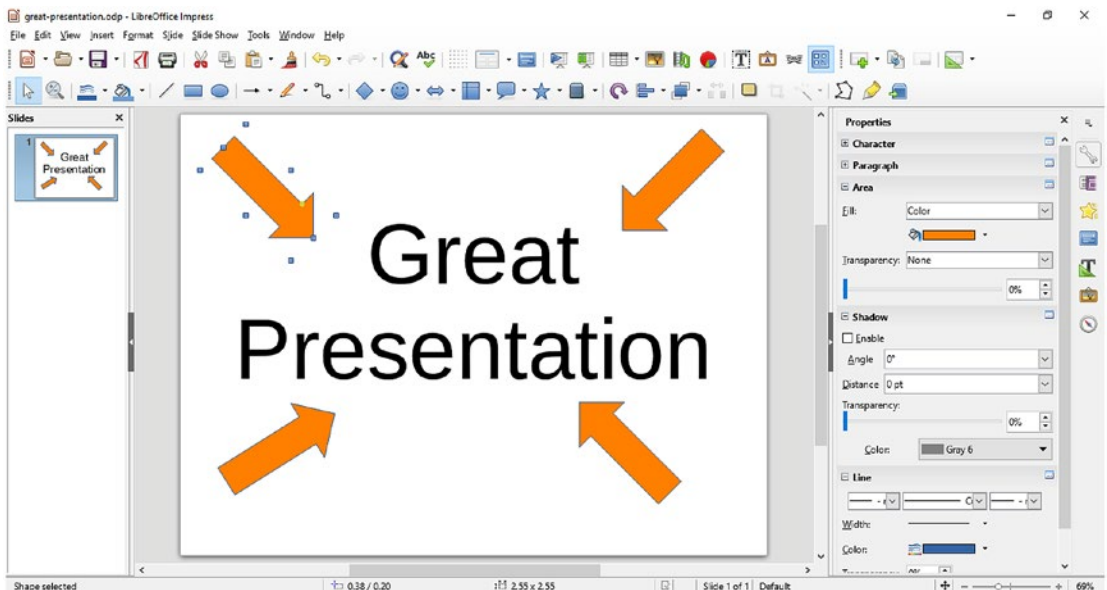
Figure 6-9. *Final title page*

Let's start the first content slide by selecting Slide ➤ New. This slide will contain a little content, so click the "Title, Content" slide layout indicated by Figure 6-10.
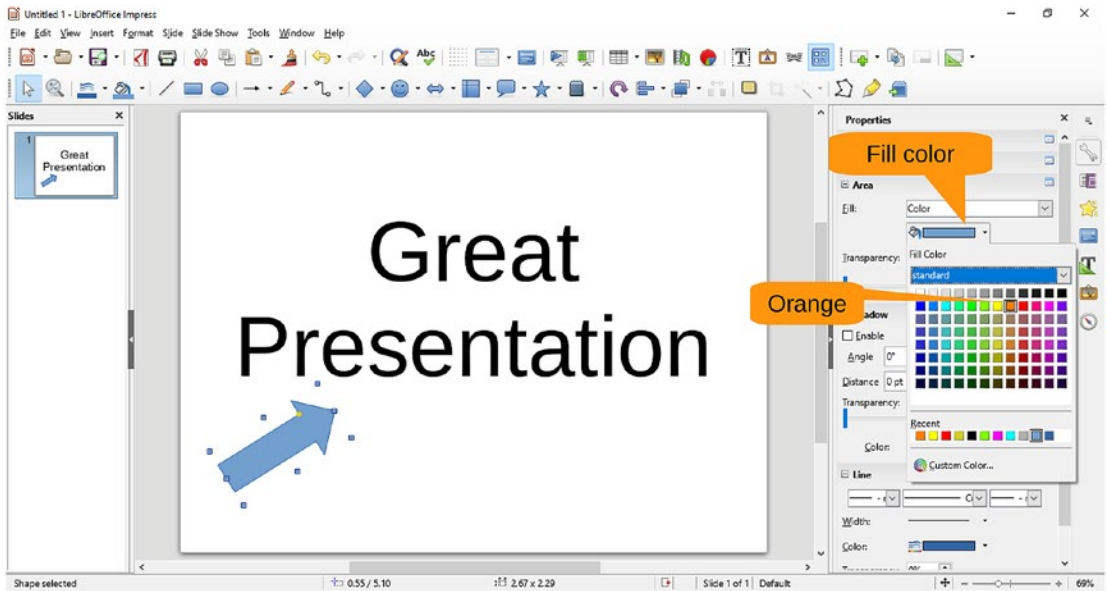

Figure 6-10. *Starting a new "Title, Content" slide*

For the title, enter **A Joke**. For the content, enter these lines:

> **The second best selling type of books are diet books**

> **The best selling type is related—**

> **Cookbooks**

With good timing, this joke is actually funny; in print, not so much. Figure 6-11 shows the "funny" slide.
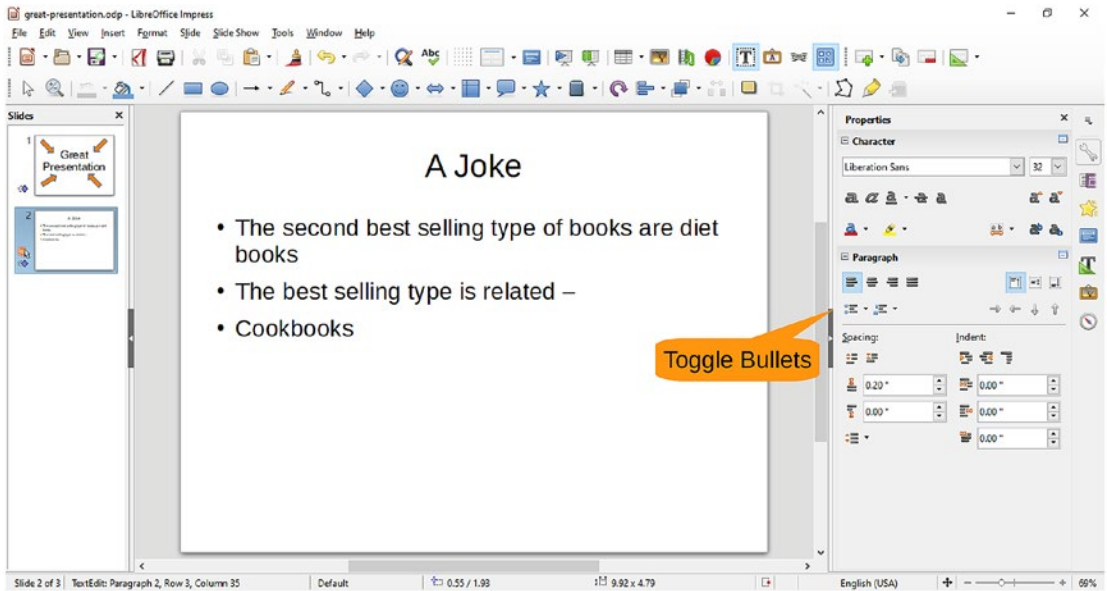
Figure 6-11. *Joking*

Now let's get rid of the bullets by selecting the three joke paragraphs and clicking the Toggle Bullet icon in the Paragraph section of the Properties panel.

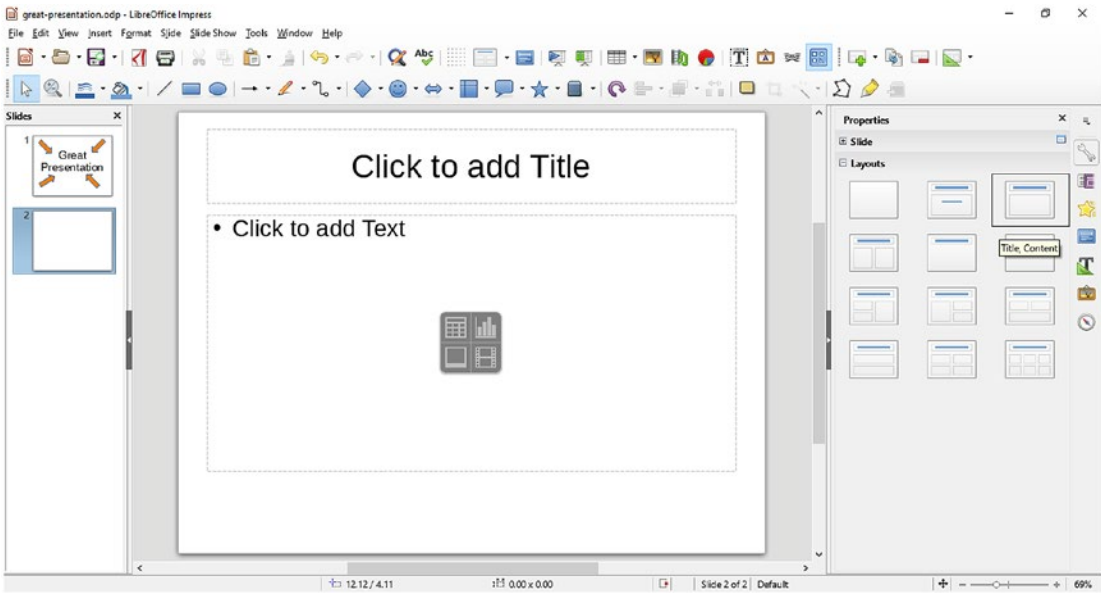The way to tell this joke is as follows:

"The second best selling type of books are diet books."

Wait a couple of beats.

"The best selling type is related…"

Pause.

"…cookbooks."

If you just show the slide with the text all at once, it loses a lot of its humor. But if you can present it with this comedic timing, you have a much more powerful joke.

What you need to do is to bring in each of the paragraphs one at a time. Motion, or *animation*, is needed to make the presentation much more effective.

Adding Animation

Drag the cursor over the entire joke to select it. Then click the green plus (+) sign, as shown in Figure 6-12, to add animation to the selected paragraphs.
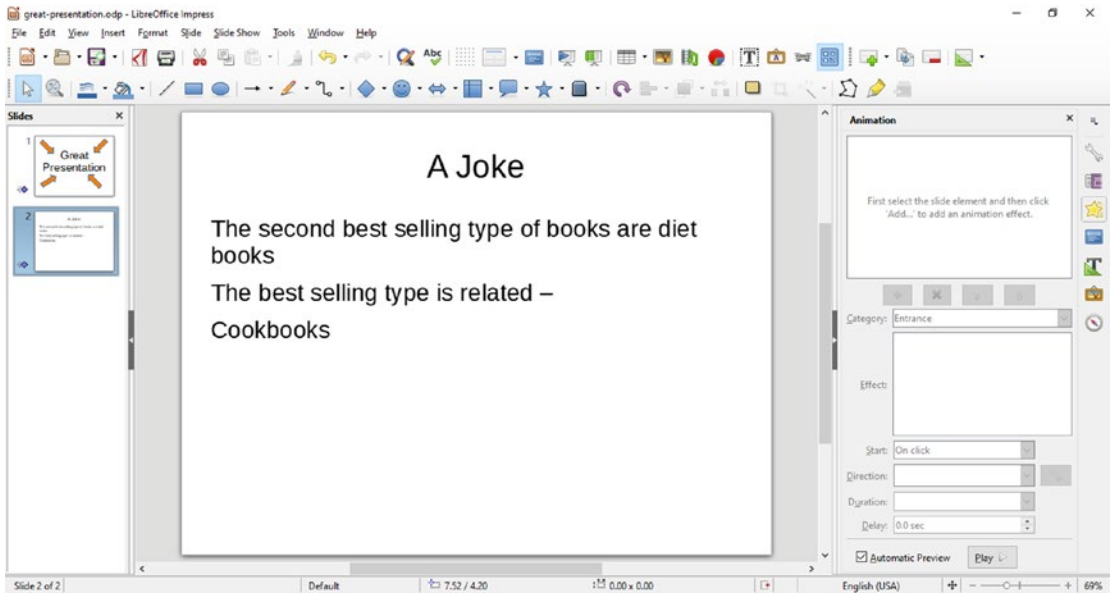
Figure 6-12. *Adding animation*

The animation sequence and type will be displayed in the Animation panel, as shown in Figure 6-13.
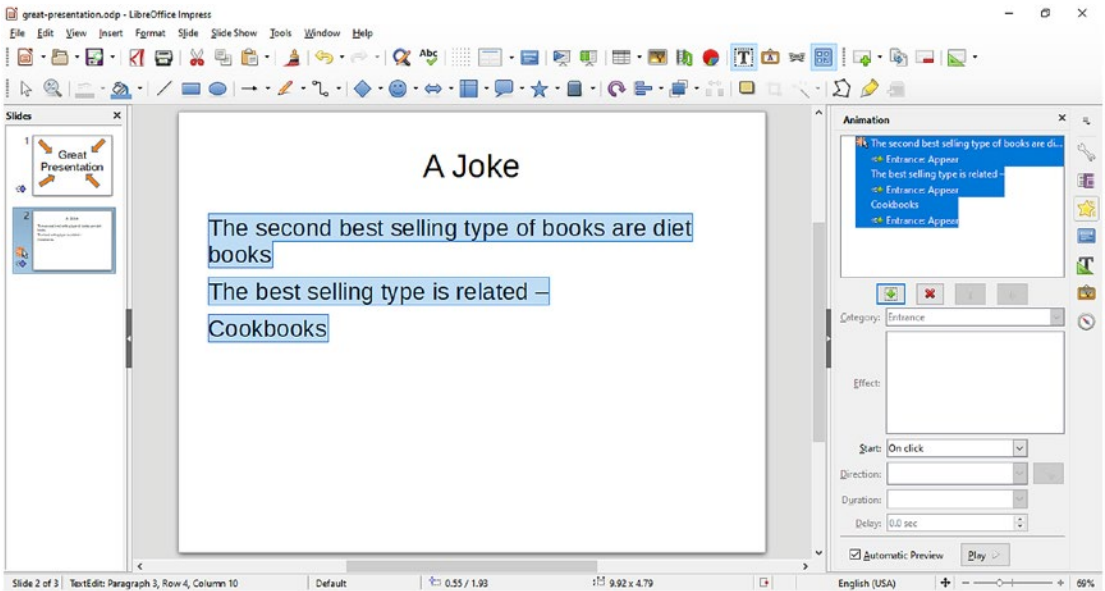
Figure 6-13. *Animation panel*

Select the first paragraph in the Animation box. Notice that the Effect setting is Basic/ Appear. Change this to Basic/Fly In. Leave Start set to "On click" and Direction set to "From bottom." Figure 6-14 shows you the settings.
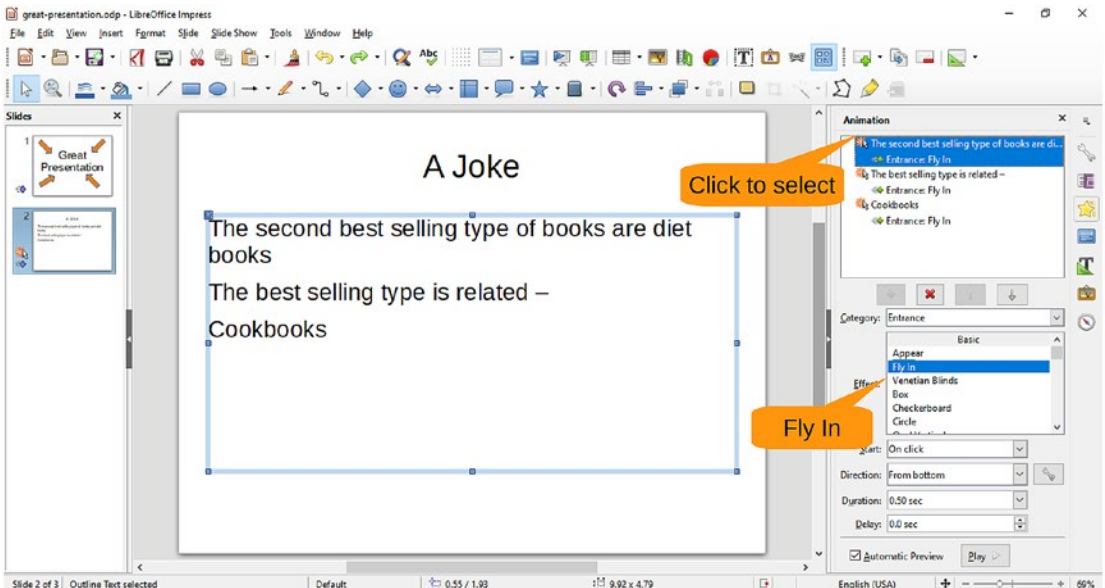
Figure 6-14. *Animation settings for the first paragraph*

Now click the second paragraph. Change Effect to Basic/Fly In and change Start to "On click." Do the same thing for the third paragraph. Now select Slide Show ➤ Start from current Slide, as illustrated in Figure 6-15.
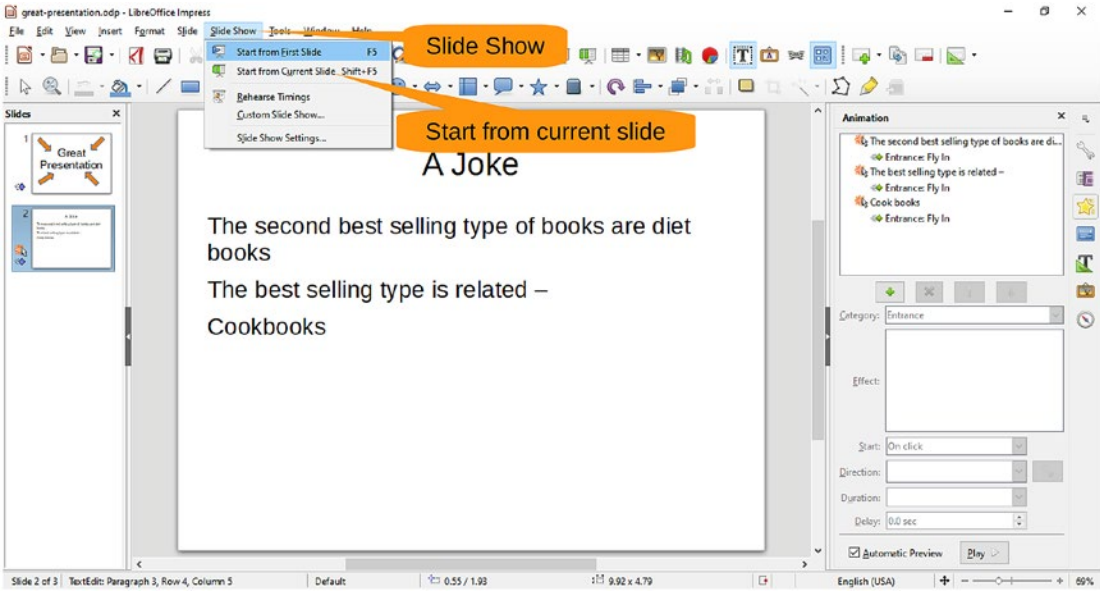
Figure 6-15. *Starting the slide show*

A slide will be displayed, but only the title of the slide will appear (see Figure 6-16).
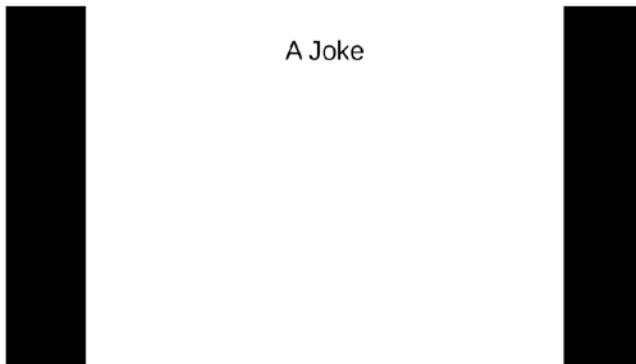
Figure 6-16. *Starting the slide*

Click to bring up the next part. You'll see "The second…" fly up the page to its place. Figure 6-17 shows the result.
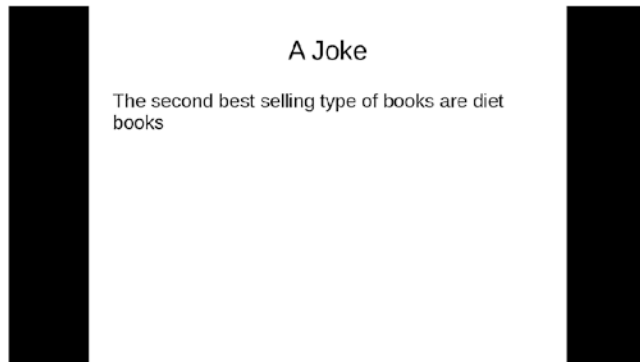
Figure 6-17. *After the first click*

The next click brings up the "The best…" line, which you can see in Figure 6-18.

Figure 6-18. *The result of the second click*

Let's now pause and give the audience time to guess at what the answer is. Then click one more time to bring up the full joke, as shown in Figure 6-19.
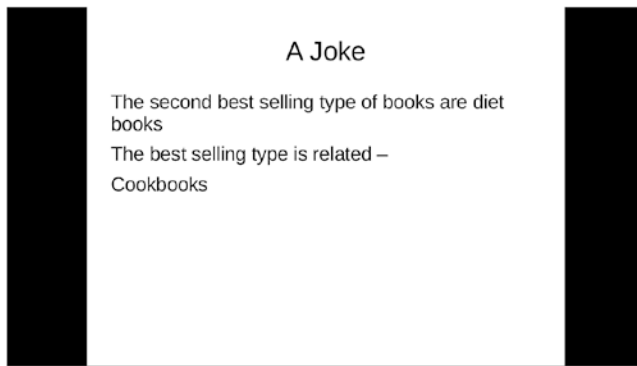
Figure 6-19. *Third click and full joke*

Feel free to experiment with different types of effects. There are lots to choose from, and most of the animations work with all types of graphics cards. Some require more power and others don't. But experimentation is the best way of seeing what's going on, especially because this book is limited to static images.

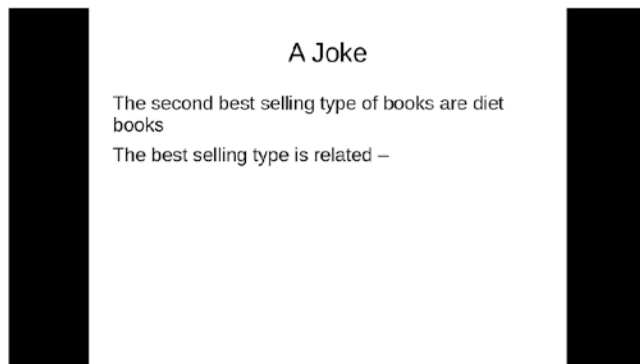Clicking the red "X" icon below the animation list will delete the selected animation. Also, there are up and down arrows that allow you to reorder the items in case you feel the joke is better if you tell the punch line first.

Adding Slide Transitions

You have seen how paragraph animations make your presentation more powerful. You'll now animate the transition *between* slides, which gives your presentation a bit of zing.

Click the Slide Transition icon on the right (see Figure 6-20).

Figure 6-20. *Animation controls and Slide Transition icon*

In the Slide Transition list, click Wipe to select a slide transition, as shown in Figure 6-21. Impress will show you a preview of the transiti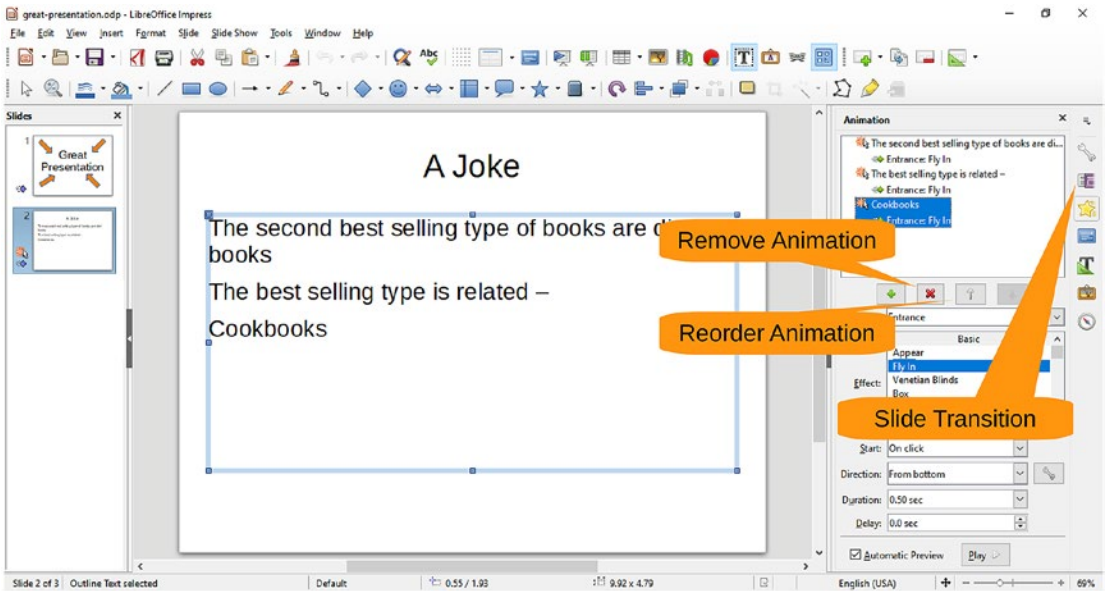on. Now when you start the side show from the beginning, the second slide will appear with a "wipe" effect. Play around with the other transitions; the effects are quite interesting.
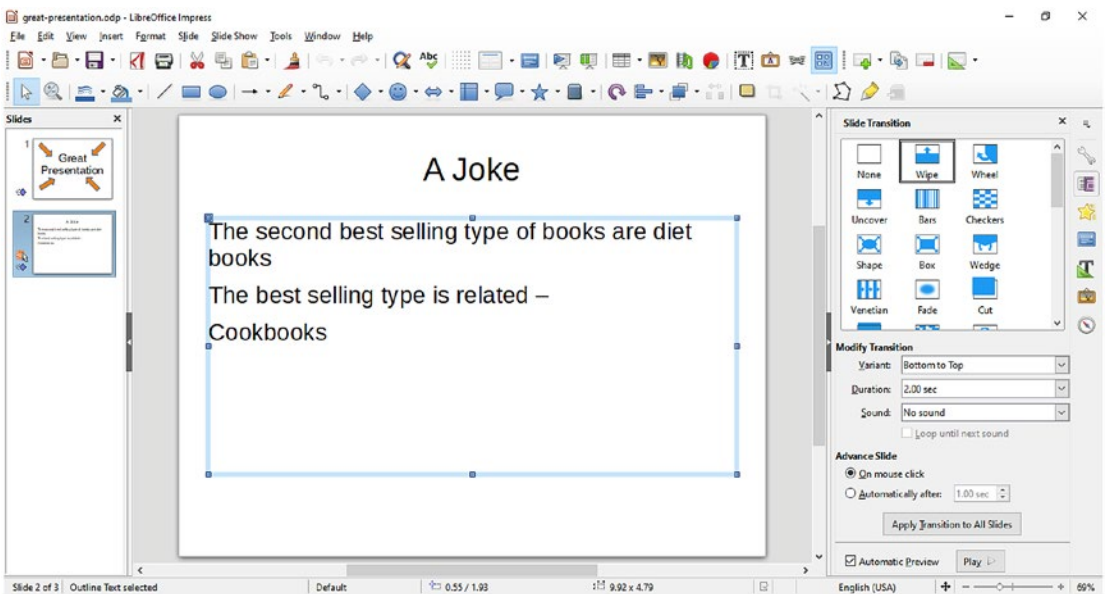
Figure 6-21. *Slide transition*

Adding Sound

One way of spicing up a presentation is with sound. In this presentation, you're going to show a picture of failure with a "wah wah waaah" sound playing. Let's start by creating a slide called "Mistakes Happen" and then insert a picture of the Tacoma Narrows Bridge that collapsed in 1940. You can see the results in Figure 6-22.

Figure 6-22. *A big mistake*

Now let's make the picture interactive. Right-click the image and select Interaction, as shown in Figure 6-23.
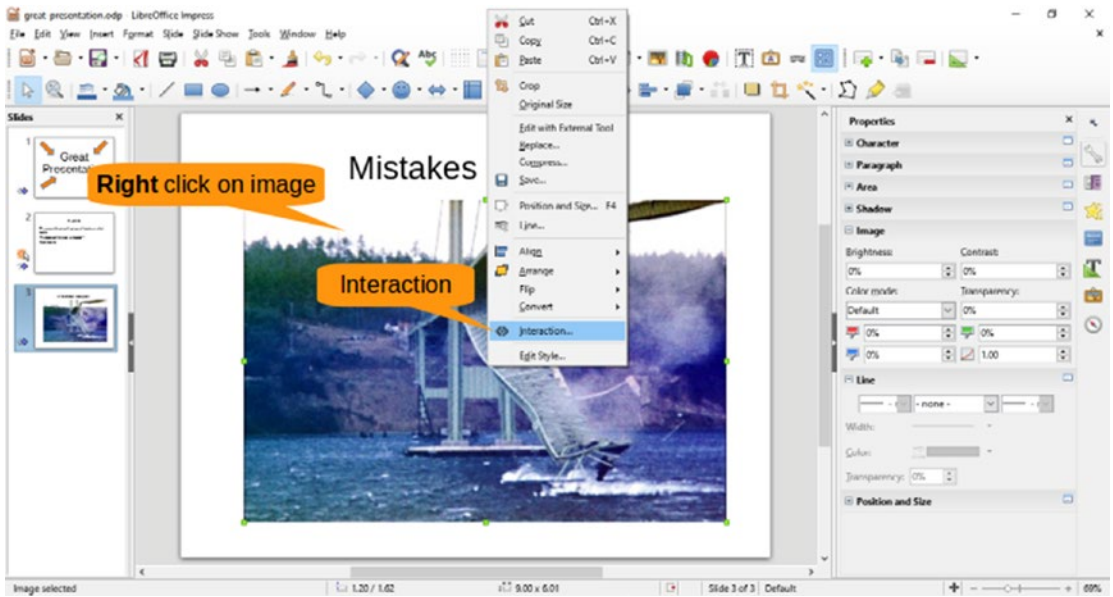
Figure 6-23. *Creating an interaction*

The Interaction dialog will appear, as shown in Figure 6-24.
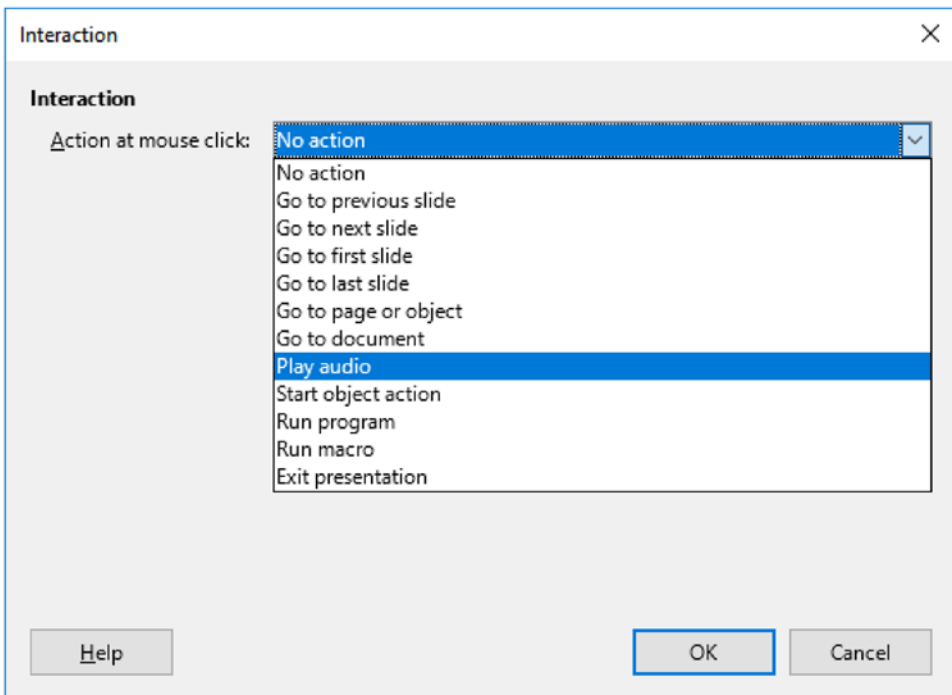
Figure 6-24. *Interaction dialog*

Select "Play audio." This causes an Audio field to appear at the bottom, which allows you to select an audio file on your computer, as shown in Figure 6-25. After selecting a file, click OK to dismiss the dialog.

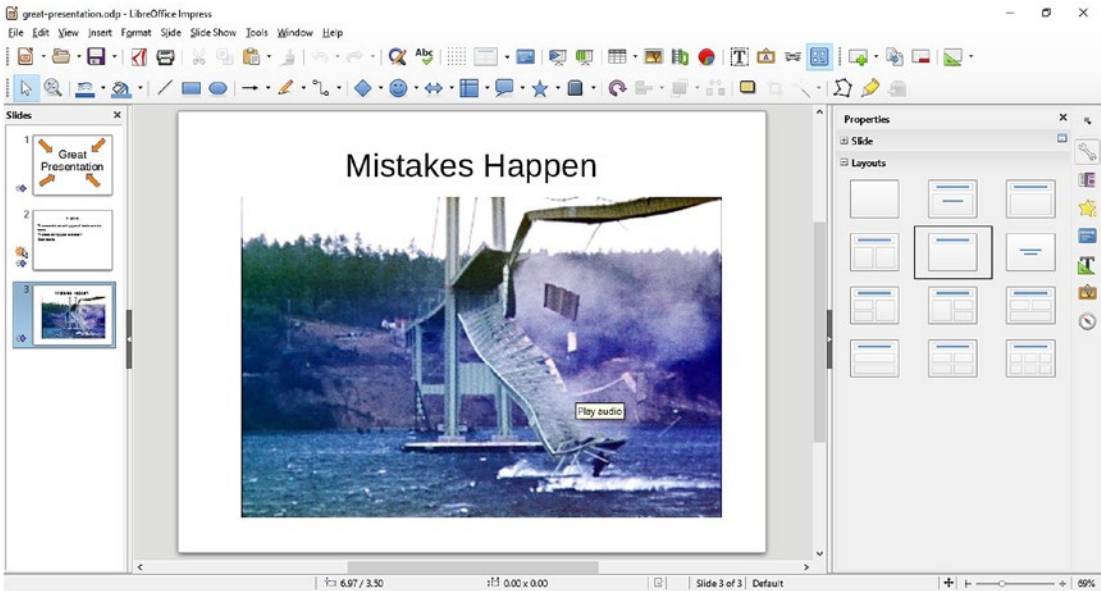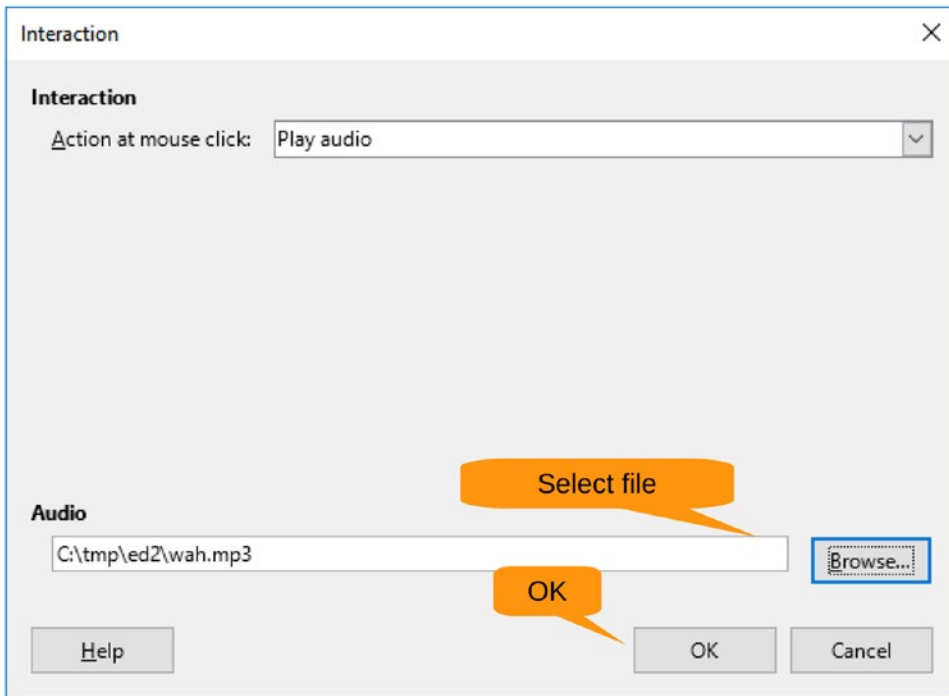***Figure 6-25.*** *Selecting an audio file*

Now when you go into the slide show and click the picture, the sound in your audio file will play; we've selected a "wah wah waaah" sound for this example.

Note that clicking the image does not advance to the next slide like it normally would. If you want to do that, you need to move the cursor off the image and click the border or title.

Or you can use the handy gadgets in the presenter's console, which happens to be discussed in the next section.

Working in the Presenter's Console

The big day has arrived. You are going to give your presentation. First, you get to the room an hour early and spend 59.5 minutes trying to debug the projector system. Connecting the projector to the computer gives you two monitors. One, the small one, is built into your laptop. The other is the projector that is going to display your work to thousands of people.

LibreOffice Impress can make use of both projectors. Let's start the slide show with Slide Show ➤ Start from first Slide, as illustrated in Figure 6-26.

Figure 6-26. *Starting the slide show*
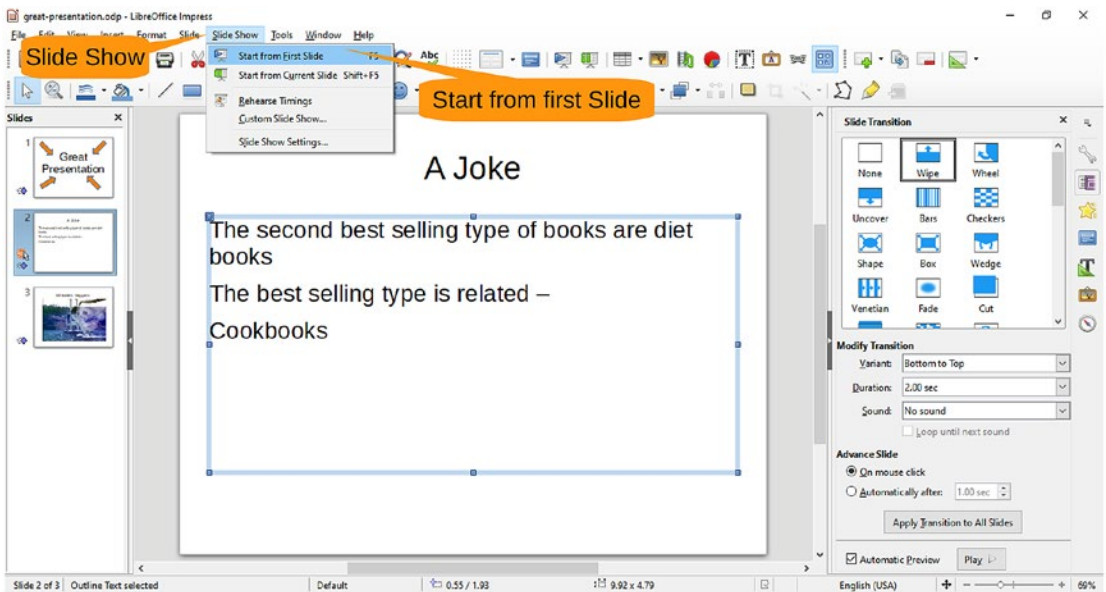
The first slide will be displayed on the projector. On the laptop screen, you'll get the presenter's console, as shown in Figure 6-27.
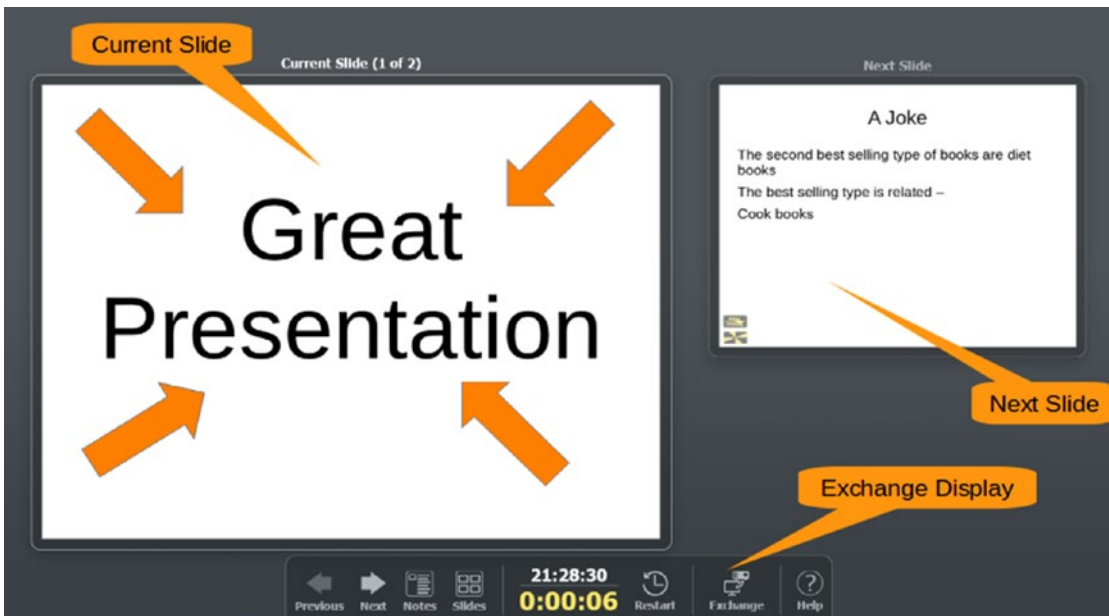
Figure 6-27. *Presenter's console*

The majority of the screen is taken up with the current slide. This is the same thing the audience is seeing now. On the right you have the next slide. That way, you can get ready what you will say next.

LibreOffice may sometimes pick the wrong screen. In other words it will put the presentation on the laptop screen and the presenter's screen on the projector. If this happens there is an Exchange button that will switch the views so the audience sees the presentation and the presenter sees the Presenter's console.

Most of the other controls are simple. There's an elapsed timer showing you how long you've been talking, a couple of buttons to change the layout, and a Help button.

Summary

You now have all the elements of a great presentation. It has a beautiful title screen with stunning slide transitions. This is followed by an amazing joke to break the ice that uses animation to deliver the punch line. In fact, you have just about everything…except any real content. Well, this book would not be any fun if we didn't leave something for you to do.

Using LibreOffice Base for Database Management

LibreOffice has the ability to take data from a Calc spreadsheet and use it to create a mass mailing (often called a *mail merge*). That works well if your list contains 1 to 1,000 people. But what if it grows larger? Say 100,000 recipients?

LibreOffice comes with a database comparable to the Microsoft Access "database"[1] and SQL Server, called LibreOffice Base. It does a good job until your list starts to reach the 1,000,000 mark. At that point, you're going to need a more professional database such as PostgreSQL.

In this chapter, we'll keep things simple. You'll learn the following:

- How to import data into Calc

- How to use Calc and Writer to perform a mail merge

- How to create an empty database in Base and populate it with Calc data

- How to create a quick custom query in Base

- How to create a form letter using the results of your query

Importing Data into Calc

Let's start with a list of names. You can get this list from a nice web site called www.generatedata.com. Save the list of names in a file called addr.csv. Although the extension stands for "comma-separated values," the fields are really separated by a vertical bar (|). Also, the first row contains the column names, which we later call

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[1]Every database professional we know puts Microsoft Access in the quote marks when talking about it. They don't consider it a real database.

field names just to be consistent. These field names and the name of the file are all one word and lowercase. This makes it easy to use them later.

The first thing you need to do is start LibreOffice and open the file (select File ➤ Open). If you just open it using the defaults, the file will be opened in LibreOffice Writer. You need to go to the file type pull-down and select Text CSV (*.csv). It sounds simple, but the pull-down contains a lot of file types, and it takes a bit of scrolling and treasure hunting to find the right one. Figure 7-1 shows the hidden treasure: Text CSV (*.csv).
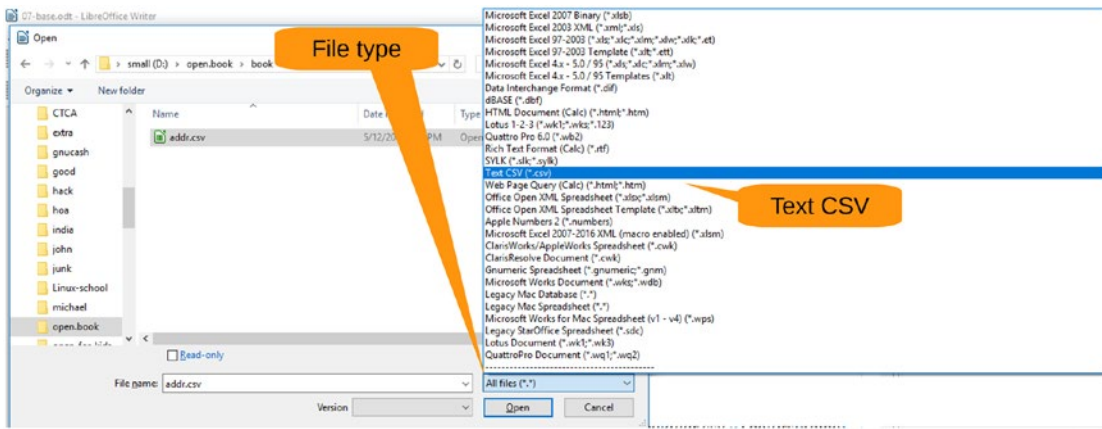

Figure 7-1. *Opening the file*

When you click Open, LibreOffice opens the Text Import dialog, as shown in Figure 7-2. As mentioned, the fields in the file are separated by a vertical bar (|). So, you need to deselect the Tab, Comma, Semicolon, and Space options. Then select Other and put a vertical bar (|) in the blank field. The preview panel at the bottom gives you some idea of how your data will be processed. Clicking OK brings up the spreadsheet.
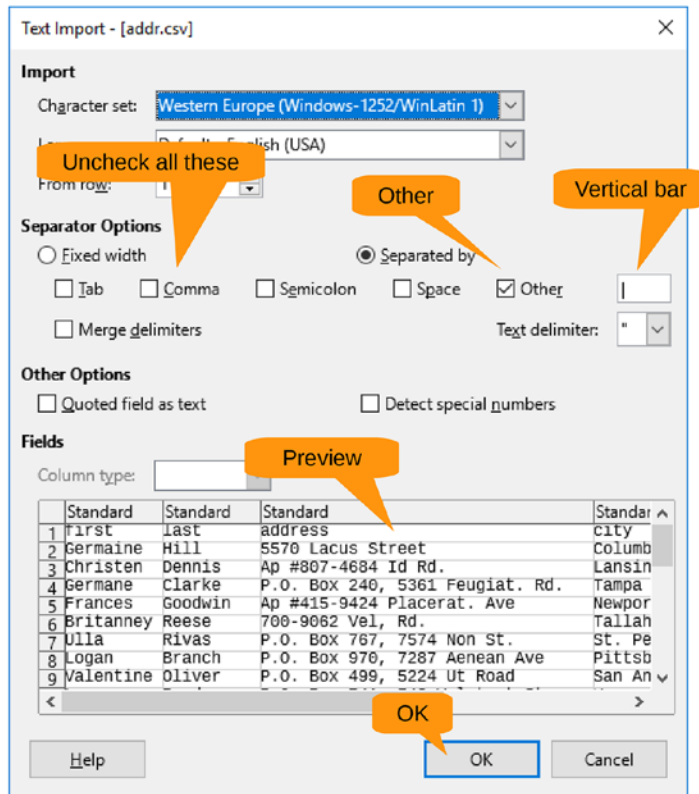
Figure 7-2. *Import dialog*

Let's save the spreadsheet as the file addr.ods. Don't forget to set the file type, as shown in Figure 7-3.
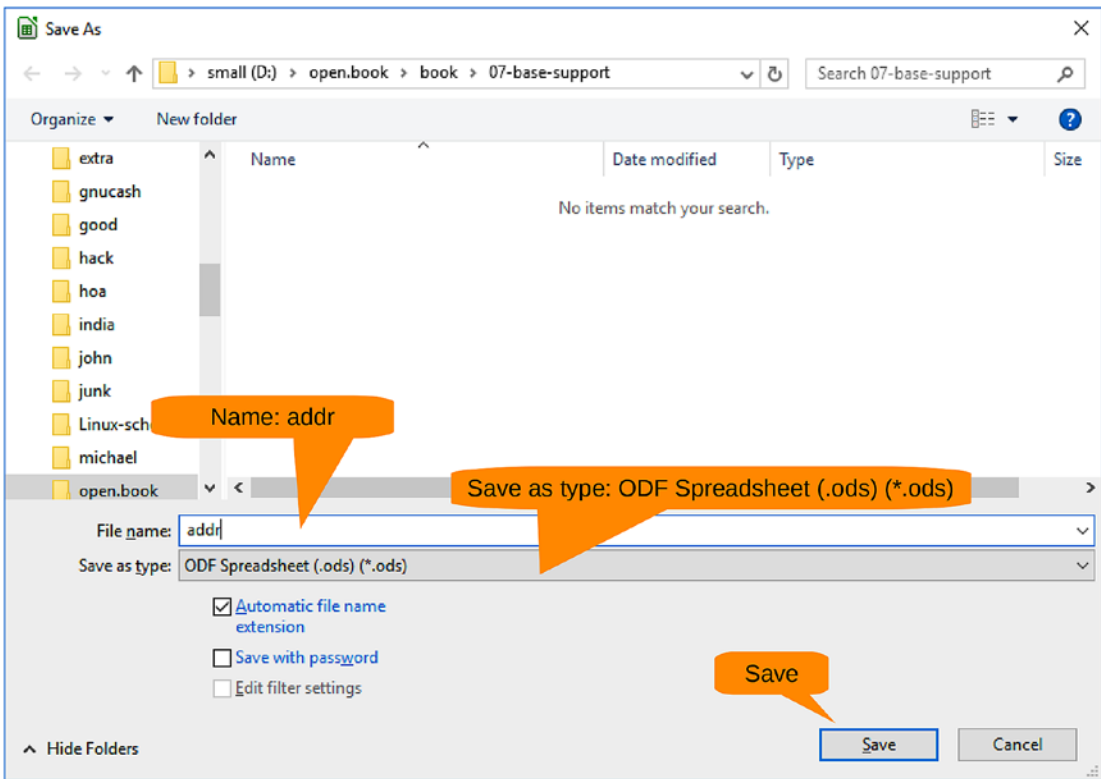
Figure 7-3. *Saving the file*

Creating the Form Letter

Now let's create a form letter as a LibreOffice Word document. Select File ➤ New Text
Document. You'll enter your name and address, and then it's time for the addressee.

You need to connect the spreadsheet you are using to LibreOffice as a data source or
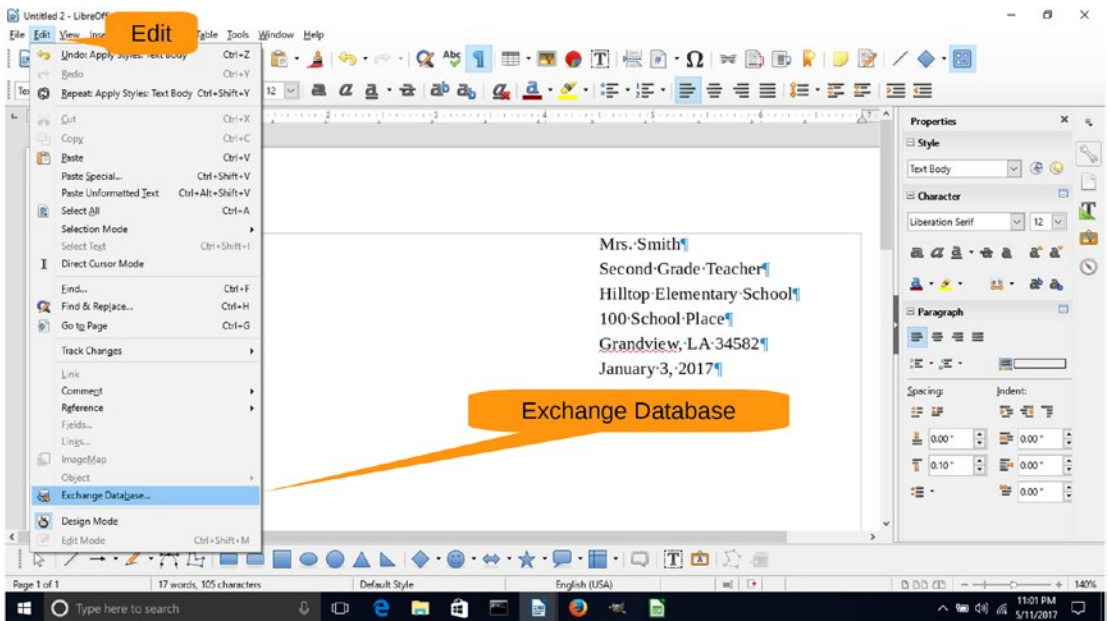database. Select Edit ➤ Exchange Database, as shown in Figure 7-4.

Figure 7-4. Making a database connection

Let's address some terminology before we go any further, specifically, the terms *spreadsheet* and *database*. LibreOffice lets you use a nicely formatted spreadsheet as a small database. Therefore, in many dialogs where you are asked to select a database, you are actually selecting a spreadsheet. You can think of the terms as the same in LibreOffice. In addition, the first *row* of the example spreadsheet contains column names. In a database, they are called *field names*. Finally, a spreadsheet *sheet* is the same as a database *table* (see Table 7-1).

Table 7-1. Spreadsheet/Database Translation Table

Spreadsheet Term	Database Term
Spreadsheet	Database
Column name	Field
Sheet	Table

After you select Edit ➤ Exchange Database, the Exchange Databases dialog appears. The database (spreadsheet) you want is not there, so click Browse, as shown in Figure 7-5.
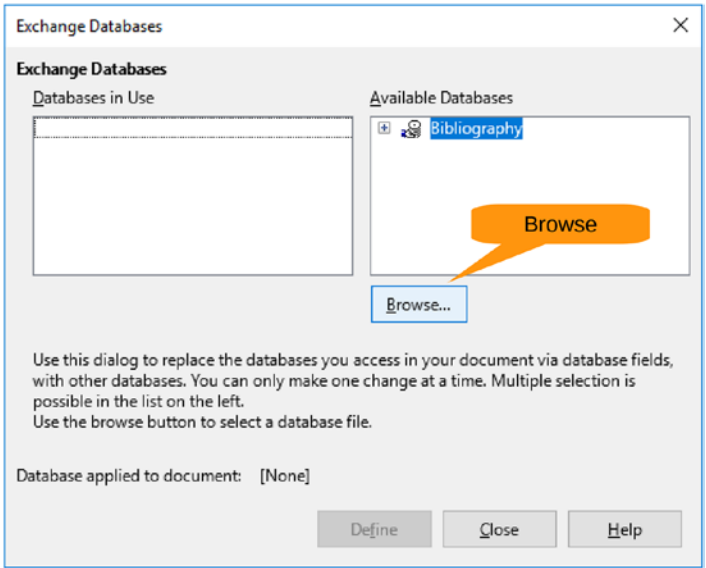
Figure 7-5. *Exchange databases*

Using the file open dialog, you can find the spreadsheet file (addr.ods) and open it. LibreOffice returns to the Exchange Databases dialog only now the "addr" database will appear in the Available Databases column, as shown in Figure 7-6.
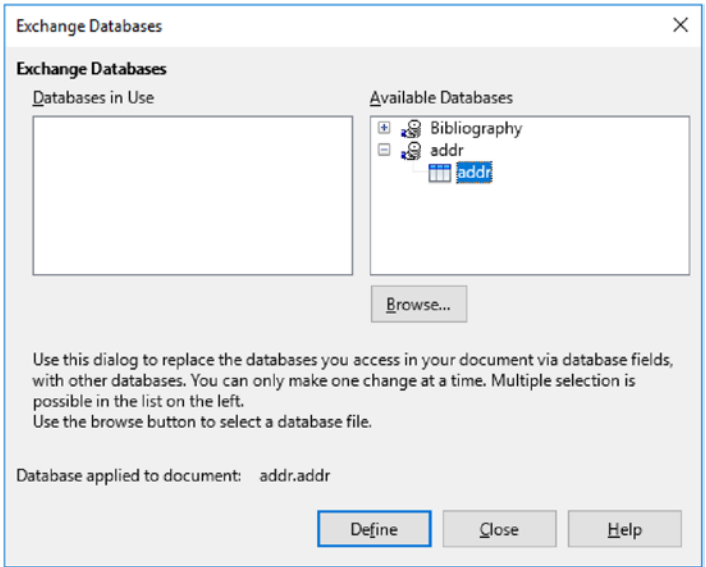

Figure 7-6. *Database list now includes "addr"*

Click Close to finish the dialog. Now you need to insert data from the database into the form letter. This is done through *fields*. A field is something in the document that will be replaced by real data. For example, the field Page Number is replaced by the current page number.

In this case, you want to get fields from the database. So, start by selecting Insert ➤ Field ➤ More Fields to bring up the field list, as shown in Figure 7-7.
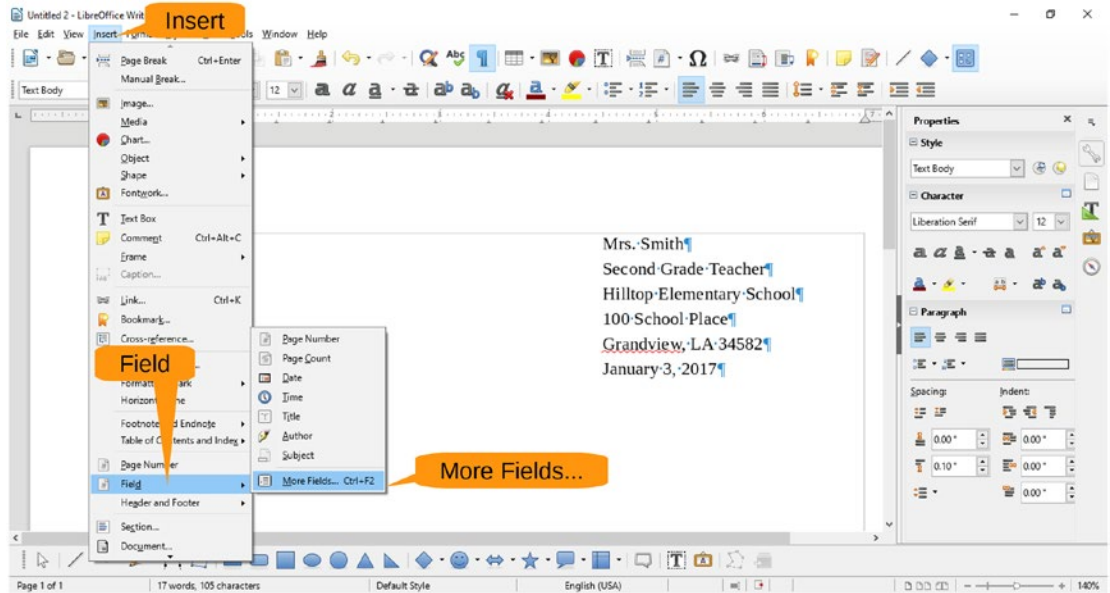

Figure 7-7. *Inserting a field*

In the Fields dialog, select the Database tab. The "addr" database is listed on the right. Click the plus (+) sign to expand it, and you'll see a data section.

On the left, select "Mail merge fields." On the right, click the plus (+) sign next to data to expand the list. Select "first," which is the first name of the person you are writing to, as shown in Figure 7-8.
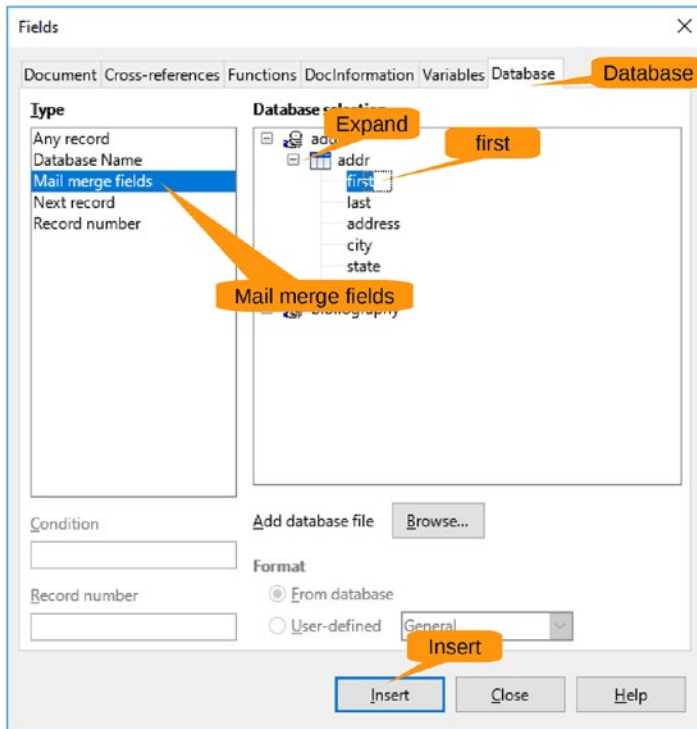

Figure 7-8. *Selecting fields*

Click Insert to insert the field in the document. As you can see in Figure 7-9, a gray "<first>" was inserted in the document. This indicates that the program will take an entry from the column "first" and insert it here.
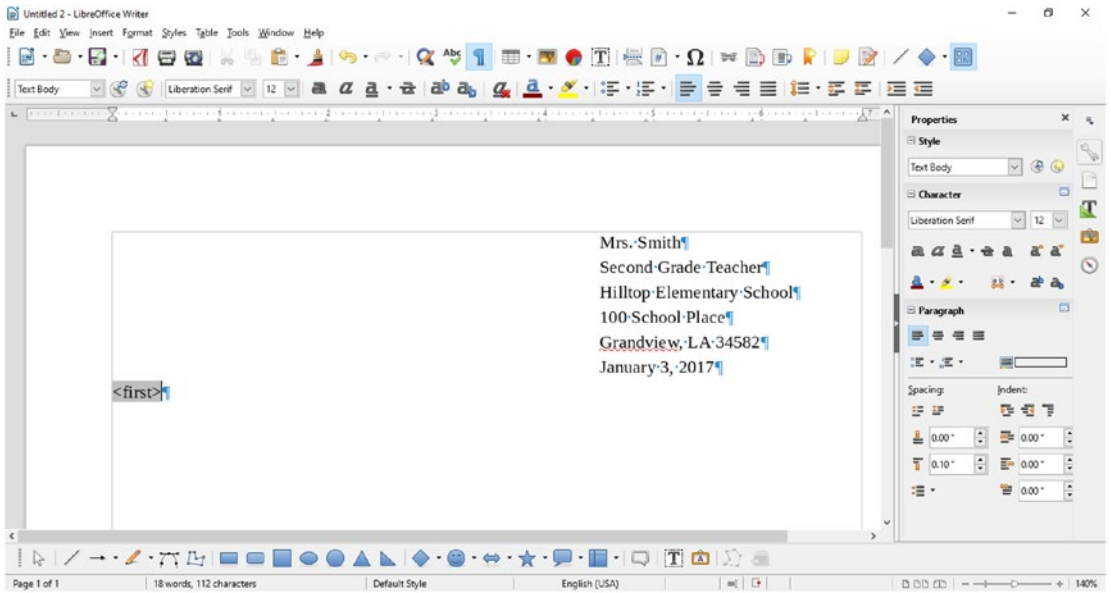
Figure 7-9. *Field inserted*

Now type a space and insert the rest of the fields: last, address, city, state, and zip. Add a "Dear" line with another "first" field, and you get Figure 7-10.
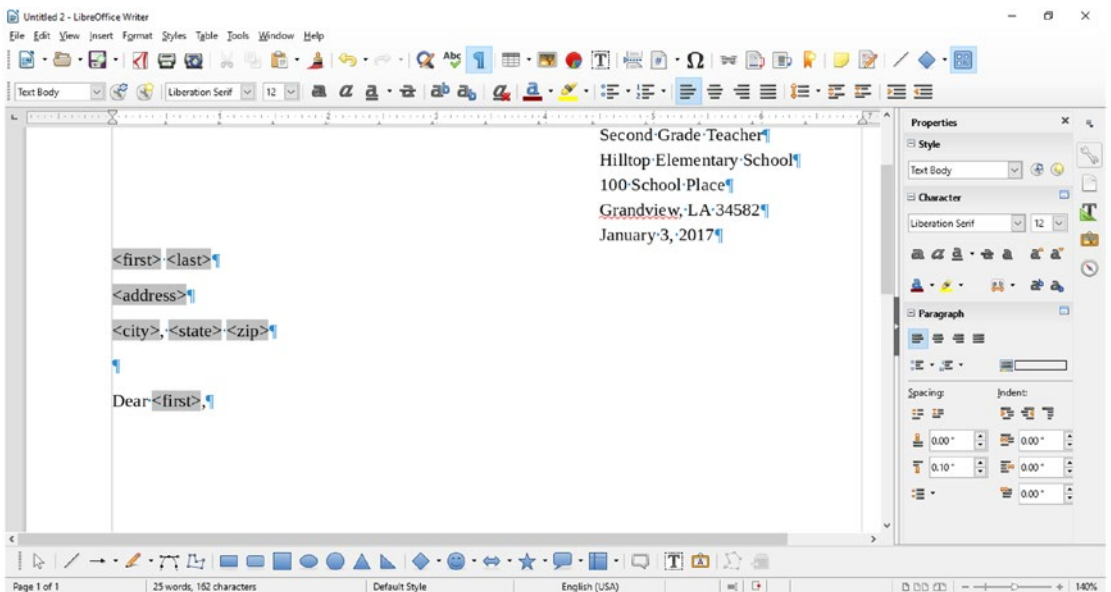

Figure 7-10. *Letter with fields*

Now you have to type the rest of the text. Figure 7-11 shows the final form letter.
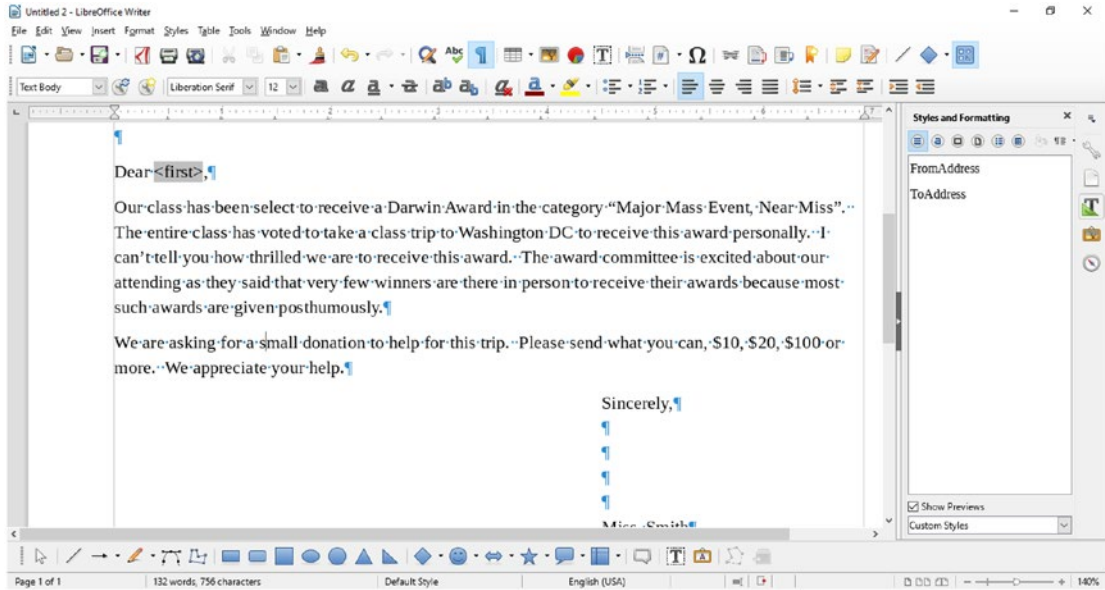

Figure 7-11. *Finished letter*

Let's save the letter and then select File ➤ Print. LibreOffice notices that this is a mail merge document and displays the dialog in Figure 7-12, which asks you if you want to print a form letter.
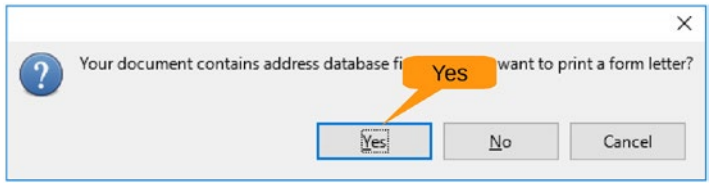

Figure 7-12. *Form letter dialog*

Of course, you do—that's why you're reading this chapter. Click Yes.

The Mail Merge dialog appears, as shown in Figure 7-13. This dialog allows you to print to a physical printer or a file. You want to print a big PDF file that you can take down to the school's office and let them print some copies on the fast printer.
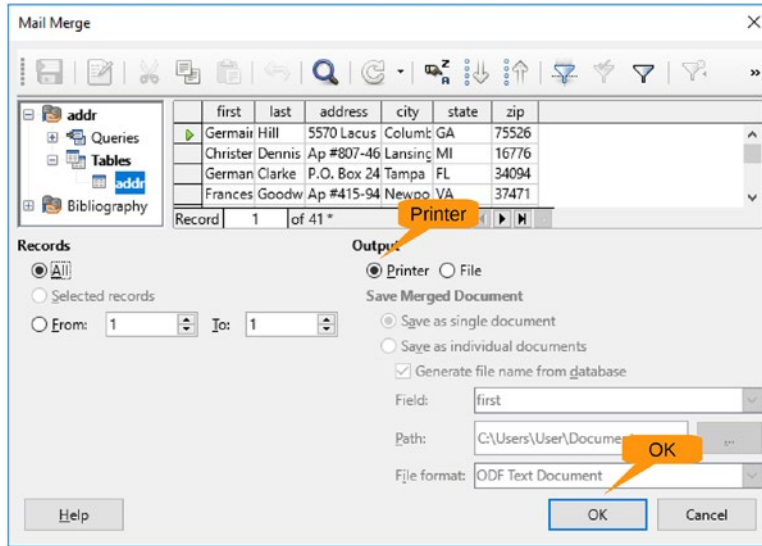

Figure 7-13. *Mail Merge dialog*

If you select Print to File, the only file formats you can print to are document formats such as LibreOffice or Microsoft Word. It's not obvious, but to save the result to PDF file, you need to select Printer.

When you click OK, LibreOffice will go through a frenzy of computation creating your 100 form letters all the while displaying the progress dialog shown in Figure 7-14.
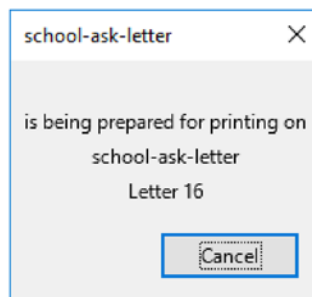

Figure 7-14. *Telling you the program is busy making letters*

This screen will eventually disappear and be replaced by the Print dialog in Figure 7-15.
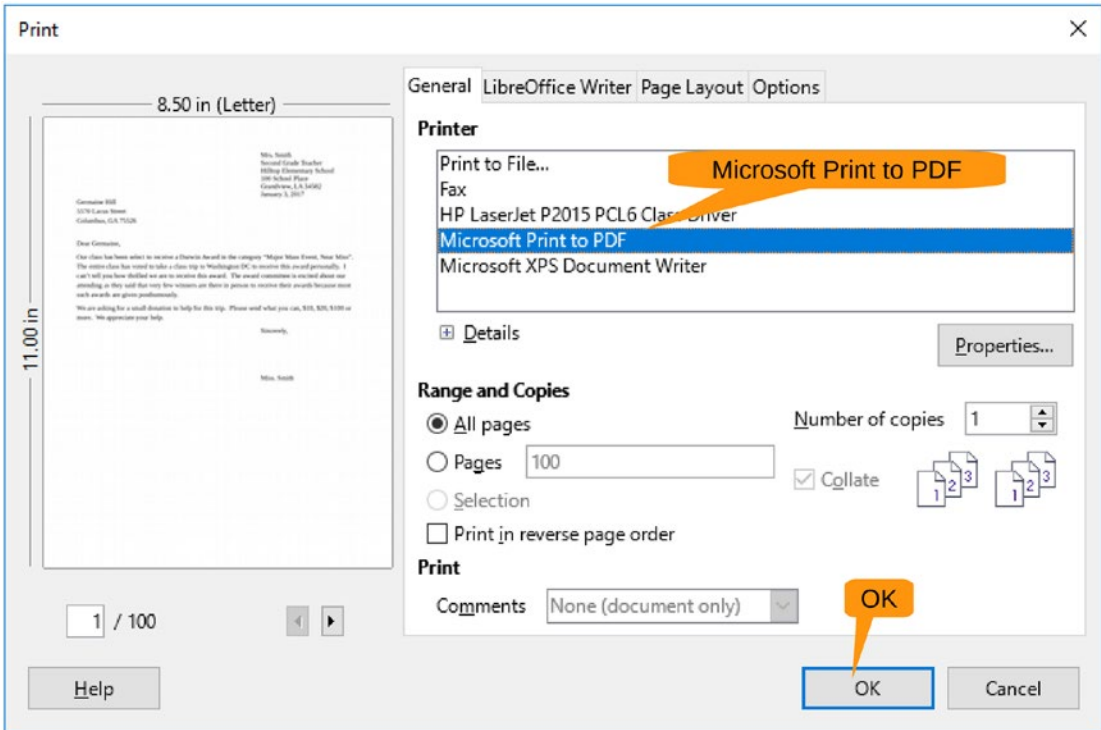

Figure 7-15. *Print dialog*

Select the printer called Microsoft Print to PDF to save the file as a PDF and then click OK to bring up a dialog asking you what file you want to save the results to. The final file will be 100 pages long, with one page for each name in your list.

Using LibreOffice Base

A spreadsheet is fine for saving 100 names. In fact, it's not too bad for 1,000. For 10,000 names, though, it gets a little difficult to use, and at 100,000 names, forget about it. For that many names, you need a database. LibreOffice has one called LibreOffice Base. It's a decent small database that can handle pretty much anything a person can throw at it.

Java

Before you can use LibreOffice Base, you must install Java. You can download it from `www.java.com`. Again, install it by selecting all the defaults except when the "Get the best…" dialog, as shown in Figure 7-16, appears.
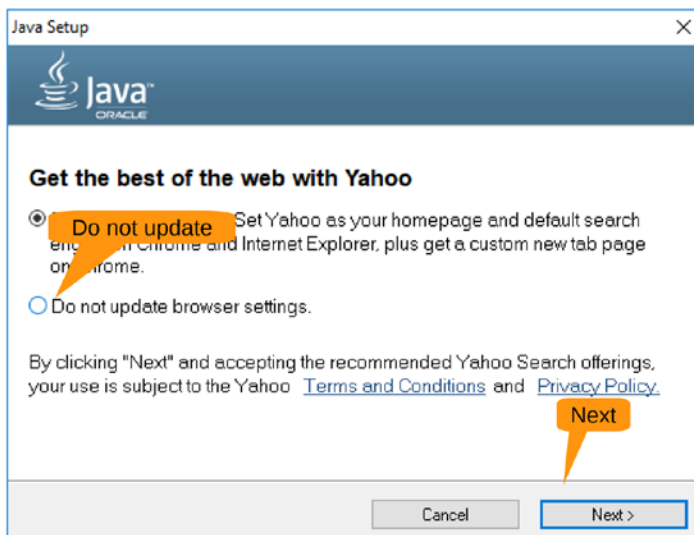

Figure 7-16. *"Can I take over your browser?"*

Click "Do not update browser settings" and then Next. After you finish installing Java, exit LibreOffice and restart it.

Creating a Database

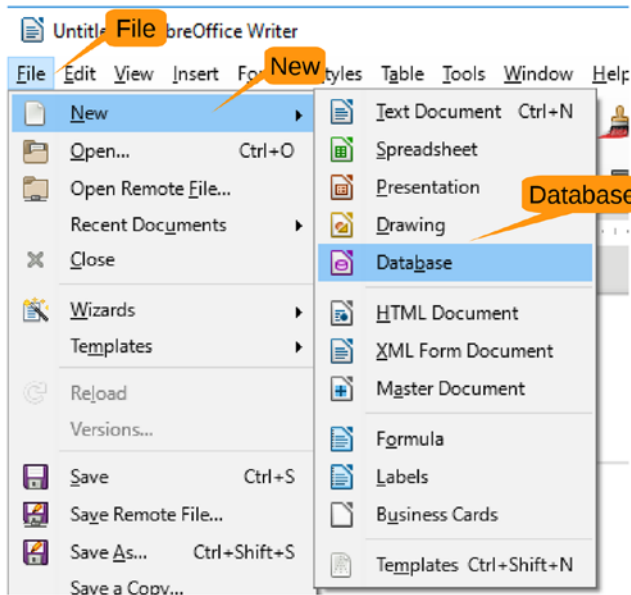To create a database, select File ➤ New ➤ Database, as shown in Figure 7-17.

Figure 7-17. *Creating a database*

The Database Wizard, as shown in Figure 7-18, will appear. LibreOffice has the ability to act as the front end for a variety of databases. You can create a new connection between LibreOffice by opening the file or connecting to a database server. You want a new database, so select "Create a new database." Leave the Embedded Database type alone, especially since there is only one choice.
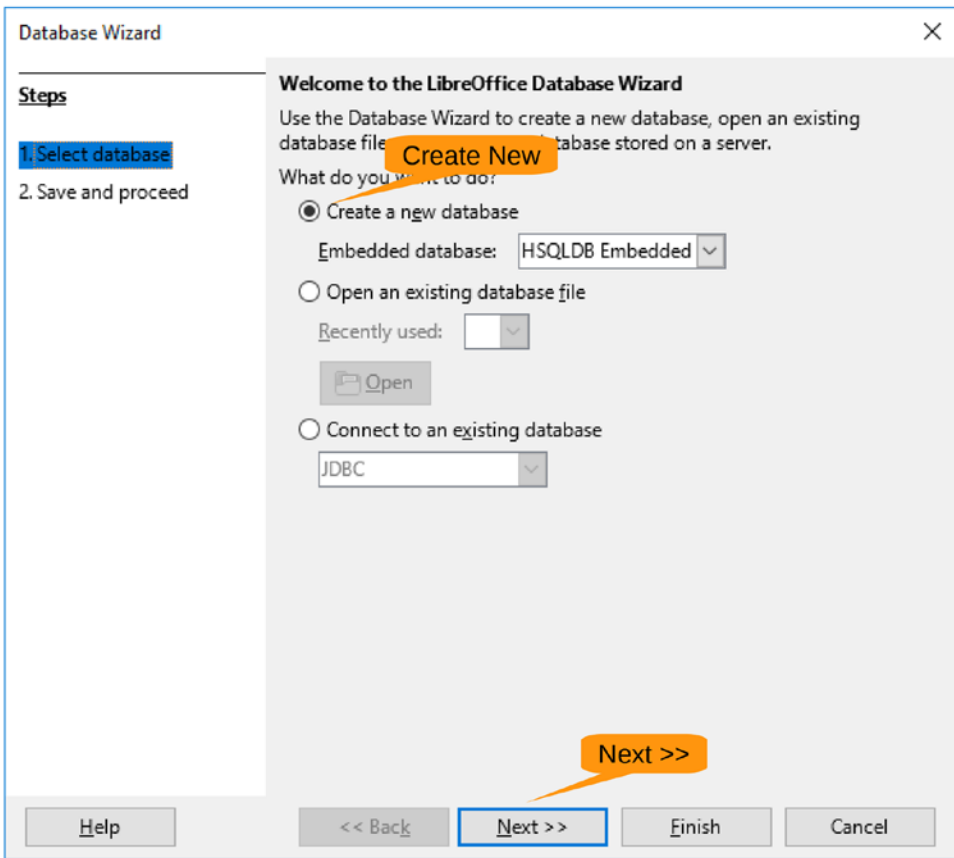
Figure 7-18. *Database Wizard*

Finally, click Next.

The next screen gives you a chance to register the database (make it available for mail merge) and specify whether you want to open the new database (you do). Click Finish to create the database, as shown in Figure 7-19.
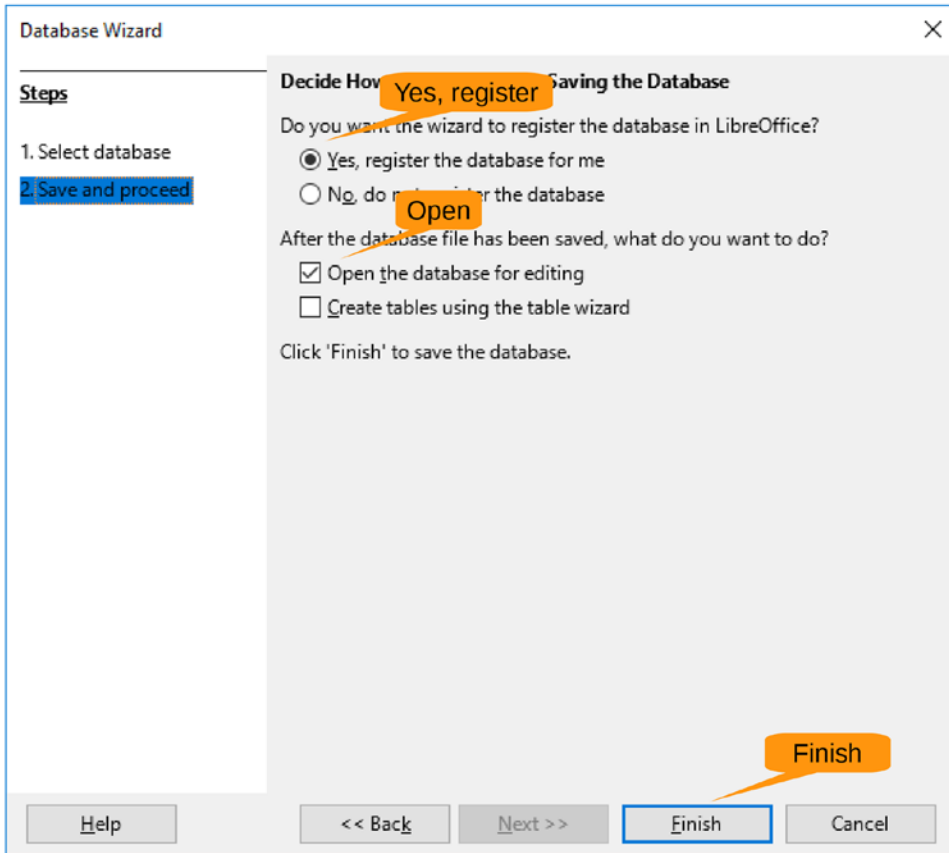

Figure 7-19. *Creating the database*

LibreOffice prompts for the name of the new database so it can save it. In this case, let's enter **address_database**. LibreOffice will display a window like Figure 7-20, which contains the empty database.
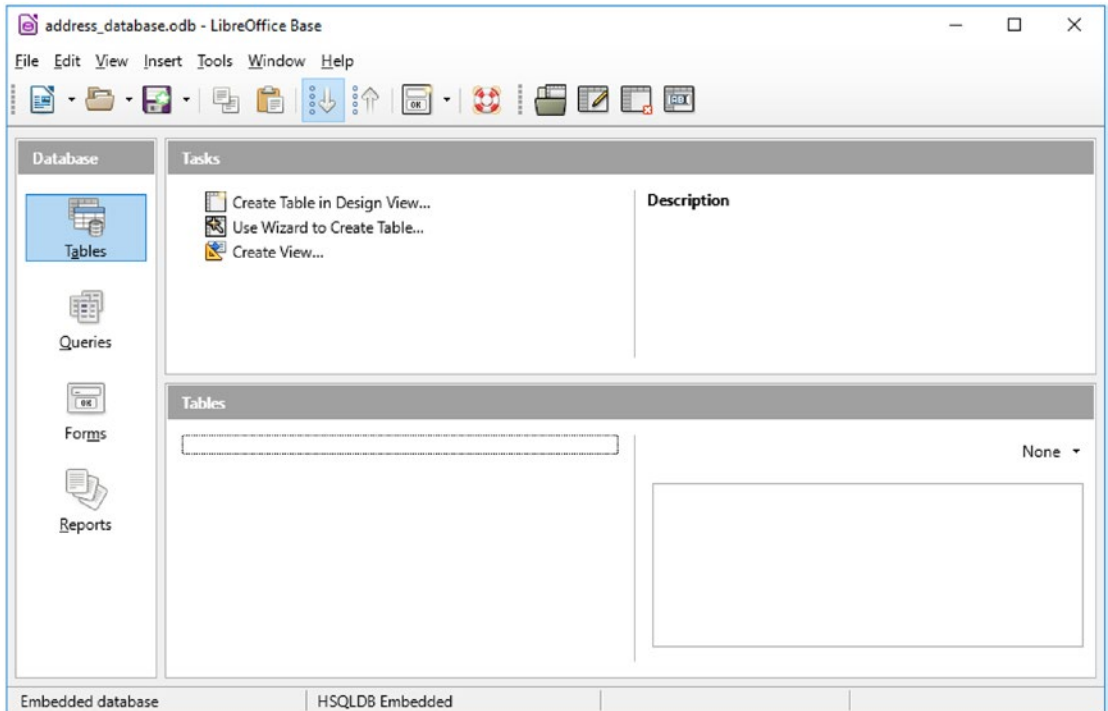

Figure 7-20. *Blank database*

Let's go back to your spreadsheet. You need to copy the data from the spreadsheet into the database. First select all the data with Edit ➤ Select All and then copy it with Edit ➤ Copy, as shown in Figure 7-21.
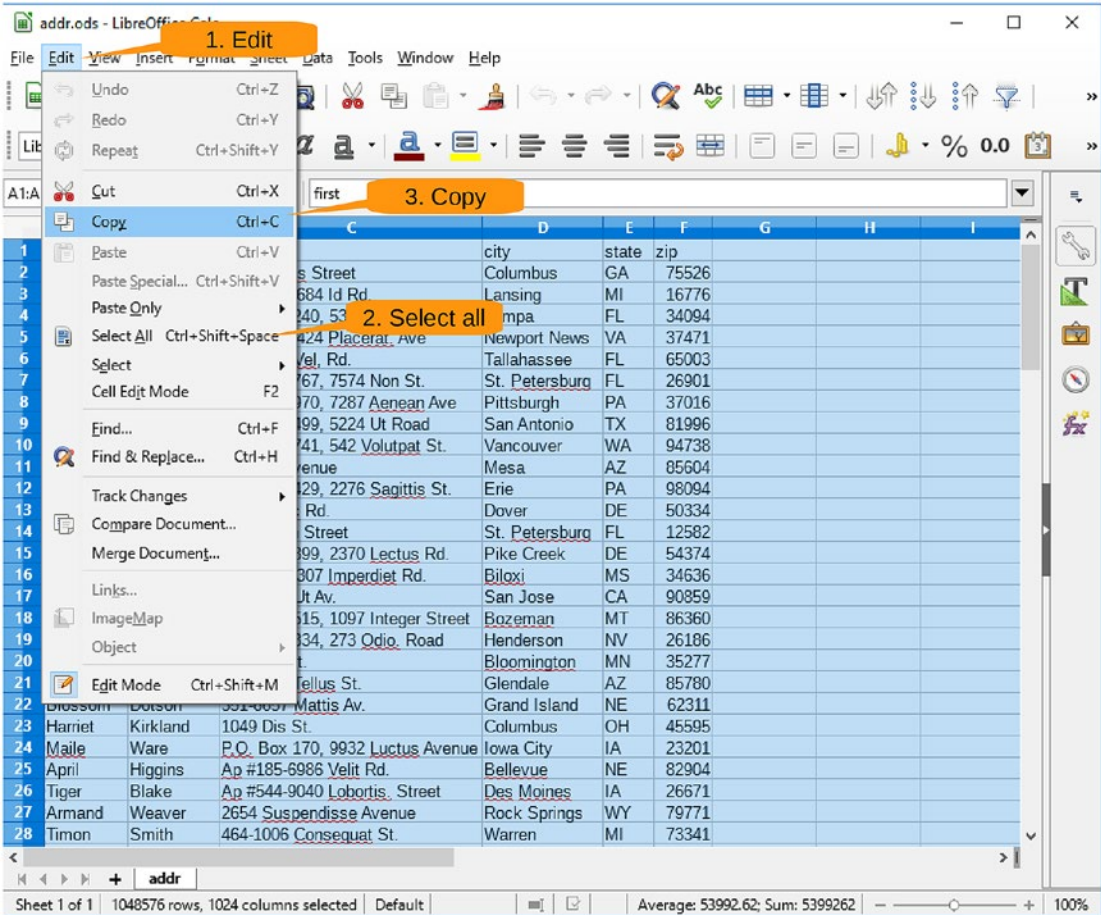

Figure 7-21. *Copying the database*

Now go back to the database window. Select Edit ➤ Paste, as shown in Figure 7-22.
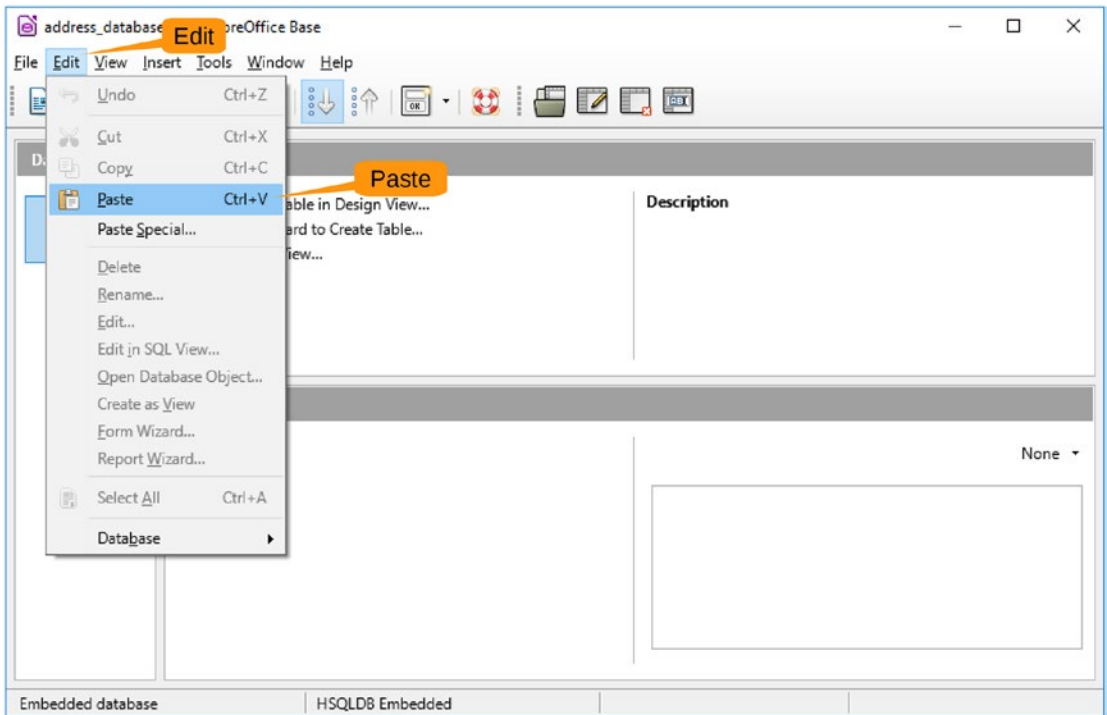

Figure 7-22. *Pasting in the new table*

The Copy Table dialog will appear, as shown in Figure 7-23. For the table name, enter **address_table** (it makes queries easier if the name is all lowercase and has no spaces in it). Leave "Use first list as column names" selected, select "Create new field as primary key" to number each row, and then click Create.
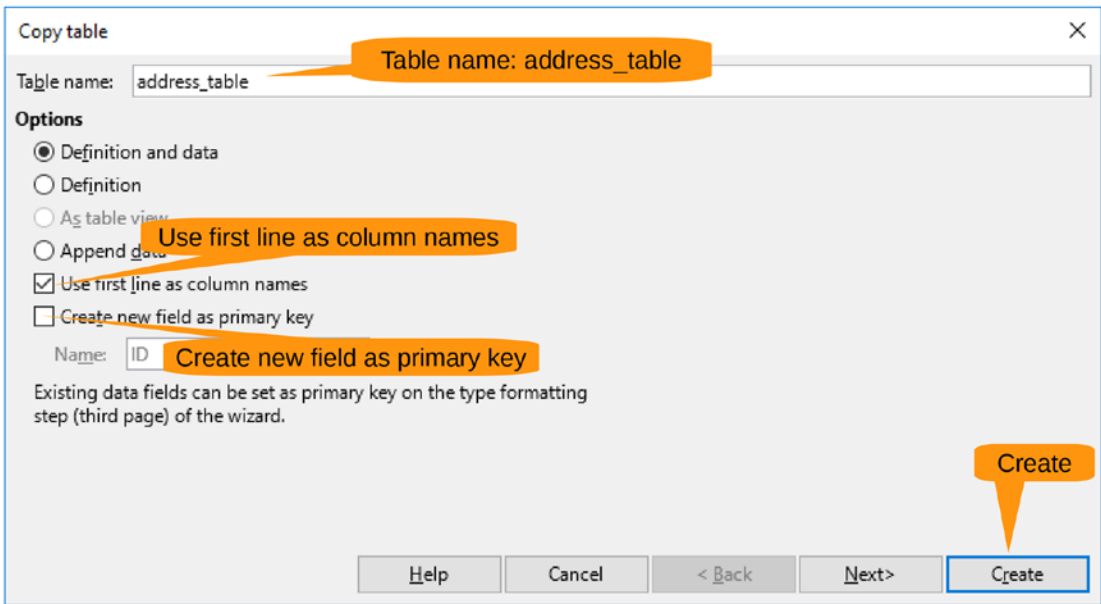
Figure 7-23. *Creating the table*

The new table appears in the database window, as shown in Figure 7-24.
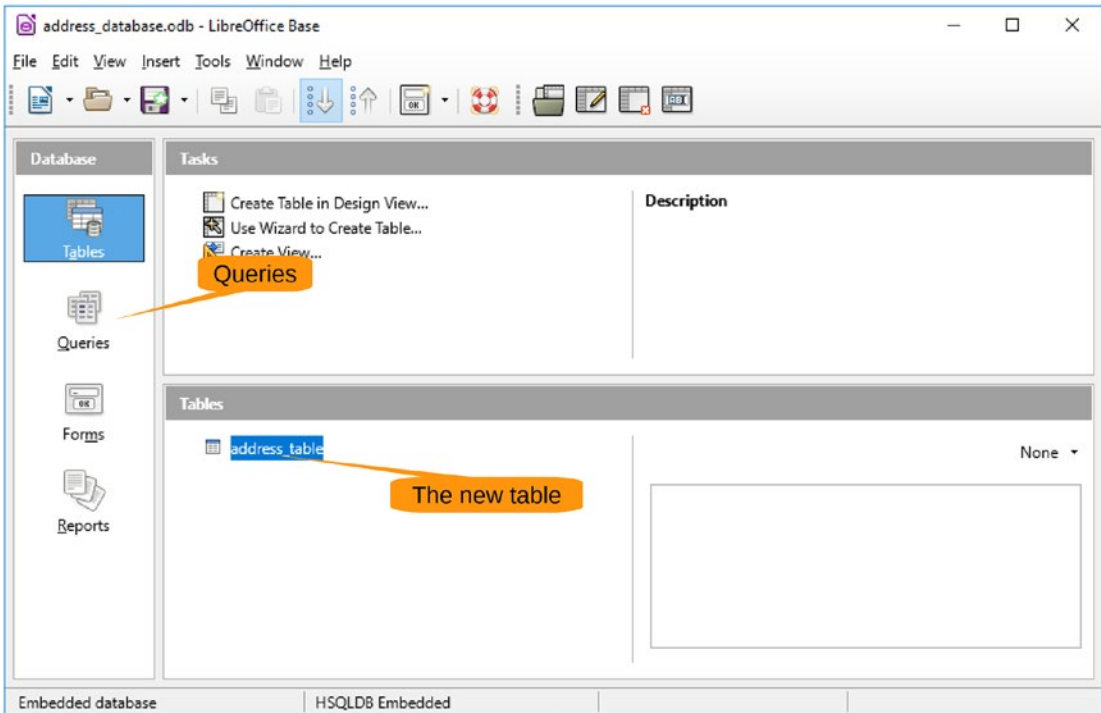

Figure 7-24. *New table*

You can use the Exchange Database feature of your form letter to get its data from this table. But you have a database, so let's use it. Getting information out of a database is done through something called a *query*. Let's see whether you can create a query that returns just those people whose first name begins with *A*. Start by clicking the Queries icon, as illustrated in Figure 7-25.
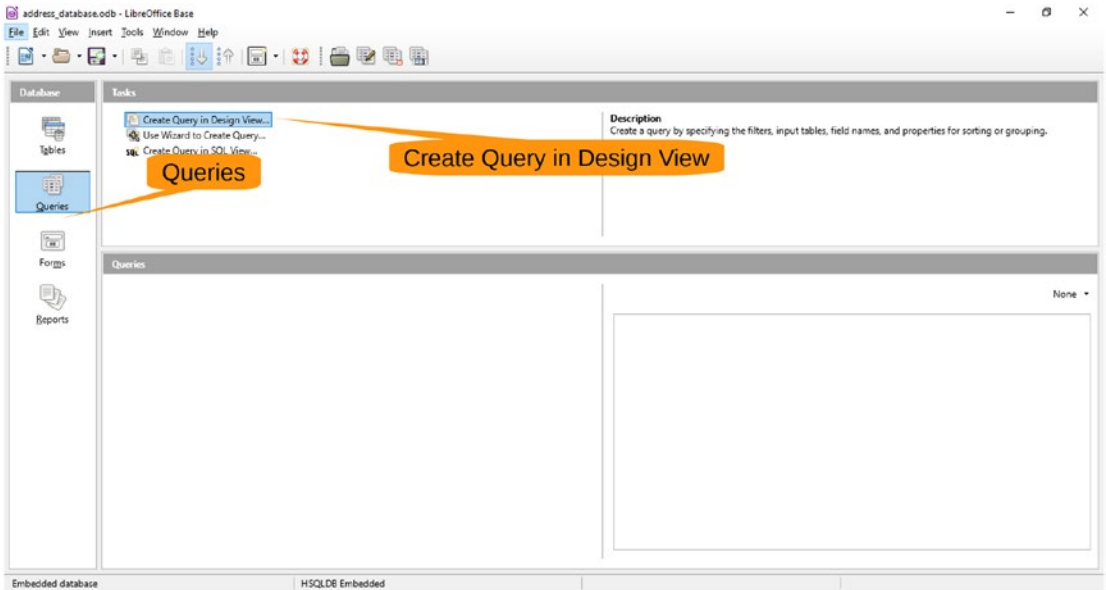

Figure 7-25. *Starting the query*

Next select Create Query in Design View. This opens the Add Table or Query dialog, as shown in Figure 7-26.
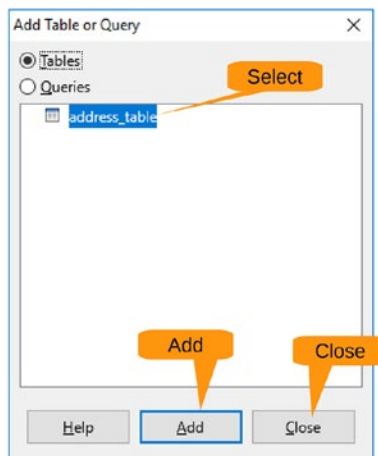

Figure 7-26. *Add Table or Query dialog*

Since you have only one table, called "address_table," let's select that. Clicking Add will add it to list of tables in the Design View window, as shown in Figure 7-27.
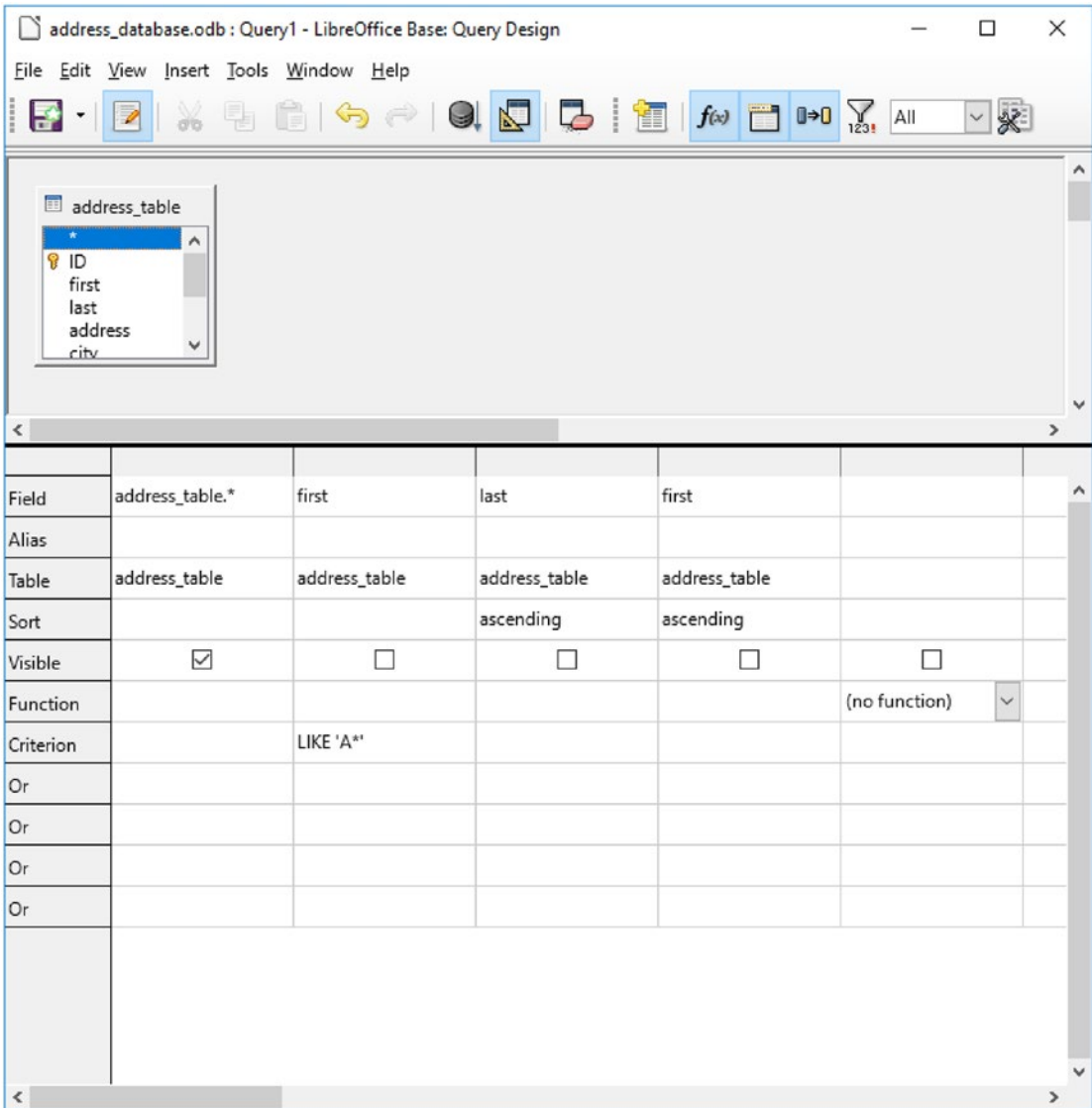

Figure 7-27. *Design View*

You now need to enter the column values.

