The Windows Screen Reader Primer:

All the Basics and More, Fourth Edition

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# Introduction

This is the fourth edition of the Windows Screenreader Primer. The first edition came out in March 22, with the other two coming out in Spring of the following years. My intention remains to put out annual updates .

This book endeavors to cover what I consider to be all the basics that a screenreader user needs for using the most important applications in the Windows environment. Its specific objective is to provide a solid foundation for using Job Access with Speech (JAWS), Non-Visual Desktop Access (NVDA), and Windows Narrator with the most commonly-used PC applications. These include the Windows operating system, the four primary Microsoft Office Suite applications (Word, Outlook, excel and PowerPoint), and the three most popular web browsers (Google Chrome, Microsoft Edge, and Mozilla Firefox). Cloud-based file sharing programs (Dropbox, Microsoft OneDrive, and Google Drive) are also covered. So too is Adobe Acrobat Reader for accessing PDF files and Zoom Cloud Meeting for participating in remote teleconferences. The most commonly used Google Workspace applications are also covered.

My hope is that this book becomes a standard reference for using Windows on the PC with screenreader programs. You might ask whether such a resource has ever existed in the past? Surprisingly, the answer is no. However, this book is not meant to replace all the other reference resources out there in the digital landscape, but rather to provide a solid foundation in a single place.

The screenreader training I conduct typically takes place over two to three -week time periods. After considerable repetition and refinement over the decade or so I have been teaching, I have developed a script in my head for many topics. Much of it is transcribed here. The book covers all that material and extends it, hence its subtitle “All the Basics and More.”

The book is intended for both beginners and intermediate users. It is hoped that those who already have a fair amount of experience using screenreader programs in the Windows environment will find useful tools and techniques to enhance their skills.

Software versions used in this book include the Fall 2024 Windows 10 24H2 and Windows 11 (24H2) builds, JAWS 2025, NVDA 2024.4, and the version of Narrator accompanying the Windows 11 24H2 build. I use Office 365. Where differences exist between the Office 365 licensed version and purchased versions back to 2019, these are noted. Regarding Windows 10 and 11, I discuss differences I have detected, but with the caveat that Windows 11 continues to evolve.

The book does not address screen magnification for low-vision users. Nor does it address use of Braille displays for the unfortunate reason that my Braille skills are woefully inadequate.

## What’s New in the Fourth Edition

Along with countless minor changes, there are new or substantially revised sections on the following topics:

* FS Companion which uses AI to respond to queries on JAWS, Microsoft Office, Windows, web browsing, and Google Workspace applications using keyboard commands only (Chapter 1.2.3.1)
* A summary of similar and Different Keystrokes Between the three Screenreaders (Chapter 1.5).
* Using Auto Reply in Outlook to create out of office messages (chapter 4.11.8
* An introduction to the New Outlook (Chapter 4.12).
* A section on how to search for and compose advanced Excel functions using the Functions Library (Chapter 5.5). An inventory of useful functions is also presented.
* A substantially revised Chapter 14 on artificial intelligence (AI) reflecting some of the major changes that have occurred over the past year. Among the newest developments discussed are Microsoft Copilot integration with Office, Google’s Notebook LM, and the use of Be My Eyes for Windows for describing images.
* Using REAPER to do simple editing of video recordings (Chapter 15.3). This replaces the Machete app discussed in the third edition because that app no longer works.
* Ways to read this book with Bookshare and FS Reader (Chapter 16.1.1)

As was the case with previous editions, the fourth edition includes:

A folder containing individual Word files for all the chapters and appendices.

A folder containing individual files in ePub format for all the chapters and appendices.

a folder containing a set of practice files for completing the lessons outlined in Appendix IV.

I think that most readers will prefer using the individual chapter files rather than the single file with the entire book. This way, if you want to read about PowerPoint on your PC, just open the PowerPoint chapter file which is only about 20 pages in length.

If you wish to access the book on a portable device, you can transfer the chapter files to these devices and navigate them by heading. With a Victor Reader Stream, copy the Word files to the Text files folder and read them there. On an iPhone, transfer the ePub formatted files to the Voicedream Reader app where you can navigate through them efficiently with headings. Chapter 16.1 discusses procedures for copying files to those two devices, and navigating the text using headings.

Previous editions of this book appeared on Bookshare, and it is hoped that this fourth edition will also appear there.

## Tips for Navigating Through the Book

The most efficient way to move through the book is to open the folder containing the chapters. All filenames begin with the corresponding chapter number, or the letter A if it is an appendix. Open the chapter file that interests you, and navigate through it by heading.

There are two ways to navigate by heading with each of the screenreader programs. First, with JAWS and Narrator, access a list of headings by pressing Insert + F6. Then Down and Up arrow to move heading by heading, and press Enter to get into the text at that point.

Opening the headings list is a good way to get familiar with the structure and content of a chapter. The headings list serves as an outline or a table of contents for that chapter.

With NVDA, you can also access a list of headings, but I find this needlessly complicated. To learn why I feel this way, see Chapter 3.4.1.

With all three screenreaders, you can also switch to a virtual mode in Word. This takes the document out of edit mode and enables you to efficiently navigate by heading level. With JAWS, press Insert + Z to switch to Quick Keys mode. Each chapter is marked as a level one heading. Sections are level two headings, with sub-sections at levels three and four.

You can press two on the number row to skip to each level two heading within a chapter, three for the level three headings, and four for the level four headings. Level four is the lowest heading level in this book.

The NVDA and Narrator equivalents of JAWS Quick Keys mode are Browse mode and Scan mode, respectively. With both of these screenreaders, press Insert and the Spacebar together to activate these modes. As with JAWS, you can then press one, two, etc. to jump by each heading level. To find out more about these navigation modes, see Chapter 3.4.1.

When finished, press Insert + Z with JAWS again to toggle Quick keys off, or Insert + Spacebar to toggle off the NVDA Browse mode or the Narrator Scan mode.

But here’s a little hint. Leave these modes on because this will prevent you from mistakenly typing random text into the book. If you inadvertently place typos in the text (which I do all the time), be sure not to save the document when you exit out of it. To exit without saving, press Alt + F4, Tab once to the Don’t save button, and then press Enter.

Throughout this book, you will encounter a number of links to web pages where you can find out more about a particular topic. Assuming your computer is connected to the Internet, press Enter on the link to open the associated web page. With JAWS and Narrator, you can also press Insert + F7 to get a list of links. With NVDA, Insert + F7 brings up an Elements List. See Chapter 3.54.1 on how to use the NVDA Elements list in Word.

There are also several footnotes. Presence of a footnote is indicated by a numbered superscript in the main text. To navigate to footnote text, press the Control + And Page down keys together to go to the top of the next page. Then Up arrow a few times to the footnote text. With JAWS, you can also navigate to footnotes by pressing Insert + Z to turn on Quick keys, and then press O to jump to the next footnote. See Chapter 3.7 for more on footnotes.

## Organization of the Book

The book has sixteen chapters and five appendices. The First chapter covers Basic settings for the three screenreader programs – JAWS, NVDA and Windows Narrator. It also discusses how to change voices and languages, access help resources, and compares the screenreaders. Chapter Two deals primarily with file and folder management in the Windows operating system environment. I highlight the most significant differences between Windows 10 and 11 of relevance to screenreader users. The chapter also identifies settings you may want to change when you first get your computer, menu types and dialog box elements you will encounter, text navigation, reading and editing, options for opening programs, and some important features that are common across Office suite applications.

The next four chapters cover the Microsoft Office Suite. Drawing on my first book,,[[1]](#footnote-1) Chapter Three covers formatting documents in Word. It provides an overview of ribbon menus and when to use them, as well as a number of useful formatting tools. Chapter 4 covers Outlook, including message basics, attachments, navigating and managing folders, contacts, and the Calendar. The fifth chapter discusses Excel, including elements of basic spreadsheets, formulas, sorting data, and various other operations. Creating PowerPoint presentations is covered in Chapter Six. Slide and presentation formats are discussed. Strategies for making accessible and effective presentations are also identified.

Chapter Seven discusses web browsing with Google Chrome, Microsoft Edge and Mozilla Firefox. It draws on my second book,[[2]](#footnote-2)but with substantial updates and revisions. The eighth chapter returns to the screenreader programs, this time identifying useful customizations used in conjunction with Windows, the Office Suite and web browsers. Chapter Nine covers tools for proofreading and review, including spellchecking, the JAWS Text Analyzer and Speech and Sound Schemes features, the NVDA Document Formatting and Narrator Verbosity features, and Comments and Track Changes in Word.

Chapter 10 discusses accessing PDF files with Adobe Acrobat Reader DC. The next chapter covers the three most popular cloud sharing apps – Dropbox, OneDrive, and Google Drive. Different forms of sharing are covered, and my take on the strengths, weaknesses, and complementarities of each cloud sharing app are detailed. Chapter 12 takes a deep dive into the most commonly used Google Workspace applications, including Docs, Sheets, Slides, Gmail, Calendar, and Forms. Strengths, weaknesses. and complementarities between Google Workspace and Microsoft Office applications are explored. The next chapter talks about Zoom, including creating an account, the structure of the desktop app, important settings, and scheduling and hosting meetings. There is also a section on useful keystrokes for participating in Microsoft Teams meetings.

Chapter 14 explores how to get started with several popular artificial intelligence (AI) apps on the PC and iPhone. The next chapter discusses how to perform basic editing of audio and video files with selected free or low-cost applications. The final chapter covers a few additional topics, including ways to access this book with portable devices (the Victor Reader Stream and the iPhone using the Voicedream app), using Remote Incident Manager to obtain assistance, Groups.IO assistive technology discussion lists, and possible solutions to problems you may encounter with your computer.

* Five appendices are also included. The first one presents a list of keystrokes to serve as a convenient reference. Appendix II is a glossary with over 100 definitions of computer-related terms. The third appendix lays out Word document format requirements for the three most important academic style guides used in the United States (American Psychological Association - APA, Modern Language Association - MLA, and the Chicago Manual of Style - CMOS). High school and college students will want to read this appendix. a new fourth appendix uses AI to describe the visual layout of various computer screens often encountered. The final appendix provides a set of practice exercises you can complete to hone your skills.

## Acknowledgments

I would like to thank Greg Donnelly and Dina Rosenbaum, President and Chief Program Officer, respectively, at the Carroll Center for the Blind for providing a wonderful work environment and encouraging me to write this book. I alone am responsible for all errors, inaccuracies, and omissions. That said, this new edition was finalized in early 2025, and steps and procedures presented here were double-checked then. However, technology is always changing, so some of the text may become outdated as time passes.

I hope to continue updating the book every year. My initial vision was that this book become a standard reference for screenreader users wishing to become more productive in the Windows environment, as well as for others whose vocation is to help blind people learn how to use assistive technology. With thousands of assistive technology users from all over the world having downloaded it, I think that vision has been largely achieved. I would also like to thank the many blind people from every continent (with the sole exception of Antarctica) who have emailed me their appreciation. The Carroll Center has received many generous donations from people who downloaded the book from their website. Such encouragement greatly motivates me to continue updating and improving the book.

If you would like to make suggestions on ways to improve the book, new topics for inclusion in future editions, or alert me to errors, I would be grateful for your input. You can contact me by email at [david.kingsbury@carroll.org](mailto:david.kingsbury@carroll.org).

In order for as many people as possible to have access to this book, we at the Carroll Center have decided to distribute it free-of-charge. I will continue updating the book, making it a living document rather than a one-off that loses its relevance in just a short time – an inherent problem with technology books.

If you appreciate the information you find in the book and the effort it took me to write it, I would be grateful if you made a donation at the following link:

[DONATE to The Carroll Center for the Blind - Make a Difference](https://carroll.org/donate/)

Now let’s get going! Happy reading!

David Kingsbury

Newton, Massachusetts

April 2025

# Chapter 1 Screenreader Basics

This chapter provides basic information about the three leading screenreader programs used in conjunction with the Windows operating system: Job Access with Speech (JAWS), Non-Visual Desktop Access (NVDA), and Windows Narrator.

What is a screenreader program? This definition comes from the American Foundation for the Blind: “Screenreaders are software programs that allow blind or visually impaired users to read the text that is displayed on the computer screen with a speech synthesizer or braille display. A screenreader is the interface between the computer's operating system, its applications, and the user. The user sends commands by pressing different combinations of keys on the computer keyboard or braille display to instruct the speech synthesizer what to say and to speak automatically when changes occur on the computer screen.”[[3]](#footnote-3)

Speech is substituted for vision and keystroke combinations are used for navigation and executing commands in place of the mouse. These keystrokes may be ones created for the screenreader program itself, or they may be Windows-based keystrokes. The vast majority of keystrokes covered in this book are actually Windows keystrokes rather than keystrokes created by screenreader program developers.

I will first cover modifier keys. These are common to all three screenreaders. I will then cover the basics of each of the screenreader programs. More advanced topics such as how to customize these programs will be covered in Chapter 8. Throughout the book, where procedures differ between screenreaders for interacting with other software applications, they will be noted.

## 1.1 Modifier Keys

Each screenreader program allows you to use up to three modifier keys. A modifier key, when used in combination with other keys, executes a function of the screenreader program. For example, the Insert Key held down together with T reveals the title of the open window for all three screenreader programs.

The three possible modifier keys are the actual Insert key (also known as the Extended Insert key), the Zero key on the Number pad, and the Caps lock key. All desktop keyboards have these three keys. Some laptop models lack one or both of the Insert keys. For Narrator, all three modifier keys are set by default. For JAWS and NVDA, the Insert and Num Pad Zero keys are set by default, but you need to manually add the Caps lock key. I will discuss how to do this later in the JAWS section of this chapter.

When the Caps lock key is set as a modifier key, to actually use it for locking and unlocking capital letters, tap it twice quickly to toggle it on and off. For Fusion users running ZoomText and JAWS together, you will need to press the Caps lock key three times rather than twice. In many situations, you will probably prefer to use the Caps lock key with your left hand if the additional combination keys are located on the right side of the keyboard.

User guides for each of the three screenreader programs also refer to modifier keys as the JAWS, NVDA, or Narrator key. For the remainder of the book, to streamline the text, I will simply say “Insert key” when referring to use of modifier keys.

## 1.2 JAWS Basics

To open the JAWS program, press Control + Alt + J. To close JAWS, press Insert + F4, and then the Spacebar to confirm.

You must manually set up the shortcut keystroke for opening JAWS. Unlike NVDA and Narrator, it is not automatically done as part of the initial JAWS installation. To do this:

1. Press Windows + M or Windows + D to go to the Desktop.
2. Press J to go to the JAWS Icon, but do not press Enter on it. This icon is added to the Desktop during program installation.
3. Press Alt Enter to open the Properties dialog.
4. Tab twice to the Shortcut key edit box, and type in the letter J (Control + And Alt are automatically added).
5. Tab to the OK button and press Enter.
6. Press the Spacebar on the Continue button that appears.

You should now be done. However, if you do not have administrative rights, you will also have to Enter the administrator’s password after pressing the Continue button.

Why would a blind person ever want to close JAWS or another default screenreader if having it open is the only way to know what is going on? Here are some reasons:

* If you use more than one screenreader and want to switch between them, you will want to know how to open and exit each one. You will want to exit the currently operating screenreader before opening a new one to avoid voices speaking simultaneously.
* Sometimes your screenreader “misbehaves.” It stops speaking for no apparent reason, reads content incorrectly, or does other strange things. Closing the screenreader and reopening it sometimes solves the problem. Or maybe switching to a different screenreader starts up speech again.
* When troubleshooting, switching screenreaders can sometimes help you to isolate the problem. Let’s say some element of an Excel spreadsheet is not reading properly with JAWS. You switch to NVDA or Narrator, and it now reads correctly. This makes it more likely that the problem is with JAWS. But let’s say the problem is encountered with all three screenreaders. Then it is more likely that the problem has to do with how Excel interacts with screenreaders in general, and not with any specific one. In such cases, switching screenreaders may help you better articulate the issue when seeking technical support.
* Finally, if you are running another program with its own built-in voice, it may be helpful to close your screenreader while running these programs. This way, you won’t have two voices speaking over each other. Examples are Talking Typer for practicing typing and Kurzweil 1000 for scanning documents.

With JAWS, you can change both the default Voice rate, as well as change it temporarily. To change the default Voice rate, press Control + Windows + Alt, and then the Page up and Page down keys to increase and decrease the Voice rate, respectively. As you increase the Voice rate, JAWS will say “faster, faster.” As you decrease it, JAWS will say “slower, slower.”