First Column

For Field, enter *****. The asterisk (*) means all fields of the table. To make sure the database knows which table you are referring to, it will add the name "address_table." at the beginning. (You are using only one table for this query, but you could use more.)

The Table value will be filled in automatically.

Next select Visible to indicate that the results are to be displayed in the query.

Second Column

The field is "first." You are going to use the entries where the first name starts with *A*, so under Criterion enter **LIKE 'A%'.** (The A% is enclosed in straight single quotes.) The LIKE operation is one that's special to database queries and says to match the string on the right side, assuming that % matches any number of characters.

Do not select Visibility. The column is already brought in by *, and you don't need it a second time.

Third Column

For this column, the field is "last." Select Ascending for the Sort item. Again, make sure Visible is deselected.

You'll sort by last name. This column tells the database to do just that.

Fourth Column

For this column, the field is "first," the sort is Ascending, and it is not visible. If two names are the same, then the sort order will look at this field second. So, "Smith, Bob" will come before "Smith, Yani."
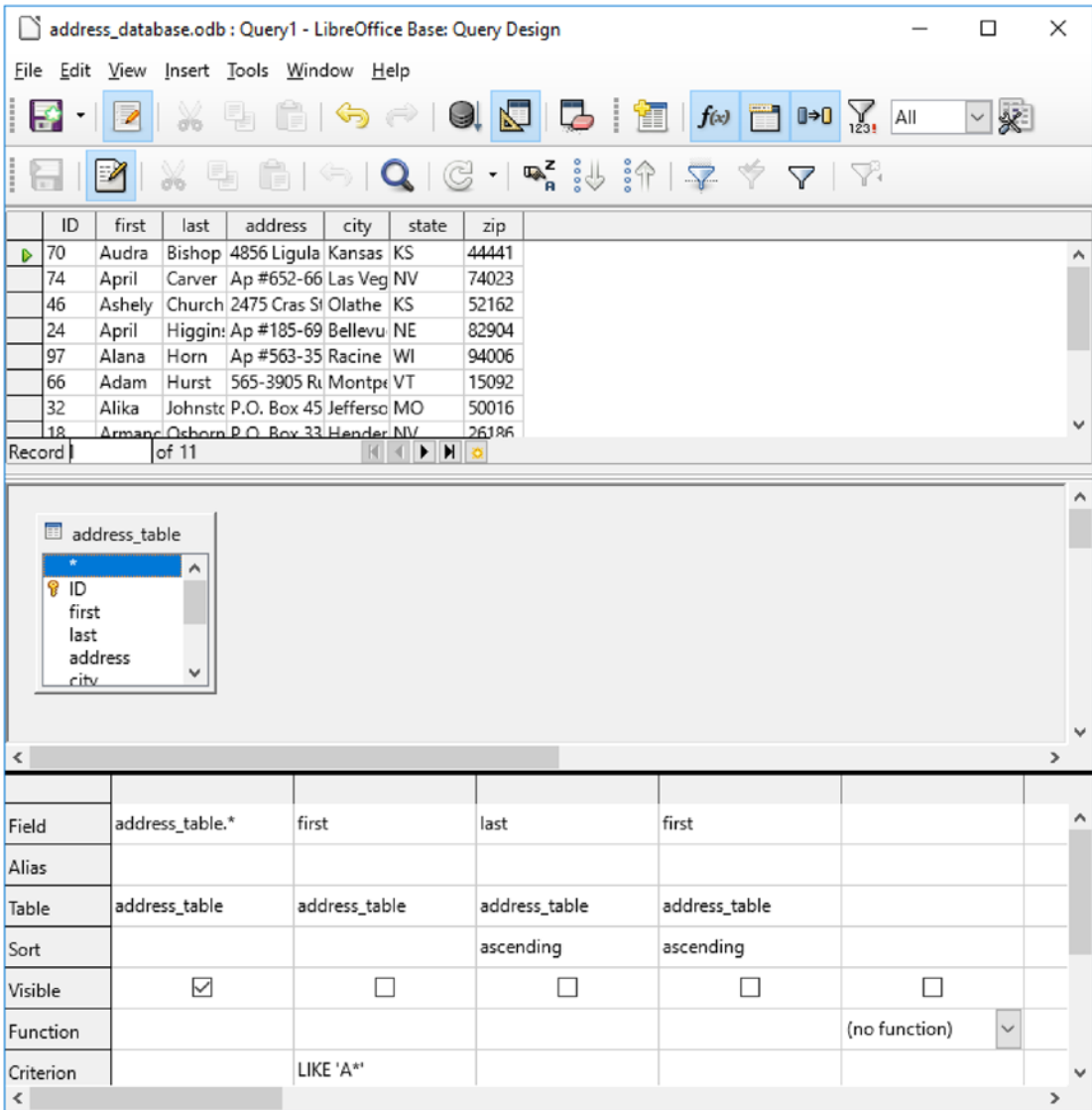
The completed form should look like Figure 7-28.

Figure 7-28. *Completed query design*

Now let's select File ➤ Save. Figure 7-29 shows the Save As dialog that appears. Let's save this query under the name **A list**.
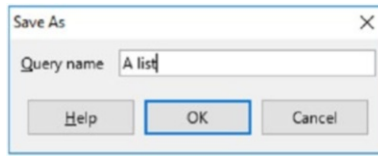

Figure 7-29. *Saving the query*

Let's go back to the form letter and select Edit ➤ Exchange Databases. As Figure 7-30 shows, the query is now one of the data sources you can select.
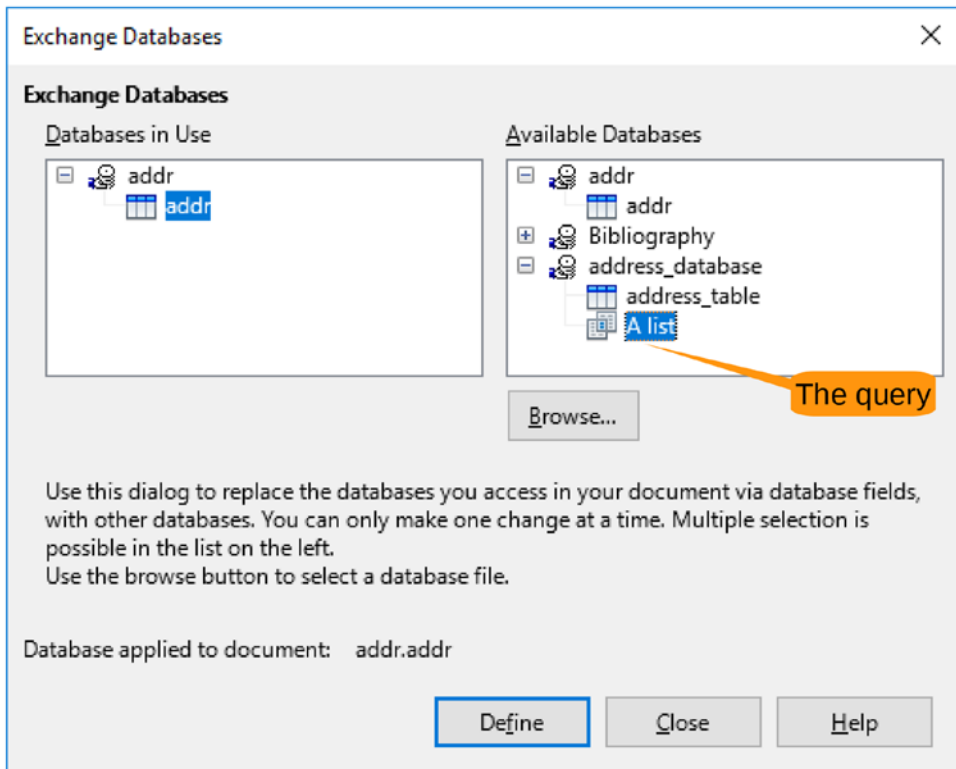

Figure 7-30. *Using a query as a data source*

Now when you run the form letter using the procedure described, you'll get just the names that begin with *A*.

Summary

LibreOffice is an adequate light database, but it does take a little getting used to before it is truly easy to use.

In this chapter, you saw how to connect the database to LibreOffice Writer to produce form letters. Unlike most commercial software, LibreOffice does not try to lock you into its proprietary system. You can, with a little work, interface to stronger and more professional databases such as PostgreSQL, MariaDB, and the big commercial one whose name we won't mention.

The key here is that there are people out there who want nice office tools, and they are willing to write them or pay to get them written. The result is software like LibreOffice, which has all the useful features you find in Microsoft Office without the bloat and vendor lock-in.

PART II

Graphics and Multimedia

In this part of the book, we first cover graphics, starting with digital photography and raster images. The Gnu Image Manipulation Program (Gimp) was designed to allow users to work with such images. It is somewhat comparable to Adobe Photoshop but has gone beyond this program in many places. Next, we review Inkscape, a drawing and illustration program. Finally, we cover Dia, a diagram editor.

Next, we move on to multimedia, starting with audio. The Audacity audio editor is considered one of the best in the world and has won several awards. After audio, we cover video editing. Computers have finally become powerful enough to do real-time video editing, although the technology is still in the early stages of development. The OpenShot video editor is one of the better ones available, so you'll learn how to use it to create a YouTube video.

Finally, if you still use DVDs, you can learn about the DVDStyler program. This program lets you easily create nice-looking DVD images suitable for burning or distributing as an ISO image.

As computer technology advances, the quality of free software advances as well. With older technologies such as still pictures and audio, free software is as good if not better than its commercial counterparts. With newer video-editing technology, it may not be as good as the commercial stuff yet, but it's almost there and catching up fast. Either way, you can find many excellent, free, open source tools to use in your daily work.

Getting Started with GIMP

GIMP is a high-quality, full-featured, image manipulation program. The program is free, but it comes with minimal documentation. This is both good and bad. It's bad if you want to use the more advanced features, but it's good for authors who write books like this one to fill the documentation gap. In this chapter, you'll explore some of the basic uses of this program that you might encounter if you are editing your personal photos. These include the following:

- Rotating pictures

- Managing files

- Cropping images

- Adjusting brightness

- Correcting colors

You can download GIMP from `www.gimp.org`. To install it, just run the installer.

Using GIMP

When you first start GIMP, you'll see a splash screen, as shown in Figure 8-1. The program then takes some time getting together all the files and plug-ins it uses.

Figure 8-1. Splash screen

Note   GIMP caches the information it finds the first time it starts, so it won't take quite as long on subsequent starts.

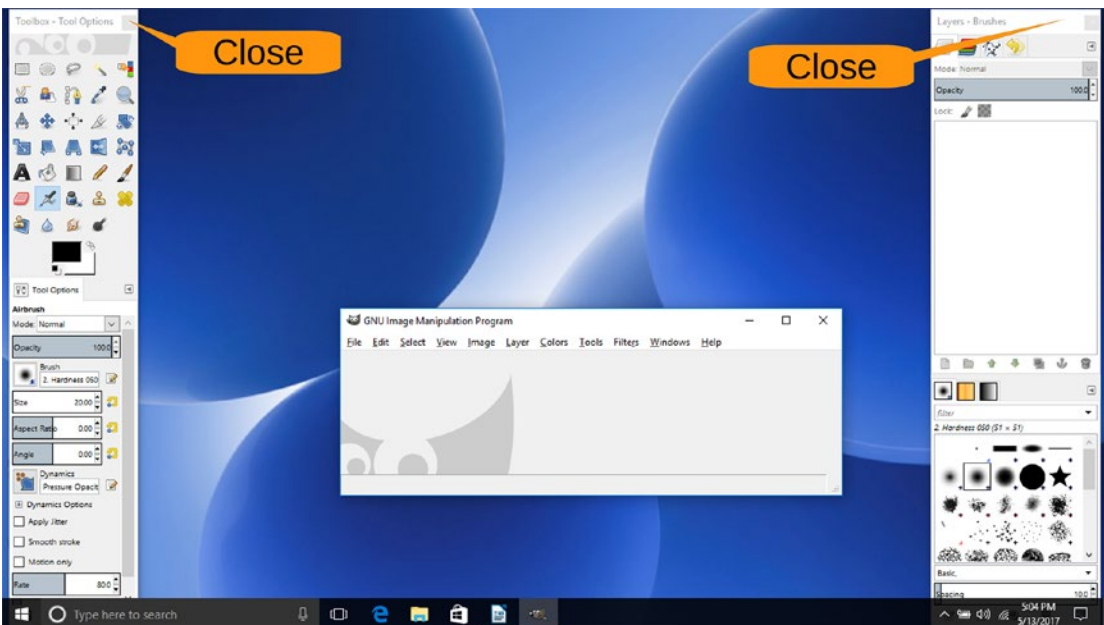Once GIMP starts, it displays three windows, as shown in Figure 8-2.

Figure 8-2. Initial GIMP windows

Close the two windows on the sides; you don't need them for this tutorial. (You can get them back anytime you need them.)

Rotating Images

Select an image from your computer that needs to be rotated and load it into GIMP by selecting File ➤ Open. The picture will display in the main editing window, as shown in Figure 8-3.

Figure 8-3. *Bad picture positioning*

To fix the photo's rotation, select Image ➤ Transform ➤ Rotate 90° counter-clockwise, as shown in Figure 8-4. If you want finer-grained control, you can select Tools ➤ Transform Tools ➤ Rotate. But 90 degrees is good enough for now and covers most cases anyway.
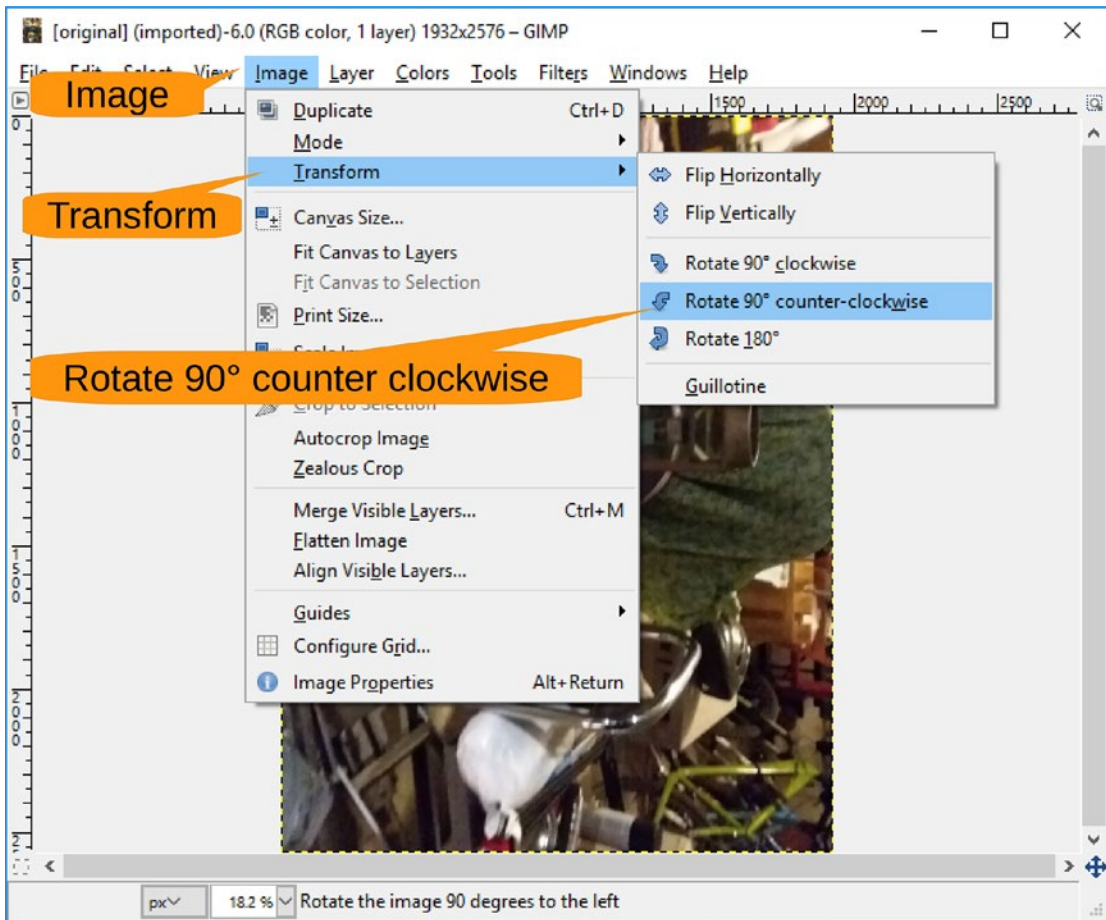
Figure 8-4. *Rotating the image*

Figure 8-5 shows the result.
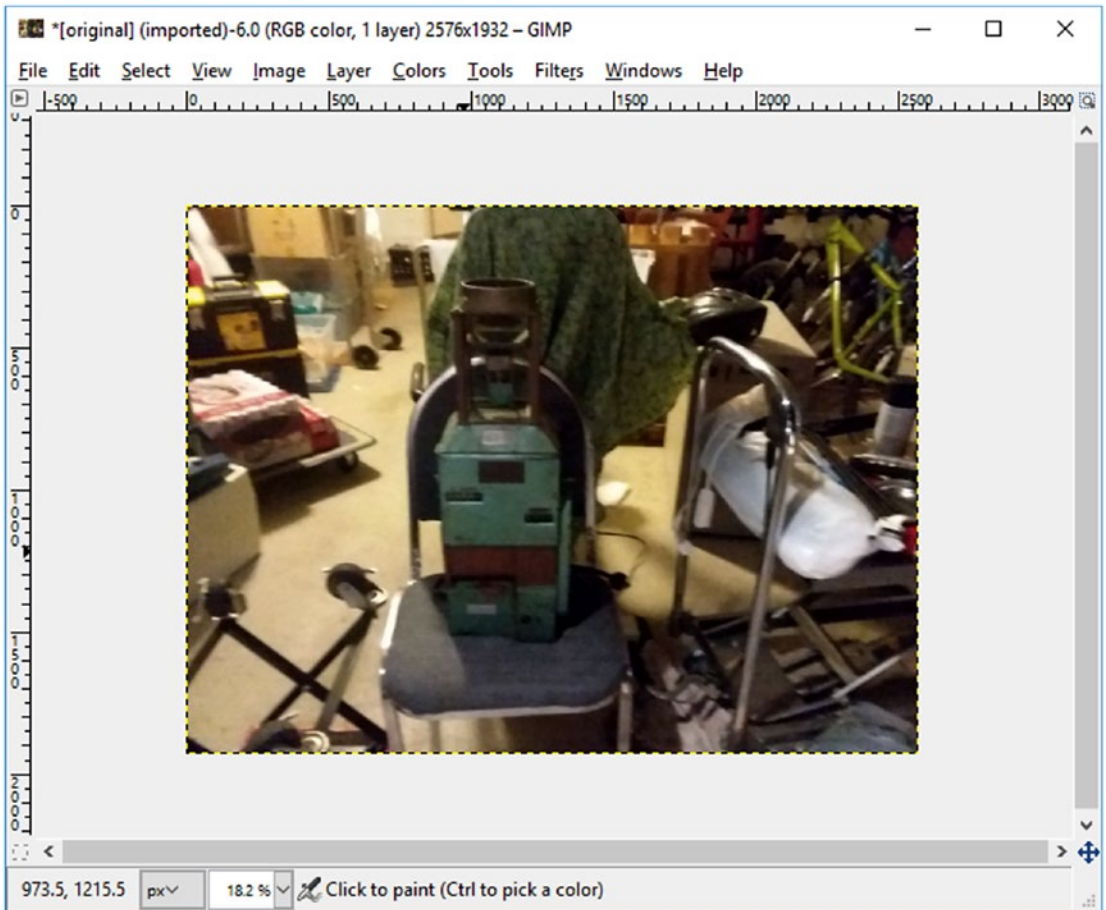
Figure 8-5. *Image after rotation*

Managing Files

XCF is GIMP's native file format, which makes it the best one suited for working within this program. Unfortunately, most other programs that display images do not support XCF, so you'll more than likely want to convert the file to a more universal format, such as JPEG, PNG, or TIF. To do so, you must use Export rather than Save. Otherwise, you will get an error message stating that "The given filename cannot be used for saving." However, be aware that by changing the format, you will lose some of the image's properties.

The following are some of the options you can choose when working with your images:

- Save a file in GIMP's native format (XCF). Select File ➤ Save, and it will be saved as XCF and readable only by GIMP.

- Change an existing XCF file to a standard format (JPEG, PNG, or TIF). Select File ➤ Overwrite <file name>, as shown in Figure 8-6.

- Save an image in a standard format (JPEG, PNG, or TIF). Select File ➤ Export As (Figure 8-6).

- You will need to fill in the name of the file name for export. The extension of this fill determine the type of image being saved. Enter the name of the file name (with extension) click Export as shown in Figure 8-7. In this example we used the extension ".jpg" for a JPEG type file (widely used industry standard for photographs).

- An option window specific to the file type you select will appear (Figure 8-8). In this case, the image is exported as a JPEG file. Unless you have specific changes, leave the defaults as is and click Export.
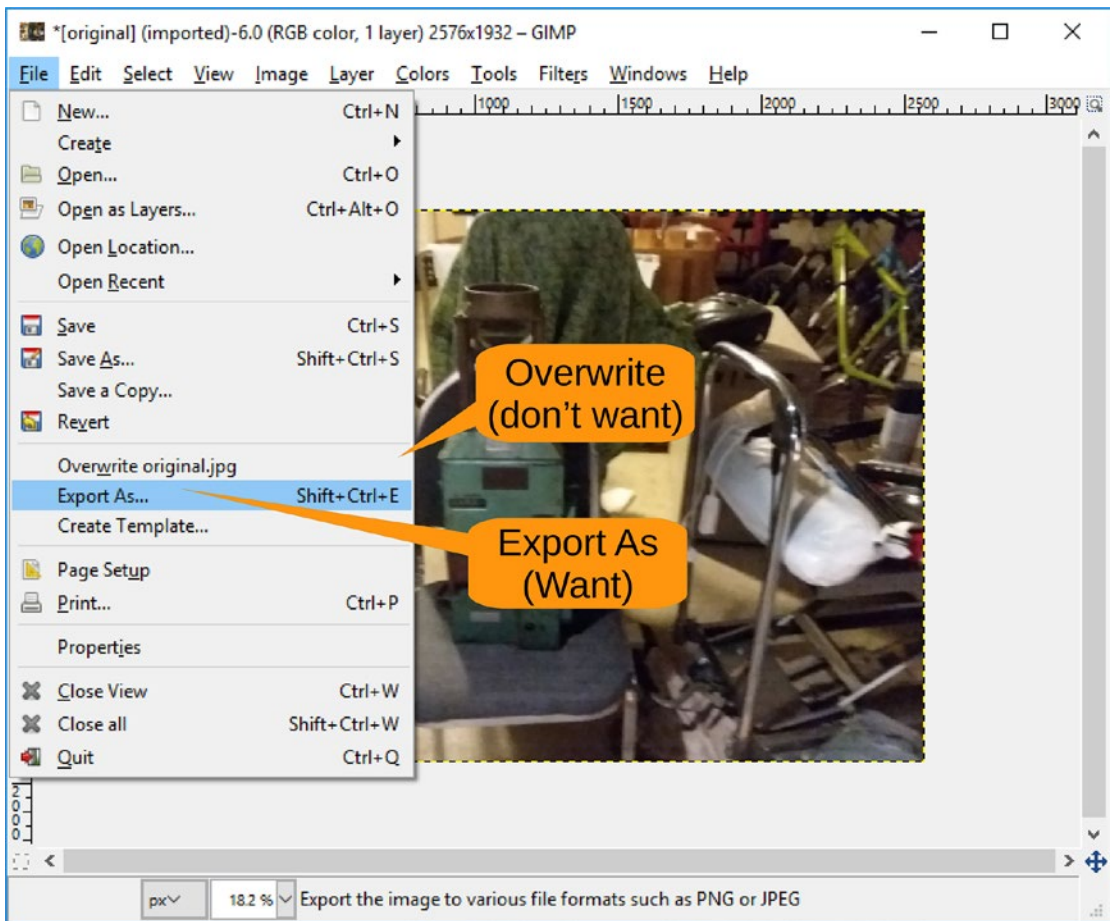
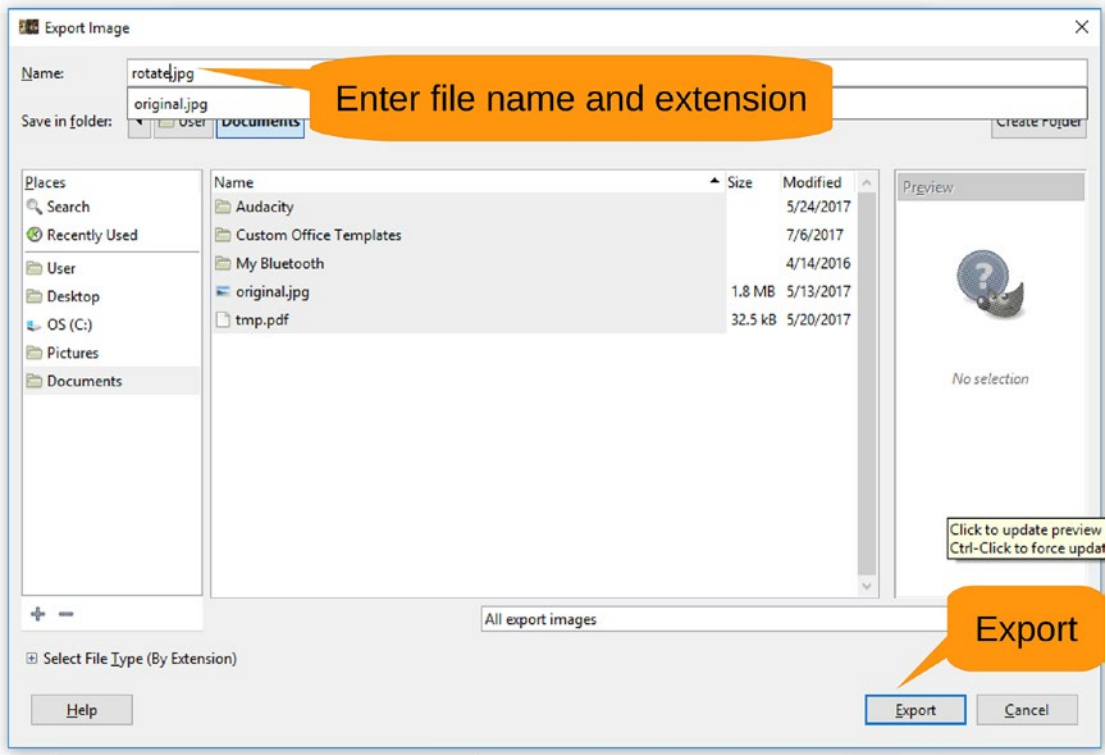*Figure 8-6.* *Overwriting and exporting menu items*

Figure 8-7. *Specifying the file to export*
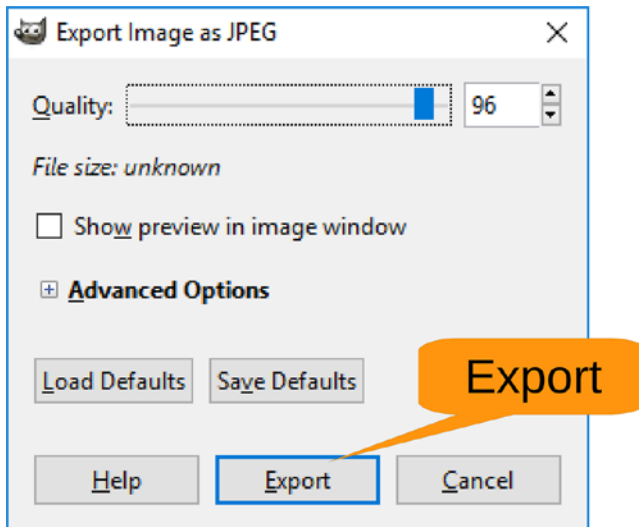

Figure 8-8. *File options*

Cropping an Image

In this example, the image shows the fare box, which is what you want. It also shows a good hunk of the garage, which you don't want. Let's see if you can concentrate the focus on the box by cropping the image. Figure 8-9 shows the command needed; it's Tools ➤ Transform Tools ➤ Crop.
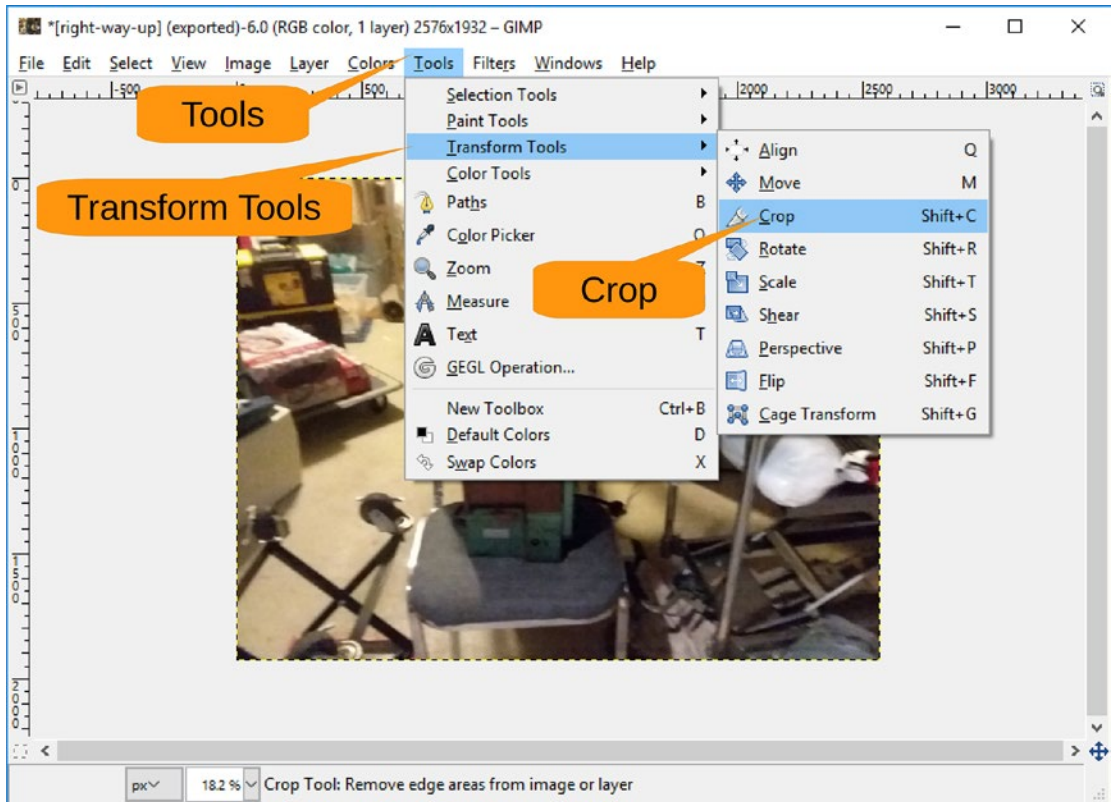

Figure 8-9. Cropping the picture

The cursor changes to a white cross with a knife. Drag the cursor across the picture you want to keep, similar to what's shown in Figure 8-10.
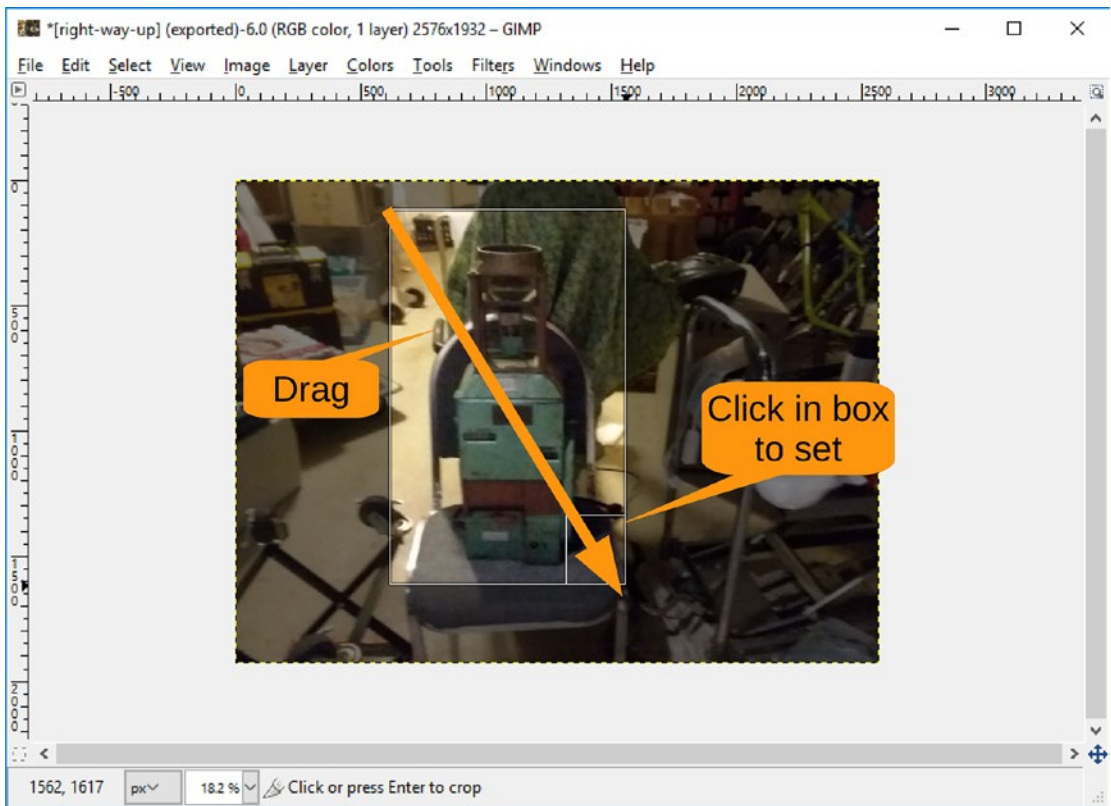
Figure 8-10.   Performing the crop

Four white boxes will show up in the corners. (Only one is visible in Figure 8-10 because we are still performing the initial drag.) You can drag these in and out to get the cropping perfect.

Click inside a square to perform the crop and get something that looks like Figure 8-11.
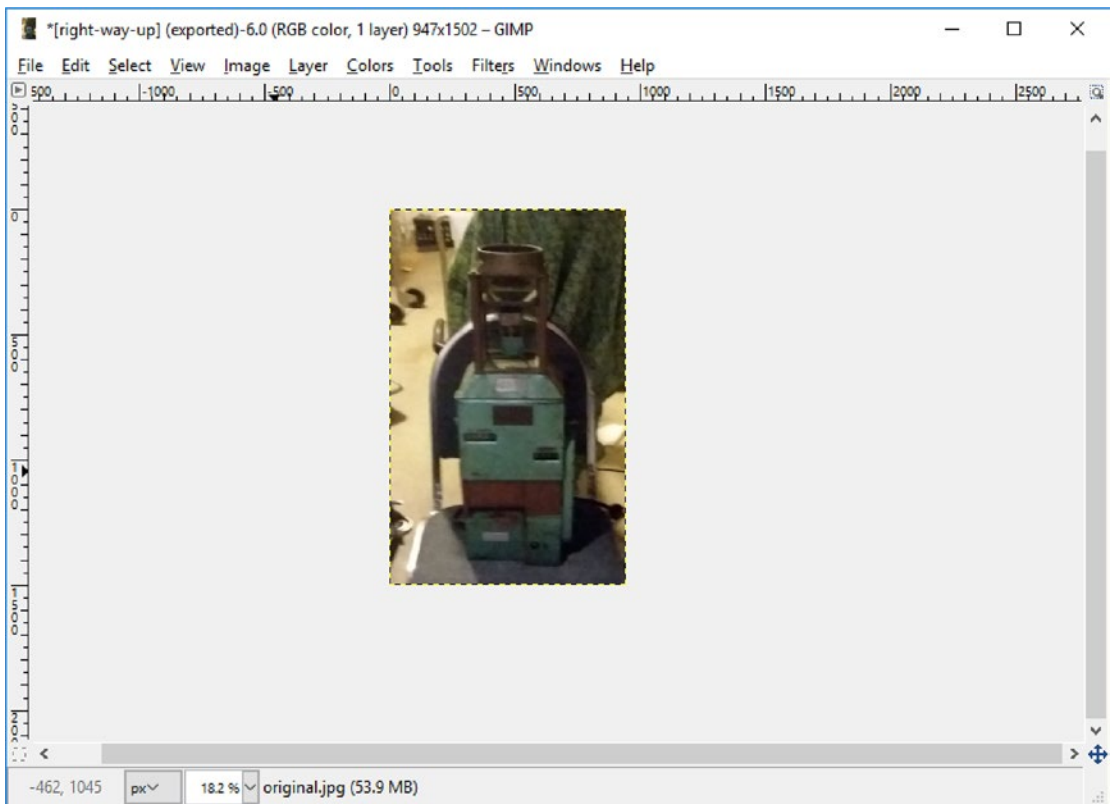
Figure 8-11. *Cropped picture*

This is a little small for the screen, so let's zoom in.

You can use the menu View ➤ Zoom ➤ Zoom In a number of times, but that is slow. The shortcut key is +, so let's press that a number of times until the picture fills the screen, as shown in Figure 8-12.
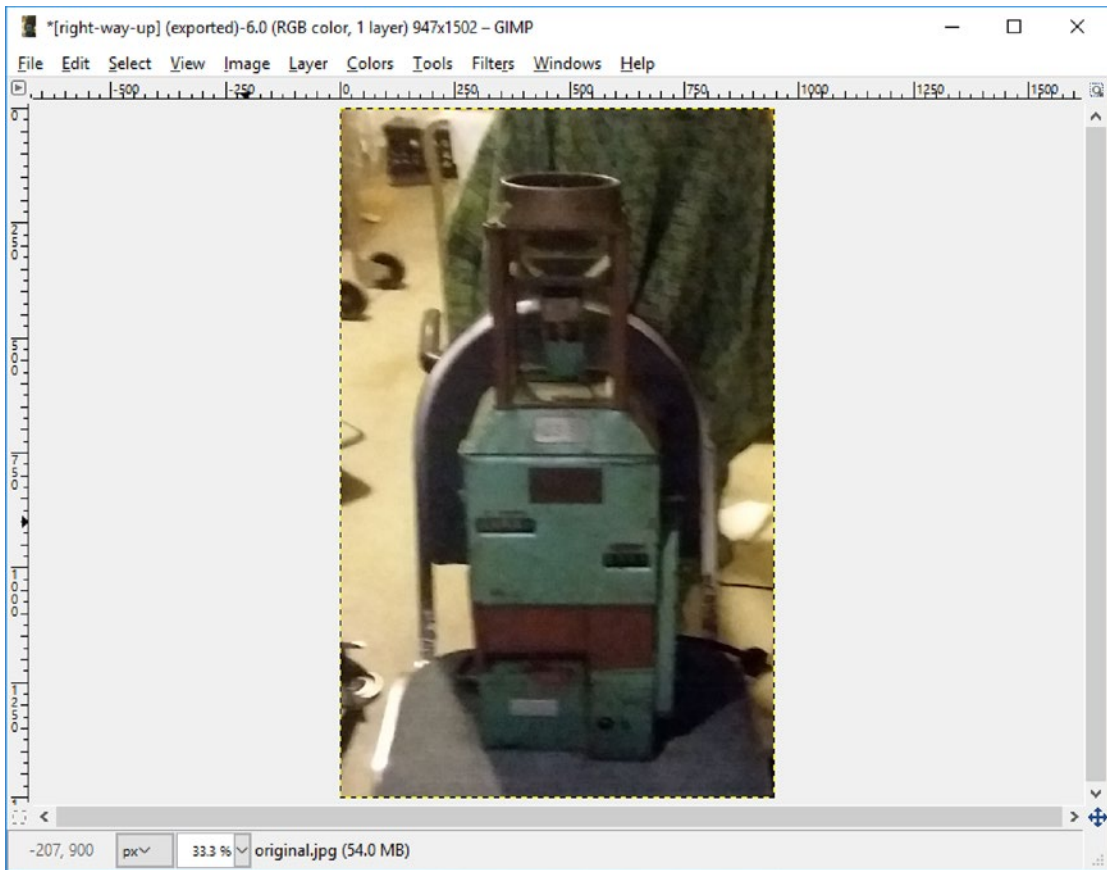
Figure 8-12. Zoomed and cropped image

Now let's save it with File ➤ Export as `right-way-up.jpg`. So, now you have nicely cropped image with really bad color. Well, we could have shot the picture in the day without backlight in the first place, but where's the fun in that? If we had done that, we wouldn't have needed GIMP to come to the rescue.

Fixing the Color

We're not sure how well the picture is going to show up in black and white, but take our word for it, the picture is very dark. You need to fix that. Let's try the simple way first, with Tools ➤ Color Tools ➤ Brightness-Contrast, as shown in Figure 8-13.
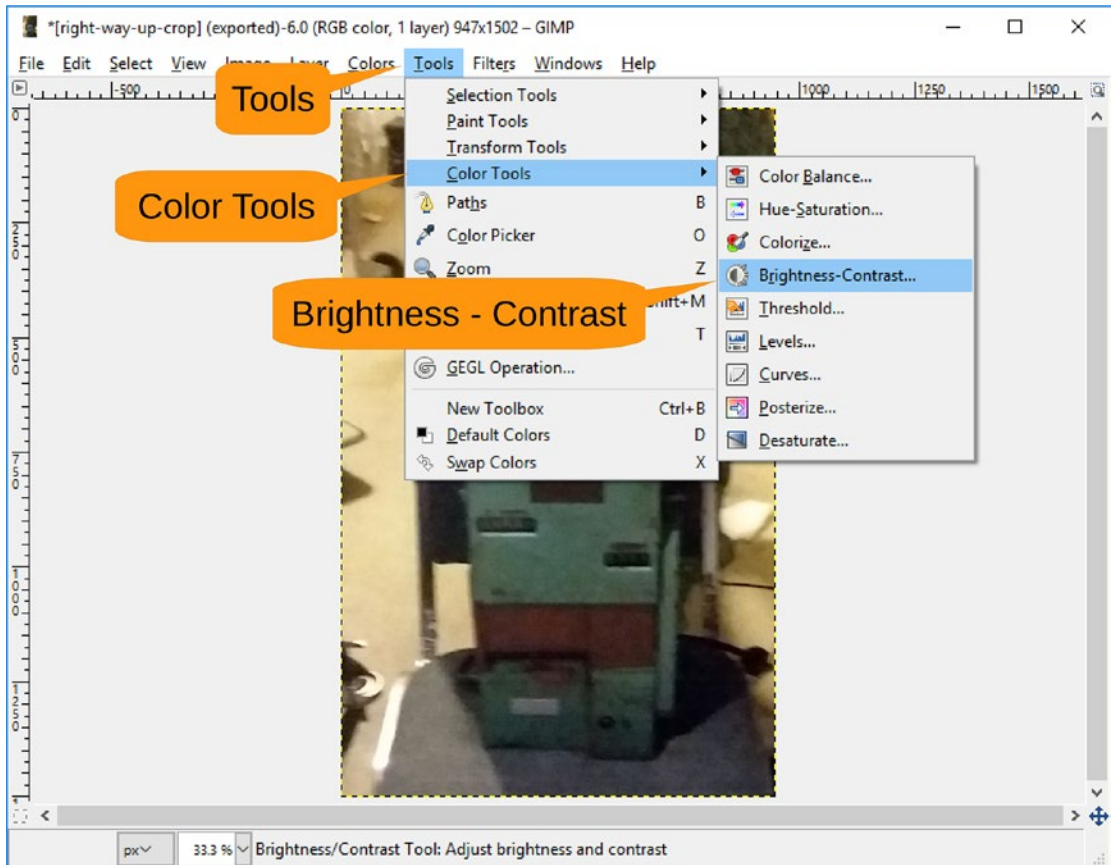
Figure 8-13. *Getting to the Brightness-Contract control*

Figure 8-14 lets you change the brightness and contrast of the image. Let's play around a little with the sliders and see whether you can make the picture better. By judiciously setting the controls, you can change the color from bad to lousy. To apply these changes, click OK. In this case, though, you want to try a different tool, so click Cancel to undo the changes.
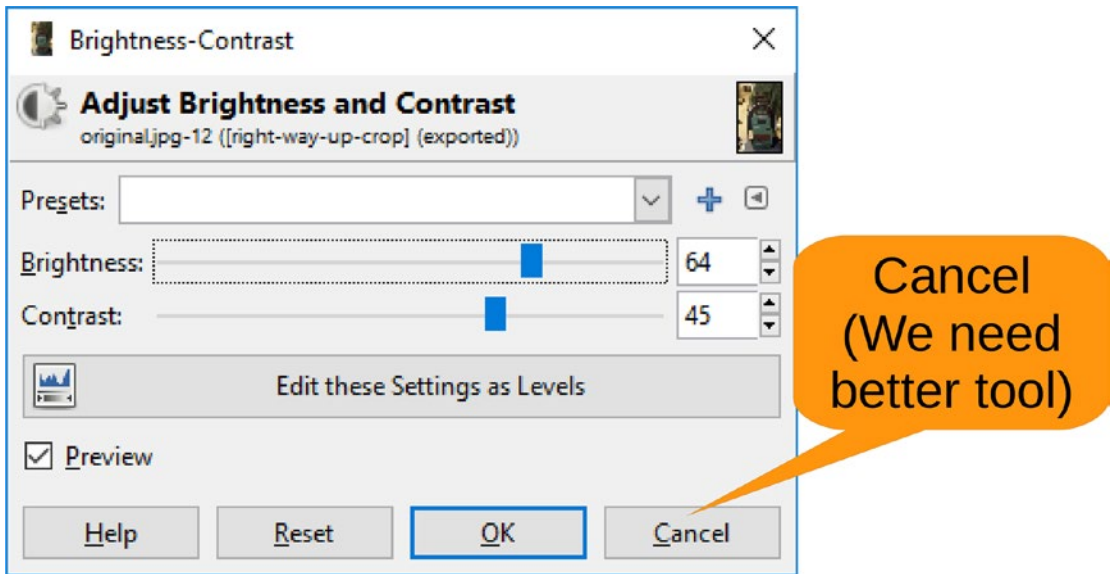
Figure 8-14. *Brightness-Contrast dialog*

Let's try a better tool. Select Tools ➤ Color Tools ➤ Curves, as displayed in Figure 8-15.
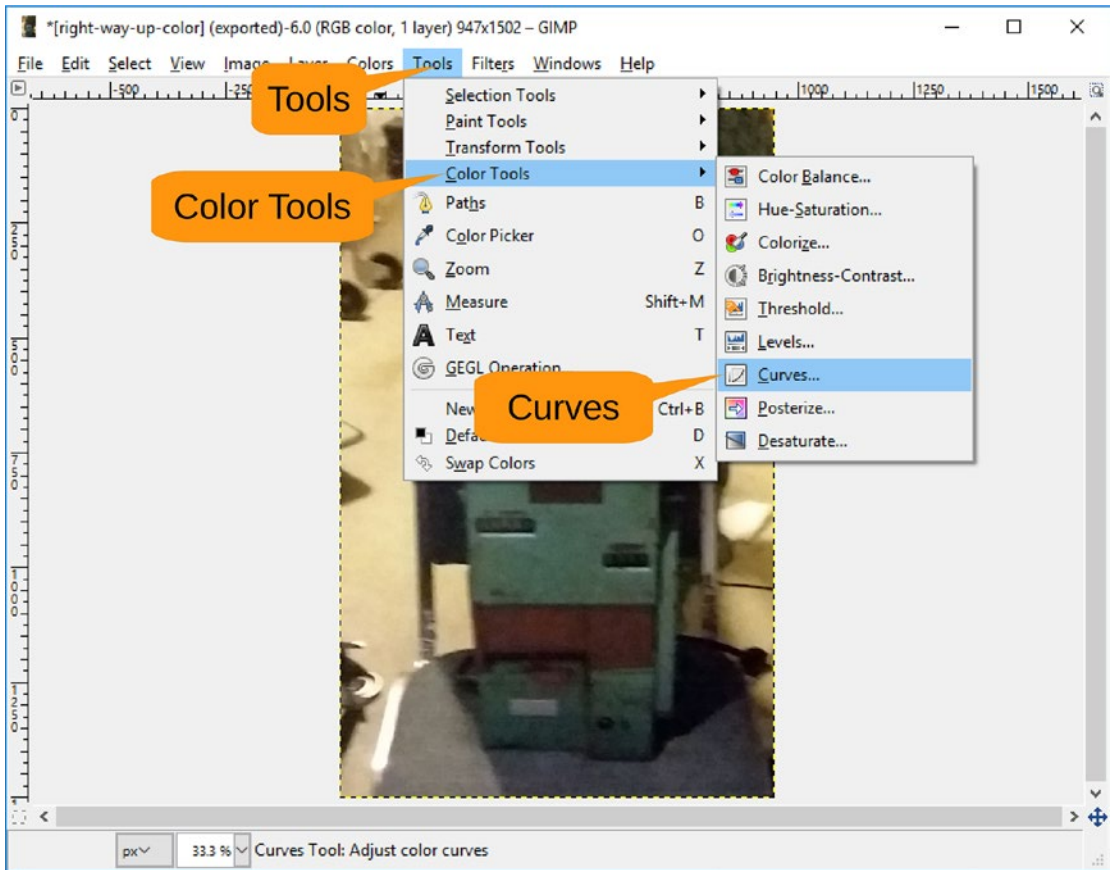
Figure 8-15. *Selecting the Curves tool*

This brings up the Curves dialog (Figure 8-16) that shows a histogram of the colors in the image. In this case, the image has a lot more dark colors, which is why there is a peak to the left. If you pull up the line with your cursor, it will brighten that section of the color space. Experiment with various line placements to find one that is suitable.

Click OK to set the colors.
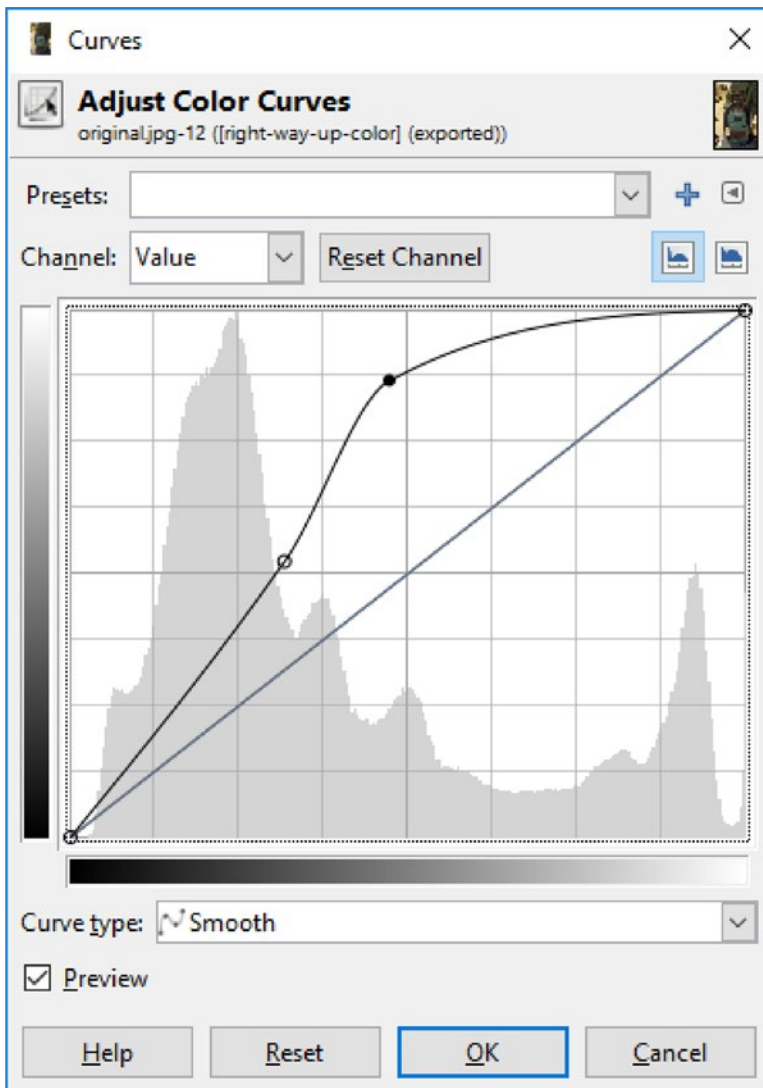
Figure 8-16. *Color curves*

The image now looks like Figure 8-17. So, by using GIMP, you have taken the picture from very bad through lousy to poor.
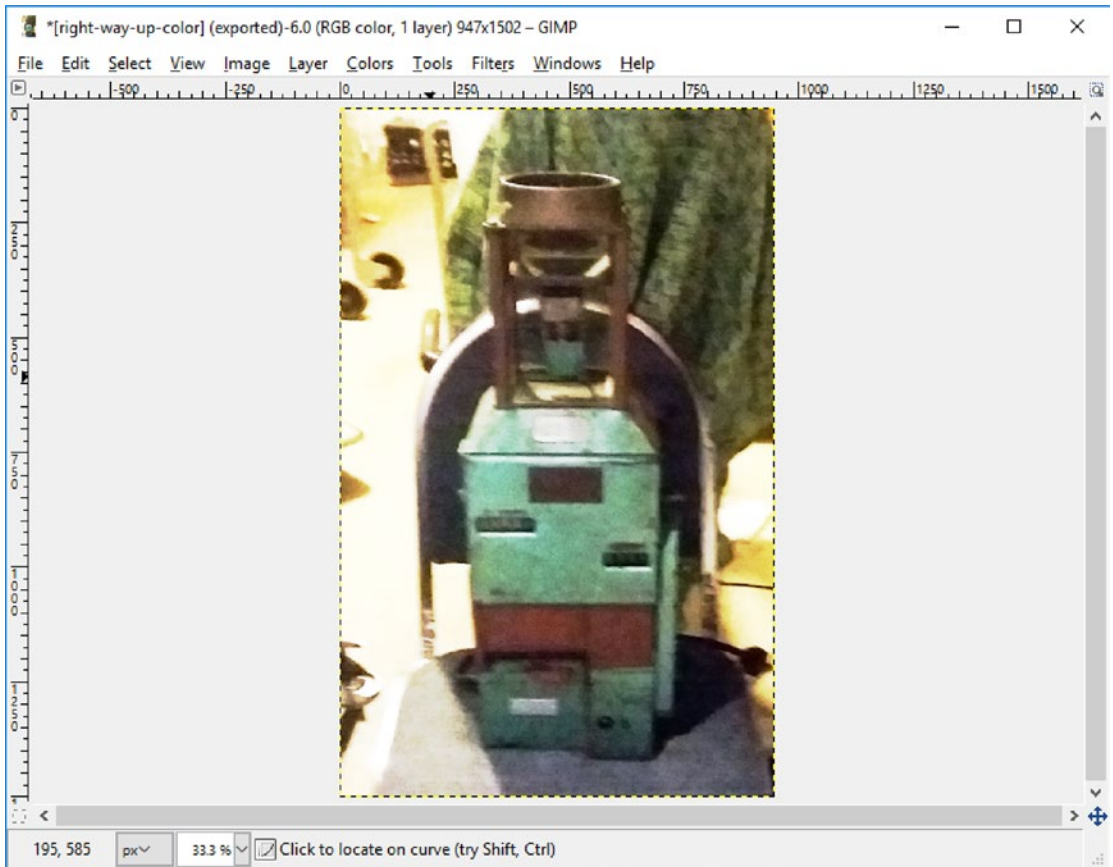
Figure 8-17. *There are limits to what can be done with a poor-quality picture*

Using Filters

This chapter wouldn't be complete if we didn't mention filters. GIMP has a lot of filters, and most of them are useful. We will demonstrate one and hope the effect makes it through the printing process to the book. If not, download the pictures from the web site (www.apress.com) to see what we mean.

The filter we are going to show how to use is called Clothify (Figure 8-18). In other words, it makes a nice image look like it was painted on cloth. To get the full effect of this filter, you can start by zooming in a little. Then select Filters ➤ Artistic ➤ Clothify.
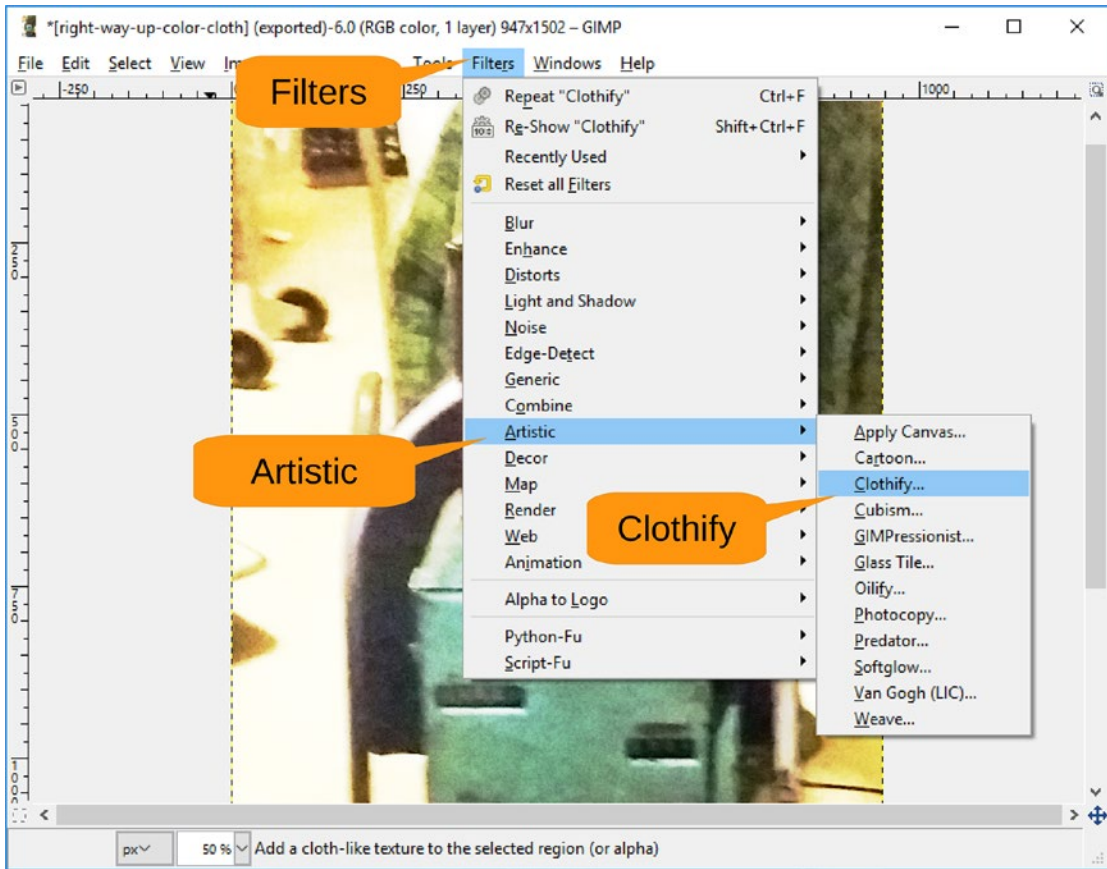
Figure 8-18. *Selecting the Clothify filter*

Figure 8-19 shows the Clothify dialog that appears. You can play around with the settings later; for now, let's use the defaults and click OK.
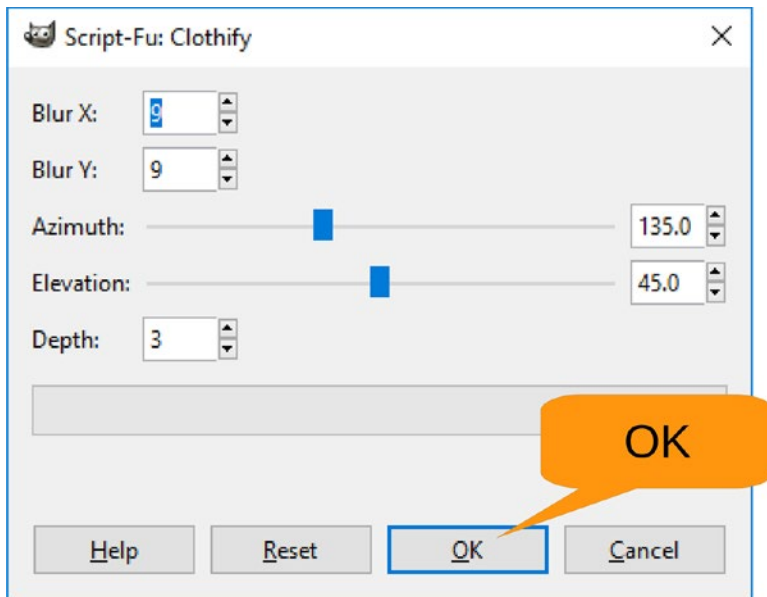

Figure 8-19. *Clothify dialog*

Clicking OK causes the image to be run through the filter, resulting in Figure 8-20.
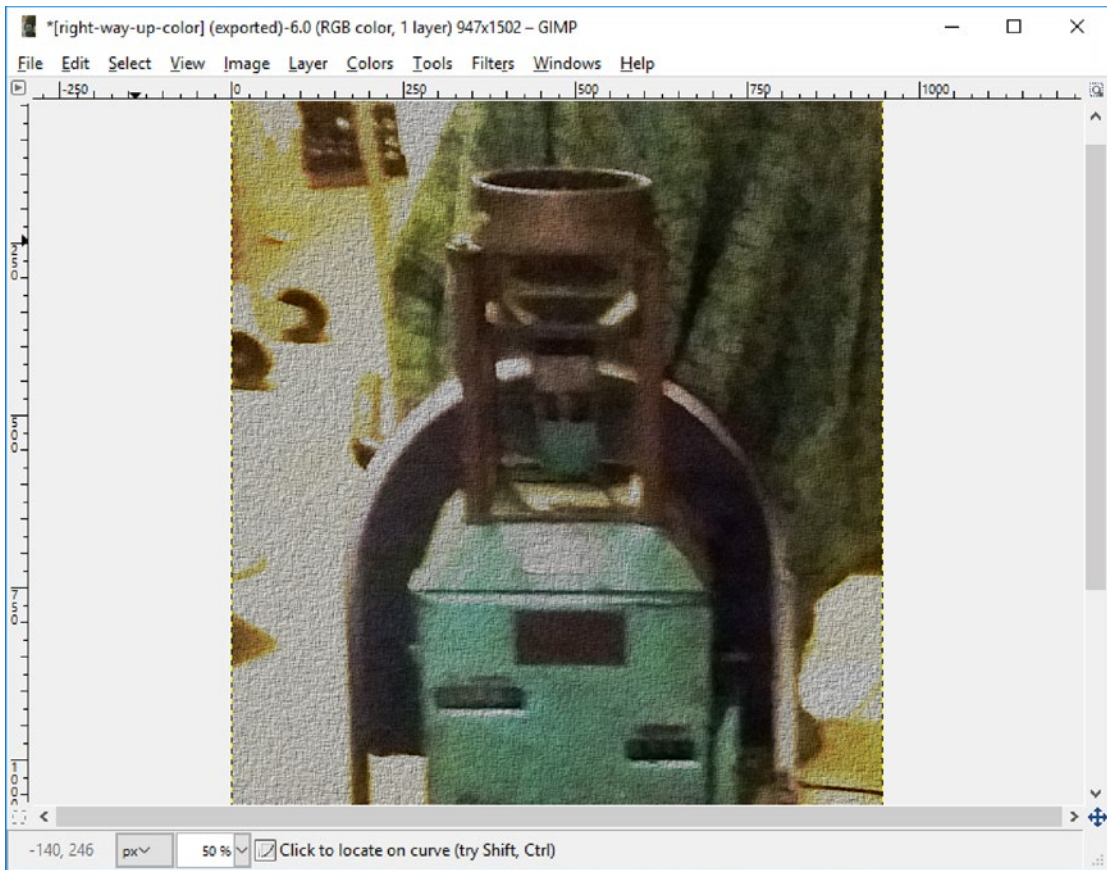
Figure 8-20. *Cloth image*

Summary

GIMP has many different tools for making your pictures look better, a surprising number that make them look strange, and a few that make them look worse. You can explore these tools on your own to see what each of them does.

In this chapter, we covered the tools that help casual camera users improve their photos and then store them in the Pictures folder.

CHAPTER 9

Drawing with Inkscape

Inkscape is a Scalable Vector Graphics (SVG) editor. Most images you see on a computer are *raster* images made up of a bunch of dots. In other words, the lines you see on the page are really a series of small dots. If you zoom a lot, you'll see a rough line consisting of a bunch of big dots.

SVG graphics contain a description of the image. For example, a line on the page consists of a command to the program such as "Draw a line of 1.0 width from point (0, 0) to point (6, 3)."

You can use Inkscape to create drawings for sign, billboards, and other large-format printing. It's also useful for generating files for laser cutters. That's because the description of an image consists of its path, and a laser cutter can easily move a laser along a path. With raster images, the laser cutter would have to shoot a bunch of holes in the material and hope they connect up enough to make a cut part.

Getting Started with Inkscape

Download Inkscape from `http://inkscape.org`. (Download the `.mis` package for the best results.) Run the installer and accept the defaults.

When you first start Inkscape, zoom the drawing page until the paper fits the window. It sounds simple; just click the Zoom button, as shown in Figure 9-1, until you get the right size. Inkscape has a hair-trigger zoom. It can go from 50 percent to 1,000 percent in less than a second. Every time we've used it, we've had to go back and forth a couple of times to get it right.
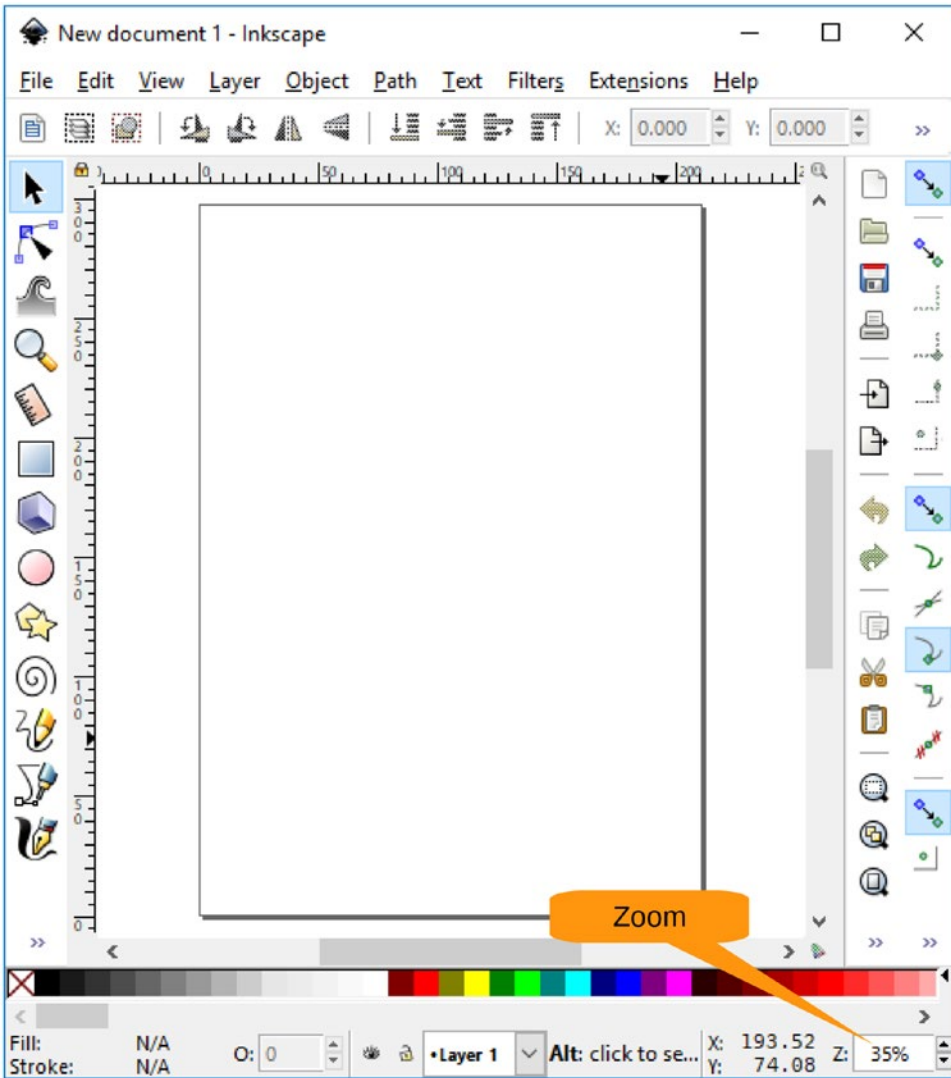
Figure 9-1. *Zooming in on the page*

Drawing a Rose

In this chapter, we will show how to draw a rose. The goal is to introduce you to the basic controls used in Inkscape. This includes drawing simple shapes, using various types of fills and brushes, and using other editing tools.

Drawing the First Shapes

The top of the rose is a circle. Click Circle/Ellipse tool to select that shape. By default Inkscape will let you draw an ellipse of whatever height or width you want. If you want a circle, you need to constrain the drawing so that the width and the height are equal. This is done by holding down the Ctrl key while drawing.

To draw, click the corner of the circle and then drag the cursor to the other corner, as shown in Figure 9-2.
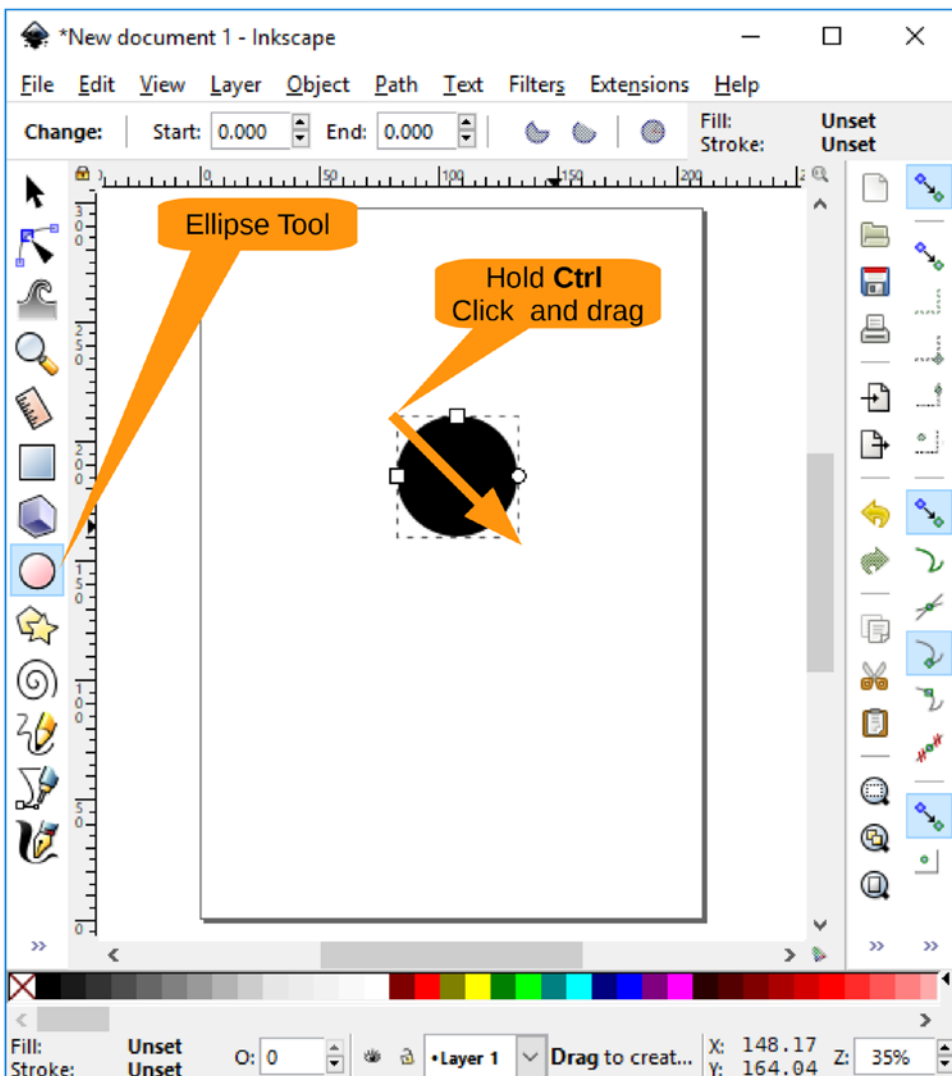
Figure 9-2. *Drawing the circle*

The circle is black, but a rose is red. You need to fix this problem. You can change the properties of this circle by selecting Object ➤ Fill and Stroke, as shown in Figure 9-3.
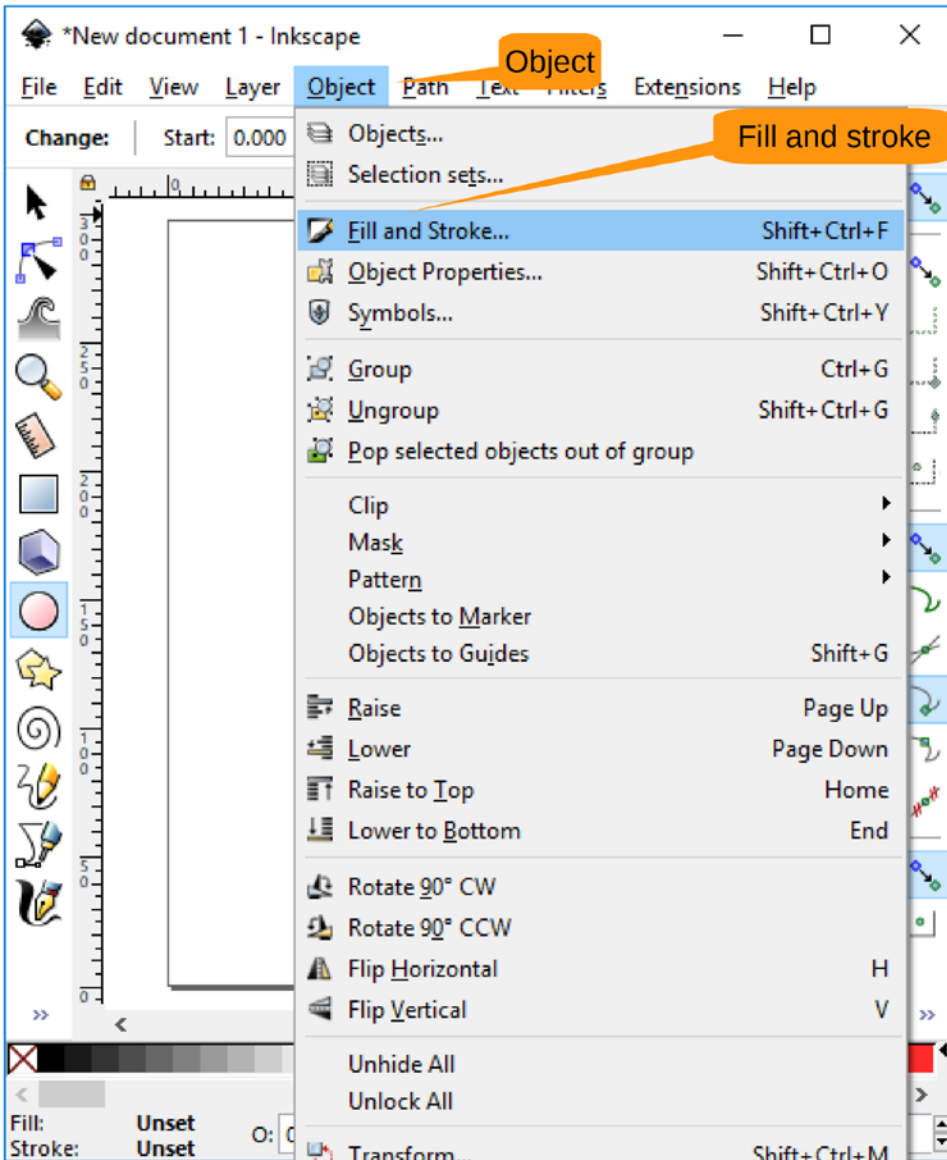
Figure 9-3. *Opening the Fill and Stroke panel*

The Fill and Stroke panel will appear to the right, as shown in Figure 9-4. You want this to be a circle with nothing inside, so click the No Paint icon in the dialog to turn off the fill.
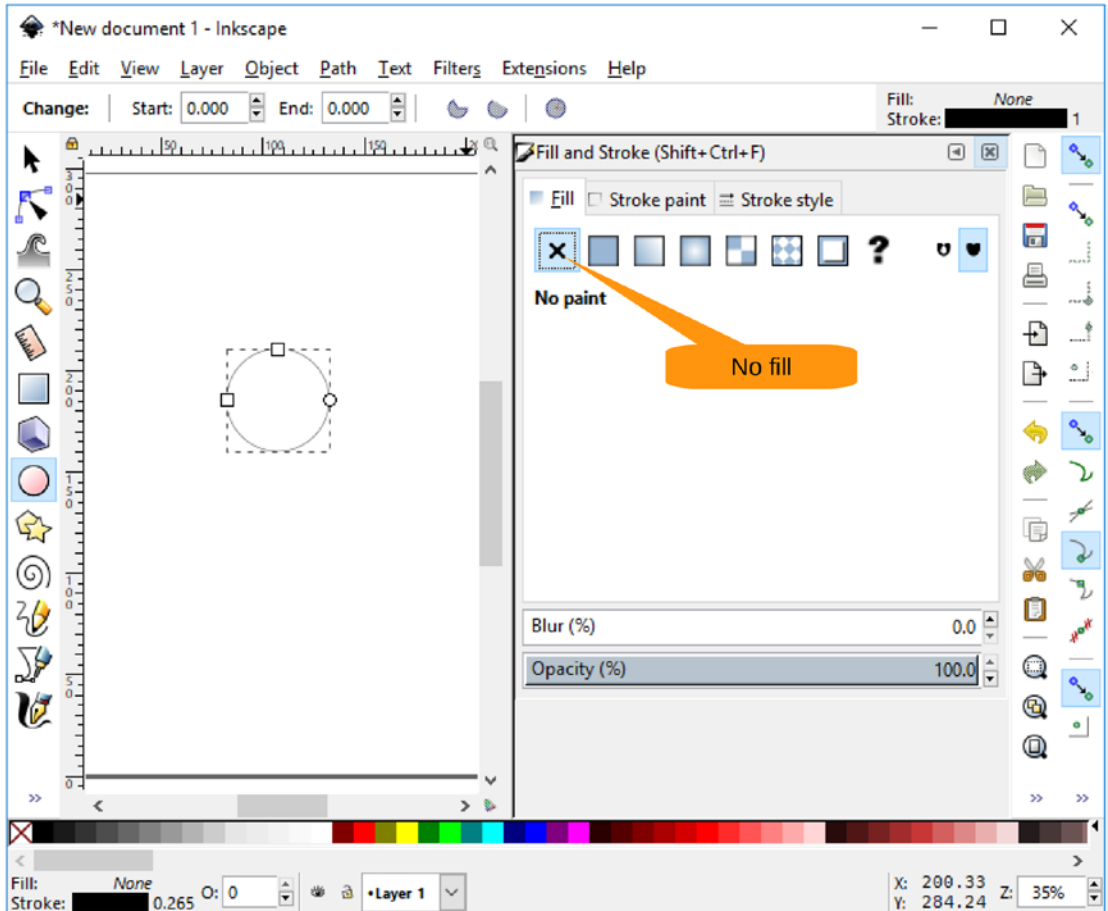
Figure 9-4. *Turning off the fill*

Now let's change the color of the line (stroke) by clicking the Stroke Path tab and changing the color to black. Figure 9-5 shows the result.
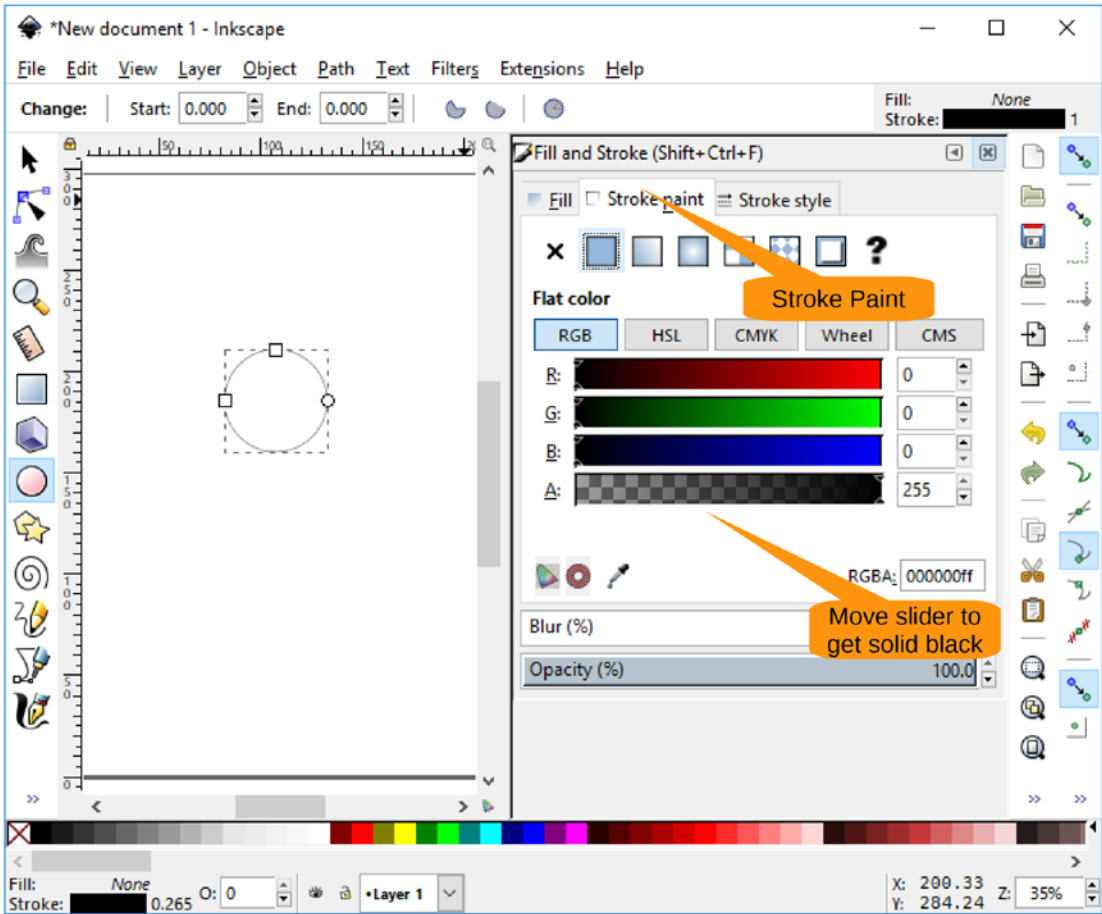
Figure 9-5. *Setting the stroke to a solid black*

From the top, the inside of the rose looks like a spiral. To draw this, you need to click the Spiral tool and drag it to the middle of the circle, as shown in Figure 9-6. The handles (boxes) on the end of the line allow you to extend or trim the spiral as needed. We think it looks better a little trimmed.
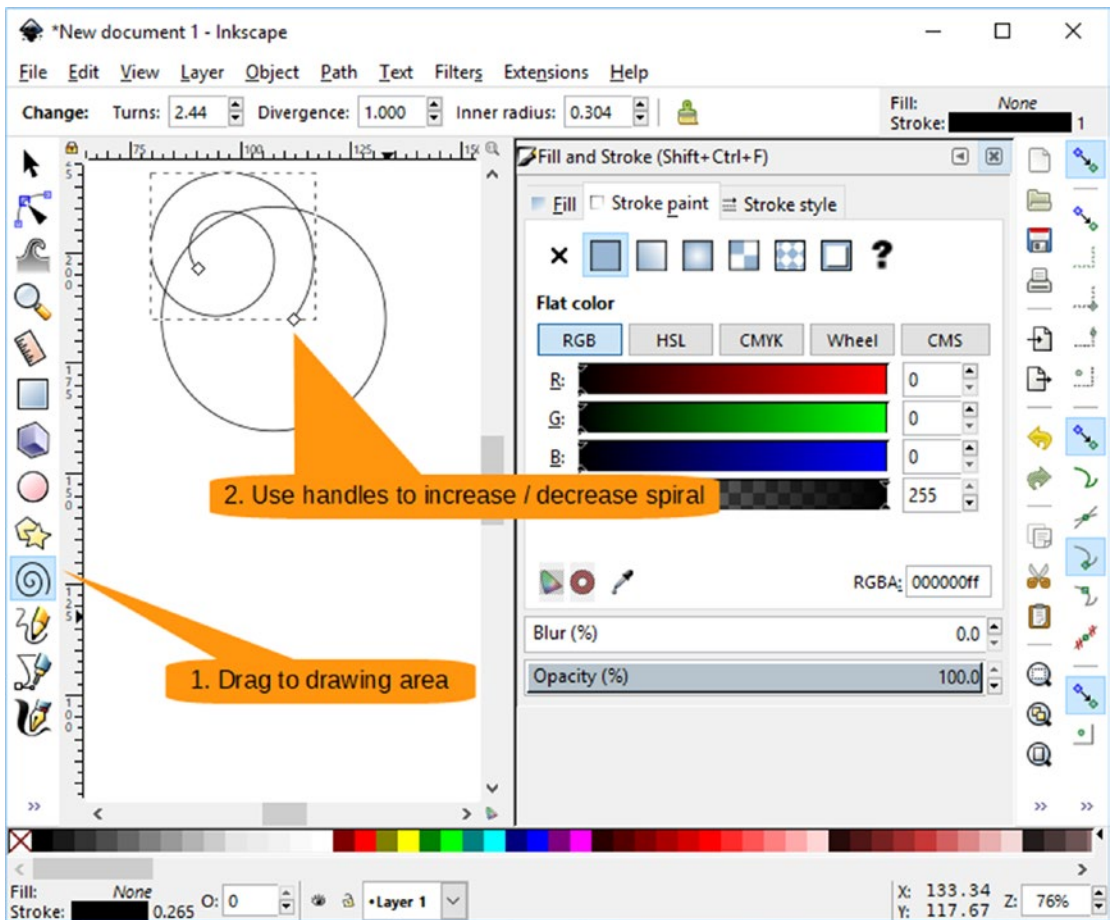
Figure 9-6. *Creating the spiral*

Once you get the spiral to be the right shape, you need to get it to be the right size. Click the Select Tool to enter select mode and then click the object to bring up the resize handles, as shown in Figure 9-7. You can move these handles to resize the object.
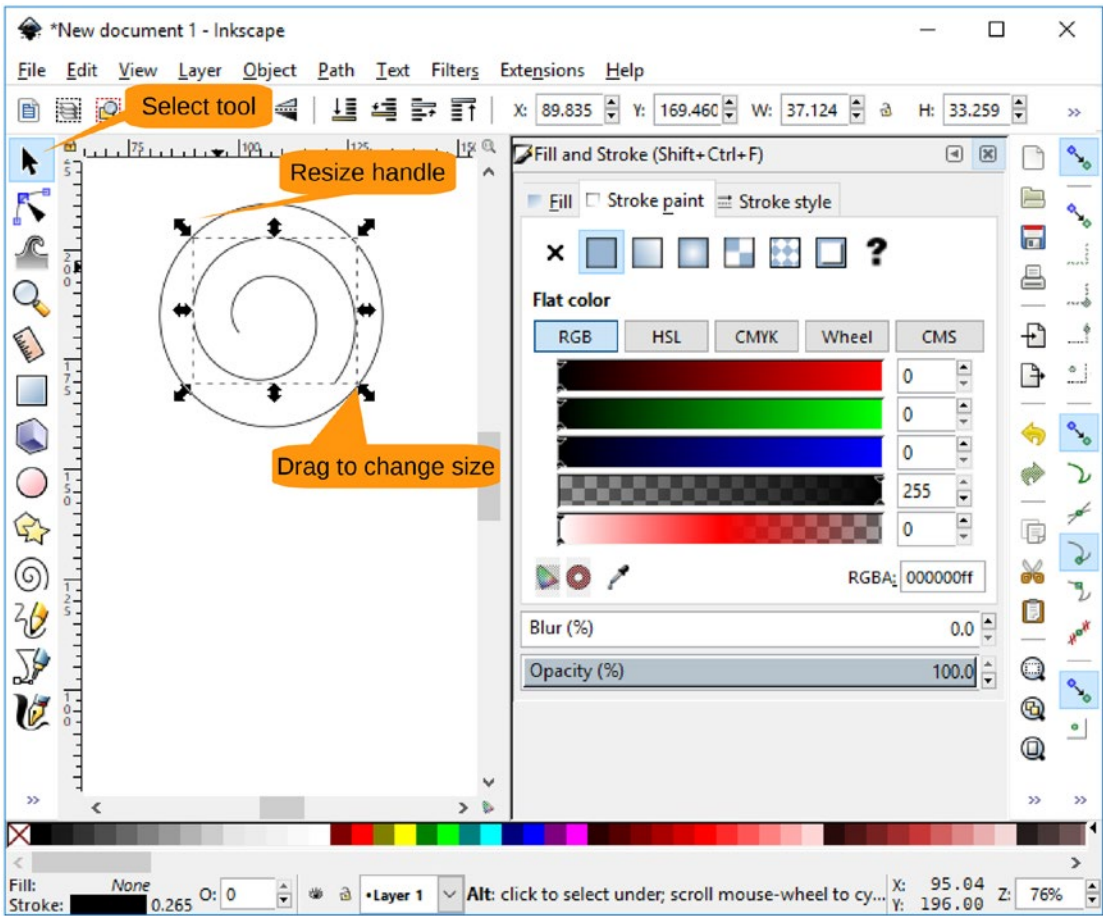
Figure 9-7. *Getting the size and placement right for the spiral*

Also, you can move the object by moving the cursor to one edge. When it turns into a hand, you can drag the object where you want it. In this case, drag it to the middle of the circle.

Tweaking the Shape

Now things are going to get a little tricky. As it stands now, the spiral is a simple line. You are going to make it sexy.

To do this, you will create a thin ellipse and map it to the spiral.

The first step is to create a thin ellipse, as shown in Figure 9-8. To do this, click the Circle/Ellipse Tool and drag the mouse to create the shape.
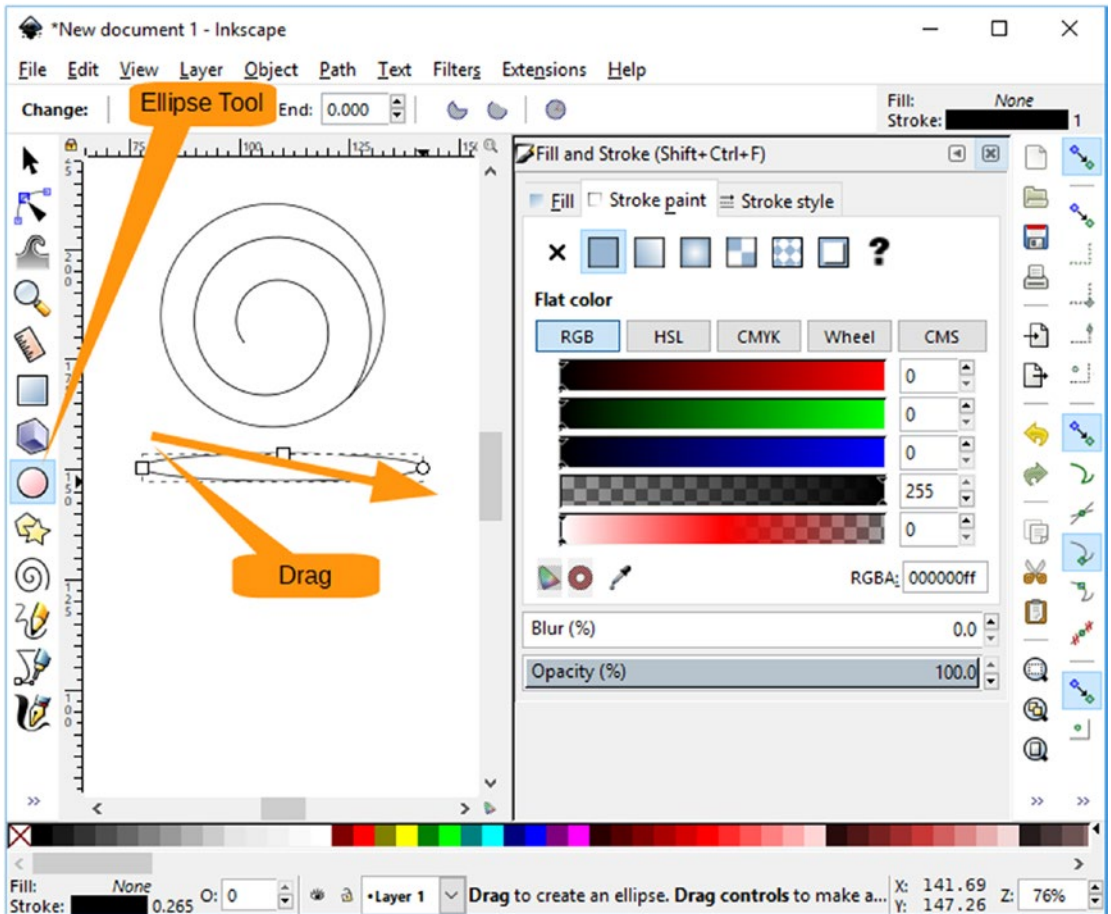
Figure 9-8. *Skinny ellipse*

Now you run into a little problem with Inkscape. There are things called *paths* and things called *objects*. You've got a bunch of objects, and the operations you are about to do work only on paths. So, you need to convert your objects to paths.

First select everything with Edit ➤ Select All, as illustrated in Figure 9-9.
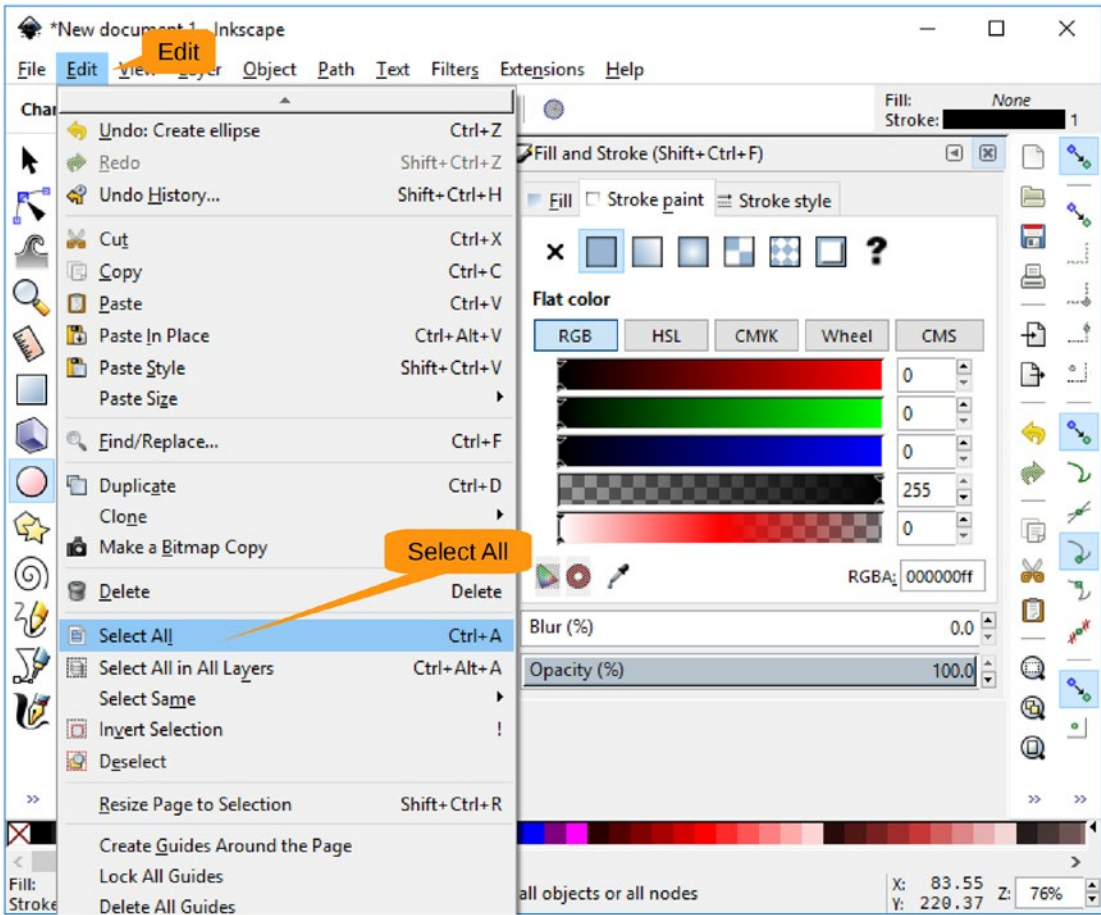
Figure 9-9. *The Select All menu item*

Now convert all the objects to paths with the command Path ➤ Object to Path, as shown in Figure 9-10.
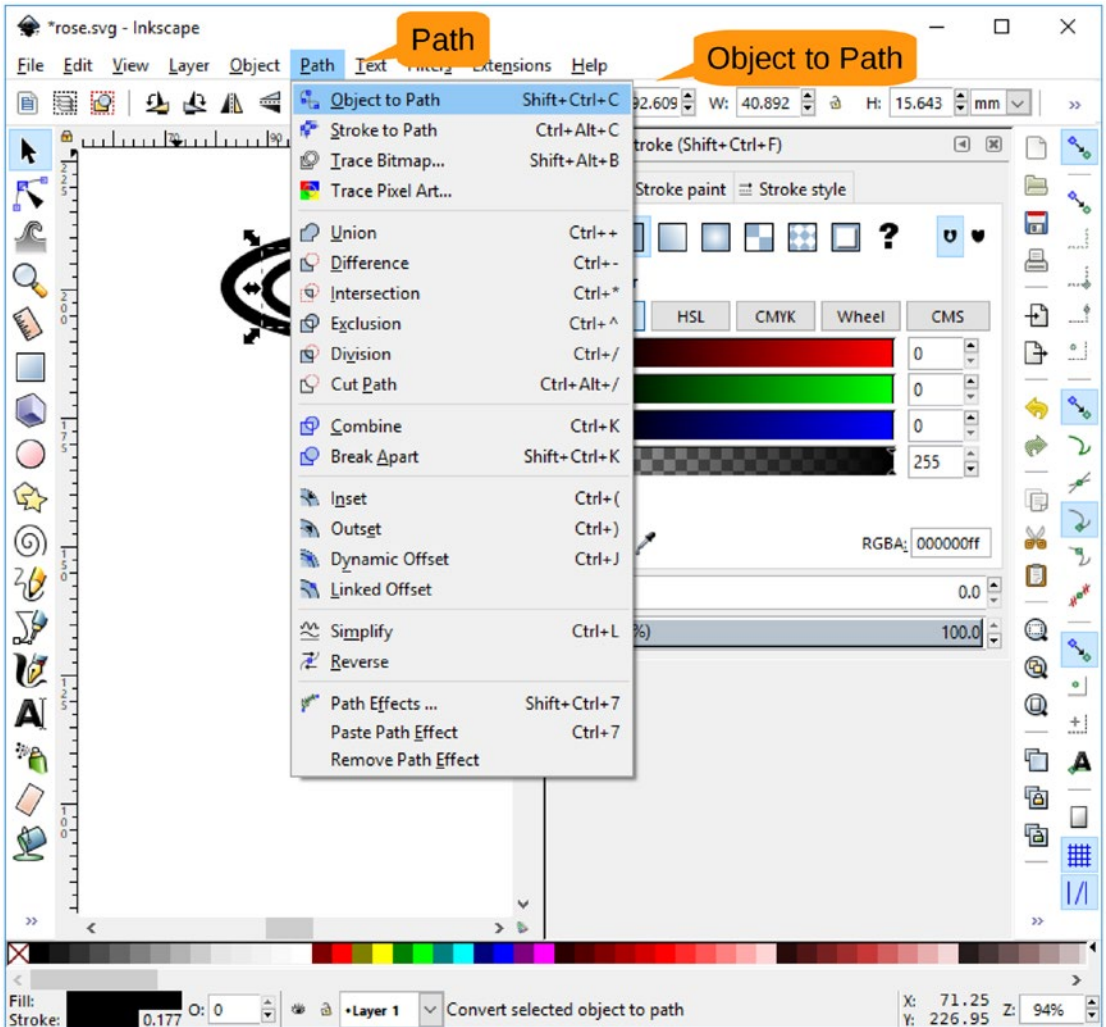
Figure 9-10. *Object to Path menu item*

With that bit of bookkeeping out of the way, you can now take the small ellipse and use it to shape your spiral. First you need to deselect everything, select the Select tool, and then click outside all of the objects. Next, click the skinny ellipse. Copy it to the clipboard with Edit ➤ Copy. Figure 9-11 shows this process.
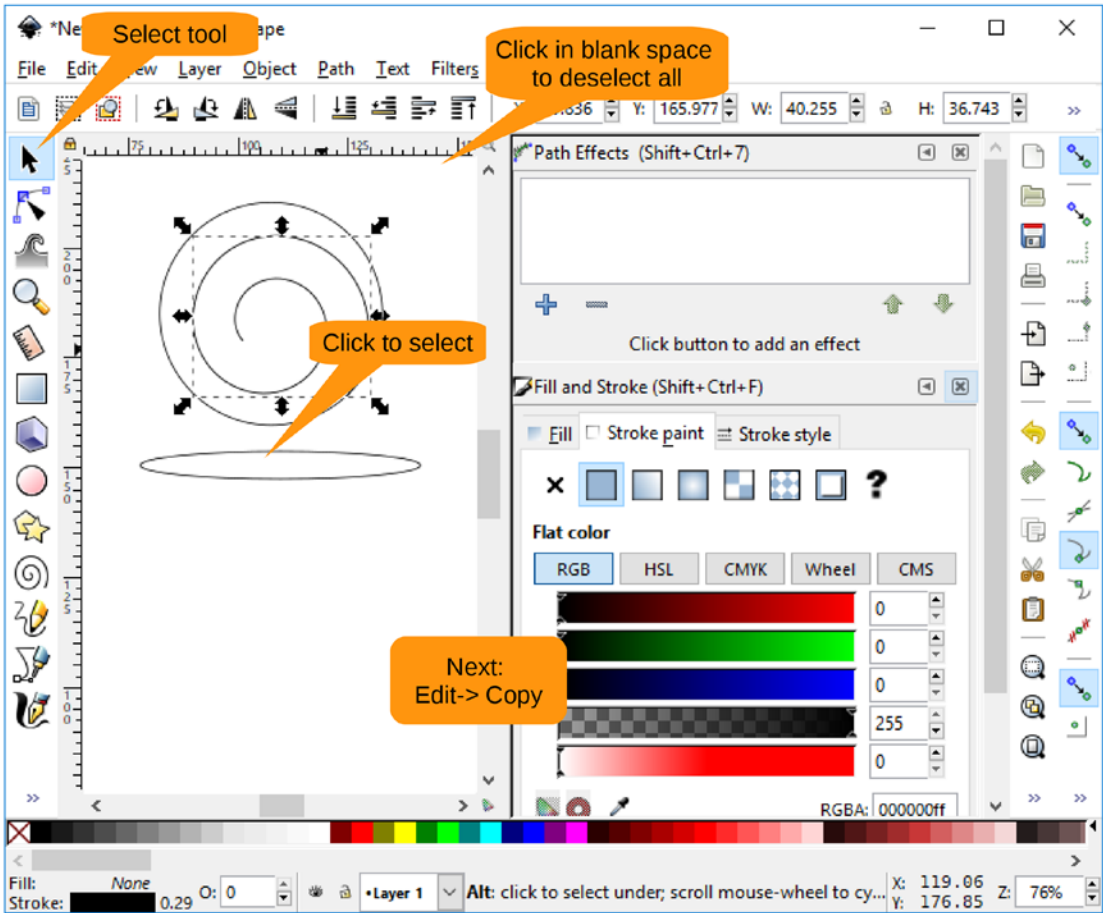
Figure 9-11. *Copying the skinny ellipse*

Click the spiral to select it, as illustrated in Figure 9-12.
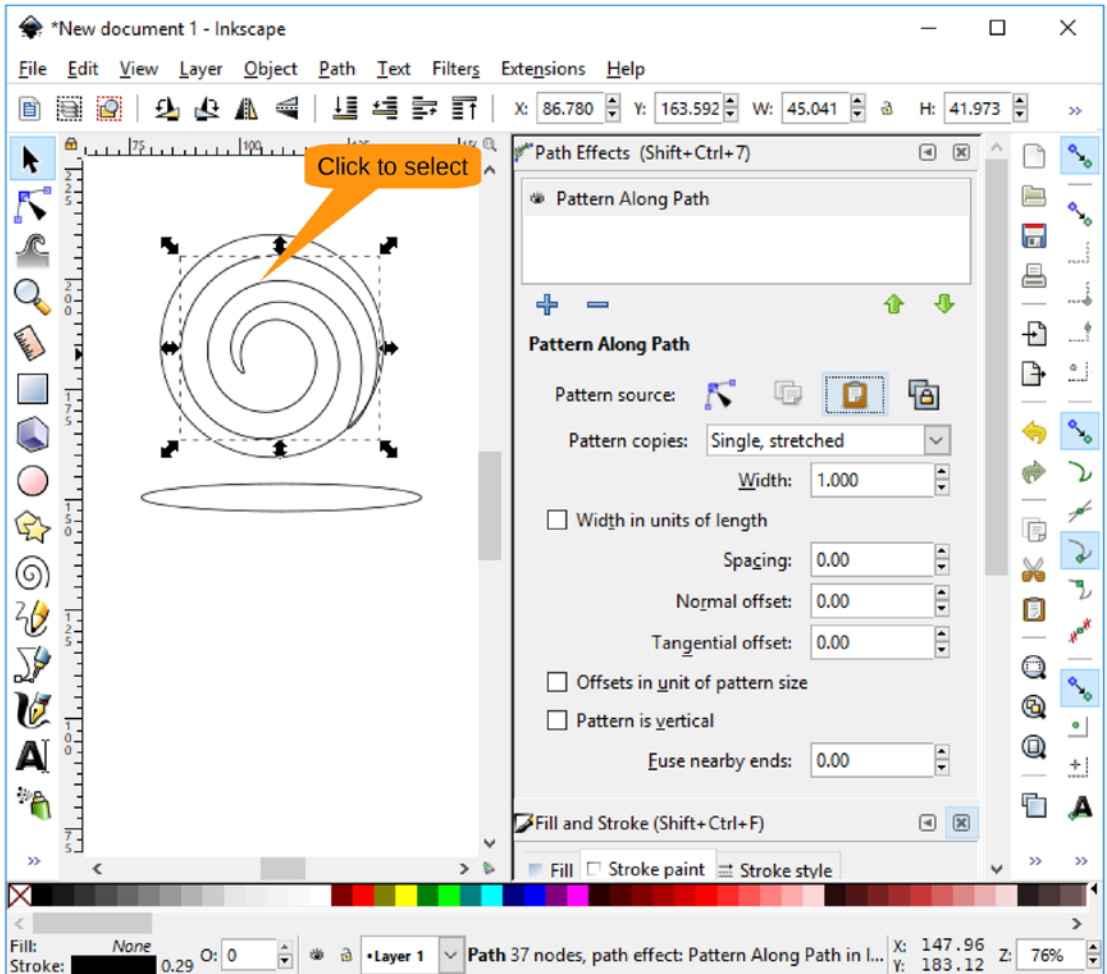
Figure 9-12. *Selecting the spiral*

Now you are going to apply the skinny ellipse shape to the spiral path. You start with Path ➤ Path Effects, as shown in Figure 9-13.
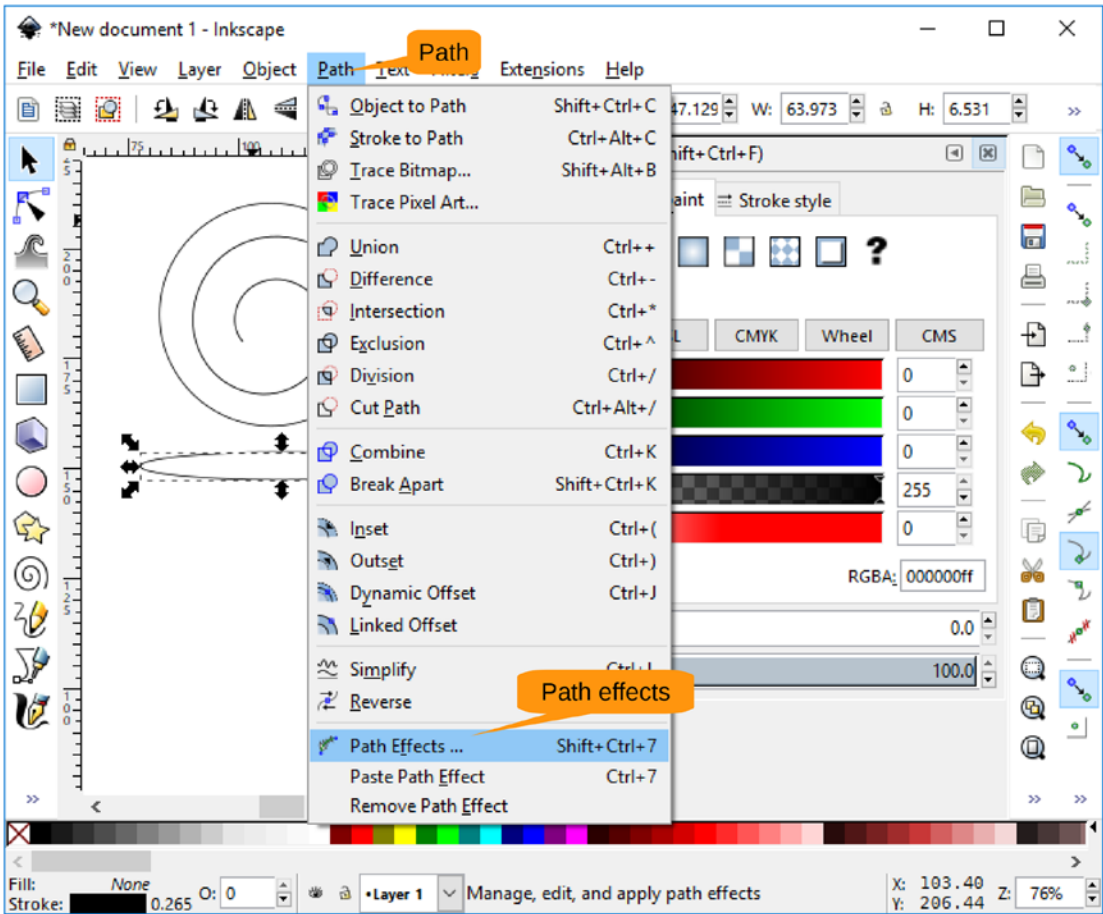
Figure 9-13. *Path Effects menu item*

Currently you don't have any path effects defined, so the list in the panel at the top right is empty. Let's add one by clicking the plus (+) sign located in this panel, which Figure 9-14 locates for you.
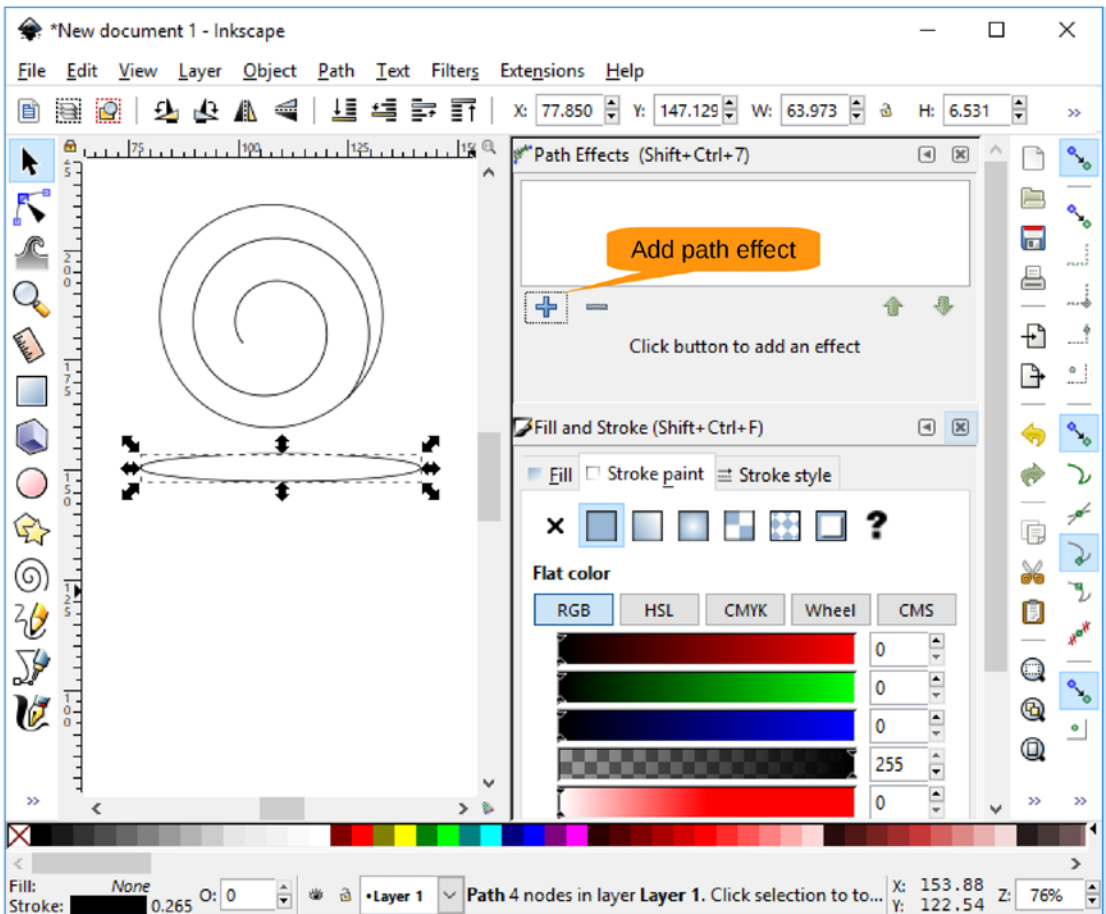
Figure 9-14. *Adding a path effect*

A pop-up appears, as shown in Figure 9-15. Select Pattern Along Path and click Add. Figure 9-16 shows how to select Paste Path.
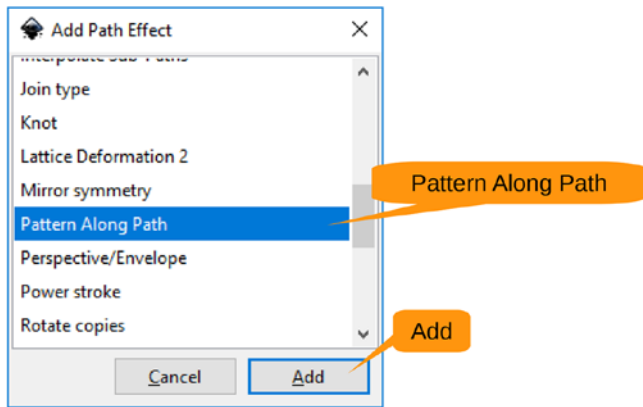
Figure 9-15. *Path effect selection*
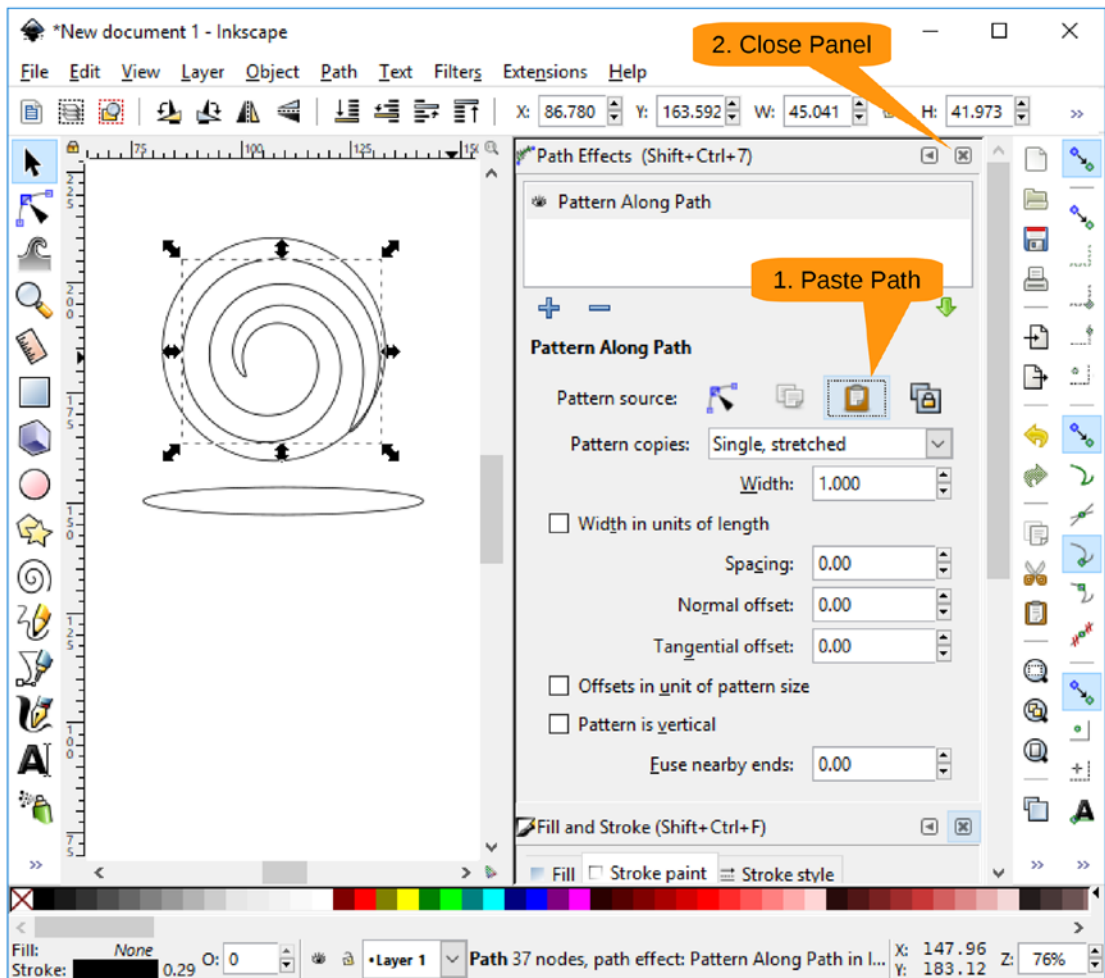
Figure 9-16. *Selecting Paste Path*

Cleaning It Up

Now you have nice path for the inside of your rose. Let's get rid of some clutter. Click the Close icon in the Path Effects panel and then the Close icon in the Fill and Stroke panel.

Delete the ellipse and zoom in so you can better see the top of the rose. When done, your screen should look like Figure 9-17.
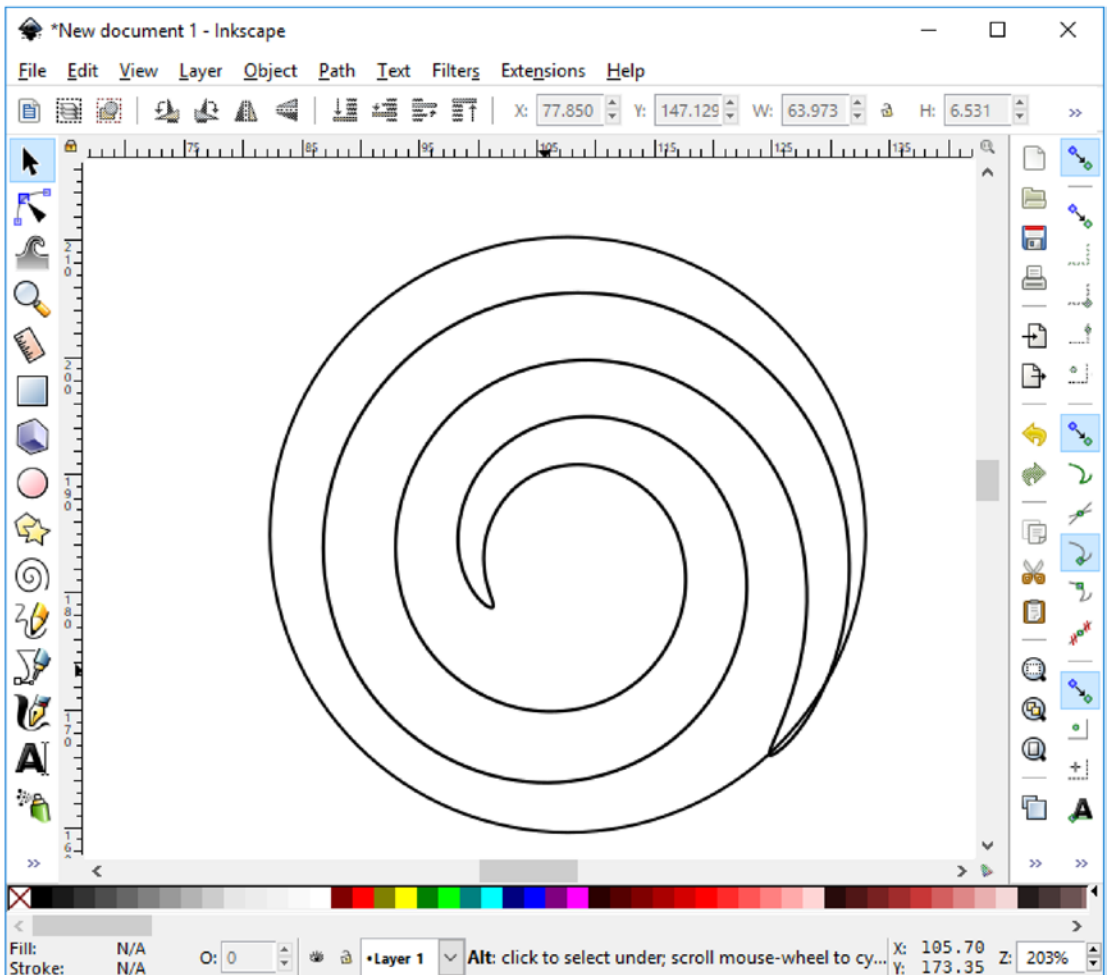
Figure 9-17. *Cleaned-up rose top*

The spiral is much too fat for this use. Let's fix it. You can start by bringing up the Path Effect panel using the command Object ➤ Path Effects. The width (shown in Figure 9-18) needs to be smaller, so set it to 0.500 (or whatever looks good for your rose).
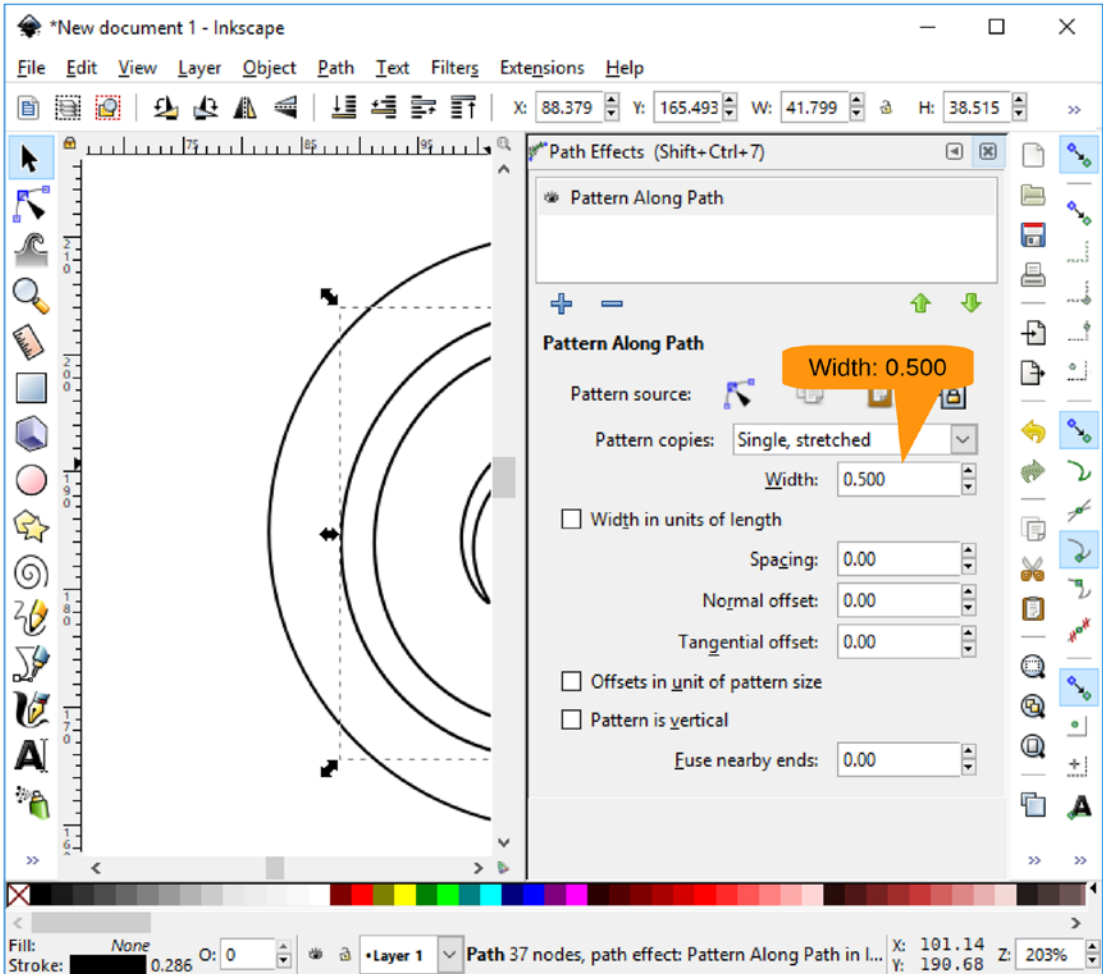
Figure 9-18. *Setting the width of the pattern*

Now close the panel. Make sure the spiral is still selected. You want the fill to be black, so bring up the Fill and Stroke panel with Object ➤ Fill and Stroke.

Select the Fill tab, set the fill type to a color, and then select black for the color. Figure 9-19 shows the result.
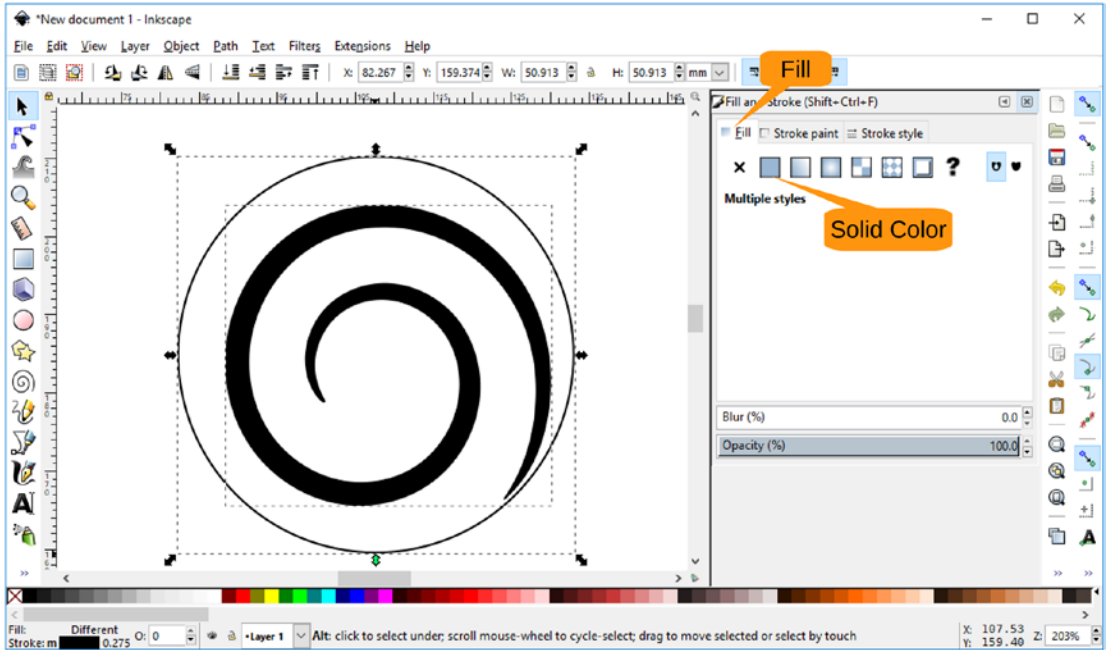
Figure 9-19. *Filling the spiral with black*

Close the Fill and Stroke panel and then select both objects, the spiral and the circle. Flatten them by moving the bottom up. Figure 9-20 shows the result.
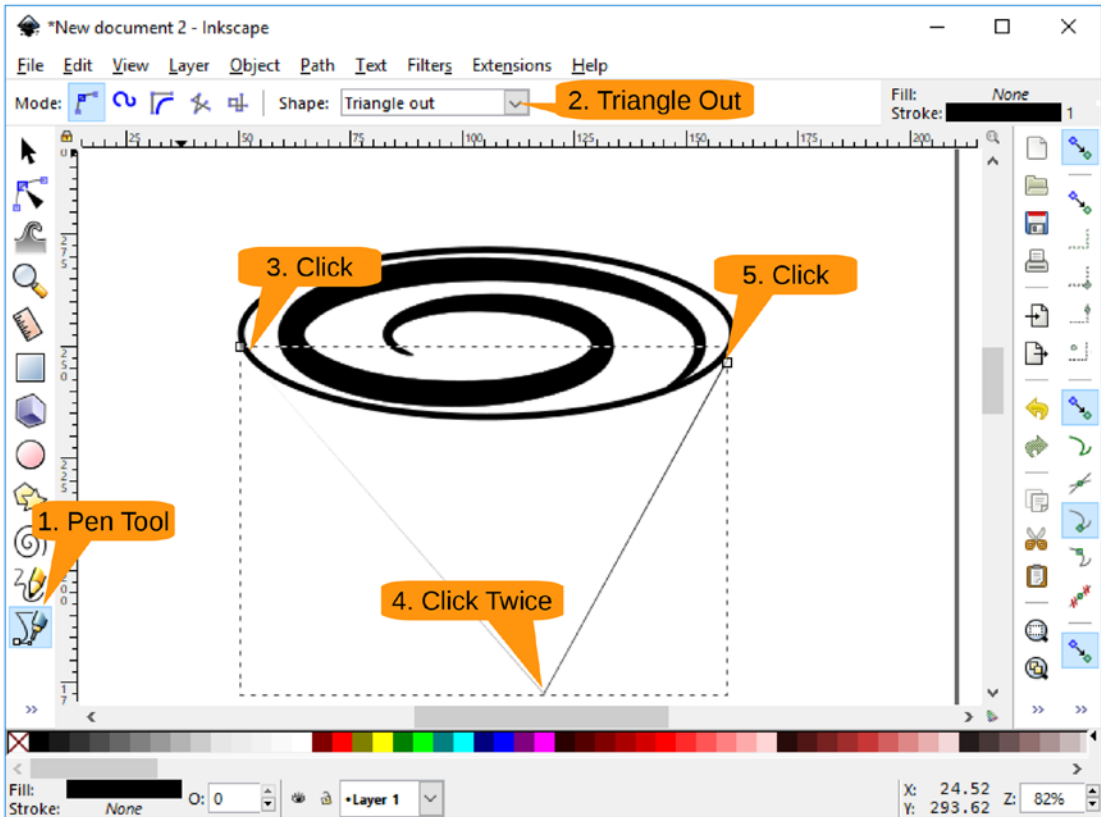
Figure 9-20. *Flattened circle and spiral*

Drawing the Body of the Rose

Now you will draw the body of the rose. It won't look much like a rose at first, but you'll improve on it soon.

Zoom out a little and click the Pen tool. Before you draw the lines, you will change the shape of the pen to Triangle Out. The pen is designed to draw curves and straight lines. You want only straight lines here.

So, click the left side of the rose top and draw a slated line to the bottom of the triangle, as shown in Figure 9-21. Click twice here. If you click once, the tool will assume you want curves. Twice indicates a sharp turn.
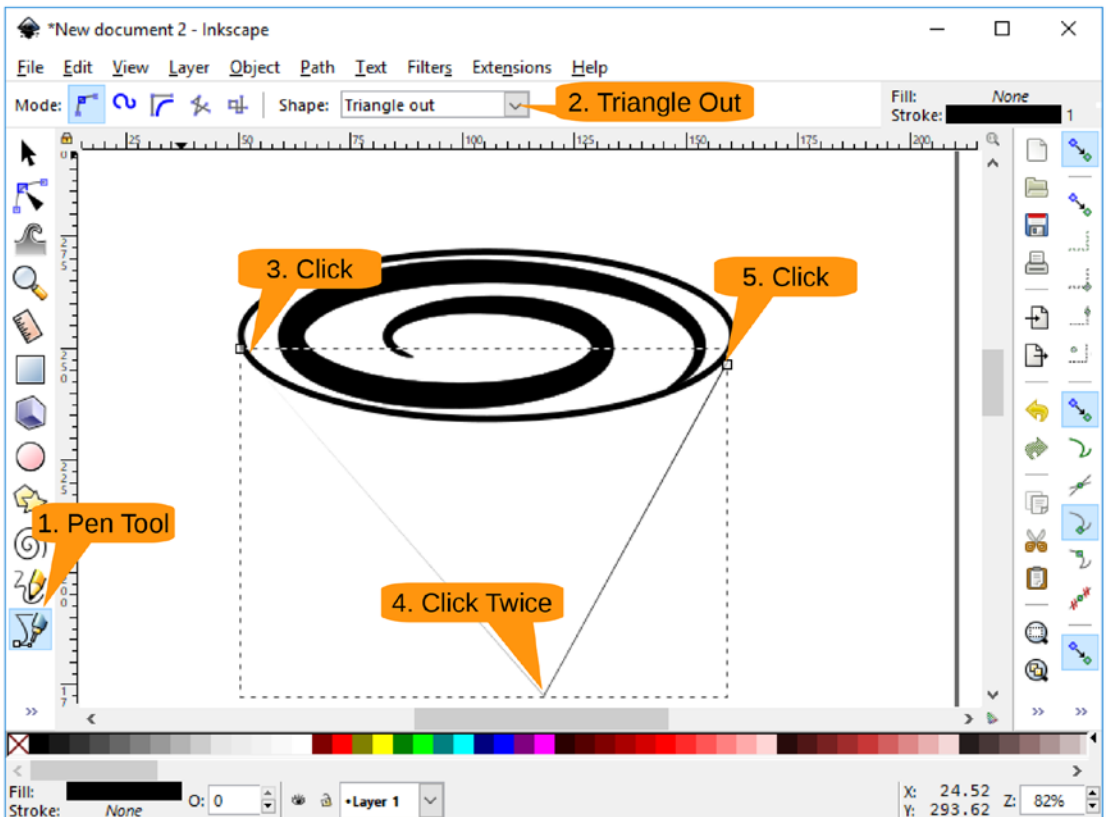
Figure 9-21. *Drawing the beginnings of the body*

Now go up to the top of the rose and click the right side.

Now you want to change the width of the line. Click the Edit Paths by Node tool. Small purple handles will appear at the ends of the lines. They are hard to see, especially if you have the black-and-white copy of the book, so look to Figure 9-22 to help you find them. Select the one at the top right and drag it out to make the line wider.
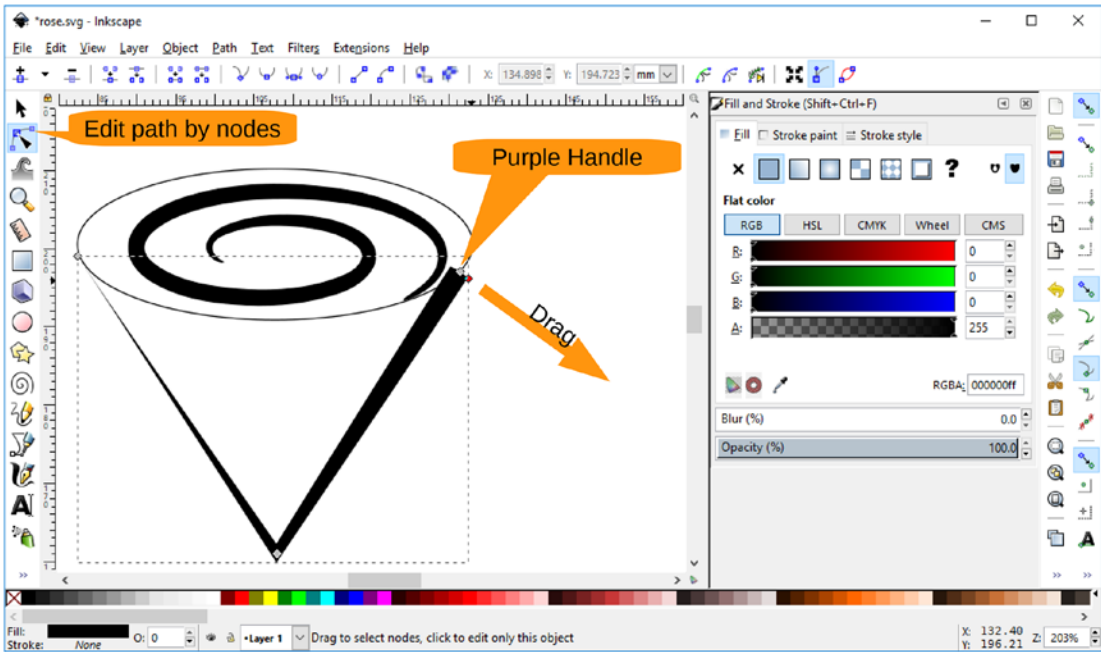
Figure 9-22. *Making the line wider*

Now you will change the triangle, which doesn't look like a rose, to a curved shape that does. The Edit Path by Nodes tool should still be in effect. Grab one of the triangle lines in the middle and drag it outward. It will curve out, and the shape will start to look something like a rose, as shown in Figure 9-23.
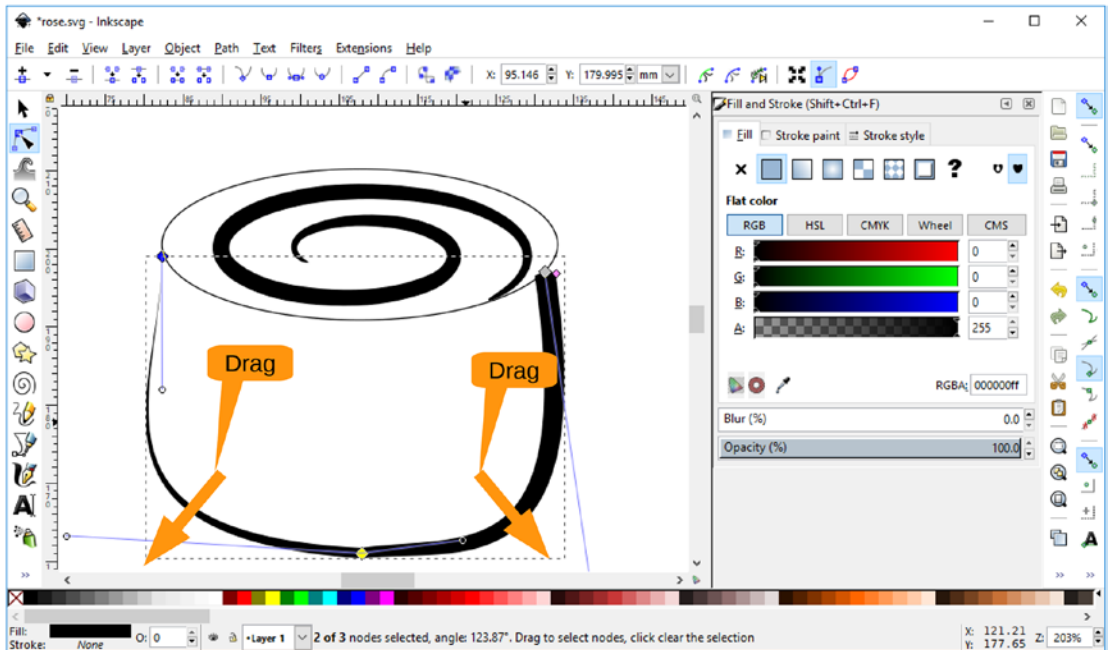
Figure 9-23. *Forming the bowl of the rose*

Now let's make the bowl of the rose a little taller. Using the Select Tool (at the top left of the toolbar), select the bowl and drag the bottom down. Figure 9-24 shows the result. (We adjusted the zoom a little too.)
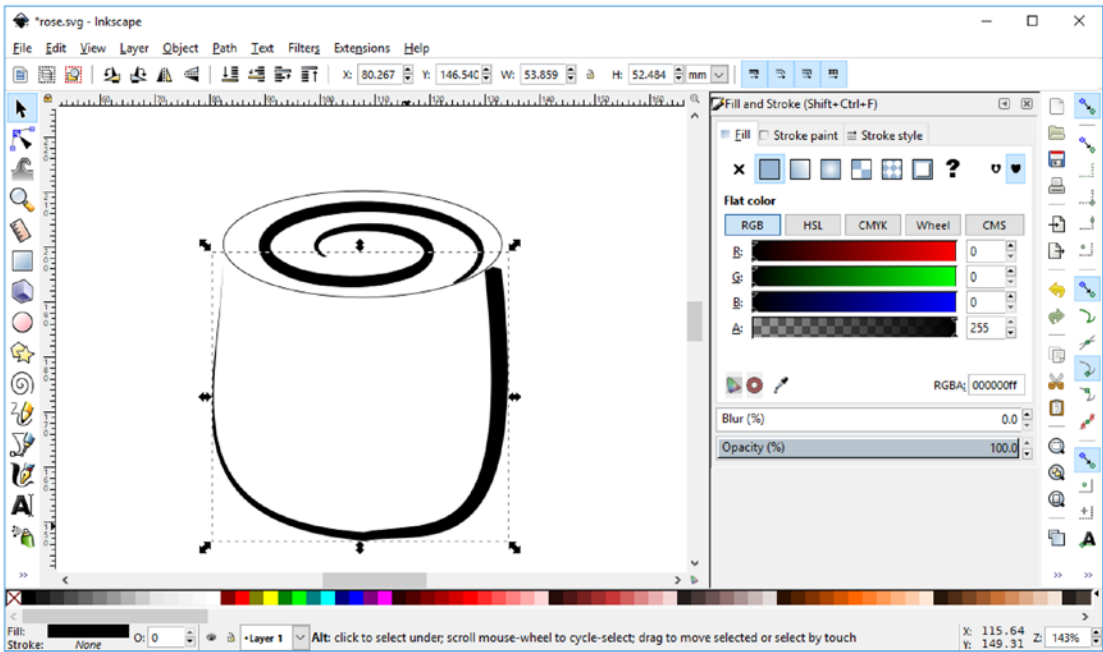
Figure 9-24. *Stretching the bowl*

Adding Color

Now you need to make the rose red. Unfortunately, the path used to make the bowl has an effect associated with it that prevents you from filling it. (It's a silly restriction, we know.)

So, you will create two bowls. One will have a nice black line showing the rose, and the other will provide the red body.

Start by right-clicking the object and selecting Duplicate, as shown in Figure 9-25.
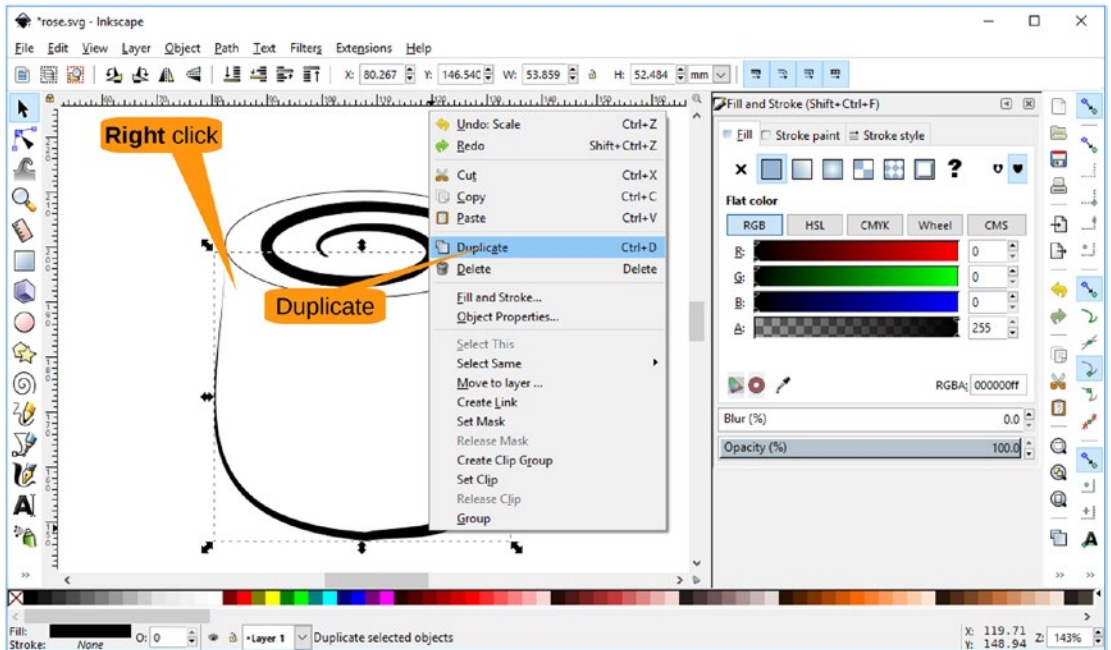
Figure 9-25. *Duplicating the bowl*

Bring up the Path Effects panel with the command Path ➤ Path Effects. Figure 9-26 shows this process.
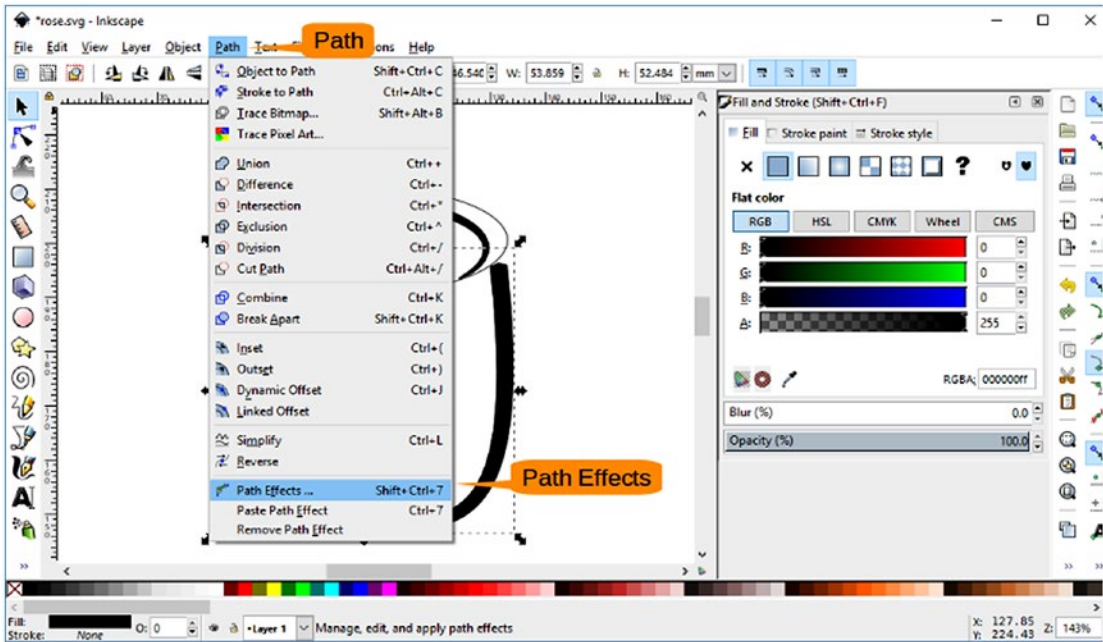
Figure 9-26. *Path Effects menu item*

Click the minus (-) sign to remove the effect, as shown in Figure 9-27. (This works on only one of the two bowls; the result will be hidden by the duplicate bowl.)
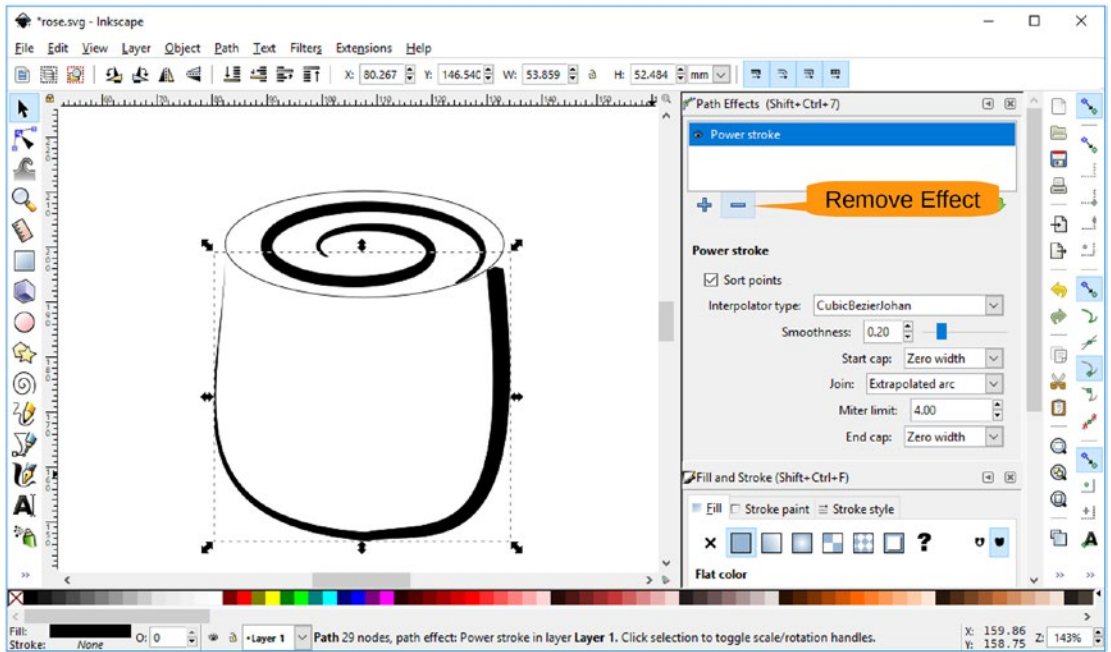
Figure 9-27. *Removing the effect*

It's time to do the red fill. You need the Stroke and Fill panel, so execute Object ➤ Stroke and Fill. Select the Fill tab, a solid color, and the color red. Figure 9-28 shows the result.
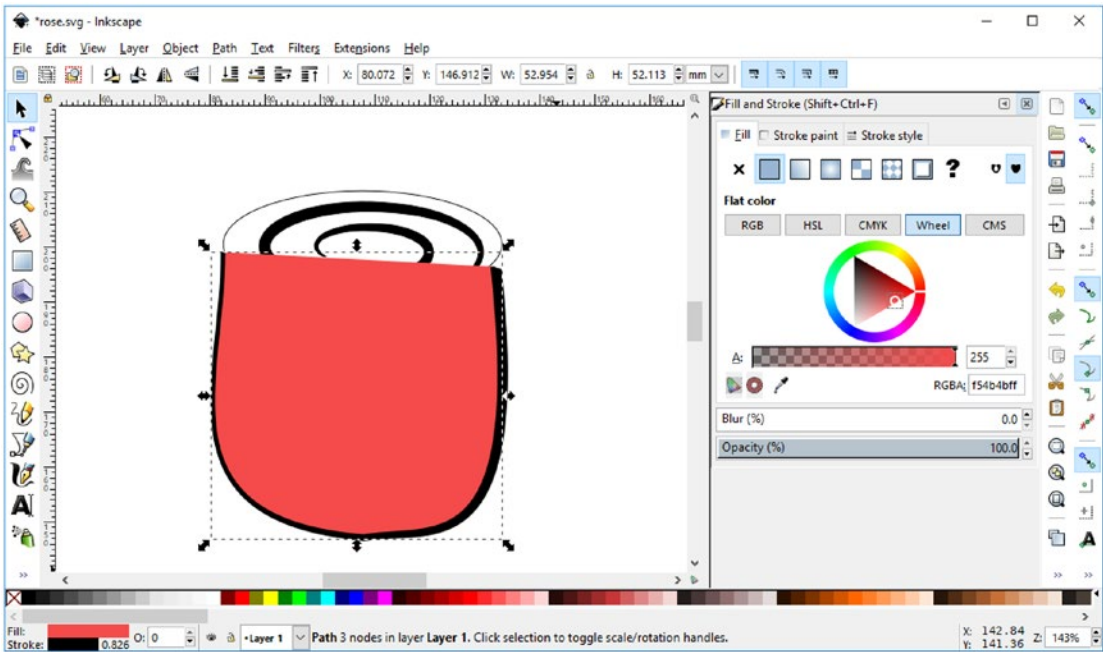
Figure 9-28. *Red fill*

As you can see, your duplicate object is now red and covering all the other objects.

You need the fill to be behind the patterns, not on top of them. Select Object ➤ Lower to Bottom, as shown in Figure 9-29.
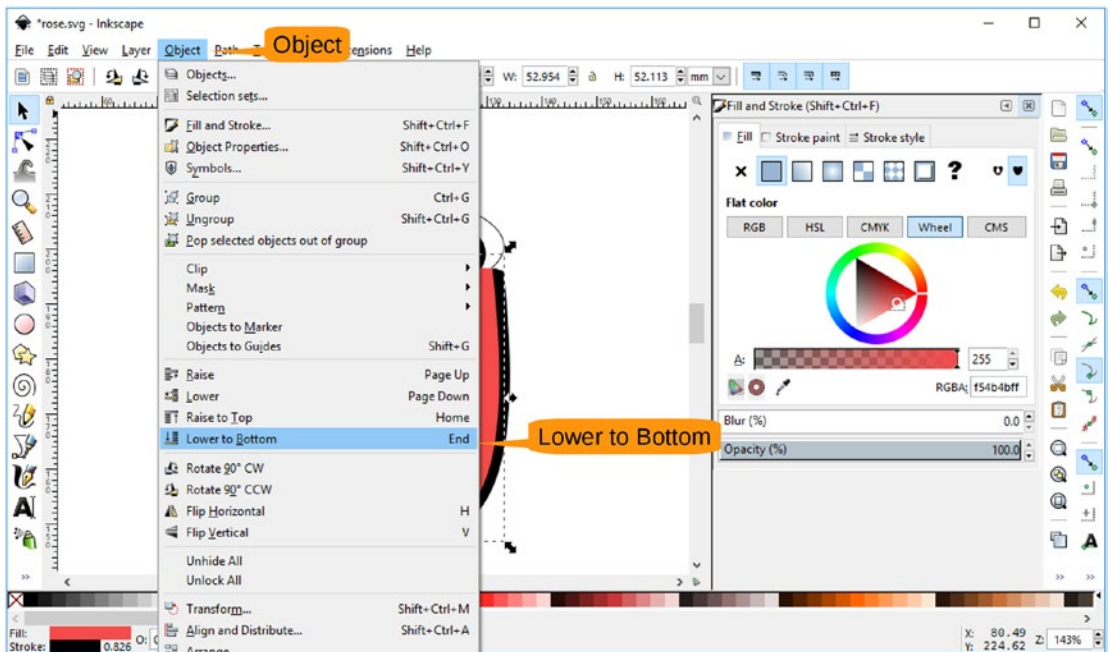
Figure 9-29. *Lowering the object*

The result is a nice-looking bowl. The top needs some work, however. Let's select the circle (now an oval) and use the command Object ➤ Fill and Stroke to bring up the Fill and Stroke panel.

We've already covered how to make the stroke small. To make it bolder, just increase the width. Also, fill the circle with red, just like the bowl, as shown in Figure 9-30.
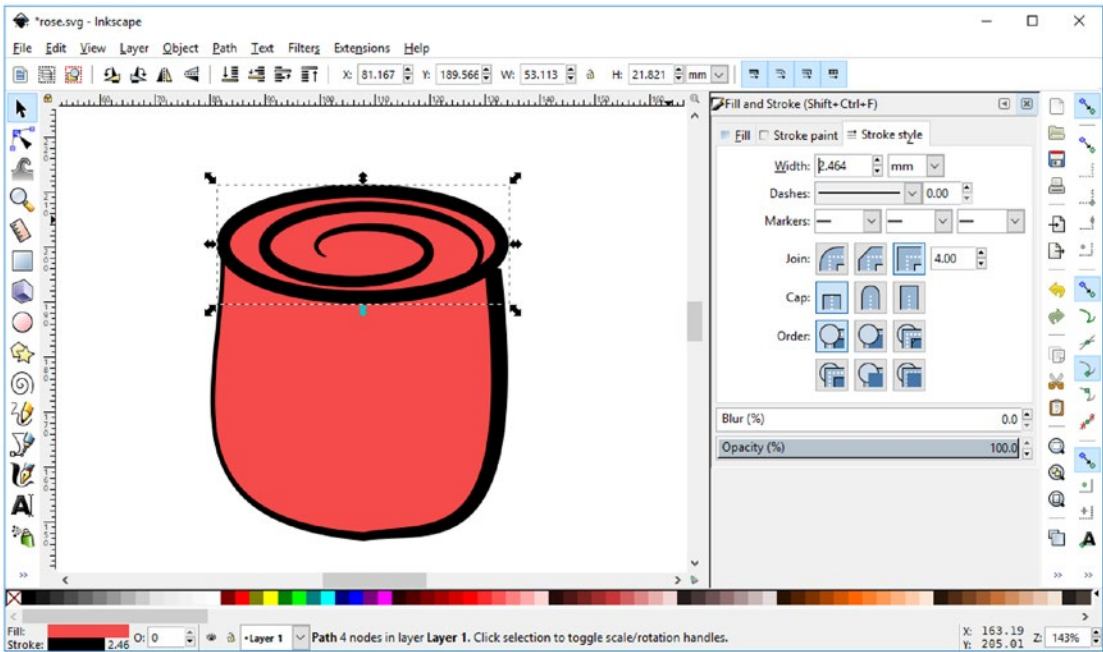
Figure 9-30. *Coloring complete*

Adding a Detail Line

Now you are going to add a detail line on the bowl of the rose, as shown in Figure 9-31. Perform the following steps:

1. Select the Pen tool.

2. Click near the top of the bowl to start drawing a line.

3. Move the mouse straight down about halfway down the bowl. Click to anchor a curve.

4. Go down and to the right to generate a small curve. Double-click to complete the line.

5. Select the Node Edit Tool.

6. Move the purple handles out to widen the line.
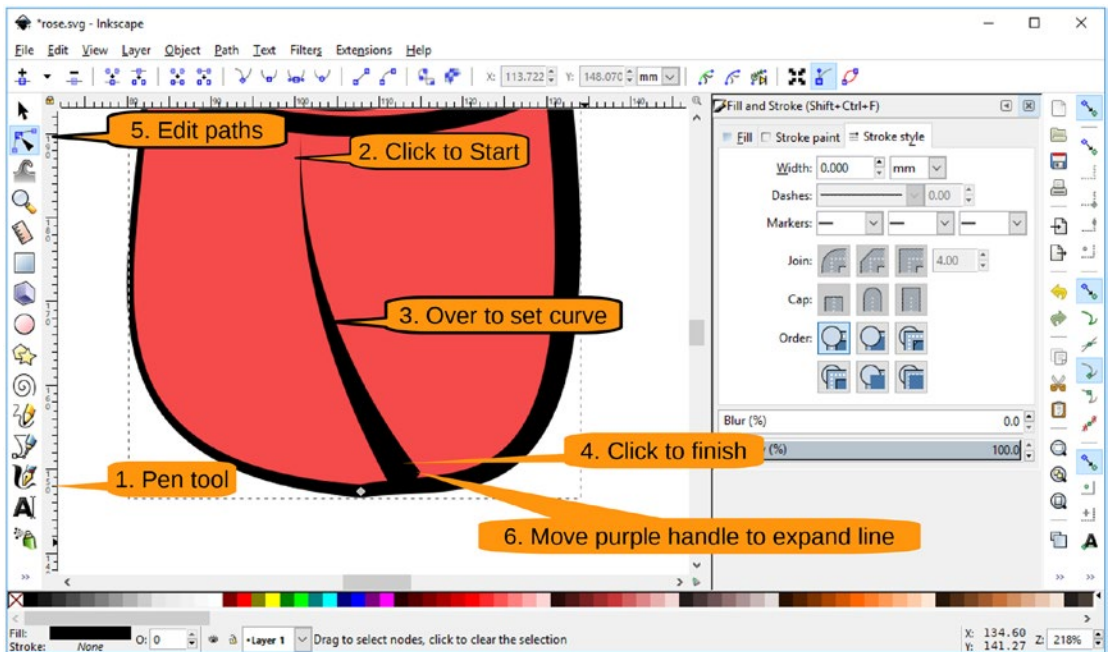
Figure 9-31. *Drawing a highlight line*

Select the Pen tool, and starting at the top, drag straight down. Then move to the left to create a curve.

After drawing, select the curve and move the purple node out to form a thick line.

Adding a Stem

To finish this drawing, you will add a stem. This is the same thing as the highlight line, but you will go in the opposite direction. Also, the stem is longer, as shown in Figure 9-32.

Follow these steps:

1. Zoom out.

2. Select the Pen tool.

3. Starting from just below the top, click once to start the line.

4. Go halfway down and click to set the curve.

5. Move to the left and double-click to finish the line.

6. Select the Edit Path by Nodes tool.
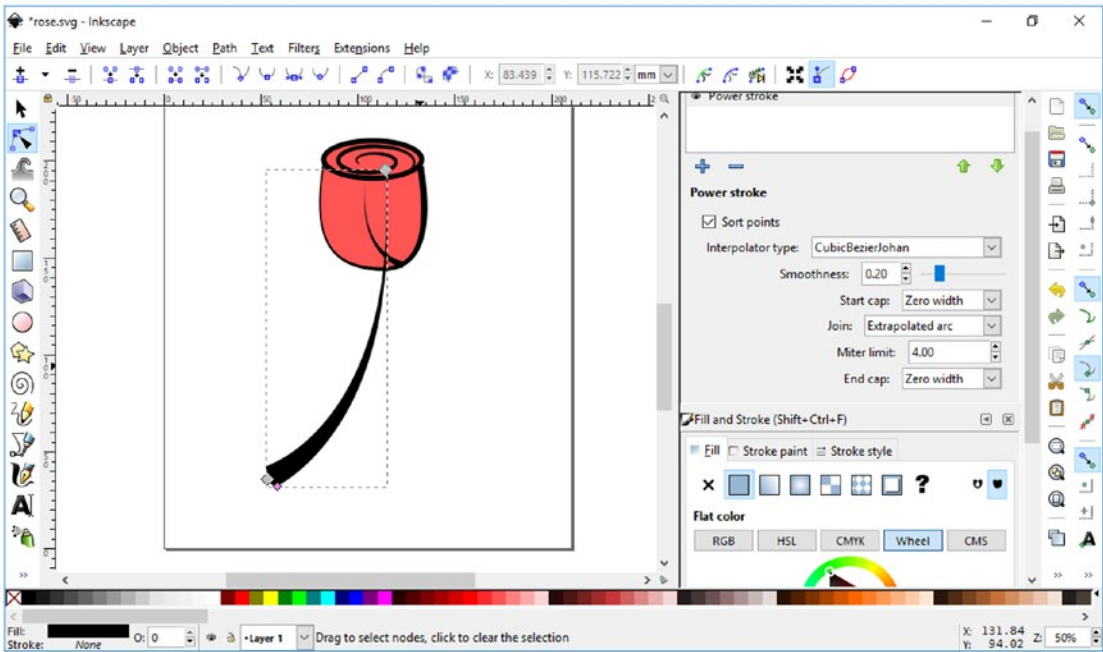
7. Move the purple handle out to expand the line.

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Figure 9-32. *Stem*

Now select the stem and use Object ➤ Lower to Bottom to hide it. Figure 9-33 shows the final rose.
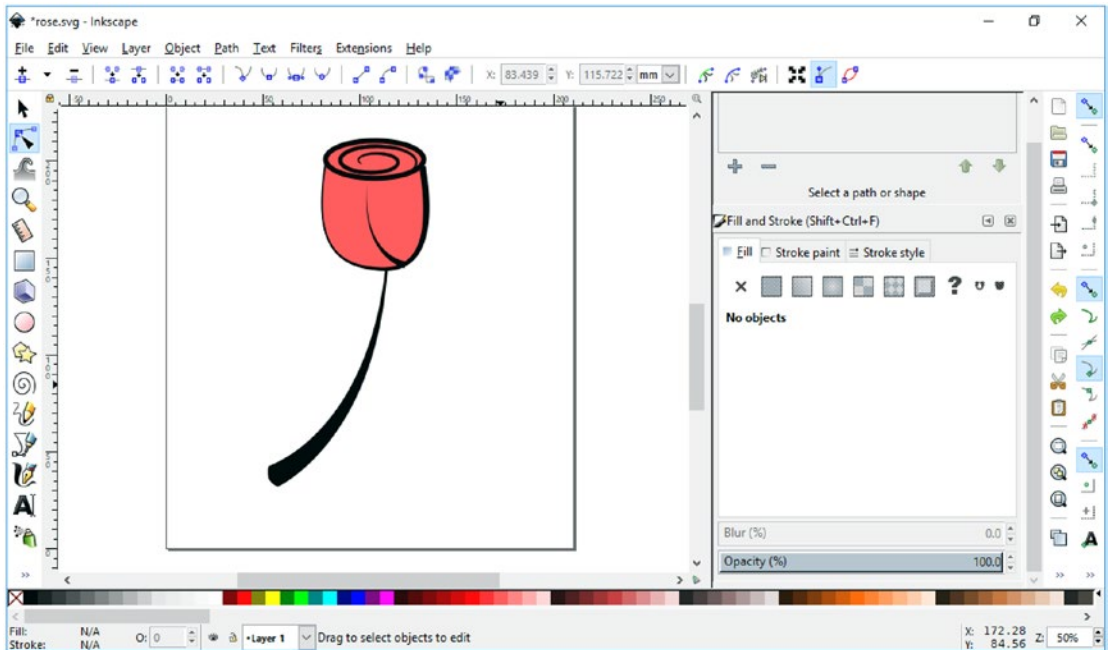
Figure 9-33. *Final rose*

Summary

Inkscape is one of the better and more widely used SVG editors. With it, you can easily design high-quality yet very flexible art, such as the rose you drew in this chapter. The goal of the chapter was to introduce you to the basic controls used in Inkscape; you learned to draw simple shapes, use various types of fills and brushes, and use other editing tools.

We barely scratched the surface, though, because there are many more tools that we just don't have space to cover here. Please check the online resources for other features of Inkscape such as using gradients to add shadows to the rose, layers, patterns, and lots of extensions.

Using Dia Diagram Editor

Humans are visual animals. They remember pictures a lot better than words. As such, it is useful to use diagrams to quickly display information. Thus, you need a good diagram editor.

The Dia Diagram Editor program is such an editor and is similar to Microsoft Visio.

Diagrams are used for things such as process flow (flowcharts), network layout, organization charts, and maps. In fact, one of the most famous diagrams is of the London Underground tube system. The diagram is considered one of the finest examples of the art, presenting the traveler with the information needed in a clear and concise manner while eliminating irrelevant details.

In this chapter, you will discover how to create simple diagrams and thus distill complex information into a simple visual presentation.

Creating a Flowchart

Download Dia from http://dia-installer.de/. Run the installer and select the defaults. Once it starts, an initial, blank diagram screen will appear, as shown in Figure 10-1.
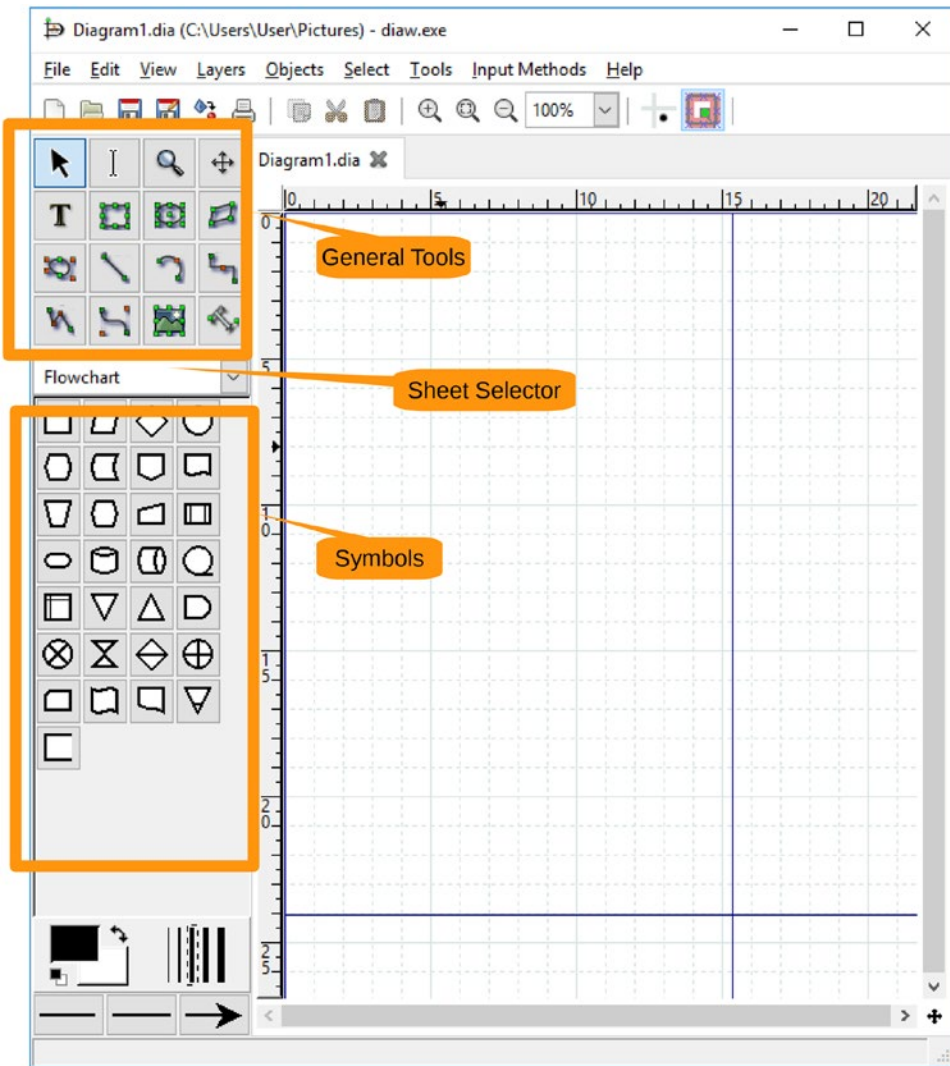
Figure 10-1. *Initial Dia screen*

On the left side are the tools you can use to make a diagram. Below that is a sheet selector area that allows you to select what symbols to use. Below that are the symbols themselves. The middle of the screen shows the current diagram.

For this exercise, you will create a flowchart telling you what to do in case of fire. (Somehow the letters from the Hilltop Elementary School in previous chapters gave us the idea.)

Let's start by dragging a start/stop node (the one that looks like a hot dog) from the sheet selector area to the middle of the screen, as shown in Figure 10-2.
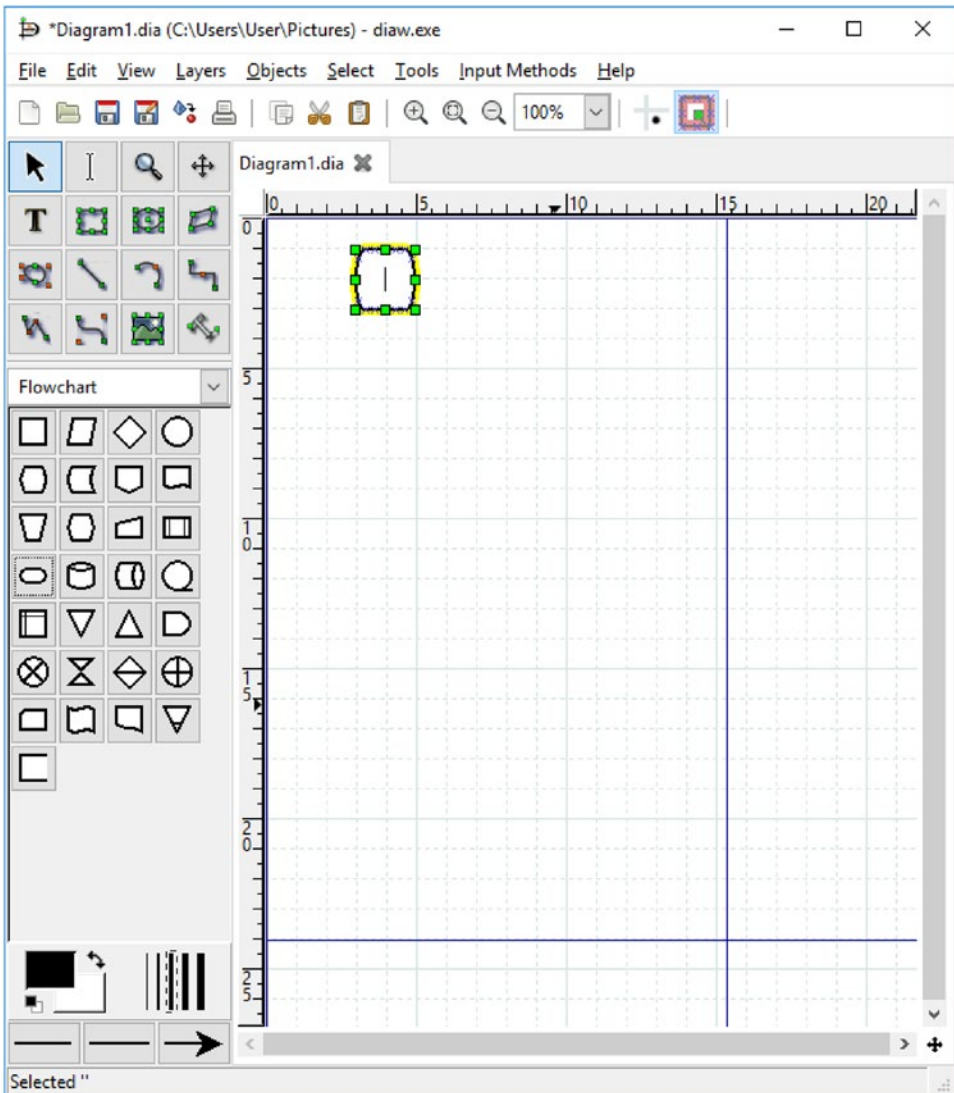
Figure 10-2. Start/start node

Note   The Dia tooltip calls this a Terminal Interrupt, but we think start/stop node is easier to remember.