The first way to change the Voice rate temporarily is to press Control + Alt, and then Page up and Page down to increase and decrease speed, respectively. Here too, JAWS will say “faster, faster” and Slower, slower.”

The second way to temporarily change the Voice rate, called on the fly,” is used with the Say all or Continuous reading keystroke, allowing you to adjust the Voice rate without interrupting speech. Press Insert + Down arrow to start continuous reading. Then press the Page up and Page down keys to increase and decrease the Voice rate, respectively. As you press Page up or Page down, reading will restart at the top of the paragraph you are currently in.

In this context, “temporary” means that once you leave the window where you have adjusted the Voice rate, either by Alt + Tabbing away from the window or closing the window with Alt + F4, it reverts back to the default rate.

### 1.2.1 Basic settings

These are accessed in the Basic settings dialog. To examine these, you need to get into the JAWS menus. There are various ways to open the JAWS menus. If you have not yet enabled JAWS to run from the System Tray, which is my preferred way to access the JAWS menus (see Chapter 1.2.1.4 below), one way is to do the following:

1. Press Windows + D or Windows + M to go to the Desktop.
2. Press J to get to the icon for your version of JAWS, and press Enter.
3. Press Alt to open the JAWS menu bar, which lands on Options.
4. Down arrow once to Basics, and press Enter to open this dialog.
5. Tab through the various settings.

I will only discuss the settings I consider the most important ones to change from their initial defaults. These are listed below in the order in which they are encountered as you Tab through the Basic settings dialog.

#### 1.2.1.1 Automatically start JAWS

This is important if you want JAWS to start speaking during the computer startup and login process. Note that you need to have administrator privileges to make any of these startup changes.

If you want JAWS to be your default screenreader program and you are not sharing the computer with sighted users, do the following:

1. Press Enter on this setting which opens a smaller dialog within the larger Basic settings dialog.
2. You first land on the Automatically start JAWS at the log on screen checkbox. If it is not already checked, press the Spacebar to check it. This ensures that JAWS will start speaking when the Windows log on screen appears.
3. Tab to Automatically start JAWS after log on for all users, and check this checkbox if you are not sharing the computer with sighted users. Even if you are, perhaps still check it and tell them how they can exit JAWS by pressing Insert + F4.
4. Tab to the Start JAWS after log on for this user combo box. Assuming you are the primary user of the computer, Up or Down arrow to Always.
5. Tab to the OK button and press Enter.
6. JAWS will say “User account control dialog.” If you have administrator rights to make changes to the computer, Tab to the Yes button and press Enter. If you do not have administrator rights, the computer administrator will need to make these changes for you.

This returns you to the Basic settings dialog. Continue tabbing.

#### 1.2.1.2 Prompt to Confirm When Exiting JAWS

This is checked by default, meaning that when you attempt to exit JAWS by pressing Insert + F4, you will first be asked if you want to exit JAWS. If you uncheck this checkbox, when you press Insert + F4, you will immediately exit the JAWS program. If you are a beginner, you may be more comfortable keeping this checked so that you don’t accidentally exit JAWS. Once you are a bit more experienced, uncheck it to avoid the additional step of confirming before exiting.

#### 1.2.1.3 Automatic Notification of Updates

This is checked by default and it is a good idea to leave it this way. JAWS updates are issued every couple of months or so, and contain bug fixes and new features. You should stay up-to-date. Performing updates only take a few minutes. You don’t need to do updates immediately when notified, but can wait until a more convenient time.

#### 1.2.1.4 Run JAWS from System Tray

Enabling this does two useful things. First, when you Alt + Tab through your open windows, JAWS will no longer appear as one of the windows, thus saving you unnecessary keystrokes. Second, it adds the option of pressing Insert + J to open the JAWS menus. This is a quick and easy way to open them from anywhere in the computer.

When you press Insert + J, a list of submenus appears, including submenus for options, utilities, languages, and help. Down arrow and press Enter or Right arrow to open one of the submenus.

If you make this change, it will take effect the next time you start JAWS.

#### 1.2.1.5 Use Keyboard Layout

This combo box has three choices: desktop, laptop, or kinesis. The default is desktop, and Kinesis is a specialized ergonomic keyboard that you would only choose if you had one of them. JAWS uses keys located on the numeric keypad on the right side of the keyboard. Many laptop computers do not have numeric keypads. But even if you have a numeric keypad, I recommend you choose the laptop option which has two advantages. First, it gives you an additional JAWS modifier key option because it enables the Caps lock key to fulfill this function. This makes it easier to execute JAWS keystroke combinations that require pressing a key with your right hand. For example, it is easier to tell the time by pressing Caps lock with your left hand and F12 with your right hand, than using your right hand to press both the Insert and F12 keys together. Second, you will now need to quickly press the Caps lock key twice to toggle Caps lock on and off. This makes it less likely that you will accidentally turn Caps lock on by mistake.

I always put computers in laptop mode, regardless of whether I am using a desktop or laptop keyboard.

After Up or Down arrowing to your keyboard layout choice, Tab to the OK button and press Enter to save your changes.

### 1.2.2 Managing Voices

JAWS voices can be accessed and managed in the Voices submenu of the Options submenu. Assuming you have enabled the Run JAWS from System Tray setting mentioned above, access the Voices submenu by pressing Insert + J from anywhere on your computer, Enter on the Options submenu, Down arrow to the Voices submenu, and press Enter again. The Voices submenu contains three dialogs:

* Voice adjustment, for making adjustments to existing voice profiles (Voice rate, pitch, volume level in relation to the overall system volume, etc.).
* Select a voice profile, for switching between existing voice profiles.
* Add/remove voices, for installing new Vocalizer Expressive voices or deleting previously installed ones.

Vocalizer Expressive voices are natural-sounding voices that many people prefer over the more robotic-sounding Eloquence voices. Voice choice is purely personal. My preference is to stick with the Eloquence default fellow whose name is Reid. Why do I prefer Reid? First, after using JAWS for about twenty years, I am so used to his voice, that I simply have no interest in abandoning him. More objectively perhaps, I like how he remains crisp and clear at both fast and slower Voice rates. That said, when making public presentations, I often switch to a Vocalizer Expressive voice because audience members may find such voices easier to understand.

To install one or more Vocalizer Expressive voices:

1. Press Insert + J to open the JAWS menus, and then press Enter on the Options submenu.
2. Down arrow to the Voices submenu and press Enter.
3. Down arrow to Add/remove voices and press Enter.
4. You land on the Select a language combo box, where the default is English. To select another language, Down arrow or first-letter navigate to that language. With JAWS 2024, there are over 40 languages available with Vocalizer Expressive.
5. Tab to the Premium voices multi-select list box and Down arrow or first-letter navigate through the voices for the selected language (there are over 20 English voices with various accents). Press the Spacebar on the voice or voices you want to install. For any given voice, you can also Tab once and press the Spacebar to hear a sample of the voice before installing it.
6. After selecting one or more voices, Tab to the Install selected voices button and press Enter to begin the installation. Percentages will be announced until the installation is finished.

To remove an installed voice, follow the same steps as above to select the voice, and then Tab to the Remove a voice button.

As mentioned above, you can switch between existing voice profiles from within the Voices submenu. But it is much quicker to press the shortcut key combination of Control + Insert S (think of S for “speech”). This opens a combo box listing existing voice profiles. Up or Down arrow, or first-letter navigate to your choice and press Enter to change the default voice profile. Note that any adjustments you made to the previous voice profile, like the Voice rate, are not transferred over to the new profile.

### 1.2.3 Getting Help

JAWS help resources are extensive and varied, including hot keys providing keystroke lists, a user guide that you can access in various ways, tutorials, and numerous online training resources. But before these, I will begin with a new JAWS feature called FSCompanion.

#### 1.2.3.1 FSCompanion

Introduced with JAWS 2025, this is a great AI-powered tool for getting help on using JAWS, Microsoft Office, and more, and it is very easy to use. Like other AI tools, it is trained on a Large Language Model (LLM) to generate initial and follow-up answers to your queries on how to carry out tasks on your computer. What sets it apart is that responses are restricted to keyboard commands. Unlike standard searches with Google or Bing, you will not be told to drag from here to there, click on the red button, or other such inaccessible instructions. Also, when I have performed standard searches in the past on how to do something with JAWS, I have usually gotten unhelpful results about going to the general JAWS help pages, rather than any specific guidance.

Although introduced during the JAWS 2025 rollout, you are not required to have JAWS 2025 to access it. Nor do you even need to be a JAWS user to benefit from it if you want to ask about how to do something in Office which does not require any JAWS keystrokes. For example, if you ask FSCompanion how to bullet a list in Word or select a row in Excel, these are Office keystrokes, so responses are equally valid for NVDA users.

Anybody can access this tool by opening their web browser and entering fscompanion.ai in the Address bar. JAWS 2025 users can also use the layered keystroke Insert + Spacebar, and then F1.[[4]](#footnote-4) Both ways land you in a similar user interface. Once there, use standard screenreader keystrokes like E to get to the edit field where you can type in your query. After typing it in, press Enter and you will hear tick-tock, tick-tock for a few seconds while the response is being generated. The response will then be read to you in Say all mode. You Will still be in Forms mode, so you can immediately begin typing a follow-up question if you have one. Or you can press Escape and then E again to get to the edit field. A level one heading entitled “Conversation with FSCompanion” appears at the top of the page. Each of your queries appear as level two headings, beneath which are the responses. If you would like to capture the text, use standard select and copy keystrokes and then paste the text in Word or another text editor.

There are also buttons for switching to Dark mode and for starting a new conversation.

A Dictate ffeature was introduced in early 2025 using the keystroke Alt + Shift + D to start and end dictation in the edit field for composing queries.

As is the case with other AI tools, FSCompanion can sometimes give incorrect responses. However, I have been very impressed so far and use it on a daily basis.

#### 1.2.3.2 Hot Keys for Getting JAWS Help

While in any application, you can press Insert + H and Insert + W to quickly get a list of JAWS and Windows keystrokes, respectively. Note that while the Insert and Caps lock keys can usually be used interchangeably, only the Insert key can be used for bringing up the list of JAWS keyboard commands. The Caps lock key will not work.

This tool can be helpful to both novices and experienced users. For example, if you are on a web page, pressing Insert + H brings up a Virtual Viewer screen that gives you a list of JAWS web navigation keystrokes ranging from basic ones like those for headings, links, and form fields, to more advanced ones like those for frames and placemarkers. When the Virtual Viewer appears, it will read continuously. Press the Control key to stop speech and Down arrow to read line by line through the list of keystrokes. You can select and copy text in the Virtual Viewer if you want to paste it into a Word document. When finished, you must press Escape in order to exit the Virtual Viewer and return to the screen you were on.

Pressing Insert + W provides a list of Windows keystrokes for the application you are currently in. Navigate through the list as above.

Another quick help keystroke is Insert + F1. This is called Screen-Sensitive Help. Here too, depending on what application you are in, information for navigating that application is provided. I find it is more helpful for some applications than for others. Examples where it provides particularly helpful information are:

* In Word documents, information on margin dimensions and page header/footer text and page numbering, table navigation.
* At the top of a web page, information on the number of regions, links and headings.
* In JAWS settings menus, explanations of what each setting will do.

Here to, when finished, press the Escape key to exit the Virtual Viewer.

#### 1.2.3.3 Help Topics

Unlike with the other two screenreaders, the JAWS user guide is not accessed all in one place online. Instead, you access it from inside the JAWS Help menu and is called Help Topics. Accessing Help Topics is a bit like the story of the blind man and the elephant. Depending on how you approach the Help Topics, you will get a view from the trunk, legs or tail. While this makes accessing help more flexible, it also requires some explanation.

To access JAWS Help Topics:

1. Assuming you have set JAWS to run from the System Tray as outlined above, press Insert + J to open the JAWS menus.
2. Press H to open the Help submenu.
3. Down arrow to JAWS Help Topics and press Enter.

The JAWS Help Topics are organized into four views or “pages.” Navigate through them by pressing Control + Tab. These four pages are:

* Contents page: A tree view of “books,” sections and individual Help Topics.
* Index page: A list of keywords, similar to an index at the back of a textbook.
* Search page: For conducting full text searches.
* Favorites page: For storing favorite previous searches.

The window for each of the pages is divided into two panes. The left pane is for navigating to Help Topics or entering search terms and finding results. Content is found in the right pane. Switch between the two panes by pressing F6. When you navigate to your desired topic in the left pane, you must press Enter on it before switching to the content in the right pane. Otherwise, the content displayed will be that of the last topic you accessed rather than the one you want now.

I consider the Contents and Search pages to be the most useful, and will only cover these two pages here. For the Index page, if you do not guess a term that is contained in the index, no results will appear. Regarding the Favorites page, I think it is more straightforward to search for terms as they come up rather than maintain a list of favorites.

As mentioned above, the Contents page is organized in a tree view. See Chapter 2.6.4.5 on how to navigate tree views. The tree view is organized into “books” at level 0. There are 17 books in the JAWS 2023 Help Content page. Topics are found at levels 1 and 2 of the tree view.

When you navigate to a topic that interest you, remember to press Enter on it. Then press F6 to move to the right pane where you can read the content using standard text reading keystrokes. Because the text is presented in HTML format, as on web pages, you can press H here to move to the next heading. You can also press Insert + F7 to get a list of links to access related sections of the Help Topics. To access additional Help Topics, press F6 to return to the left pane and navigate through the tree view to find your next topic.

To now move to the Search Page, press Control + Tab twice. This places you in an edit field where you can type in your search term. Let’s use the example of typing in “Quick Settings.” Now Tab once to the List topics button and press Enter or the Spacebar. Tab one more time to a list of search results. For Quick Settings, there are 87 search results. You can Down arrow through them, or first-letter navigate. Obviously, in this case it is more efficient to press Q for Quick Settings. As above, be sure to press Enter. Then press F6 to switch to the right pane to read the associated content.

I generally find the Contents page more useful for obtaining information on more general topics. Examples are getting an overview of things like the Convenient OCR or Text Analyzer features. For more specific concerns, the Search page often gets you to the content you want more quickly.

#### 1.2.3.4 Other Useful JAWS Help Resources

Additional help resources can be accessed through the JAWS Help menu. For a useful orientation, go to the Help Topics Search page and search for Help Menu Overview. Among the most useful additional resources are:

* Command Search: Use this tool to locate specific JAWS keystrokes. You can also access Command Search by pressing Insert + Spacebar and then J. This lands you in a search box where you can type in the term for which you want to get a list of relevant keystrokes.
* Message Center: A wide array of help resources are available for helping you learn JAWS, and you may receive regular notifications by email or popups when you start up your computer. To help you keep track of these, Message Center was introduced in JAWS 2023. You can access this list in the Help menu, or press the keystroke combination Insert + Spacebar followed by Shift M. The Message Center lists notifies you about upcoming podcasts, training webinars, and much more. Down arrow through them and press Enter to read them. Press the Delete key to remove them.
* Basic Training: This is a set of nine tutorial modules where you can follow instructions either through text or a recorded voice reading the text.
* Web Resources: This submenu of the Help menu provides links to various training pages on the Freedom Scientific website. Two pages are especially worth highlighting: Surfing the Internet where detailed information is presented about navigating the web with JAWS; and the Free Training Webinar page where you can listen to and download archived webinars on a wide variety of topics.

### 1.2.4 Additional Useful JAWS Features

#### 1.2.4.1 PictureSmart with Generative AI

PictureSmart was introduced several years ago, but the earlier version was of limited usefulness. This new version is truly revolutionary, bringing accessibility to a whole new level. It was introduced with the March 2024 update of JAWS 2024, and has been updated several times since then. This section covers PictureSmart as of the July 2024 JAWS update. Note that it is not available for earlier versions of JAWS.

PictureSmart draws on the Large Language Model (LLM) capabilities of Anthropic’s Claude and Open AI’s Chat GPT AI engines. It enables you to quickly get detailed descriptions of images encountered on websites and within applications, for image files saved on your PC, and for screenshots and open windows. You can even pause videos while playing them to get descriptions of frozen image frames.

On web pages, focus on an image by pressing G for graphic. For best results, be sure to maximize the window by pressing Alt and the Spacebar together, followed by X. Then press the layered keystroke Insert and the Spacebar together, followed by P and then C. A tick-tock sound plays to indicate that results are being generated. After processing, a new window opens and a Claude-generated summary description is read to you. At the bottom of the screen, three links appear, and activating them does the following:

* Ask questions about this image: Land in an edit field where you can ask a follow-up question about the image.
* Get more details: Results for both Claude and Chat GPT will be generated.
* Give feedback about this feature: Report problems and suggest improvements.
* After generating results, press the Tab key to quickly navigate to these links.
* If you prefer getting both the Claude and Chat GPT descriptions at once, press Insert + Spacebar, then P, and then Shift + C. Claude and Chat GPT results will each appear under level two headings. I usually prefer getting results this way, rather than doing it in two steps.