Drag one of the handles sideways to make the symbol wider and type **Start** inside it. Figure 10-3 shows the result.
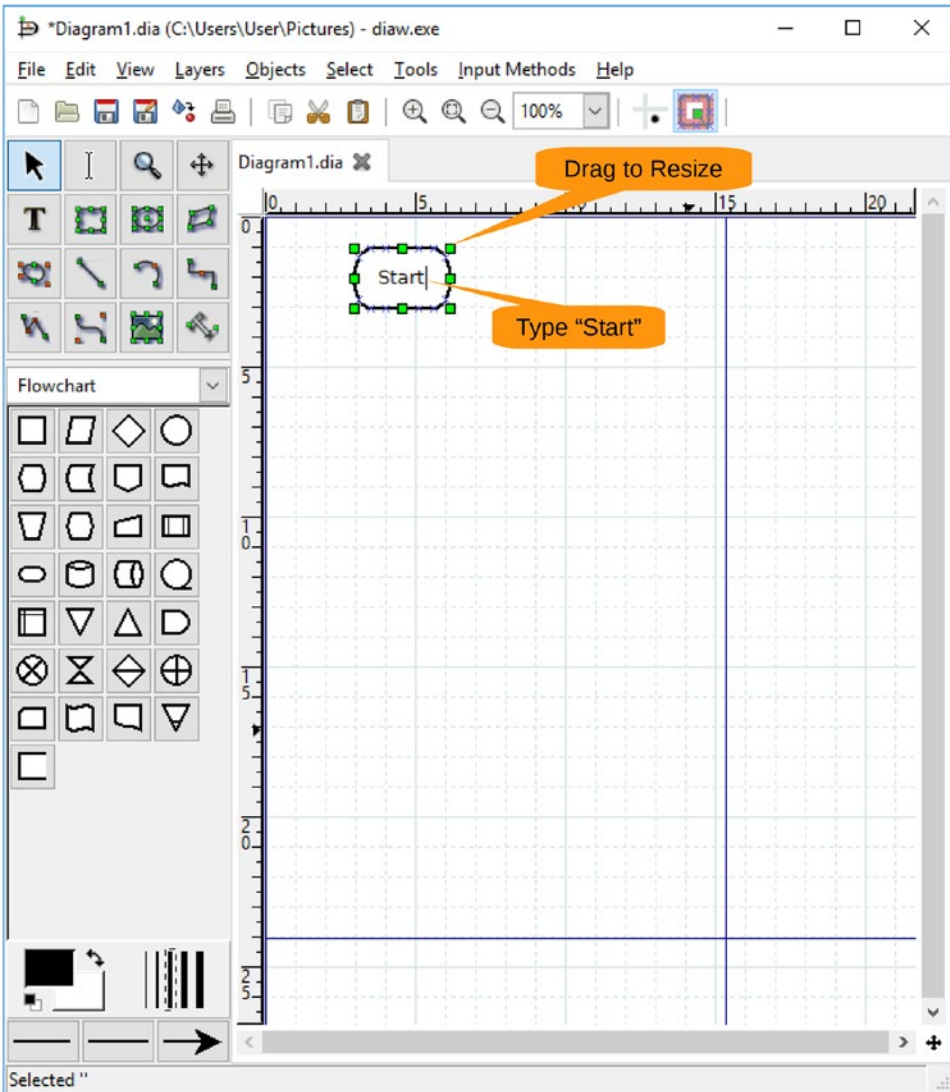
Figure 10-3. *Start node in place*

Disclaimer   This is not a procedure approved by the fire department or any fire professional. Its sole purpose is to demonstrate how Dia Diagram Editor works, not to describe emergency procedures.

Next let's add a decision box (the diamond shape) to the flowchart, as shown in Figure 10-4. Enter the text **Understand Disclaimer?**.
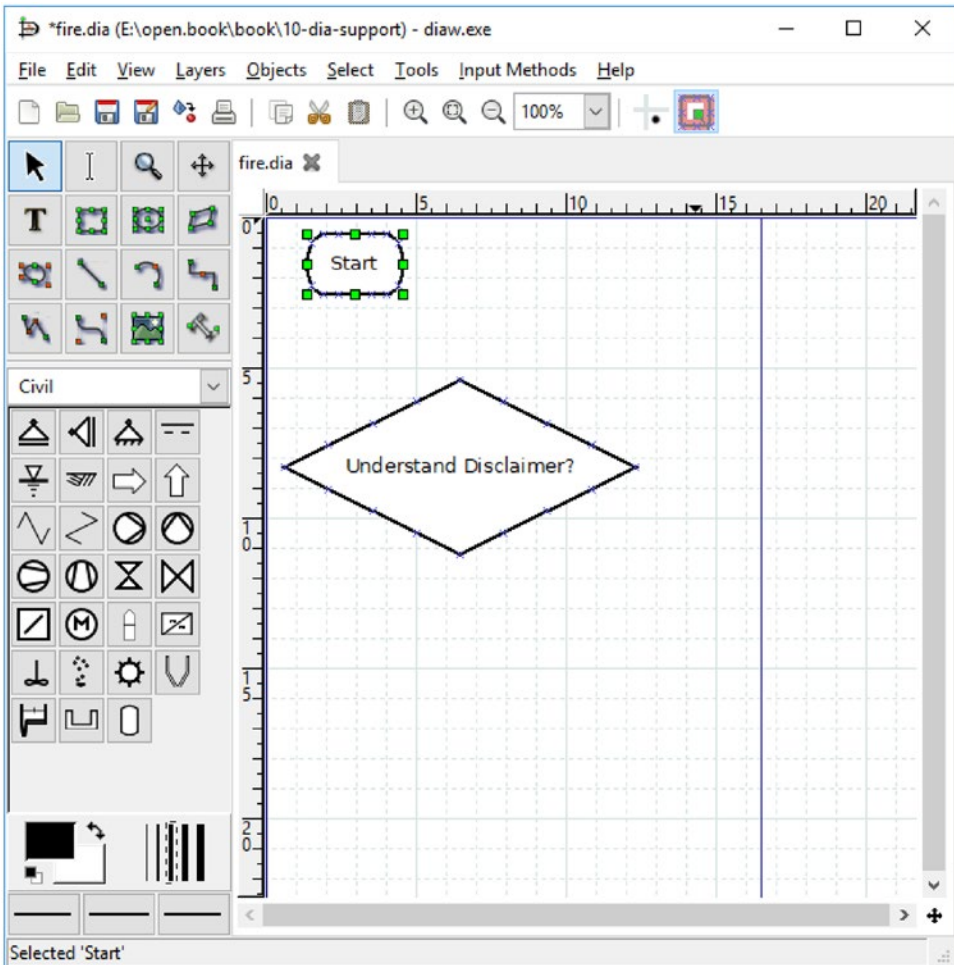
Figure 10-4. *Decision box added*

Now let's connect the start with the disclaimer. Click the "zig-zag line" symbol and then click the bottom middle of the start/stop node. The program will start to draw a line. Go down to the point of the disclaimer. There are some subtle things to watch out for.

First, there are connection points on each of the nodes. These show up when the mouse is over the node and look like little green squares. Second, when you are actually connecting to a node, the node will highlight itself. In Figure 10-5, the decision node is highlighted in red, even if you can't see it in the black-and-white illustration.
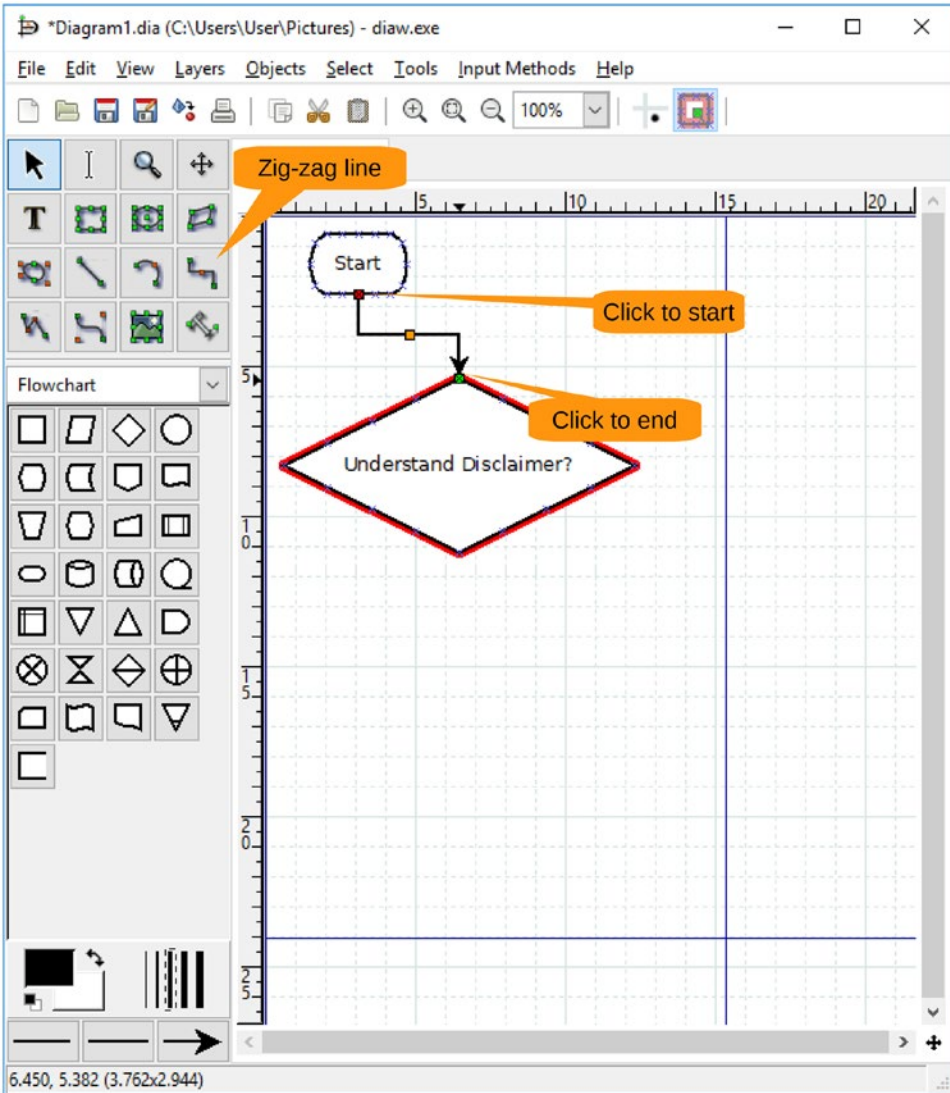
Figure 10-5. *Connecting the two nodes*

The start/stop node would look nicer over the decision node. So, drag it over to fix the problem. As you drag, you'll notice that since the two nodes are connected, the connector is automatically adjusted to the new position. Figure 10-6 shows the result.
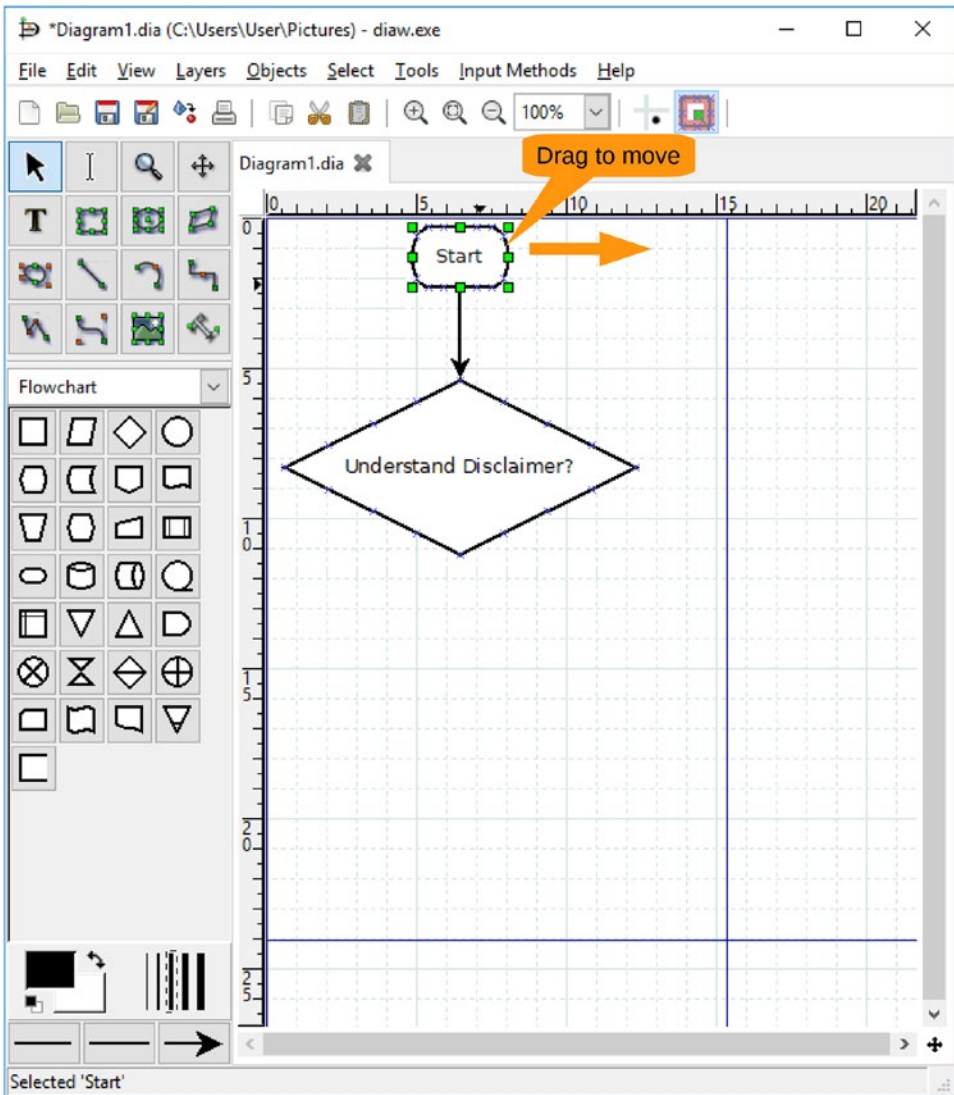
Figure 10-6. *Position adjustment*

Now let's add the letter *N* near the right side of the decision box. Click the Text tool, click just above the right corner of the decision box, and type **N**. Figure 10-7 shows the result.
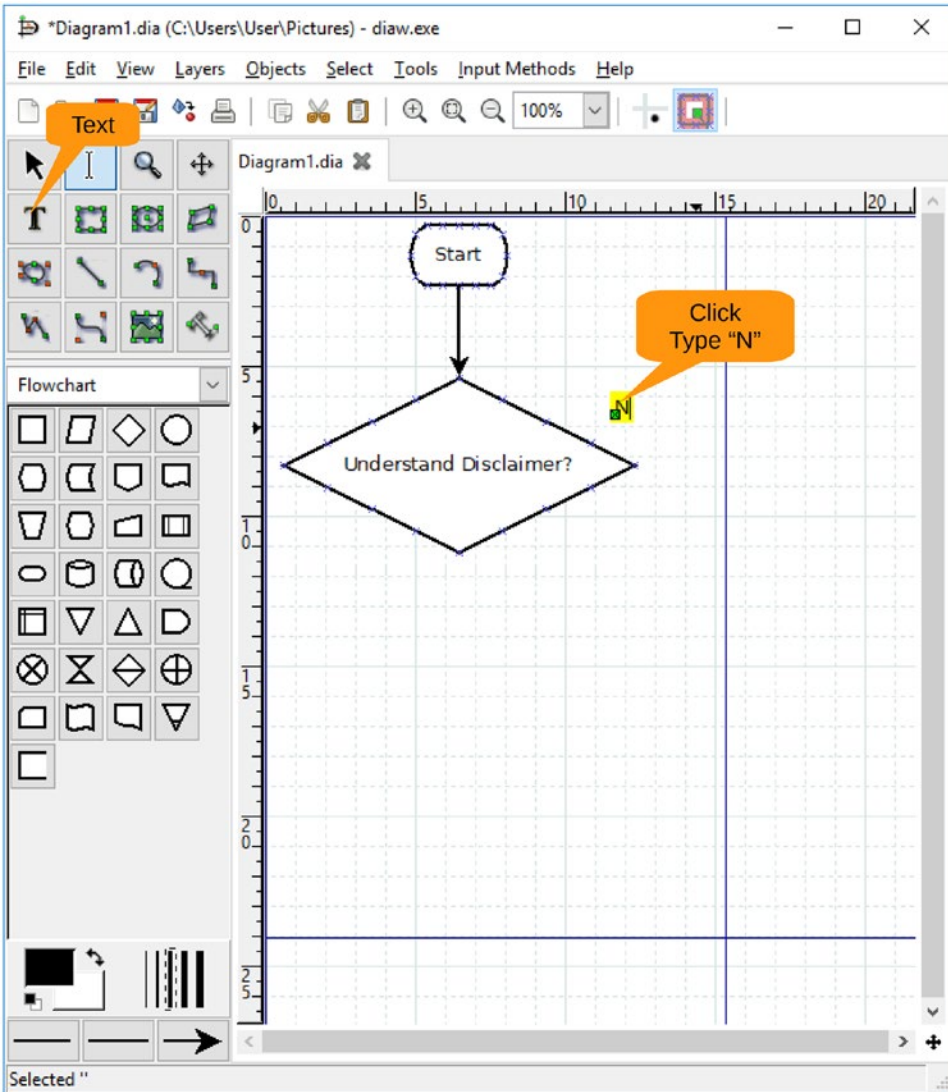
Figure 10-7. *Adding "N"*

Let's continue by dragging an operation box over to the right and labeling it **Read the disclaimer**. Add a connector from our "N" decision to the box. The result should look something like Figure 10-8. Let's also add a connector from the top of the box back to the line above the decision box.
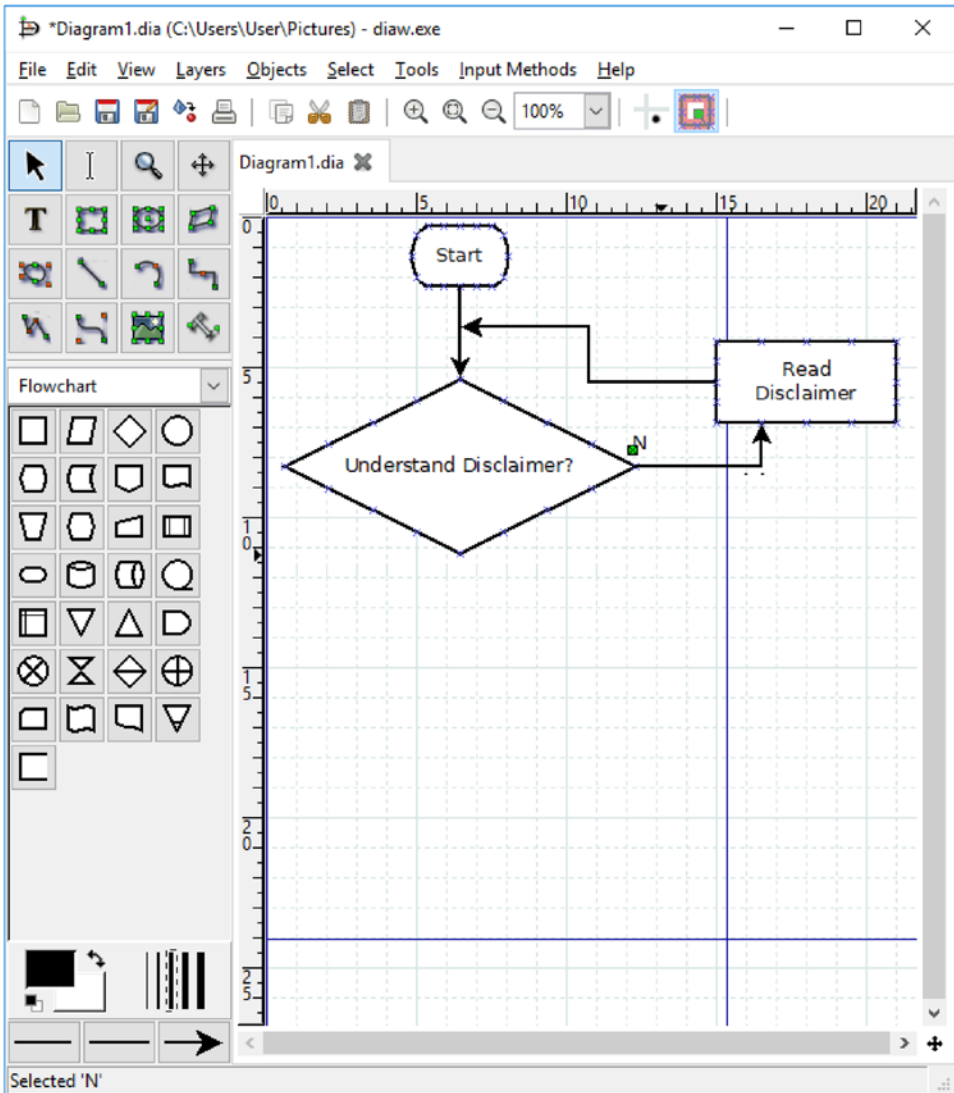
Figure 10-8. *Adding an operation node*

Now let's fill in the rest of the chart by following these steps:

1.   Add the letter *Y* to the bottom of the decision box.

2.   Put an operation box below it with this text: Shout 'Fire' in a loud voice.

3.   Add a second operation box with this text: Get out very fast.

4.   Add a final start/stop node that says Done.

5.   Add connectors for all these nodes.

Figure 10-9 shows the result so far.
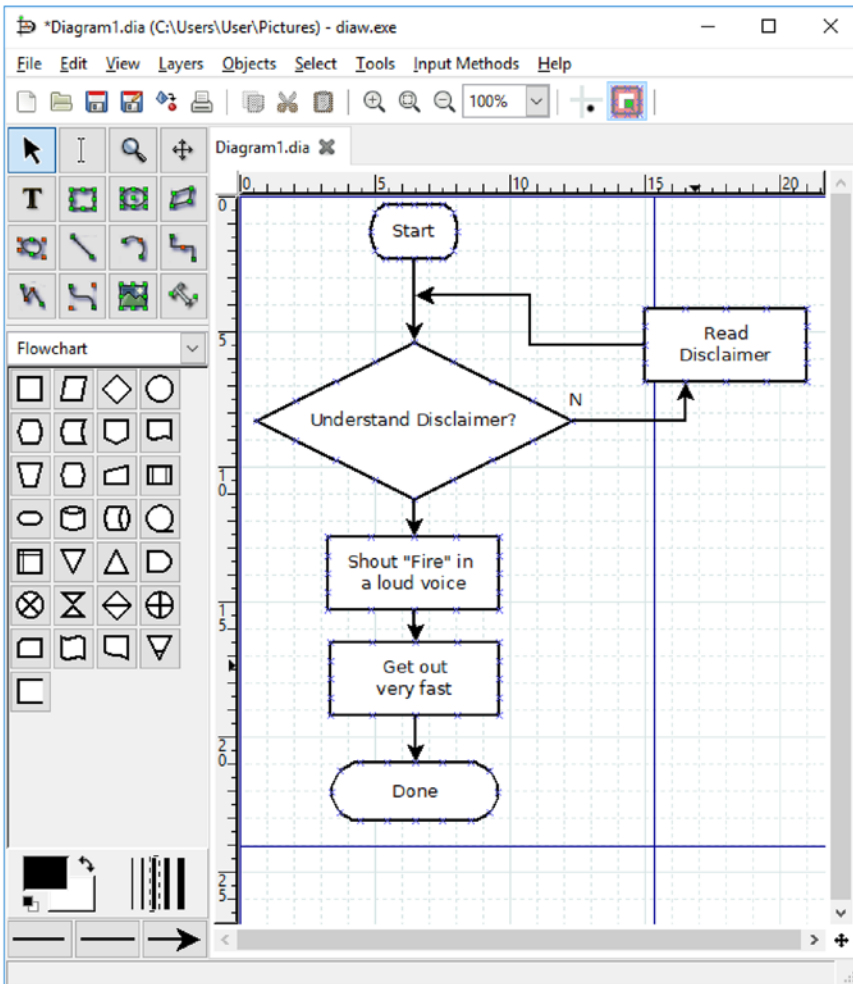
Figure 10-9. *Finished diagram, almost*

There is just one remaining problem. The blue lines indicate page boundaries, so this diagram takes up multiple pages. You want it on one page. To fix this, let's select File ➤ Page Setup, as shown in Figure 10-10.
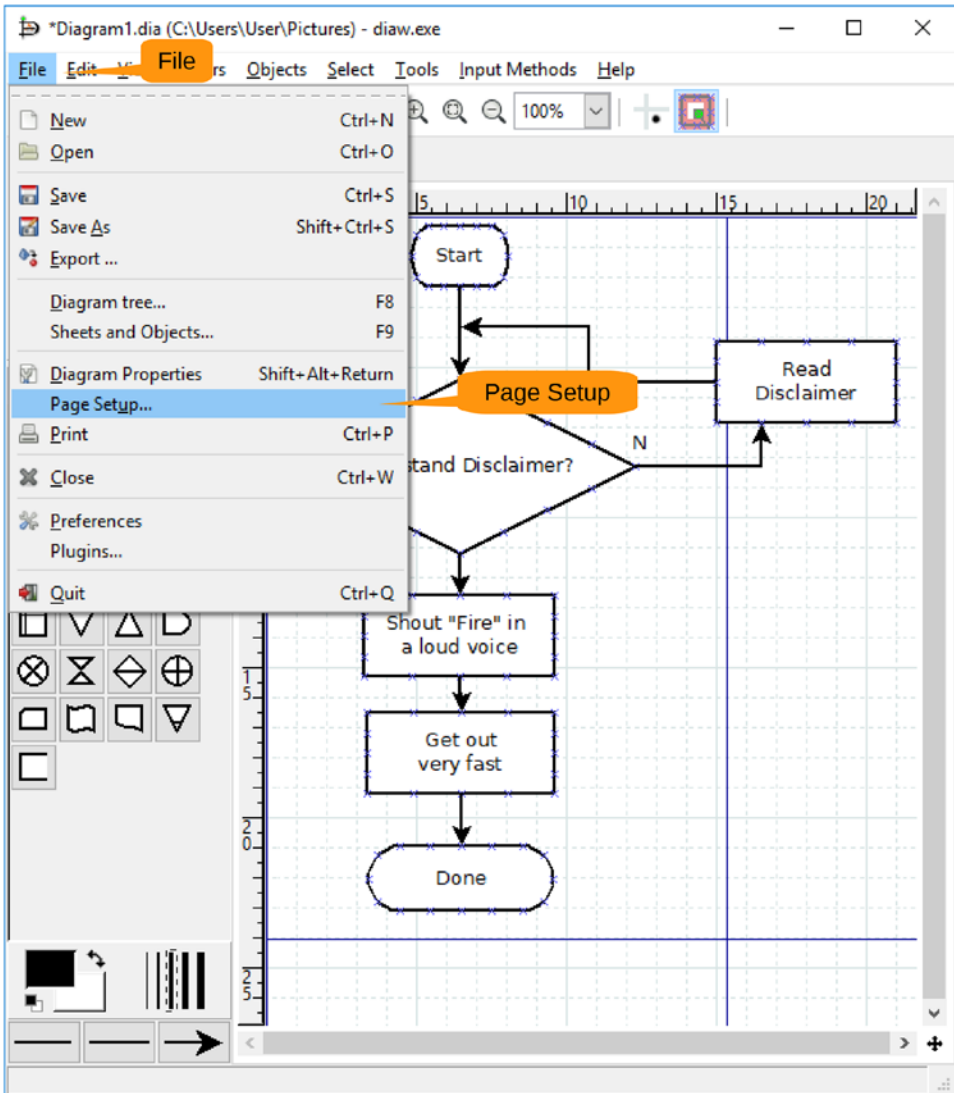
Figure 10-10. *Page Setup menu item*

The Page Setup dialog appears, as shown in Figure 10-11.
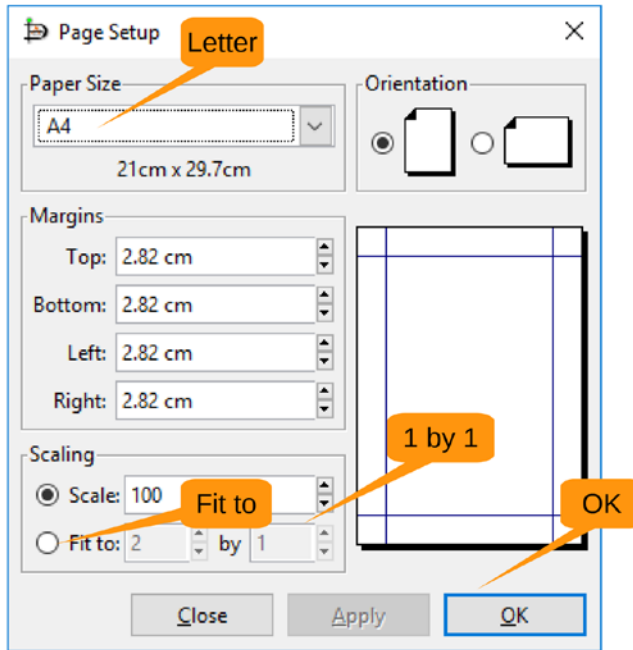
Figure 10-11. *Page Setup dialog*

We're in the United States, so first change the paper size to Letter. Next go to the Scaling section, click "Fit to," and set the parameters to 1 by 1.

Click OK. Notice that the page boundaries have shifted, as shown in Figure 10-12. This diagram is now on one page.
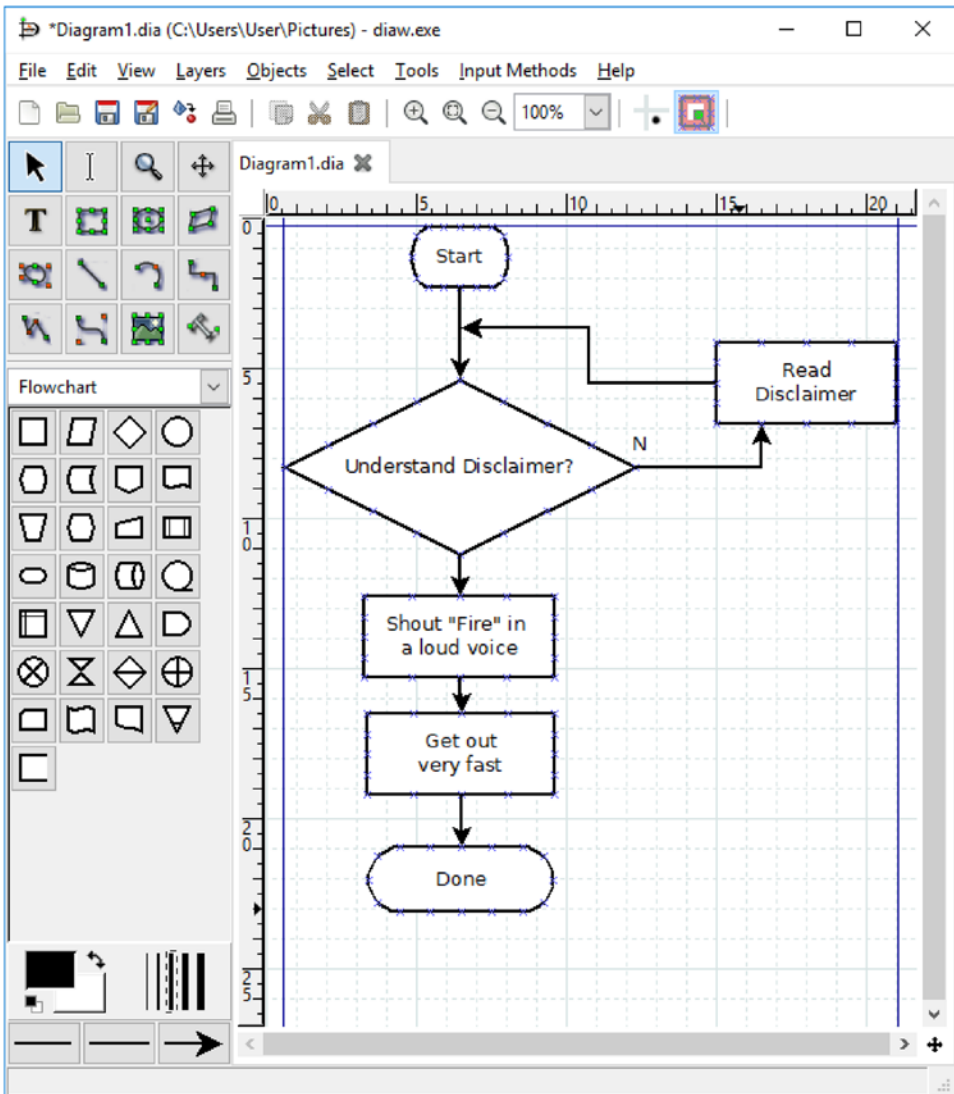
Figure 10-12. *Final diagram*

Now all you have to do is execute File ➤ Save and you've got the procedure for what to do in case of fire. In practice, you probably want to add a few steps, run it by a safety office, and print up some posters. The procedure is the same even if the content isn't.

Creating an Electrical Diagram

You've just completed a flowchart, so now let's try creating an electrical diagram. Pretend you work as a volunteer signal maintainer at the Orange Empire Railroad Museum and you're creating a wiring diagram for one of the signals.

You start by bringing up the electrical symbols sheet by going to the sheet selector and selecting Other Sheets ➤ Electrical, as shown in Figure 10-13.
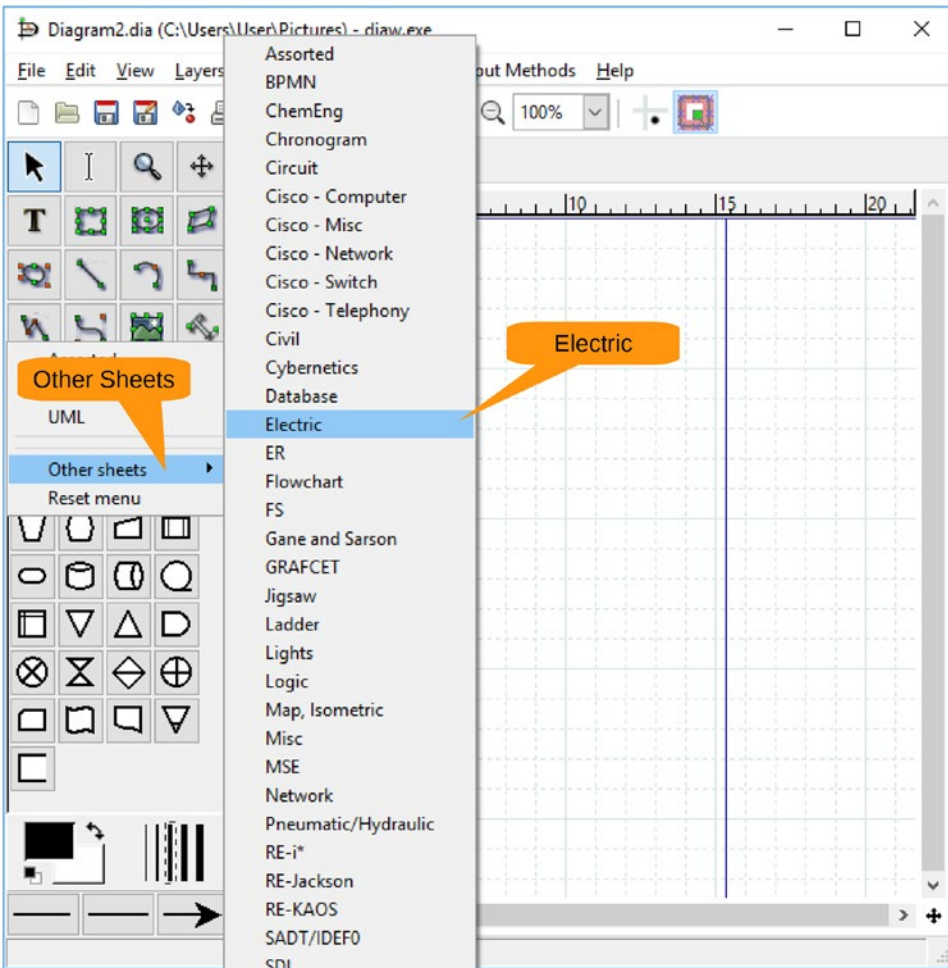
Figure 10-13. *Bringing in the electrical symbols*

At the center of the signal is a relay. You construct this from a relay command organ (horizontal) and a normally open contact. Figure 10-14 shows the results.
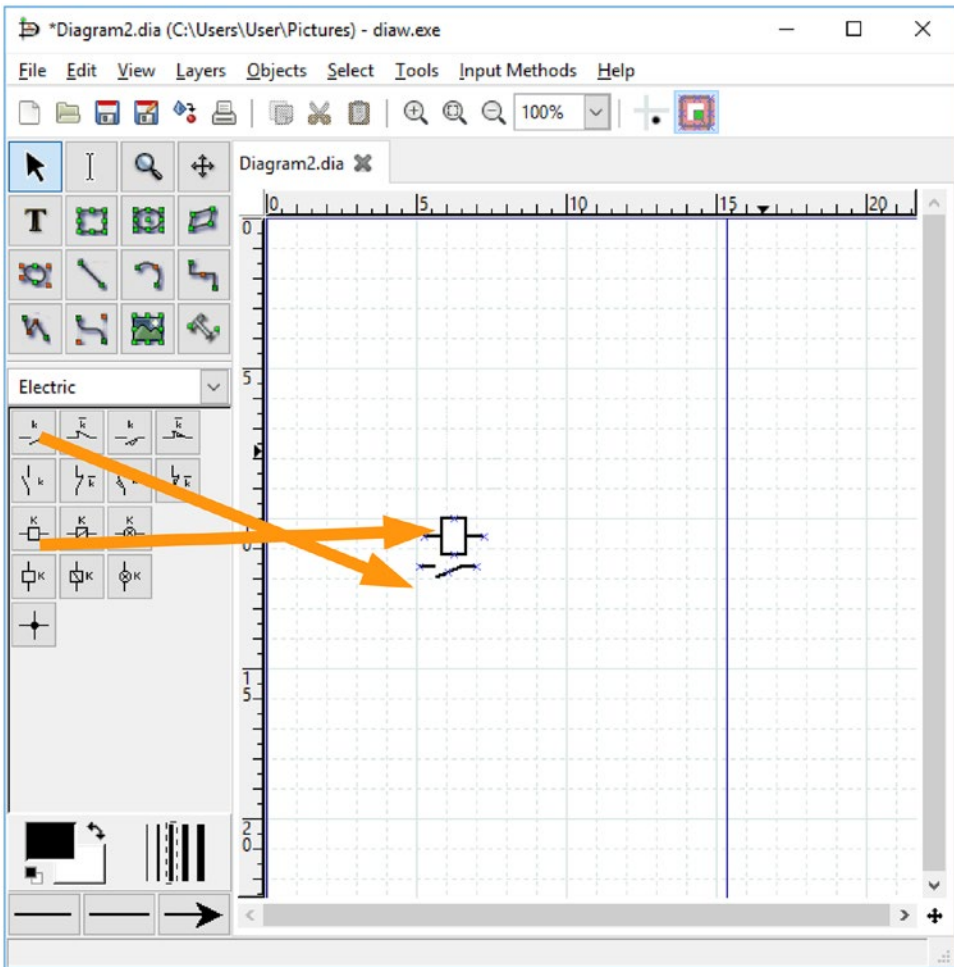
Figure 10-14. *Relay*

Note   Because of the way railroad relays are constructed, the contacts go under the coils as shown, not on top as would be the case with any other type of relay.

Now you need to connect the contacts with the railroad signal. Unfortunately, Dia does not have a railroad signal symbol set (yet), so you're going to have to make do. Let's use a bell.

However, there isn't a bell in this symbol sheet, and an exhaustive search of the other sheet leaves you without a bell.

So, what do you do? Go to the Internet and search for *Dia symbol bell*. You found a page with the Liberty Bell on it, so refine your search to *Dia diagram symbol bell*.

This takes you to an add-on sheet for Dia for electronic symbols, which is displayed in Figure 10-15.
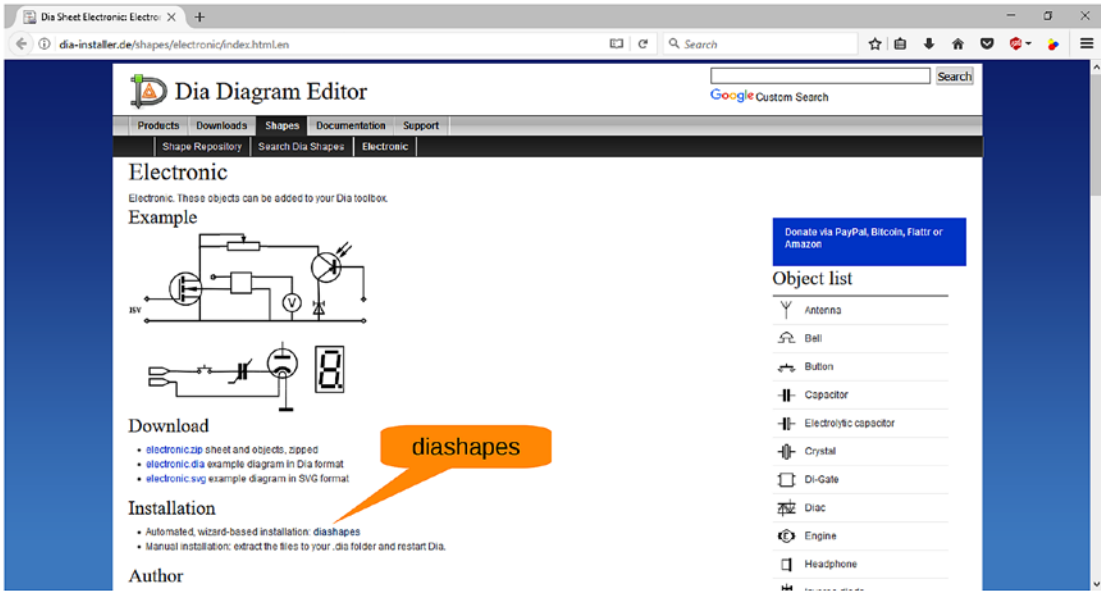
Figure 10-15. *Electronical sheet add-on*

Scrolling down, you can see that, yes, there is a bell symbol on this sheet. Looking at the text you see that there is a helper program called *diashapes* that will do the downloading and installation for you.

Let's click that link and then download and install the software.

When run, diashapes displays a list of all the available shape sheets and asks you if you want to download them, as shown in Figure 10-16.
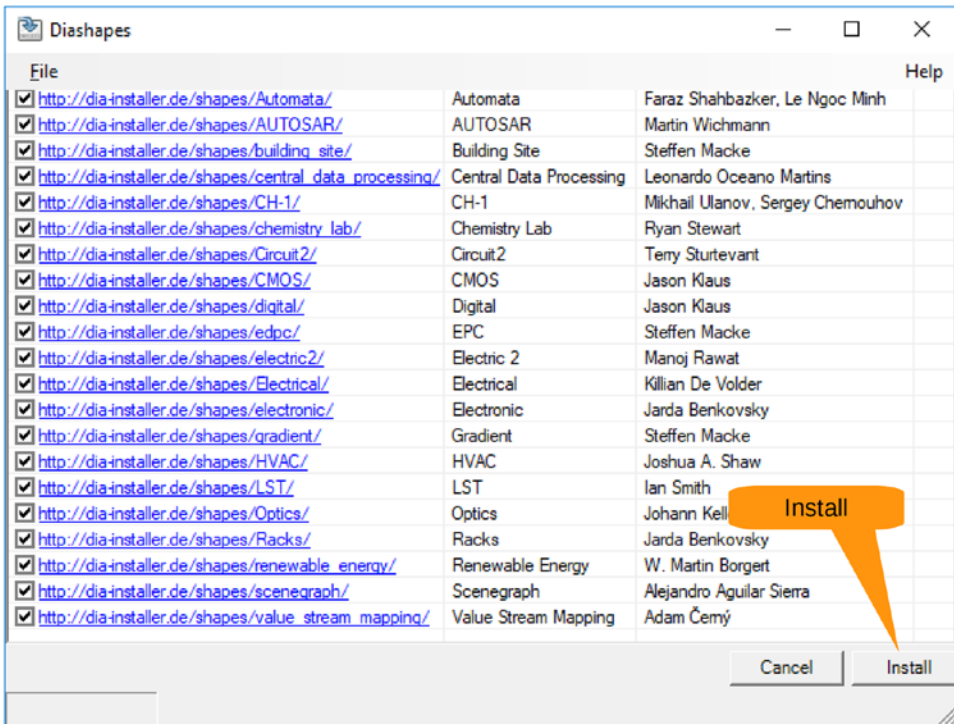
Figure 10-16. Diashapes

Since you have lots of disk space and there aren't that many shape sheets, you'll leave them all selected and click Install. When done, the program shows you a dialog telling you it installed 21 new sheets, as shown in Figure 10-17. Your number may vary because there may be more added after the time this book was written.
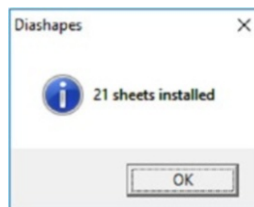
Figure 10-17. Sheets installed

You have to exit and restart Dia to see the new sheets.

Once you restart, from the sheet selector, select Other Sheets ➤ Electronics.
Figure 10-18 shows you that you now have a bell.
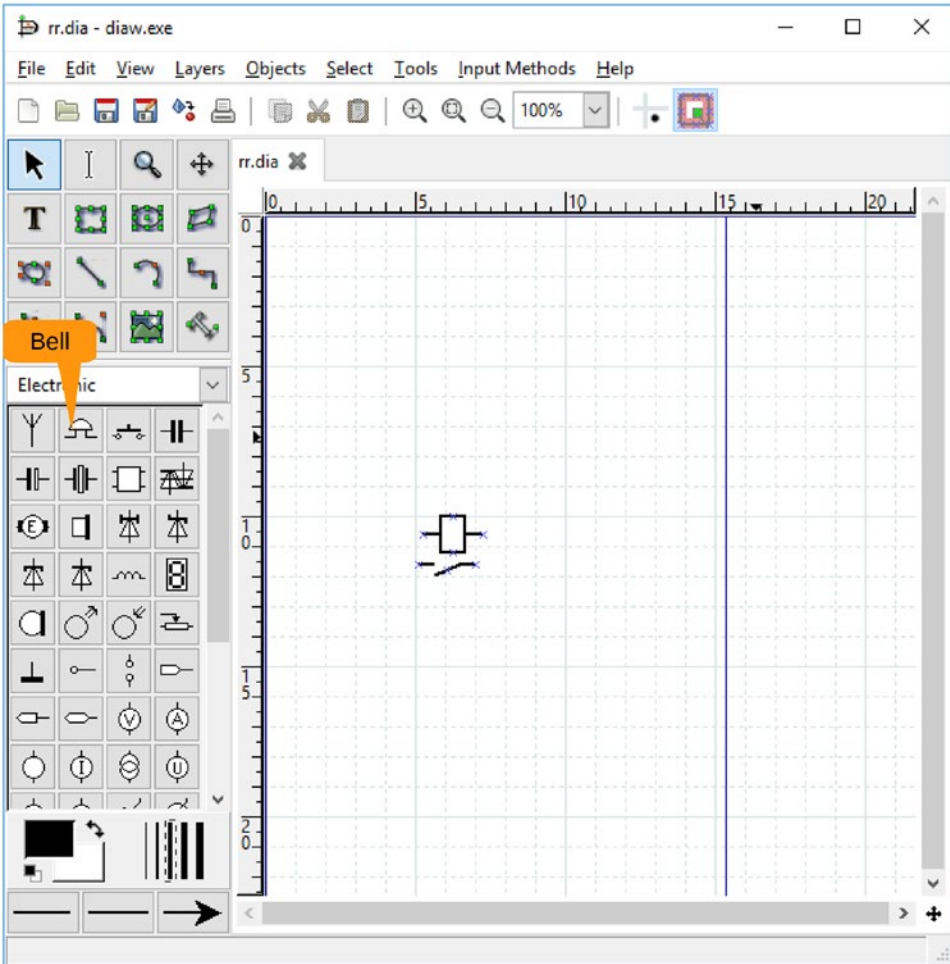
Figure 10-18. *Bell*

Let's drag in the bell and a connecting line. From the result in Figure 10-19, you can see that you have a problem. The line has an arrow on it.
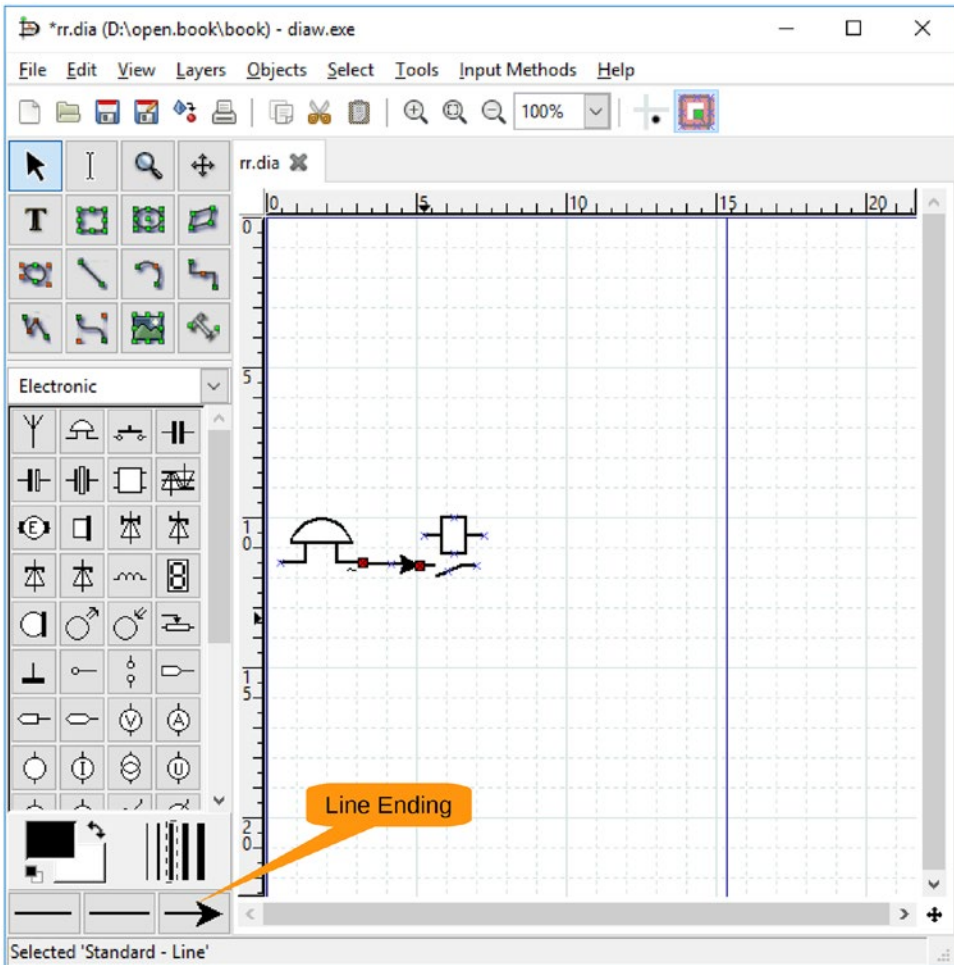
Figure 10-19. *Bell with arrow*

Right-click the line to bring up the context menu and select Properties, as shown in Figure 10-20.
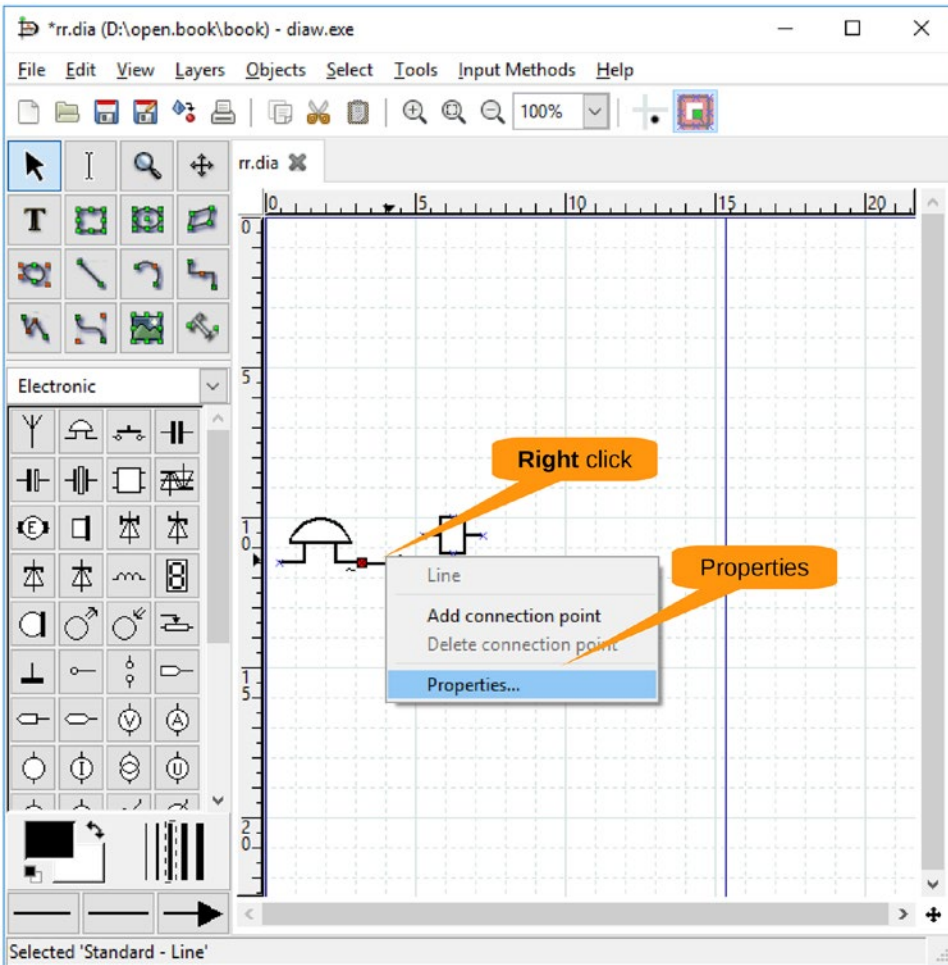
Figure 10-20. *Properties*

The Properties dialog appears. Change the line ending from an arrow to a line and click OK. Figure 10-21 maps out the controls.
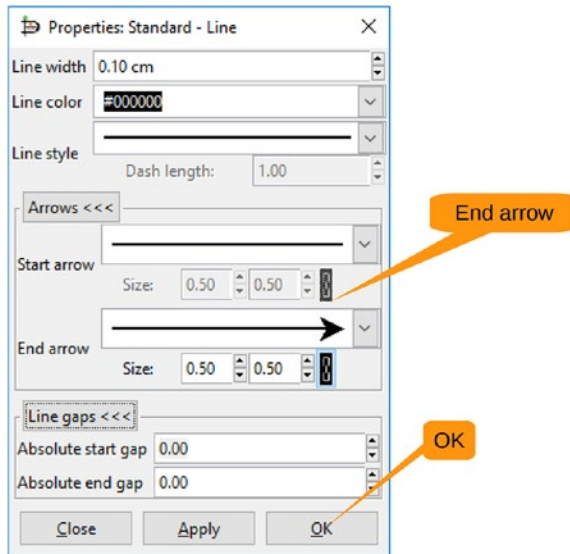
Figure 10-21. *Properties*

This takes care of this line, but what about the next one you draw? Let's go to the default line properties on the bottom of the toolbox and change the right line ending to "no arrow," as shown in Figure 10-22.
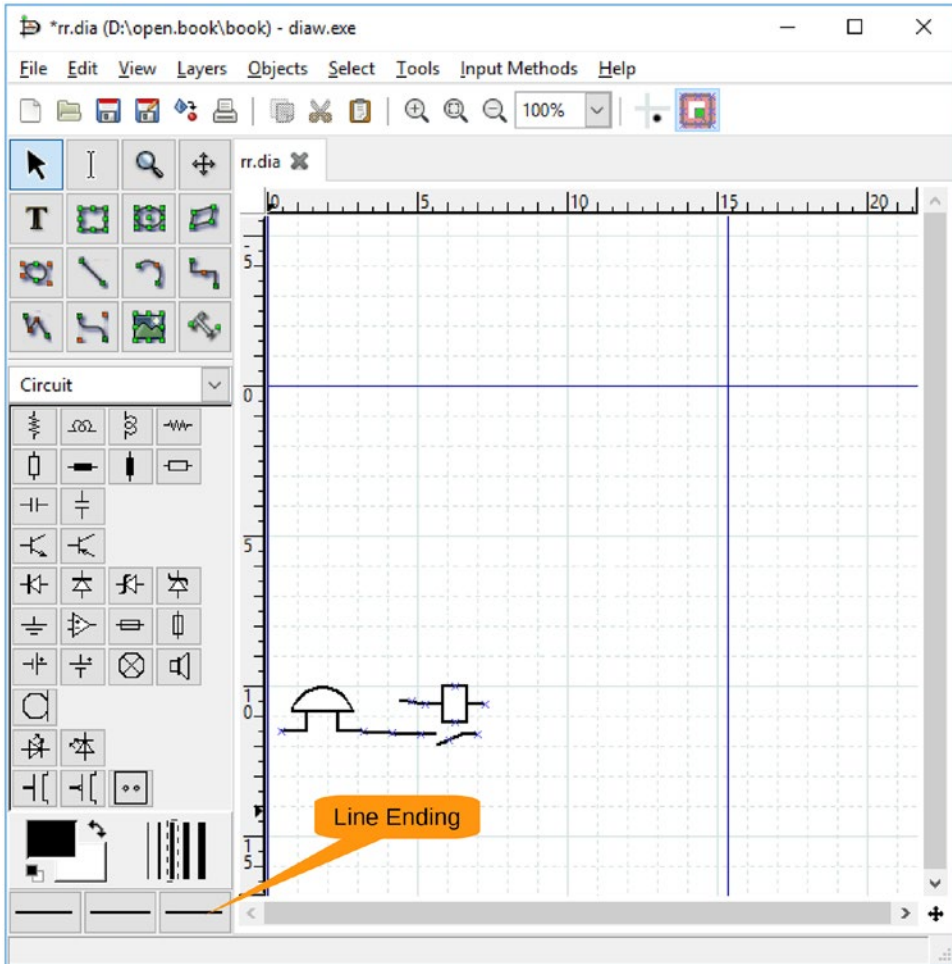
Figure 10-22. *Line ending*

Now let's draw the rest of the diagram using the tools and techniques you've seen so far. The only tricky part is when you want to add a resistor. That's in the Circuit symbol sheet. As a final step, you want to put a box around the relay. Draw it in, and you'll see you get the unpleasant result shown in Figure 10-23.
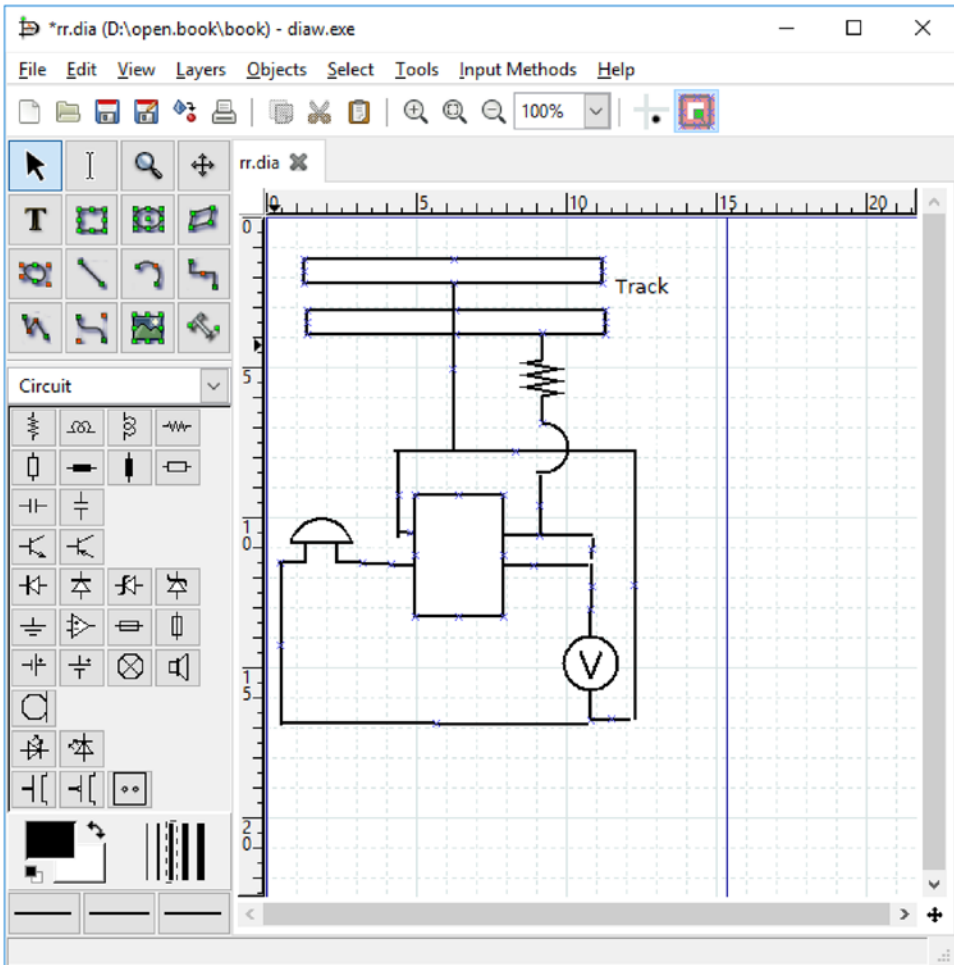
Figure 10-23. *Box*

You need to make it transparent. Also, you need the line to be dotted. So, by righting-clicking the box, you can go to the Properties dialog, as shown in Figure 10-24.
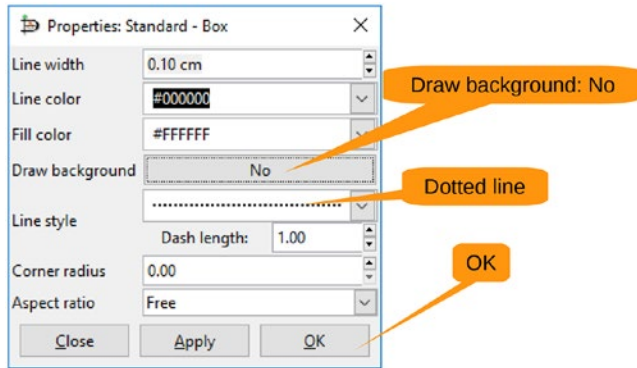
Figure 10-24. *Properties*

Now the box looks wonderful. Let's add a few labels to be even more helpful. Figure 10-25 shows the grand result.
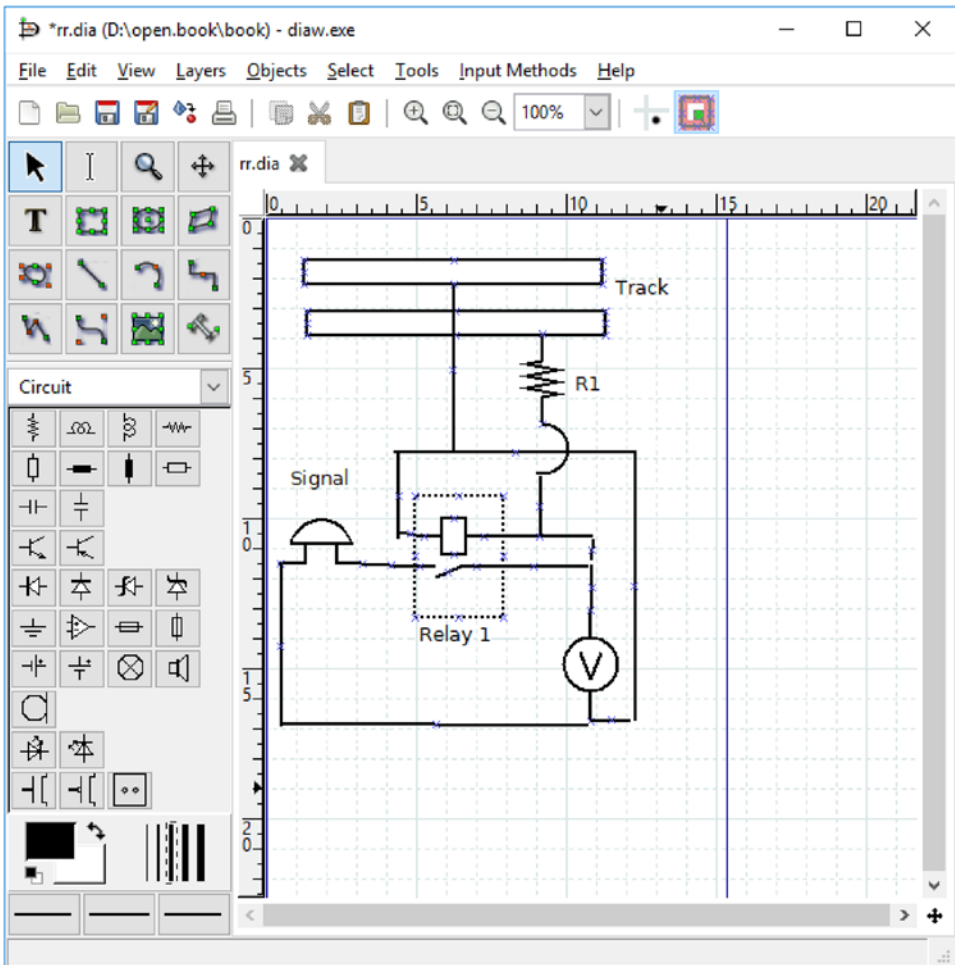
Figure 10-25. *Final diagram*

Congratulations, the result is a decent-looking diagram.

Summary

Dia comes with hundreds of shapes to support all sorts of diagrams, such as the following:

- UML diagrams for program design

- Computer network layouts

- Family trees

- Chemistry diagrams

- Civil engineering diagrams

- Organization charts

Although a simple tool, Dia can be used to take complex information and present it in a nice diagram that should make things easier to understand.

CHAPTER 11

Using GnuCash

GnuCash is a simple-to-use accounting program. It has several advantages over a spreadsheet, such as reconciliation and check printing. Also, one of its chief advantages is that it is simple and easy to use.

In this chapter, you will learn the following:

- How to create a checking account

- How to enter checks

- How to create a memo line

- How to print checks

- How to create a savings account

- How to reconcile your bank statement

- How to schedule payments

You can download GnuCash from `http://gnucash.org`. Follow the usual installation instructions: download the file, run it, and accept all the defaults.

Creating a Checking Account

Let's start by creating a new checking account. When you first start GnuCash, it displays a GnuCash Tip Of The Day dialog, as shown in Figure 11-1. Like most tips, it's not that useful, so click Close.
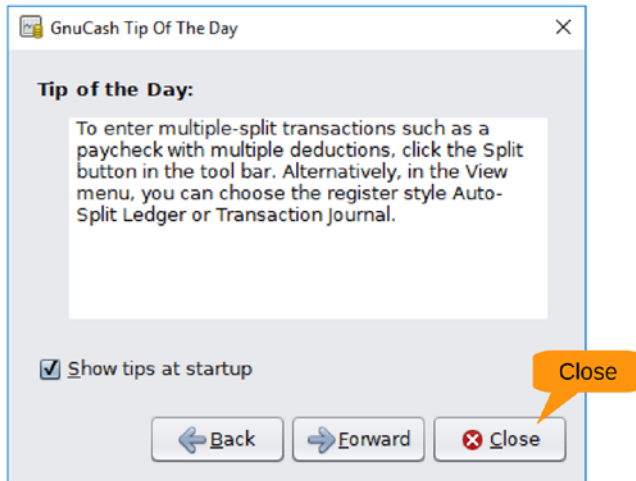
Figure 11-1. *Tip Of The Day dialog*

You'll also notice the first time you start the program, it starts slowly. It has a lot of initialization to do. The next time you start the program, it will be much faster.

You need to create a new account. If you are running GnuCash for the first time, it will automatically start the New Account Wizard. If not, from the main window, select File ➤ New File, as shown in Figure 11-2.
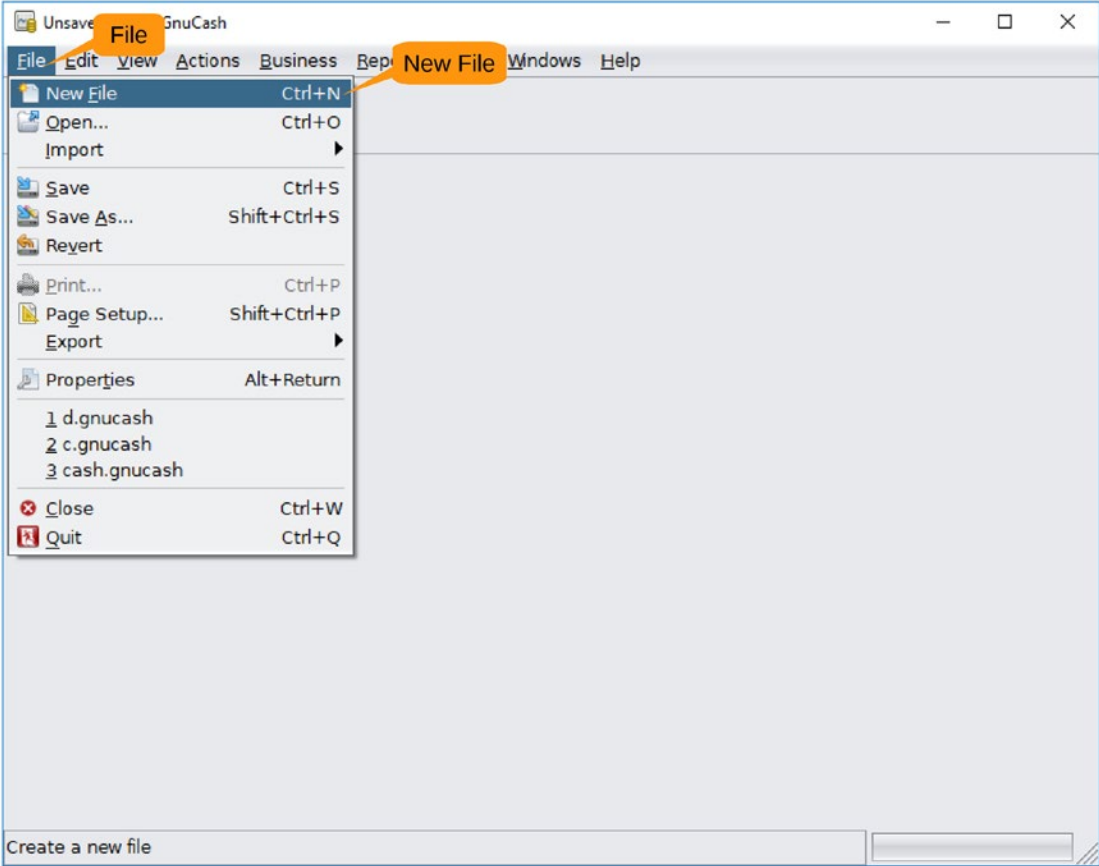
Figure 11-2. *Main window*

The New Account Wizard starts and displays the information screen shown in Figure 11-3. Click Forward to continue.
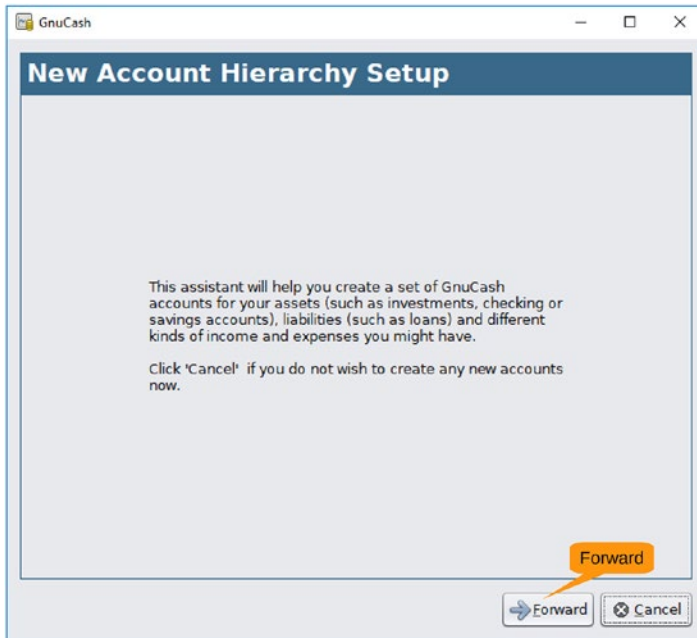
Figure 11-3. *New Account Wizard, first screen*

Next the system wants to know what currency you use. Since we are in the United States, we're going to use the United States dollar, as shown in Figure 11-4. Again, click Forward to continue.

Figure 11-4. *Currency type*

The next screen, as shown in Figure 11-5, allows you to set options for your set of accounts (called a *book* in GnuCash terms). In this example, you are not doing anything fancy, so leave the defaults alone and click Forward.
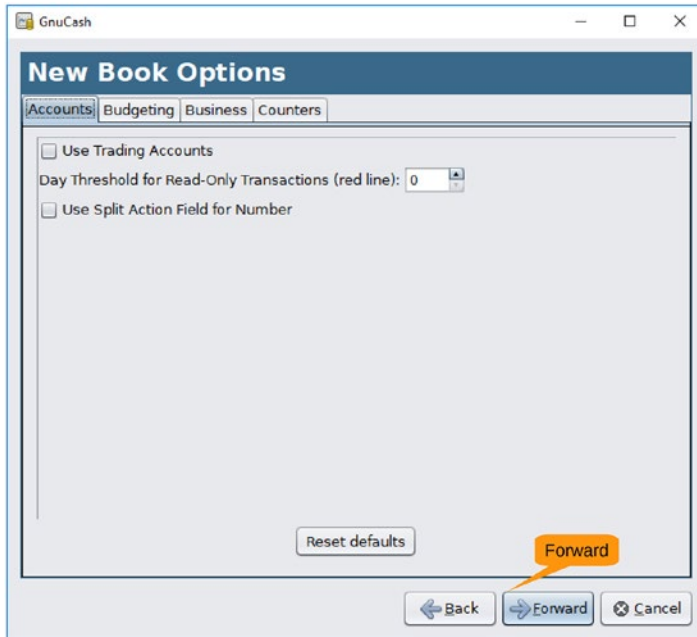
Figure 11-5. *Book options*

Now you need to select what type of accounts you are creating, as shown in Figure 11-6. At the top of the list is Simple Checkbook. Select that and click Forward. (You are permitted at this point to wonder how many steps are left in this wizard! Don't worry, you're almost there.)
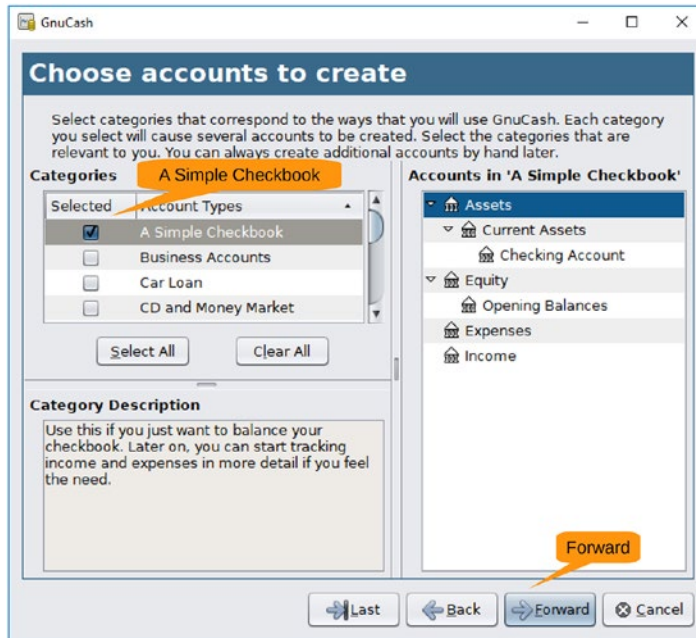
Figure 11-6. *Selecting account types*

Now you come to the screen where you get a list of accounts and can set the initial value of your checking account, as shown in Figure 11-7. In this case, let's say you have $3,000 in the bank, so click next to the Checking Account entry and enter **3000**. Then click Forward.
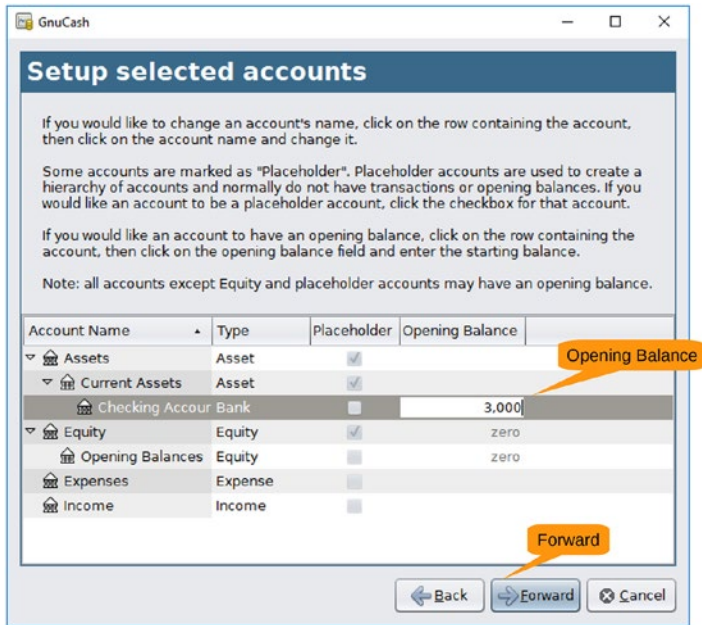
Figure 11-7. *Account setup*

Finally, you reach the Finish Account Setup screen, as shown in Figure 11-8. Rejoice and click Apply.
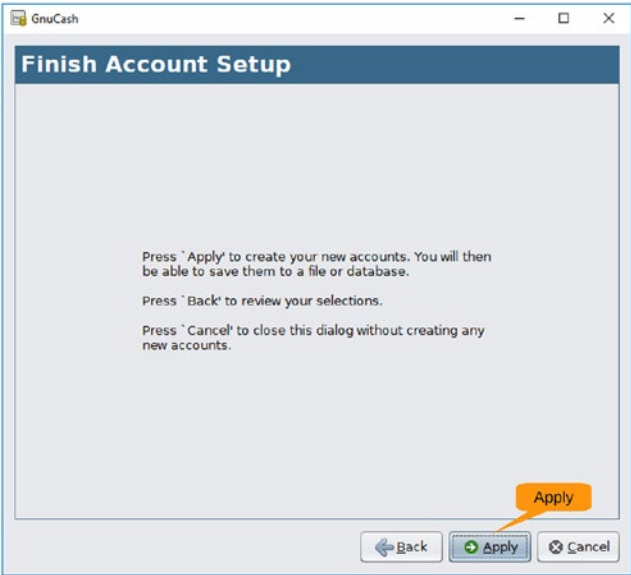
Figure 11-8. *The end of the wizard*

One more screen appears so that you can save your work, as shown in Figure 11-9. Enter a file name and click Save As.
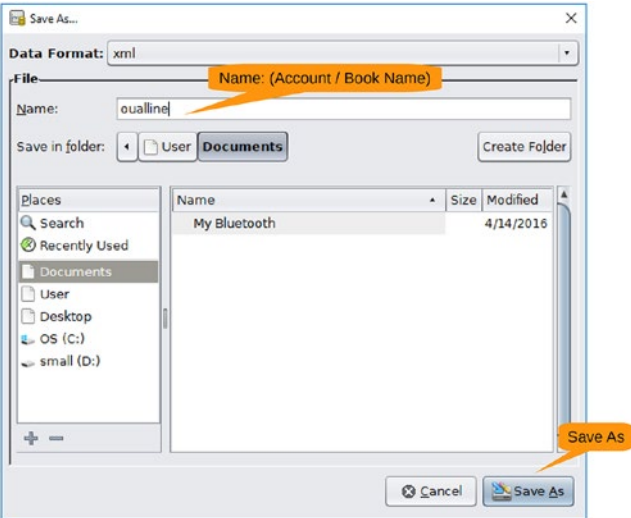
Figure 11-9. *Saving the file*

Finally, after much effort and lots of wizard work, you have reached the Accounts screen, as shown in Figure 11-10. Initially you won't see your checking account, but by clicking the triangles next to Assets and then Current Assents, you can expand the hierarchy and see your new checking account.
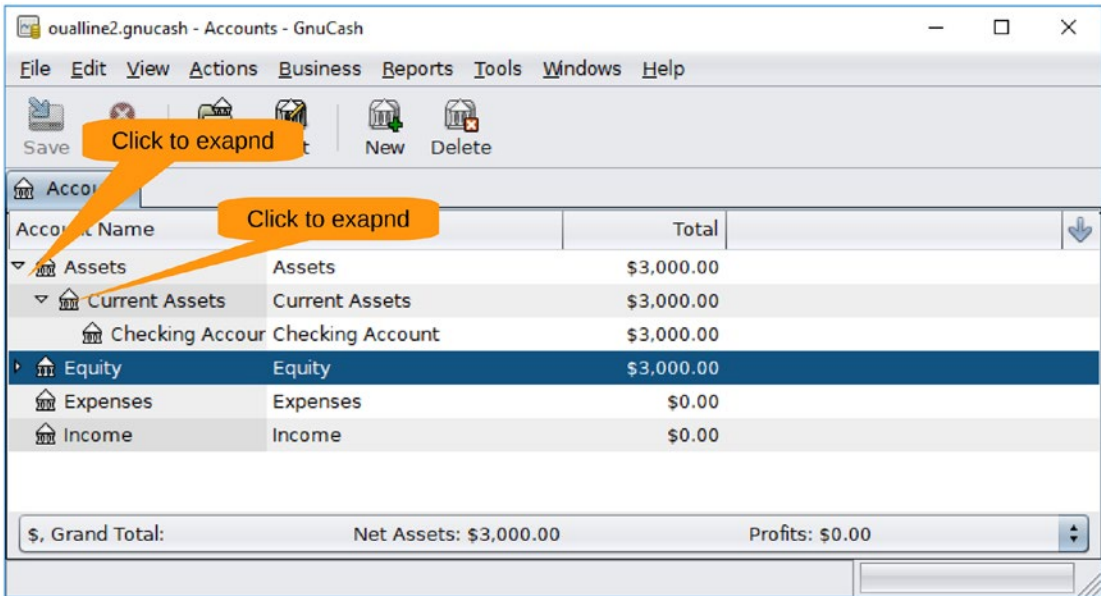
Figure 11-10. *Accounts screen*

Click Checking Account to select it, as shown in Figure 11-11, and then click the Open button to open the account.
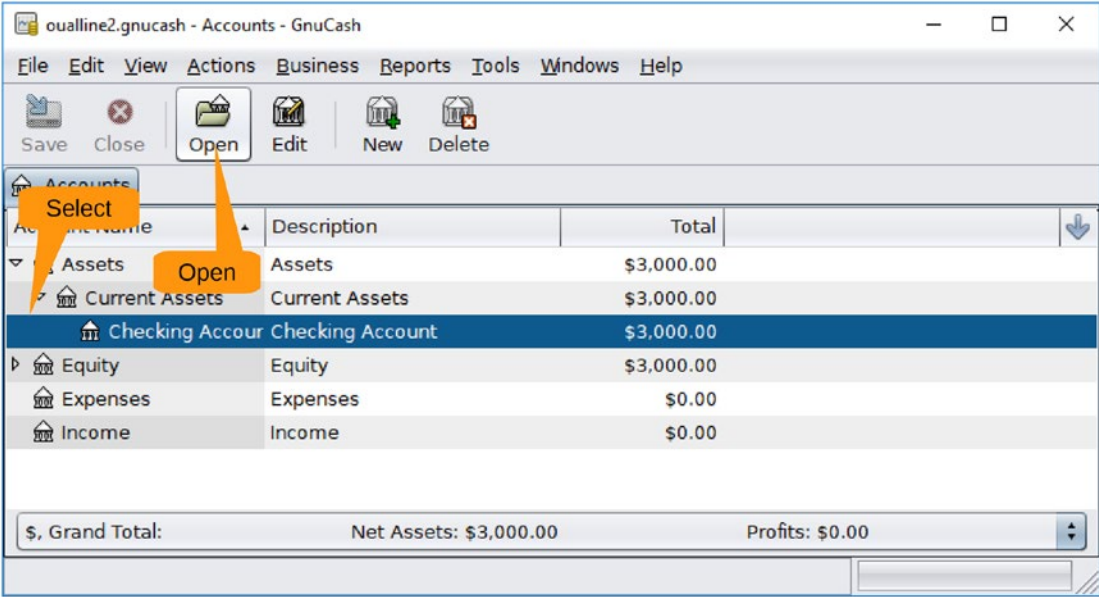
Figure 11-11. *Opening an account*

The ledger appears, as shown in Figure 11-12.
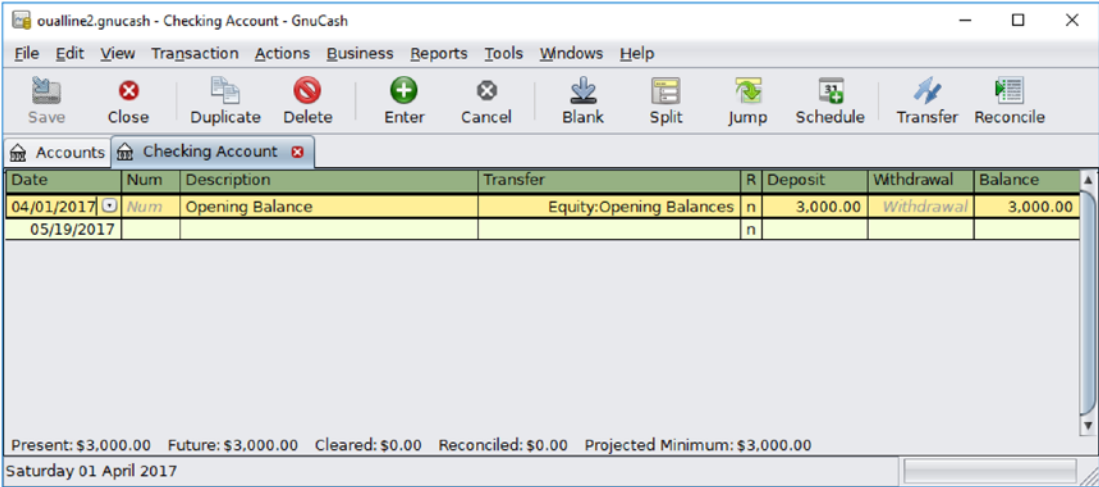
Figure 11-12. *Ledger window*

Writing Checks

Now let's write a check for your monthly rent. There's already a blank entry at the bottom of the ledger, so click in the Date field to select the date. Set the date of the check in the calendar that appears.

The Num field is next. Press Tab to go to it and enter the check number, **100**. Press Tab to go to the next field, Description. Enter the name of the payee. Go to Transfer by pressing Tab. Leave the default here and press Tab. This is not a deposit, so press Tab to go to Withdrawal and enter the amount, **1000**.

Press Tab again, and the balance is computed. Press it once more and a new line opens so you can start the process all over again. Figure 11-13 shows the result.
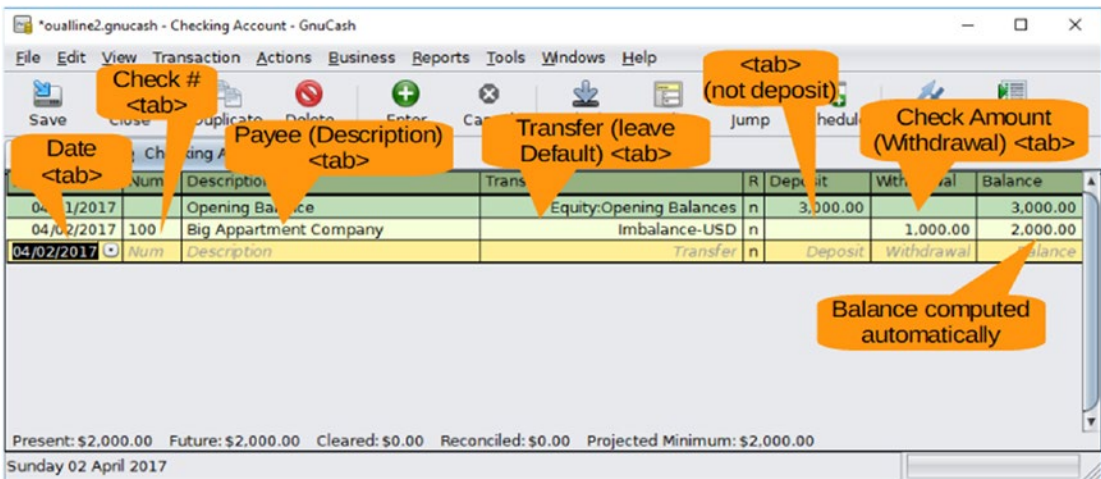
Figure 11-13. *New check*

Now let's add a few more checks, as shown in Figure 11-14.
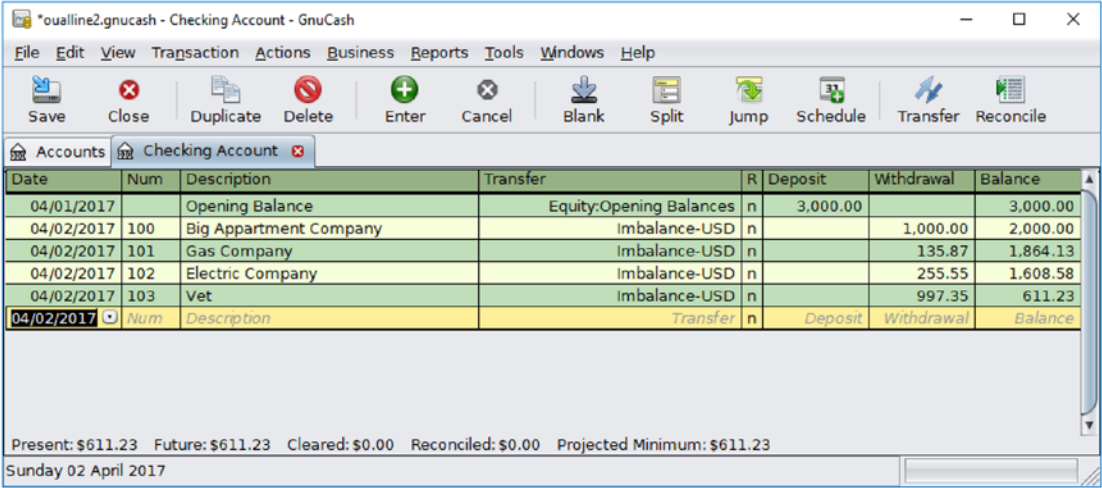
Figure 11-14. *Checkbook with a few checks written*

Working with a Memo Line

By default your ledger displays information in a compact format. This leaves you no room for a "memo" line. Say you want to put something like "April Rent" on your rent check for April. To do this, select View ➤ Double Line, as shown in Figure 11-15.
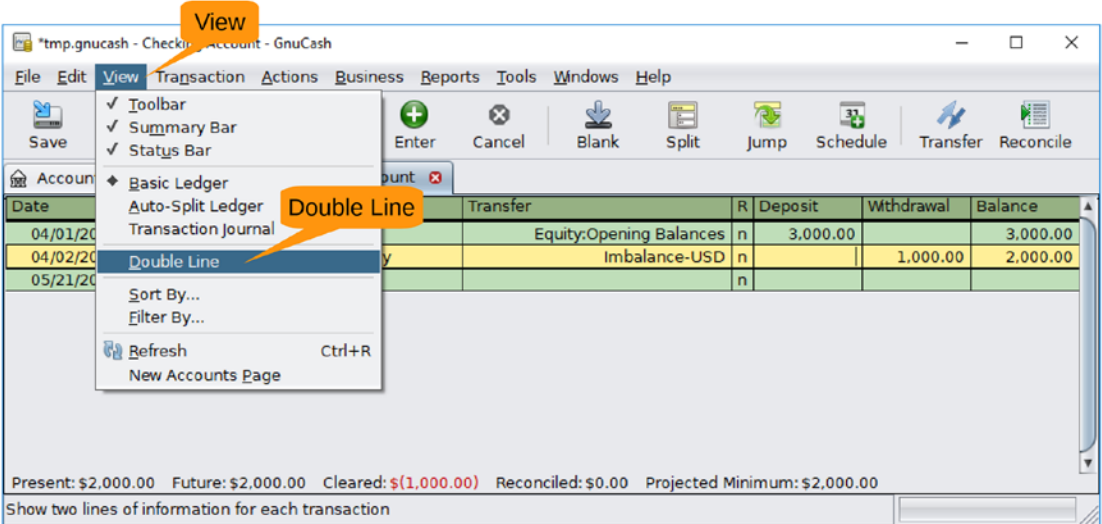

Figure 11-15. *Selecting Double Line*

This gives you the expanded ledger shown in Figure 11-16 and allows you a place to enter the memo.
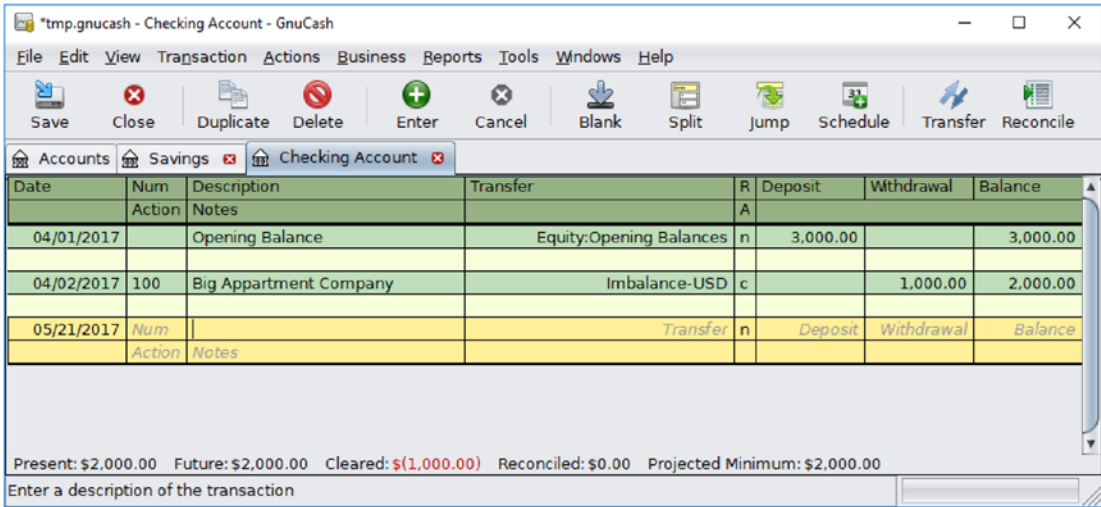
Figure 11-16. *Double lines for each entry*

To turn it off, simply select View ➤ Double Line again.