Other types of descriptions you can obtain include:

* Image files on your computer: Navigate to the file, and press Insert and the Spacebar together, followed by P F (for file). This will generate Gemini results. For both Claude and Chat GPT results, press Insert and the Spacebar together, followed by P and Shift F.
* Screenshots: Press Insert and the Spacebar together, followed by P S for Claude results, or Insert and the Spacebar together, followed by P and Shift S for both Claude and Chat GPT results. Everything on the screen is described, including elements not necessarily related to the open application.
* Windows: Press Insert and the Spacebar together, followed by P W for Claude results, or Insert and the Spacebar together, followed by P and Shift W for both Claude and Chat GPT results. Descriptions are limited to information related to the open application. See Chapter 7.10.2 on how to get an image description for a paused YouTube video.
* Images and charts within applications like Excel and PowerPoint. For Excel and PowerPoint examples, see Chapters 5.10.7 and 6.7, respectively.

A couple of new keystrokes were introduced with the July 2024 JAWS update. First, after pressing the Insert + Spacebar P layered keystroke combination, you can just press Enter to generate an image description. PictureSmart should recognize the correct context, so you don’t need to memorize the specific keystrokes for controls, files, windows and screenshots. The three links under the image description text will also appear.

Second, If you would like to ask a follow-up question without first hearing the initial results, you can press the Alt key as part of the layered keystroke, for example, Insert + Spacebar P, and then Alt C, or Insert + Spacebar Alt Enter. This will place focus in an edit field where you can type your question and then press Enter.

Here are two observations about follow-up queries. First, as mentioned above, an Ask questions about this image link appears near the bottom of the screen. However, this link is only present for the first follow-up question. For any additional follow-up questions, you can simply start typing your question and then press Enter.

Second, careful wording of follow-up queries will yield better results. Through trial and error, I have found the following queries to be effective:

* Graphics/Photos: Provide a detailed description of this image, including its content, design, and coloring.
* Charts in Excel and PowerPoint: Provide a detailed description and interpretation of this chart, including its content, design, and coloring, and any data patterns or trends you can discern.
* PowerPoint Slide Formatting: Provide a detailed description of the font formatting, background pattern, and coloring of this PowerPoint slide. Do not read me the text title and bullet point text.
* Screenshot Organization and Layout: Provide a detailed description of the organization and layout of this screenshot, including colors and patterns of the foreground and background text, graphics, and images.
* Videos: Provide a detailed description of the content of the video frame. Do not give me any details about other parts of the screenshot.
* PictureSmart continues to evolve. It will probably only get better over time.

#### 1.2.4.2 JAWS Speech History

This is one of my favorite JAWS tools! Speech History allows you to access previous announcements spoken by JAWS, copy them to the Clipboard, and then paste them into a text editor like Word or Notepad. Whatever your JAWS synthesizer says is recorded in the Speech History. It’s a great way to capture otherwise hard-to-grab text. Here are some situations where I have found JAWS Speech History particularly useful:

* Error messages that appear on your screen that you would like to report to tech support.
* Zoom chat lists text like URL’s posted by participants.
* Lists of file and folder names in your Documents folder.
* The text of dialog boxes and menu items.
* The text of a PowerPoint presentation you have just listened to.

To access the Speech History, press INSERT and the Spacebar together, followed by H. This opens a Virtual Viewer containing up to the last 500 announcements spoken by the synthesizer. When Speech History opens, your focus first lands on the last line of the Virtual Viewer which contains the most recent item spoken. You can use standard text reading and navigation commands to move around in the Virtual Viewer. You can also use standard text selection keystrokes to copy segments or the entire text to the Clipboard, and then paste it into Word or some other text editor. Press Escape to close the Virtual Viewer.

In addition, without opening the Speech History, you can press Insert + Spacebar, and then Control H to copy the entire Speech History to the Clipboard. Then you could paste the text into Word or some other text editor.

You can also press Insert + Spacebar, and then Shift H to clear the Speech History. You might do this just prior to capturing some desired text so you can clear out text that you do not want. For example, if I want to capture a URL in a Zoom chat, I might first clear the Speech History, then go into the Chat, and Down arrow to hear the URL. Then when I copy the Speech History, I will only have a few items sitting in my text editor rather than several pages of unwanted text.

Note that Speech History also clears when you lock or shut down the computer or exit the JAWS program.

To summarize the keystrokes:

* Insert + Spacebar, followed by H: open Speech History.
* Insert + Spacebar, followed by Control + H: Copy Speech History to the Clipboard.
* Insert + Spacebar, followed by Shift + H: Clear Speech History.
* Escape: Exit the Speech History Virtual Viewer.

#### 1.2.4.3 Face In View

Vispero introduced a great feature called Face in View with JAWS 2024. You can use it to check your video appearance during remote Zoom and MS Teams meetings. It is quickly activated and easy to use, thus addressing the vexing problem of wondering whether or not you are properly positioned in front of your camera.

To open Face in View, use the layered keystroke Insert and Spacebar together, followed by F and then O. Use this same keystroke combination to close it. Do this before you get into meetings, or when you are in meetings, but with your video turned off. It will not function while video is on because it needs access to the camera to get its bearings.

Information you will hear include:

* You are centered
* Brightness is Normal.
* You need to move right
* You need to move left
* Turn your head left
* You are pointing to center
* No face detected
* You need to move down or tilt your camera back
* You need to move up or tilt your camera forward

With Face in View already activated, you can then press Insert space F and L to just check for lighting or brightness. You will be told whether brightness is normal or low.

Also with Face in View on, press Insert + Spacebar and then D for details, including the percentage your face is off-center. An example of what you might hear is, “Location: 50% horizontally and 20% vertically. You need to move down or you’re your camera back.”

* You can also activate the JAWS Picture Smart feature to get a description of what the camera is seeing. With Face in View on, press Insert + Spacebar and then P and then Enter. You will hear a description of the screen, including briefly the background. If you want more details about what is in the background, Tab to the Ask questions about this image link, press Enter, type in “Please give more details about the background,” and press Enter.
* If you have more than one camera available, you can select between them by pressing Insert + Spacebar and then C. Now Up and Down arrow to select a different camera.
* Finally, and as mentioned above, Press Insert + Spacebar F O again to toggle Face in View off. If you are in a Zoom meeting, now press Alt V to turn on your video. Periodically throughout the meting, turn your video off, and use Face In View to check if your face is still centered.

#### 1.2.4.4 JAWS Sound Splitter

This feature, introduced with JAWS 2022, allows those using stereo headphones or speakers to route JAWS speech to one ear while routing audio from other applications to the other ear. These days, it is probably most frequently used in remote meetings. It can also be used in other situations where JAWS speech finds itself in competition with other audio such as when listening to YouTube videos.

Sound splitting is done using a layered key command. To split audio:

1. Press Insert and the Spacebar together, followed by V to activate the Volume layer.
2. Press B for balance, and then either: Left arrow to route JAWS speech to the left and other audio to the right, or Right arrow to route JAWS speech to the right and other audio to the left.
3. To restore both JAWS and other audio to both channels, press Insert and the Spacebar together, followed by V and B again. Then Up arrow once.

When you split the balance, it remains in effect until you either perform the previous step or exit and reopen JAWS.

One nice use of splitting JAWS sound has to do with sharing your screen In Zoom Meetings. It allows you to share the sound of your computer, including the audio track of a video, while at the same time keeping your JAWS speech silenced from your audience.

#### 1.2.4.5 JAWS Notification History

This useful feature was introduced in JAWS 2022. It makes it easy to customize many notifications that you receive. Customization options include muting, playing a sound instead, or shortening the wording of the notification. You can make general or application-specific modifications.

To open the Notification History, press Insert and Spacebar together, followed by N. This presents a list of most notifications received over the last 24 hours, with the most recent one at the top of the list, as well as the time it appeared. Note that I say “most” because some will not be announced for technical reasons that are beyond me.

As an example, I will modify a notification alert to hear a sound instead of the text. Steps are:

1. Press Insert and the Spacebar together, followed by N to open the Notification History.
2. Down arrow to the notification you want to modify.
3. Tab to the Create rule dialog and press Enter.
4. Tab to the Limit to notifications from [name of application] checkbox, and check it if you want to limit your modification to just that application. Otherwise, uncheck it.
5. Tab to the Speech or sound Action combo box, and Down arrow through the options. Choices include: mute, shorten, play sound, and speak the full message. Stop on play sound.
6. Tab to Select sound and press Enter.
7. Shift + Tab to a list of over 200 WAV audio files. Down arrow or first-letter navigate to the one you want to select and press Enter.
8. Tab once to the Play sound button and press the Spacebar if you want to hear the sound.
9. Tab to the Don’t show in history check box and check it if you do not want this notification to appear any more in your Notification History. This is useful if this notification appears often.
10. Tab to the OK button and press Enter.

Modifying or removing a notification customization is easy to do, so feel free to experiment. To do this:

1. Press Insert and the Spacebar together, followed by N to open Notification History.
2. Tab to the Manage rules button and press Enter. This button is only present if you have already created some rules.
3. Down arrow to the rule you wish to modify or delete.
4. Tab to Modify and press Enter if you would like to change how the rule is announced, using the same options as mentioned above.

Or Tab one more time to the Delete rule button and press Enter. You will be asked for a confirmation. Press Enter again to confirm.

#### 1.2.4.6 The FS Clipboard

While the Windows Clipboard (see Chapter 2.9.6) automatically retains all copied items once you have enabled the feature, with JAWS, you have to append each item to be retained. Items are copied to the FS Clipboard (this stands for Freedom Scientific). The FS Clipboard only works in text editors. It does not work in Excel. To append text to the FS Clipboard, first select text as you normally would. Then press Insert + Windows + C. Now go to the destination and press Control + V to paste all the items on the Clipboard

If, after appending items to the FS clipboard, you select text and press the standard Control + C, you will be asked if you want to override what is on the FS Clipboard. If you press the Yes button, all items on the FS clipboard will be cleared. You will now be back with the standard clipboard where only the last item copied or cut is retained on it prior to pasting.

Note that you can only copy text to the FS Clipboard. It is not possible to cut selections to it.

## 1.3 NVDA Basics

Download this free software from [NV Access](https://www.nvaccess.org/download/). Installation is quick and easy. Consider making a donation on the same page if you have the means to do so.

Once installed, press Control + Alt + N to open NVDA. To exit or “quit” the program, press Insert + Q, followed by tabbing to the OK button and pressing the Spacebar. When you open and quit the program, NVDA will indicate this with ascending and descending sounds, respectively.

NVDA shortcut keystrokes for increasing and decreasing the Voice rate are Control + Insert + Up arrow and Control + Insert + Down arrow, respectively. Unlike JAWS, it is not possible to temporarily change the Voice rate.

### 1.3.1 Important Settings

To open the NVDA menus where settings are found, press Insert + N. Remember that the Caps lock key is an additional NVDA modifier key. Using that key in combination with N is easier for most people. I will discuss four settings categories where the most important settings are found: General, Speech, Audio, and Keyboard.

To access General Settings:

1. Press Caps lock N, Down arrow once to the Preferences submenu, and press Enter.
2. Press Enter again on Settings. This lands you on the first category which is General.
3. In this category, Tab to the Show exit options when exiting NVDA checkbox. This is checked by default, meaning that a dialog box will come up when you press Insert + Q to quit NVDA. You will then need to Tab once to the OK button and press Enter. If you uncheck it, pressing Insert + Q will immediately close NVDA. This is my preference. A descending noise will be heard, providing a clear indication that you are exiting the program.
4. Tab to the Play sounds when starting or exiting NVDA checkbox. This is checked by default. Leave it this way to retain the useful opening and exiting sounds.
5. Tab to the Login level - start NVDA after I sign in checkbox. Check this only if you want NVDA to be your default screenreader.
6. Tab to the Login level – Use NVDA during sign in requires administrator privileges checkbox. Check this only if you want NVDA as your default.
7. Tab to the Automatically check for NVDA updates checkbox and leave this checked. NVDA updates are issued roughly every three months and it is good to stay current.
8. Tab to the Notify for pending update on startup checkbox. Leave this checked for the same reason.
9. Tab to the OK button and press Enter to save changes, and exit Settings.

Alternately, if you press the Spacebar on the Apply button rather than the OK button, any changes you made in this dialog will be preserved, and you will remain in Settings. You can then Down arrow to another category and continue making changes. For the remaining Settings categories in this section, I will assume you have exited Settings and are starting fresh.

NVDA uses the voices built into the Windows operating system, as well as one other category of voices. These include: E Speak English, Microsoft Speech API 4 (SAPI 4 for short), Microsoft Speech API 5 (SAPI 5), Windows 1 Core Voices, and No speech.

E Speak English is a synthesized voice that many people find annoying. For a long time, it was the default voice, as well as the voice you heard when installing NVDA updates. Somebody suggested at some point to change the default installation voice to one of the Windows voices. I am convinced this caused many people to start using NVDA because the E Speak voice was jarring to a large number of potential users. If it was the first thing you heard, and you didn’t know that you could change voices, it was enough to cause you to avoid using NVDA. This was the case for me until I got to know the program better and realized I could switch to a voice that I considered more tolerable.

To access the voices, go to Speech Settings. Steps are:

1. Press Insert + N, Down arrow once to Preferences, and press Enter. Note that I said earlier that I would use the Insert key as a convention for all modifier keys. But for accessing the NVDA menus, you will probably find it easier to press Caps lock N.
2. Press Enter again on Settings.
3. Down arrow once to Speech.
4. Tab once to the Speech properties page where the current voice synthesizer package is indicated.
5. To switch to another voice package, Tab once to the Change button and press Enter.
6. You land in the Select synthesizer combo box. Up or Down arrow to your new choice and press Enter.
7. This returns you to the Speech properties page where the new voice synthesizer package is indicated. You can now Tab to change several settings for this voice package.
8. Tab to the Voice combo box. Up or Down arrow to select another voice within this package. As you arrow down, you will hear a sample of each voice.
9. Tab to the Rate slider. Left or Right arrow to lower or raise the Voice rate by one percent. Press Page up or Page down to increase or decrease the speed by 10 percent increments. If this is the last setting you want to change, press Enter.
10. Otherwise continue tabbing to the Punctuation level combo box. Up and Down arrow through the choices which include none, some, most, and all. The default is Some.
11. Tab to the OK button and press Enter.

The Audio category contains Audio ducking, a useful setting for temporarily lowering the volume of audio other than synthesized NVDA speech such as Zoom meeting participants and YouTube videos. To access this category:

1. Press Insert + N, Down arrow once to Preferences, and press Enter.
2. Press Enter again on Settings.
3. Down arrow to Audio.
4. Tab to the Audio ducking mode combo box and Down arrow to Always duck.
5. Tab to the OK button and press Enter.

The last important initial area to examine in Settings is the Keyboard category. This category contains options that set how NVDA behaves as you type. To access it:

1. Press Caps lock N, Down arrow once to Preferences, and press Enter.
2. Press Enter again on Settings.
3. Down arrow to Keyboard, and Tab through the options.

I will cover what I consider to be the more important ones in the order in which they appear as you Tab through the dialog box:

* Keyboard layout: This combo box lets you choose between Desktop and Laptop layouts. Laptop layout behaves similarly to Laptop layout with JAWS (see Chapter1.2.15 above).
* Select NVDA modifier keys: The checkboxes in this list are the same as those for the other two screenreaders: the Caps lock key, the Insert key on the Number pad, and the Extended Insert key.
* Speak typed characters and Speak typed words: This is where you make your Typing echo selection. Typing echo is the audio feedback that is “echoed” back to you as you type. Combinations of checking and unchecking these checkboxes gives the four Typing echo options.
  + Characters: Check Characters and uncheck Words. Insert 2 toggles Characters on and off.
  + Words: Uncheck Characters and check Words. Insert 3 toggles Words on and off.
  + Characters and Words: Check both of them.
  + None: Uncheck both of them.
* Speech interrupt for typed characters: If switched on, speech is interrupted each time a character is typed. This is on by default, and you want to keep it on. Otherwise, if, for example, you navigate to a link on a web page, you will need to hear the entire label of the link before pressing Enter to activate it. This has the effect of making your computer sound very sluggish.
* Speech interrupt for Enter key: If on, speech will be interrupted each time the Enter key is pressed. This is on by default. For the same reason as for characters, do not change this.
* Allow skim reading in Say all: If on, certain navigation commands (like quick navigation in Browse mode or moving by line or paragraph) do not stop Say all. Instead, Say all jumps to the new position and continues reading. This is unchecked by default. You should press the Spacebar to enable it.
* Beep if typing lowercase letters when Caps lock is on: Keep this enabled so you are warned when you are mistakenly typing with Caps lock on.
* Speak command keys: When enabled, NVDA announces all non-character keys you type on the keyboard (Enter, tab, Alt + Tab, Control + C, Control + X, arrow keys, etc.). Toggle this on and off with Insert 4. I generally keep it on because I want to hear most of these keystrokes (Enter, Control + C, Control + V, etc.) when I press them. I toggle it off when doing a lot of Up and Down arrowing to navigate text line by line, not wanting to hear “Down arrow, Down arrow, Down arrow” constantly. I hope that some day the NVDA folks either remove arrowing from the list of command keys, or allow a degree of customization so I can get rid of having to hear arrow keys with this setting on.
* Play sound for spelling errors while typing: When enabled, a short buzzer sound is played when a word you type contains a spelling error. It is useful if you prefer to correct typing errors as you type, rather than waiting until running the Spellcheck utility.
* After making your changes, Tab to the OK button and press Enter to save them.

Some people who frequently use NVDA are not satisfied with only the Windows- voices. It is possible to purchase a package of the same Eloquence and Vocalizer Expressive voices available to JAWS users. For those in the United States, as of March 2024, these voices were available from A T Guys for $69, and can be purchased at:

[Eloquence and Vocalizer Expressive Add-on for NVDA](https://www.atguys.com/store/index.php?main_page=product_info&products_id=231#:~:text=%2469.00,popular%20screen%20reader%20from%20NVAccess) .

### 1.3.2 Getting Help

NVDA help resources can be found by pressing Insert + N and Down arrowing to the Help submenu and pressing Enter. Here you can find the NVDA user guide and a quick reference guide for commands. Access the online user guide at:

[NVDA User Guide](https://www.nvaccess.org/files/nvda/documentation/userGuide.html)

The user guide can be easily navigated by heading. Each chapter is a level one heading. The quick reference guide appears in tabular form so can be navigated using table navigation keystrokes for the web. See Chapter 7.1.1 and 7.1.6 for details on heading and table navigation on the web, respectively.

## 1.4 Windows Narrator

Narrator is Microsoft’s own screenreader, integrated into the Windows operating system. Although Narrator has been around for a long time, it has only become a credible screenreader since about 2018 when a major overhaul greatly improved its usefulness. While Narrator does not yet have as extensive a set of features as the other two screenreaders, Microsoft has shown a strong commitment to accessibility.

Control + Windows + Enter is the toggle for opening and closing Narrator. The first time you open Narrator, you land in the Narrator Home page window rather than remaining in the current window. You will not want this every time you open Narrator. To turn this off:

1. Press Control + Windows + N to get into the Narrator Settings menu.
2. Tab to the Show narrator Home when Narrator starts checkbox and uncheck it.
3. Press Control + Windows + Enter to exit Narrator and the same keystroke to reopen it to verify that Narrator no longer opens on Home.
4. If you ever want to open Narrator Home, press Control + Windows + N, Tab once to Open Narrator Home, and press Enter.

### 1.4.1 Important Settings

Press Control + Windows + N to open the Narrator Settings menu. Press Tab to move through all the settings. Each Settings category is marked as a heading, so you can also press H to move by category.

I will discuss below what I consider to be some of the more important settings.

* View the complete guide to Narrator online: Open this to access the Narrator user guide.
* Start Narrator after sign in for me checkbox: Turn this on only if you wish to make Narrator your default screenreader.
* Start Narrator for everyone before sign in checkbox: As above, turn this on only if you want to make Narrator your default screenreader.
* Personalize Narrator’s voice choose a voice combo box: For Windows 10 and the first version of Windows 11 which appeared in 2021, Narrator uses only the voices that come with the Windows operating system. Current English voices include two male voices (David and Mark) and one female voice (Sira). For Windows 11 Version 2022 and 2023, several additional natural-sounding voices have been added (see below for how to install and activate them). If you are going to use more than one screenreader program, it is a good idea to use a different voice for Narrator than for the others to avoid confusion about which screenreader you are currently using.
* Add more voices link: Open this to download voice packages for other languages.
* Change voice speed slider: Left and Right arrow to decrease and increase the voice speed. As you Left or Right arrow, you will hear the speed adjust. The shortcut key to do this is Insert + equal sign to increase the Voice rate and Insert + dash to decrease it.
* Lower the volume of other apps when Narrator is speaking checkbox: Also known as Audio ducking, this temporarily lowers the volume of competing audio (YouTube videos, people speaking during Zoom meetings, etc.) while you are typing so you can more easily hear your keystrokes. Keep this checked. I can’t think of any good reason to disable it.
* Change the level of detail Narrator provides about text and controls combo box: This is known as “verbosity,” and there are five levels. Press Alt + Down arrow to expand this list. You can access the verbosity levels more quickly by pressing Insert + V repeatedly to move between the five levels which are:
  + Level 1 - Text only: You hear text with no punctuation or web page controls spoken (links, headings, etc.). On the web, this is especially useful for reading newspaper articles and not hearing unnecessary information.
  + Level 2 - Some control details: Gives a limited level of information on controls in some applications.
  + Level 3 - All control details: This is the default level. It gives a full reading experience along with all details about an application’s controls as you interact with them.
  + Level 4 - Some text details: This level gives most text attributes (bold, italics, heading levels, etc.).
  + Level 5 - All text details: This level is best used when proofreading a document to check formatting. It provides complete details about heading levels, font attributes, type and size, bullet shapes, and other formatting.
* Change what you hear when typing. A series of checkboxes appear, the first two relate to what other screenreaders refer to as “Typing echo” (hear letters, numbers and punctuation as you type, and hear words as you type). Similar to NVDA above, different combinations of checking and unchecking them give you the four options:
  + Check the first checkbox for characters only.
  + Check the second checkbox for words only.
  + Check both checkboxes for characters and words.
  + Check neither checkbox to hear nothing as you type.

There are several more checkboxes related to changing what you hear. I suggest retaining the default settings which I indicate by noting on or off:

* + Hear function keys as you type – off.
  + Hear arrow, Tab, and other navigation keys as you type – off.
  + Hear when toggle keys like Caps lock and Num lock are turned on or off – on.
  + Hear Shift, Alt, and other modifier keys as you type - on.
* Select keyboard layout: The default is standard which means that Narrator will use the same modifier keys as JAWS and NVDA. The other choice is Legacy, which is a configuration for older versions of Narrator. Don’t change this.
* Select Narrator key: By default, both Insert keys and the Caps lock key are enabled. Don’t change this.
* Get help link: Activate this link if you are having problems with Narrator and wish to request assistance.

Give feedback link: Activate this link if you want to make suggestions on ways to improve Narrator.

While you can Tab through all of the above settings, you can move more quickly by pressing Insert + Spacebar to put Narrator in Scan mode. Then press H to navigate heading by heading through the Settings categories, which are:

* Startup options.
* Personalize Narrator's voice.
* Change what you hear when reading.
* Change what you hear when typing.
* Choose keyboard settings.
* Use Narrator cursor.
* Use braille.
* Manage your data and services.

When you arrive at a heading that interests you, Tab through the individual settings under that heading.

### 1.4.2 Managing Voices

With Windows 10 and the first version of Windows 11 which was released in 2021, a number of pre-installed voices were available for use with Narrator. With Windows 11 2022, the first annual update of Windows 11, three natural-sounding voices were also introduced, but only for use with Narrator, and not for use with the first Windows 11 version. Two female voices (Jenny and Aria) and one male voice (Guy) Voices were added with Windows 11 22 H2. Quite a few additional voices were added with Windows 11 23 H2. These voices are quick and easy to install, and clear and responsive at different Voice rates. The first time you open Narrator with Windows 11 22 H2 or 23 H2, you will be prompted to add these natural-sounding voices at that time. You can do it then or wait until later.

If you opt to add the voices later, steps for installing them are:

1. Press Control + Windows + N to open the Narrator Settings menu.
2. Press H to go to the Narrator’s Voice heading.
3. Down arrow past the text “Add natural voices” to the Add button and press Enter.
4. You land in a combo box where the three voices are listed.
5. Down arrow to the voice you would like to add.
6. Tab to the Preview button and press the Spacebar to hear a sample of the voice before downloading.
7. Tab to the Add voices button and press Enter to install it. These are all small files (10 to 15 MB only), so installation takes just a few seconds.

With Windows 11, Narrator has some quick ways to change the voice person, the voice speed and the voice volume, all involving the dash and equal keys. These are:

* Change the voice person by pressing Caps lock Alt Equal to cycle one way through the voices, and Caps lock Alt Dash to cycle in the other direction.
* Raise or lower the Voice rate by five percent increments by pressing Caps lock Equal and Caps lock Dash, respectively.
* Raise or lower the voice volume by five percent increments by pressing Caps lock Control + Equal and Caps lock Control Dash, respectively. These keystrokes do not work with Windows 10.

### 1.4.3 Getting Help

Narrator has an accessible online user guide. You can get to it via the Narrator menu (see previous section), or by going to the following link:

[Complete Guide to Narrator](https://support.microsoft.com/en-us/windows/complete-guide-to-narrator-e4397a0d-ef4f-b386-d8ae-c172f109bdb1)

The user guide can be accessed with standard screenreader keystrokes for web browsing (see Chapter 7.1). A table of contents with links to the various chapters and appendices appears on this page. Sections in each chapter are easily navigated by heading.

## 1.5 The Most Important Keystroke Similarities and Differences Between JAWS, NVDA, and Narrator

It is useful to summarize similar and different keystrokes in a single place. Fortunately, the majority of important keystrokes are identical.

First, keep in mind that with the other applications covered in this book - Microsoft Windows and Office, the various web browsing and cloud sharing apps, the Google Workspace, Adobe Acrobat Reader, and Zoom - the vast majority of keystrokes you need are native to those applications. For example, basic text reading navigation, and editing keystrokes are Windows keystrokes. This also goes for menu navigation in all these programs.

Second, to facilitate learning, most basic screenreader keystrokes are the same. Here is a list of the most important ones:

First, general keystrokes:

* Insert + T: Title of window.
* Insert + 1: Keyboard help.
* Insert, Numpad 0, Caps lock: Modifier keys.
* Insert + F12: Tell time.
* Insert +F: Check font and other format settings.
* And second, quick navigation keys on the web and in PDF documents:
* H: Go to next heading (Shift H to go back one heading).
* 1, 2, 3, etc.: Move to next level 1, 2, 3, etc. heading.
* B: Next button.
* C: Next combo box.
* E: Next edit box.
* X: Next checkbox.
* F: Next form field.
* T: Next table.
* Control + Alt + the arrow keys: Move up and down columns, and across rows
* Down and Up arrow: Move right and left along a row in a table.
* Fortunately, there is only a handful of important keystrokes that are different, First, opening, closing, and accessing menus:
* Control + Alt + J: Open JAWS (needs to be set up by user).
* Insert + F4: Exit JAWS.
* Control + Alt + N: Open NVDA.
* Insert + Q: Close NVDA.
* Control + Windows + Enter: Open and close Narrator.
* Control + Alt + J or Insert + J: Open JAWS menus.
* Insert + N: Open NVDA menus.
* Control + Windows + N: Open Narrator menus.
* Switching between cursor modes:
* Insert + Z: Toggle JAWS Virtual PC cursor (web) and Quick keys (Word) modes.
* Insert + Spacebar: Toggle NVDA Browse and Focus modes.
* Insert + Spacebar: Toggle Narrator Scan mode.
* Listing links, headings, and form fields:
* Insert + F7: List links with JAWS and Narrator.
* Insert + F6: List headings with JAWS and Narrator.
* Insert + F5: List form fields with JAWS only.
* Insert + F7: Elements list with NVDA where links, headings, and forms lists can all be accessed.
* Not possible to list forms fields with Narrator. Insert + F5 gives a list of landmarks.
* Finally, a few other different web browsing keystrokes:
* Control + F: Find text with JAWS.
* F3: Find next text occurrence with JAWS.
* Control + Insert + F: Find text with NVDA and Narrator.
* Insert + F3: Find next text occurrence with NVDA and Narrator.
* R: Next region with JAWS.
* D: Nex landmark with NVDA and Narrator. Note that regions and landmarks are the same thing.
* A: Next radio button with JAWS.
* R: Next radio button with NVDA and Narrator.

## 1.6 Switching Languages

I live in the United States, so my PC is set to read all text and menus in English. To switch to another language voice in one of my screenreader applications, there are three changes to consider:

* In each screenreader, install voices in different languages for your preferred synthesizer to read text in those languages.
* If you plan on creating and editing MS Office documents, change the preferred language so that ribbon and context menu items are displayed in that language.
* In Windows Settings, change settings to read File Explorer menus in those languages.
* I will not cover the last of these because, if you do not do it exactly right, it is extremely dangerous. You can inadvertently change your keyboard layout to another language, and you are required to log back into the computer. If you are not intimately acquainted with the keyboard layout in that other language, you could find it impossible to log back in. Unless you can find an expert typist in that language willing to come to your home or workplace on short notice, this will rival the blue screen of death in its capacity to wreak havoc on your life.
* If you ever find that your keyboard layout has inexplicably switched to another language, try pressing Shift Alt. Hopefully, this will toggle you back to your preferred language. I discovered this one day by accident.
* For JAWS, steps for installing and switching to Vocalizer Expressive voices in other languages are covered above in Chapter 1.2.2.
* For NVDA, you can use Windows voices in other languages. You can also purchase the same Eloquence and Vocalizer Expressive voice packages as those available for JAWS (see Chapter 1.3.1 above).
* For use with both NVDA and Narrator, you can install Windows One Core voices in other languages at no cost. Steps for doing this in both Windows 10 and 11 are:

1. While using any screenreader, press Windows I to open Windows Settings.
2. Tab once to a list of categories, Down arrow to Time and language, and press Enter.
3. Tab until you hear “Date and time one of four.”
4. Down arrow to Speech, and press Enter.
5. Tab to the Manage voices, add voices button and press the Spacebar.
6. You land in a search box. Type in the language you want to install and press Enter.
7. Tab once to a list of languages that match your search. As an example, three choices are listed for French: Canada, France, and Switzerland.
8. Press Enter on your choice, Tab to the Add button, and press Enter.
9. Installation takes just a few seconds. When finished, you are told that, “To use new voices, close and reopen settings as well as any apps that use voices.” Press Alt + F4 to close Windows Settings and then exit your screenreader.

* In NVDA, to switch to the new language so that text and NVDA menus are spoken in this language:

1. Press Caps lock N, Down arrow once to the Preferences submenu, and press Enter.
2. Press Enter again on Settings. This lands you on the first category which is General.
3. If you want to change the language in which NVDA menus are displayed, Tab once to the NVDA Language combo box, and Down arrow or First-letter navigate to your new language. You can skip this step if you are only interested in changing the language for reading text in documents and on web pages.
4. Shift + Tab back to the list of categories, and Down arrow once to the Speech category.
5. Tab once to hear which voice package is currently set. To change languages, you must be using the Windows One Core Voices. If that is not the case, see Chapter 1.3.1 on how to change voice packages.
6. Assuming you are currently using the Windows 1 Core Voice package, Tab to the Voice combo box, Down arrow to the new voice you want to use, and press Enter.

You are instructed to restart NVDA to make these changes take effect. Focus is on the Restart button, so press the Spacebar to do this. Both text and the NVDA menus will now read in the new language.