Printing Checks

Adding checks to the ledger is only half the battle. You need to print them as well. One way is to hand-write them, but if you have a computer, why not let the computer do it? To print a check, click the check in the ledger and select File ➤ Print Checks, as demonstrated in Figure 11-17.
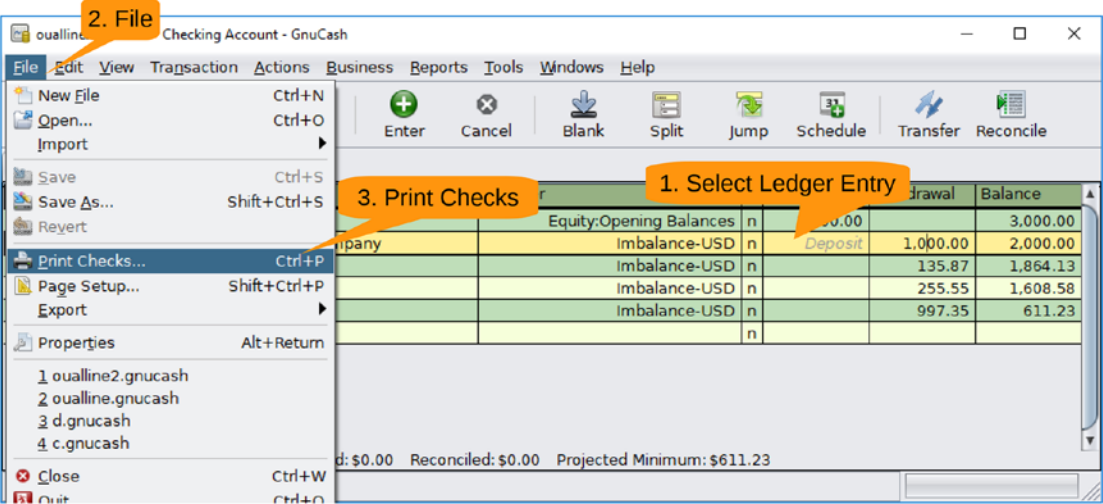
Figure 11-17. *Printing a check*

The Print Check dialog appears, as shown in Figure 11-17. At the top there is a "Check format" pull-down that allows you to select from several different types of standard laser printer check formats. For example, in Figure 11-18, we have selected Dulex(tm) Personal Checks US Letter.
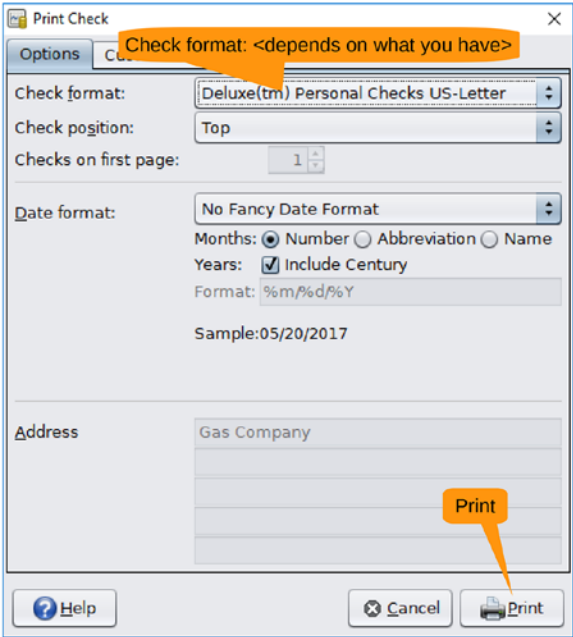

Figure 11-18. *Selecting a check format*

The dialog also lets you choose whether the check is on the top, middle, or bottom of the paper. Click Print to print the check.

Note   If you are printing checks for the first time, we suggest you make several copies of a blank check to practice on before using the real thing. Sometimes the positioning of the various fields is off.

Creating a Savings Account

Let's say you have a savings account as well. Because this is not part of the simple checking account setup, you need to add it. In the main window, click the Accounts tab and then the New icon on the toolbar, as shown in Figure 11-19.
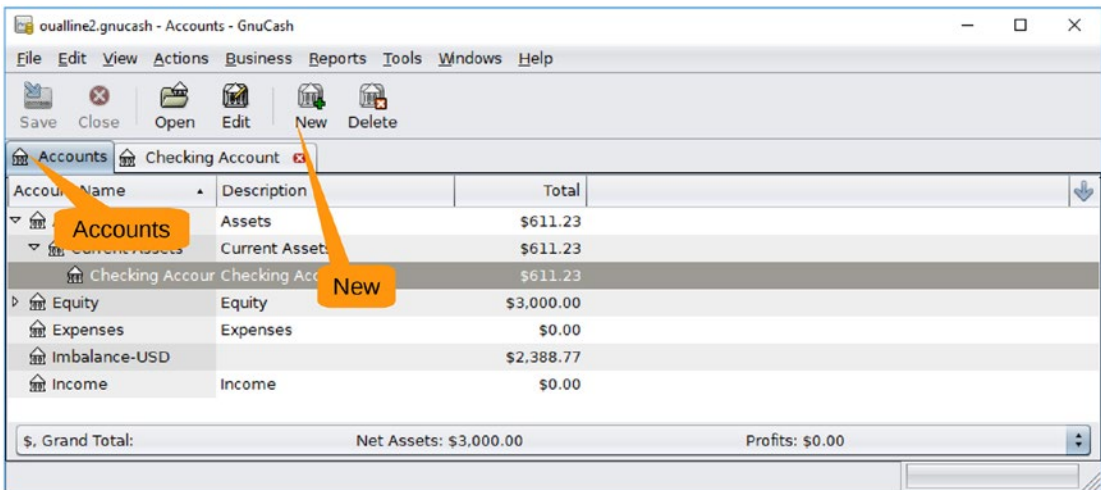
Figure 11-19. *Creating an account*

The New Account dialog appears, as shown in Figure 11-20. For the account name, enter **Savings**. For Parent Account, select Current Assets. Click the Opening Balance tab to go to the next screen.
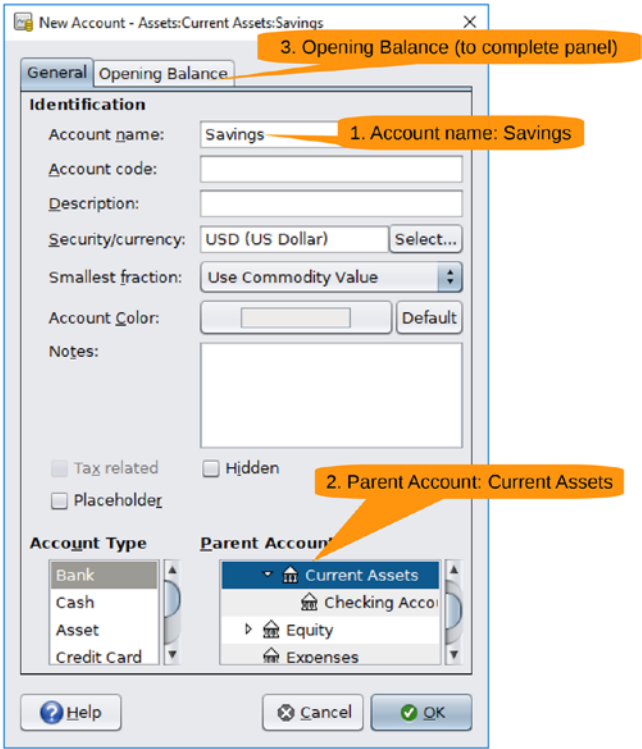

Figure 11-20. *New Account dialog*

After clicking Opening Balance, you will see the screen shown in Figure 11-21 where you can enter this information and then click OK. Don't worry if you forget the opening balance; you can always add a ledger entry for the opening amount.
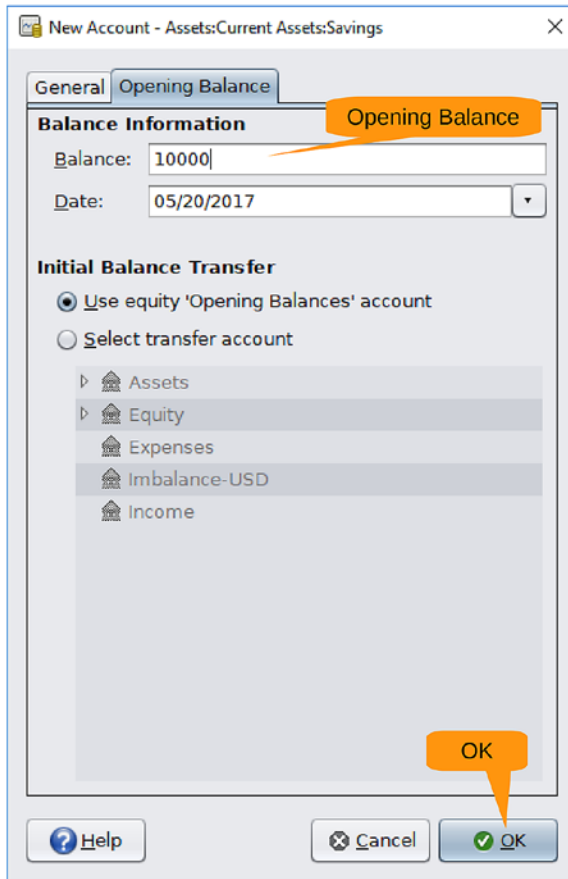

Figure 11-21. *Opening Balance setting*

Now you will see the familiar Accounts screen (Figure 11-22). Select Savings and then click Open to get to the ledger for your new account.
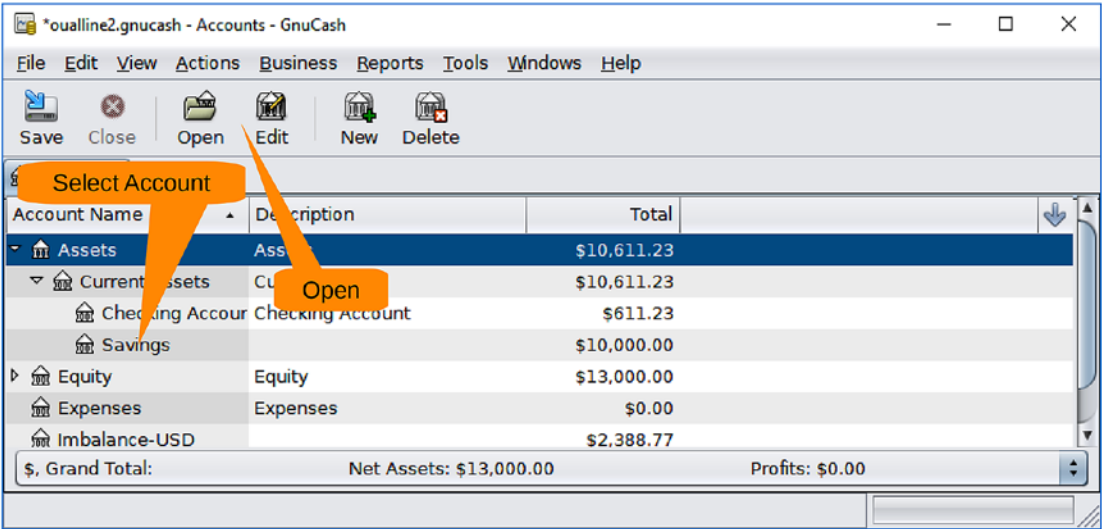
Figure 11-22.   *Account list with savings account*

Now let's add an entry to indicate a savings-to-checking transfer, as shown in Figure 11-23. Set the field values as follows:

> *Date*: Leave the default for today.
>
> *Num*: Leave this blank.
>
> *Description*: Enter **Savings ➤ Checking**.
>
> *Transfer*: Click the pull-down and select Current Assets: Checking Account.
>
> *Increase*: Leave this blank.
>
> *Decrease*: Enter **3000**.

Figure 11-23. *Savings ledger*

Now let's go back to the Accounts tab and open your checking account. Figure 11-24 shows you that a new entry has been added for the transfer you just made.

Figure 11-24. *Checking account with transfer*

Reconciling Checks

Every month you get a statement from the bank indicating how much money they think you have in the bank. Sometimes it's the same amount as you think you have in the bank. So, every month you need to go through the process of *reconciliation* to correct any errors you've made in your ledger. (The bank never makes an error.)

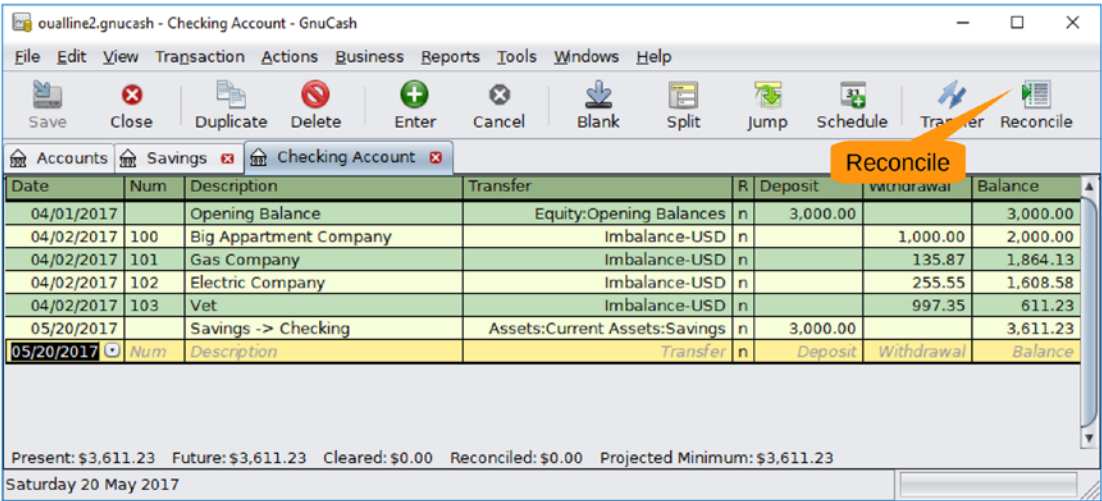To start the reconciliation process, click the Reconcile icon, as shown in Figure 11-25.

Figure 11-25. *Starting the reconciliation process*

A Reconcile dialog appears (Figure 11-26.) This gives you a chance to enter the date of the statement as well as the ending balance. It also gives you an excellent example of what happens when you try to put a long title in a small dialog.
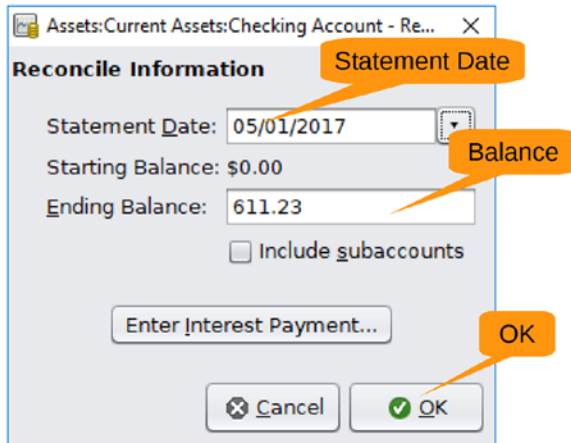

Figure 11-26. *Reconcile dialog*

Another dialog appears also titled Reconcile. (We'll call the one in Figure 11-26 the "big" Reconcile dialog.) It lists the unreconciled transactions and gives you a chance to add them to the statement by checking them off.

If you check off the correct items, the Ending Balance and Reconcile Balance values should be the same. If they aren't, you can go back into the ledger and fix any mistake you made and try again.

Scheduling Checks

Unfortunately, paying rent is not a one-time occurrence. You need to do it every month. Let's tell GnuCash about this so it can schedule a payment every month. Click in the rent entry and then click the Schedule tool. Figure 11-27 illustrates this process.
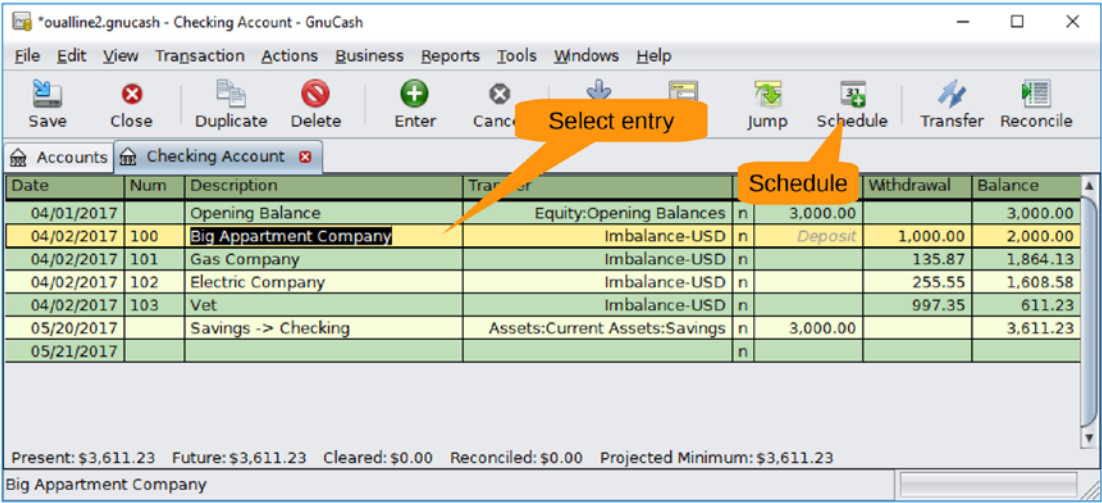

Figure 11-27. Starting the scheduling process

The Make Scheduled Transaction dialog, as shown in Figure 11-28, appears. Initially it will try to schedule the transaction as Daily. Your landlord is greedy but not that greedy. He wants his rent monthly. So, change Frequency to Monthly. Also, you want checks to be written on the first of the month, so start the series on May 1 (5/1/2017) by changing Start Date. The schedule on the right side will change to reflect your new schedule. Clicking OK stores the schedule.
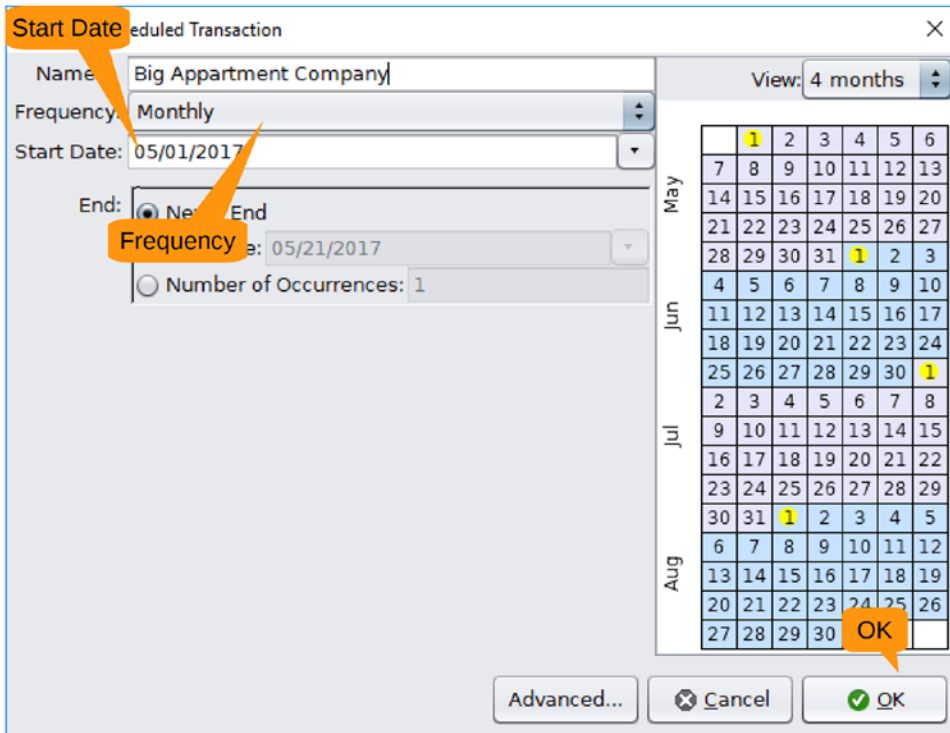

Figure 11-28. *Making a scheduled transaction*

Now let's wait until May 1 passes. Let's see whether any scheduled transactions are pending by selecting Actions ➤ Scheduled Transactions ➤ Since Last Run, as shown in Figure 11-29.
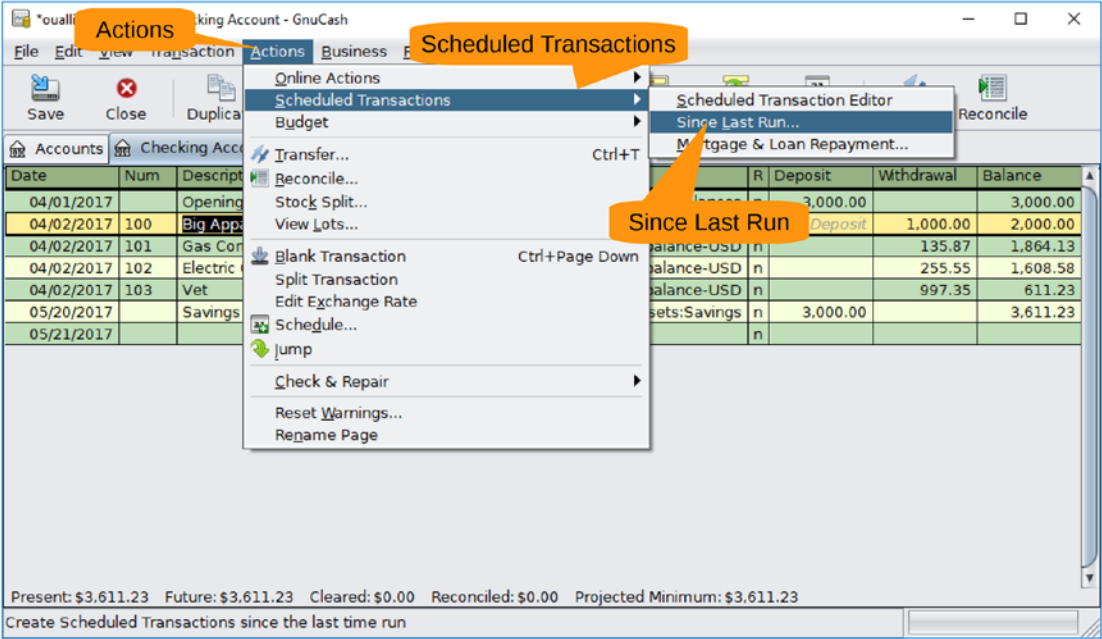

Figure 11-29. *Checking for scheduled transactions*

The Since Last Run dialog appears, as shown in Figure 11-30. Your rent check is marked To-Create. Let's create all the pending transactions by clicking OK.
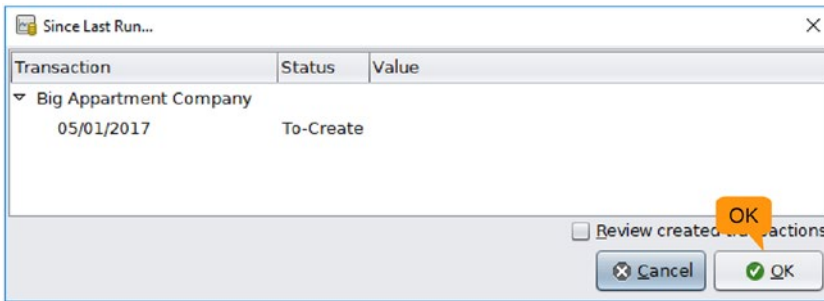

Figure 11-30. *Since Last Run dialog*

The dialog disappears, and you now have a rent transaction in the ledger (Figure 11-31). All you have to do is change the check number and print it.
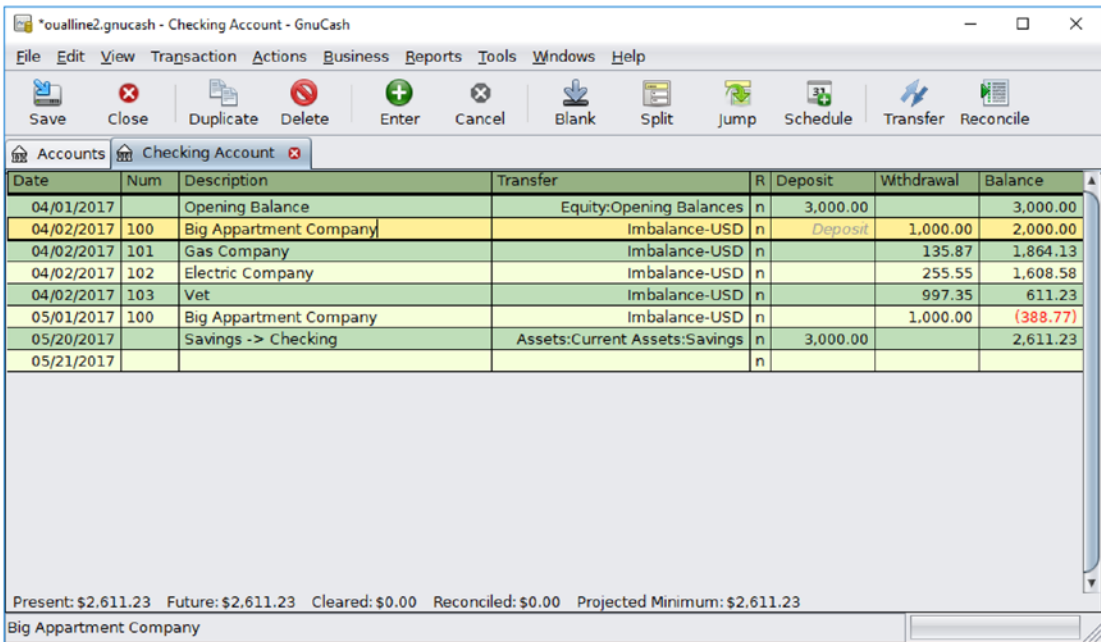

Figure 11-31. *Ledger with scheduled transaction*

Summary

GnuCash is actually a pretty good basic accounting program, which means that it has tons more features than covered here. It can handle not only basic accounts such as checking and savings but also investments, loans, and many other types of items.

It also has a reporting system so you can generate a variety of reports, such as tracking income and expenses. If you have the accounting knowledge to use it, this program is more than enough for home use.

Editing Audio with Audacity

Computers and the Internet have revolutionized the music business. Before the Internet, you had to go to a record store or use mail order to get a song. Now you just download it from your favorite online store.

Audio recording and processing have undergone a revolution as well. What used to take a studio full of expensive equipment now can be done with a personal computer and in real time.

In this chapter, you will learn the following:

- How to convert between various audio encoding formats

- How to dice, slice, and splice together audio clips

- How to mix audio tracks to add background music to a voice file

A Half-Hour of Hell for 60 Seconds of Air Time

One of the authors of this book (Steve Oualline) used to write fiction and sold nothing. But one of his stories was selected for a local authors' show on KPBS, San Diego's public radio station, and he got to read his story for on-air broadcast. Getting selected was one of the happiest moments of his life. Reading his story into a microphone was one of the worst.

The story started like this:

Howard knew he was in trouble when he opened the front door and saw his wife, Yvonne, crying. "Oh, Howard," she sobbed, "I wanted to surprise you tonight and cook you a spaghetti dinner just like I did ten years ago when you proposed to me, but I can't."[1]

That's not how it was recorded. The recording took place in a small studio. Steve sat in front of a microphone with the host. In the booth behind him sat the producer who spoke to him through earphones. The recording session went like this:

Steve: "Howard knew he was in when he opened."

Producer: "You missed a word, try again."

Steve: "Howard knew he was in trouble when…"

Producer: "Too wooden. We need more feeling."

Steve: "Howard knew he was in trouble…"

Producer: "Too fast. Start again."

Steve: "Howard knew he was in trouble when he opened the front door and saw his wife, Yvonne, crying. <pause> Was that OK?"

Producer: "Keep going."

Steve is happy to report that he did get better as he went along (although it went from being abysmal to being just plain lousy). The entire ordeal with like doing a performance with a heckler in your ear. The only bright spot, aside from getting his work on the radio, was that although he had to put up with the producer, he had to put up with me.

Needless to say, the producer had to do a bit of editing. For that he used a $20,000 professional sound mixer/editor. You're going to do the same thing with a personal computer and some free software.

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[1]The entire short story is available on Apress.com. After 20 years, it deserves to be published somehow.

Getting Started with Audacity

Audacity is an open source audio editor. It would have been an ideal tool for the producer at KPBS to use to cut out 95 percent of the recording session he couldn't use, if it had existed at the time. It allows you to record from a variety of media, edit soundtracks, add effects and filters, and generally do a lots of other fancy audio-editing stuff.

You can download it from www.audacityteam.org/. To install it, run the file and accept the defaults.

When you start the program, the splash screen appears, as shown in Figure 12-1. It gives you some pointers to where you might find help. Click OK to dismiss the dialog.
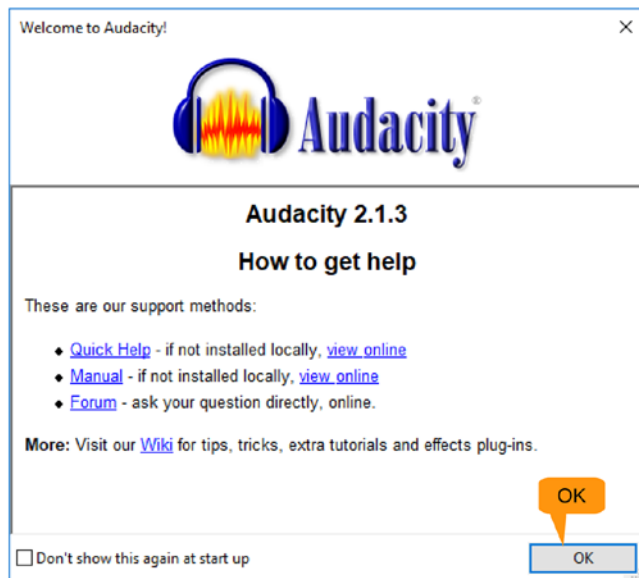
Figure 12-1. *Audacity splash screen*

The main editing window will open. Initially the soundtracks will be empty. If you record some audio or load some audio files, they will appear in the window, as shown in Figure 12-2.
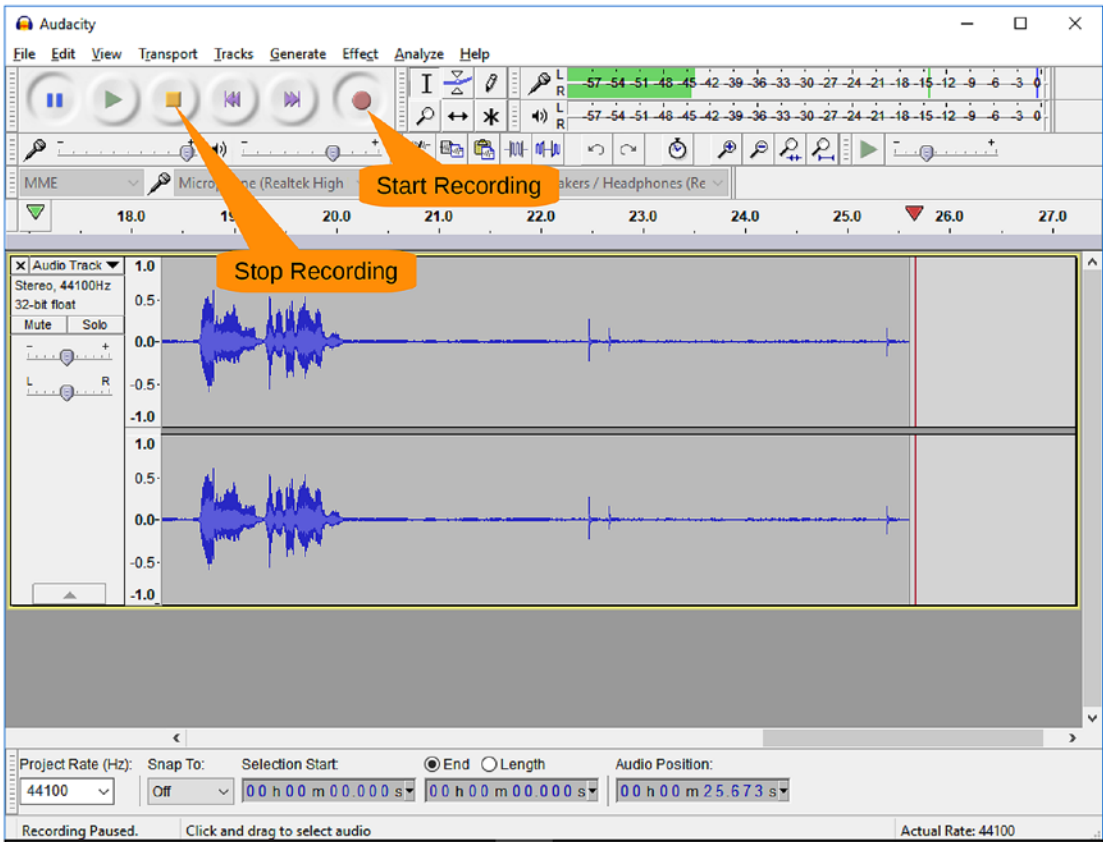
Figure 12-2. *Audacity editing window with sound*

If you have a built-in microphone on your computer, you can use it to record some audio. This is a demonstration sound file, not a production sound file. If you are recording audio for real, *get a decent microphone*.

Start by clicking the red Record button and begin to speak. To stop recording, click the square stop button.

To save your file, select File ➤ Export Audio, as shown in Figure 12-3. (Don't use File ➤ Save because this saves the editing project.)
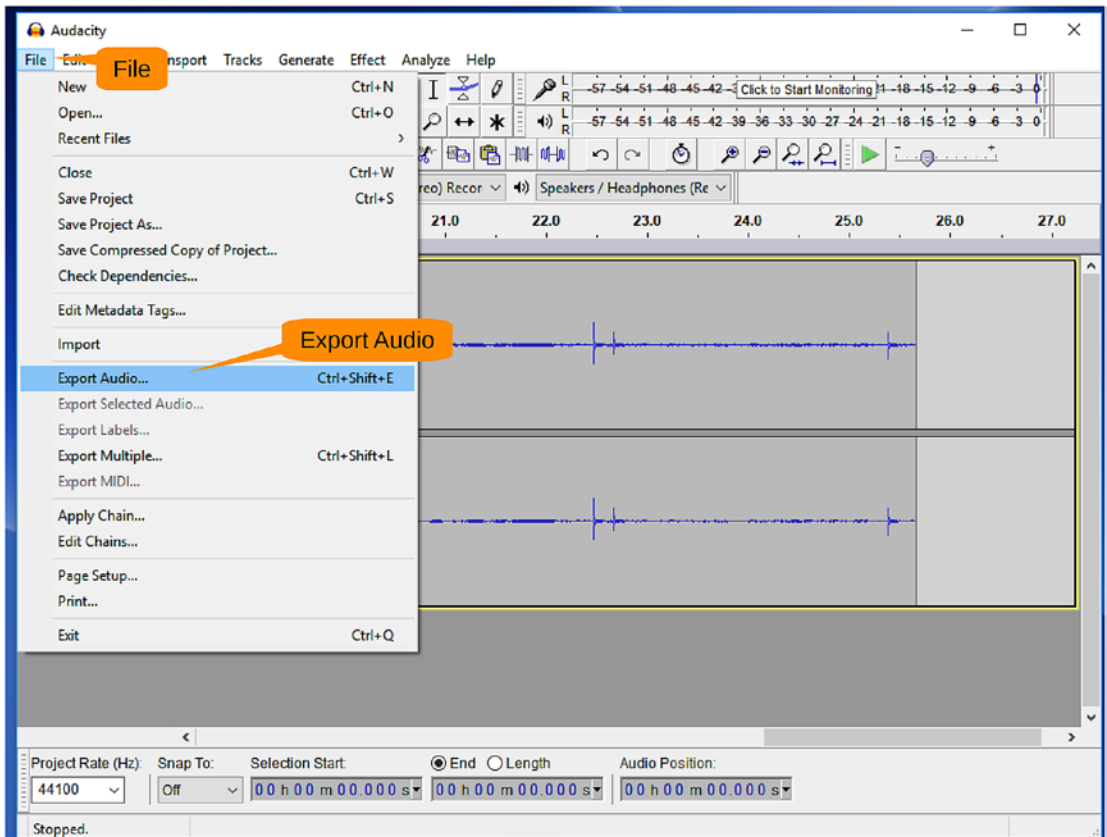
Figure 12-3. *Exporting audio*

If you want to follow along with the original sound file, you can download it from Apress.com. The clip we recorded has some deliberate mistakes (and probably some inadvertent ones).

The Export Audio dialog appears, as shown in Figure 12-4. Enter the file name in the "File name" field and use the "Save as type" pull-down to select MP3 Files. (The MP3 format is the most common compressed audio format.)
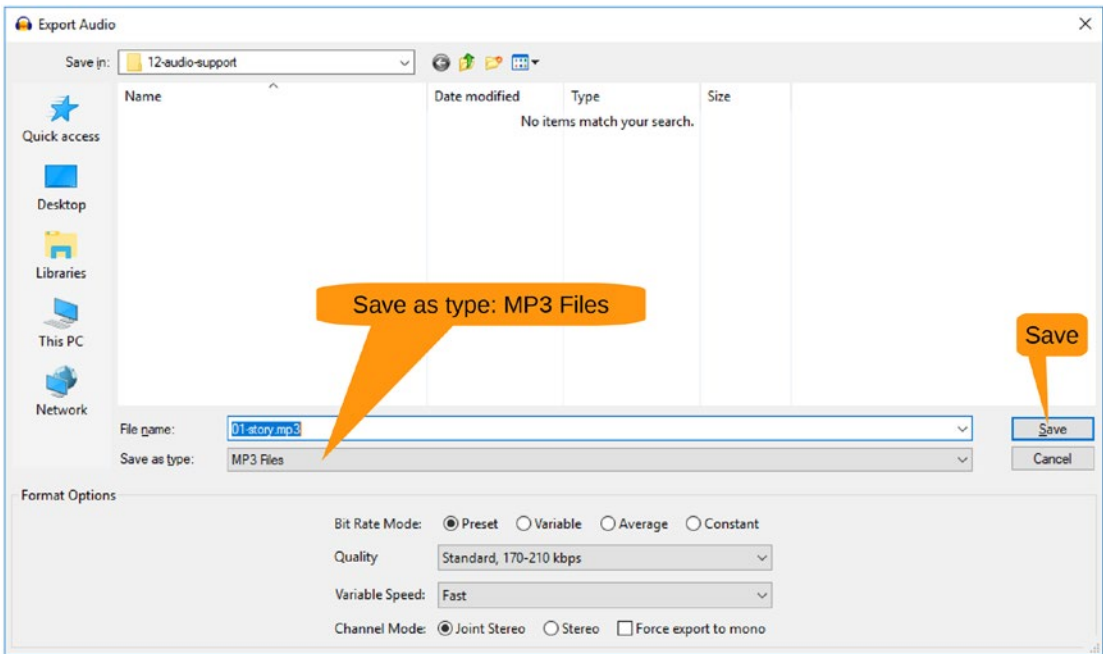
Figure 12-4. *Export Audio dialog*

Clicking Save starts the save process, but there is a problem. The program needs an audio converter called LAME to create MP3 files, so a dialog pops up, warning you of this fact, as shown in Figure 12-5. You need LAME, so click Download.
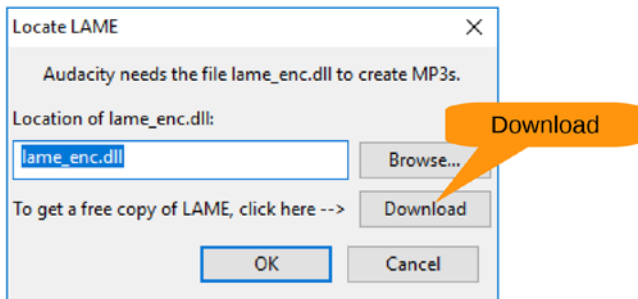
Figure 12-5. *Locate LAME dialog*

OPEN SOURCE NAMING

A lot of work goes into the choice of a name for a commercial product. After all, a lot of money is going to be spent marketing the name to the masses and telling the world how great this product is. The name will even be trademarked so no one else can use it. Companies have been known to hire poets at great expense just to come up with the perfect name for a new product.

Open source project makers tend to adopt cute names. This started with the first series of software tools called the GNU project. GNU stood for Gnu is Not Unix. In other words, it's a recursive name.

You will be using the popular MP3 encoder called LAME. This stands for LAME Ain't an MP3 Encoder. (Let's see, bad grammar, a recursive name, and slightly misleading—it's the perfect open source project name.)

Obviously, calling a program LAME is not designed to sell a lot of programs. It's almost as bad as calling a car "No Goes."[2]

The Download button takes you to the web page shown in Figure 12-6. We are on a Windows machine, so we will follow the link "LAME installation section."
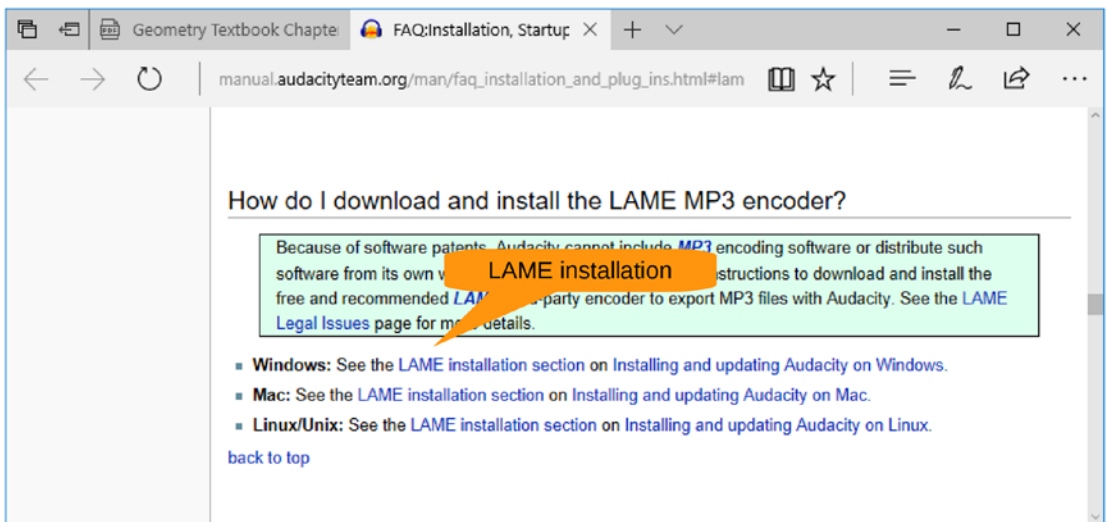
Figure 12-6. *LAME installation page*

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[2]*Va* is Spanish translates to "goes" in English. This explains why the Chevy Nova sells poorly in Spanish-speaking countries.

This takes you to the screen shown in Figure 12-7, which is a more detailed page on where to get LAME.
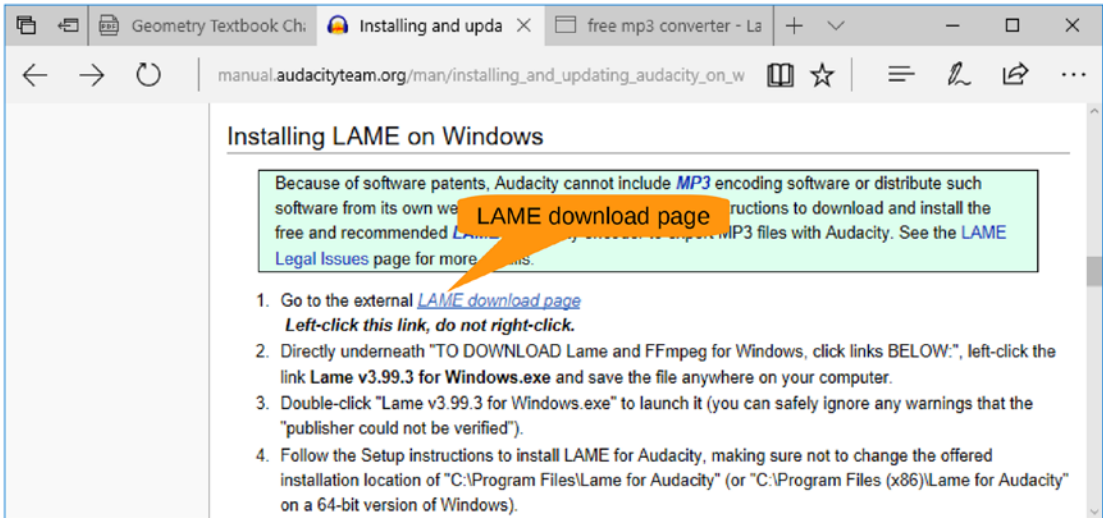

Figure 12-7. More detailed LAME installation page

Clicking the link takes you to the download page for LAME, as shown in Figure 12-8. Scrolling down a little, you see where you can download the installer for LAME. Download the file, run it, and accept all the defaults for the installation.
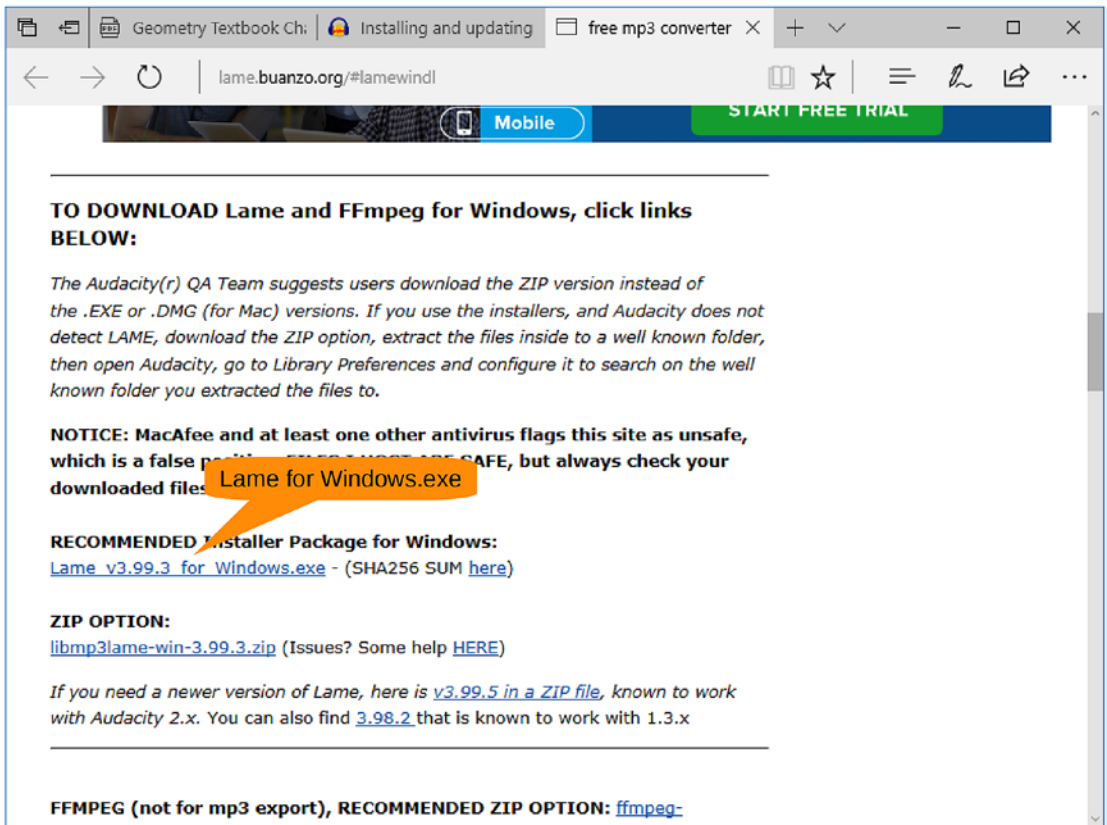
Figure 12-8. *LAME download*

Once the LAME encoder is installed, you are back at the Local LAME dialog and can click OK. The MP3 file format contains not only audio but some metadata as well. This includes the artist, song name, album, and other information. When you click OK, the Edit Metadata Tags dialog appears, as shown in Figure 12-9. Since you care about the audio only, you won't set any tags here. Click OK.
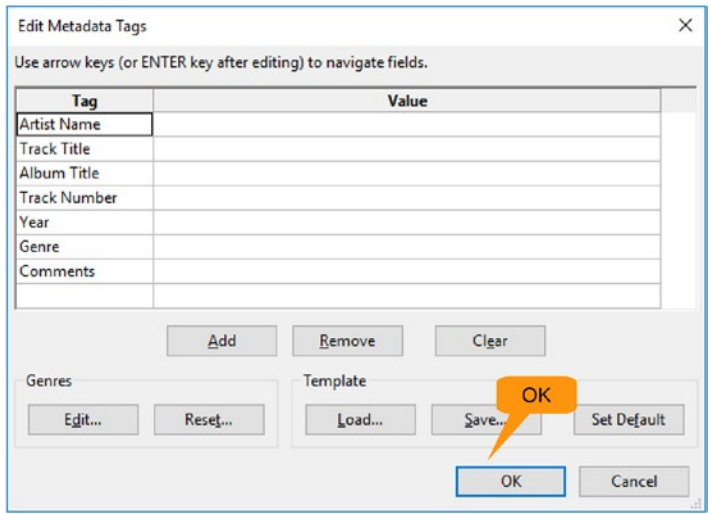
Figure 12-9. *Edit Metadata Tags dialog*

At this point, Audacity starts encoding the file and pops up a window showing the progress of the operation. For our 25.5-second audio file, this happens quickly.

Now you are back at the editing window, as shown in Figure 12-10. You need to locate the point where the good portion of the audio starts. So, click Play and listen to the audio. As the audio plays, a line will move across the screen showing where you are in the file. (In Figure 12-10, it's a little past 5.0.) There's a green triangle pointing to the line as well.
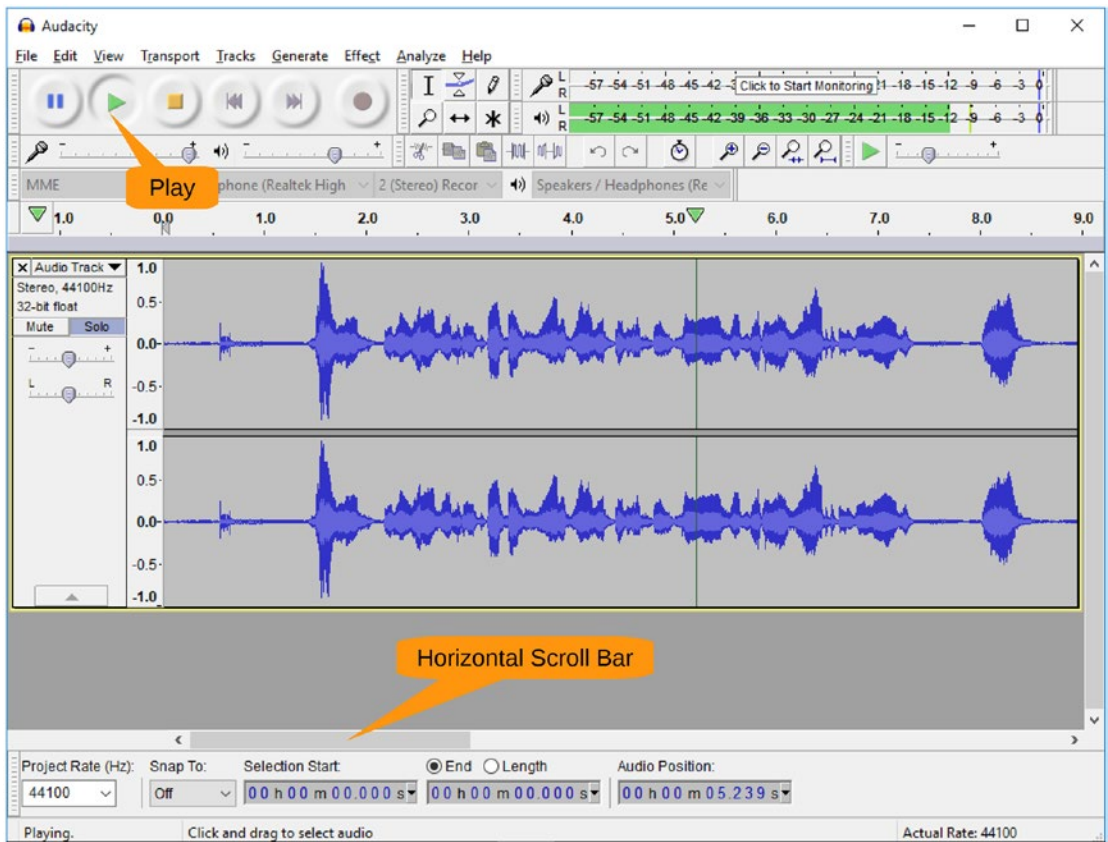
Figure 12-10. Playback

During playback of the example file provided on Apress, you will notice that you want to throw away the first attempt of the sentence. In fact, all the audio up to the 12-second mark is garbage. So, you can use the horizontal scroll bar at the bottom to position the screen to that point, as shown in Figure 12-11.
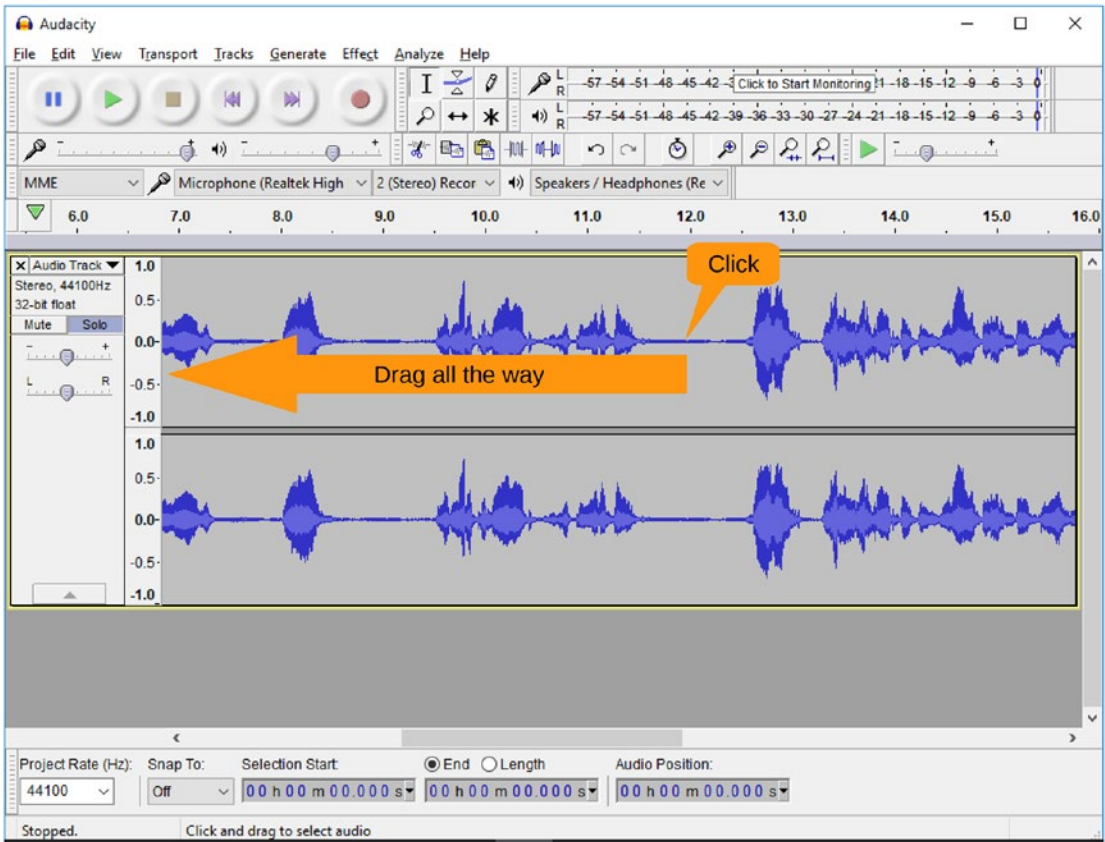
Figure 12-11. *The 12-second mark*

The waveforms show you that right around 12.4 is when the good stuff begins. Let's take the cursor and click just before the good stuff starts and drag it all the way to the left. The selected audio will be highlighted, as shown in Figure 12-12.
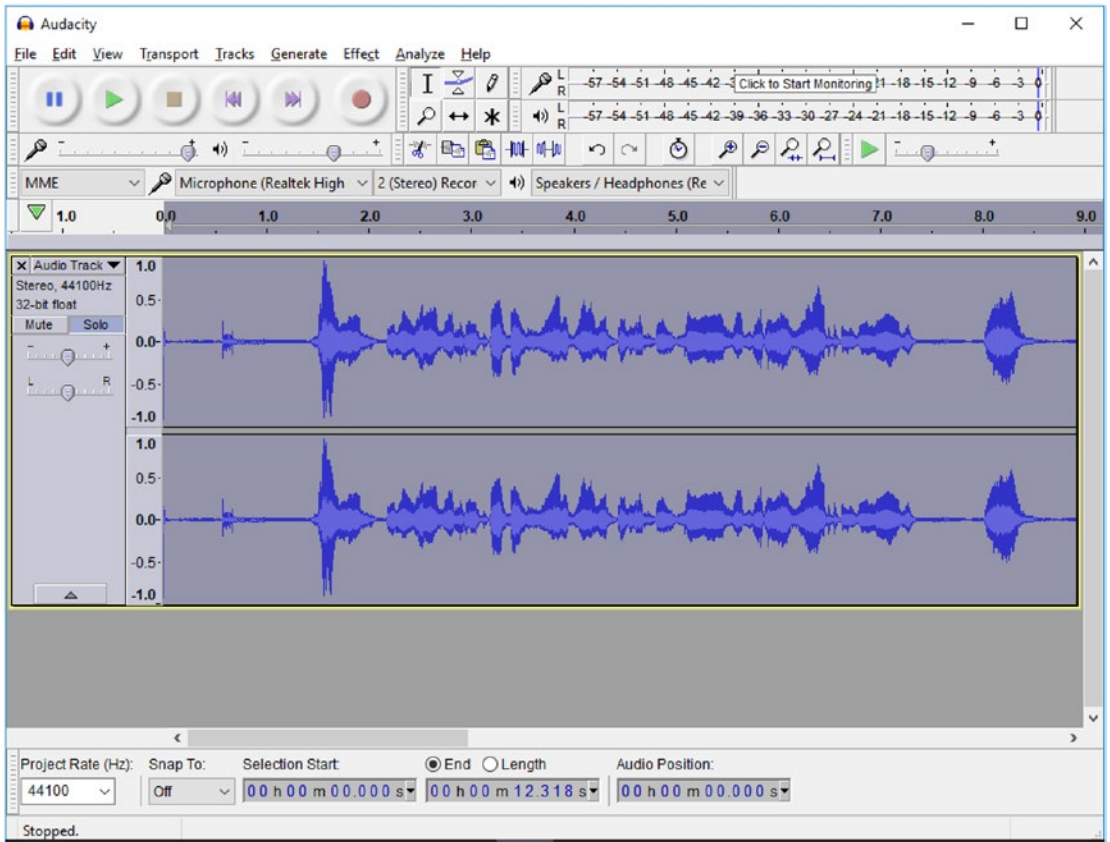
Figure 12-12. *Highlighting the junk*

To get rid of the unwanted audio, select Edit ➤ Cut, as shown in Figure 12-13.
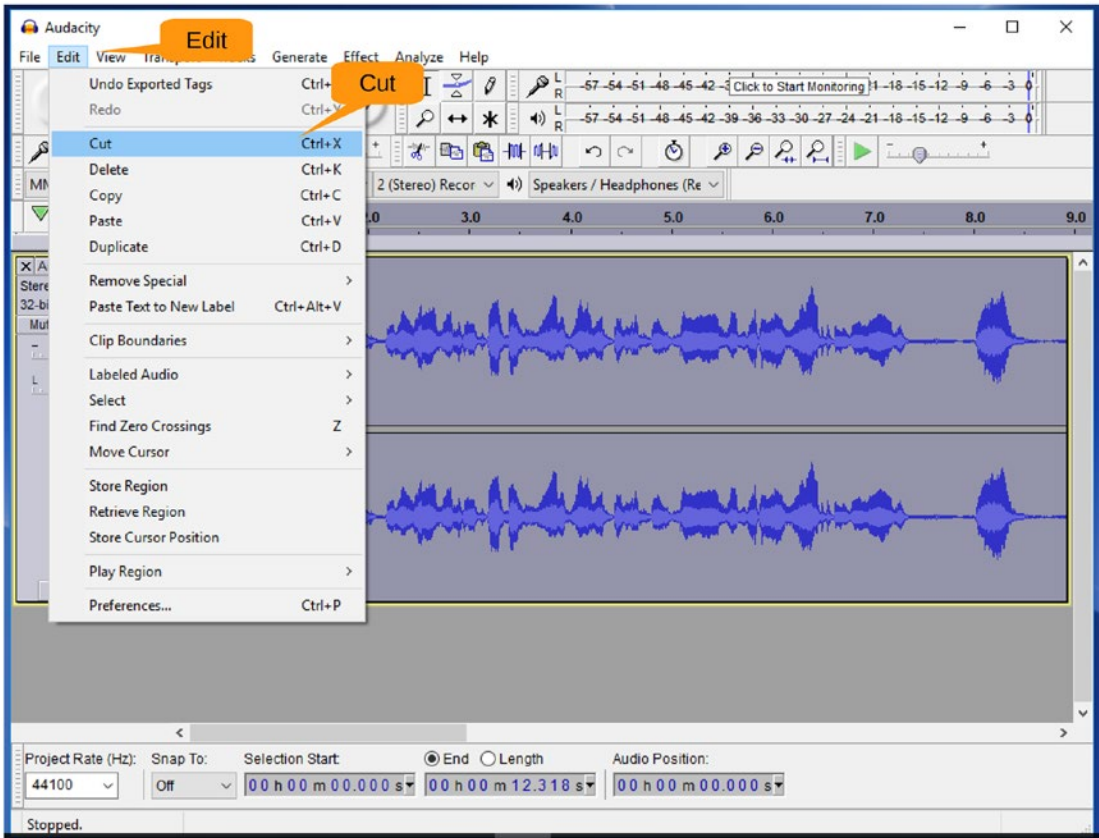
Figure 12-13. *Cutting the audio*

Scrolling to the other end of the audio, you can use the same technique to clip out the last few seconds of silence. Finally, let's export the audio (using the procedure outlined earlier) to `01-story-good.mp3`.

This gives you a basic, clean voice track. So, with a few simple edits, you were able to make it sound great. Now let's add some musical enhancements to make it a bit fancy.

Adding a Musical Introduction

You will enhance the story by adding a musical introduction. The first step is to find suitable music. For that you are going to look for an old instrumental, something like classical music or something from the 1920s or 1930s for which the copyright has long expired.

For this piece, which is comedy, "Dance of the Cuckoos" would be appropriate. You probably know it as the *Laurel and Hardy* theme song.

You want only the first few seconds of the song, so let's do the following using the steps outlined earlier:

1. Select File ➤ New to start a new project in a new window.

2. Click the Play button to hear the first few seconds of the piece and determine where the first musical phrase ends.

3. Drag the selection tool over the rest of the song to select it.

4. Select Edit ➤ Delete to delete it, leaving you with just the beginning.

Now let's add the music to the story. Select all of the remaining song with Edit ➤ Select All, as shown in Figure 12-14.
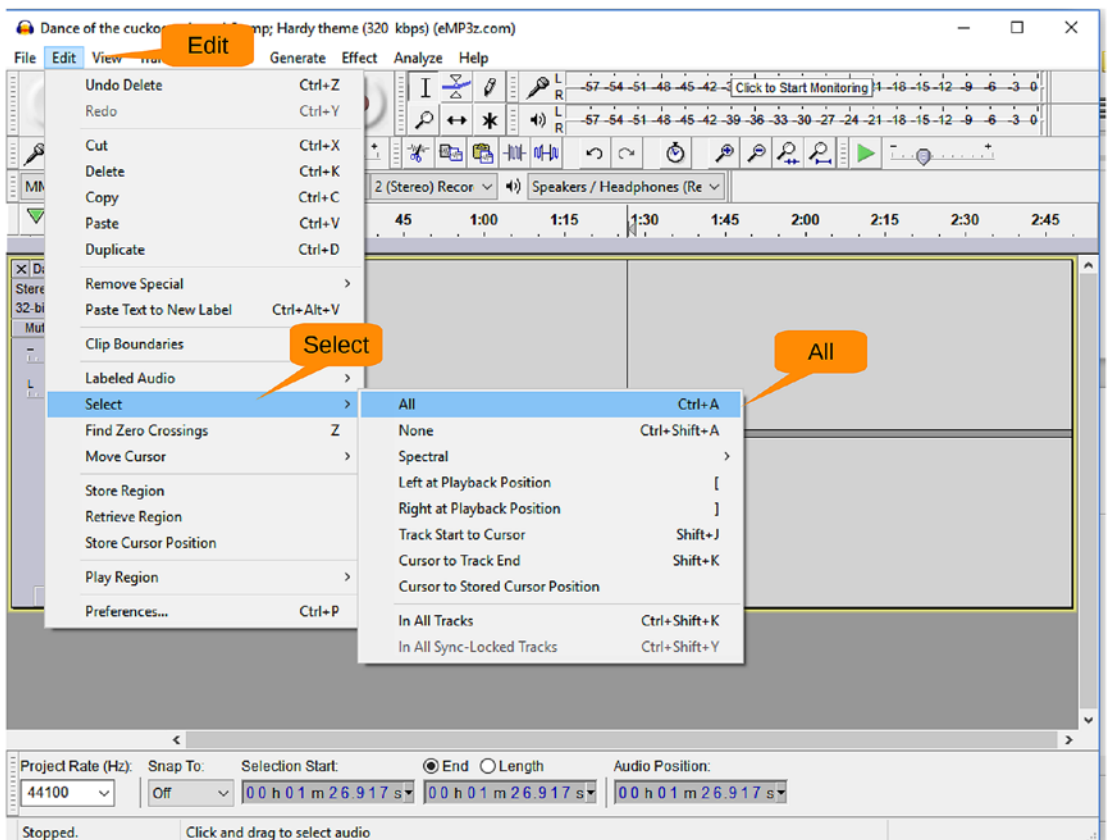
Figure 12-14. *Selecting all*

Now let's use Edit ➤ Copy to copy the song to the clipboard, as shown in Figure 12-15.
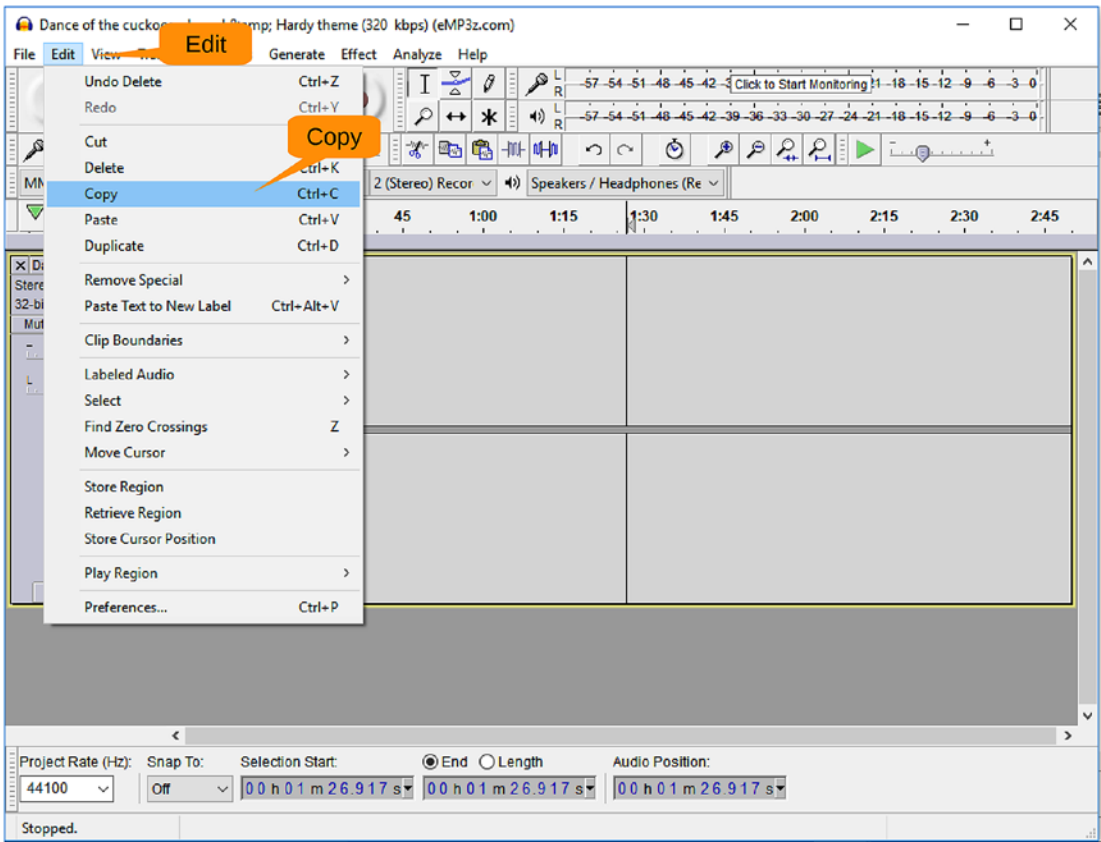
Figure 12-15. *Copying to the clipboard*

You need to put this song at the beginning of the story. Go to the story window and click the Rewind button to move the cursor to the beginning of the track, as shown in Figure 12-16.
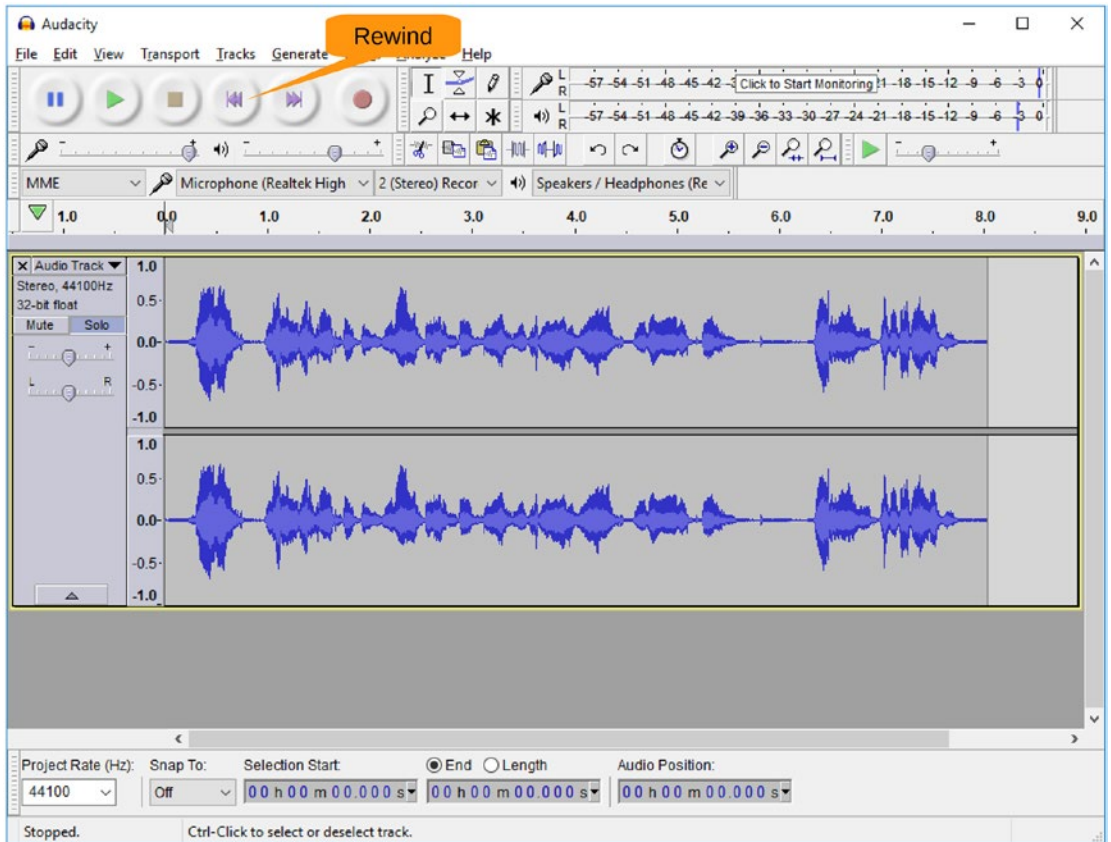
Figure 12-16. *Rewind button*

You can now insert the musical introduction at the beginning by selecting Edit ➤ Paste, which is so aptly demonstrated in Figure 12-17.
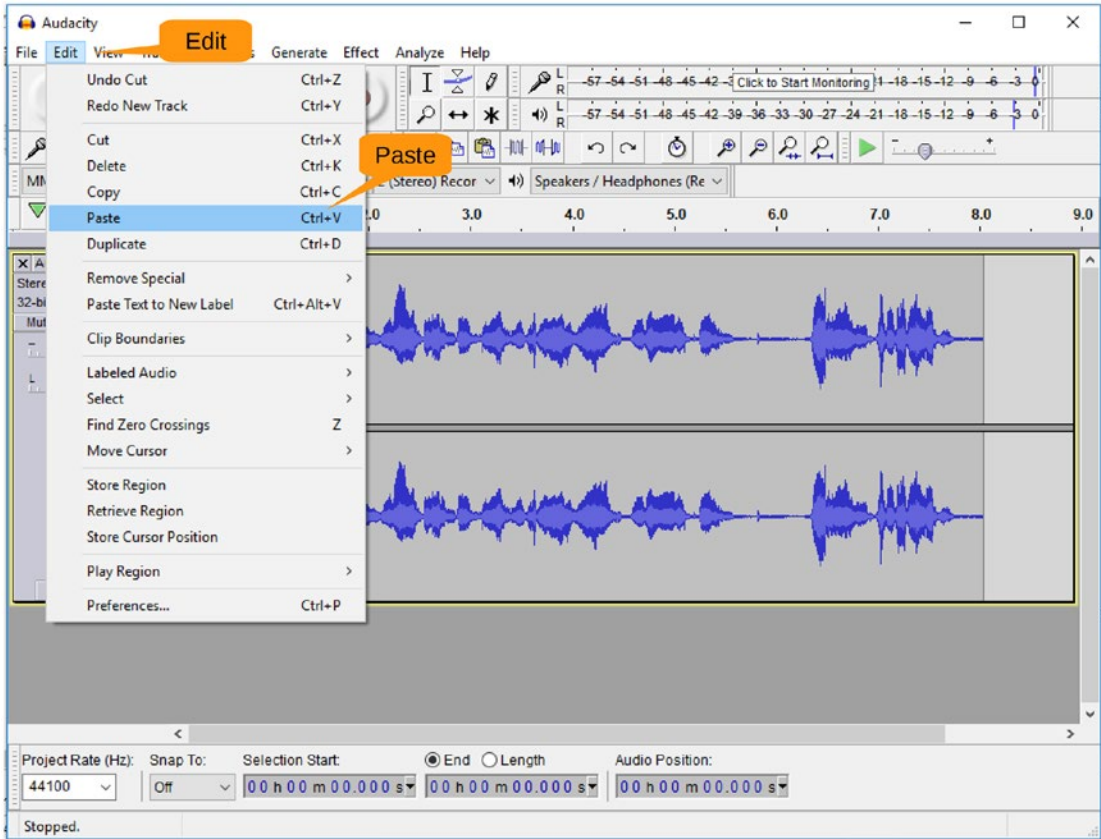
Figure 12-17. *Pasting in the music*

The waveform in the result looks a little different than it did in the original, as shown in Figure 12-18. That's because the scale has changed.
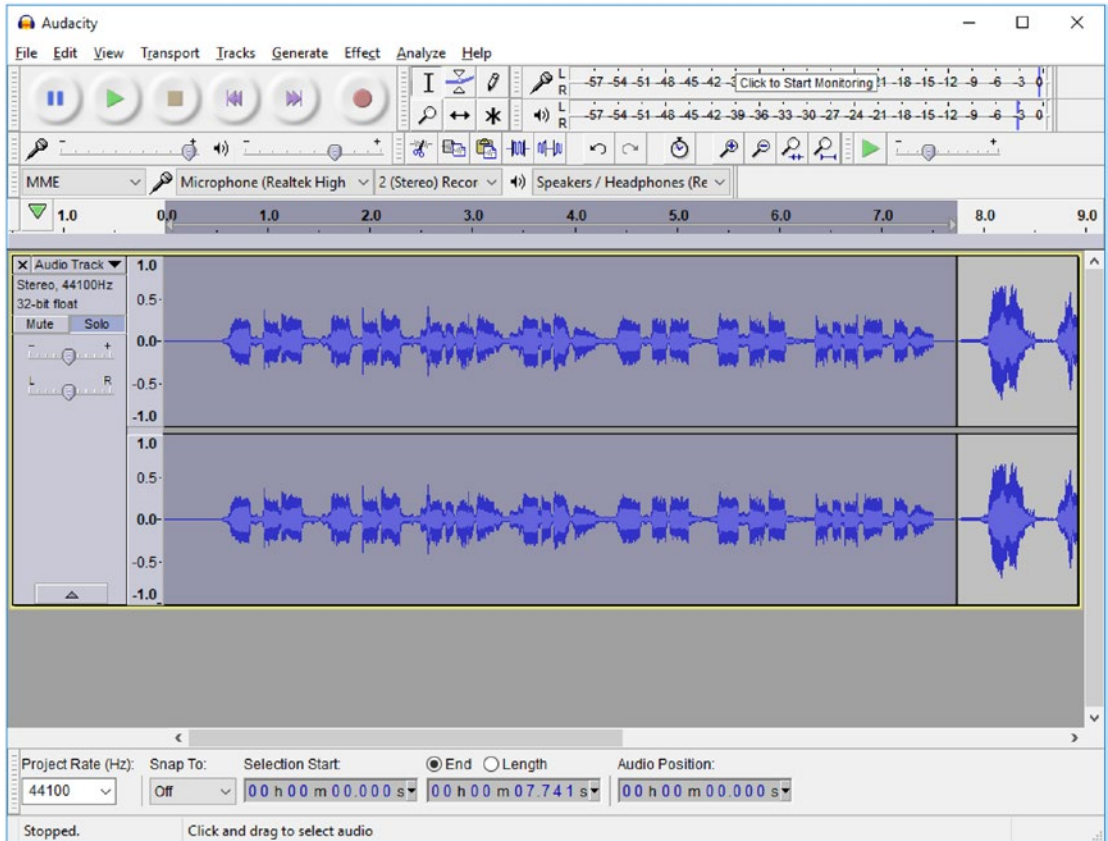
Figure 12-18. *Result after pasting*

Clicking the Play button, you can hear the result:

DA-T-DA DA-T-DA DA-DA-DA DA DA Howard came home

There is a rather abrupt transition between the music and the voice. Let's fix that by having the music fade out just before the start of the voice section. Drag the cursor over the last few seconds of the song to select it, as shown in Figure 12-19.
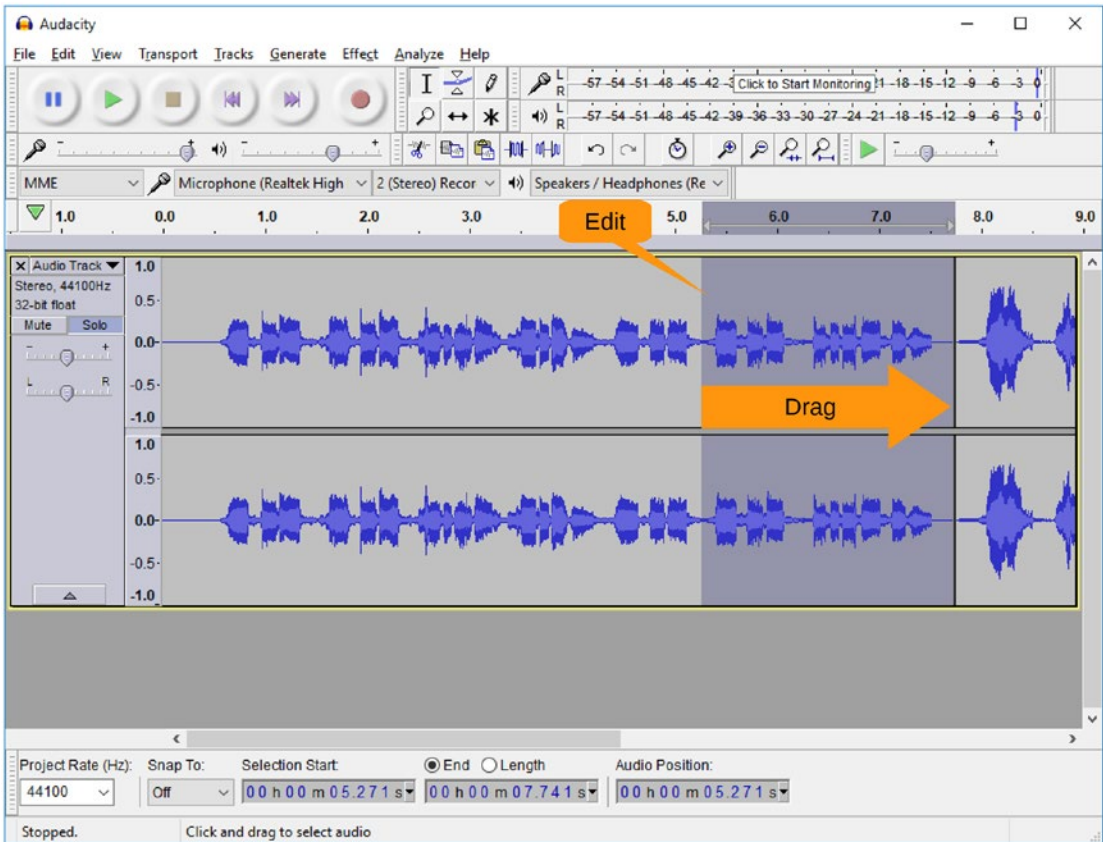
Figure 12-19. *Selecting something to fade*

Fading out is an effect that can be applied to your selection by selecting Effect ➤ Fade Out, as shown in Figure 12-20.
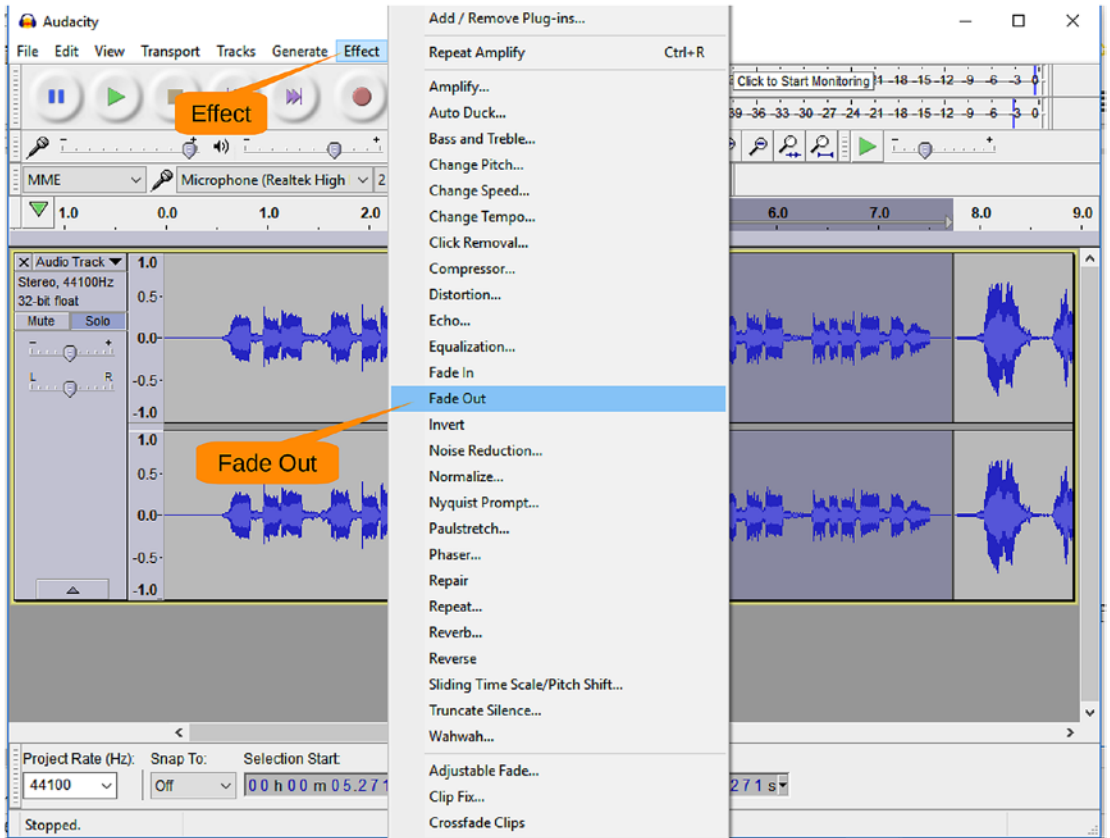
Figure 12-20. *Fading out*

As you can see from the resulting waveform, as shown in Figure 12-21, the musical introduction fades out and then the story begins.
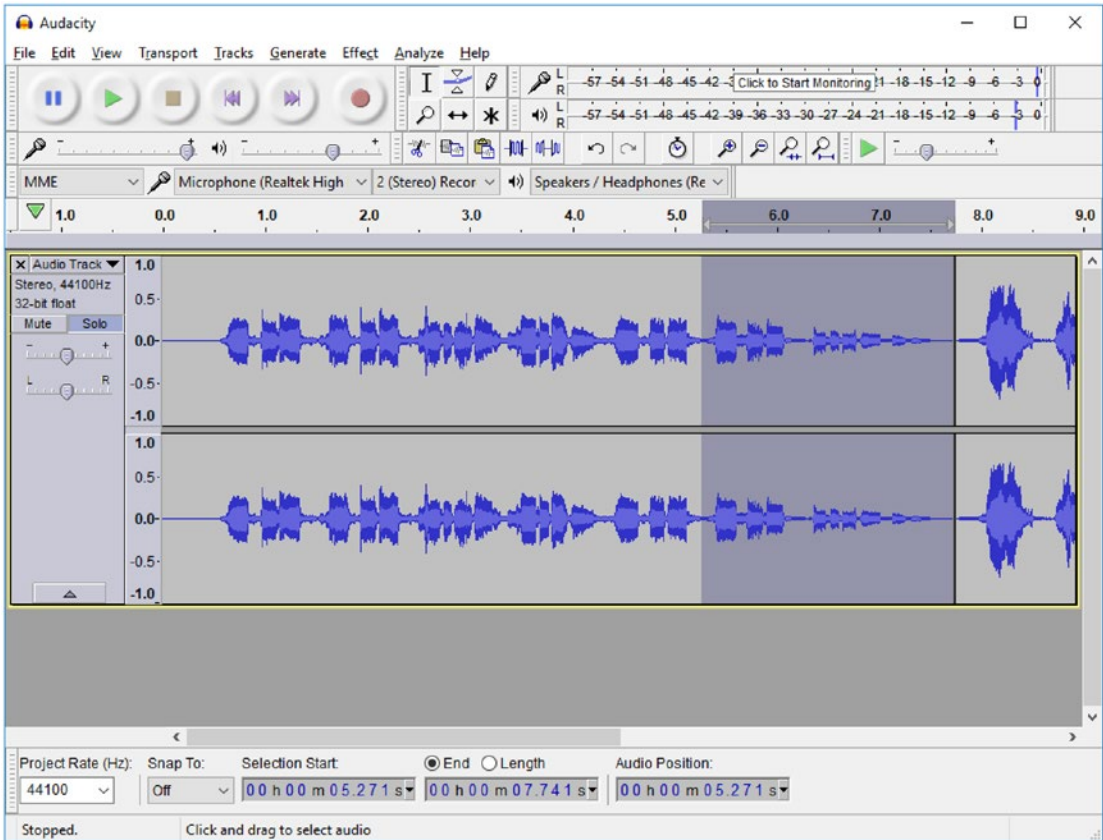
Figure 12-21. *Fading out*

As you can see, Audacity has lots of effects. Play with them to see what they do. Our favorite is Wahwah. When applied to "Dance of the Cuckoo," it makes the song sound like the musicians were slightly drunk when they were playing.

Adding Background Music

Rather than use the music as an introduction, let's use it as background music to the entire story. If it is not still on your clipboard, redo the steps just demonstrated to copy it so you can paste it in as the background.

For the background, you will add a new track to the story. When playing the story, Audacity will mix these tracks together. Select the command Tracks ➤ Add New ➤ Stereo Track to add the track to the story, as shown in Figure 12-22.
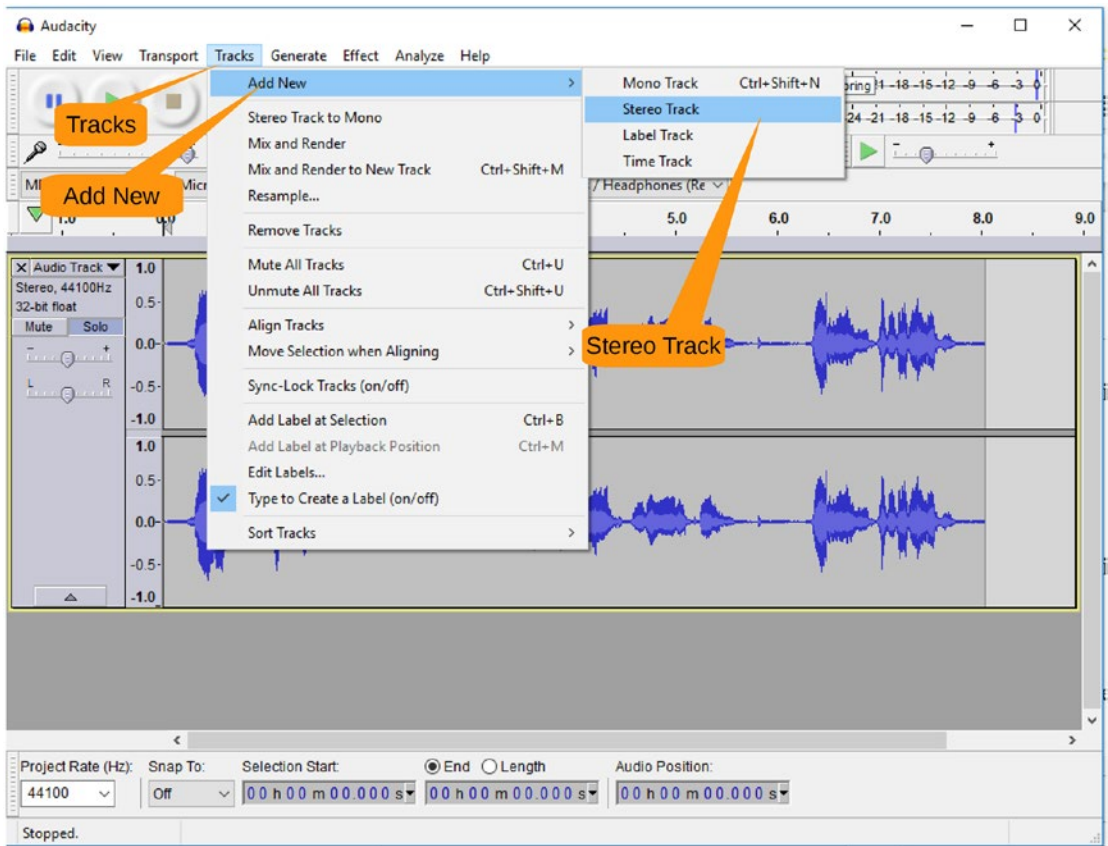
Figure 12-22. *Adding a new track*

The track appears below the current track. Let's use Edit ➤ Paste to dump the music into this location.