* In Narrator, to switch to one of the newly installed voices, press Alt Insert + equal or Alt Insert + dash to cycle between the available voices. In addition to voices you already had installed in your primary language, voices in the new language will also appear. The last one you land on becomes the new default voice for reading text. Unlike for NVDA, this does not change how the text of Narrator menu items is displayed. To do that, you would need to make the Windows Settings change mentioned above which I do not dare attempt.
* To change the display language for ribbon menus, context menus, and dialog boxes in Office applications, and assuming you are starting in English:

1. Open any of the Office applications, press Alt F T to open the Options dialog, category list.
2. Press L to first-letter navigate to the Language category.
3. Tab once to Display Language, and Down arrow to your choice.
4. Tab to the Office authoring languages and proofing, Editing language table, and Down arrow to the new language.
5. Tab to the Set as preferred language button and press the Spacebar. You will hear, “Microsoft Office Preferred Authoring Language dialog ‑ The authoring language you just chose will take effect the next time you start Office. Some of your custom settings might change, such as your preferred fonts in the blank document template. Do you want to continue?”
6. Press the Spacebar to confirm.
7. Tab to the OK button and press Enter. You will hear, “Please restart Office so that your language changes can take effect.”
8. As instructed, now Alt + F4 out of all open Office applications, not just the one in which you initiated this action.
9. Reopen any of the Office applications. Ribbon menus, context menus, and dialog boxes will now be displayed in the new language.

* A few final observations on switching languages:
* Don’t play around with new languages if you are not fairly fluent because you will have a hard time understanding the menus well enough to switch back.
* There is no guarantee that Office ribbon shortcut keys that you commonly use are the same in other languages. For example, Alt F T does not work for opening the Options category list in French.
* To change language display options for Windows File Explorer menus and for your keyboard layout, these are also found in Windows Settings for time and language. But as warned above, be absolutely sure you know how to make these changes correctly, or you will regret that you ever tried. And again, remember Shift Alt to switch language keyboard layout if you ever mistakenly switch away from your preferred layout.

## 1.7 Comparing the Three Screenreaders

If you are new to screenreaders, or are only familiar with one of the three covered in this book, you may be wondering about their comparative strengths and weaknesses. You might also ask if there are any advantages of learning more than one.

Let’s first talk about cost. You have to pay for JAWS while the other two screenreaders are free. NVDA can be downloaded and installed for free (but consider making a donation if you have the means to do so). Narrator comes bundled on your PC with the Windows operating system.

There are several pricing plans available for JAWS. All allow you to use JAWS on up to three computers for which you are the primary user. Home and pro licenses also exist. JAWS features are identical. The only difference is that home licenses are expected to be used for personal use while pro licenses are for use in institutional settings. Costs cited below are only for home licenses, and I am only familiar with purchasing options in the United States.

Buying the current version of JAWS outright costs around $1,000. Many of those who initially acquire it in this way receive it from a state blindness agency, and are then responsible for purchasing future upgrades. Each year, these come out in late October. If you initially acquired JAWS this way, the least expensive option for upgrading is to purchase a two-year Software Maintenance Agreement (SMA) prior to January 1 of the year that the next version will be released.

For example, JAWS 2025 came out in late October 2024. If I was paid up on my SMA up to and including JAWS 2025, and had purchased my next two-year SMA for JAWS 2026 and 2027 before January 1, 2025, I would have paid $150 for these two future upgrades. However, if I had waited until after January 1, 2025, the SMA would have cost $180.

The other option is to purchase an annual license. As of early 2025, this cost $95. Choose this option if you cannot get a full price license paid for by your state blindness agency or employer, or you have not kept up to date with SMA renewals and you are now several versions behind.

The above prices are subject to change. When considering a purchase, contact the company’s sales department first if you have any questions. If you live in the United States, Vispero, the creator of JAWS, Fusion and several other assistive technology software and hardware products, has provided discounts for a number of their products during the first few weeks of July, the time of the national conventions of the American Council of the Blind and National Federation of the Blind. Some of these discounts are still available, regardless of whether you attend one of these conventions or are a member.[[5]](#footnote-5)

Beyond cost, what are the relative strengths and weaknesses of the screenreaders? JAWS is highly customizable (see Chapter 8), possesses outstanding help and training resources in multiple formats (text, YouTube videos, podcasts, etc.), and excellent tech support over the phone or by email. You can install high quality voices in over forty languages at no extra cost. Specialists can write scripts to improve the accessibility of applications required in the workplace. This can make the difference between getting or keeping a job and losing it. Finally, JAWS has some great features that either have no equivalent in the other screenreaders, or do not perform nearly as well as the JAWS feature. Among the examples discussed elsewhere in this book include FSCompanion for getting help, PictureSmart Generative AI for getting detailed descriptions of graphics, Convenient OCR for reading otherwise inaccessible PDF’s with Adobe Acrobat Reader, Text Analyzer and Speech and Sound Schemes for proofreading documents, and Speech History for grabbing the text of what JAWS has recently said to you.

The main disadvantage of JAWS is that you have to pay for it. Because it is so powerful, it also takes up more computer resources than the other screenreaders. This can result in frequent hiccups like JAWS going silent. Even though my computer is reasonably fast, this sometimes happens to me several times daily.

A big advantage of NVDA is that it is free. Yet it is still fully capable of carrying out all functions needed by beginner and intermediate screenreader users, as well as many more functions used by advanced users. For a modest price, you can purchase the same high-quality voices available with JAWS. Sometimes NVDA performs functions more reliably or in less complicated ways than JAWS. One example relates to how the two screenreaders detect cell text visibility issues in Excel (see Chapter 8.1.4.1). Another is that it cuts out annoying verbosity while delivering PowerPoint presentations.

The main disadvantages of NVDA are that there is no tech support desk available, nor are documentation and training resources as abundant as those for JAWS. While new features are introduced from time to time, usually via add-ons, they are not nearly as frequent or significant as those for JAWS. Add-ons are small open source applications that can be downloaded to perform additional functions (see Chapter 8.2.4 on how to download them and descriptions of some useful ones). Add-on documentation is sometimes limited and some Add-ons are not updated.

Narrator is built into the operating system, ready to use “out of the box.” When you purchase a new computer, you can immediately use Narrator to start the setup process. It is highly responsive. Press Control + Windows + Enter, and Narrator immediately opens. Lags are experienced when opening JAWS and NVDA. Several excellent naturally-sounding voices are available with Windows 11. I think they are as good as any of the other synthesizer voices out there.

Unlike JAWS and NVDA, I would not characterize Narrator as a “full service” screenreader program, being more limited in what it can do. I do not know whether Microsoft intends to eventually compete head-on with JAWS and NVDA by developing a fuller set of features.

If you don’t learn anything else about Narrator, memorize Control + Windows + Enter for opening and closing the program. I open Narrator all the time when JAWS decides to stop talking, or when I want to troubleshoot problems.

I wrote a book a few years ago about browsing the web with screenreaders. Its subtitle was “ Why One Web Browser Is Not Enough.” You might ask the same question about screenreaders. There are several reasons why it is beneficial to be comfortable with more than just one.

Learning how to use a screenreader is certainly a big challenge. Most people start with either JAWS or NVDA. However, once you are comfortable with one screenreader, it does not take much time to learn the other ones because the most important screenreader keystrokes are the same for all three. Only a handful are different.

I primarily train students in JAWS. Once they are reasonably comfortable with JAWS, I allocate about one half day for learning NVDA and Narrator. This is enough time to get launched.

Using more than one screenreader is useful for troubleshooting because it can help you isolate problems. Let’s say you encounter what seems to be an accessibility issue while using JAWS with Microsoft Word. If you switch to NVDA or Narrator and don’t encounter the same issue, you may be able to hypothesize that the problem has to do with interaction between JAWS and Word. But if the problem persists regardless of which screenreader you are using, it is more likely that the issue is with Word. This helps you to better articulate what may be going on when communicating with tech support, thus making it more likely they can resolve your problem.

Another reason to use more than one screenreader is that they sometimes interact differently with websites. If you encounter a problem on a web page, switching screenreaders may help you overcome the problem.

For specialized tasks, one screenreader may perform better than another, or it may be important to use more than one. Screenreader users who perform web accessibility testing often find it important to use both JAWS and NVDA because using them in tandem may help uncover more accessibility issues than would be the case if only one screenreader were used.

What are patterns of screenreader usage among those who are blind and visually-impaired? Results of the Tenth bi-annual Screenreader User Survey by WebAIM, completed in February 2024,[[6]](#footnote-6) help answer this question. WebAIM is an accessibility training and consulting service organization based in Utah.

Of the 1,539 respondents from around the world,[[7]](#footnote-7) 40.5% reported that JAWS was their primary screenreader program, 37.7% said it was NVDA, and only 0.7% said it was Narrator. Because the majority of respondents were from North America, results are probably skewed in favor of JAWS. Other screenreaders reported included VoiceOver on the Mac, Zoomtext/Fusion, System Access, and ChromeVox.

NVDA usage as a primary screenreader has steadily grown over the years from 3 percent in 2009 to 38% in this latest survey. This has cut into the JAWS share which fell from 68% to 40% over the same period.

The survey also reveals that many people use multiple screenreaders. When asked which screenreaders do you commonly use, Narrator usage jumps to 37.3%. NVDA and JAWS are commonly used by 65.6% and 60.5%respectively.

The survey finds that most experienced respondents consider either JAWS or NVDA to be their primary screenreader, but typically use more than one. My sense is that choice of primary screenreader is strongly influenced by willingness of state agencies and employers to purchase JAWS, availability of training, and where you live around the world. Not surprisingly, the WebAIM survey finds that JAWS is more frequently used as the primary screenreader in more affluent countries like the United States, while NVDA usage predominates in less affluent ones.

At the end of the day, your choice of primary screenreader should be based on your specific needs (including what is best suited to your school or workplace environment), preferences, and financial circumstances. I assume that many of you already have decided on your primary screenreader program for your Windows-based computer. Many of you probably also use at least one of the others in a secondary capacity.

I first started using JAWS in 2004 (version 5), shortly after I became blind. I quickly came to love it, being amazed at what it could do, and its power to help me reconnect to the world. More than twenty years later, I still love it, but am also grateful that it is no longer the only game in town. Hopefully, this book will facilitate your exploration of the others and aid in improving your user experience.

# Chapter 2 The Windows Environment

This chapter discusses the Windows operating system environment, including differences between Windows 10 and 11, keyboard and screen layout, the different types of menus you will encounter when executing commands, settings you may wish to change, file management basics, and text reading and editing.

Windows is the operating system for your computer. It is the brain of your computer. It is defined by [Techterms.com](https://techterms.com/) as follows: “An operating system, or "OS," is software that communicates with the hardware and allows other programs to run. It is comprised of system software, or the fundamental files your computer needs to boot up and function. Every desktop computer, tablet, and smartphone includes an operating system that provides basic functionality for the device.”

Windows 11 was first introduced in 2021. Microsoft will cease support to Windows 10 in October 2025. If you are still using Windows 10, it is time to plan your transition to Windows 11, either by switching to it on your PC if this is possible, or by acquiring a new PC if it is not. Depending on a non-supported operating system can be very perilous, so getting away from it should be a big priority.

The next section discusses differences between Windows 10 and 11.

## 2.1 Overview of Differences Between Windows 10 and 11

Major upgrades of Windows 10 were traditionally rolled out semi-annually, while Windows 11 upgrades have come out annually in the Fall. The most recent one began rolling out in September 2023, and is called Windows 11 Version 2023, or Windows 11 23 H2.

I will now identify the differences between Windows 10 and Windows 11 that I consider most important. First, File Explorer, the app used for file and folder management, has a different menu structure than Windows 10. Windows 10 uses the ribbon structure (see Chapter 2.4.1.1 on ribbon organization and navigation) while Windows 11 has a drop-down menu structure. To access the Windows 11 menu, referred to as the “Command bar,”, press the Alt key to open it. You first land on the New button on the Command bar. You will hear that it is collapsed. Right and Left arrow to various other buttons, some of which are also collapsed. These include Cut, Copy, Paste, Rename, Share, Delete, Sort, View, and More app bar. For any of the collapsed buttons, press the Spacebar to expand them, and Up or Down arrow to the command you want to execute or the setting you want to change. It will take you only a few minutes of exploration to figure out how to use the Command bar. If you never liked the ribbon menus, you will find Windows 11 to be a welcome change.

Sections of this chapter where the Windows 11 Command bar is referred to include those for showing file extensions, changing folder views, sorting files and folders, and toggling on and off the full folder path display in the Title bar.

Second, when in File Explorer, the context menu opened via the Applications key has been slightly modified beginning with Windows 11 22 H2. When you first open it, only four or five commands are listed. To access the full set of commands available, you must Up arrow a couple of times to Show more options, and press Enter. This adds an unnecessary step for getting to most commands. Fortunately, File Explorer is the only place where this happens.

If your keyboard has an Applications key, you can press Shift and the Applications key together to avoid this step. If your PC does not have an Applications key and you are obliged to press Shift + F10 to access context menus, you are unfortunately stuck having to activate Show more options.

Another difference between Windows 10 and 11 relates to the steps for changing default programs. It is quick and easy to change default web browsers and media players in Windows 10. And slightly more complicated in Windows 11, but not hard to do. Changing default programs is covered in Chapter 2.5.10.

This PC, or This PC app, is the highest level folder in your computer folder structure. It is included in the Windows 10 Start menu fresh from the factory, but not with Windows 11. This has implications for how you access it. You may find it advantageous to add it to the Windows 11 Start menu and/or add a shortcut to your desktop. How to do this is covered in Chapter 2.5.8 and 2.5.9.

A number of high quality voices are available with Windows 11 for use with Narrator. Unlike the legacy Windows voices, the new voices are not currently available for use with JAWS or NVDA. Chapter 1.4.2 covers how to install these voices.

You can customize Windows 10 to hear the once-familiar Windows 7 sound when you start up your computer. By default, a new sound is built in when you start Windows 11. See Chapter 2.5.15 on how to enable the startup sound for Windows 10.

Customizing which apps appear in the System Tray is another area where steps differ between Windows 10 and 11. See Chapter 2.3.3 on how to do this.

Now, let’s get familiar with the Windows operating system in a screenreader environment.

## 2.2 Keyboard Help

All three screenreader programs have this feature which helps you learn the functions of important keys on your computer by putting you in a temporary help mode. This is a safe way to explore your keyboard, so that you don’t inadvertently execute unwanted functions. For example, if you press your Delete key, your screenreader will identify the key and say what it does rather than actually delete something. If you have just acquired a new laptop, this is especially useful because the location of a number of important keys (Insert, Delete, Home, End, Page up, Page down, Applications key) varies by laptop model. Key locations are more standardized on desktop keyboards.

Pressing Insert + 1 on the number row toggles Keyboard Help on and off with all screenreaders. When you do this, JAWS will say “Keyboard Help On/Off.,” NVDA will say “Input Help On/Off,” and Narrator will say “Input Learning On/Off.”

Beyond the keys of the alphabet and the number row, what are those important navigation keys you want to be able to locate on your computer? First is the “six-pack,” so named because it is a cluster of six keys (two rows with three keys each) near the top right side of a standard desktop keyboard. From left to right, the top row includes the Insert, Home and Page up keys. The bottom row includes the Delete, End and Page down keys. These keys tend to be near the top right of many laptop models. For example, most HP models have these as the top right six keys from right to left in the order Page down, Page up, End, Home, Delete and Insert.

You should also locate the four arrow keys clustered near the bottom right of your computer.

For keyboards with a Number pad, when the Num lock key is switched off, you also have the option of using the keys clustered around the Five key. The key above, below, to the left and right of the Five key are the Up, Down, Left and Right arrow keys, respectively. The keys to the left and right of the Up arrow key are the Home and Page up keys, respectively. The keys to the left and right of the Down arrow key are the End and Page down keys, respectively. If this text sounds a bit confusing, it won’t after you turn Keyboard Help on and play around with it a bit.

Starting on the bottom row of your keyboard, at the extreme left, desktop keyboards usually have three keys to the left of the Spacebar (Control, Windows, and Alt). Laptop keyboards have four keys (Control, Function, Windows and Alt, with the order of Control + And Function flipped for some Lenovo models). Most desktop keyboards have the Alt, Control, and Applications key to the right of the Spacebar. Beyond an Alt key to the immediate right of the Spacebar, other keys to the right of the Spacebar vary by laptop brand and model. If your laptop has a dedicated Applications key, it will usually be two keys to the right of the Spacebar. However, these days many laptops do not have an Applications key. If this is the case, you must use Shift F 10 instead to access it.

When using Keyboard Help with Insert + 1, and based on default settings for which keys are announced by the three screenreaders, NVDA and Narrator announce each key individually along the bottom row of the keyboard. JAWS remains silent for the Control, Windows and Alt keys along the bottom row, as well as for the Insert and Shift keys when using Keyboard Help. However, if you press these otherwise silent keys in combination with other keys, JAWS announces which keys they are and their combined function. For example, when you press Control + And C together JAWS will say “Control + Plus C, copies selected text or items to the Clipboard.”

Finally, find the Tab and Escape keys which are consistently found near the top left of all keyboards. Also find the Backspace key which is usually located on the right side of your keyboard, somewhere along the second row from the top.

Why do these keys matter? Sighted people rarely use them because they navigate and execute commands with the mouse. As a screenreader user, you will use a variety of combinations involving these keys to substitute for the mouse.

Once you get familiar with your keyboard layout, you may never use Keyboard Help again. But it is a nice feature when you get a new computer or need to work on an unfamiliar one.

## 2.3 The Desktop

When you boot up your computer, the Desktop is displayed once the startup process is complete. The Desktop includes a set of icons which take up most of the screen, and a Taskbar that spans a bottom strip of the screen.

### 2.3.1 Desktop Icons

Desktop icons represent shortcuts to files, folders, applications and web pages, as well as files or folders you have saved directly to the Desktop. Icons are arranged in columns and rows. They are small files that point to a program, folder, document, or web page. Clicking on a shortcut icon takes you directly to the object to which the shortcut points. Pressing the Delete key on such an icon only removes the shortcut. It does not remove the associated file, folder, or application from your computer. If you have the Deletion confirmation option enabled (see Chapter 2.5.1), and you attempt to delete a shortcut, your screenreader program will ask you if you want to move the shortcut to the Recycle Bin. If you have saved a file or folder to the Desktop, the deletion confirmation message will instead ask whether you want to move the file or folder to the Recycle Bin. Be sure that this is what you want to do because, in this case, you are not deleting a shortcut, but the actual file or folder.

The array of icons on desktops differs from one computer to the next. The only shortcut present on all computers is the one for the Recycle Bin. After logging in, focus is on the Desktop. To quickly access it at any time during your computer session, press Windows + D or Windows + M. Sometimes you need to press these keystrokes twice to place focus on the Desktop. If you press these keystrokes several times and do not hear anything, it is probably because your focus is already on the Desktop. If you are not sure, press Insert + T to hear the title of the window. Hopefully, your screenreader will indicate that you are on the Desktop.

To explore the icons present on your Desktop, press Windows + D or Windows + M to go there. Now press either Home or Control + Home to place focus on the top left icon. Unless you have rearranged the icons, the Recycle Bin icon is usually the top left icon. When you press Control + Home, your screenreader will say the name of that icon, as well as how many icons are present on your Desktop. Now Down arrow to go down the first column of icons. Depending on the size of the icons, screen resolution, and the size of your monitor, there will be somewhere between five and ten icons in each column. When you get to the bottom of a column, press the Right arrow to go to the next column and then Up arrow through that column’s icons.

Arrowing around is a good way to get an idea of which icons are present on your Desktop. However, the quick way to get to the icon you want is to use first-letter navigation. Then press Enter to open the associated file, folder, program, or web page. How to create desktop shortcuts for folders, files and programs is covered in Chapter 2.8.1. Creating desktop shortcuts for web pages is covered in Chapter 7.4.3.

Pro-actively managing your Desktop will make you a more efficient computer user. Below are a few rules of thumb you should follow:

* Don’t allow your Desktop to get too cluttered. Delete shortcuts for things you rarely or never use. Set yourself an upper limit of 40 or 50 desktop icons.
* Limit yourself to four or five shortcuts for web pages. Reserve these for only those web pages you visit several times each week. For web pages you visit less frequently, create favorites/bookmarks instead (see Chapter 7.4.2).
* Create shortcuts for folders you will visit frequently, including Documents and Downloads. If you use cloud sharing apps like Dropbox, Google Drive for Desktop, and/or OneDrive, create shortcuts for these too.
* Create shortcuts for files you plan on visiting frequently. For many years, I have had a contact information file shortcut on my Desktop. It is a grab bag of phone numbers, street addresses of friends and businesses. I can easily access it to find contact information, as well as quickly add new information.
* Create shortcuts for files you plan on visiting frequently in the short-term. Let’s say you have a work or school assignment that you will be working on every day for the next two weeks. Create a shortcut to this file so you can quickly access it. Once the assignment is completed, delete the shortcut, leaving the associated file somewhere on your computer. I regularly add and remove shortcuts to files and folders for short-term projects.

Some people like to reorganize their desktop icons. Others don’t really care because they exclusively use first-letter navigation to access them. Changing the size of icons, as well as reorganizing them, is quick and easy to do.

Steps for changing icon size are:

1. Press Windows + M or Windows + D to get to the Desktop.
2. If you land on the top left icon, arrow to any of the other icons (for some reason, the remaining steps won’t work if you start from this icon).
3. Press Control + Spacebar to deselect all icons.
4. Press the Applications key where you first land on the View submenu.
5. To change the size of the icons, press Enter here, Down arrow to your choice and press Enter. Choices are large, medium, and small.

To reorder your desktop icons:

1. Repeat steps one through four above.
2. Down arrow once to the Sort by submenu.
3. Press Enter to open this submenu where you can rearrange the sort order of the icons. Options include name, size, item type, and date modified.

I occasionally find sorting by date modified useful if I have recently created a shortcut but can’t remember its name. Sorting this way positions the most recently created shortcuts at either the top left or bottom right corner of the Desktop, making it easier to find them.

### 2.3.2 The Taskbar

With Windows 10, by default, the Taskbar is located along a bottom strip of the screen. It contains the Start button on the left side and the System Tray (also known as the Notification Area) on the right. It also includes the current time on the far right side and a list of recently used apps to the right of the Start button. You can also pin items to the Taskbar, but there are more efficient ways to access them. The Windows 11 Taskbar has a different visual look, but I will not cover it here.

Much of the taskbar area contains titles for open windows. Whenever you open an application, it shows up in the Taskbar. Sighted people can click on icons for currently open applications, making that window active and appearing in front of other windows. Screenreader users access these Windows + By holding down the Alt and Tab keys together.

The Start menu appears at the bottom left of the screen. The quickest way to access it is to press the Windows logo key. This opens the Start menu with initial focus in a search box. Here you can begin typing the name of a program, folder, file, or Windows setting you want to access. For frequently visited programs like Word or Outlook, typing just the first letter is usually enough to populate the search box with the desired app name. As soon as you hear the name of the desired app, press Enter to open it. Some people prefer opening programs in this way. Others prefer accessing them by creating desktop shortcuts. Do what’s most comfortable for you.

You can access the list of programs installed on your computer by pressing the Windows key, and then Down arrowing through the list of all apps. If you open the Start menu and then Tab, you can Down arrow through choices which include your user folder, Documents, Pictures, Settings, and Power.

### 2.3.3 The System Tray, Including Customization

The System Tray, also known as the Notification Area, appears in the lower right corner of the screen. With JAWS, you can access it by pressing Insert + F11. With NVDA and Narrator, press Windows + B, and then Down arrow through the list. It displays a series of icons for certain programs, as well as some computer settings, the most important being:

* Internet connectivity status: This indicates whether your computer is connected to a Wi-Fi network, and if so, the network is identified.
* Battery level for laptop computers: The percentage charge is indicated, as well as whether the computer is plugged in and charging. If only a percentage level is indicated, the laptop is not plugged in. For some laptop models, an estimated amount of time before the battery runs out is also indicated.
* Speaker volume: This is expressed as a percentage of the maximum system volume. While you can adjust volume on any keyboard, keystroke combinations vary from one computer to the next. But you can always do this in the System Tray. To adjust the volume, press Enter on Speaker volume, Down arrow to Open Volume Mixer and press Enter. This opens an up down slider. Press the Up and Down arrows to adjust volume by one percent increments, Page up and Page down to adjust it by 20 percent increments (Windows 10 only), or Home or End to maximize or minimize volume.

You can customize the System Tray to add or remove items. To do this with Windows 10:

1. Press the Windows key to open the Start menu’s search box.
2. Type the first few letters of the word “taskbar,” minus the quotes, and press Enter when you hear “Taskbar settings system settings.”
3. Tab several times to the Notification Area select which items appear on the Taskbar link, and press Enter.
4. Tab to the Always show all icons in the Notification Area button. If you press the Spacebar to toggle it on, all items (usually 15 to 20) will appear in the System Tray.
5. Or if you toggle it off, you can then continue tabbing, pressing the Spacebar to check and uncheck those items you want to appear or not appear in the System Tray. Items you should check were mentioned above. There are others you may also wish to check. For example, if you use Dropbox or OneDrive, it is a good idea to check these too.
6. When finished, press Alt + F4 to close this window. There is no OK button here.

Steps vary slightly between Windows 11 versions for customizing the System Tray. With Windows 11 23 H2, steps are:

1. Press the Windows key to open the Start menu’s search box.
2. Type the first few letters of the word “taskbar,” minus the quotes, and press Enter when you hear “Taskbar settings system settings.”
3. Tab several times to the Other system tray icons, Show all settings button collapsed, and press the Spacebar to expand it
4. Tab a couple of times to a list box with 20 or 30 items listed.
5. Down arrow through the choices. When you land on a program or setting you want to add or remove from the System Tray, Tab once, and press the Spacebar to toggle it on or off.
6. Shift + Tab once to return to the list, Down arrow to the next item you want to include or remove and repeat the above step.
7. When finished making your selections, press Alt + F4 to close this window.
8. Open the System Tray by pressing Insert + F11 in JAWS or Windows + B with NVDA and Narrator, and verify that your changes appear.

With Windows 11, if you want all items to appear in the System Tray, it is not possible to do this by pressing a single checkbox as is the case with Windows 10. In addition with Windows 11, network status, speaker volume and battery level for laptops cannot be removed from the System Tray, but this is not a problem because you should retain them.

### 2.3.4 Time and Date

With JAWS and NVDA, you can find out the time by pressing Insert + F12. Hold down the Insert key and press F12 twice to hear the date with these two screenreader programs. With Narrator, pressing Insert + F12 once will tell you both.

### 2.3.5 Powering Off Your Computer

Avoid holding down the Power button as your typical way of shutting down. Doing this too often could damage your computer. A better way to power off is to first navigate to the Desktop and then press Alt + F4, the same keystroke used for closing other windows. This lands you in a combo box with several choices. Most of the time you land on shutdown. If you Up or Down arrow there are other choices. In order from the top of the list, these are switch user, sign out, sleep, shutdown, and restart. If you choose restart, your computer will power off and then automatically reboot. Update an shut down and update and restart are sometimes also present.

If you press Enter on shutdown, your computer will power off directly, but only if no windows are open with unsaved files or email messages. If such windows are still open, your screenreader will indicate that shutdown or restart has been blocked. If you want to save anything in these still open windows, Tab to the Cancel button and press Enter. Then Alt + Tab to the window with your unsaved work, and save it.

If you don’t need to save any of this work, you can Tab a number of times to the Shutdown anyways or Restart anyways button (or Shift + Tab just once) and press Enter on it to power off the computer.

Another way to shut down your computer is to press Windows and X together, followed by tapping the letter U twice. This alternative method is especially useful for Windows 11 users because the shut down and restart options sometimes fail to appear when attempting to shut down from the Desktop. When that happens, pressing Windows and X together, followed by U twice will allow you to shut down.

## 2.4 Accessing Commands

On a Windows PC with Microsoft Office, commands are accessed and executed in several ways. They can be found in the ribbon system of menus, introduced in Office 2007. One can also access a number of commonly used commands and settings with context menus accessed using the Applications key. Shortcut keys can be used for quickly executing commands. Common examples from earlier in this chapter are Control + C, Control + X, and Control + V for copying, cutting, and pasting files, respectively. Once you navigate to commands via the ribbons or context menus, some commands can be executed by pressing Enter or the Spacebar. Others require that you open a dialog box or submenu and navigate through to modify settings, enter information, and/or execute commands.

### 2.4.1 Types of Menus

#### 2.4.1.1 Ribbons and the Importance of Keeping Them Expanded

Beginning with the Office 2007 suite, Microsoft introduced ribbons. These have been present for all versions since then. You will encounter ribbons with Word, Excel, Outlook, and PowerPoint. Ribbons are also present in the Windows 10 version of File Explorer, the Windows 10 application for managing files and folders.

Ribbon menus consist of an upper and Lower ribbon. The Upper ribbon is opened by pressing Alt. A narrow horizontal strip will appear across the top of the screen. In most cases, the first time you Press Alt during a session, you will land on the Home tab. A tab is a broad grouping of commands. One navigates between the various tabs by Right and Left arrowing.

From the Upper ribbon, press the Tab key and a second (wider) horizontal strip appears below it with icons grouped in that tab category. This is the Lower ribbon. You navigate from one command to the next by pressing the Tab key. Press Shift + Tab to go to the previous command.

By default, both the upper and Lower ribbons are visually displayed, or expanded, for most of the Microsoft applications. The one exception is File Explorer, used for managing files and folders, which is collapsed the very first time you open it. That said, you may still find some of these ribbons collapsed that are supposed to be expanded. You must expand them to make them behave correctly for screenreader use. To do this, while in the ribbons, press Control + F1. Your screenreader should say “ribbons expanded.” Once expanded, they tend to stay that way.

It is hard to know if the ribbons are behaving correctly when you are new to them, because you don’t know what correct behavior sounds like. If you press Alt the first time during a session in an Office application, and you land on the File tab, that is a giveaway that the ribbons are collapsed. You will need to expand them. Or, if you try some of the ribbon commands enumerated in this book, and you just can’t get to them, try expanding the ribbons and see if that helps.

When to use ribbons to execute commands, versus alternative ways, will be discussed more extensively in Chapter 3.1.

#### 2.4.1.2 Having Problems with the Ribbons? Try Command Search with Alt Q

Beginning with Office 2016, for any of the Office Suite products, if you have difficulty remembering a particular ribbon shortcut key, or where a command is found in the ribbons, you can press Alt Q to open a search box where you can search for a command (think of the Q as standing for question or query). Type in the name of the command you are searching for and Down arrow through the results. If you press Enter on one of these, you can start the process of executing the command. For example, if you are in a Word document, press Alt Q, type in “margins,” Down arrow to the Adjust margins submenu, and press Enter. This opens the same submenu found in the Layout tab of the ribbons.

You can do several other things with this feature. Still using the margins example, continue Down arrowing to the Get help on: margins split button. Pressing Enter on this opens a help page where you can learn more about this and related commands. If you press Alt + Down arrow on this split button, a list of associated commands appears. You can press Enter on one of these to open a help page related to that command.

If instead of executing the command, you want to add it to the Quick Access toolbar (see the section immediately after this one), after Down arrowing to it, you can press the Applications key and press Enter on Add to Quick Access toolbar.

In addition, if you press Alt Q and leave the search box empty, you can Down arrow through a short list of recent queries you have made and execute one of those.

Finally, in Outlook, Alt Q works in some views, but not others. It does not work in any of the message list views (inbox, sent items, trash, etc.). It does work if you are reading a message or are in the process of preparing one. It also does not work in the Calendar day, work week, full week, or month views or in the list of contacts in the Contacts folder. But it works if your cursor focus is within a dialog for editing an individual meeting or appointment, or in the dialog for an individual contact.

#### 2.4.1.3 Drop-Down Menus

A drop-down menu presents a horizontal list of menu areas along a menu bar that you Right and Left arrow across. Some common menu areas are file, edit, and tools. When you Up or Down arrow in one of these menu areas, a list of choices will "drop-down" below it. Applications discussed in this book which use drop-down menus include JAWS, Mozilla Firefox, and Adobe Acrobat Reader

#### 2.4.1.4 Context Menus

Context menus are activated by pressing the Applications key. This is roughly equivalent to right clicking for mouse users. On desktop keyboards, the Applications key is typically the third key to the right of the Spacebar. For some laptop models, it is the second key to the right of the Spacebar. Yet nowadays, many laptop keyboards do not have a dedicated Applications key. Instead, it is necessary to Press Shift + F10 to access context menus. Shift + F10 works on any computer, including those with a dedicated Applications key.

After opening a context menu and Down and Up arrowing, you usually hear a single letter after each command. you can press these single letters to get to commands more quickly. Remember them for commands that you think you will frequently use.

An annoying change was introduced to the File Explorer context menu beginning with Windows 11 22 H2. When you first open it, only four or five commands are listed. To access the full set of commands available, you must Up arrow a couple of times to Show more options, and press Enter. This adds an unnecessary step for getting to most commands. Fortunately, File Explorer is the only place where this happens. Context menus for Office applications have not changed.

If your computer has an Applications key, you can press the Shift and Applications keys together to avoid the Windows 11 Show more options step.