By default, the new trace is muted. That's why the audio is gray. Click the Mute button for this track twice to unmute it, as shown in Figure 12-23. (The second click is required because of the strange way it was muted when pasted.)
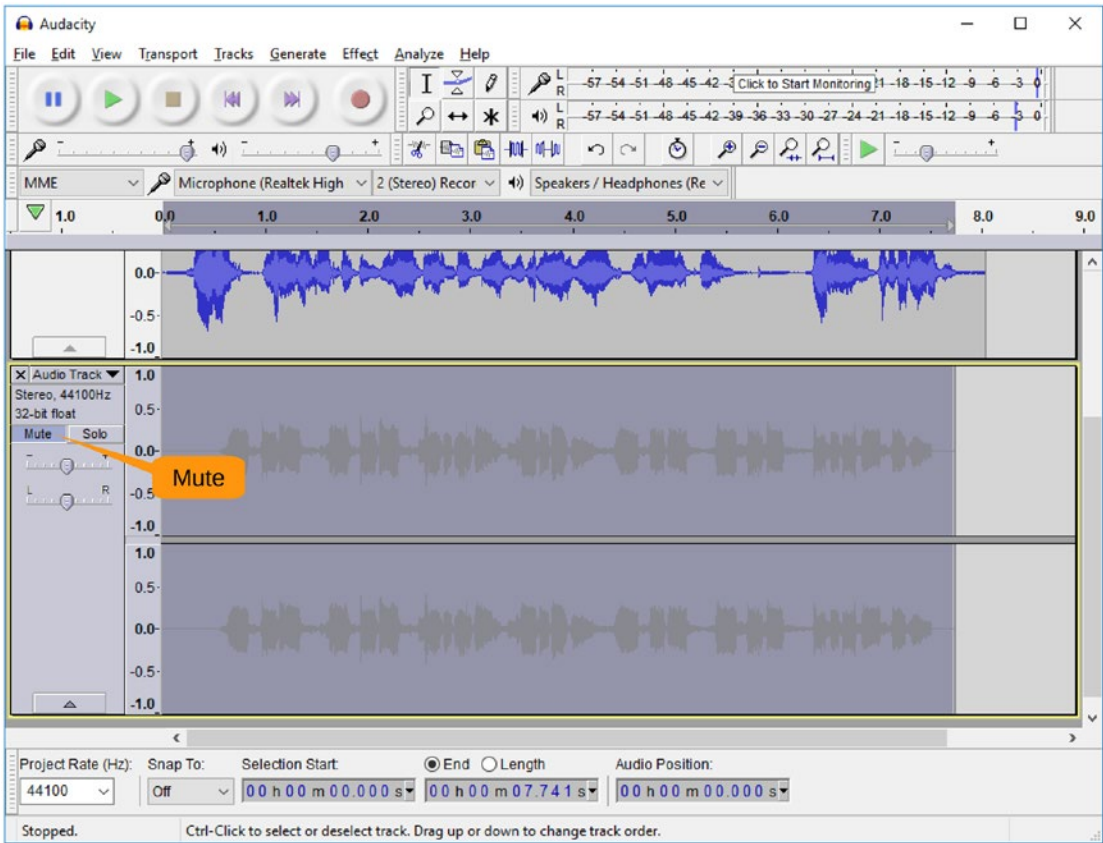
Figure 12-23. *Clicking Mute*

Clicking Play lets you hear the voice and the music. And boy, do you hear the music! It's actually hard to hear the words. You wanted background music, not overpowering music, so you need to do some edits.

Select all the sound in the track, but drag the selection tool over it. Now you need to apply an effect to reduce the sound. It would make sense to call the effect Volume or Reduce Sound, but sometimes common sense and UI design diverge. To make something quieter, you apply the Amplify effect, as shown in Figure 12-24.
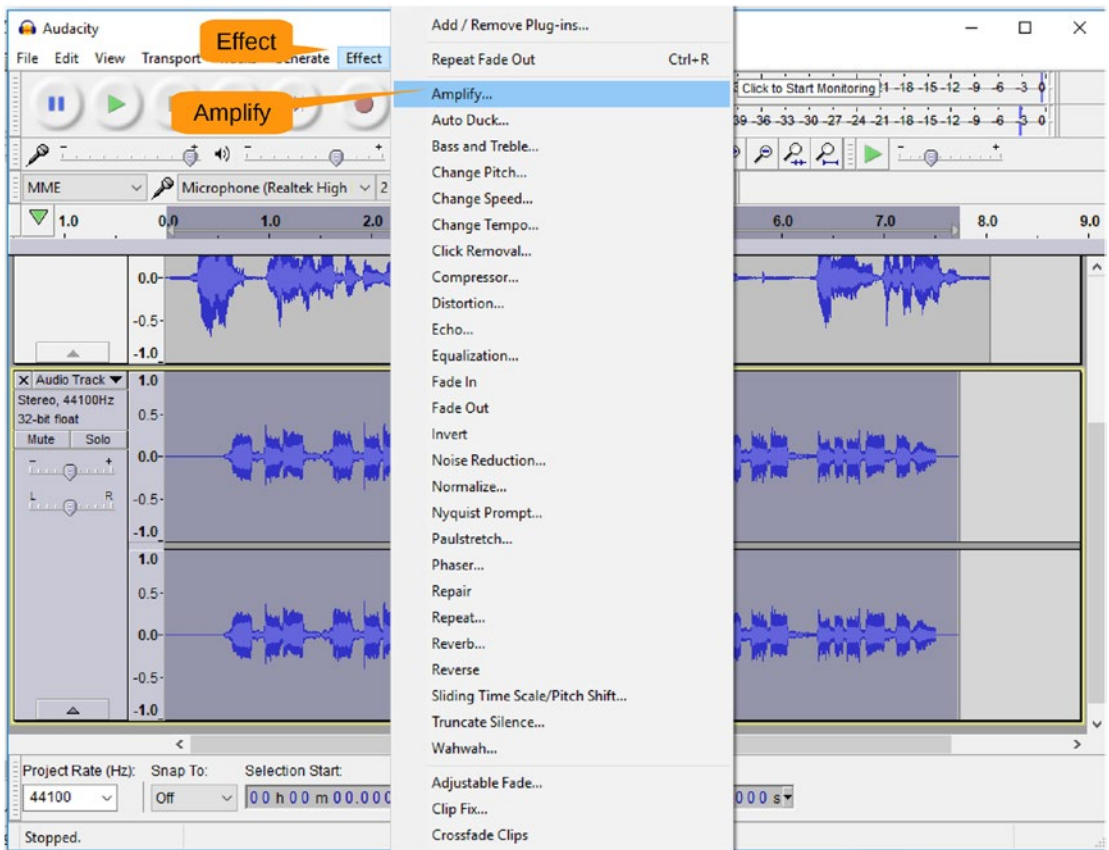
Figure 12-24.   Using Amplify

The Amplify dialog appears, as shown in Figure 12-25. Move the slider to the left turn down the music.
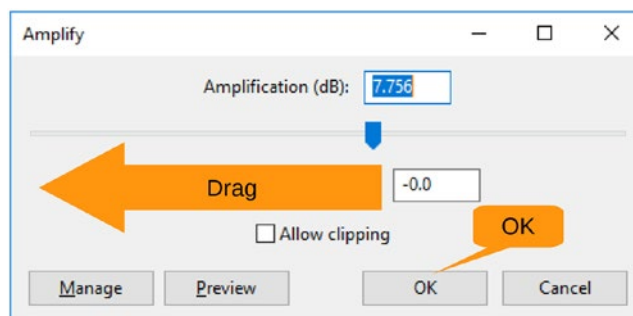
Figure 12-25.   Amplify dialog

Click OK to lock in the change. As Figure 12-26 shows, the waveforms in the music tracks are now much smaller. Clicking Play lets you hear the results, which are surprisingly lousy. But it does demonstrate how to add background music to a track, which was the goal of the exercise.
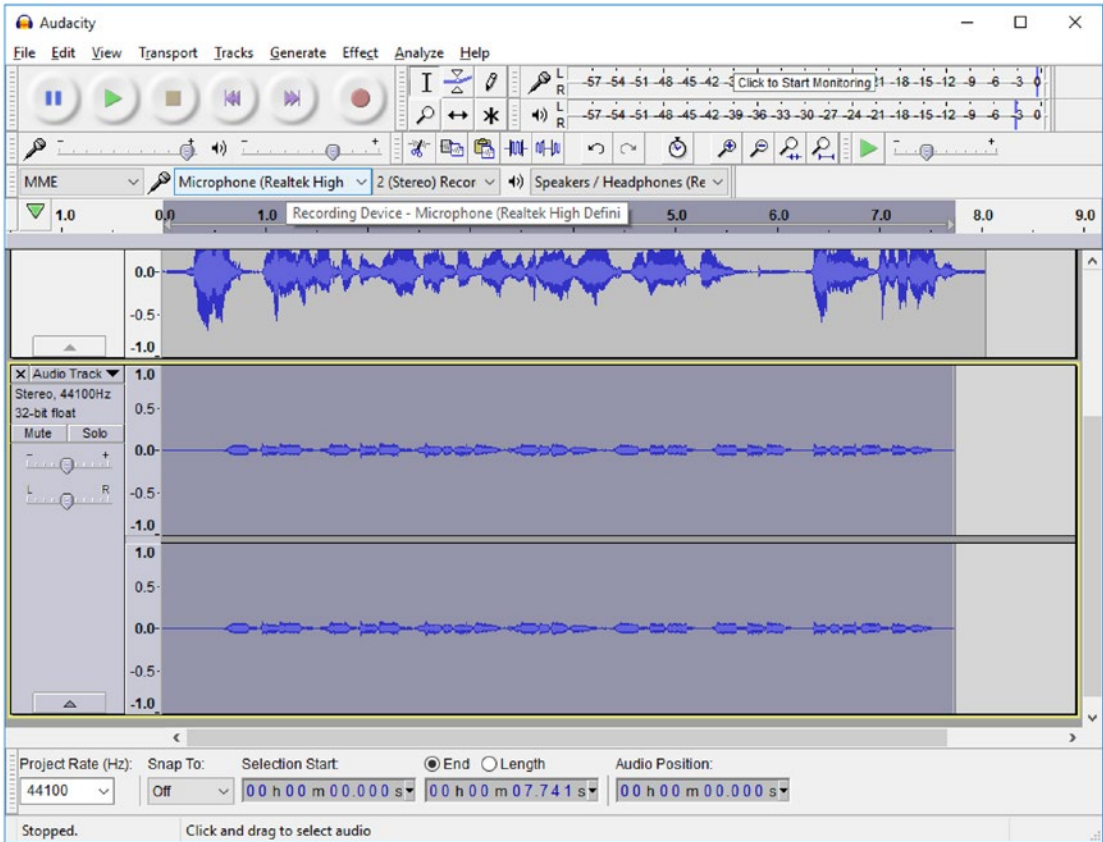

Figure 12-26. *Background music in the background*

Now you can export the audio so you can share it with friends and have good laugh at the result. Audacity does warn you that the soundtracks will be mixed in the result, but that's a good thing because you just went through all this trouble to get them mixed.

Summary

In this chapter, you learned how to use a few of the features of Audacity. There are many more effects that you can play with. Also, you can mix more than just two tracks. There's even a DTMF generator so you can use Audacity to dial your phone.

This chapter covered the basic and most useful features. But there are lots of online tutorials, web forums, books, and other resources available if you want to explore further.

Editing Videos with OpenShot

There are several good open source video editors. Some provide basic editing. Others provide all sorts of effects and transitions. The OpenShot editor provides a nice balance between features and usability.

In this chapter, you will learn the following:

- How to convert video files from one format to another

- How to combine short video clips into a full-length video

- How to create stills

- How to add transitions

You can download OpenShot from `http://openshot.org/`. Run the file and accept the defaults.

Converting Video Files

When we started writing this chapter, we tried directly editing the video files (MOD files) produced by our camera. However, OpenShot was prone to random freezes. So, we went to the Internet and scanned the forums to see whether anyone else had seen this problem. It turns out that they had. OpenShot on Windows doesn't work well with the MOD file format we were using. We needed to convert the files to another format for the problem to go away.

The program HandBrake has only one job, video conversion. And it does it pretty well; it can handle all the common video formats and most of the uncommon ones. You can download the program from `https://handbrake.fr/`. Installation consists of running the downloaded file and selecting all the defaults.

Say you want to convert every video that you shot and downloaded to your computer; in other words, you want to do a *batch conversion*. Open the Preferences dialog by selecting Tools ➤ Preferences, as shown in Figure 13-1.
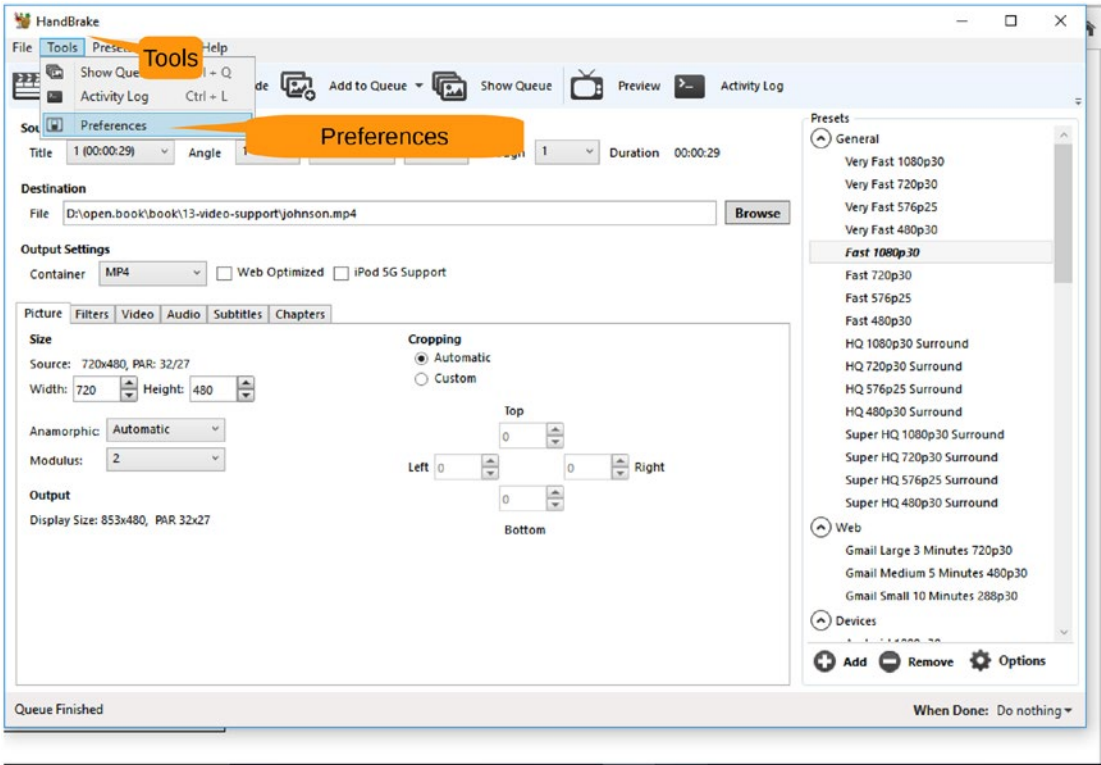
Figure 13-1. *Opening the Preferences dialog*

Figure 13-2 shows the Preferences dialog. Click Output Files in the first column
to select the Output Files section and then use the Browse button to select the output
directory. This directory should be different from the one containing the input files.
In this example, we've created a directory named hand.out to receive the files.
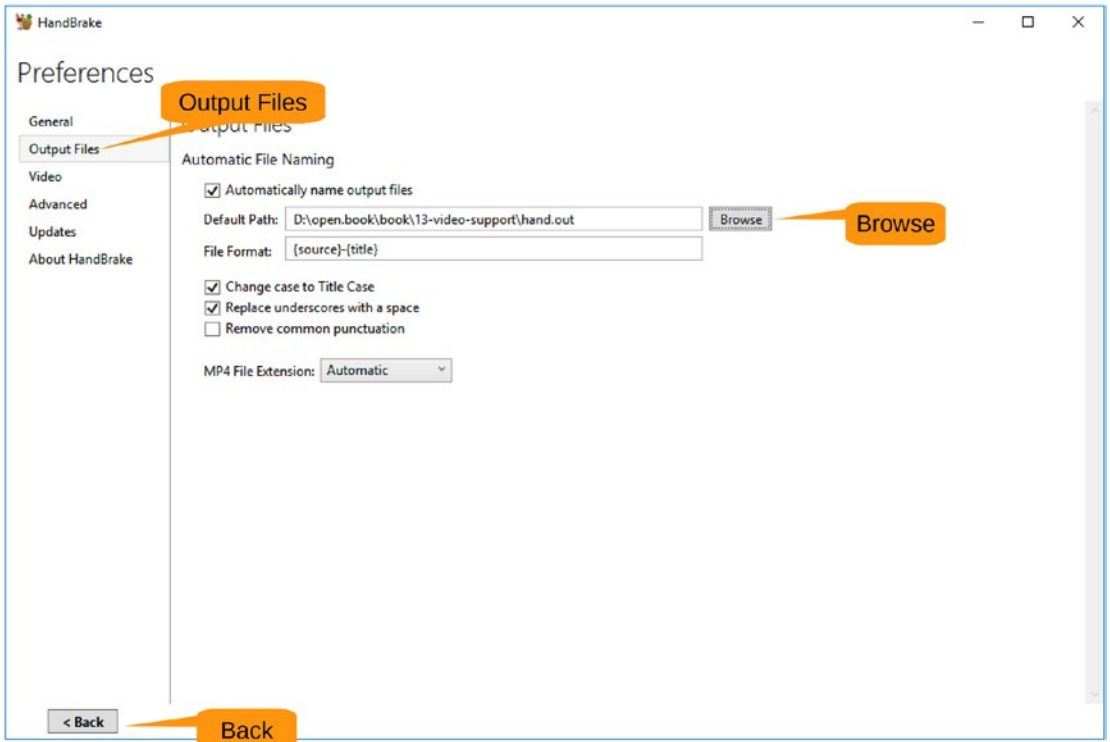
Figure 13-2. *Setting the default path for output*

Clicking Back returns you to the main window, as shown in Figure 13-3. Let's start the process of converting the files by clicking Open Source.
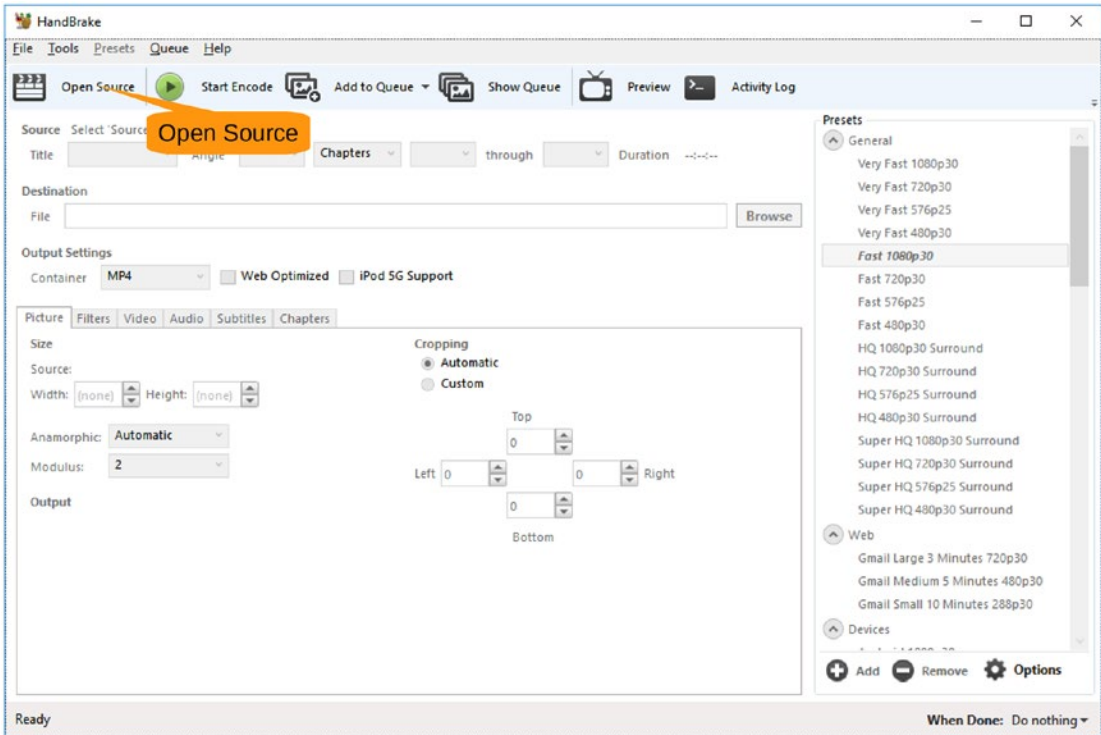
Figure 13-3. *Starting the conversion process*

The program can process a single file or an entire directory with multiple files. In this example, you want every file you downloaded from your camera, so select Folder (Batch Scans), as shown in Figure 13-4.
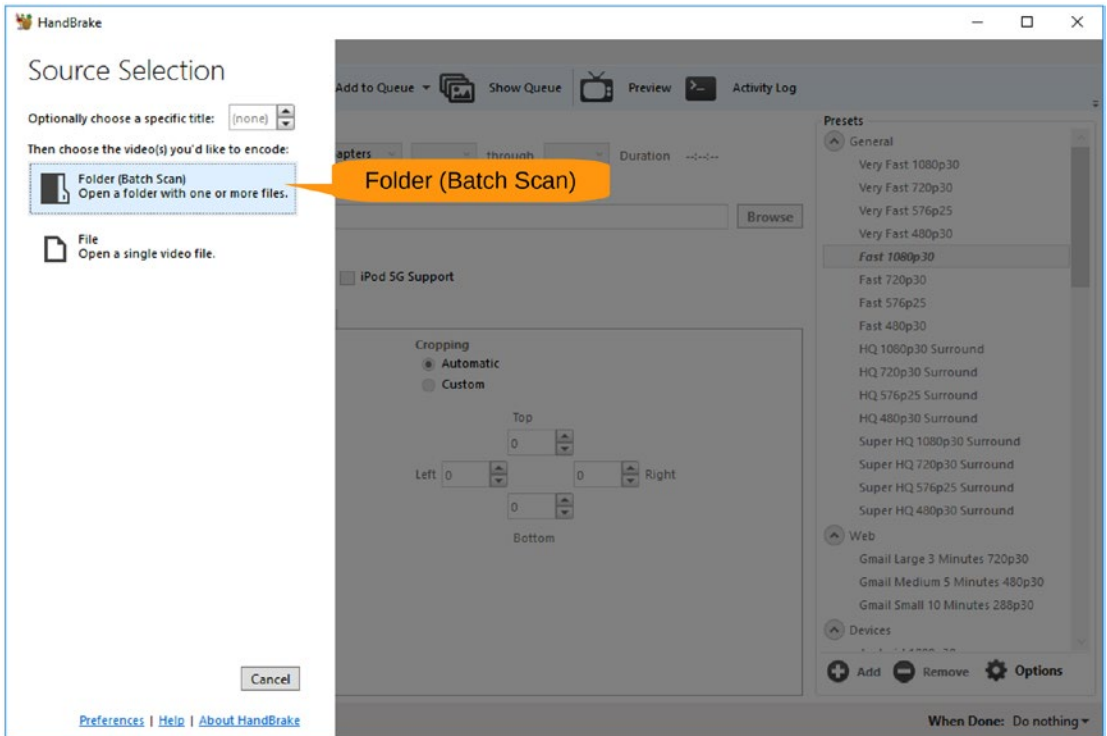
Figure 13-4. *Starting a batch scan*

The program will display a selection dialog allowing you to select the folder with the files in it. When you click Select Folder, a progress dialog (Figure 13-5) appears.
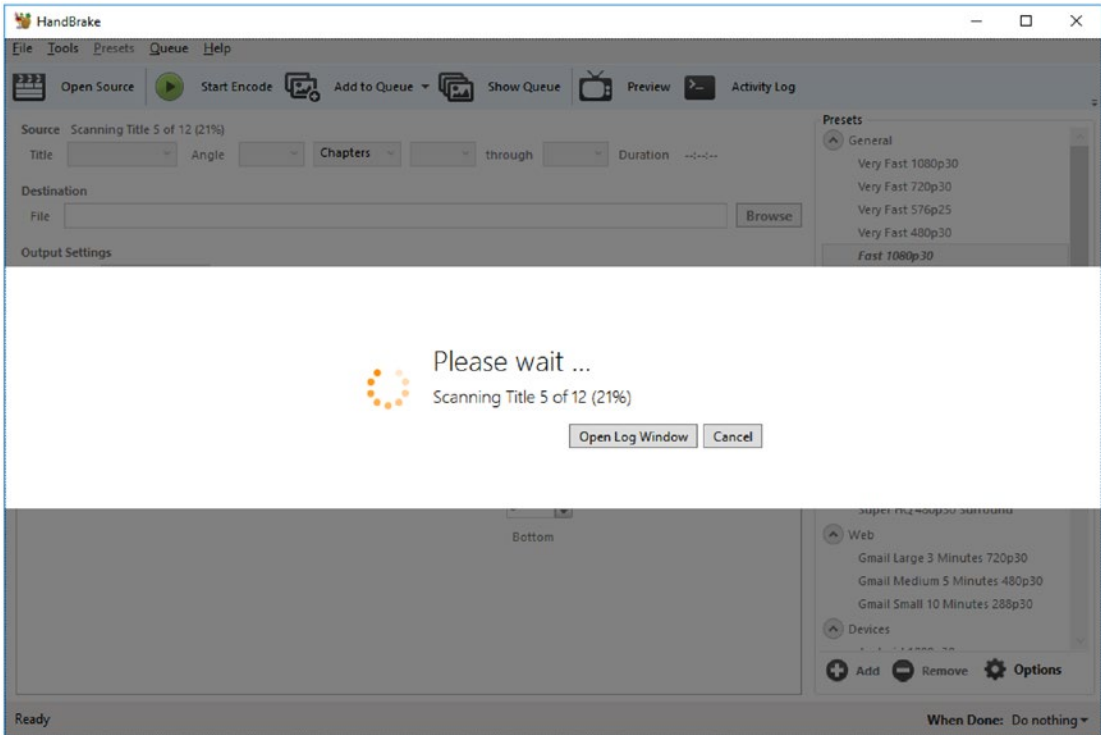
Figure 13-5. *Progress dialog*

There's one more step needed to get the files into the system. When you get back to the main window, you need to click the triangle next to Add to Queue and select Add All, as illustrated in Figure 13-6.
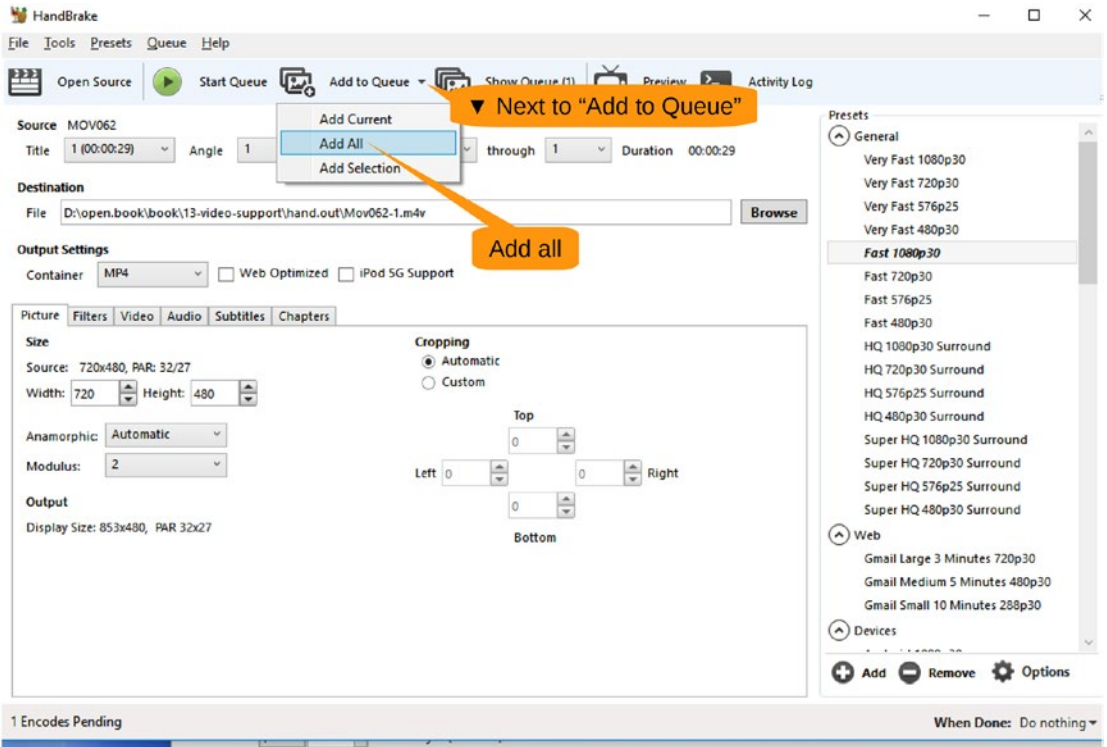
Figure 13-6. Adding all the files

The program now displays a warning concerning the addition of subtitles, as shown in Figure 13-7. In this example, we have no subtitles, but if you do, they could be added in OpenShot; click Yes to continue.
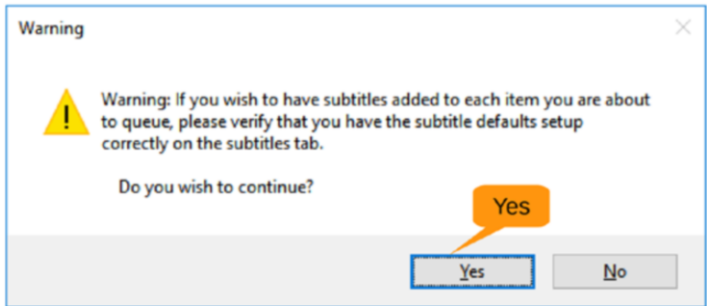
Figure 13-7. *Subtitle warning dialog*

We have added eight jobs to the queue to do a direct conversion. In other words, we want the resulting video to have the same resolution and frame rate as the original. For that reason, you leave the output settings alone. The only reason you would want to play with these settings is if you were reducing the resolution or frames per second so as to make the video smaller. For example, if you were e-mailing the videos or displaying them on the Web, you would want a small file size.

Let's do a quick check to make sure you have everything by clicking Show Queue in the main window. The Queue dialog will pop up, as shown in Figure 13-8. Everything looks in place, so let's close the window.
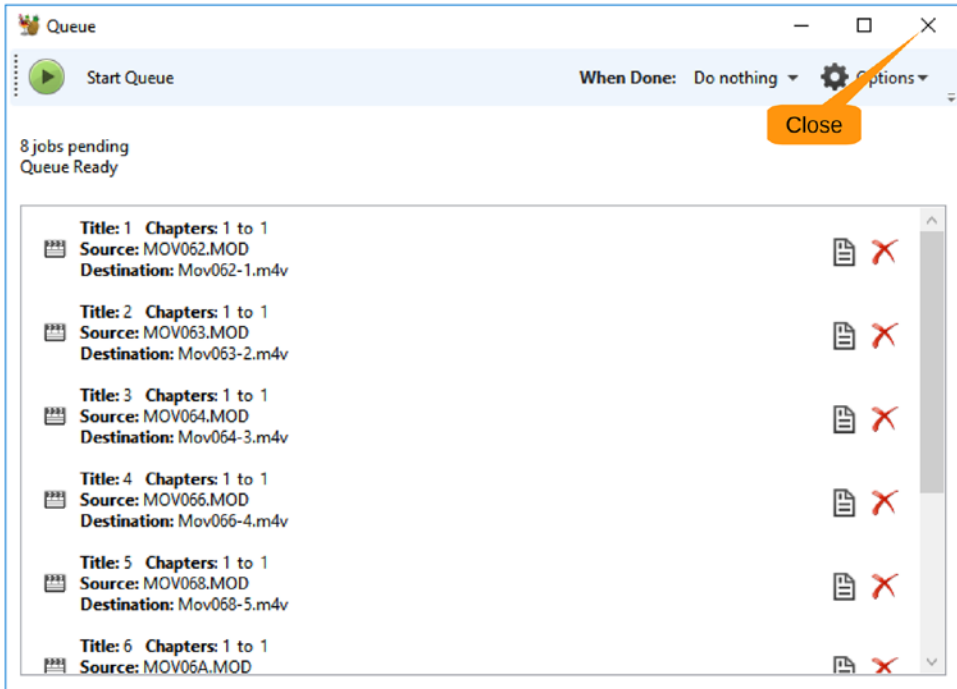
Figure 13-8. *Job queue*

It's time to do the conversion, so click Start Queue, and the conversion begins, as shown in Figure 13-9.
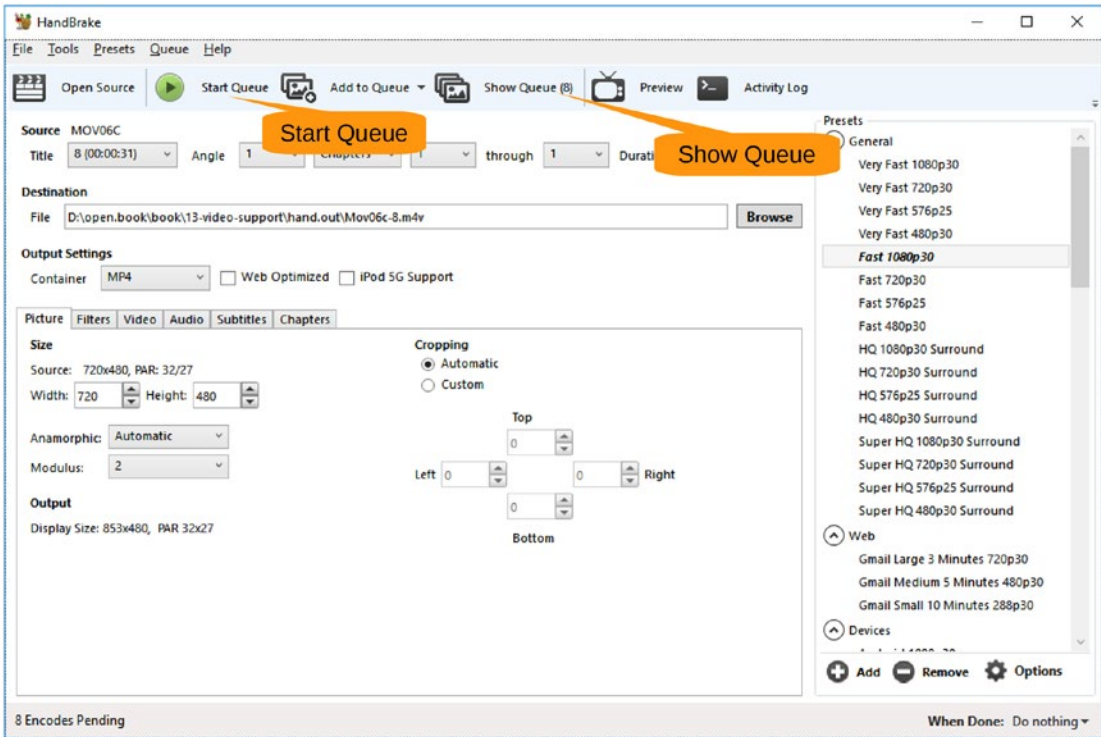
Figure 13-9. *Showing and starting the queue*

The encoding begins. This takes quite a bit of processing, so feel free to go for coffee. Actually, it wouldn't hurt to have a quick lunch too.

Figure 13-10 shows HandBrake working on the files.
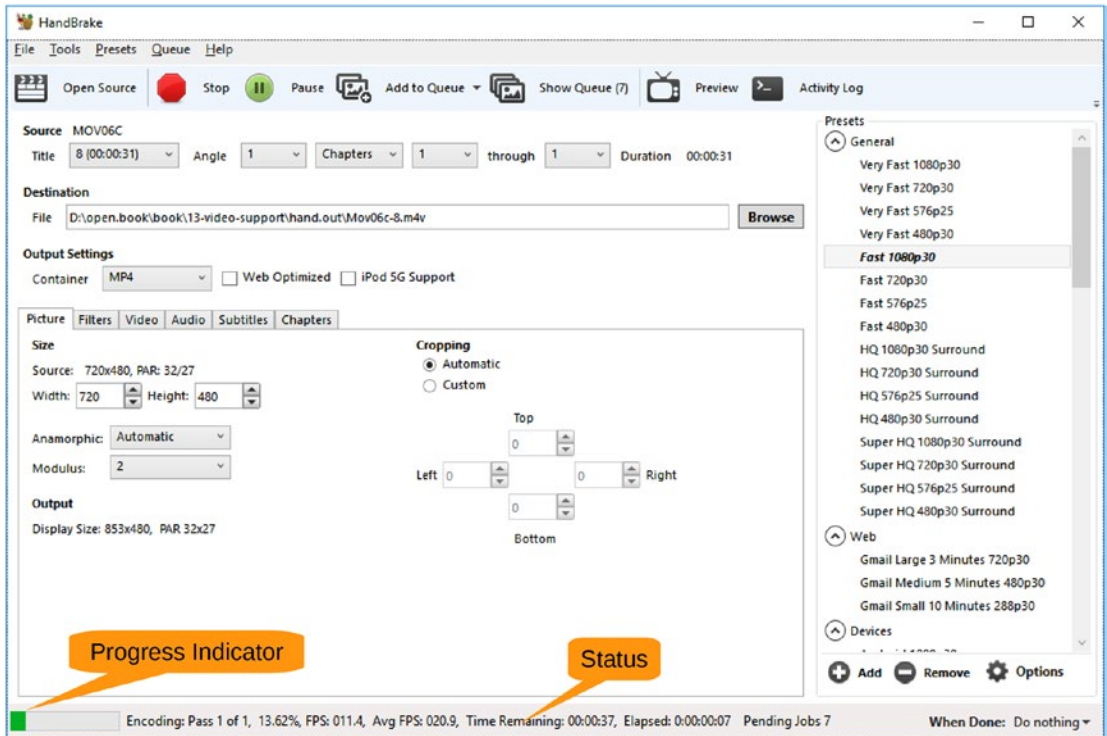
Figure 13-10. *The encoding in progress*

When the system is finished, the resulting files will all be in the hand.out directory ready for use with OpenShot.

Importing the Media

When OpenShot starts, it displays a pop-up window asking if you want to go through the tutorial. Let's dismiss the tutorial by clicking Hide Tutorial, as shown in Figure 13-11. You can always go back and view it by selecting Help ➤ Tutorial.
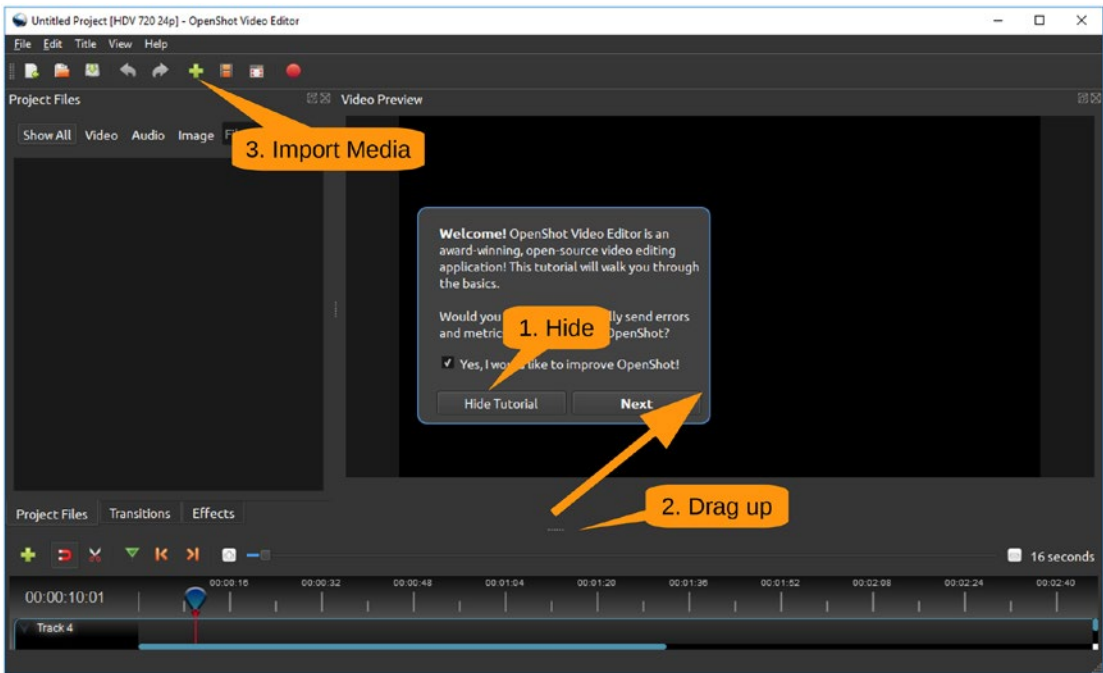
Figure 13-11. OpenShot initial screen

The layout of the panels needs work. The tracks are difficult to see. So, grab the handle between the tracks at the top of the screen and drag it up.

Now you need some media, so click the Import Media icon (the plus sign).

A file selection dialog appears. You want all your video files, so click the first file, Shift+click the last one, and select Open. Figure 13-12 illustrates these steps.

The following examples use some video files that we shot to explain how an antique Johnson farebox works. You can download these files from `https://www.apress.com/us/book/9781484230749` to follow along with the steps.
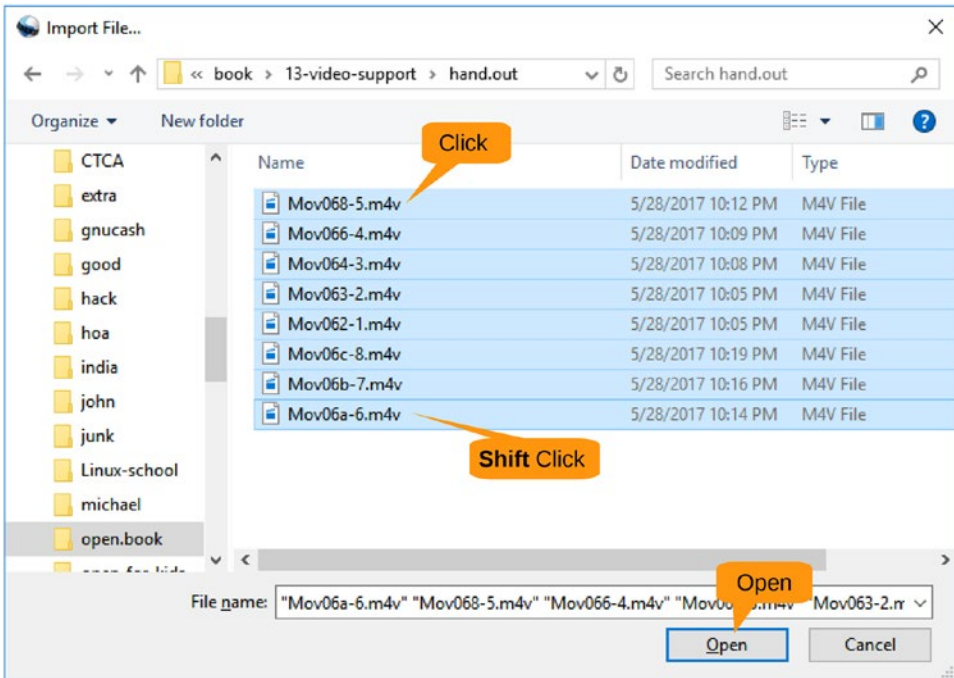
Figure 13-12.   *Opening video files*

The files are now loaded into the Project Files panel, as shown in Figure 13-13. However, they are shown as thumbnails. It's going to be easier to work with them if you display them as a list, so right-click inside the Project Files panel and select Details View.
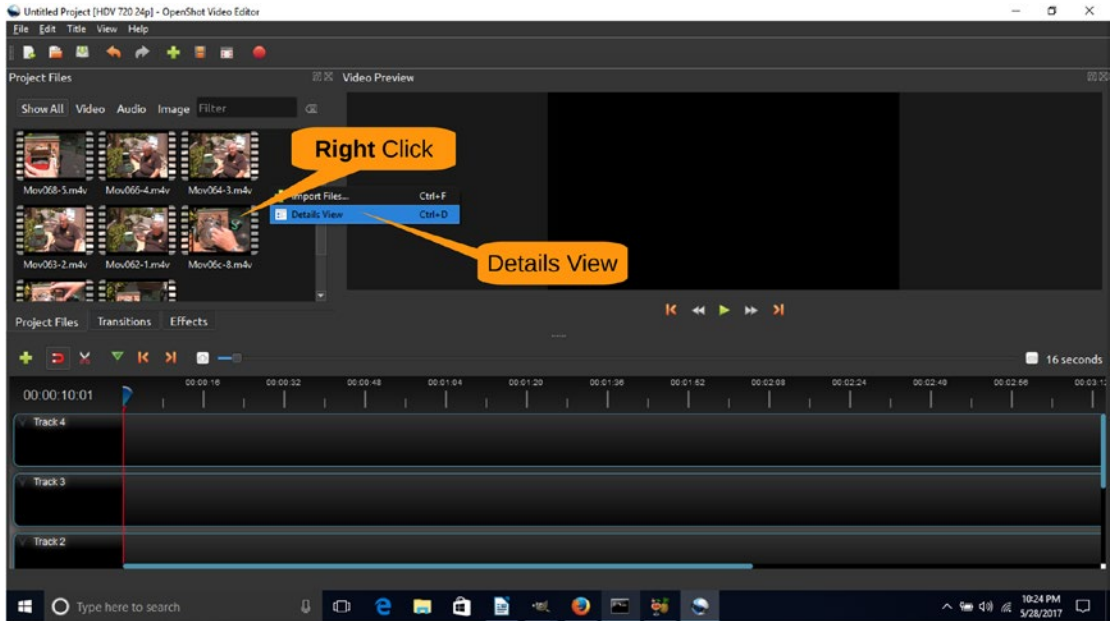
Figure 13-13. *Video files imported*

At the bottom of the screen are the video tracks, as shown in Figure 13-14. This is a new project, so OpenShot gives you five blank tracks. Two is all you need, so let's simplify things. Right-click Track 4 and select Remove Track. Do the same thing for Track 3 and Track 2 as well.
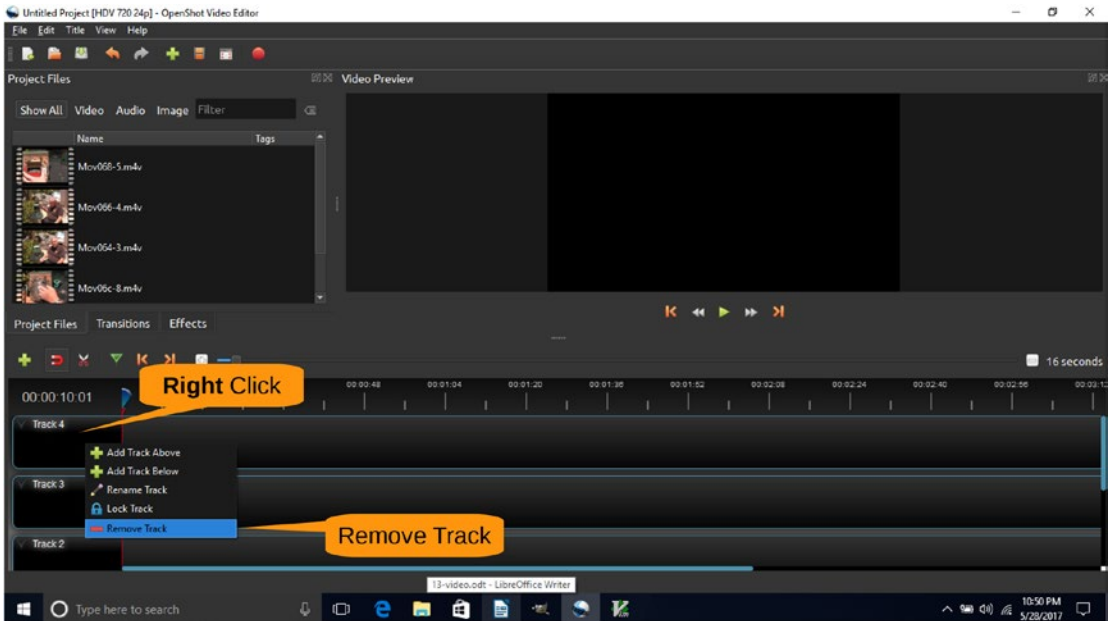
Figure 13-14. *Removing excess tracks*

In our example, the Project Files list contains every clip we brought in, including a huge number of flubs. You now want to get rid of the ones you don't need, so right-click each clip and select Preview File, as shown in Figure 13-15.
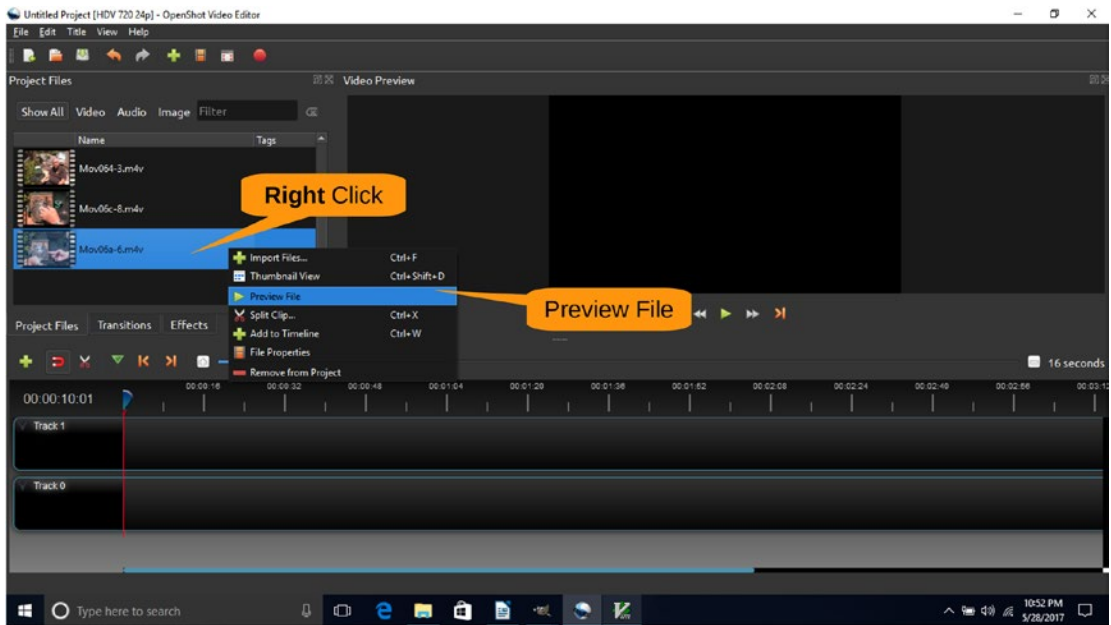
Figure 13-15. *Starting a preview*

The Preview window appears, letting you see what's in the clip, as shown in Figure 13-16.
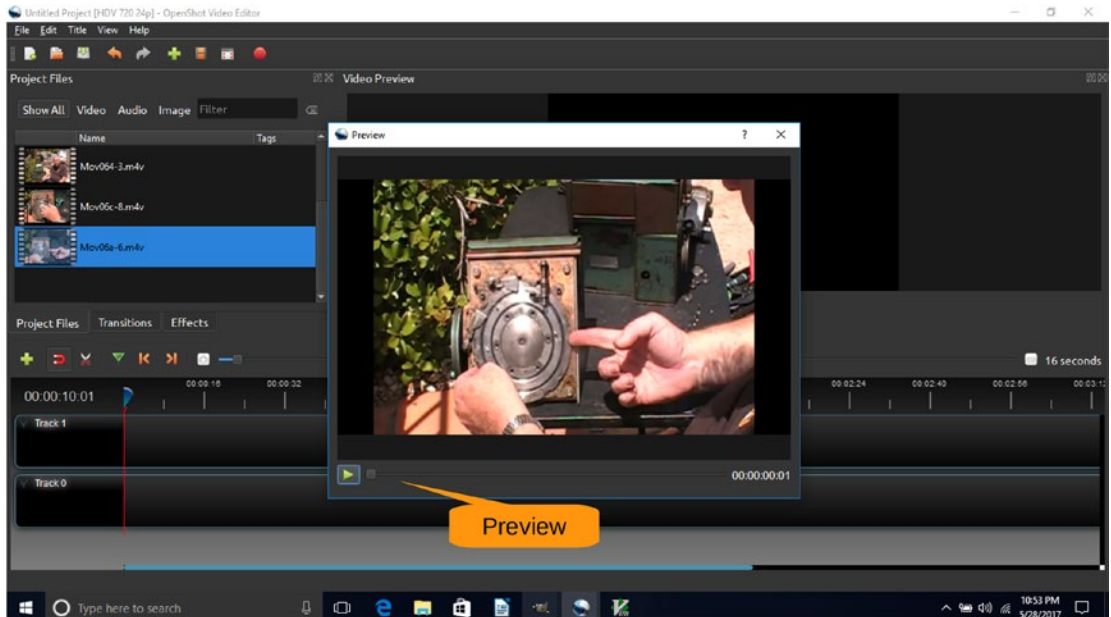
Figure 13-16. *Preview window*

In our example, we want to remove the clip Mov6a-6.m4v because this clip is not going to make it into the final production.

Right-click and select Remove from Project, as you can see in Figure 13-17.
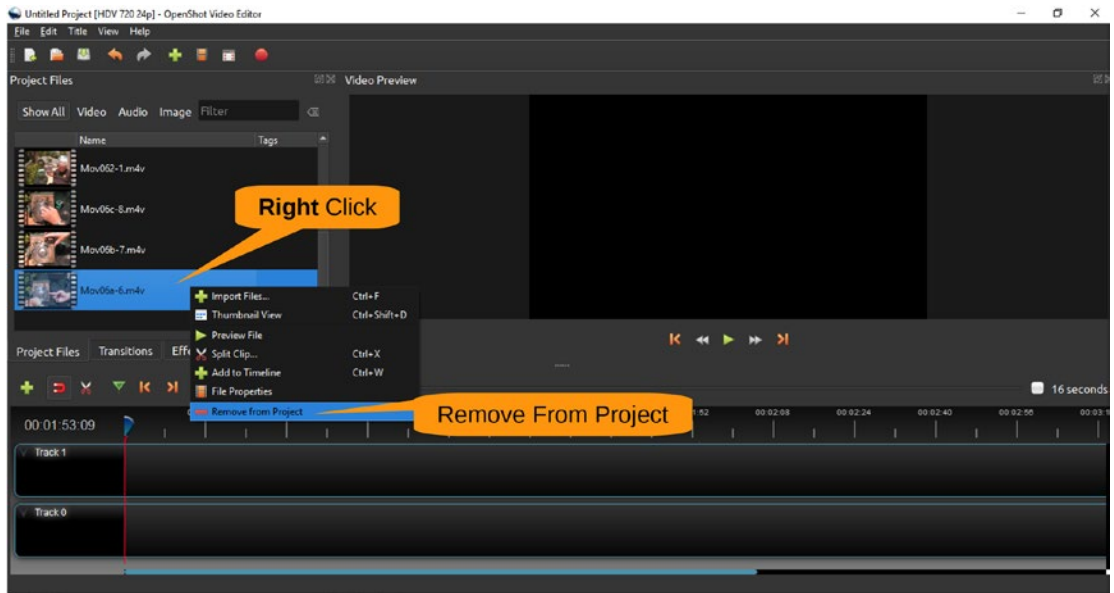
Figure 13-17. *Removing a file from the project*

That's not the only bad file, so we've previewed each one and decided if we want to keep it or remove it. Here is the list of files:

Mov062-1.m4v	Remove
Mov063-2.m4v	Remove
Mov064-3.m4v	Keep (first good scene)
Mov066-4.m4v	Keep (second good scene)
Mov068-5.m4v	Keep (third good scene)
Mov06a-6.m4v	Remove
Mov06b-7.m4v	Remove
Mov06c-8.m4v	Keep (fourth good scene)

During the preview process, we kept track of which file is first, second, third, and fourth. Now we will show how to build the video. The first piece is the file Mov63-3.m4k, so let's drag it from the media list down to Track 0, as shown in Figure 13-18.
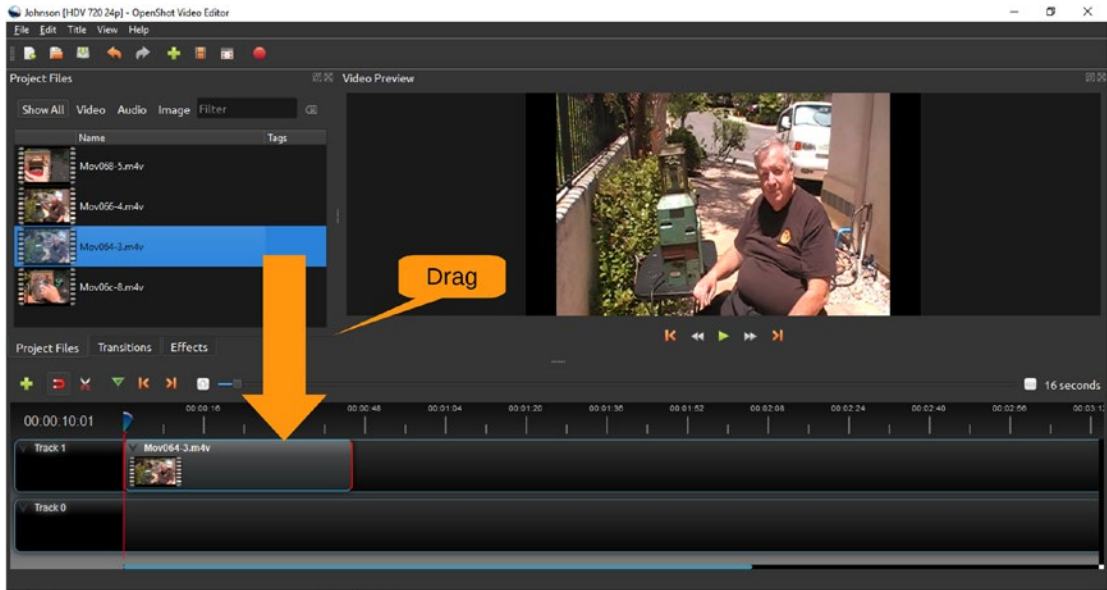
Figure 13-18. *Putting the first video on the track*

This track needs some precise editing. You aren't going to be able to make subsecond edits at this level of zoom, so click the + icon on the zoom until you see 5 seconds for the time scale. Figure 13-19 shows the results. Now you can see what's in the video by clicking Play on the main video window. The timeline will move across the track indicating where you are.
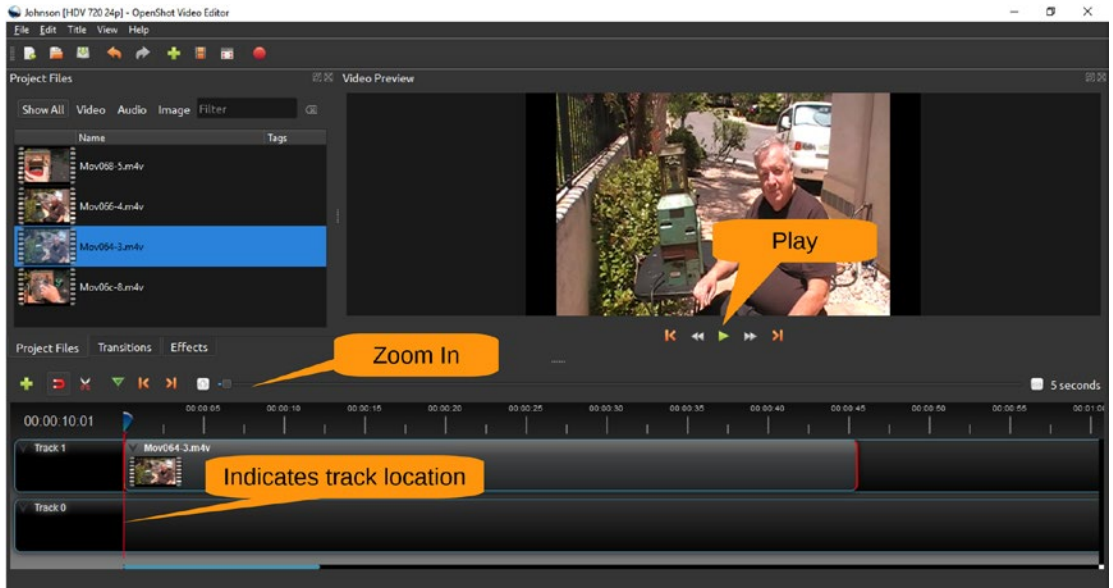
Figure 13-19. Zoom and play

In our example, we want to position the marker just after I finish talking and just before telling the cameraman "Stop." To get things exact, you may have to play around with the marker. If you move it back, say to the 00:00:40 mark, and hit Play, the video will start from that location. Through trial and error, you should be able to locate the precise location you want around the 00:00:43 mark in this clip, as shown in Figure 13-20.
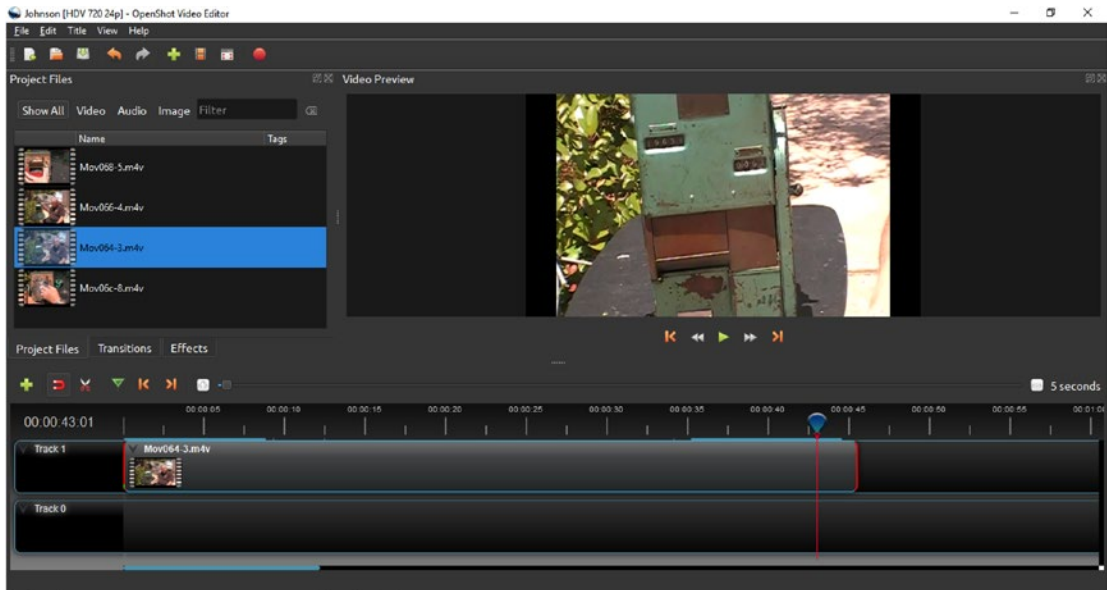
Figure 13-20. *The dividing line between good and bad*

At this point, the good stuff is to the left of the marker, and the bad stuff is to the right. As Figure 13-21 shows, to drop the bad stuff, right-click the marker and select Slice All ➤ Keep Left Side.
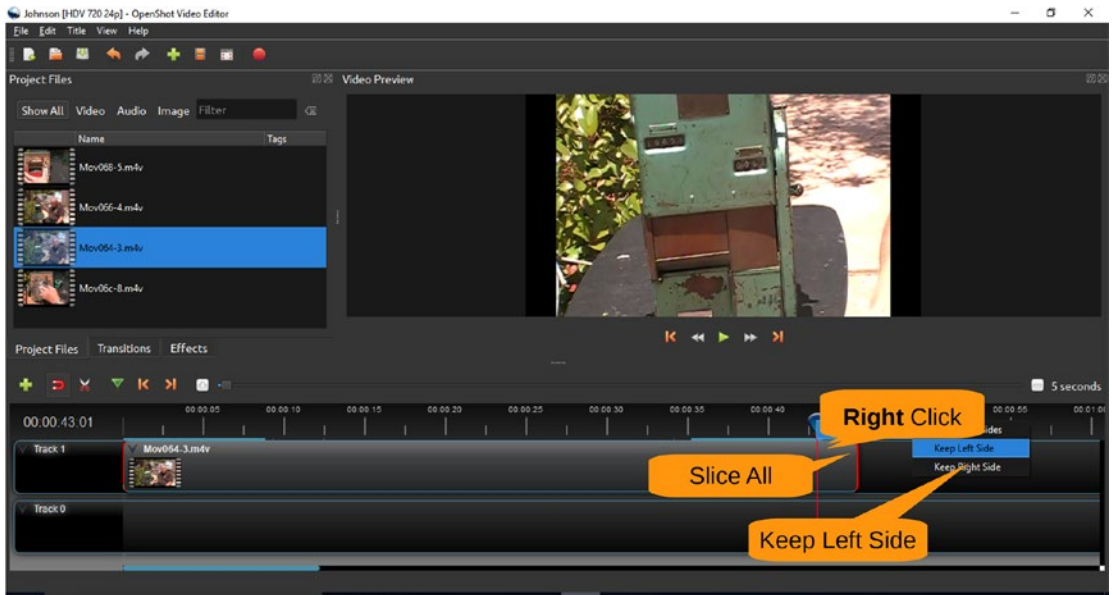
Figure 13-21. *Getting rid of the bad stuff*

As you can see in Figure 13-22, the right side has disappeared.
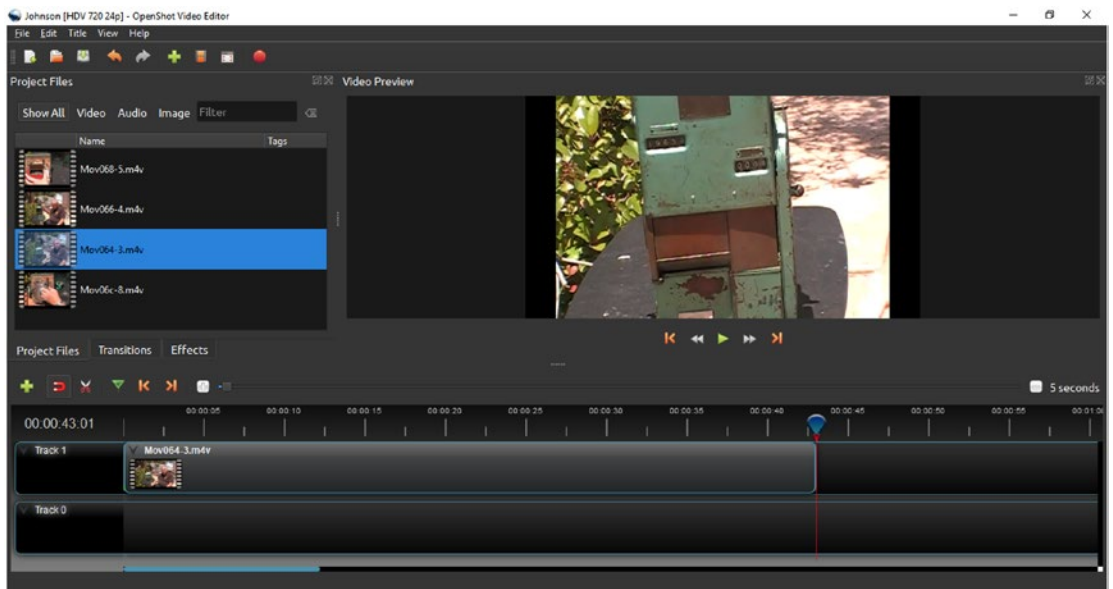
Figure 13-22. *Bad stuff trimmed*

Now let's drag the second clip, Moc66-4.m4k, and bump it up against the right side of the previous clip. Again, you need to trim off the tail end. Repeat this for the clips Mov068-5.m4v and Mov06c-8.m4v, giving this project the appearance of Figure 13-23.
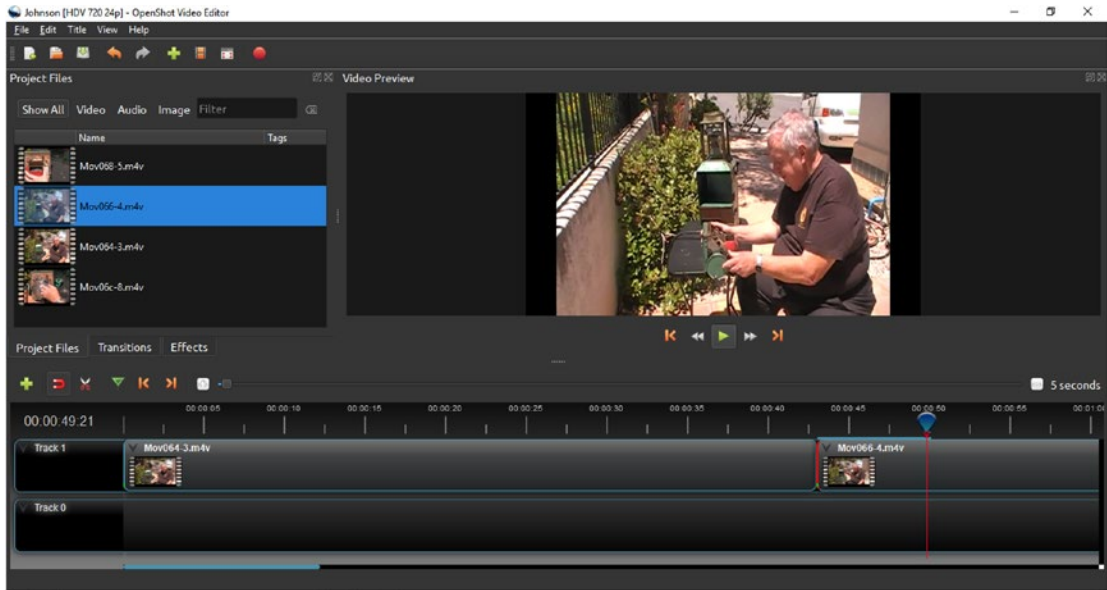
Figure 13-23. *All four clips put together*

Now you need to turn this project into a video, so select File ➤ Export Video, as shown in Figure 13-24.
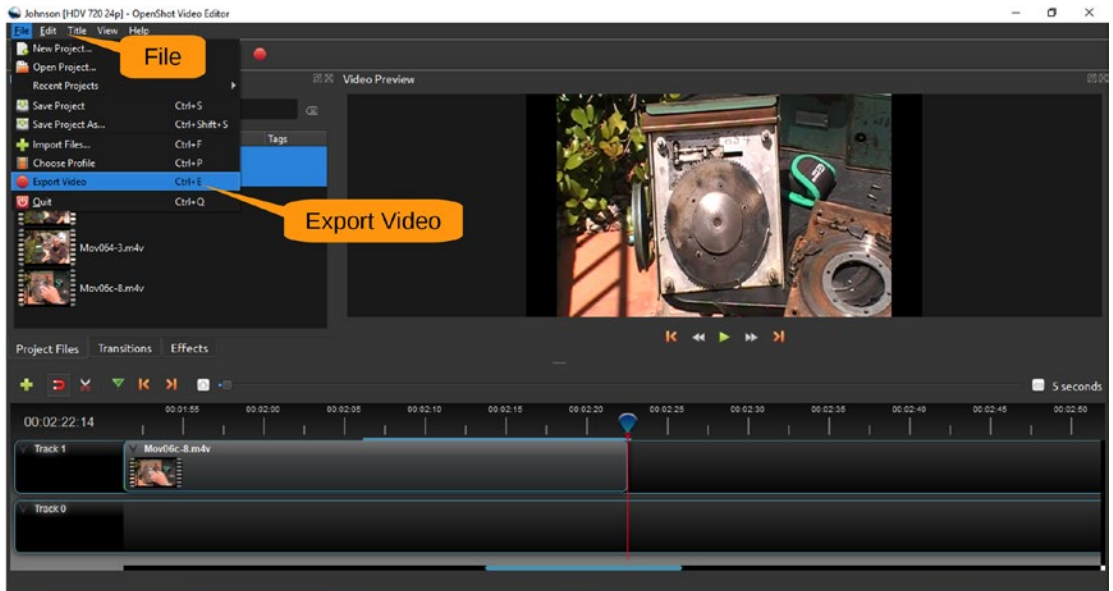
Figure 13-24. *Exporting the video*

The Export Video dialog appears. The original video was shot at 720×480 at 30 frames per second. (You can right-click any clip and select Properties to verify this.) You want the output to have the same quality, so select DV/DVD NTSC (720×480) for the video profile and then click Export Video, as shown in Figure 13-25.
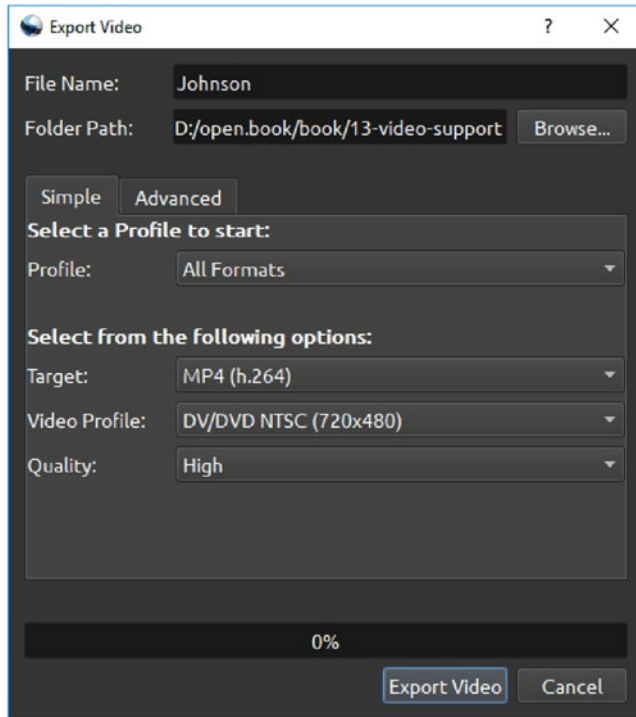
Figure 13-25. *Export settings*

The program puts all the video clips together and writes the result to the file Johnson.m4k. The speed leaves much to be desired, especially on our cheap laptop, so this is another time when you can go for coffee.

Lessons Learned

During the shooting of this video, we learned a few lessons that don't have to do with video editing but are useful when you are creating a video. Here are some tips when shooting video:

- If you have a high-definition video camera and a low-resolution video camera, don't put the low resolution on top of the video camera box. It will be the first one you grab when you start filming.

- If your subject is green, it's not a good idea to stick it in front of a green bush. This makes it hard to see.

- A good microphone is key. That's why we bought an expensive HD video camera; it had a connection for a wireless microphone. Without it, you hear a lot of wind, noise, and background sounds.

- Consider recording the sound separately. If you don't need to see a speaker in this video, OpenShot lets you put a video clip on Track 0 and mute it. Then you put an audio track on Track 1, and they will be combined. (See Chapter 12 for how to make a good audio clip.)

- There's a reason Hollywood uses marker boards (the thing they "clap" at the beginning of shots). Consider using something similar to identify the beginning and end of each clip. The sound does not show up in the Video Preview window (especially if you're stopped). Pictures do.

Adding a Title

Now let's play with the more advanced features of OpenShot. First, let's use the Files ➤ Save Project As menu item to save the project under **Johnson_play**.

Now let's create a title sequence by selecting Title ➤ Titles from the menu bar, as shown Figure 13-26.
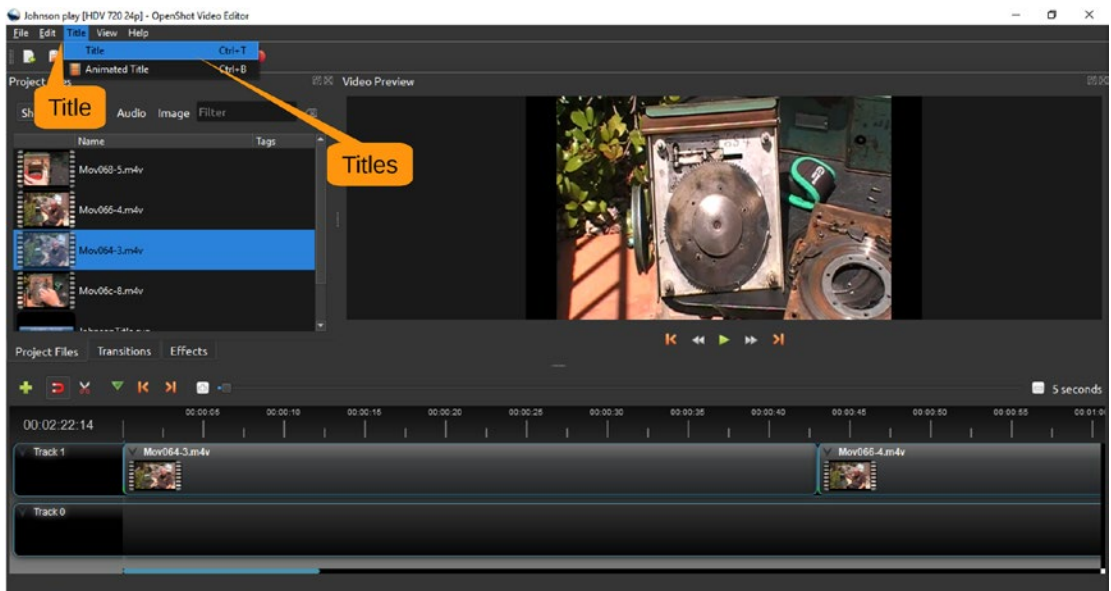
Figure 13-26. *Creating a title*

The Titles dialog appears, as shown in Figure 13-27. Let's select a good template to use for the title.
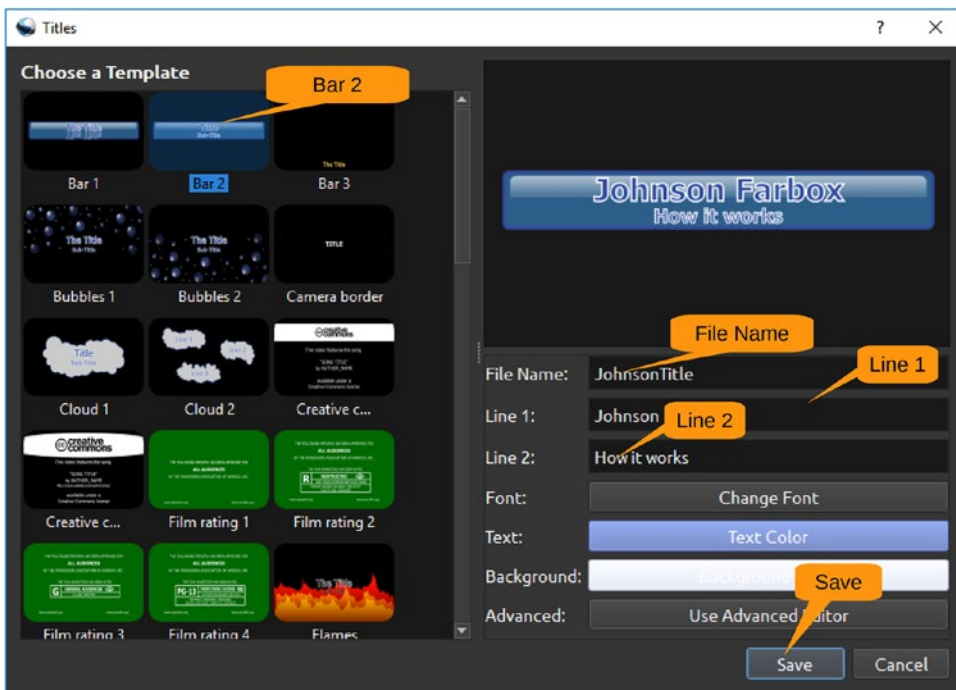
Figure 13-27. *Titles dialog*

Use the Bar 2 template. For the empty fields, use these values:

File Name:	**JohnsonTitle**
Line 1:	**Johnson Farebox**
Line 2:	**How it works**

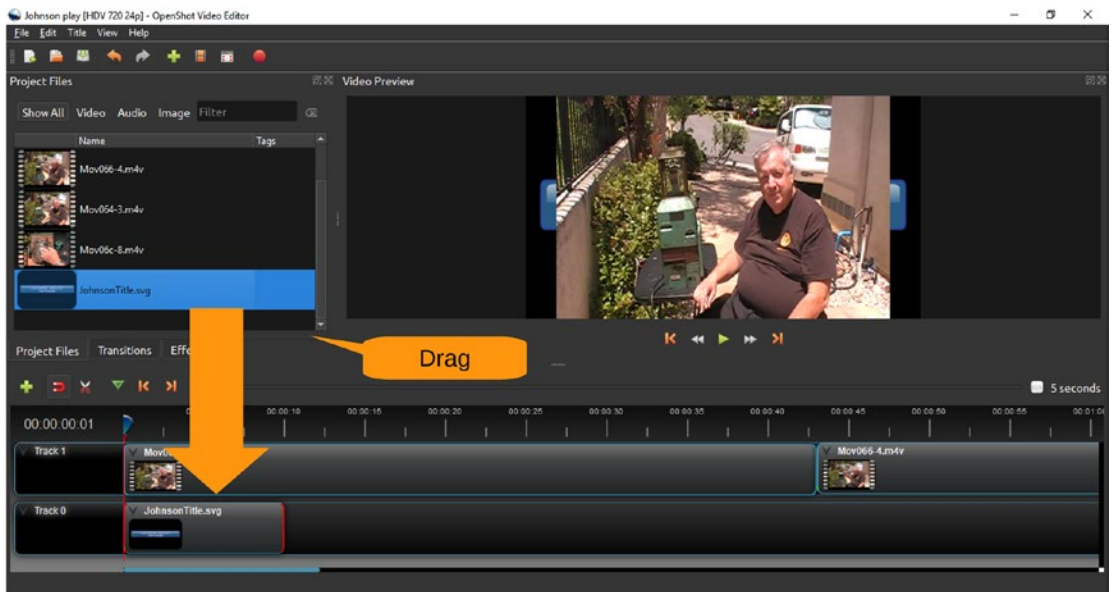Click Save to finish. You'll notice that a new item, the title, has been added to the Project Files list, as shown in Figure 13-28.

Figure 13-28. *New project file*

Drag the title down to the beginning of Track 0. You can drag the end of the image to the left or right to make the selection longer or short.

It would be nice if there was a way of moving all the clips on a track to the right. In fact, several people have requested this feature in the OpenShot forums, but it's not available yet.

So, we will show how to do this the hard way. Drag the first clip down from Track 1 to Track 0 and position it just after the title. Do the same thing for the other three tracks. The result, shown in Figure 13-29, is a new video clip with a title.
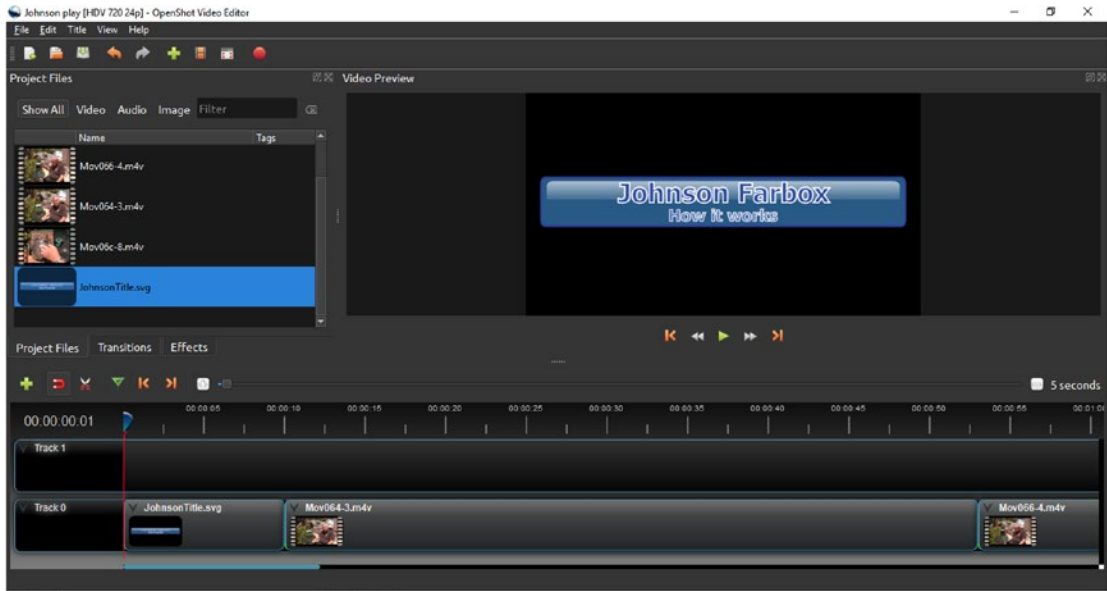
Figure 13-29. *Video clip with title*

Creating Titles

OpenShot has the ability to let you do quite a bit of editing with your titles by using Inkscape. (See Chapter 9.) However, you have to configure the system so that it knows how to start this program. This task is a little beyond the scope of this book. If you want, you can point Inkscape at the image itself and edit it directly.

There is also the ability to generate animated titles with a 3D animation system called Bender. Again, the installation and configuration of this software are beyond the scope of this book.

Creating Stills and Transitions

Now you'll add a still picture to a video. First, import a photograph to the Project Files panel. Next, drag it down to your timeline between the last two clips. Also, let's adjust it for time so it's about eight seconds long.

Figure 13-30 shows the results.
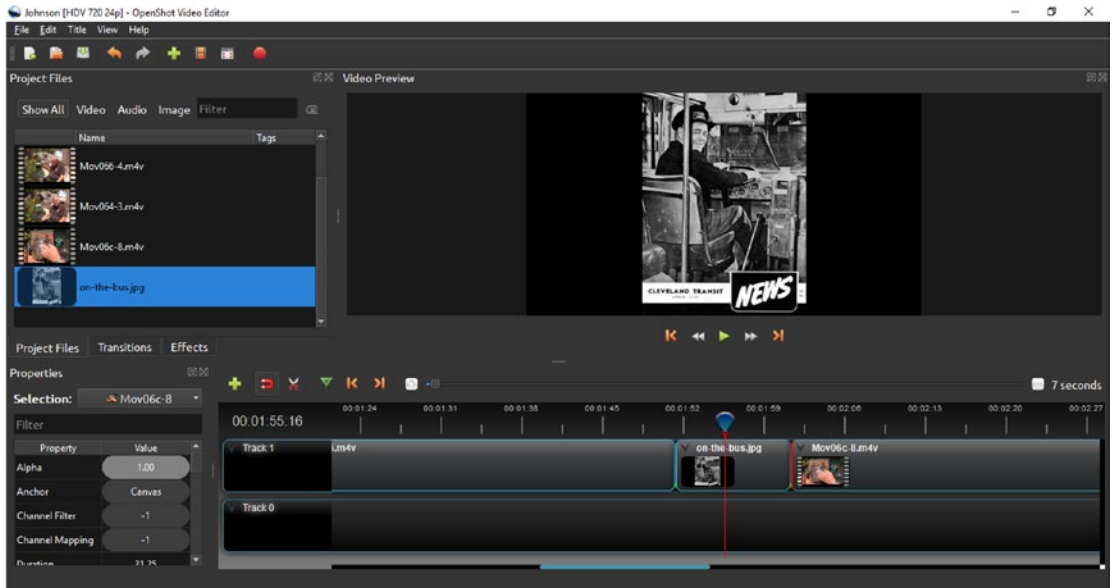
Figure 13-30.   *Video with still added*

Now when you play the video, the still you just added will be shown between clips. This is boring, so let's add some more exciting stuff.

Click the Transitions tab and drag the Circle Out to In transition over the still. You'll notice that if you put the preview timer right in the middle of the transition, there's a dark spot in the middle of the picture, as shown in Figure 13-31. This starts out large and gets smaller until it disappears.
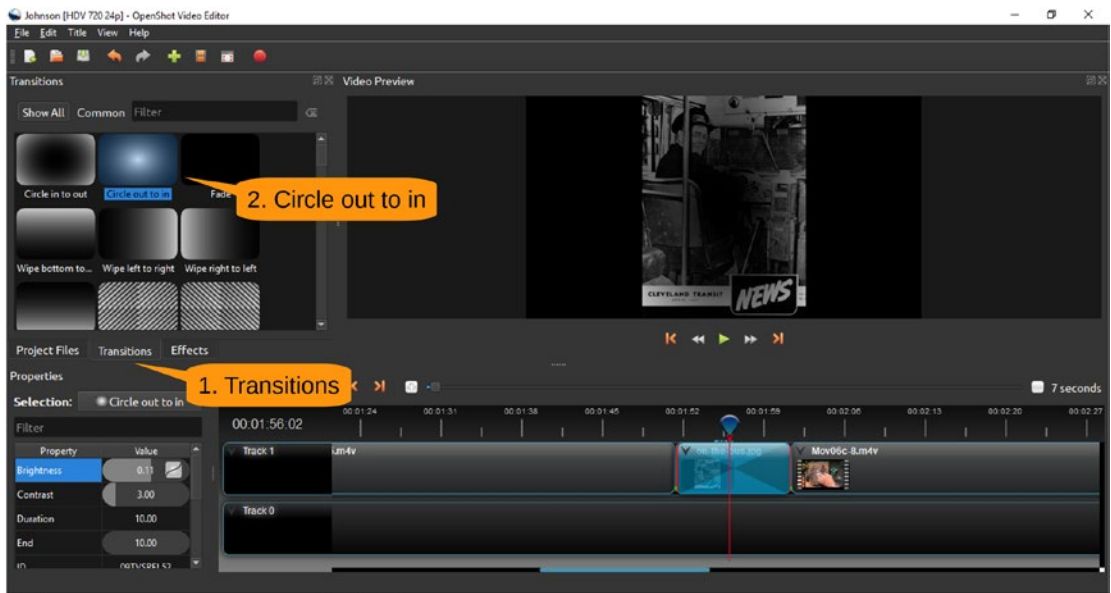
Figure 13-31. *Adding a transition*

Looking at Advanced Features

There are lots of more advanced features that we don't have space to cover here. Here are just a few:

- Picture in picture
- Subtitles
- Graphic overlays
- Adding a voice track

For us, we've produced only one YouTube video and it has received a total of nine views. We've got a long way to go before we become Internet stars.

Summary

OpenShot is a good basic video editor. It has enough features to make interesting videos yet not so many that you spend a tremendous amount of time trying to figure out where the feature you want is located.

Creating DVDs with DVDStyler

Now that you have created a video (see Chapter 13), you'll learn how to turn it into a DVD. The DVD will be split into individual chapters and also have a Play All button for those who want to watch the entire video. After creating the DVD, you will have a file you can put on a USB stick and send to your friends and relatives, or you can burn the file onto a real DVD for playing on a computer or that antique machine called a DVD player.

Getting Started with DVDStyler

DVDStyler is a basic DVD creation program. It gives you the ability to create simple DVDs with features such as chapters, menus, and other basic elements. It's not as full featured as some other DVD creators, but they tend to be so complex that it is difficult for a novice to do simple things. DVDStyler lets you create something that looks good and works well without hassling you with 5,000 different options.

You can download the program from `www.dvdstyler.org`. To install it, it's the same ol' drill: download, run, and accept the defaults. The download page even has a nice ad-blocking detector, as shown in Figure 14-1.
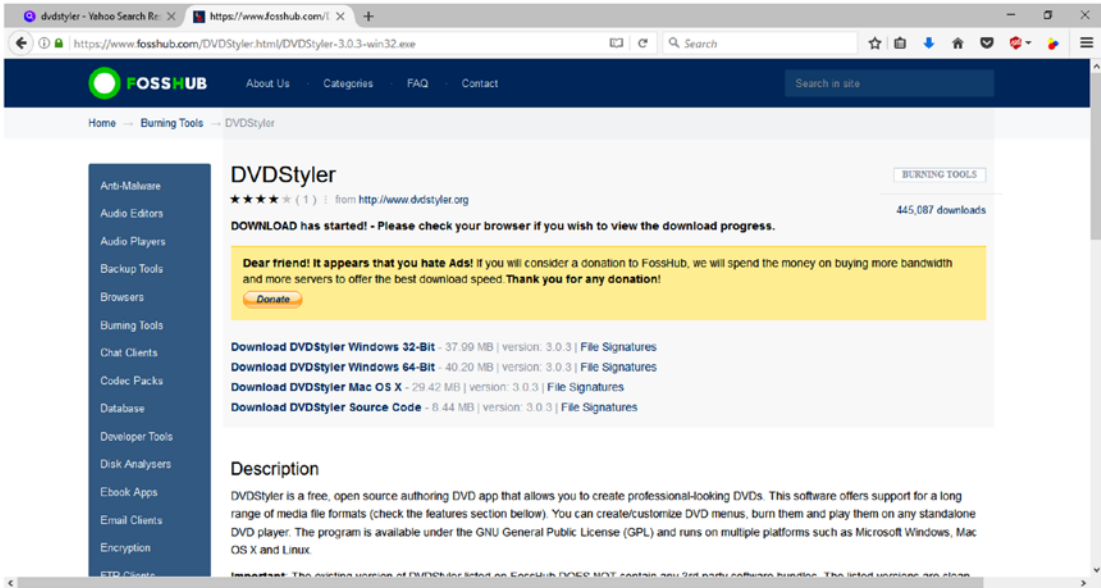
Figure 14-1. *Ad blocker detected*

Since FossHub has been so nice to give us DVDStyler for free, we're going to send in a few bucks. Feel free to join us.