#### 2.4.1.5 Submenus

A submenu is a nested menu within another menu. They are present in numerous Lower ribbons and in context menus accessed via the Applications key. Unlike dialog boxes, submenus do not have OK and Cancel buttons. They also have fewer types of controls than dialog boxes, limited largely to buttons and edit boxes.

Submenus encountered in Lower ribbons are opened by either pressing Enter or the Spacebar. You press the Tab and Shift + Tab keys to move through them.

Submenus encountered via the Applications key can be opened by either pressing Enter or the Right arrow, then using the Up or Down arrow to move through your choices.

### 2.4.2 Dialog Boxes

A dialog box, or simply a dialog, is a window that pops up on the screen with options that you can select. After the selections have been made, you can typically Tab to an OK button to enter the changes. You can press either the Cancel button or the Escape key to discard the selections. The computer is engaging you in a dialogue of sorts.

#### 2.4.2.1 Dialog Box Elements

A number of different elements or controls typically appear in a dialog box. You navigate through the dialog box by pressing Tab to get to the next control, or Shift + Tab to move back one. Your cursor will eventually wrap around.

If you listen carefully, JAWS does a good job of telling you what element you have landed on and how to navigate it and register information. NVDA and Narrator do this slightly less well. The elements or controls you will encounter are listed below:

* Radio buttons: Up or Down arrow to make your selection, and then Tab to the next element of the dialog box.
* Edit boxes: Type in text like your name, street address, etc.
* Combo boxes: This is a drop-down list. Up or Down arrow or first-letter navigate to your choice. You can also Press Home or End to move to the first or last choice in the list, respectively. Sometimes after making your selection, you can Tab to the next dialog element. Other times, you must press Enter to lock in your choice. You learn which way works by trial and error.

Edit combo boxes: A hybrid of edit boxes and combo boxes. Either type the first character, or first few characters of your choice, and then Down arrow to navigate to your selection. You can also type in the full word or value. Alternatively, you can Up or Down arrow through a set of preset options and make your selection that way. NVDA and Narrator are less consistent than JAWS in identifying these, sometimes saying Just “edit” rather than “edit combo.”

* Edit spin boxes: Up or Down arrow to select a preset numerical value, or type it in manually. Edit spin boxes always involve numerical values, while edit combo boxes may involve numerical values or words.
* Checkboxes: Press the Spacebar to check or uncheck choices.
* Left/right sliders: For adjusting percentage values along a continuum. Left and Right arrow to lower and raise by one percent, respectively. Press Page down and Page up to raise by a larger percent (ten or 20 percent, depending on the slider), and Home and End to maximize or minimize the value. An example is adjusting the JAWS Voice rate in the Voice Settings dialog.
* Up/down sliders: For adjusting percentage values along a continuum. Down and Up arrow to lower and raise by one percent, respectively. Page down and Page up to raise by a larger percent (ten or 20 percent, depending on the slider), and Home and End to maximize or minimize the value. An example is adjusting the computer’s speaker volume accessed via the System Tray.
* Buttons: Press Enter or Spacebar to activate.
* Split buttons: If you Press Enter or Spacebar on a split button, this will execute the default change. If you Press Alt + Down arrow, this will expand a list where you can choose from several other options using the four arrow keys.
* List views: Contain multiple items such as files or folders, allowing you to select desired items with the Arrow keys or first-letter navigation. The Save as dialog box has a list view for selecting the folder where you wish to save a file.
* Tree views: Organize folders into a hierarchical view allowing the folder structure of your computer to be represented. Right arrow to open or expand a folder, Left Arrow to close or collapse a folder, and Up and Down arrow to move within a folder level. The Save as dialog box has a tree view for navigating the folder hierarchy of your computer.

#### 2.4.2.2 Multi-page dialog Boxes

Some dialog boxes are split into several pages. One example is the Paragraph dialog box. With JAWS, you will know if you have landed in a multi-page dialog box if JAWS says the word “page.” For example, when you land in the Paragraph multi-page dialog box, you will first hear “Indents and spacing page.” Press Control + Tab once and you will hear “Line and page breaks page.” NVDA does not indicate this when you first land in a multi-page dialog box, but will do so once you start pressing Control + Tab.

A variation on multi-page dialog boxes can be found in the Options dialog box of each of the Office applications, which is situated in the File tab (shortcut: Alt F T). When you open it, focus starts in a category list. Down arrow, or first letter-navigate to the category you want. When you get to that category, Tab to move through its options as you would in a typical dialog box.

## 2.5 Initial Settings To Modify

If you just purchased your shiny new computer, there are several settings you will want to modify. The first ten in this section are important for making your computer work effectively. These are the factory defaults related to showing deletion confirmations, unhiding file extensions, turning off Protected view for Office files received as email attachments or downloaded from the Internet. In addition, if you have a laptop, switching the FN key to classic functionality and disabling the Touchpad will make your life much easier. You will also need to connect to the Internet via a local Wi-fi network. It is a good idea to examine which apps run automatically upon startup to enable appropriate ones and disable unnecessary ones. In situations where you need to navigate to the Control Panel to change some settings, you should change to either Large or Small icons view for remaining steps to work correctly. You should also decide how you want to open the This PC folder, which is the portal into your computer’s folder structure.

The remaining items in this section are more a question of personal preference.

### 2.5.1 Showing Deletion Confirmations

By default, when you press the Delete key on a selected file or folder, the files go to the Recycle Bin without any warning. This is dangerous because you can unwittingly delete files and folders. To turn on the deletion confirmation setting:

1. Press Windows + M or D to go to the Desktop.
2. Press R until you get to the Recycle Bin icon.
3. Press the Applications key, Up arrow once to Properties, and press Enter.
4. Tab several times to the Display delete confirmation dialog checkbox and press the Spacebar to check it.
5. Tab to the OK button and press Enter.

Now when you press the Delete key on a file, you should hear “Delete file dialog, are you sure you want to move this file to the Recycle Bin?” You land on the Yes button, so press Enter or the Spacebar to confirm.

If you attempt to delete an icon from the Desktop, the confirmation message indicates that the icon is for a shortcut, file, or folder. If you attempt to delete a desktop shortcut for an application, you may hear: “Delete Shortcut Dialog Are you sure you want to move this shortcut to the Recycle Bin? Deleting this shortcut does not uninstall the program. It only removes the icon that points to the program. If you want to uninstall use Programs and Features.” To see how to uninstall programs, see Chapter 2.9.1 below.

### 2.5.2 Unhiding File Extensions

A file extension, or filename extension, is a suffix at the end of a computer file. It comes after the period and is usually three to four characters long. File extensions for Microsoft Office versions from 2007 and newer are: DOCX for Word; XLSX for Excel; and PPTX for PowerPoint.

When you receive a new computer, you should change the default factory setting for showing file extensions which is initially switched off. Hearing the file extensions will make it easier to distinguish files from folders because folders don’t have extensions. Steps are different for Windows 10 and 11.

Steps for Windows 10 are:

1. Navigate to a folder with lists of folders and files in it. The Documents folder is a good place to go.
2. Press the Alt key to open the File Explorer Upper ribbon.
3. Right arrow to the View tab on the Upper ribbon.
4. Tab several times to the Filename extension checkbox and press the Spacebar to check it.

Now when you arrow down to a file, you should hear its extension.

Windows 11 steps are:

1. Open a folder with lists of folders and files in it.
2. Press Alt to open the Command bar.
3. Right arrow to the View button and press the Spacebar to expand it.
4. Down arrow to the Show submenu and press Enter to open it.
5. Down arrow to File extensions and press Enter.
6. Press Escape to exit the Windows + Menus.

### 2.5.3 Disabling Protected View for Office Applications

Files downloaded from the Internet, email attachments, and from other potentially unsafe sources can contain viruses and malware that can harm your computer. Protected view is intended to help protect your computer. Ultimately, your best defense against bad things happening is to only open or save attachments from people you trust. Never open or save a file from somebody you don’t know.

For any Word, Excel or PowerPoint files you receive as attachments or download from the Internet, you will need to disable Protected view in each of those applications so that these files behave properly. When you open such a file, it will be announced that the file is in protected view. Pressing Insert + T will also indicate this.

You can disable Protected view one file at a time, or you can do it permanently. Procedures are identical in Word, Excel, and PowerPoint.

To disable Protected view one file at a time, after having saved the attachment or downloaded it to your computer, open it and press Alt F I E.

To permanently disable Protected view (which is my preference), and using Word as an example, steps are:

1. Open Word and press Alt F T to open the Options dialog which contains a list of categories. You do not need to actually be in a protected file to do this.
2. Down arrow or press the letter T to get to the Trust center category, but do not press enter.
3. Tab to the Trust center settings button and press enter or spacebar.
4. Press the letter P for Protected view, but do not press enter.
5. Tab to each of the following three checkboxes and press the spacebar to uncheck them: Enable Protected view for files originating from the Internet; Enable Protected view for files located in potentially unsafe locations; and Enable Protected view for Outlook attachments.
6. Tab to the OK button and press enter or Spacebar.
7. Tab to a second OK button and press enter.
8. If you started this procedure while in a file that you opened in Protected view, press Alt + F4 to close the file and then reopen it.

Protected view is now permanently disabled for this application. Permanently disabling Protected view exposes you to a greater degree of vulnerability to viruses and malware. But as stated above, your best defense against malicious viruses is to never open or save an attachment from somebody you do not know, or indiscriminately download files from obscure websites.

### 2.5.4 Switching the FN Key to Classic Function Key Use on a Laptop

Laptop computer keyboards (and some desktop keyboards) use the FN key to switch between different uses of the function keys: a Classic use of the F1 to F12 keys; and special actions related to audio volume, playback, and hardware features. On most laptop models, the FN key is located just to the right of the lower-left Control key. However, for some Lenovo laptop models, the FN key is the bottom left key.

Screenreader users need their function keys to be set for Classic function key use. If this is not the case, you will need to press the FN key and F1 through F12 in combination with other keys in order to execute common commands. If, for example, you attempt to close the current window by pressing Alt + F4, tell the time with Insert + F12, or the Spellcheck a Word document with F7, and don’t get the expected result, chances are that the FN key is set incorrectly. While you can press the FN key in combination with these keystrokes, it is awkward and inefficient.

When you get a new computer, the function keys may or may not be set for Classic use. If not set for Classic use, you need to make this switch. Depending on your laptop model, you may be able to change it by either hitting the FN key together with the Shift key, the Escape key, or the Caps lock key. Try these keystroke combinations. Then with any of the three screenreaders, try telling the time by pressing Insert + F12. If one of these keystroke combinations works for switching to Classic function key use, be sure to remember it because you might mistakenly toggle it off in the future.

One of these key combinations generally works for Lenovo, Dell, and Samsung laptops, but does not work for some HP models (such as my own personal laptop).

If none of these key combinations work for changing FN key functionality, seek advice from the vendor or manufacturer who sold you the computer, or the state blindness agency that gave it to you. You may be required to go into the laptop’s Basic Input/Output System (BIOS) and change it. The BIOS is a pre-installed program that the computer uses to start up. It checks all your hardware connections and locates all your devices. If all is well, the BIOS loads the operating system into the computer's memory and finishes the boot-up process. Because the BIOS begins operating before any screenreader programs start up, it is not accessible. Sighted assistance will be needed to change FN key functionality. This person should be reasonably tech savvy. Going into the BIOS should not be attempted by novices. I required a sighted person to make this change for my HP laptop. fortunately, this is a one-time modification. There is no need to ever switch it back.

### 2.5.5 Disabling the Touchpad on a Laptop

A touchpad is a flat Control + Surface used to move the cursor and perform other functions on a laptop computer. Located below the Spacebar, it replaces the functionality of a mouse and is controlled with your finger. By sliding your fingertip along the surface, you can move the cursor on the screen. Some touchpads have two rectangular keys below or above them, corresponding to the left and right mouse clickers.

If your touchpad is enabled, it is hard to avoid brushing your palm over it, thus making your cursor shoot around in a document window or switch to another window. This can be annoying and frustrating. To stop this from happening you need to disable your touchpad. Yet it is important to also know how to reenable it in case you need sighted assistance. Without resort to a touchpad or mouse, even the most tech-savvy sighted person will have difficulty helping you.

How to disable/enable the Touchpad varies by laptop brand and model. Fortunately, for many laptop models, it is easy to do. Try the following:

1. Press Windows to open the search box.
2. Type in the first few letters of touchpad until you hear “Touchpad settings system settings,” and then press Enter.
3. If you land on the Touchpad button and it is switched on, press Enter to disable it. Then press Alt + F4 to close this window.
4. To verify that it is disabled, move your fingers around on the Touchpad or press one of the Touchpad clickers. If nothing happens, then it is disabled.

To reenable the Touchpad, repeat the steps above.

For some laptop models manufactured by HP, tapping twice near the upper left corner of the Touchpad toggles it off and on.

If none of these disable your touchpad, consult the manufacturer or the store where you bought it.

In the worst case scenario, disabling the Touchpad must be done in the BIOS (see Appendix III for its definition) and this is not accessible. If you find this out prior to buying a laptop, don’t buy it. This is a serious enough drawback to disqualify the model from consideration.

If you have purchased such a laptop, a possible workaround is to attach a cheap mouse via the USB port. Hopefully you can then find a setting that overrides and disables the Touchpad when a mouse is connected to the computer. Just place the mouse somewhere out of the way.

Sometimes, the Touchpad reenables itself without you having done anything. If this happens, simply disable it again.

### 2.5.6 Connecting to a Wi-Fi Network

When setting up your computer, one of the first things you will need to do is to connect to your home Wi-Fi network. If using a laptop and traveling, you also need to know how to do this to connect to networks in those other locations.

There are two types of networks: secure networks which are private and require passwords; and public networks without passwords. Your home network will be a secure network.

Steps for connecting to a network are:

1. Press Windows I to get into Windows Settings.
2. Tab once, Down arrow to Network and Internet, and press Enter.
3. Tab once, Down arrow to Wi-Fi, and press Enter.
4. Tab to the Show available networks link and press Enter.
5. Down arrow through the list of nearby networks. As you Down arrow, each network will be designated as either secure or public. Press Enter on the network to which you want to connect
6. Tab to the Connect automatically checkbox and press the Spacebar to check it. This avoids having to rejoin the network the next time you turn on your computer.
7. Tab to the Connect button and press Enter. If you are connecting to a public network, you are done. Press Alt + F4 to close the window.
8. But if you are connecting to a secure network, you will now be asked to type in the password for that network. Type it in and press Enter. You are now connected to this secure network.
9. Press Alt + F4 to close the window.

If the name of your desired network does not appear, go to the bottom of the list, and press Enter on Hidden. Here you can type in the network name and complete the steps above to connect to it.

### 2.5.7 Changing the Control Panel View to Icons View

The Control Panel is a place where users can modify many settings related to operation of the computer. In several sections of this book, you will be instructed to go to the Control Panel to change some settings. You should change the Control Panel view to either the Small or Large icons view for remaining steps to work correctly. To do this:

1. Press the Windows key to open the Start menu search box, type in the first few letters of “Control + Panel,” and press Enter when you hear it.
2. Tab once to the Category button and press the Spacebar.
3. Down arrow to either the Small icons or Large icons button and press Enter.

You will now be able to Down arrow or first-letter navigate through the list of items (expressed as links) and press Enter to activate them.

### 2.5.8 Options for Opening File Explorer

File Explorer is the Windows app for navigating and managing files and folders on your PC. Pressing Windows E is the shortcut keystroke for opening it in Windows 10 and 11.

In Windows 10, Windows E opens a Quick Access window by default. A list appears of frequently used folders and recently opened programs, folders, and files.

In Windows 11, Windows E opens a Home window by default. This Home window is absolutely useless for screenreader users.

There are other options you can assign to the Windows e keystroke. These vary according to your version of Windows. For Windows 10, you can change it to open This PC, or the This PC app, which is your gateway into navigation of your computer’s folder structure. Activating it brings you into the highest level folder in your computer folder structure. The importance of being able to navigate to the This PC folder will be fully explored in Chapter 2.6.1 below.

With Windows 11 22 H2 and 23 H2, you also have the option of setting Windows E to open OneDrive, as well as Dropbox if you have installed it.

On my computer, the Quick Access list of programs, folders, and files totals about 45 items. I do not find the Quick Access window particularly useful, but some people like it.[[8]](#footnote-8) I think there are more efficient ways to access recently-used folders and files. I find that changing the Windows E keystroke assignment so that it opens the This PC folder to be more useful.

With Windows 11 23 H2, I find it even more useful to use Windows E to open Dropbox. I use Dropbox constantly and find my desktop shortcut to be sluggish. Pressing Windows E instead requires fewer keystrokes and is more responsive.