Preparing the Video Clips

Before you start, you need four video clips containing the four segments you put together in the previous chapter. We'll leave it to you to use OpenShot to transform those clips into something useful and store them in the files `J Part1.mp4`, `J Part2.mp4`, `J Part3.mp4`, and `J Part4.mp4`.

Using DVDStyler

When DVDStyler starts, it displays a Welcome dialog. This lets you define the project or open an existing project. This video is going to be about the farebox shown in earlier chapters, so enter **Johnson farebox** for the label. If you are in the United States, you should make your DVD in the NTSC format, so select that option. Finally, click OK to start the project, as shown in Figure 14-2.
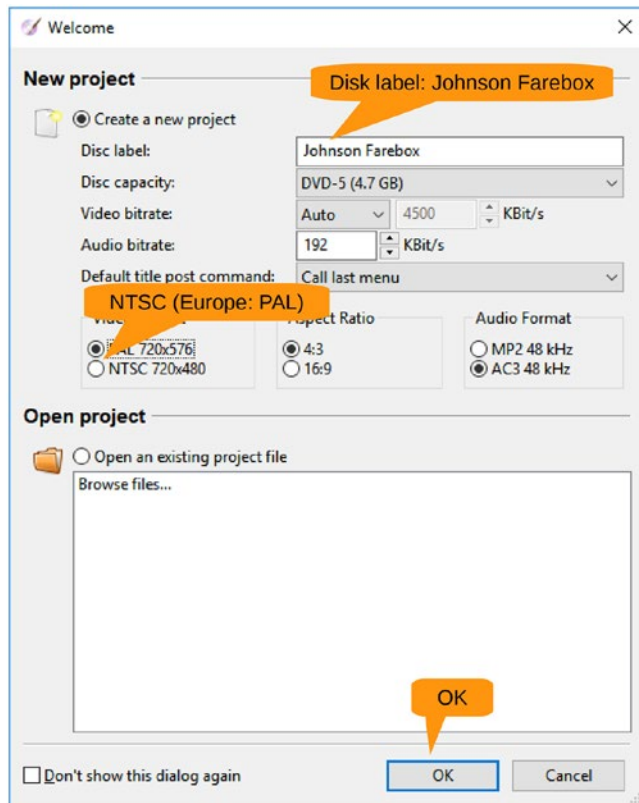
Figure 14-2. *Welcome dialog*

You will see a dialog (Figure 14-3) asking you to select a template for the menu screen. Enter **Johnson Farebox Operation** in the Caption field. For Template, just select the first one since none of them really looks like what you want. Finally, click OK to finish the selection process.
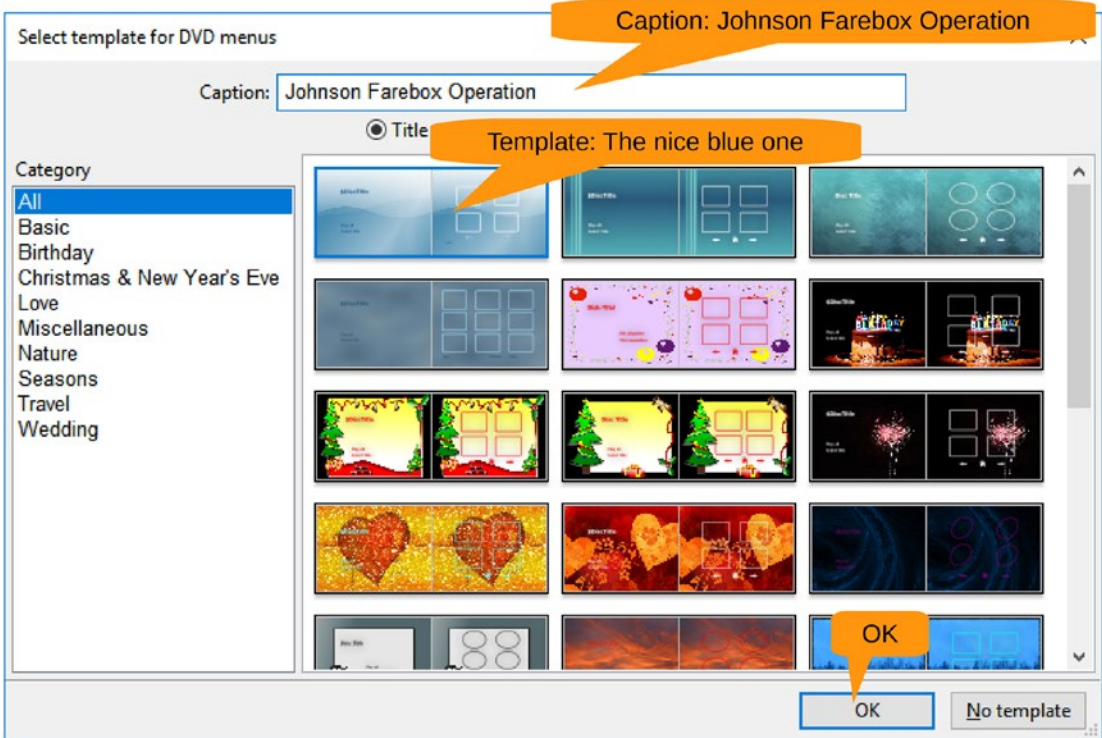
Figure 14-3. *Selecting a template*

The main window appears, as shown in Figure 14-4. It shows you a list of backgrounds (which you don't care about for this example) on the left and the first menu on the right. The menu looks OK, so click the second menu screen at the bottom to take a look at that. Also, click the File Browser on the left and go to the directory containing your files.
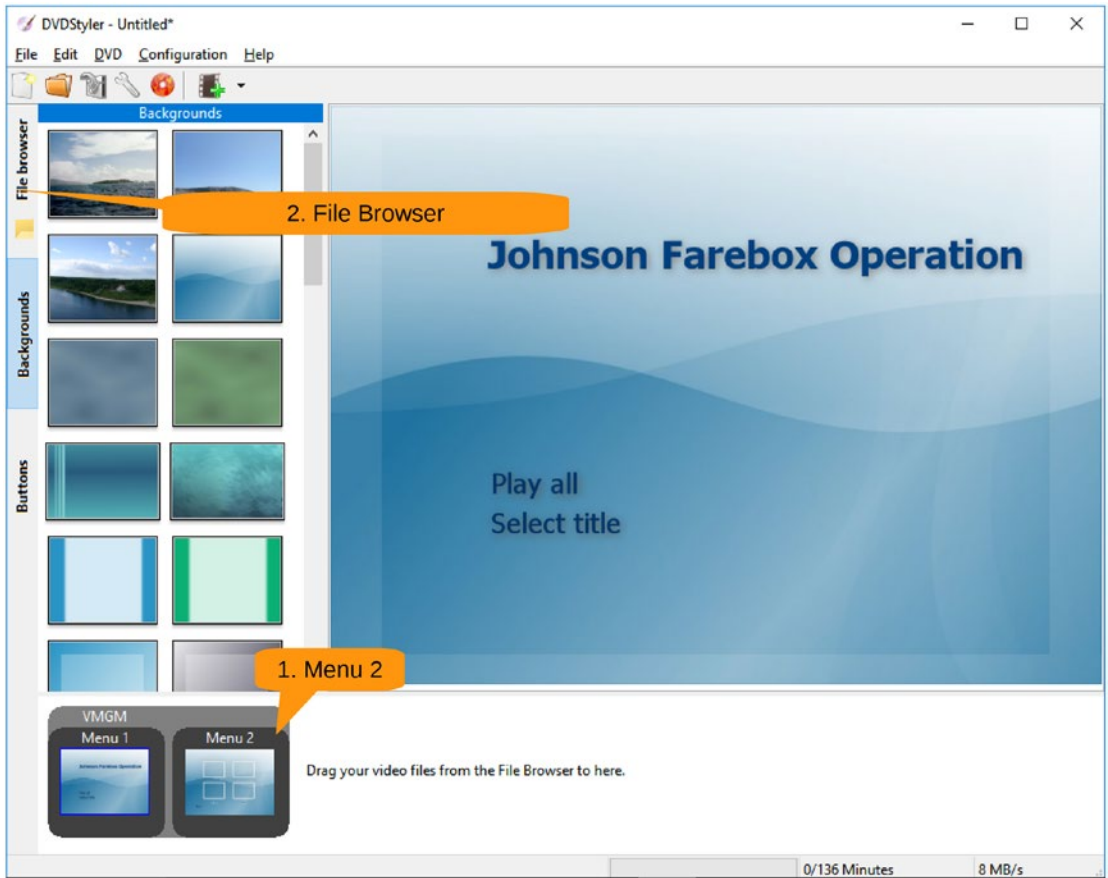
Figure 14-4. Initial editing window

Let's now add the video to the menu. Drag the video J part1.mp4 to the first square in the menu, as shown in Figure 14-5.
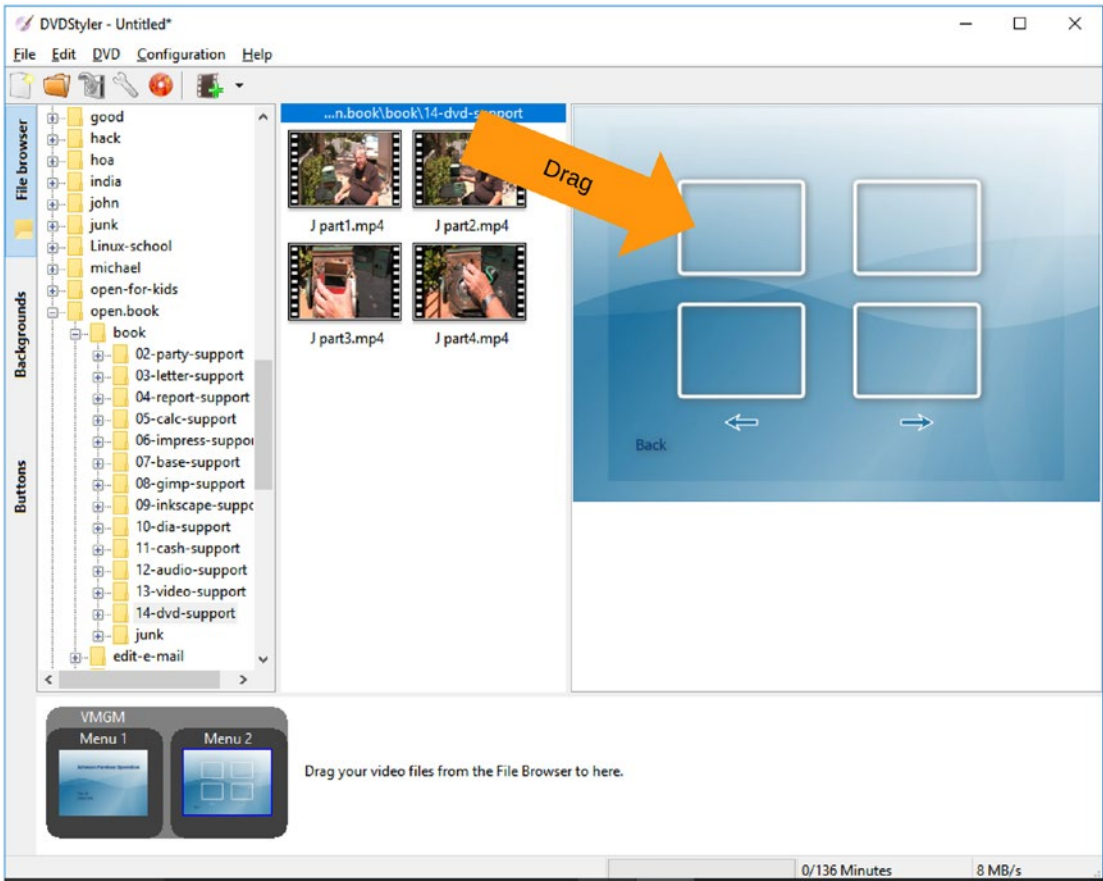
Figure 14-5. *Adding a video to the menu*

The program will pop up a warning dialog asking if you want the video converted, as shown in Figure 14-6. Click Yes.
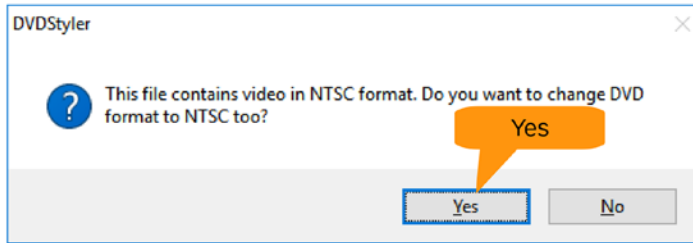
Figure 14-6. *Conversion question*

Repeat the dragging process for the other three videos. The result will look like Figure 14-7.
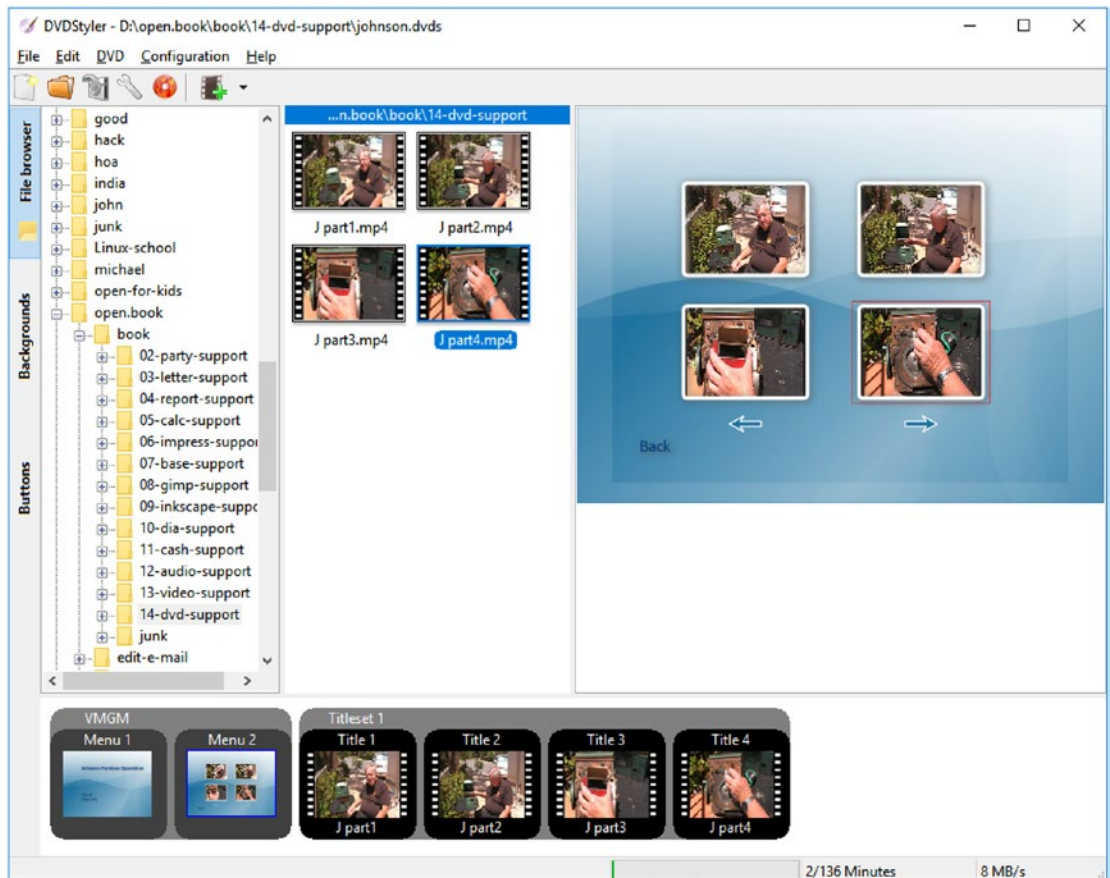
Figure 14-7. *Completed project*

Now is a good time to save your project by selecting File ➤ Save, as shown in Figure 14-8.
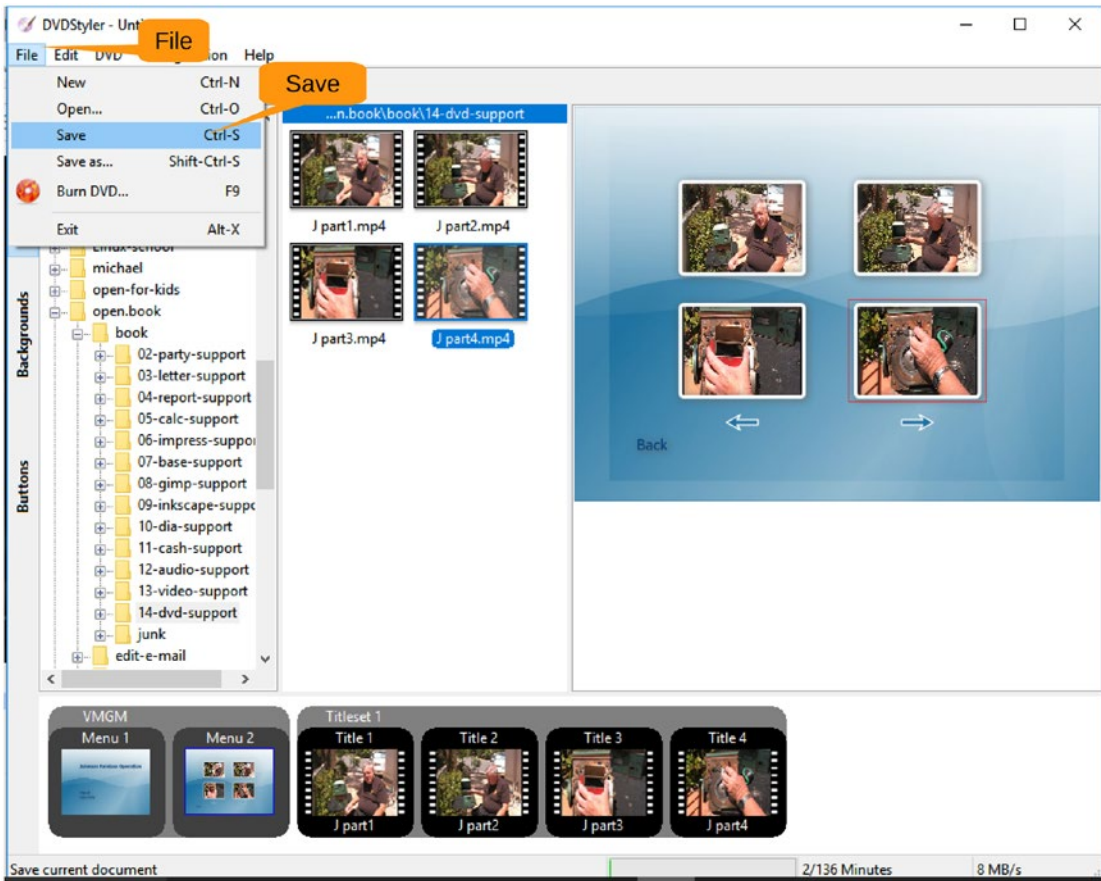
Figure 14-8.   *Final project*

Now let's create the DVD by selecting File ➤ Burn, as shown in Figure 14-9.
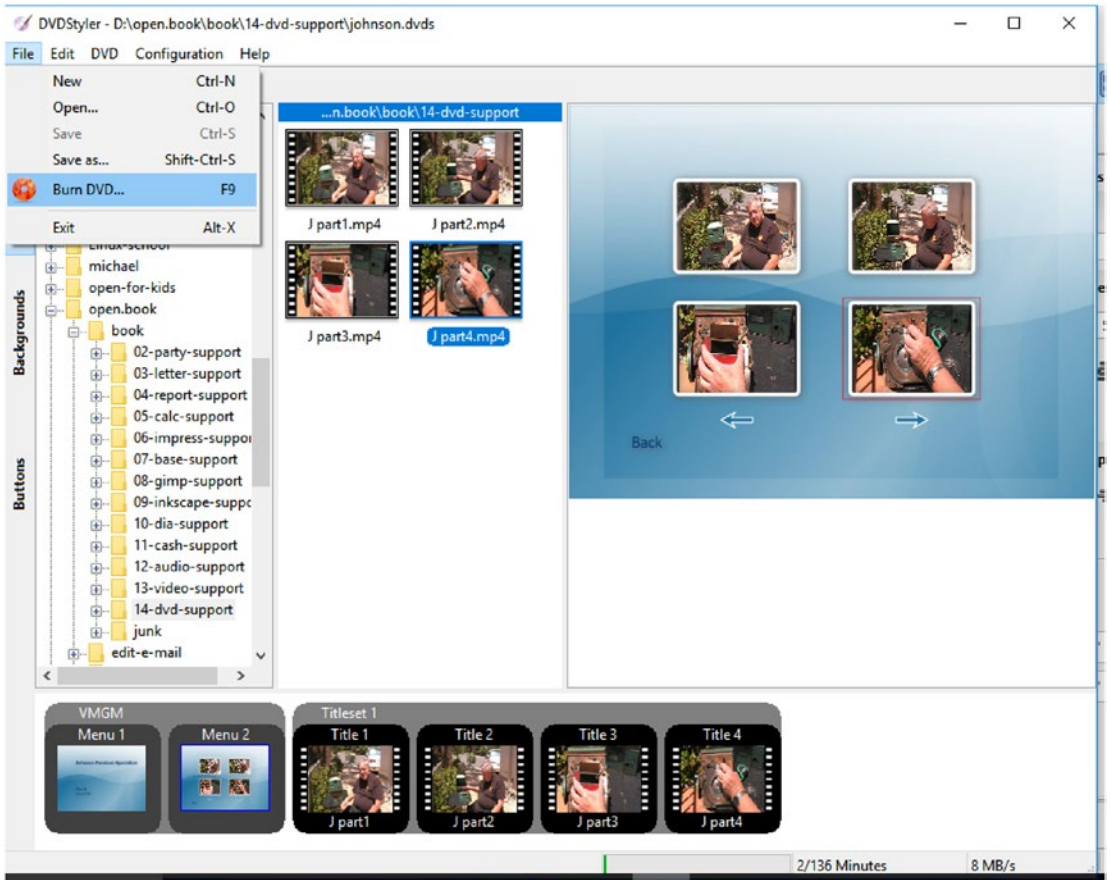
Figure 14-9. Burning the DVD

The Burn dialog appears, as shown in Figure 14-10. This allows you to create an image file (called an *iso file*) or burn the DVD using an attached DVD burner. In this case, that option is grayed out since we don't have a DVD on this laptop.
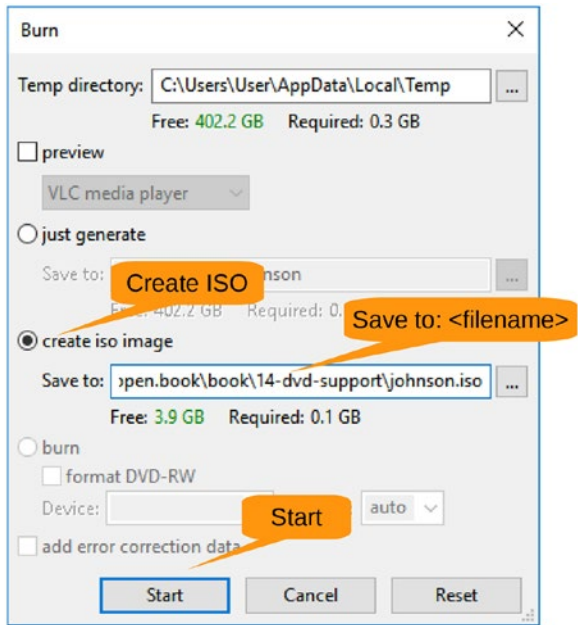
Figure 14-10. Burn dialog

So, for this example, we'll leave "create iso image" selected, put the file name in the "Save to" field, and click Start.

A Generate DVD window appears and displays the progress of the burn, as shown in Figure 14-11. It contains lots of helpful details mostly of use to the developer of this software but not to you. This will take a while, so go for coffee.
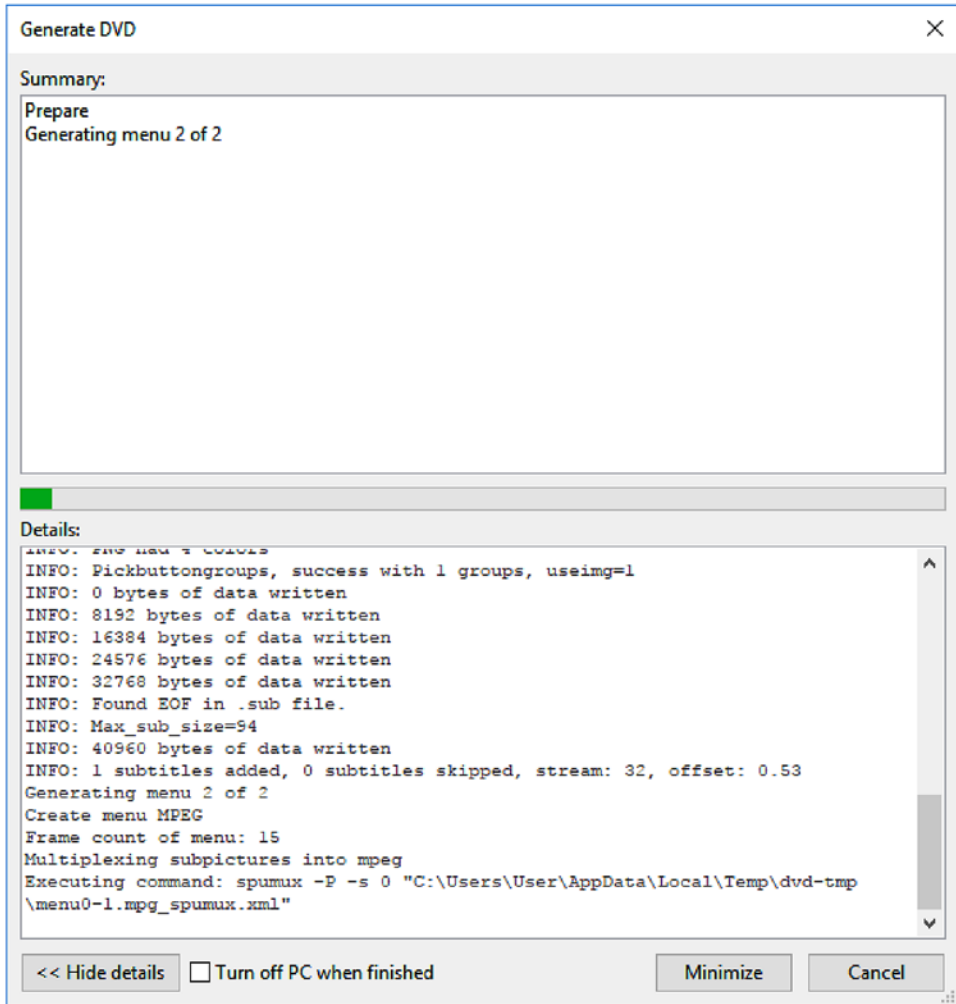
Figure 14-11. *Generate DVD dialog*

We see you're back from coffee. Don't spill it on the keyboard. If you took long enough, the DVD generation is finished, and you'll see a message on the bottom indicating success, as shown in Figure 14-12. Close the dialog.
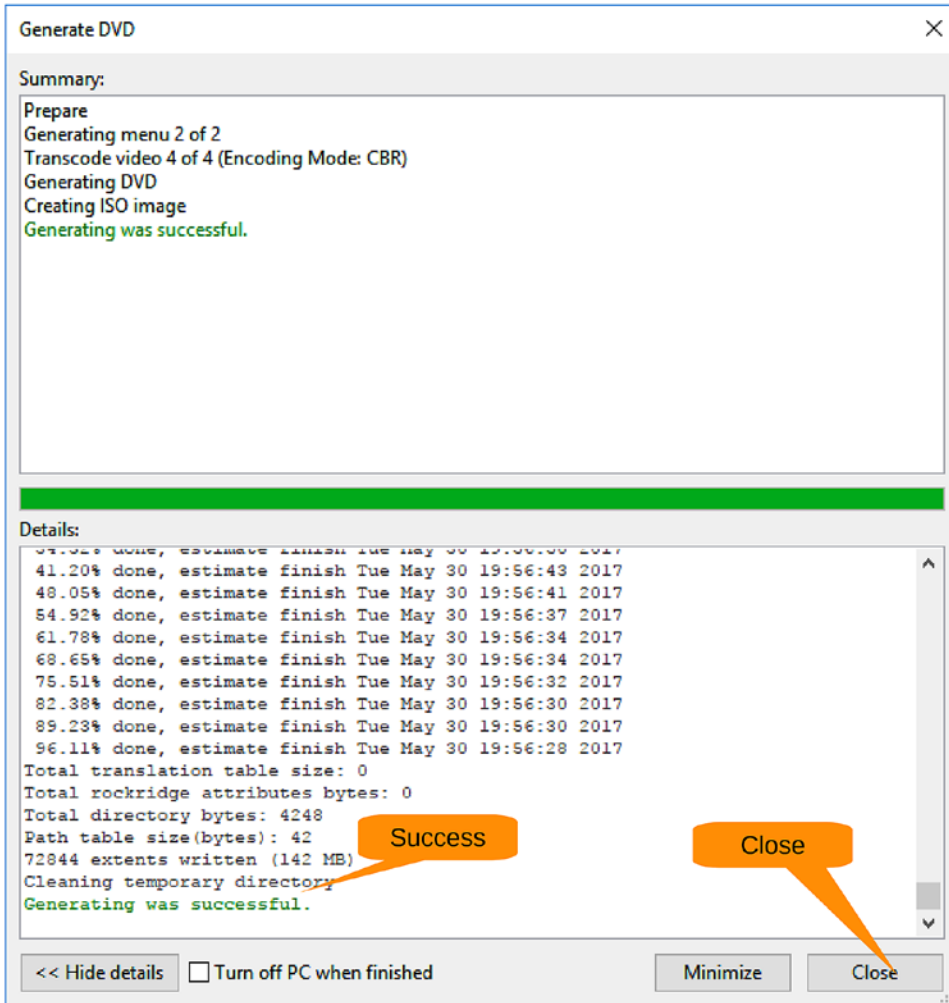
Figure 14-12. Success

Summary

DVDStyler is a good tool for making basic DVD videos. There are more advanced authoring tools out there, such as DVDAuthor, but they have steeper learning curves that must be overcome to work them. DVDStyler has a nice balance between features and usability that should satisfy most users.

PART III

Cloud-Based Services

In 1995, Sun Microsystems had a "brilliant" idea. Back then, computers cost $500 to $10,000, and this was when $500 was a lot of money. Putting a computer on the desk of everyone in an office was a considerable expense. So, Sun created the idea of a *thin client*, which is a small computer with just enough CPU power to connect to a big server. The thin client would handle the display and the keyboard, and the big server would do all the work. That way, Sun would sell lots of big servers.

It was an idea ahead of its time...way ahead of its time. No one wanted to spend the money for the big servers and for the people to keep the big servers running, so Sun's idea never caught on, that is, until Google had a similar idea. Google realized that there is money in data, specifically, data that can be used to help create targeted advertisements. So, Google said, we'll make the big servers and keep them running for you, and all you have to do is give us all your data and let us scan it[1] so we can see what sort of advertisements are best suited to you. Google started with Gmail, a cloud-based mail that you can read through your browser. It followed this up with Google Docs, a word processor; Google Sheets, a spreadsheet program; and other services. Then Google noticed that people didn't need a PC with Windows to access these online servers, so the company encouraged people to use Chromebooks, a minimal laptop with just enough power to browse the Web and use Google's applications. Chromebooks were introduced in 2011, which was 16 years after Sun tried to introduce the idea (and well after Sun went out of business).

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[1]If you read the click-through license agreement that comes with your Google account, it says Google can do automated scanning. Google's employees can't manually read your documents, but its robots can, provided all individual identification is removed.

Cloud vs. Local Applications

The advantage of cloud services is that your data is available wherever there is an Internet connection. The disadvantage is that if you have no Internet connection, you have no data.

The cloud lets several people work on the same document or spreadsheet at the same time. We're not sure whether that is good or bad. We've seen documents written by a group of 15 engineers, and they would have created something better and faster if they had gotten rid of 12 of them.

Cloud-based applications suffer from three difficulties. First, they have to download a set of program files to your computer every time they run. Second, to keep these program files a reasonable size, they generally don't have as many features as their local counterparts. Finally, another issue is that your data is in the hands of someone else. That someone else could pull the plug at any time, leaving you with nothing. (Needless to say, frequent backups are highly recommended.)

Cloud-based applications are great for educational environments. They make sure that all the students share their homework assignments with the teacher, and no one has to turn in anything on paper, saving countless trees.

For business, the security and document control policy of cloud-based applications may prohibit some people from using them. Some companies, such as defense contractors, do not permit employees to have an Internet connection at work.

We've found the cloud to be good for mail (Gmail) because Google's analytical abilities help keep spam out of inboxes, and it allows you to get e-mail pretty much everywhere. You can also use Google Sheets to track personal goals, such as your weight, and update your weight history using a PC or Android phone. Whatever you decide, there are lots of free cloud-based and local open source applications to do these kinds of tasks. All you need to do is pick the one that works best for you.

CHAPTER 15

Using Gmail

Gmail is Google's free e-mail program. The major reason we use is because it is great at eliminating span. Also, it's free, it works well, and you don't have to set up your own mail server to use it.

In this chapter, we will cover the basics of using the system as well as the use of the "star" flag for important messages. We'll also discuss the tagging system, which allows you to organize your e-mails so you can make sense of all the messages you get.

Security is also a major concern. The best way to keep yourself secure is to avoid anything that may compromise your system. We will discuss some of what these are. As part of the effort to keep you safe, we'll take a look at a new Gmail feature called Authentication for Verified Senders, which tries to make sure that the person you are talking to is who you think he is.

Getting Started with Gmail

To begin using Gmail, go to http://gmail.google.com. The start screen gives you the option to sign in if you have an account or create an account if you do not, as shown in Figure 15-1.
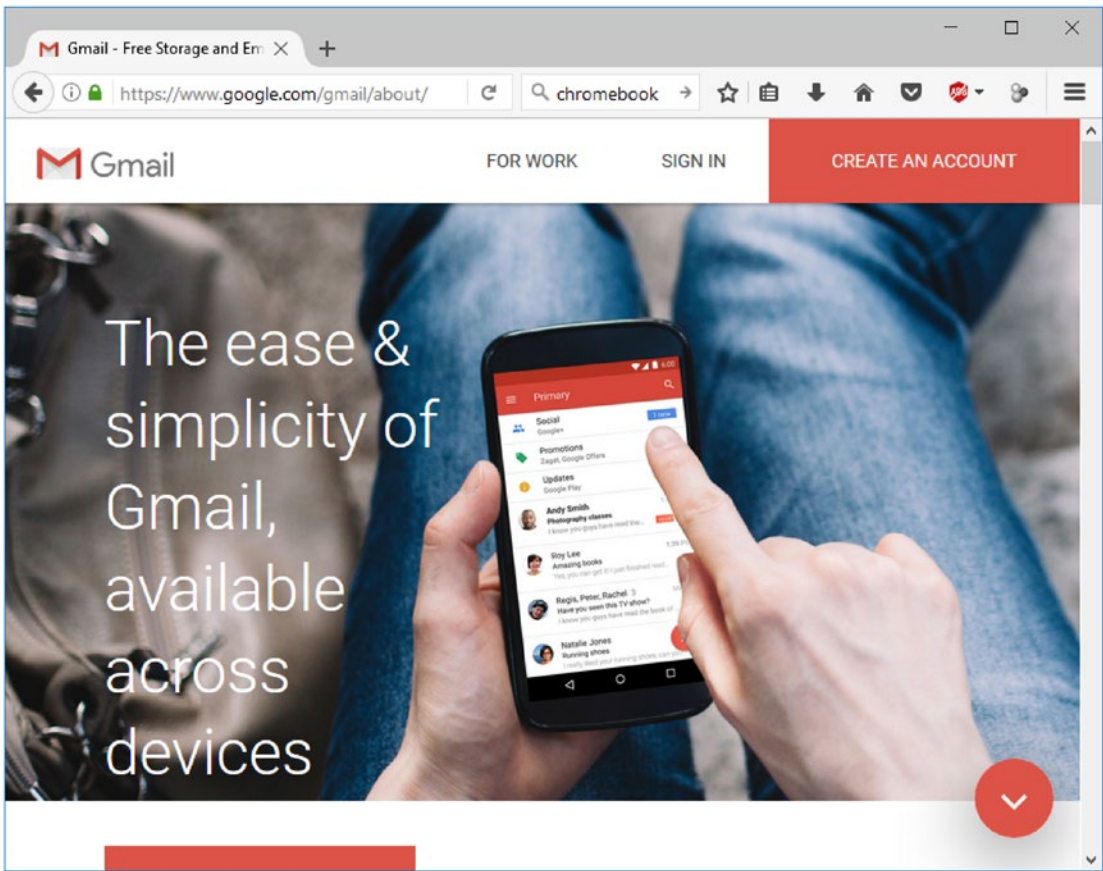
Figure 15-1. *Gmail start screen*

After signing in, the top-level screen will appear, as shown in Figure 15-2.
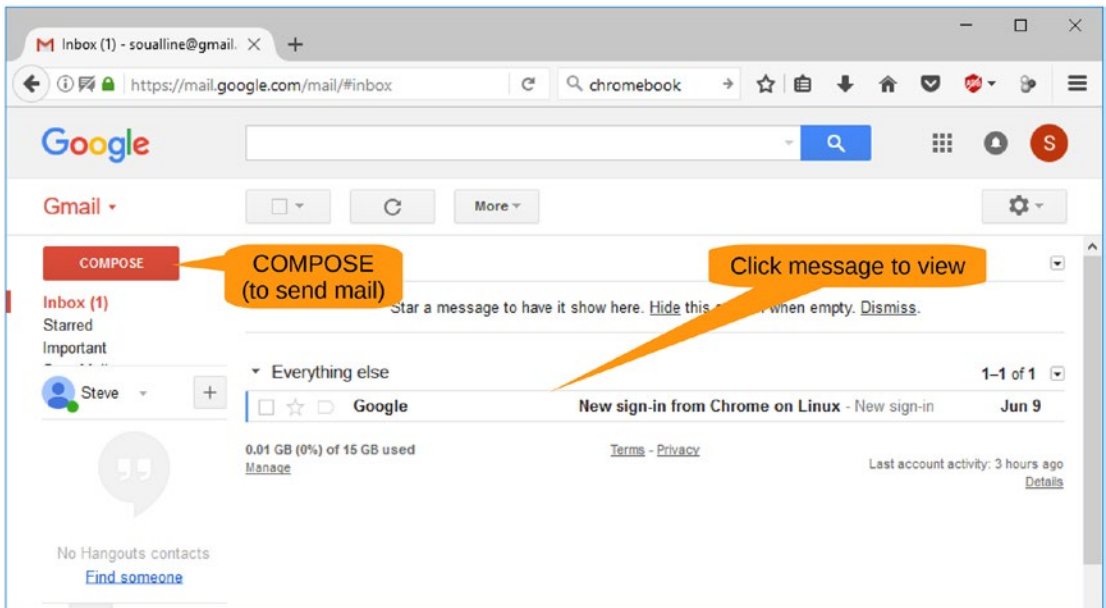
Figure 15-2. Gmail top-level screen

To send an e-mail, click the Compose button. To read an e-mail, click the e-mail.

Go ahead and click Compose to send a message to yourself. The new message dialog appears, as shown in Figure 15-3.
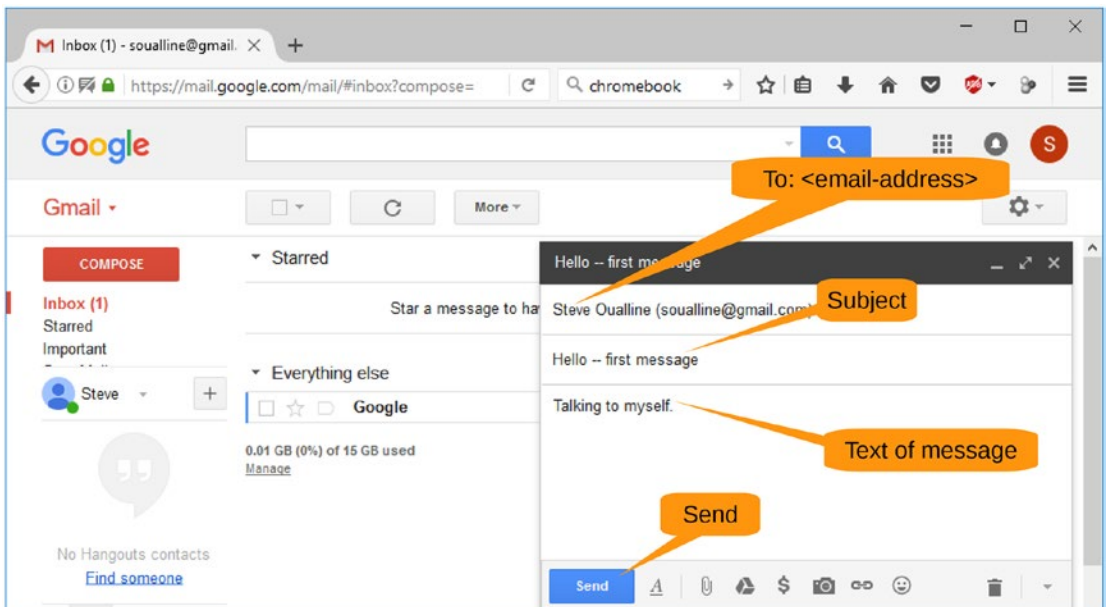
Figure 15-3. New message

First, you fill out the e-mail address of the person getting the message. Next, you add a subject line and some text and click Send to send the message. The message will appear in your Inbox, as shown in Figure 15-4, although it might take a couple of minutes.
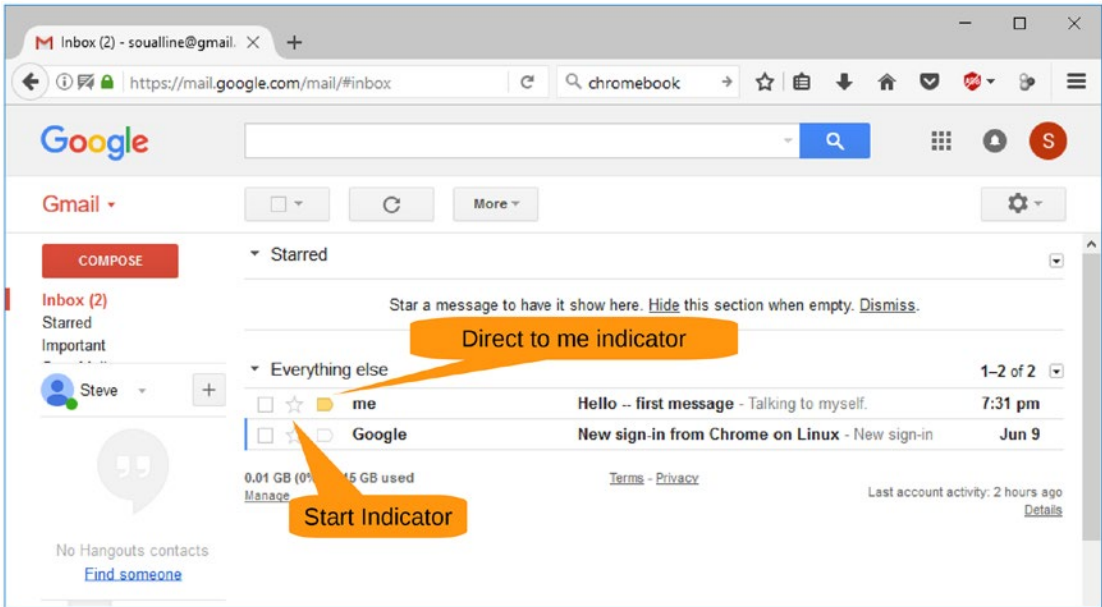
Figure 15-4. *Message received*

There is a little icon next to the message indicating that it is a personal message. If it is an important message, you can mark it as important by clicking the star next to the message. When you click Refresh, the message jumps up from the bottom section to the first where all the important messages go. Figure 15-5 shows you what's important and what's not.
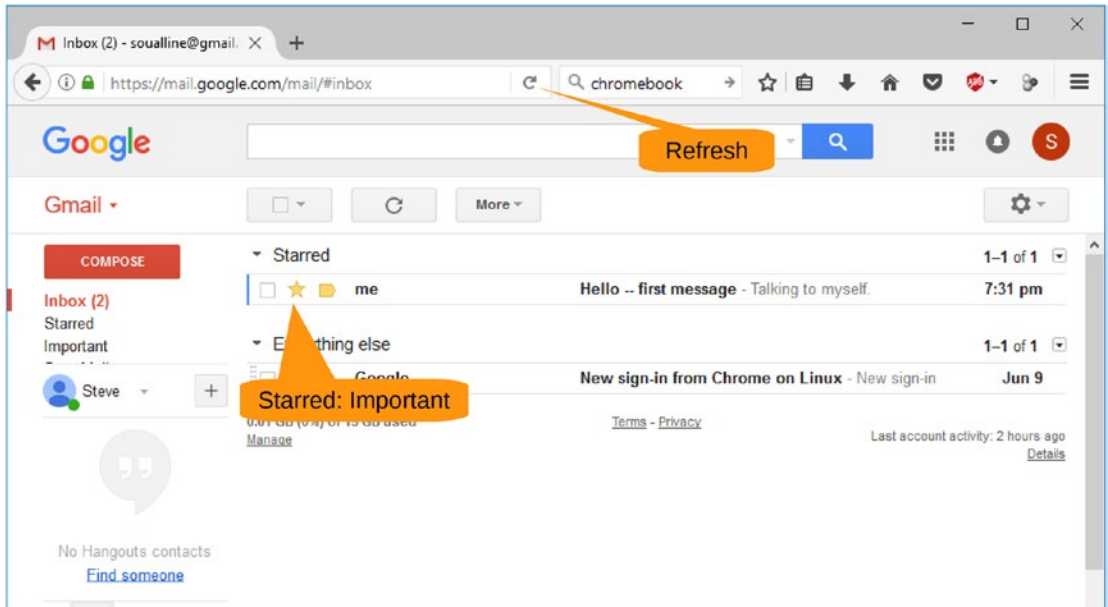
Figure 15-5.   Important message at the top

Tagging Messages

One of Gmail's nicer features is the ability to tag messages. A message can have multiple tags. A message might be tagged Personal and Travel, for example. In this example all our messages are tagged with Inbo". Let's take the first one and move it to the Personal tag, thus removing it from Inbox.

Select the check box next to the message, click the Move To icon, and select Personal following the guide in Figure 15-6.
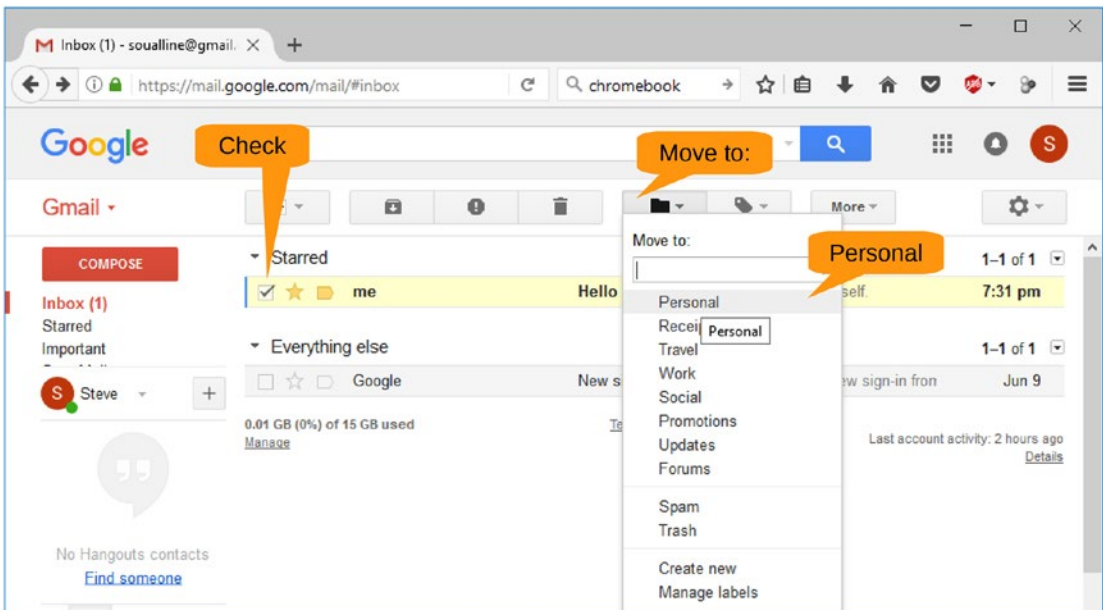
Figure 15-6. *Tagging something as Personal*

Figure 15-7 shows you that the message has disappeared and that the Personal tag now has one unread message in it. Click Personal to see all the messages associated with that tag.
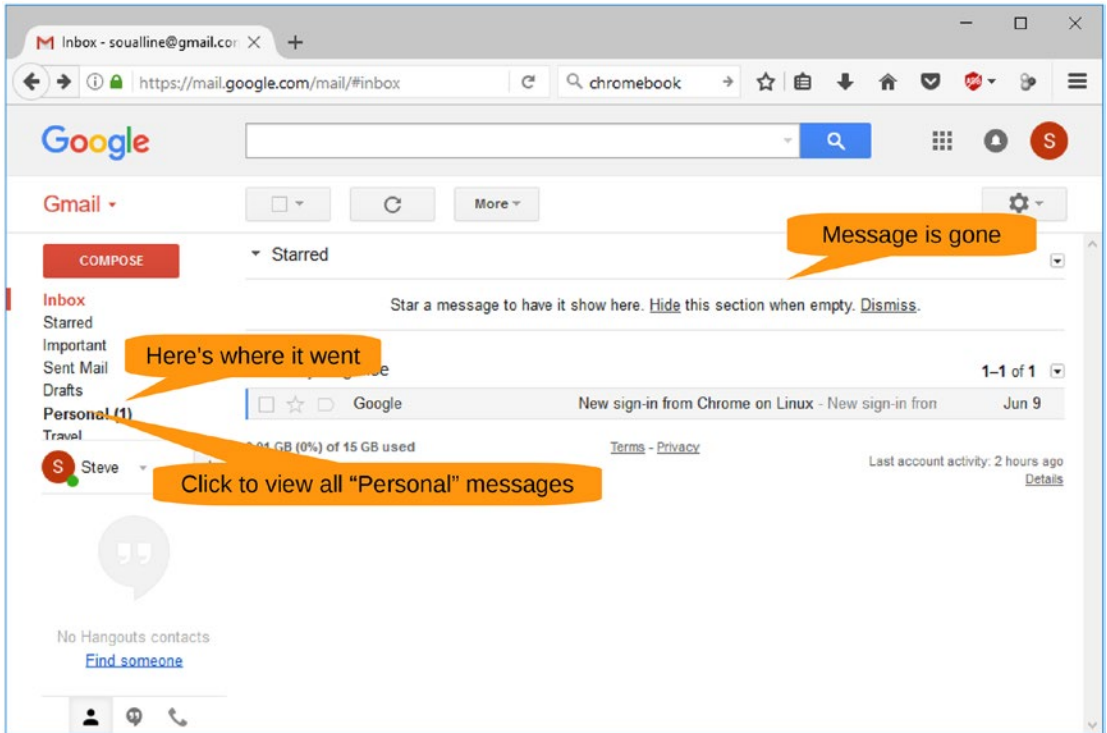
Figure 15-7. *After moving the message*

Figure 15-8 shows the result of clicking Personal.
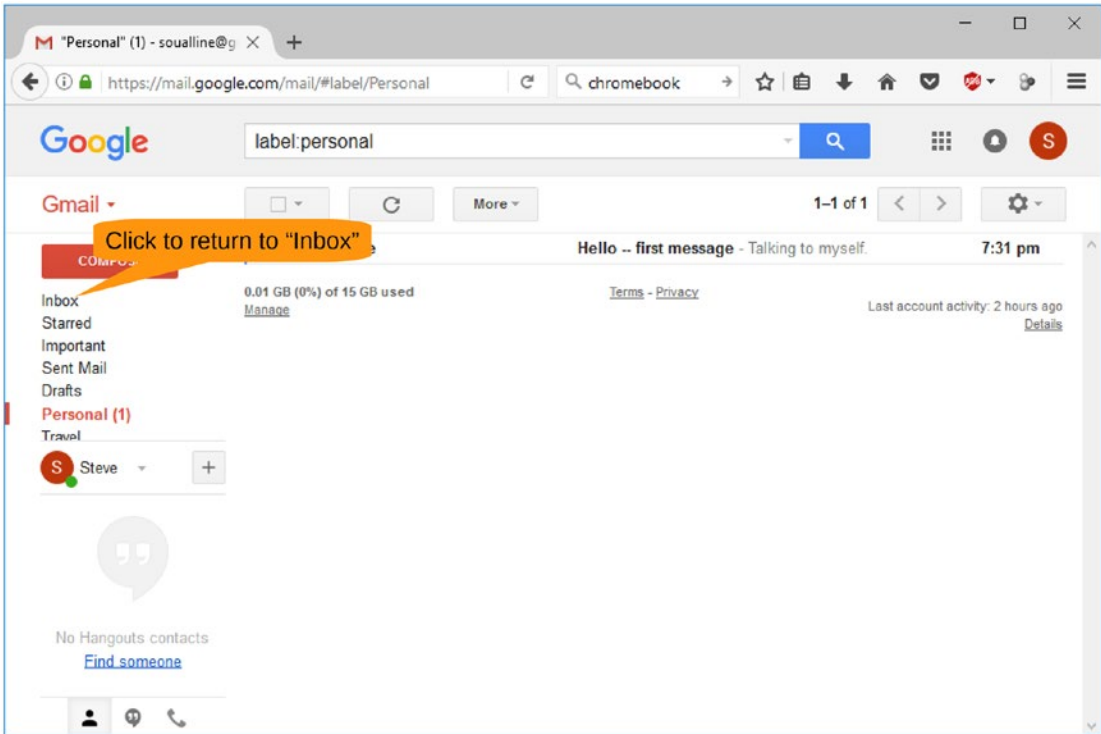
Figure 15-8. *Personal messages*

Making Sure Your Email Is Secure

E-mail is one of the most common ways that you will be attacked by hackers. That's because it's easy to send and easy to forge. A hacker will try to get you to do one of the through e-mail:

- Download and execute a program.

- Click a link where you can enter your account name and password to an online account or other personal information.

- Send them personal information.

- Transfer money to a company or account.

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A typical e-mail scam will appear to be a message from eBay indicating that your account have been frozen until you go to a given web site and update your account information. The web site might even have eBay in its name, such as `ebay.scamartist.com`. If you click the link, you'll see an eBay logo and a familiar looking sign-on page. This is run by the scammer who will use the information you provide to take over your account and ripoff as many people as he can before your account is really susupended.

John Podesta fell victim to a scam of this type. He got en e-mail from a scammer claiming to be Google and asking him to go to a web site and enter his e-mail and password. This is resulted in the raiding of his e-mail account and the publishing of many of his e-mail messages in the national new media.

Google tries to keep you safe from the most common scams, but the hackers are always coming up with new ones. Good safety practices mean that you should follow these tips:

- Never click a link inside an e-mail. If eBay or Google asks you to do something to your account, enter company's address in the address bar of your browser.

- Never run a program that arrives in an e-mail unless you both know the person sending it and are expecting the program.

- Never undertake any financial transaction based solely on an e-mail, no matter who it is from. Confirm everything using a method such as phone or fax that does not involve e-mail.

Authentication Icon for Verified Senders

To help cut down on the illegal e-mail traffic, Google has implemented an experimental features called Authentication icon for verified senders". When you turn this feature on, messages from certain senders will be displayed with a little "key" icon indicating that they came from a verified sender.

Warning   Do not rely on this feature to be 100 percent authoritative. Any authentication system can be fooled. Also, this feature is experimental. It may go away at any time.

To enable this feature, click the Settings icon and then select Settings from the menu, as shown in Figure 15-9.
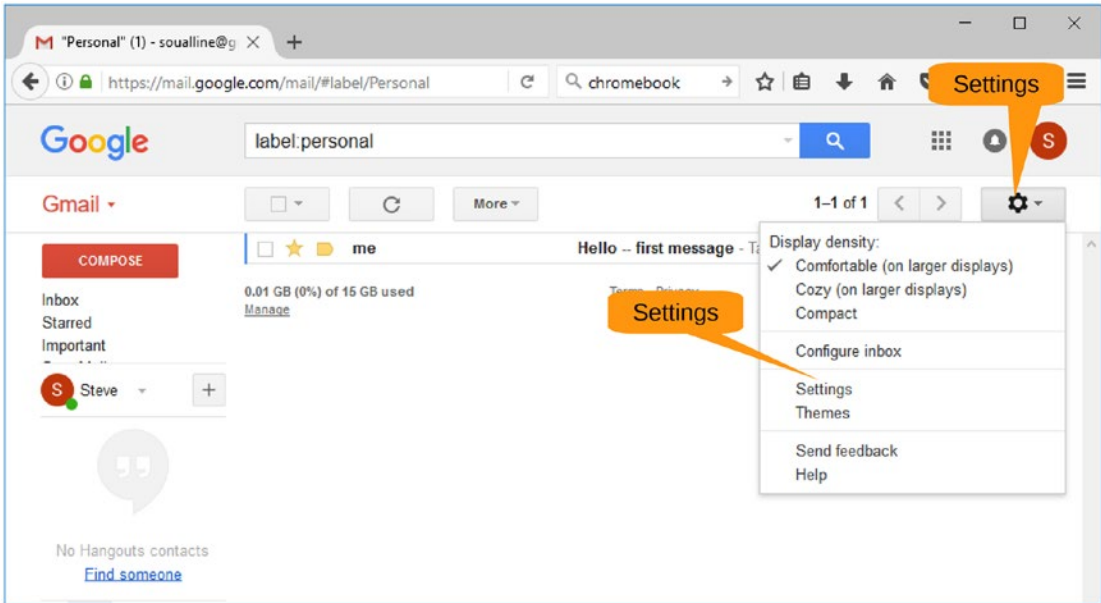
Figure 15-9. *Opening Settings*

Now select the Labs tab, scroll down, and click Enable for the "Authentication icon for verified senders" setting, as shown in Figure 15-10.
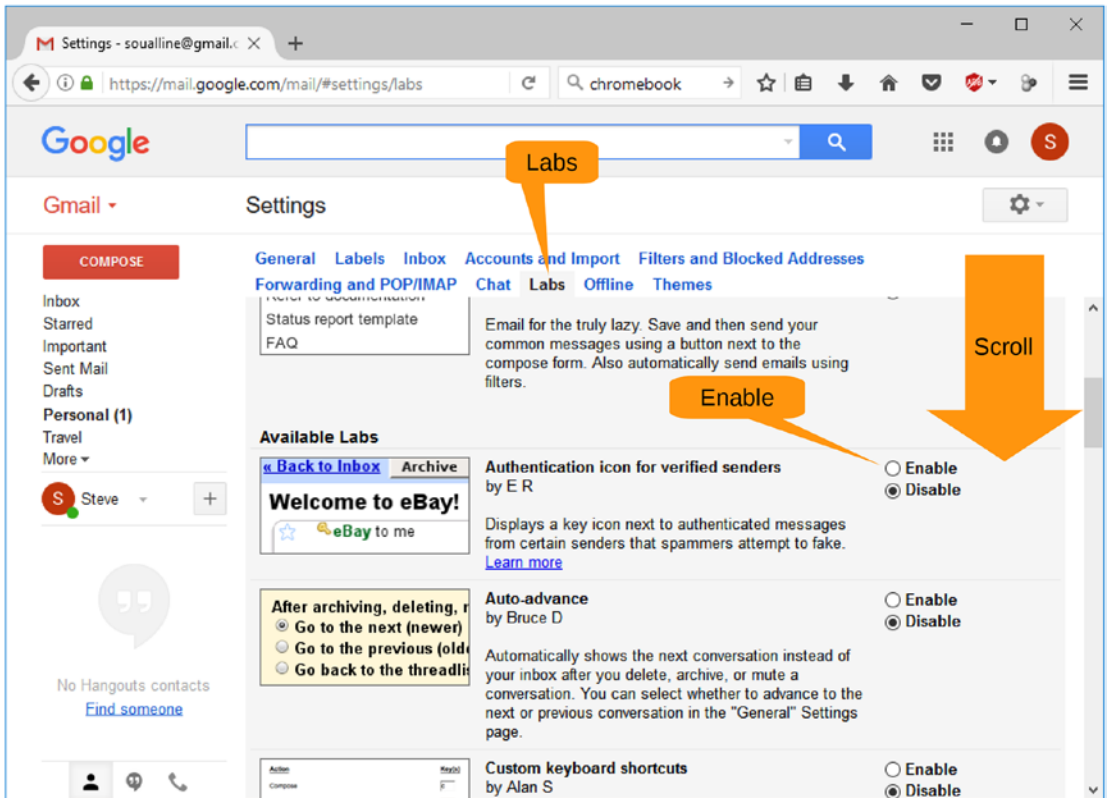
Figure 15-10. *Enabling the "Authentication icon for verified senders" setting*

Summary

Google provides an excellent mail server. Because it is heavily used, Google is continually improving this system and adding more features.

Spend time going through the online help to look for them. These include e-mail filtering, vacation replies, and integration with Android and iPhone phones.

But the major feature of Gmail is that it is a good solid mailer with basic features the are easy to use.

Using Google Docs

Google Docs is an online word processor similar to Microsoft Word or LibreOffice Writer. The major difference is that instead of your files residing on your computer, they reside in the cloud in Google's online storage system (Google Drive).

The main advantage of having your documents online is that they are available to any computer with a browser. The main disadvantage is that if you don't have an Internet connection, you don't have access to your documents. Also, both LibreOffice Writer and Microsoft Word have advanced features not available on Google Docs.

Where Google Docs works well is in educational settings. Students can share their papers with the teacher, and the teacher can add comments to a paper online without having to go to the trouble of actually sharing a physical file. The bad news is that it makes the "Dog ate my homework" excuse impossible.

Although Google Docs does not have all the features you might want in a word processor, it does have enough to create simple documents for school or personal use.

In this chapter, you will learn the following:

- How to get started with Google Docs
- How to create a simple letter
- How to print
- How to share and collaborate
- How to do voice typing

Getting Started with Google Docs

To get started, go to `http://docs.google.com` in your browser. You may need to sign in with your Google account, but you will eventually get to the top-level screen.

Writing a Simple Letter

Let's start by composing a letter. There is a template for letters, so let's click that and start a new document, as shown in Figure 16-1.
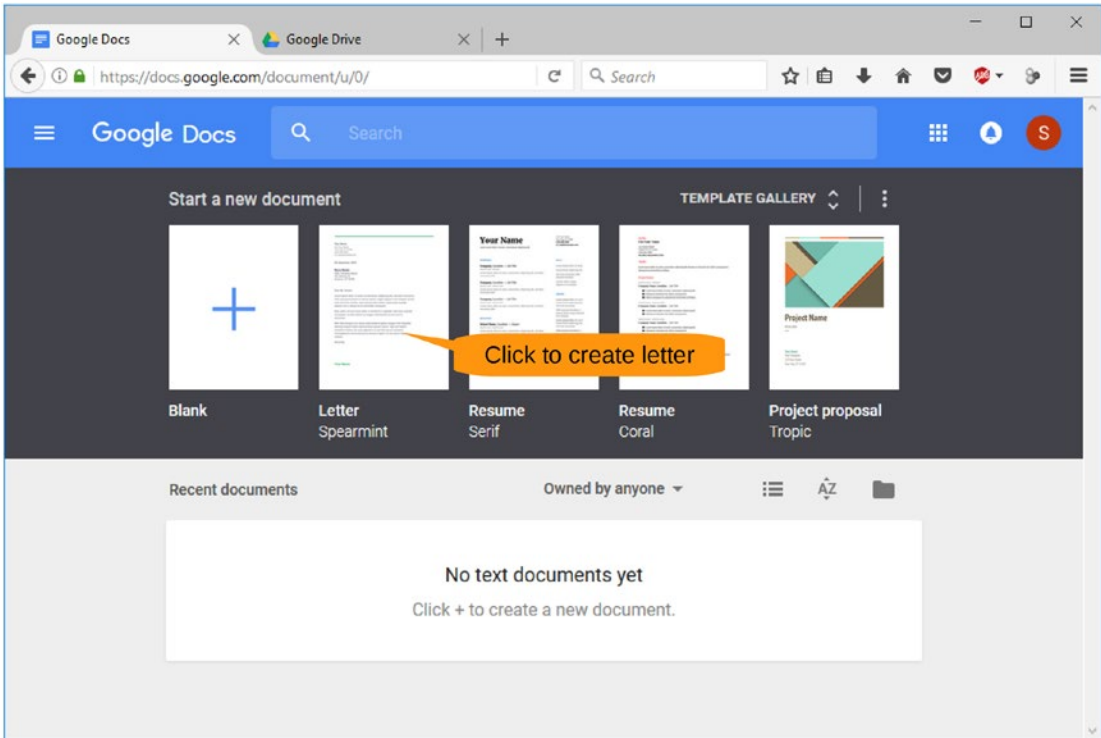
Figure 16-1. *Selecting the Letter template in Google Docs*

The template looks like the document shown in Figure 16-2.
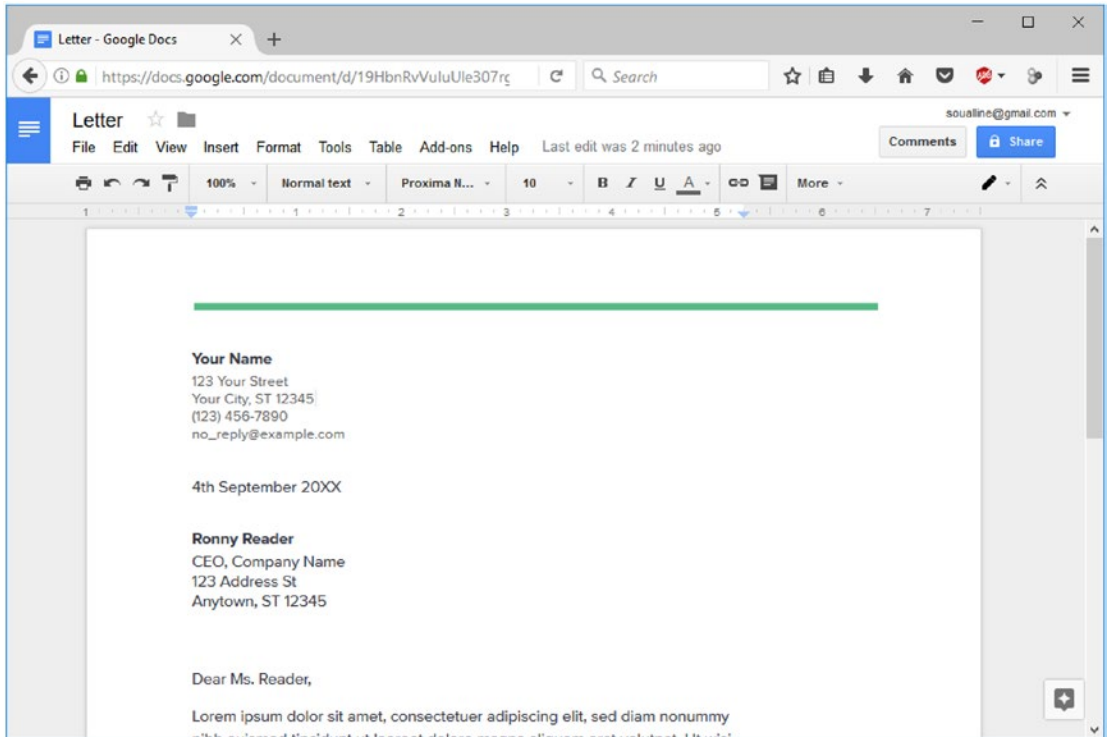
Figure 16-2. Letter template

Now all you have to do is replace the content with your own. Also, the template has rather big margins. You might want to use more of the paper than they let you by default. You can expand the right margin about 2 inches to the right by dragging the right margin indicator to where you want it. This gives you the full width of the document to work in. Figure 16-3 shows a work in progress.
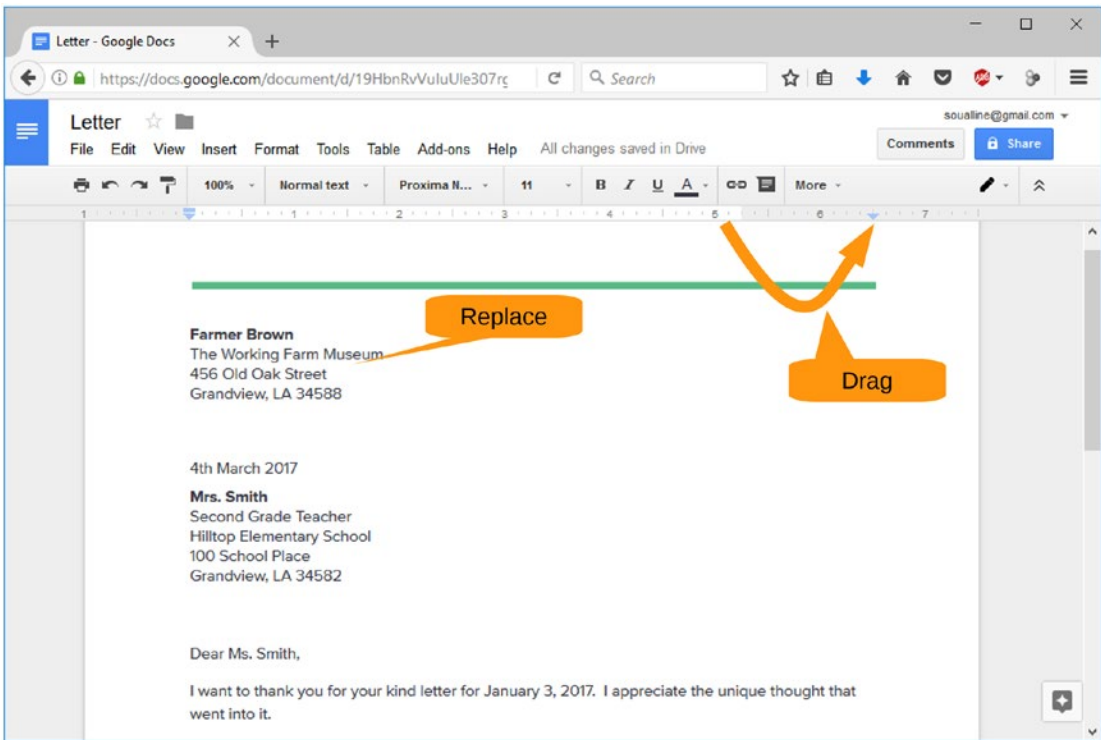
Figure 16-3. *Writing the letter*

Printing

When you're done typing, you may need to print the letter. Unfortunately, printing directly from this document to your printer is not possible. What happens when you select File ➤ Print is that Google Docs generates a PDF file so you can download it. The download dialog, as shown in Figure 16-4, lets you open the PDF in the file viewer. In this example, the file viewer is the one that comes with Windows 8 and Windows 10 called TWINUI.[1]
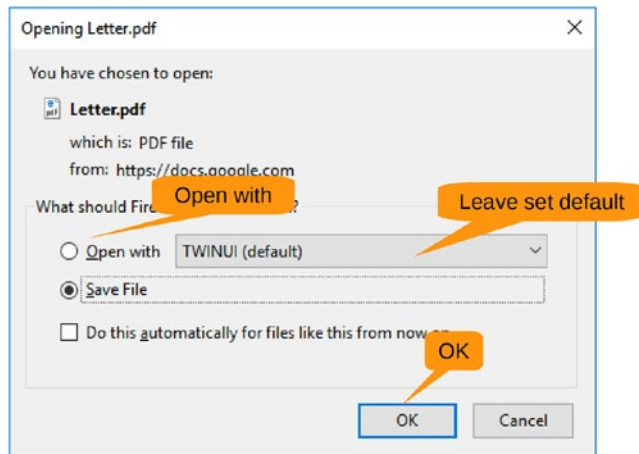
Figure 16-4. *Download dialog*

When the document viewer pops up, you can use it to print the document. Figure 16-5 shows our example letter.

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[1]This stands for Tablet and WINdows User Face. (It's a name only a programmer could love.)

Farmer Brown
The Working Farm Museum
456 Old Oak Street
Grandview, LA 34588

4th March 2017

Mrs. Smith
Second Grade Teacher
Hilltop Elementary School
100 School Place
Grandview, LA 34582

Dear Ms. Smith,

I want to thank you for your kind letter for January 3, 2017. I appreciate the unique thought that went into it.

Sorry about the restraining order. After I told my attorney about your visit, he somehow thought it would be a good idea.

Anyway we can consider this a learning experience. I'm sure you and your class are learning lots of new words like "criminal negligence", "OSHA regulations", "intentional tort", and "discovery motions".

Farmer John at the Learning Farm has told me of your preliminary visit last week.   I'm sorry the whole class couldn't make it.

I understand that the next time you visit, you promise to set the handbrake on the bus before you part it on the top of the hill. It's amazing that such a small bus could go through a cinder block wall, two barbed-wire fences, and wind up in the duck pond.

Sorry about the loss of all that paint you left in the back for the school project.   I understand from the EPA with your help they have designated the farm a toxic waste emergency site and have closed the place for at least the next three years.

You have not only lived to my expectations, but exceeded them and for that you should be ~~incarcerated~~ congratulated.

Sincerely,

Farmer Brown

Figure 16-5. *Full letter*

Finishing the Document

You probably don't want to call your letter Letter (the default name), so you can rename it by selecting File ➤ Rename, as shown in Figure 16-6.
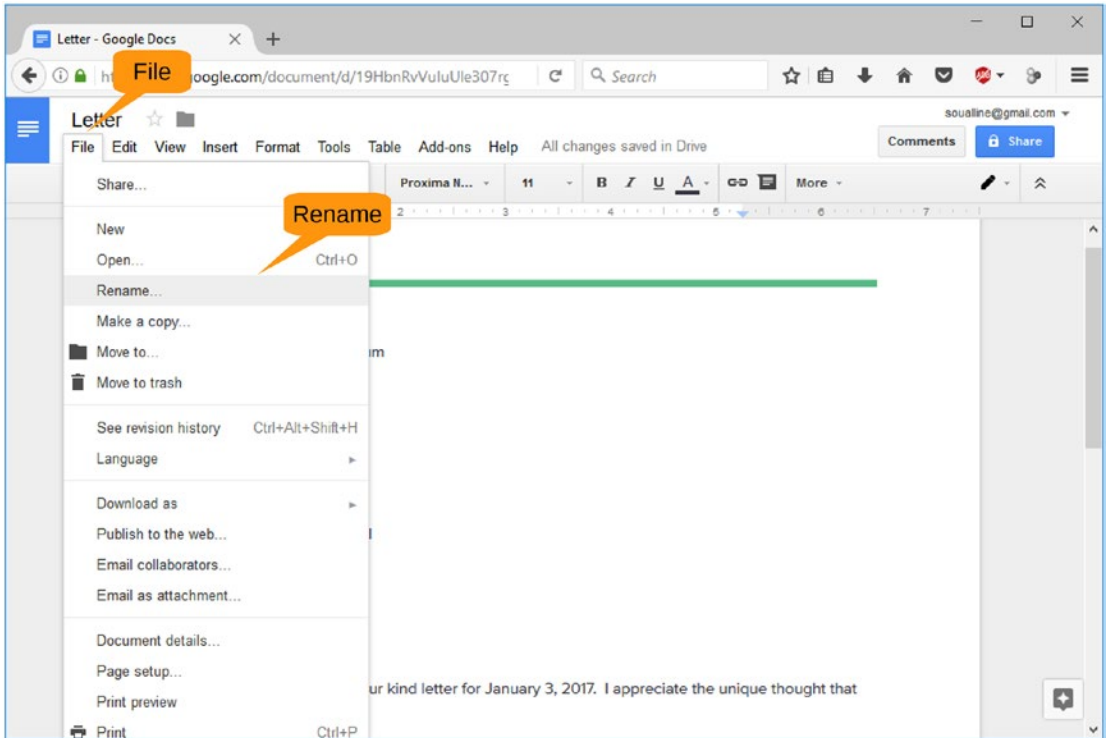
Figure 16-6. *Renaming a file*

The name of the file is now editable, so let's change it to **Hill-1** and press Enter, as shown in Figure 16-7.
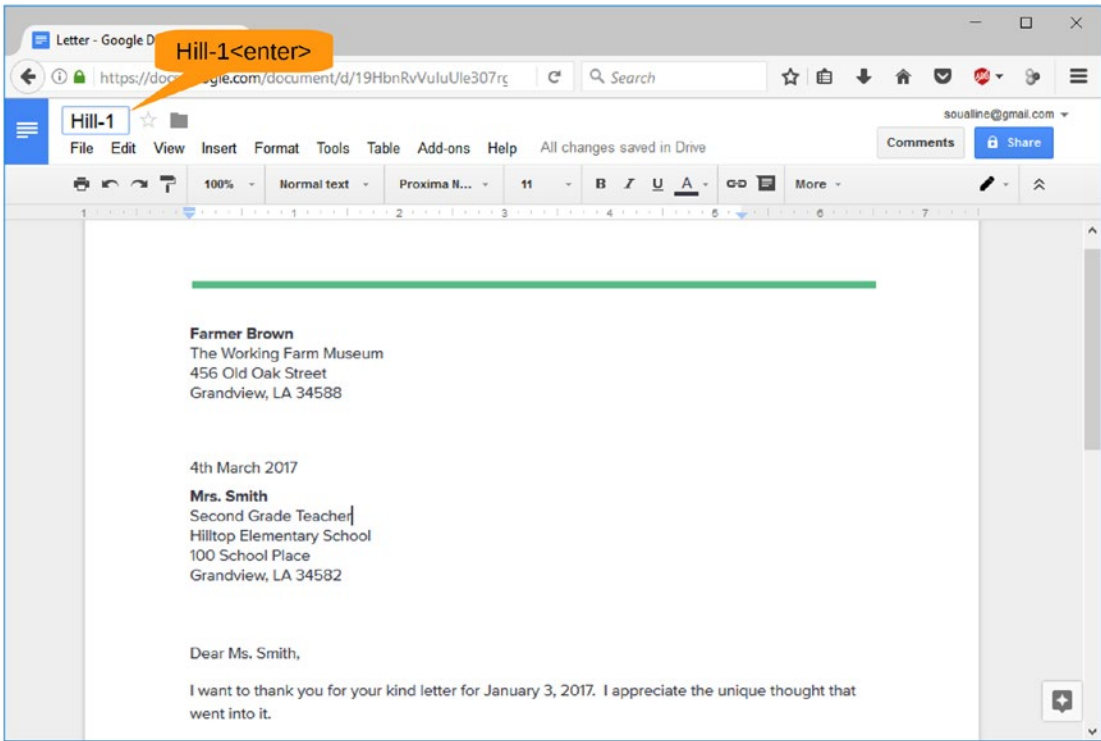
Figure 16-7. *Renaming the file to Hill-1*

Voice Typing

Google Docs has one potentially useful feature that's not available in LibreOffice Writer. The "voice typing" feature uses Google Voice recognition software to do the typing for you...mostly. There is only drawback: it's available only if you are using Google Chrome as your browser.

You can download Google Chrome from `http://google.com/chrome`. The browser has a similar set of features to Firefox. To use voice typing, start Chrome and go to your documents at `http://docs.google.com`. Open your document and select Tools ➤ Voice Typing, as shown in Figure 16-8.
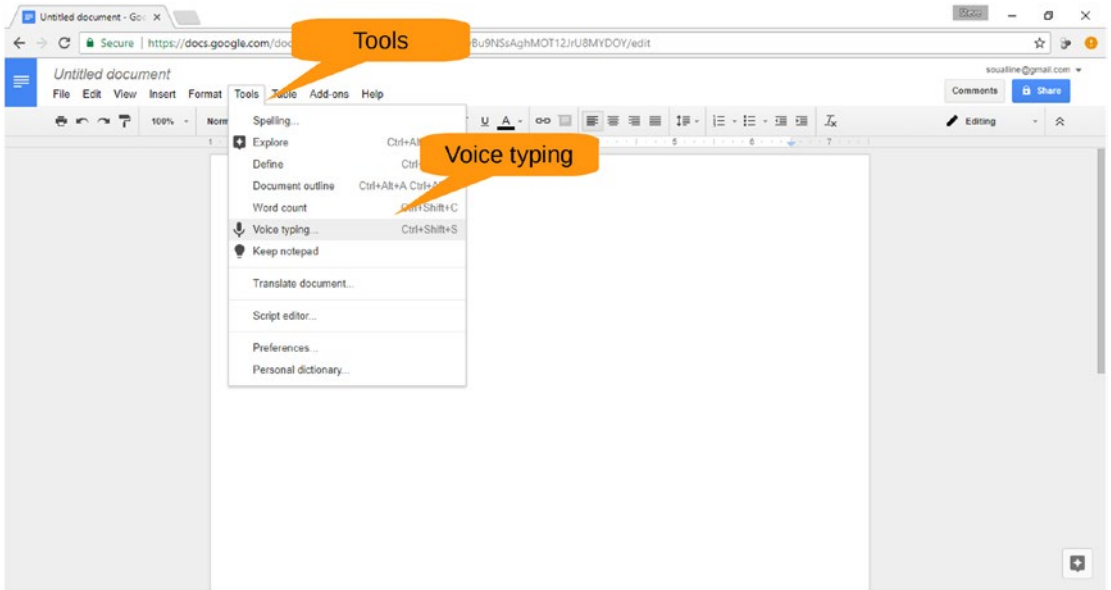
Figure 16-8. *Starting the voice typing feature*

A microphone icon appears, as shown Figure 16-9. Click this icon to turn on voice typing.
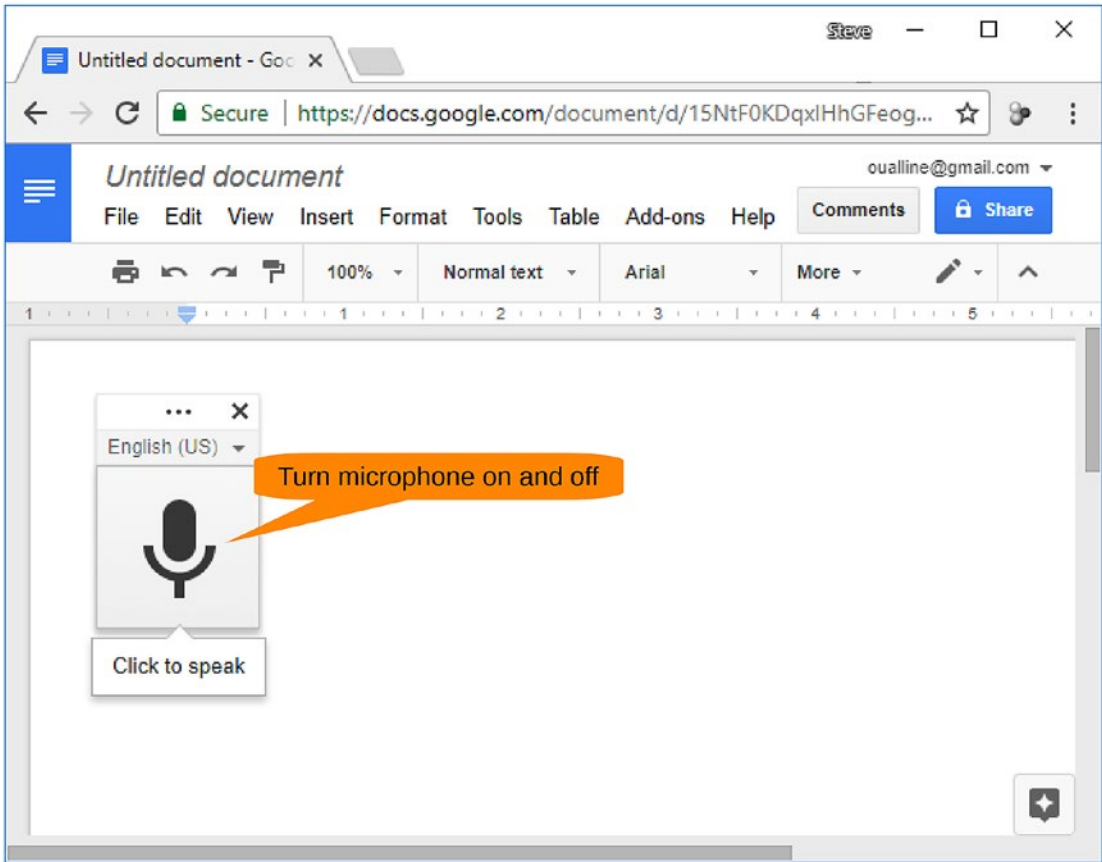
Figure 16-9. *Clicking the microphone icon*

Since you now have voice typing running, you might as well use it to write something. Figure 16-10 shows our result.
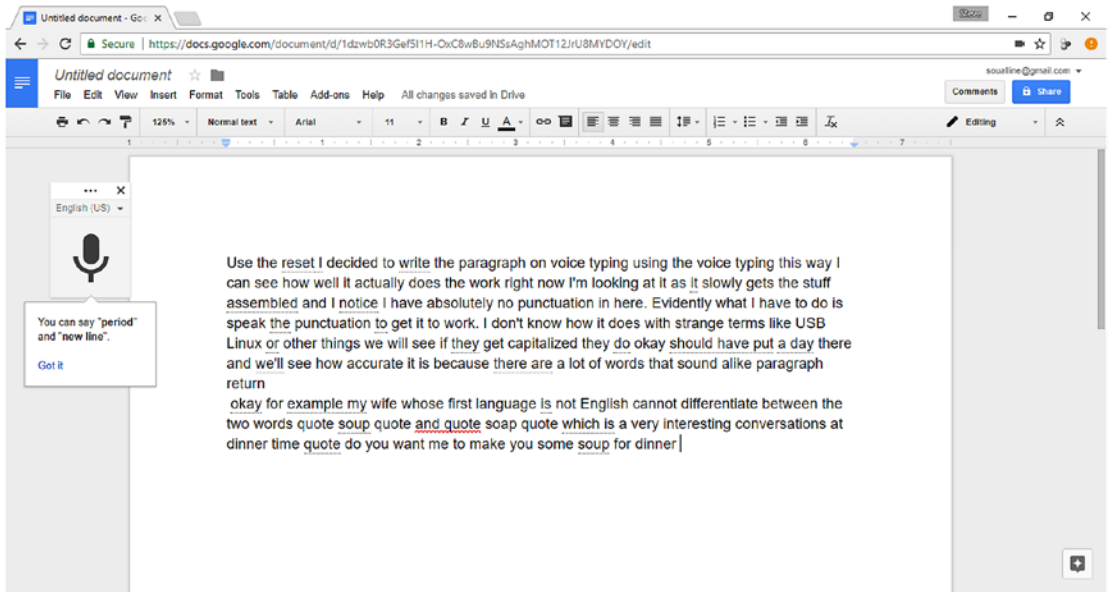
Figure 16-10.   *The result of voice typing*

We learned several things from dictating this paragraph. First, if you stumble over your words, voice typing will faithfully record your stumbles. Second, it transcribes the words, not the implied punctuation. You actually have to say things like "period" and "comma."

Also, to get a new paragraph, you say "enter" and not "paragraph" or "return."

Sharing Documents

As you'll learn more about in Chapter 17, you can share documents with anyone who has an e-mail account and a browser. To share a document, select File ➤ Share, as shown in Figure 16-11.
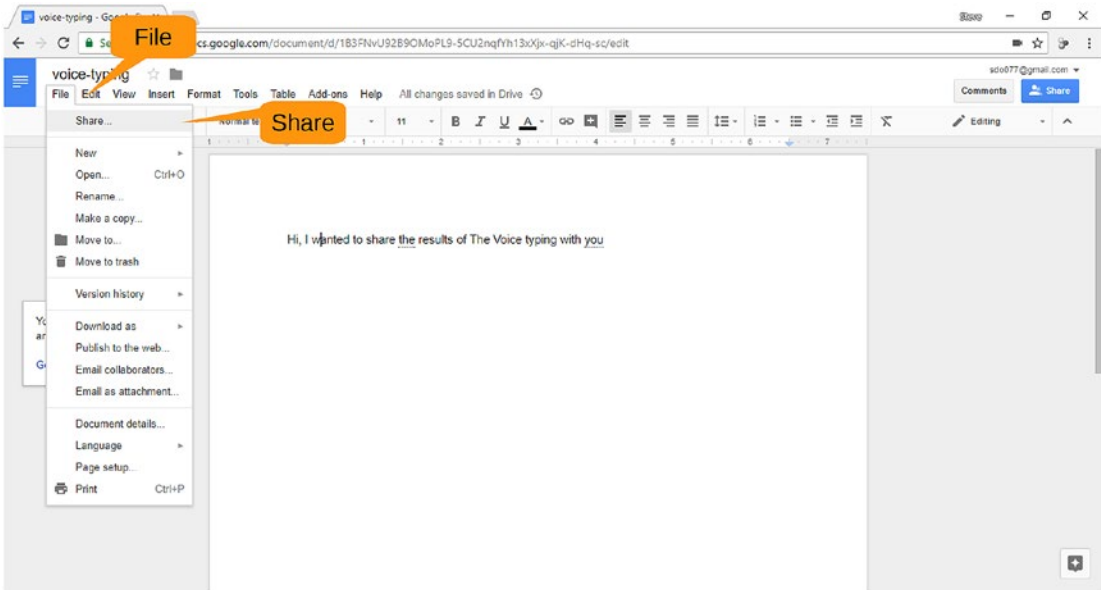
Figure 16-11. *Selecting the Share menu item*

This brings up the "Share with others" dialog, as shown in Figure 16-12. For simple sharing, just enter the e-mail addresses of anyone with whom you want to share the document.
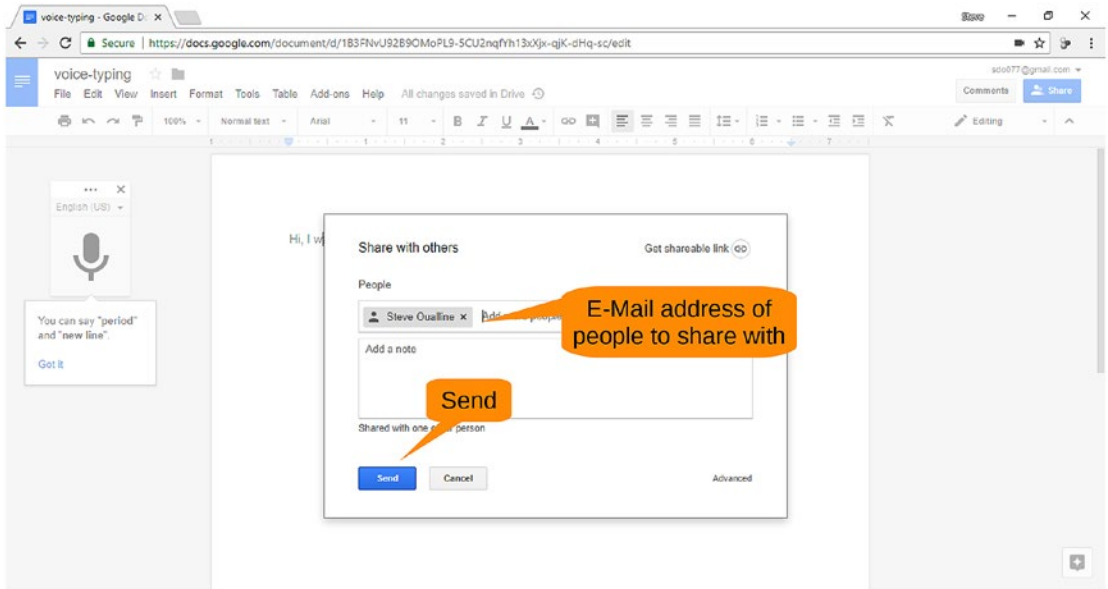
Figure 16-12. *Sharing with others*

When you click Send, Google will send that person an e-mail with a link to your document and give the person permission to perform edits on it. Figure 16-13 shows a typical e-mail.
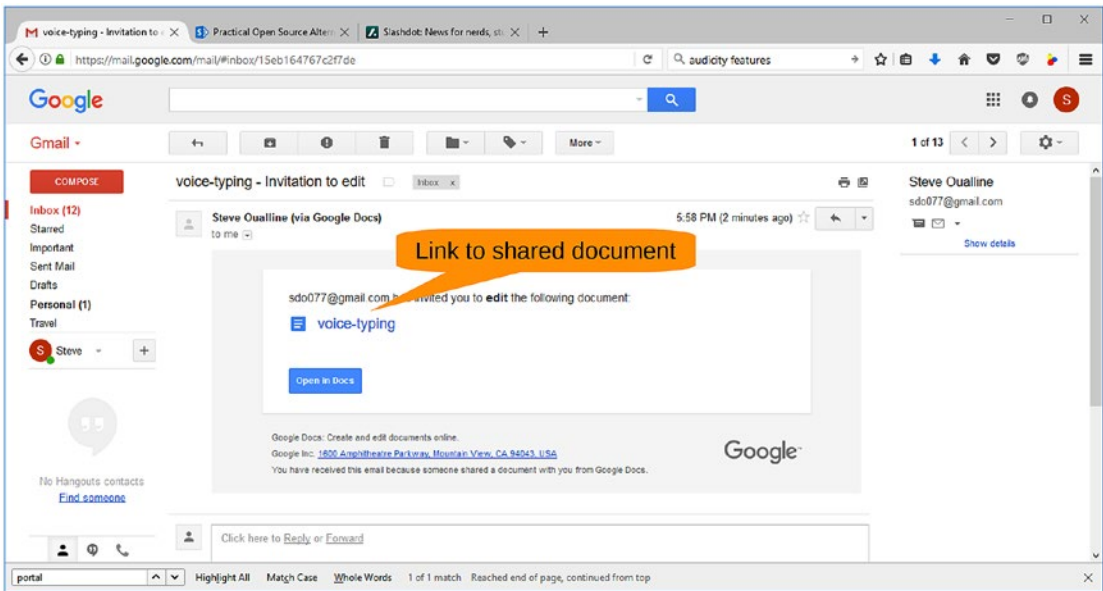
Figure 16-13. *E-mail link*

When the person you shared the document with clicks this link, the document will open in Google Docs allowing the person to edit it. You've still got the document in your Google Drive, so any changes the person makes will show up in your version of the document. This is useful for collaboration where one person writes the document and another corrects it.

Lack of Advanced Features   Google Docs is a good program for writing simple documents. However, it does not have several features that you need for more complex documents such as references, a table of contents, indices, and similar features.

Its advantages are that you can access your documents anywhere there is an Internet connection and that multiple people can work on the same document at once.

Summary

Google has tried to create a cloud-based system to replace Microsoft Office. Google Docs is a nice start, but it has a long way to go. Although it's good for basic documents, it lacks sufficient features to be used for professional work with complex documentation needs.

As for which word processor tool is best, that depends on your circumstances. Google Docs is useful when capturing the initial information. For example, you can use it on your phone to dictate text and then download that text to your local computer for editing with LibreOffice Writer.

Students often use Google Docs exclusively because their schools mandate it. They like the collaboration tools it provides.

So, as to which is the best tool, it all depends on what features you value. There are lots of choices out there, and many of them are free.

Using Google Backup and Sync

Originally Google Drive was just a cloud-based disk drive. It was just like a regular disk drive, except it stored documents in the cloud to make them available to any system with an Internet connection. This also meant that if you didn't have an Internet connection, you didn't have access to your data.

Later Google Drive became Google Backup and Sync. This system lets you have a directory that is replicated across all of your computers and the cloud. This means you have access to your files even if there is no Internet. If you make changes to a local copy, Google will copy it to the cloud version of Google Drive and then to all your other computers connected to the Internet. In other words, it looks to you like you have single shared directory across all your computers.

The advantage of this is that you don't have to keep moving files from system to system to work on them. In our case, this book is stored on a USB drive that moves from place to place. If we had used Google Backup and Sync, we could have all these files stored on all our computers and not worry about forgetting the USB drive when changing computers.

Google Backup and Sync also has the ability to back up your important files. (You select the directory that's important.)

Warning Google Backup and Sync is a free service, and there is nothing you can do if Google decides to turn it off tomorrow. Do not keep your only copy of important data on Google servers.

In this chapter, you will learn the following:

- How to install Google Backup and Sync

- How to share files using a Google Drive folder

- How to back up important folders

- How to share files

Installing Google Backup and Sync

Google Drive has a web interface as well as an application that integrates Google Drive with the Windows File Explorer. Start by going to `http://drive.google.com` and signing in. The initial screen will look different if you already have a Gmail account and have used it in this browser. But after a few prompts, you'll arrive at the screen shown in Figure 17-1.
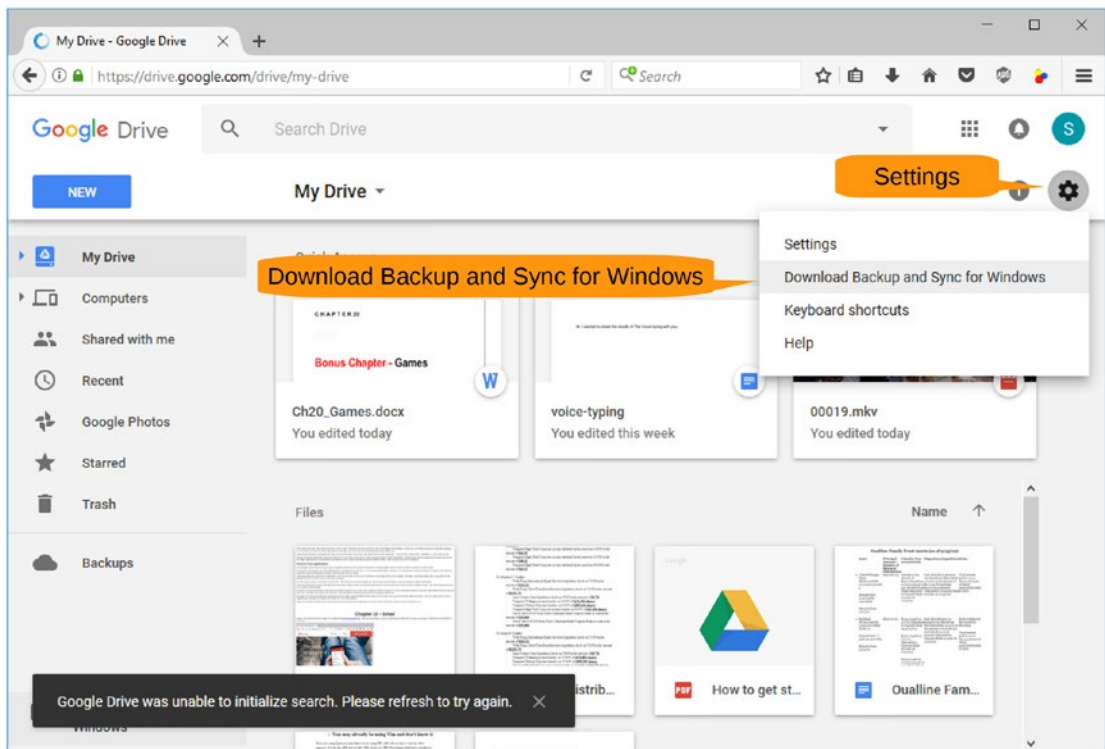
Figure 17-1. *Getting the application*

Now let's get the Google Drive application by selecting Settings ➤ Download Backup and Sync for Windows.

The download page will appear, as shown in Figure 17-2. Click the Download button in the Personal Use section.
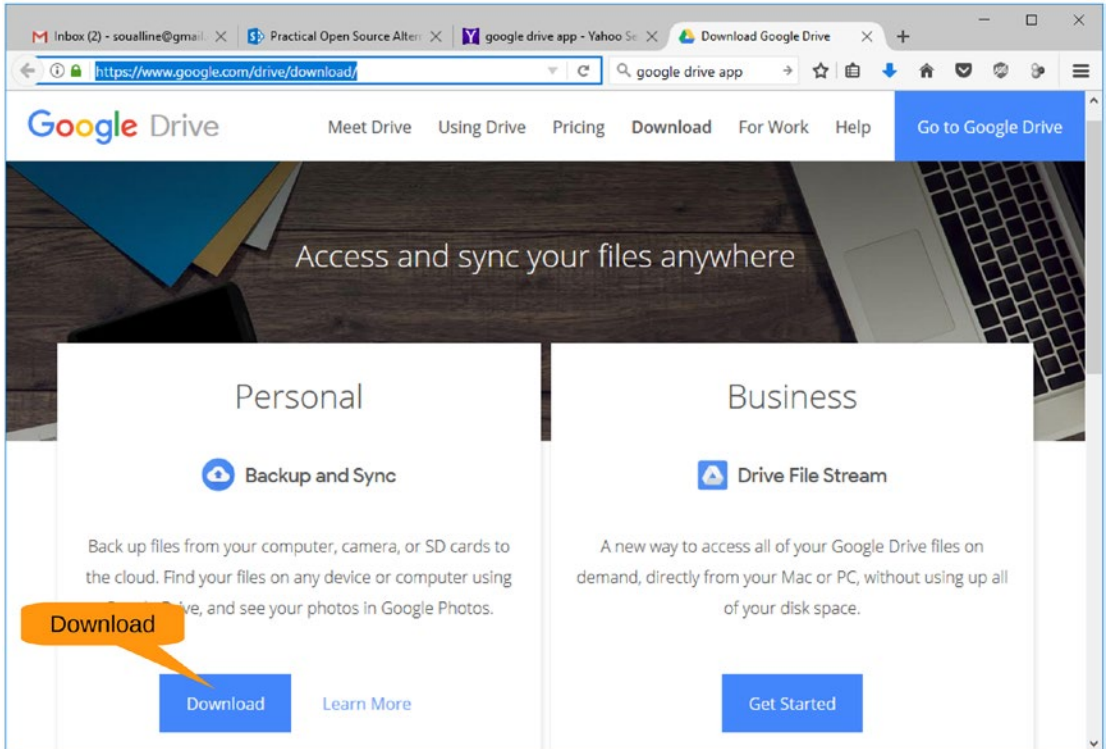
Figure 17-2. Download page

Next you have to agree to the terms of service; once you've done that, the download will begin. After downloading the program, start it by clicking Get Started, as shown in Figure 17-3.
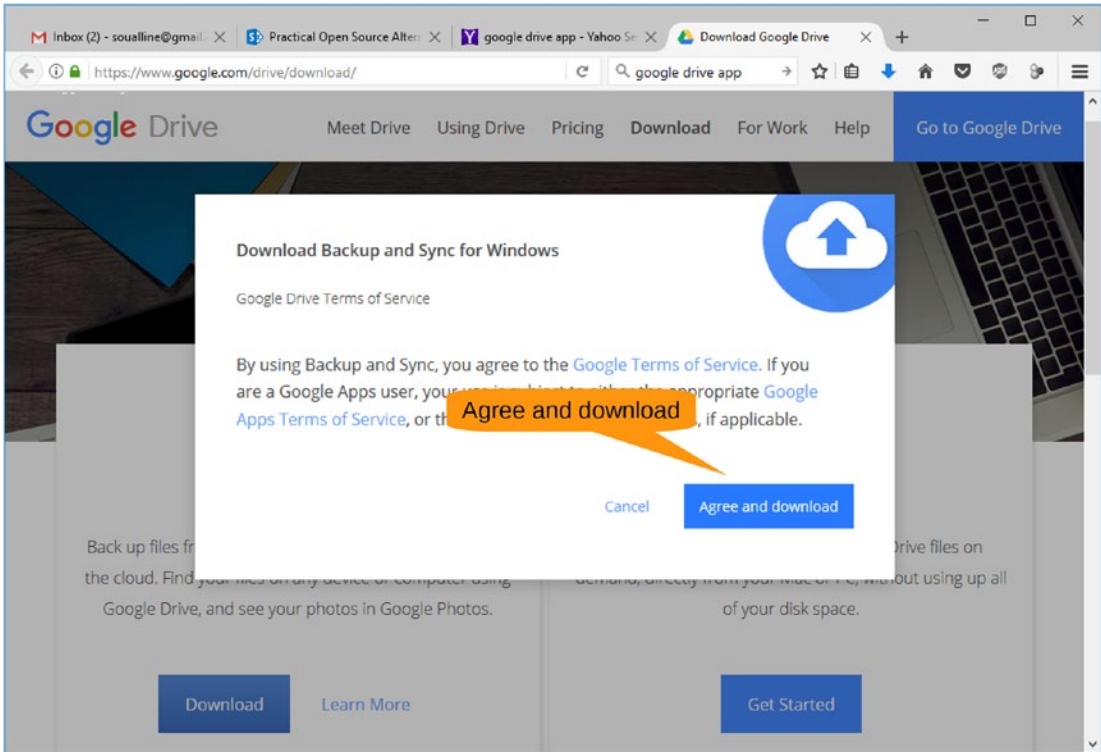
Figure 17-3. *Initial installation window*

If you're not already signed in to Google, you need to do so now, as shown in Figure 17-4.
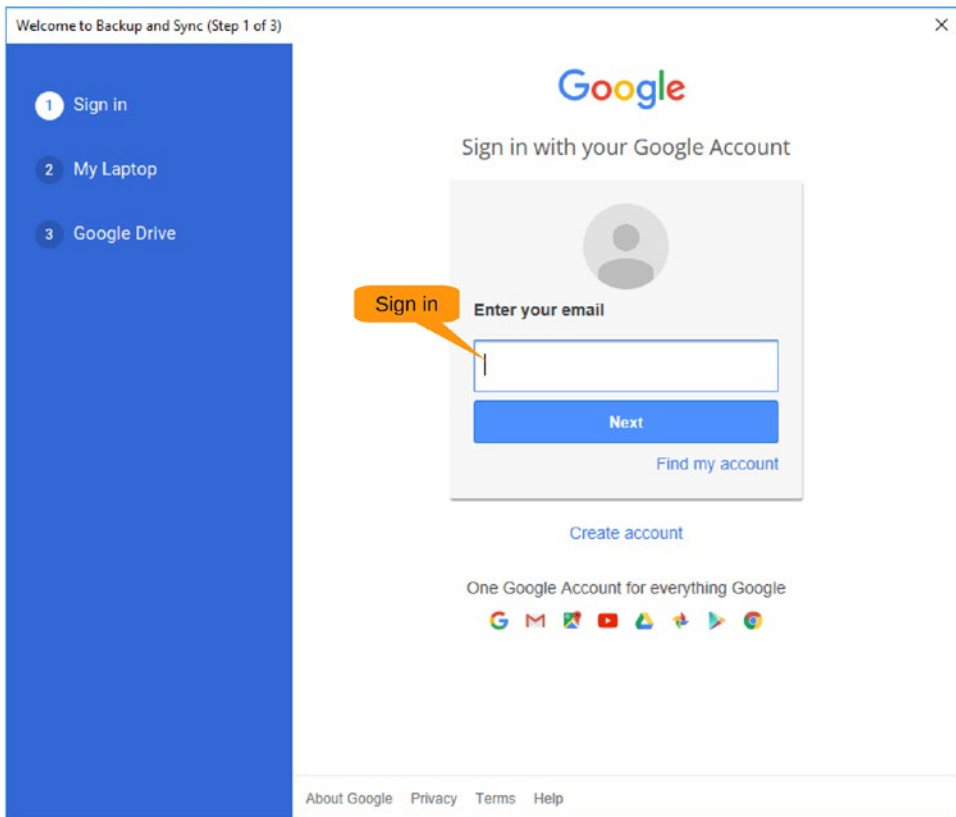
Figure 17-4. *Signing in to Google*

The next screen, as shown in Figure 17-5, tells you what the screen after that does, so click Got It to continue.
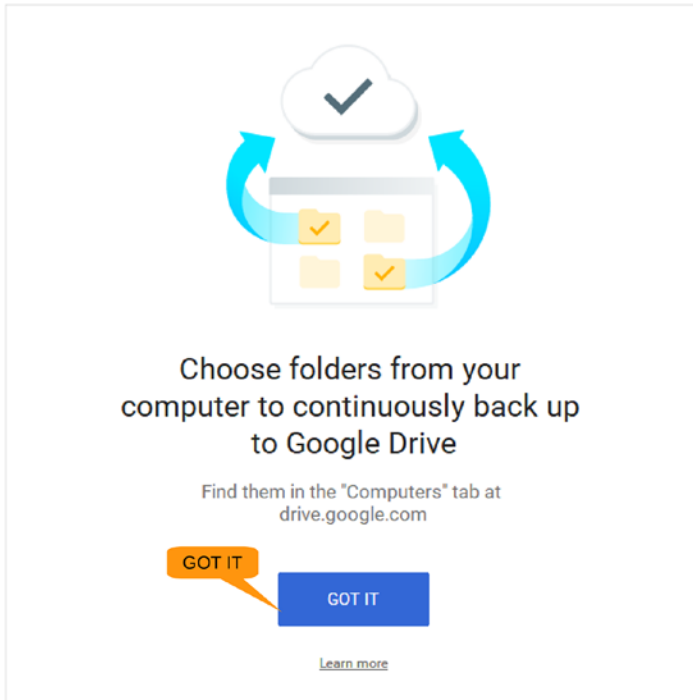
Figure 17-5. *Clicking Got It*

The next screen lets you select the folders to be automatically backed up, as shown in Figure 17-6. By default these include Pictures, Documents, and Desktop. When backed up, these files will occupy their own folder on the Google Drive web site and are not downloaded to your other computers.
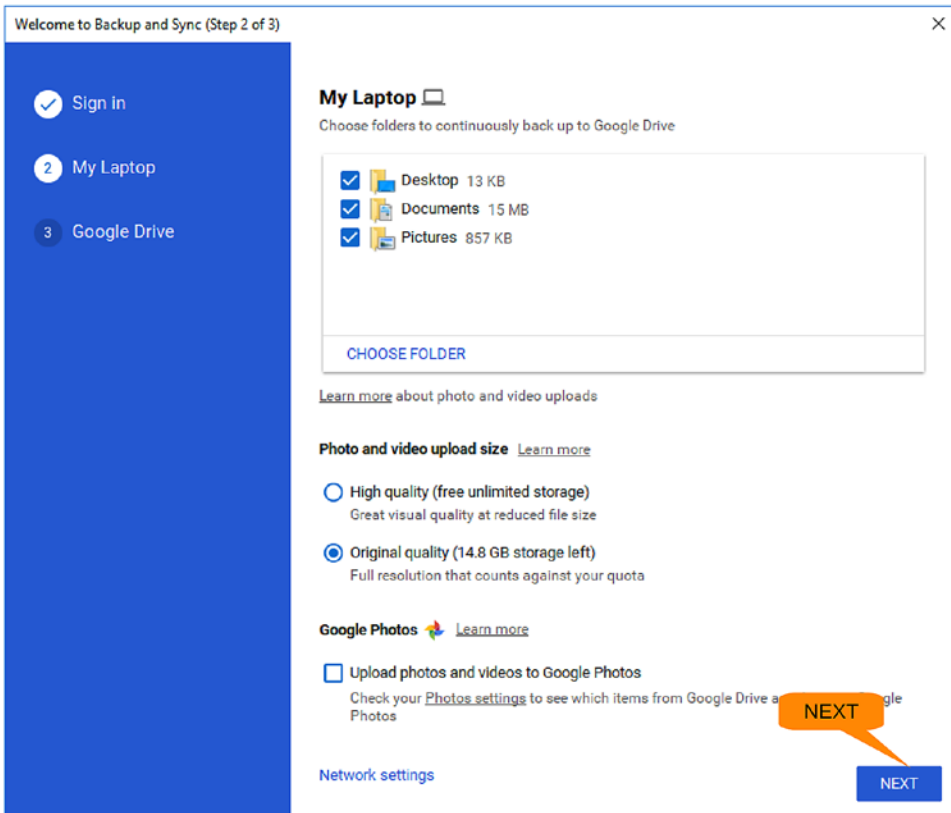
Figure 17-6. *Selecting a folder*

This is different from the Google Drive folder on your computer that will be synchronized with the Google Drive cloud storage *and* all your other computers. (That is done automatically and does not need to be configured.)

Also, note that we've named the computer My Laptop. That name will be useful when trying to find the backup on the Google Drive web site.

If you have folders with really important files, add them here. When you are done, click Next.

Another information screen appears telling you what's about to come. Click Got It.

Finally, you get to the Drive part of Google Backup and Sync, as shown in Figure 17-7. This lets you synchronize the cloud version of Google Drive with your local Google Drive folder. Since this is the first time you've set this up, there is not much to sync, but click Start anyway.
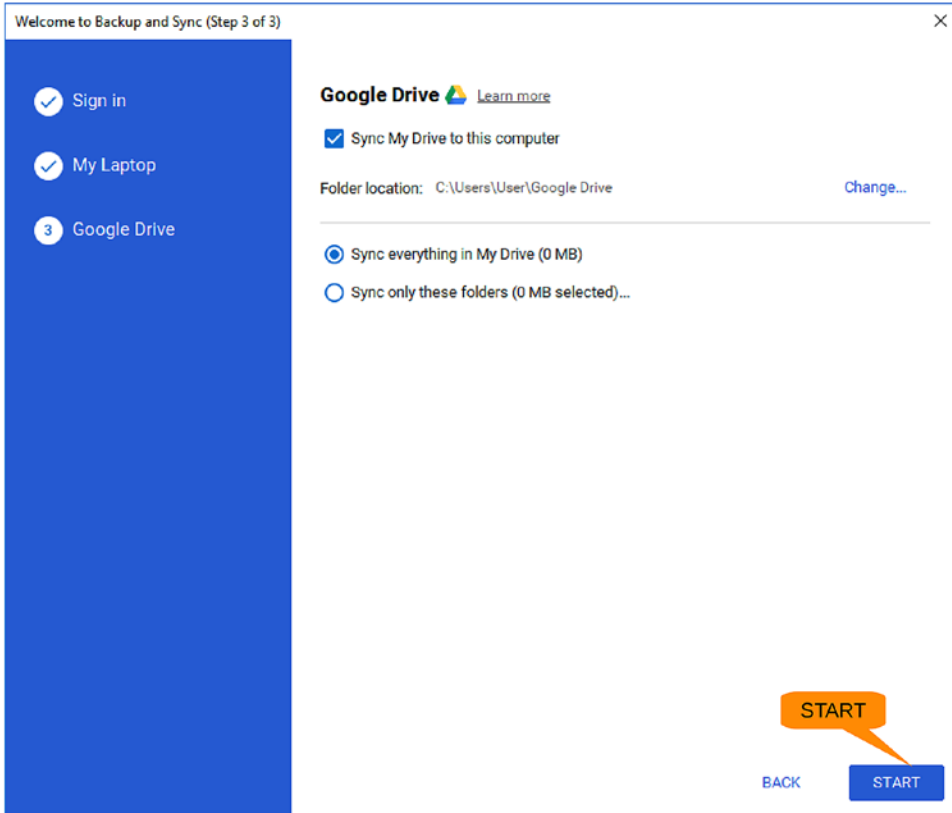
Figure 17-7. *Synchronization process*

The confirmation window appears, as shown in Figure 17-8. Click Continue to start the process.
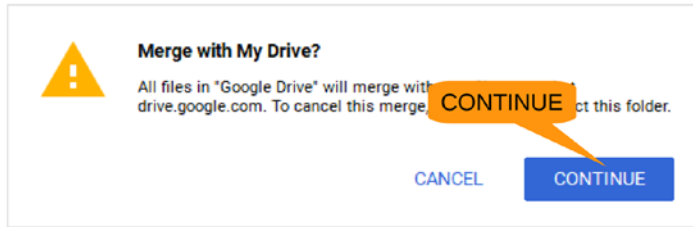
Figure 17-8. Confirmation window

When you're done, close the final window. Now start the Windows File Explorer. You'll notice that you have a new item in the "Quick access" section named Google Drive, as shown in Figure 17-9. Select it, and you'll see the files on your drive.
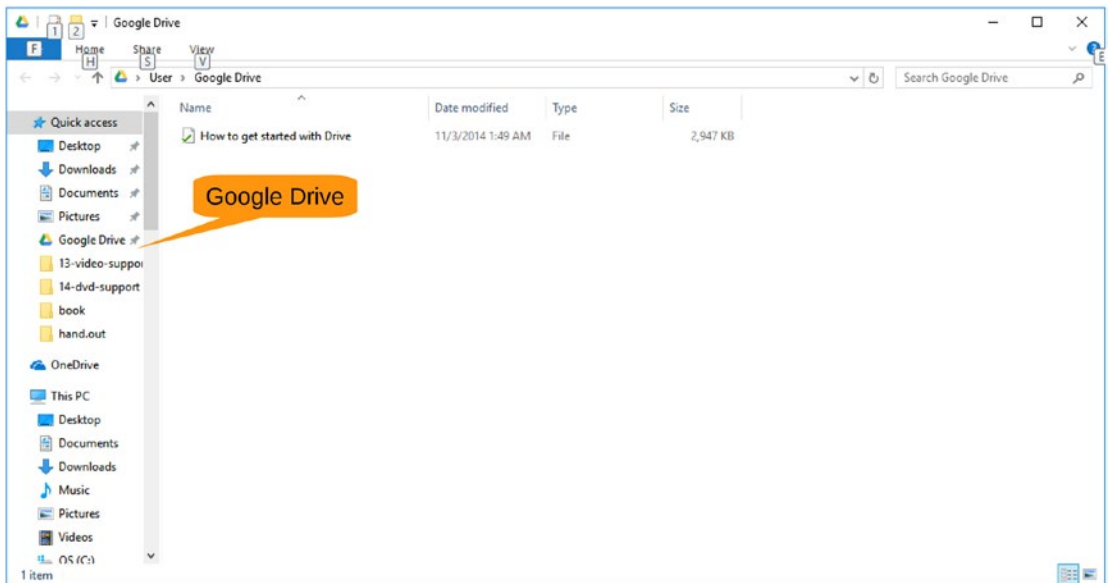
Figure 17-9. File Explorer with Google Drive

Now you can treat this as pretty much a normal drive, although one that's a little slow. In particular, as shown in Figure 17-10, you can drag files from one File Explorer window to another to copy files.
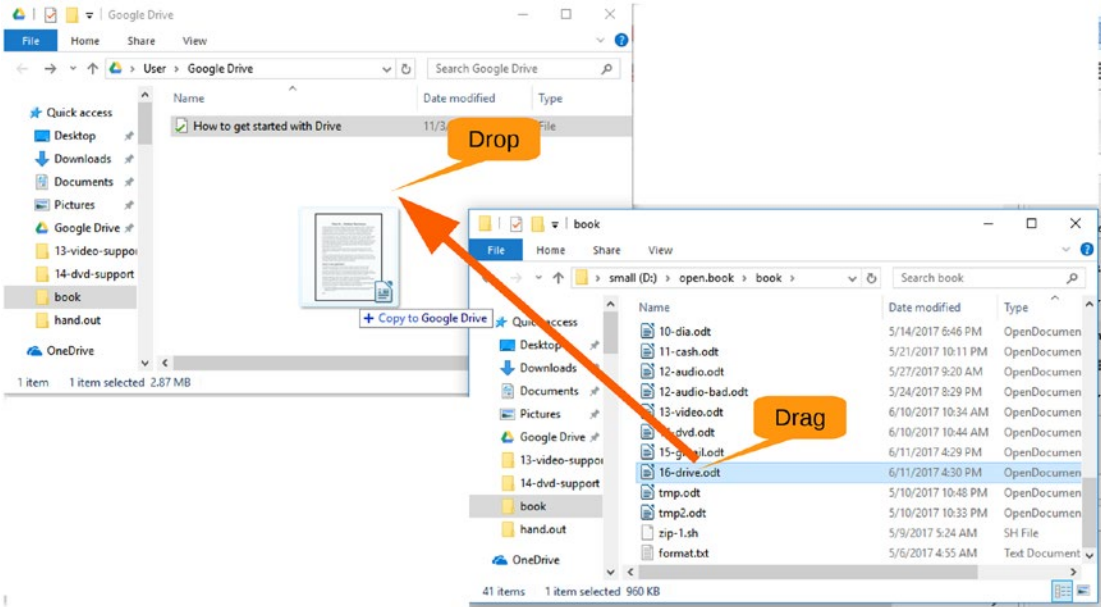
Figure 17-10. *Using drag and drop to copy a file*

Drag and drop to add files (just like any other folder only slower).

After a few seconds, the file will appear in your web view as well, as shown in Figure 17-11.
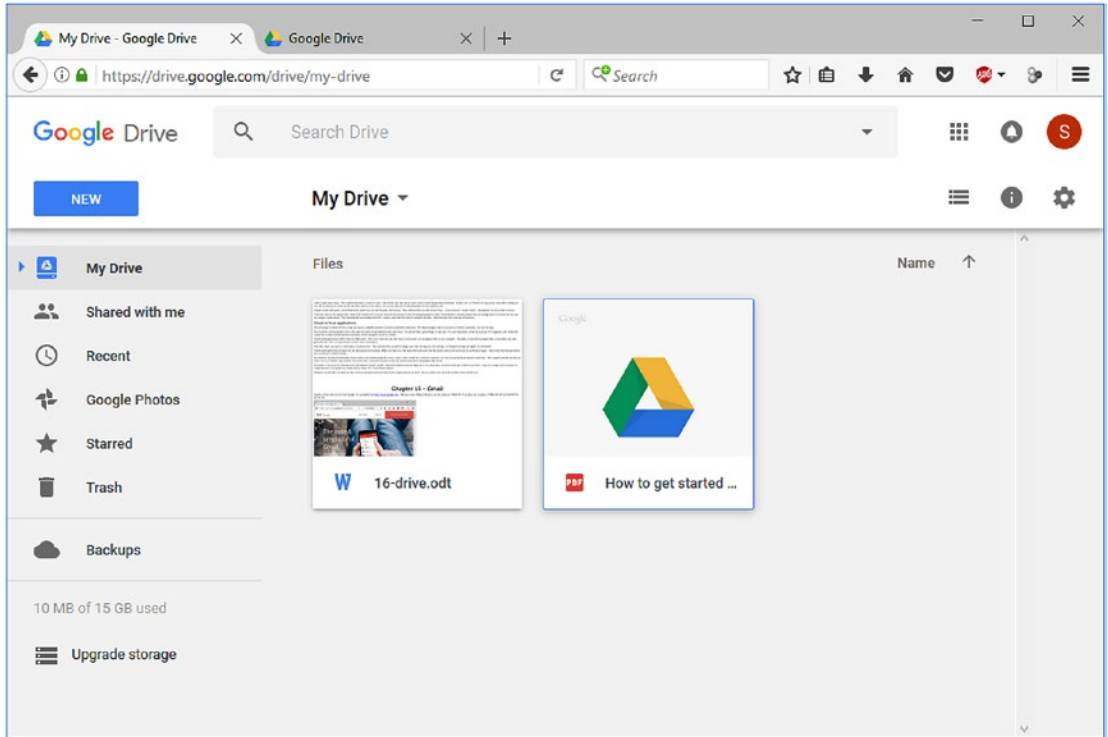
Figure 17-11. *Web interface to Google Drive*

Sharing Files

Say we want to share this chapter of the book with our editors. So, we need to tell Google Drive that we want to share it with them. We start with the steps in Figure 17-12, which consist of right-clicking the document and selecting Share.
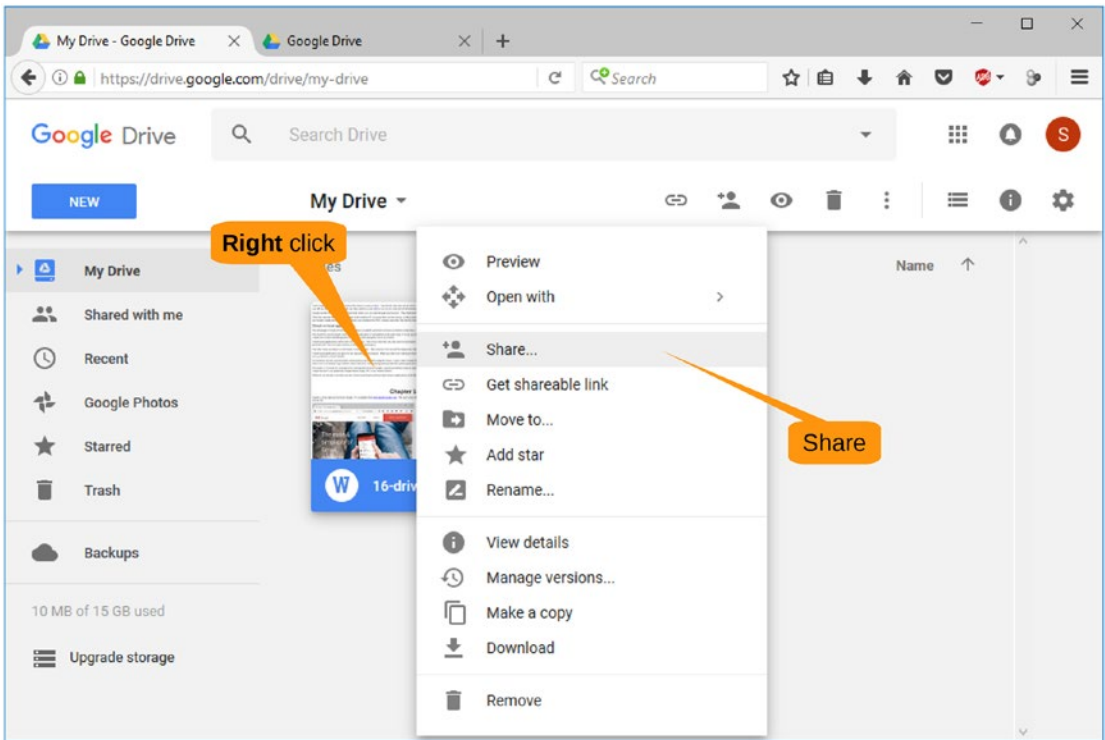
Figure 17-12. *Sharing a document*

The "Share with others" window appears, as shown in Figure 17-13.
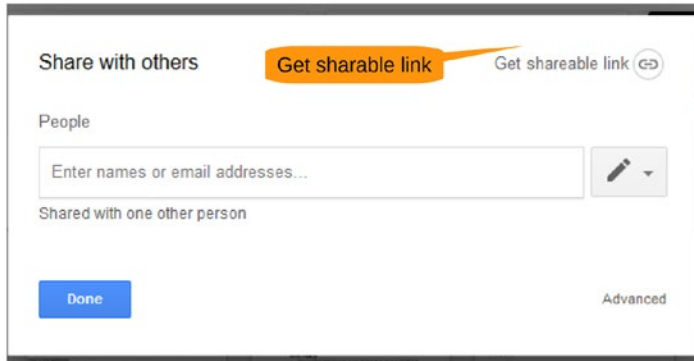
Figure 17-13. *Sharing with others*

There are two ways of sharing a file. The first gives Google a list of people to share it with. That works only if they all have Google accounts. The second is to create a shareable link. This is less secure because anyone with the link can view the document. Let's use this method here, so click "Get shareable link."

The magic link is copied to the clipboard, and sharing is enabled. You can now e-mail this to other people so they can view the document.

Using the Backup and Sync Controls

You may notice a small icon in the lower right of your screen. Figure 17-14 shows where this is located.
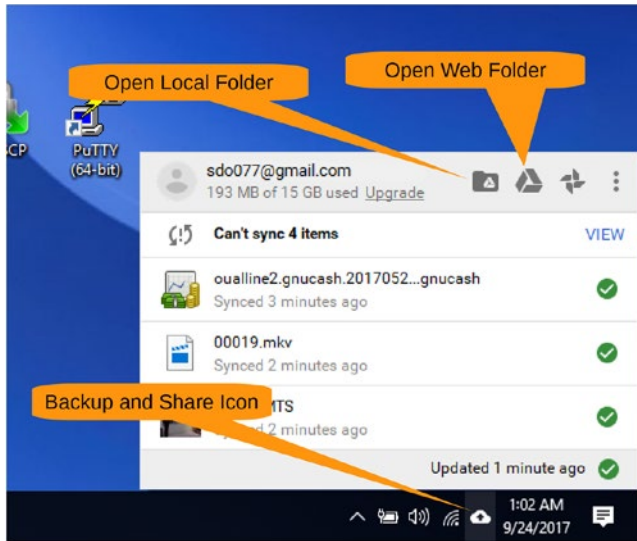
Figure 17-14. *Opening the Backup and Sync controls*

Clicking this icon brings up the Backup and Sync control panel, which shows you the progress of any synchronization that is being done. It also contains icons that will take you directly to your Google Drive (local copy) and Google Drive (web copy).

Summary

Google has tried to make Google Drive as simple and as easy to use as a regular disk drive. There are a few more advanced features to explore such as version control and document conversion, but for the most part Google Drive is easy to get started with.

CHAPTER 18

Using Google Sheets

Google Sheets is an online spreadsheet program. Its main advantage is that it is on the Internet. That means you can access it from anywhere. There are even phone apps that let you access it through your smartphone, which makes it useful for storing numbers as they are generated.

In this chapter, you will learn the basics of Google Sheets, including the following:

- Getting started

- Creating a basic cost estimation spreadsheet

- Creating titles

- Creating a chart

Getting Started with Google Sheets

To get to Google Sheets, go to `http://sheets.google.com`. Android and Apple users can download it from their phone's online store. After signing on, you'll see a startup screen similar to Figure 18-1.
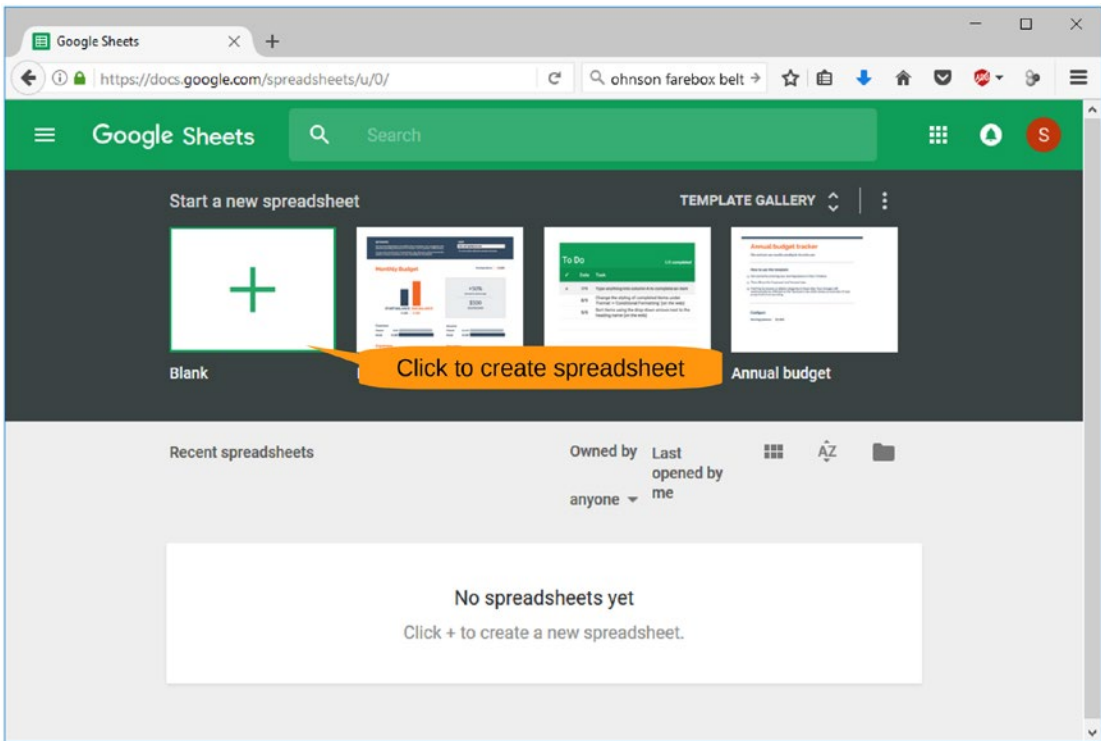
Figure 18-1. *Google Sheets startup screen*

Creating a Spreadsheet

As you know from previous chapter examples, the Working Farm Museum needs to recover from a school visit. Let's create a basic worksheet to see how much money this is going to cost Farmer Brown.

Google Sheets comes with a rich set of templates. You will use the simplest for this example, the Blank template. Clicking Blank takes you to the initial spreadsheet in Figure 18-2.
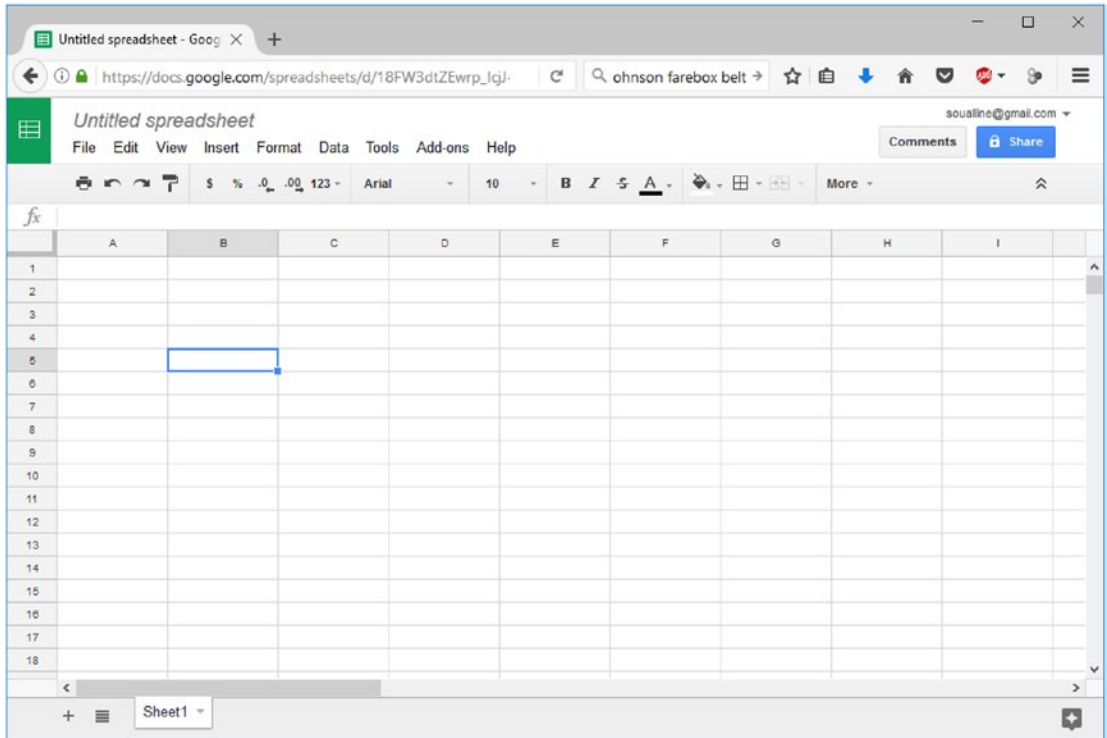
Figure 18-2. *Initial spreadsheet*

Creating Titles

You want to create a nice title for your spreadsheet, one that spans multiple columns. So, you need to merge cells A1 through D1. Start by clicking A1 and then dragging the cursor to D1, as shown in Figure 18-3.
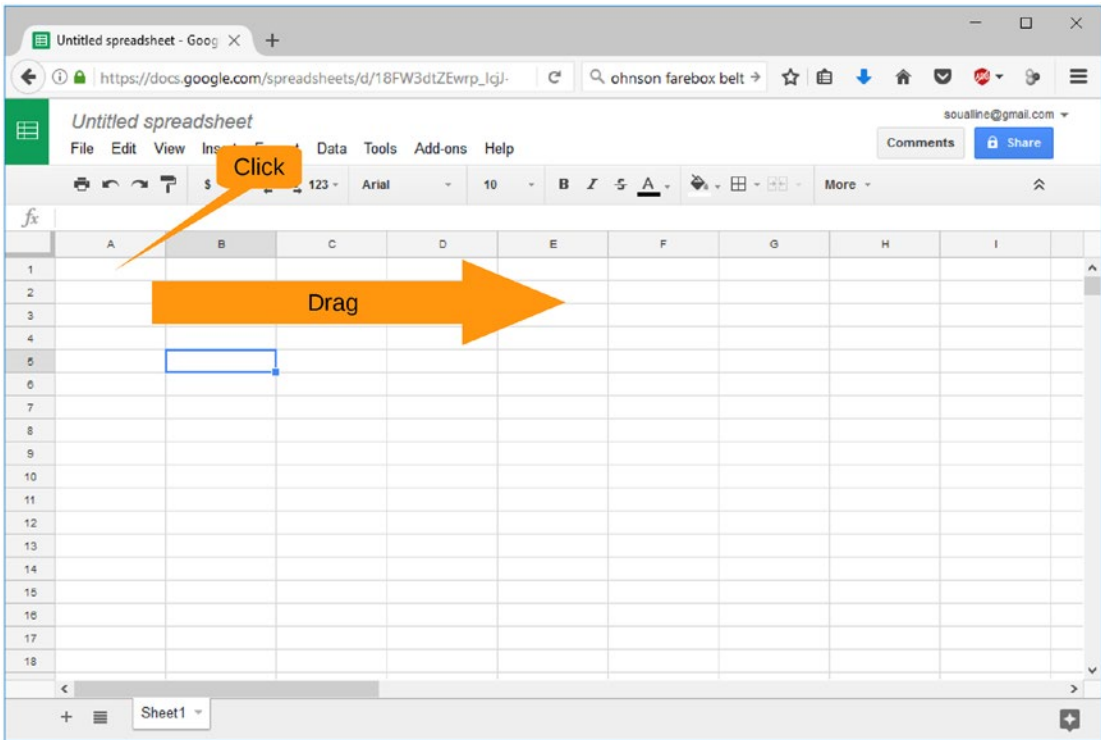
Figure 18-3. *Selecting four cells*

Now let's select Format ➤ Merge Cells ➤ Merge all, as shown in Figure 18-4. The cells will be combined.
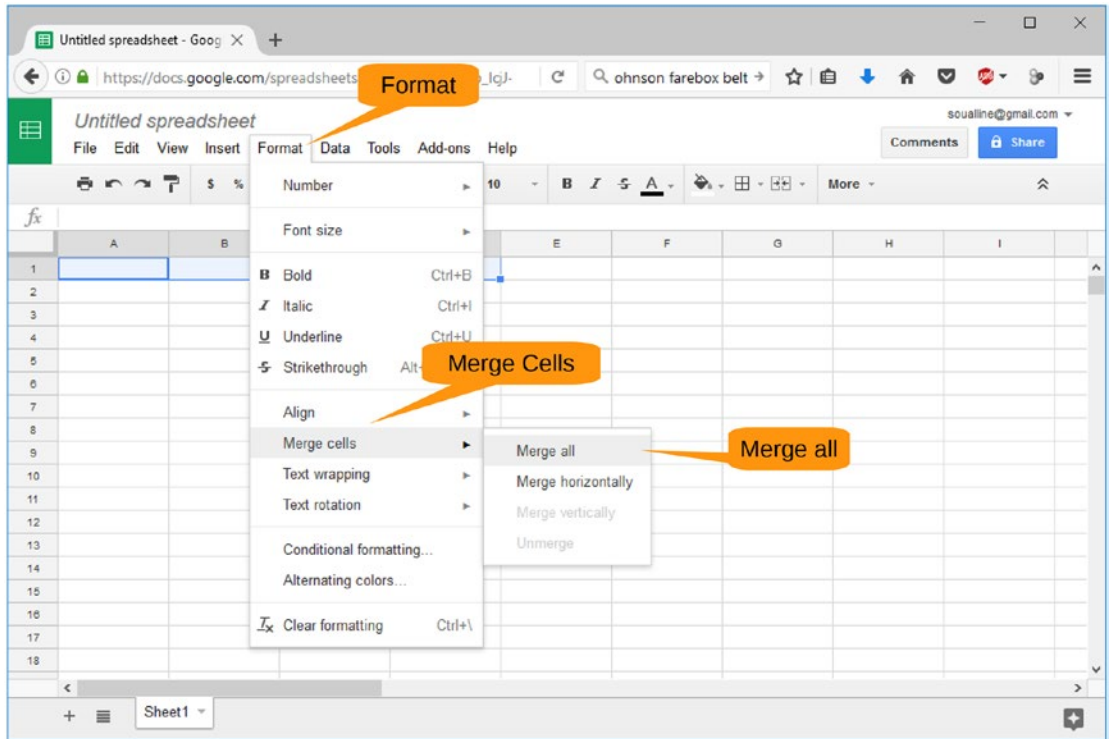
Figure 18-4. *Merging the cell*

You now have a four-column cell in which to type the title: **Working Farm Recovery Costs**. After entering this text, select it and click the Bold icon to make it bold. Then select the arrow next to the text alignment icon and select Center. Figure 18-5 shows the steps.
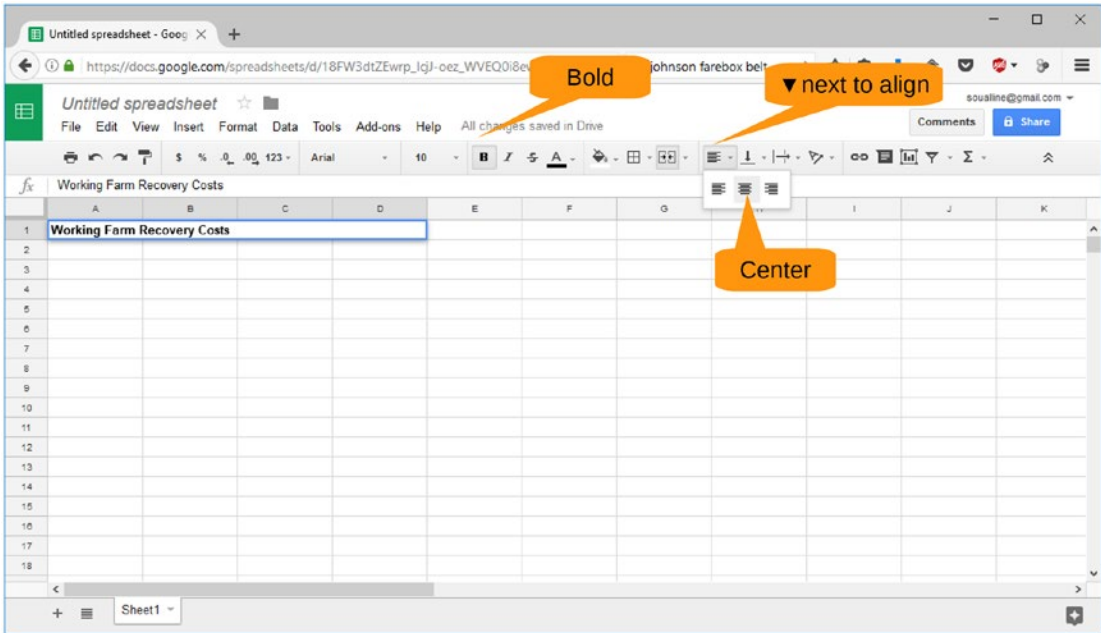
Figure 18-5. *Setting up the title*

On the next line, cell B1, enter the label **Labor** and make it bold as well.

Starting with C1, let's add the headings **Task**, **Hours**, **Rate**, and **Cost**. Since the Task column is going to be a bit longer than the others, you can make it wider by dragging the bar between the A and B columns to the right. Figure 18-6 details these steps.
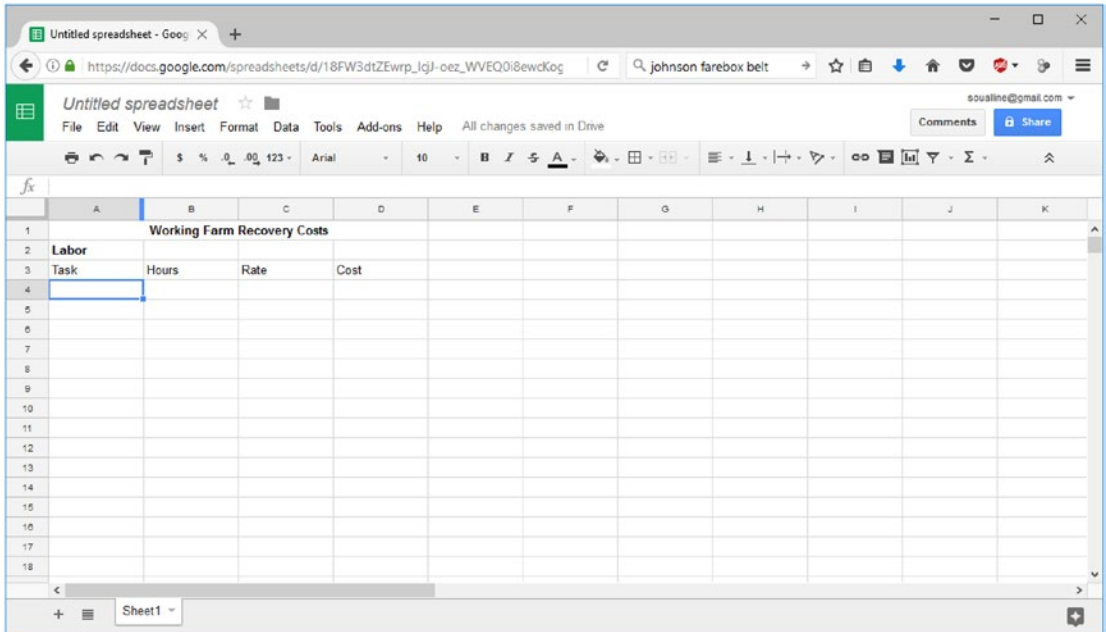
Figure 18-6. *Adding the headings*

Now let's put in the first task. The data for the cells is as follows:

> *A4*: Enter **Securing existing site**.
>
> *B4*: Enter **20**.
>
> *C4*: Enter **15.00**.
>
> *D4*: Enter **=B4*C4**.

Figure 18-7 shows the results.
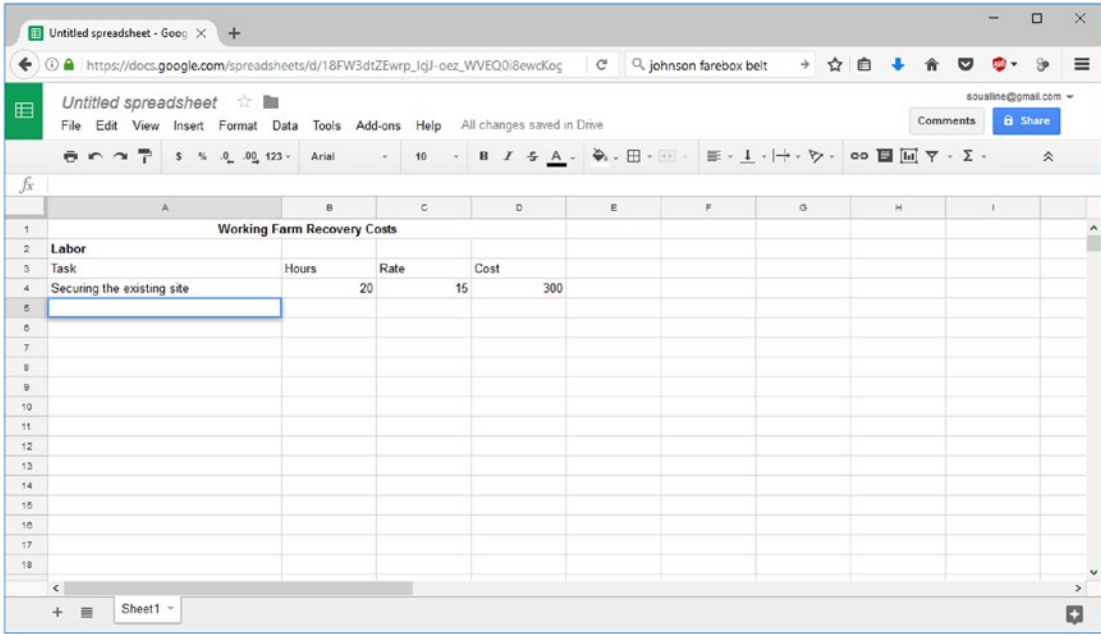
Figure 18-7. Entering the first task

You'll notice that you don't get a rate of $15.00; you get a rate of 15. You need to tell Google Sheets that you are dealing with money, so select column C by clicking it and selecting Format ➤ Number ➤ Currency. Figure 18-8 shows this process, but you'll have to trust us when we tell you that column C is highlighted because the menu covers it up.
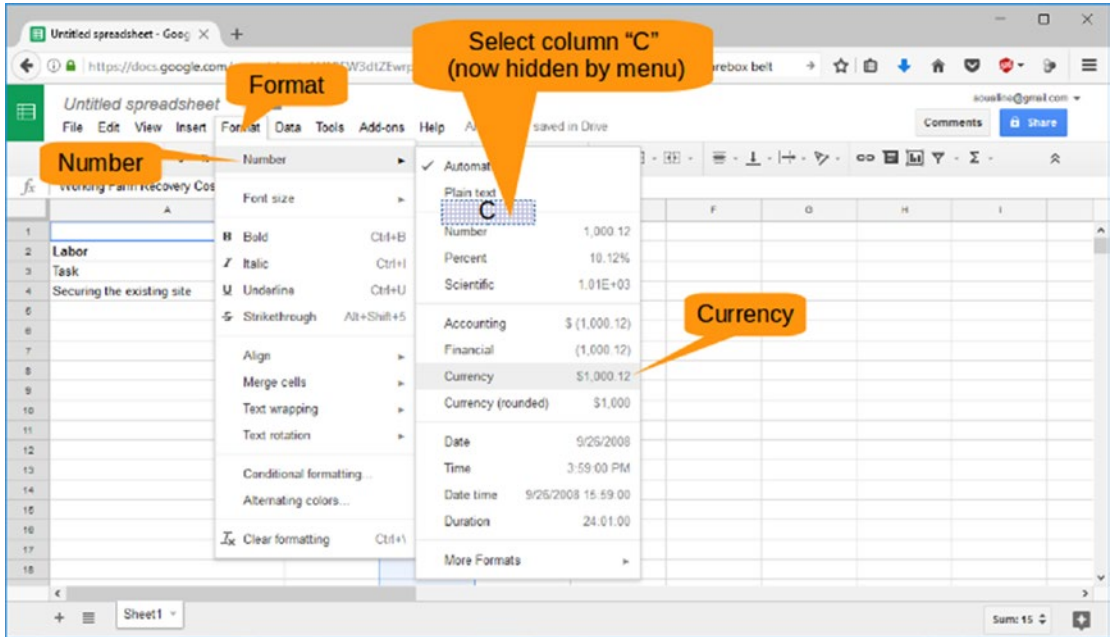
Figure 18-8. *Formatting the columns*

Do the same for column D. Figure 18-9 shows the result of the formatting. We've also filled in a few more tasks in the figure. Remember, the contents of D5 should be =B5*C5, and D6 should be =B6*C6.
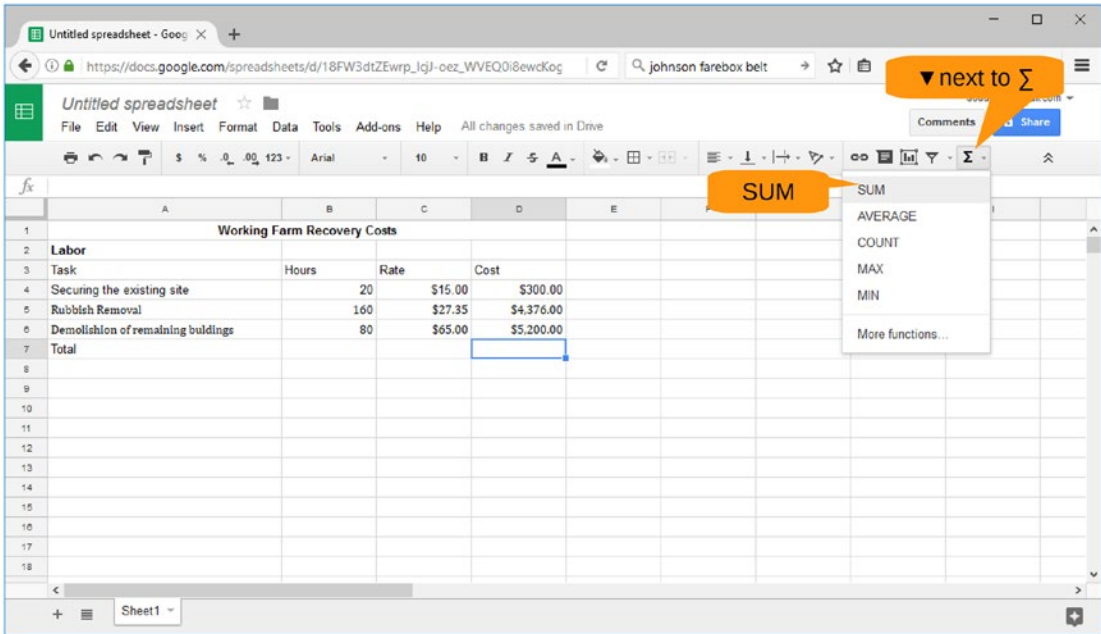
Figure 18-9. *More tasks*

You are now positioned on cell D7. This will contain the labor total. To generate the total, click the arrow next to the Sum icon and select SUM.

A "helpful" dialog appears. To tell the system what values to add up, click cell D4 and drag the cursor down to cell D6, as shown in Figure 18-10.
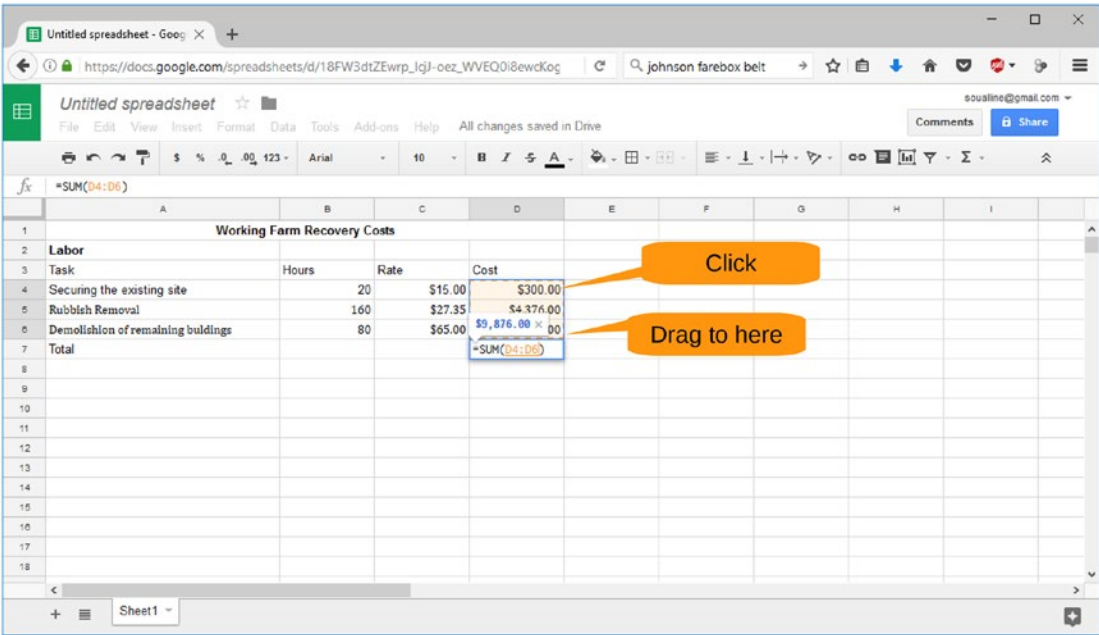
Figure 18-10. *Selecting what to add up*

Figure 18-11 shows the result after pressing Enter.
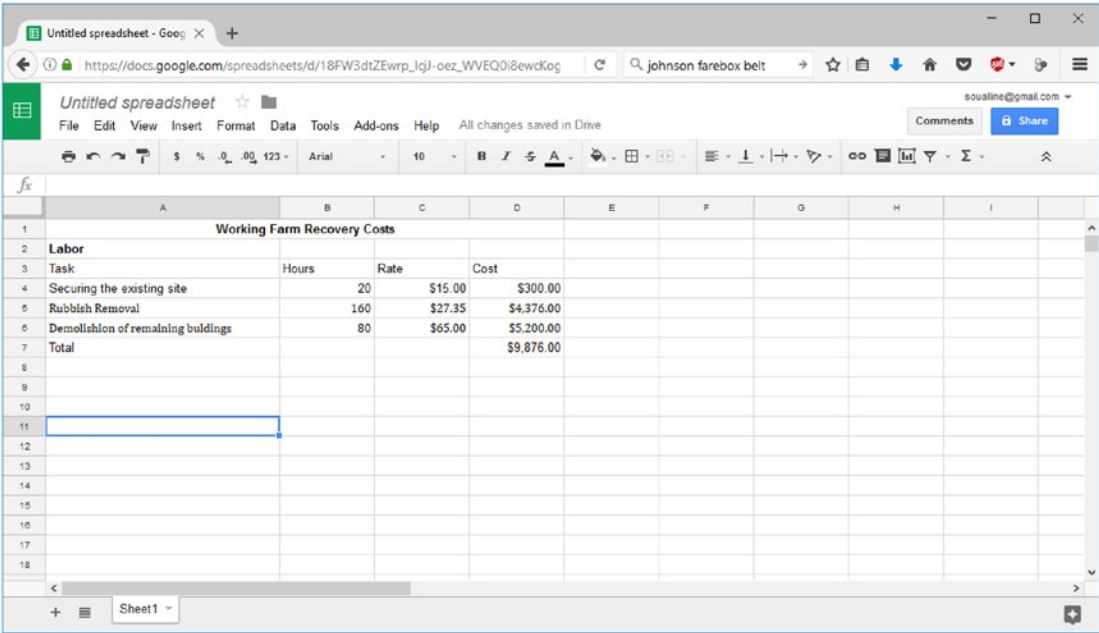
Figure 18-11. *Spreadsheet with sum*

Now you'll add a couple more sections for Buildings and Services, as shown in Figure 18-12.
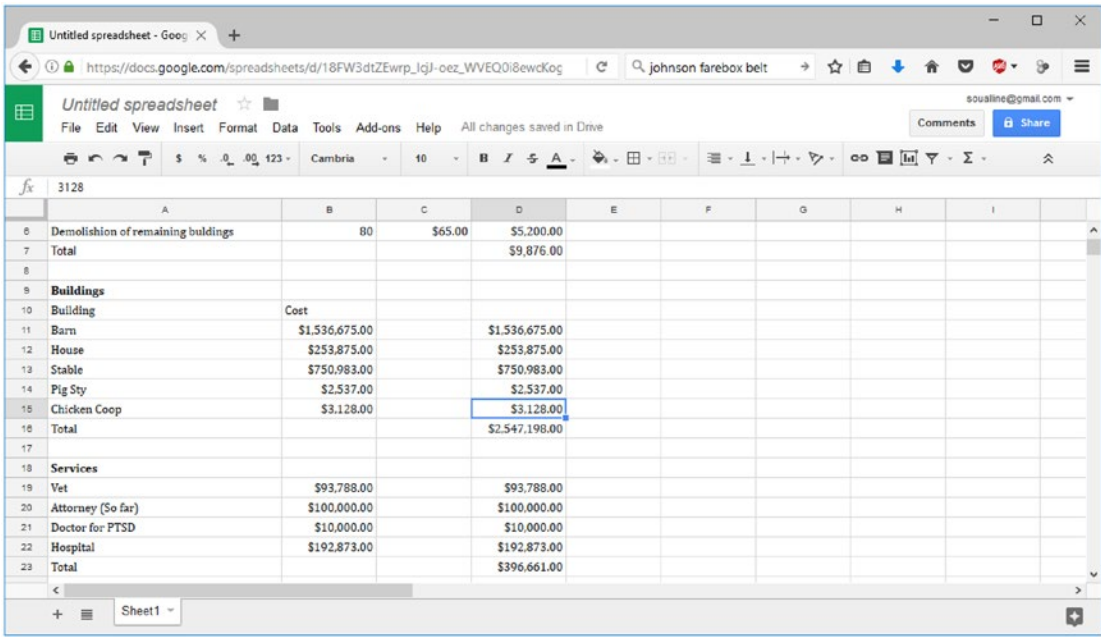
Figure 18-12. *Spreadsheet after additional sections have been added*

During this process we've changed the format of a few cells. This was accomplished by selecting the cells and executing the command Format ➤ Number ➤ Currency.

Now let's add a Summary section and compute a grand total for everything you've done so far. Figure 18-13 shows the result.
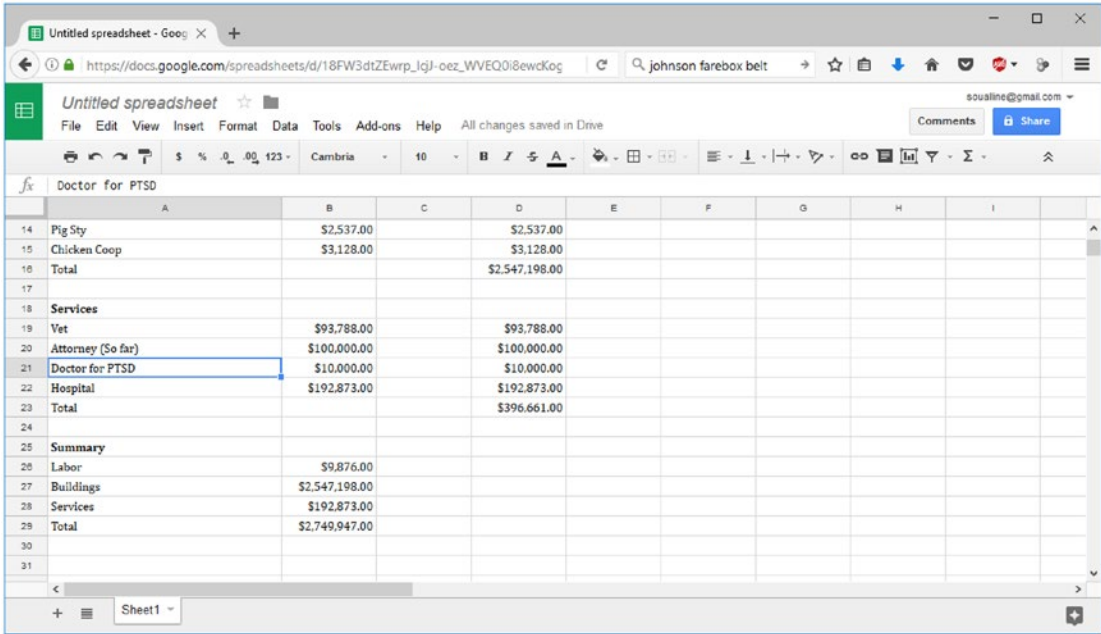
Figure 18-13. Adding a Summary section

Since every good spreadsheet must have a chart, let's add one. Click in cell A26 to select Labor and then Shift+click in cell B28 to select a 2×3 square of values. Figure 18-14 shows the result.
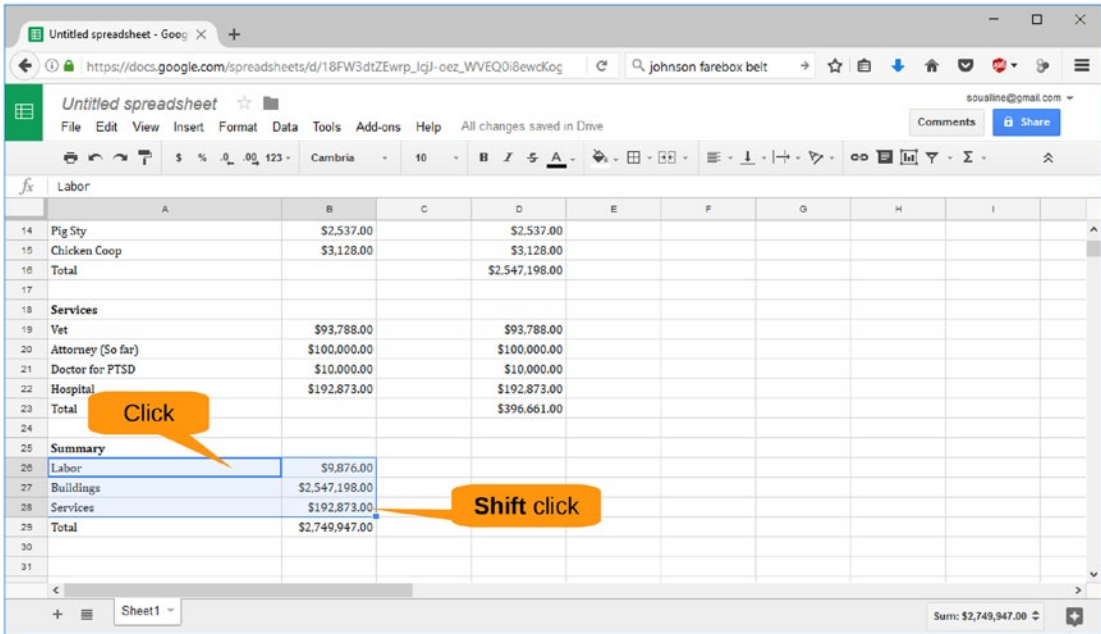
Figure 18-14. *Chart data selected*

Creating a Chart

Let's now create the chart by selecting Insert ➤ Chart, as shown in Figure 18-15.
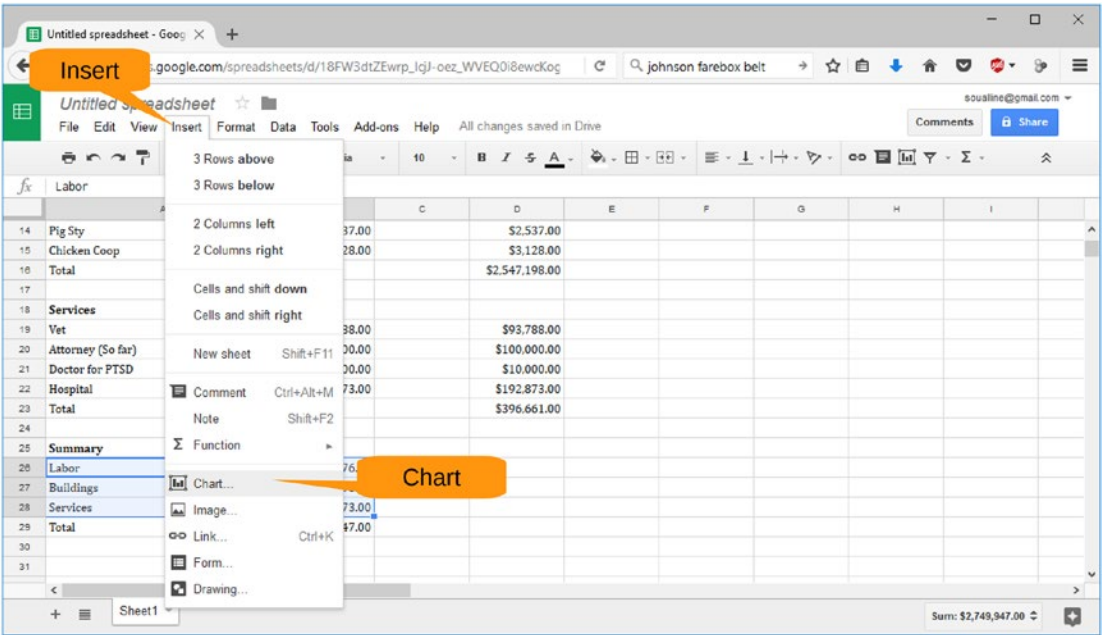
Figure 18-15. *Inserting a chart*

A chart appears right over most of the important data, and a chart editor dialog appears. Figure 18-16 shows the mess.
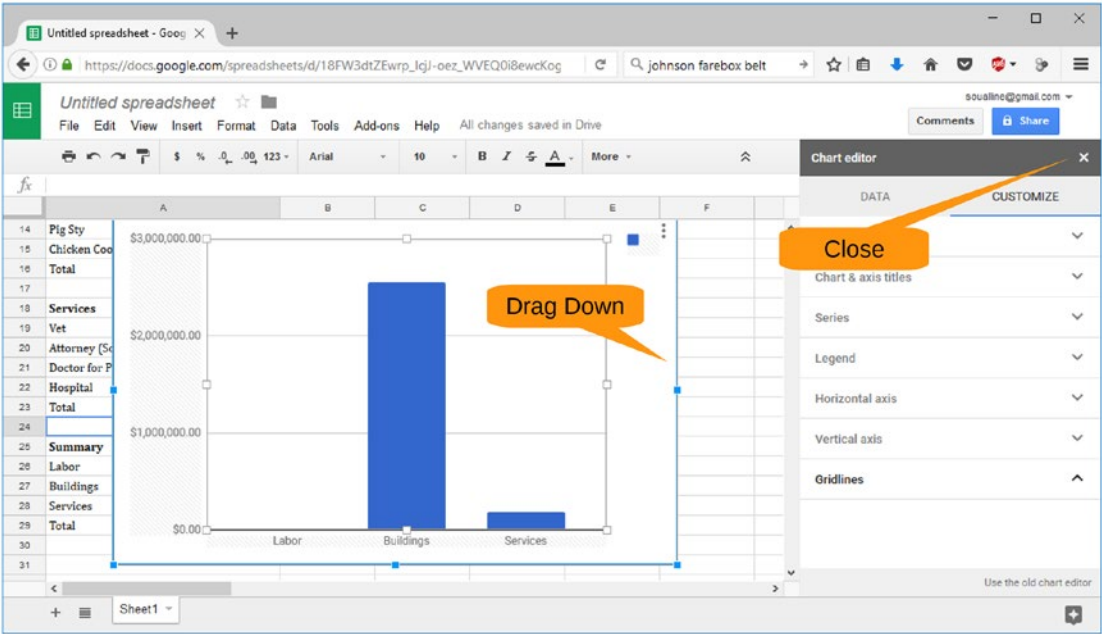
Figure 18-16. *Chart inserted*

Close the chart editor by clicking the X button. Now use the handles of the chart to drag the chart into a nice location below the data. The result should look something like Figure 18-17.
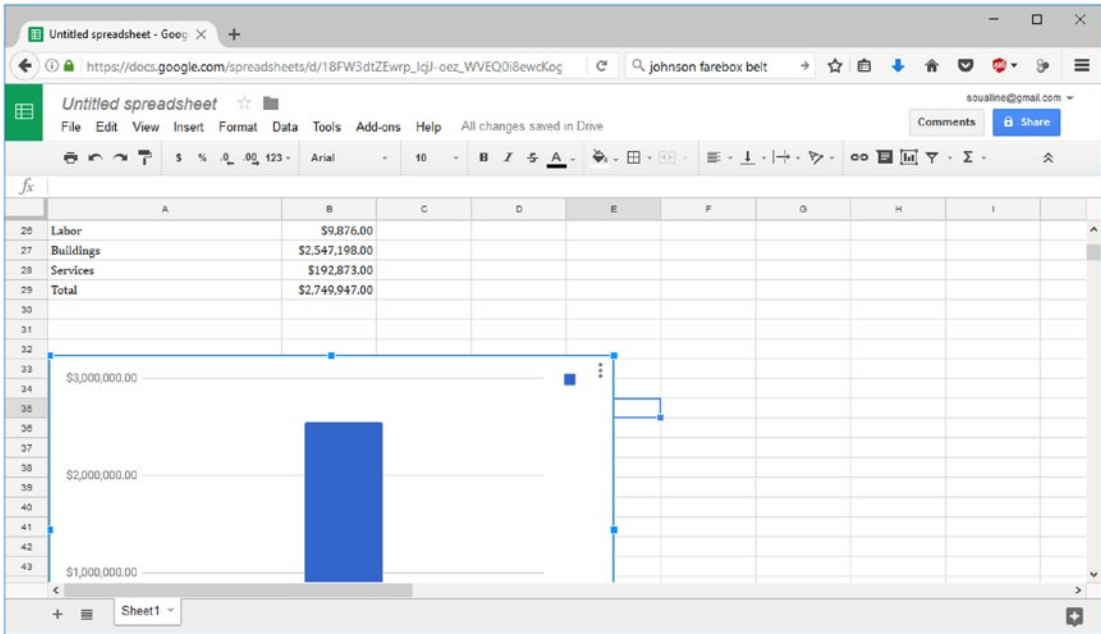
Figure 18-17. *Final spreadsheet*

Now you can rename the spreadsheet (File ➤ Rename) to something decent, such as Farm Recovery, and then print or share it as needed.

Summary

Google Sheets is a good, basic spreadsheet program. It doesn't have as many features as LibreOffice Calc or Microsoft Excel, but it does have all the features that a simple spreadsheet needs. You might find it ideal when you need to access data from your phone. The nice thing is that you have a choice; in addition, both Google Sheets and LibreOffice Calc are free.

CHAPTER 19

Playing Games

This book would be incomplete without talking about some games. There are lots of open source games that are fun and free to download. Table 19-1 lists some of the best ones, and they are discussed further in the following sections.

Table 19-1. *Game Summary*

Game	Download	Recommended Age	Complexity	Learning Curve
SuperTuxKart	https:// supertuxkart.net/ Download	Young	Simple	Low
Xonotic	www.xonotic.org	Preteen and teens	Slightly complex	Low
2048	https:// gabrielecirulli. github.io/2048/	All	Simple	Low
Torcs	http://torcs. sourceforge.net/ index.php?artid=3&na me=Sections&op=viewa rticle	Teens and young adults	Slightly complex	Medium
FlightGear	www.flightgear.org/ download/main- program/	Adult	Complex	High
Neverball	http://neverball. org/download.php	Kids and teens	Simple	Low

(*continued*)

Table 19-1. (*continued*)

Game	Download	Recommended Age	Complexity	Learning Curve
Teeworlds	www.teeworlds.com/?page=downloads	Kids and young Adults	Simple	Low
0 A.D.	https://play0ad.com/download/	Young adults and adults	Slightly complex	Medium
OpenTTD	https://www.openttd.org/en/download-stable	Adults	Slightly complex	High
SuperTux	http://supertux.github.io/download.html	Kids and teens	Simple	Low

Who Is Tux, and Why Is He Everywhere?

Before starting, we need to explain why a lot of the games have *Tux* in their names. Tux, pictured in Figure 19-1, is a penguin who is the mascot of Linux. Linux is a popular open source operating system, so many game designers decide to honor this penguin by having him be a main character in their work. So, if you see Tux, the game is probably open source.
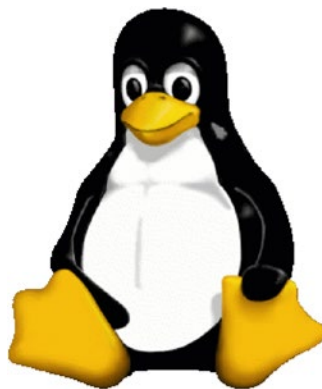
Figure 19-1. *Tux*

SuperTuxKart

SuperTuxKart is a racing game a lot like Mario Kart, except everyone is an animal, and the main character is a penguin. In Figure 19-2, you can see a typical game screen. To download and set up the game, go to `https://supertuxkart.net/Download`.

Figure 19-2. *SuperTuxKart*

The goal of the game is to race against the other players and win the race. There are three different modes: story mode, single/multiplayer, and login.

Story mode plays some videos before and after races. This gives the game a story. The main plot is that, Tuc, the King of Karts, has kidnapped the Great Wise One, the leader of a village that Tux lives in. Tuc says that if Tux can beat him in racing, then he will release the Great Wise One. If Tux loses, then the Great Wise One will be served for dinner at Tuc's castle.

Single and multiplayer modes are the same thing, except there are no videos. You can play with up to four different players and can play with joysticks or the keyboard.

Login is where you connect to the Internet and race against other people in real time.

Overall, it is a decent game. The quality of animations is lacking, but you can still tell what is going on. We recommend this to children or adults but not for teenagers, who would like more detailed animations like in Torcs (described later). Overall, it is a well-developed game.

Xonotic

Xonotic is a first-person shooting game. You run around with a gun and shoot at your enemies, as shown in Figure 19-3. This game is designed for the older kids, mainly teens, and uses a lot of graphics, so it may slow down your computer if you are using a laptop. You can download it from `www.xonotic.org`.

Figure 19-3. *Running and shooting*
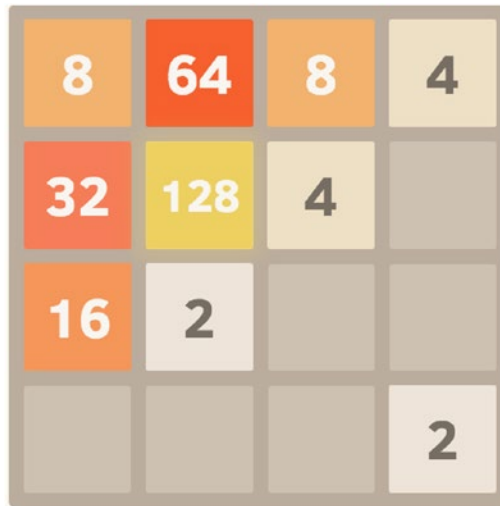
There are two different modes, single player and multiplayer. In single player mode, one person is connected through the computer to other players on the Internet. In multiplayer mode, more than one person can be connected through a single computer. The controls are fairly simple and self-explanatory, and you can figure out how the

games work within seconds. There are many different terrains so you will never get bored with the layout. There are also a variety of guns that have their own distinct power. For example, one gun shoots fire and blows up your opponent. Another gun shoots six electric balls, which spread out so you can get your opponent even when they are moving.

Overall, it is a good game if you don't get motion sickness.

2048

2048 is a simple yet addicting game. The goal of the game is to combine similar blocks next to each other into one block containing the number 2048. You can move the blocks up, down, left, and right. Each block has a number on it. For example, a "2" block can merge with another "2" block, which creates a "4" block. This game is good for phones, as shown in Figure 19-4. You can play it at https://gabrielecirulli.github.io/2048/, or you can download it from any app store for free.

Figure 19-4. *2048*

We recommend this game to anyone. It is an easy game to play and can be rewarding when you finally get the tiles to display 2048.

Torcs

Torcs is another racing simulator, like SuperTuxKart, but with more detailed graphics designed for more mature players. Its home page is at `http://torcs.sourceforge`.

You control your car with the arrow keys, and you can choose from a variety of car models and tracks, as shown in Figure 19-5. Torcs stands for Texas Off-Road Champion Series. This game has been used as a research platform for many things car related, such as the use of AI programs in cars.

Figure 19-5. *The race track*

This game is a lot of fun for those who feel like they're too old for SuperTuxKart and Mario Kart and want something a bit more challenging.

FlightGear

FlightGear is a flying simulator, where you fly your own plane. You can download it at `www.flightgear.org/download/main-program/`. It is a detailed game, where you start out in the cockpit of the plane, such as the one shown in Figure 19-6, and use controls that are similar to those in a real plane.

Figure 19-6. *The cockpit*

You can also create your own flying environment, as well as choose the type of plane you want to fly. Scenery and planes have to be downloaded separately. The game comes with a long manual on how to fly the plane, so if you want to play this game properly, you'll need commitment. There are many fun and different types of planes; for example, you could fly a space shuttle. It is a rocket ship that you get to drive into orbit, but it lands like a brick, which is really challenging.

This game requires a lot of CPU power. When we ran it on a laptop, the system became very "laggy." We suggest downloading this on a stronger computer with a good CPU.

This game is good for young wanna-be pilots or if you are looking into flying and want to see how a plane is operated. Overall, it is a more complicated and technical game but can be fun once you learn how to play it.

Neverball

Neverball is a game a where you guide a ball through crazy courses and get it to the target. You can install it at `http://neverball.org/download.php`.

The player gets to customize their ball and choose from a variety of levels. There are many fun and different levels of games. Some courses look like the inside of a ping-pong machine, shown in Figure 19-7, while others have portals that teleport the ball. Others are like a puzzle, where you have to figure it out before you can win.
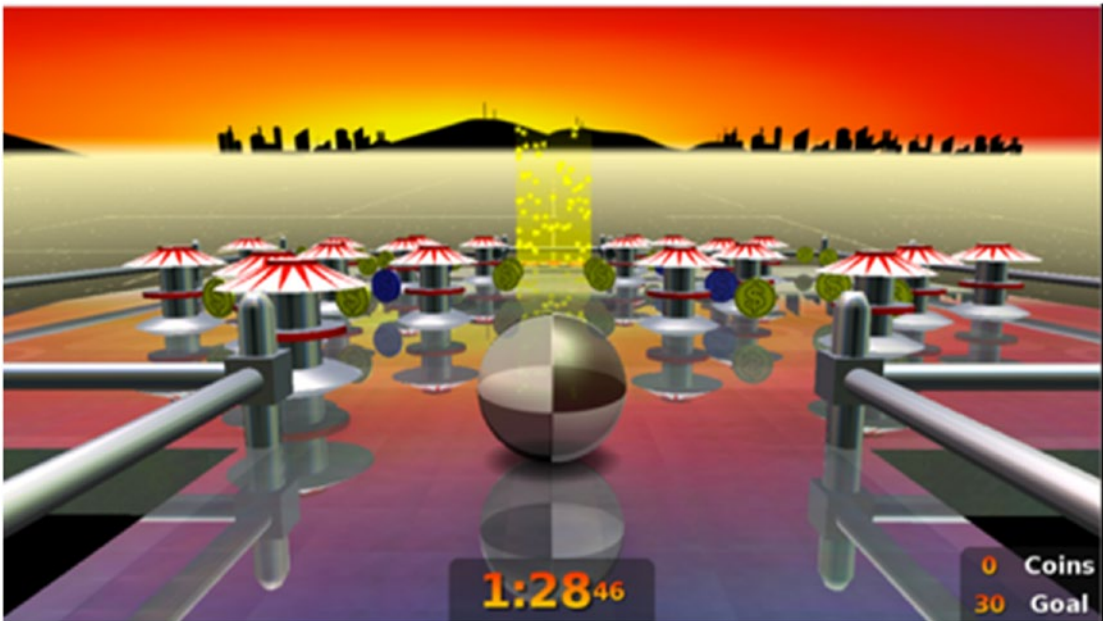
Figure 19-7. *Ping-pong machine in Neverball*

The goal is simple: try to get the ball to the target. For the controls, you just use the keyboard arrows to tilt the screen in the direction you want the ball to go. You can also collect coins, which are good for the store, where you can buy different skins for your ball.

Overall, this game has great graphics and is fun for all ages. It comes with seemingly endless levels, so this game will keep you occupied for a long time.

Teeworlds

Teeworlds is a simple, cartoon, multiplayer shooting game. You can find it at `https://www.teeworlds.com/?page=downloads`. The main goal of the game is to try to be the last one standing, so you basically shoot everyone else until they are all dead.

It has a two-dimensional course that you can explore. There are a variety of different guns to use, along with different terrains and games. One game you can play is called *capture the flag*, shown in Figure 19-8, where there are two teams. Your team's mission is to try to take the other team's flag while protecting your flag from the other team. Different terrains can consist of the desert, grass, jungle, snow, and much more.

Figure 19-8. *Playing capture the flag*

This game is great for anyone who loves shooting games but hates the motion sickness that most 3D shooting games give you. It is good if you want a simple, friendly game.

0 A.D.

0 A.D. is a game based on the year 0 A.D., where you build civilizations and practice strategy in ancient warfare. You can get it at `https://play0ad.com/download/`.

In the game, you have a certain territory where you can construct your buildings. Figure 19-9 shows a typical layout. You can expand your territory by leveling up or by building next to the border. Each type of building supports different things. There are the village buildings to sustain the people. Housing supports population. A mill is used to collect wood, metal, and stone for building. Farmstead and corrals are for growing and breeding animals for food. Docks are to build ships for fish, trade, and warfare.

Figure 19-9. *A normal day 2,000 years ago*

There are also a variety of military buildings to protect the people. Barracks are where citizens train and become soldiers. A temple trains healers, who heal the soldiers during battle. A defense tower shoots at enemies close by. You can also build walls and fortresses for defense.

This game is lots of fun for those who love strategy games and building their own civilizations.

OpenTTD

OpenTTD is a strategy business simulator where you make money by transporting customers using different routes and different modes of transportation, as shown in Figure 19-10. You can download it at https://www.openttd.org/en/download-stable.

Figure 19-10. *A day at work*

The main goal of this game is to get as much money as you can by starting a transportation business. There are many factors needed to win this game, such as where to put the routes that your vehicle will travel and how much to charge for one trip. The game comes with a long manual that tells you how to place different modes of transport. There are four modes you can choose from: road, railroad, ship, and airplane. You can also earn extra money by using your business for a shipping and postal service.

Overall, this game is for those who love to strategize and build their own businesses. We recommend this to someone who has a lot of patience because it takes a long time to grow your business.

SuperTux

SuperTux is a lot like Super Smash Bros., except the main character is a penguin. You run and jump, collect power-ups, and defeat the evil snowballs. You can download the software at http://supertux.github.io/download.html. The main goal of the game is to guide Tux through the level and get to the end.

If you took Super Mario Bros. and turned it into a second graphic penguin game, then you would have SuperTux. Everything is identical, all the way down to the powers and the enemies.

There is unique feature that you don't have in most proprietary games, that is, debug mode. This mode allows you to "debug" the program by giving Tux special powers, like being invincible. Although designed for people working on making the program better, it doesn't stop people from using it to "cheat" and reach the highest level without having to bother getting really good at the game.

We recommend this game to anyone who loves adventure games and wants to play an open source version of Super Mario Bros.

Summary

Supposedly there aren't a lot of open source games available. That may be true, but there are enough fun ones out there to keep anyone entertained. Many of the simulation games are made by people fanatical on making the most realistic game out there. That's why you have a game like FlightGear, which gives you the ability to fly a Wright biplane and a space shuttle.

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