For the following steps to work for reassigning the Windows E keystroke, be sure that you have already changed the Control Panel view to large or small icons, as described in the previous section. Now do as follows:

1. Press the Windows key to open the search box, type the first few letters of “Control + Panel” until it auto-populates, and press Enter.
2. Press F to navigate to the File Explorer options link, and press Enter.
3. You land in a combo box with focus on Quick Access if using Windows 10, or Home if using Windows 11. Down arrow to This PC, or if using Windows 11 22 H2 or 23 H2, OneDrive or Dropbox. Press Enter on your choice.
4. Press Alt + F4 to close the Control + Panel.

If you decide not to switch the Windows E shortcut key setting to open This PC as outlined above, you should create a desktop shortcut for it so you can quickly access it from there. How to do this for This PC, as well as a number of other important system folders, is covered in the next section.

### 2.5.9 Desktop Shortcuts for System Folders

You may wish to add shortcuts to your Desktop for some folders that come with your PC, including This PC, your user folder, and perhaps the Control + Panel. This PC is the portal for opening your computer’s folder structure. If you are using Windows 11, and prefer keeping Windows E as a shortcut for opening the list of recently used folders and files, it is important that you add a desktop shortcut for This PC. Otherwise, you will not have a way to open it. With Windows 10, you can type the first couple of letters of “This PC” into the Start menu search box and open it that way, but this does not work with Windows 11.

Steps for adding these shortcuts to your Desktop are:

1. Press Windows I to open Settings.
2. Tab once to Home, the first item in a list.
3. Down arrow to Personalization and press Enter.
4. Tab to a list starting with Background, Down arrow to Themes, and press Enter.
5. Tab to the Related settings, Desktop icon settings, open button, and press the Spacebar to expand the list.
6. Down arrow through the list below and check those items you wish to add to your Desktop:
   1. Computer: Adds a “This PC” shortcut to your Desktop.
   2. User's Files: adds a shortcut for your user folder name, which is often your first name.
   3. Recycle Bin: Checked by default. Do not uncheck it.
   4. Control + Panel: Personally, I leave this unchecked, and open it from the Start menu instead. But check it if you like.
7. When finished making your selections, Tab to the OK button and press Enter.
8. Go to the Desktop and verify that shortcuts for each item you checked have been added.

### 2.5.10 Changing Default Programs

As mentioned earlier in this chapter, procedures for changing default programs for applications like web browsers and music players are quick and easy with Windows 10, but a bit more complicated with Windows 11. I will cover steps for doing this with Windows 10 first.

#### 2.5.10.1 Windows 10

Among the default applications you can easily change with Windows 10 are those for Email, audio players, and web browsers. The Windows 10 factory defaults are the native Mail app for Email, Groove Music for music or audio players, and Edge for web browsers. First, what does it mean for these to be your default applications?

If you press Enter on the link for an email address you find in the body of an email message, that email address will be placed in the To field of your default mail program. If you have Outlook on your computer, you will want to change to this.

Pressing Enter on a file with an audio extension like MP3, WAV, or WMA will open that file in the default media player. If you prefer to use an app other than Groove Music, you can change the default to Windows + Media Player or another popular audio app like WINAMP or VLC if you have installed these on your PC.

When you set a default web browser, this means that hyperlinks activated from inside an email message, Word, or some other application, will open in that browser. So too will web pages added to your desktop as shortcuts using the universal method laid out in Chapter 7.4.3.2 and favorites/bookmarks using the method outline in Chapter 7.4.2.

Microsoft Edge is the factory default. Many people prefer other browsers like Google Chrome or Mozilla Firefox. For browsers such as these which are not native to Windows, you will need to install them before they can appear as additional default options.

To change these defaults in Windows 10:

1. Press the Windows Key to open the Start menu, placing focus in the search box.
2. Type the first few letters of “Default app settings system settings.” As soon as you hear these words, press Enter.
3. You first land on Email, with the name of the current default app identified. Again, the factory default is Mail.
4. Press Enter or Spacebar. A pop-up appears. Tab to your new default choice, presumably Outlook, and press Spacebar to select it.
5. Tab several times to Music player. Groove Music is the Windows 10 factory default.
6. Press Enter or Spacebar. A pop-up appears. Tab to your new default choice, and press Spacebar to select it.
7. Tab to Web browser. Microsoft Edge is identified here as your default.
8. Press Enter or Spacebar, Tab to your new default choice, and press Spacebar to select it. If switching away from Edge, you might be asked if you are really sure you want to change because Microsoft wants you to stick with Edge. Tab to the OK or Switch anyways button and press Enter to confirm.
9. Press Alt + F4 to close this window.

You can also change defaults by type of file or by application. To change by file type:

1. In the same dialog, Tab a few times past the Web browser button to the Choose default app by file type link and press Enter.

2. Tab to .386 which is the first file type extension. The app it opens in by default is also identified.

3. Hold down the Tab key, in some cases for quite sometime until you get to the file type you want to change. These are in alphabetical order, but because they all start with a dot, you cannot first-letter navigate to your choice. You may need to hold down the tab key for quite some time for file extensions towards the end of the alphabetical list because there are hundreds of them.

4. Press the Spacebar on the file type whose default you want to change, which opens a popup.

5. Tab to your new default choice and press Enter.

You can also change defaults by app, and this is usually quicker than changing by file type. To do this:

1. Tab two more times past the filetype link to the Set defaults by app Link, and press Enter

2. Tab to the Set your default programs List box, either Down arrow or first-letter navigate to the app you wish to select, and press Enter,

3. This opens a popup. Tab to your new default choice and press Enter.

#### 2.5.10.2 Windows 11

I will give two slightly different examples for Windows11. First, here are the steps for changing your default web browser:

1. Press the Windows Key to land in the search box.
2. Type the first few letters of “Default app settings system settings.” When you hear these words, press Enter.
3. Tab several times to the Set default applications list box.
4. Down arrow to the browser you want for your default. You must Down arrow. First-letter navigation does not work in this list. Press the Spacebar on your choice to select it.
5. You will be prompted to set that application as your default browser. If you then press the Spacebar, you will receive confirmation that your default browser has changed.

For a number of other applications such as Adobe Acrobat Reader DC or audio players, you are required to identify file formats. This would be PDF for Acrobat Reader and MP3 and a few others for audio players. Setting these as defaults means that when you open a file with the designated format from inside one of your folders, the file will open in that application. Here I will use the example of changing audio players. Later, in Chapter 10.2, I will lay out steps for changing the default PDF viewer.

The default Windows 11 audio player is called Media Player. Among the apps you might want to change to include Windows + Media Player Legacy, WINAMP, or VLC. Windows + Media Player Legacy is pre-installed while the other two need to be downloaded and installed for them to appear among the options. Common audio File types for which you may want to change the default music or audio player include .MP3,.WAV,.WMA, and a few others. Steps are:

1. Press the Windows Key to land in the search box.
2. Type the first few letters of “Default app settings system settings.” When you hear these words, press Enter.
3. Tab several times to the Set a default for a file type or link type edit field.
4. Type the file type, being sure to place a period before the extension, as in “.MP3” minus the quotes.
5. Tab once and you will hear the file type and its current default application.
6. To change the default, press the Spacebar, Tab to a list box of suggested apps, and Down arrow to your choice.
7. Tab to the Set default button and press Enter.
8. Navigate to a file of that type and open it to confirm that you have successfully changed the default app.
9. Repeat the steps above for the various other audio file types for which you want to change the default.

This is more time-consuming than with Windows 10. For audio experts, this provides greater flexibility to vary defaults by file types. For the vast majority of the rest of us, it just makes the process more complicated than it needs to be.

### 2.5.11 Enabling/Disabling Startup Apps

When you boot up your computer, a number of apps automatically load and run as part of the startup process. Some of these you definitely want running at startup, others don’t really matter, and a few you want to block because they can impede smooth operations. If you sense that your computer is taking an unusually long time to boot up, check which apps are set to automatically run at startup. If you are repeatedly receiving annoying notifications from some unwanted app, this too is a reason to examine which apps are automatically starting up.

Apps you want running at startup include your default screenreader and any cloud sharing apps that you use on a regular basis so they will synchronize with your other devices. Unless you regularly use MS Teams, disable it at startup. It will introduce annoying popup notifications and may also slow down your computer.

A few apps can seriously impede operations. The worst example I know of happened a couple of years ago, and had to do with the Dell laptop I use at work. While running JAWS 2022, when I was working on Word and Excel files, my laptop seemed to freeze several times daily, causing me to lose work. Things got so bad that I simply could not trust the computer. The culprit was eventually discovered. It was the Waves MaxxAudio Service app. As soon as I disabled this app from startup, the problem immediately went away. I later found out that the real problem was that it periodically silence my laptop speaker. Fortunately, this problem was fixed with JAWS 2023. In any event, I had no use for this app to run at startup and still have no idea what it is supposed to do. I still keep it disabled at startup, and it doesn’t seem to matter.

If you disable an app from running at startup, it does not mean that you are permanently disabling the app or uninstalling it. As with any other installed app, you can always run it later if you wish.

Steps are slightly different between Windows 10 and 11.

Windows 10 steps for enabling/disabling startup apps are:

1. Press the Windows key to open the Start menu search box.
2. Type in the first few letters of “start up apps, system settings” until you hear it, and then press Enter.
3. Tab through the various app buttons, pressing the Spacebar to toggle them on and off as appropriate.

Press Alt + F4 when finished (there is no OK button).

Steps for Windows 11 are:

1. Press the Windows key to open the Start menu search box.
2. Type in the first few letters of “start up apps, system settings” until you hear it, and then press Enter.
3. Tab two or three times to a list box where 20 or more apps are listed.
4. Down arrow app by app, and Tab once to an On/off button. Press the Spacebar to toggle it on or off.
5. Shift + Tab once back to the list and continue Down arrowing through the list, repeating the above step.
6. When finished, press Alt + F4 to close this window.

### 2.5.12 Turning Off the File Path Display in the Title Bar

If, for example, you are in the Documents folder and you press Insert + T to hear the title of the window, sometimes the factory default is to give the full path rather than the name of the folder. For example, your screenreader may say “C:\Users\David\Documents,” rather than simply “Documents.” While there are occasions when it is helpful to hear the full file path, it is more verbosity than you usually wish to hear. To turn this off in Windows 10, do the following:

1. Navigate to the Documents folder because you first need to be in a list view of folders and files in order to change the setting.
2. Press the Alt key to open the Upper ribbon, left arrow once to the File tab, Down arrow to Options and press Enter.
3. Press Control + Tab once to go to the View Page of this multi-page dialog box.
4. Tab to the Advanced settings tree view.
5. Down arrow to Display the full path in the title bar. If it says “on,” press the Spacebar to toggle it off.
6. Tab to the OK button and press Enter.

If you have turned off the full file path display, but now want to hear it, press Alt D to access it on the Address bar.

With Windows 11, steps for turning on or off the full file path display in the Title bar are:

1. Press the Alt key to open the Command bar, Right arrow to the More apps button, and press the Spacebar to expand it.
2. Down arrow to the Options button and press Enter.
3. From here, follow steps 3 through 6 above.

### 2.5.13 Turning Off the Backstage View in Office Applications

Changing this setting is not as critical as some of the ones above, but you may prefer it. When you first open Word, Excel, or PowerPoint, instead of immediately landing in a blank document, worksheet, or presentation, you land in something called the “Backstage view.” A list of buttons appears. You can either press the Spacebar or Escape to get into an environment where you can start working. But, if instead, you prefer to get right into a blank document, worksheet, or presentation every time, you can turn off the Backstage view in each of these applications as follows:

Open Word, Excel, or PowerPoint, and press the Escape key to get out of the Backstage view.

Press Alt F T, which is the shortcut key to get into the Options menu for each of these applications. Be sure to press these keys separately, not all together.

You land in a list of categories, the first one being General, which is the one you want.

Tab several times to the Show the start screen when this application starts checkbox and press the Spacebar to uncheck it.

Tab to the OK button and press Enter.

### 2.5.14 Enabling Control + S to open the Classic Save as dialog in Office Applications

In older versions of Microsoft Office (2003 and before), you could perform initial file saves in Word, Excel and PowerPoint by pressing Control + S, opening the classic Save as dialog. At some point, pressing Control + S when attempting to perform an initial save opened a more confusing dialog, one that many people prefer to avoid. Since then, most people have learned to press F12 instead to open the classic Save as dialog to perform initial saves, but still using Control + S to save revisions.

If you would like to enable Control + S to also open the classic Save as dialog, do the following in each of the Office applications you want to do this for:

1. Press Alt F t to open the Options categories.
2. Down arrow or press S to first-letter navigate to Save.
3. Tab to the Don’t show the Backstage when opening or saving files checkbox, and press the Spacebar to check it.
4. Tab to the OK button and press Enter.

### 2.5.15 Enabling the Windows 10 Startup Sound

While not entirely necessary, some people long for the days of Windows 7 when a familiar chime played during startup. For screenreader users, the chime provides an added layer of assurance that the computer is starting up properly. In Windows 10, this has been removed as a default setting. If you want to enable it, steps are:

1. Press Windows I to get into Windows Settings.
2. Tab once, Down arrow to Personalization, and press Enter.
3. Tab once, Down arrow to Themes, and press Enter.
4. Tab to the Windows sounds default button and press the Spacebar.
5. Up or Down arrow to Windows + Default, Tab to the Play Windows startup sound checkbox and press the Spacebar to check it.
6. Tab to the OK button and press Enter.

Now restart your computer to verify that the old familiar startup sound plays.

If you want to disable the startup sound, repeat steps one through four above, uncheck the Play Windows startup sound checkbox, Tab to the OK button and press Enter.

For Windows 11, a startup sound has been incorporated by default, so you don’t need to set it up. It is different than the sound for Windows 10.

Windows 7 used to play a sound when shutting down the computer. Currently, there is no straightforward way to do this with Windows 10 and 11.

## 2.6 File Management Basics

File Explorer is the Windows application for file management. Use it to navigate through your files and folders, as well as organize them.

### 2.6.1 The Folder Structure of Your Computer

It is important to understand the folder structure and hierarchy of your computer because you will:

* Be less likely to “lose” files when saving them.
* Be more confident when downloading files from the Internet.
* Be more comfortable managing external devices like thumb drives and external devices that you use with your computer like Victor Reader Streams.
* Be more confident using Cloud sharing applications like Dropbox, OneDrive, and Google Drive for Desktop.
* Be more likely to back up your work onto external devices once you understand how easy it is to do.
* Do a better job of organizing your files into folders so you can find them more quickly.

Let’s now take a tour through the various levels of your computer’s hard drive. We will do this using a list view of your folders and files. With list views, you go down a level by pressing Enter. Within a level, you can Up and Down arrow, first-letter navigate, and press Home and End to go to the top and bottom of the list, respectively. To go back up one level, you can press the Backspace key, Alt Left arrow, or Alt Up arrow.

1. If you have reassigned Windows E as a shortcut to open the This PC folder (see Chapter 2.5.8 above), press this keystroke. Alternatively with Windows 10, or if you have added This PC to your Start menu, press the Windows key and type “This PC” in the search box. Usually, typing just the first one or two letters suffices to bring up “This PC app.” When you hear this, press Enter.
2. With Windows 10, either Right arrow or Down arrow and you will hear names of several folders contained in your User folder. Among these are Desktop, Documents, Downloads, Music, and Pictures. With Windows 11, you will only hear a list of devices and drives.
3. Navigate to Devices and drives. If it also says “collapsed,” press the Spacebar to expand it.
4. Down arrow or Right arrow. Depending on your computer model, you may hear it say Windows C, O SC, Local Disk C, or something else followed by C. Whichever it is, all will end with C because the C drive is your computer hard drive. Remember the first letter so you can use first-letter navigation to get to it more quickly in the future.
5. To the right or below of the C drive are listed other drives like a DVD drive if you have one. You will also hear the names of other drives if you currently have something connected via one of your USB ports. If you have installed Google Drive for Desktop, it is assigned a drive letter and is also listed here.
6. Press Enter on your C drive and this will bring you to the next folder level. Unless you are a technician, you will never visit most of the folders at this level. However, a few are worth mentioning. The folders and files that make up the various programs installed on your computer are located in the Program Files and Program Files (X86) folders. You may never visit these, but it is good to know where they reside.
7. Down arrow to the Users folder and press Enter to go to the next level in your folder structure.
8. A number of individual user folders are listed in this folder. By far the most important is your own user folder, usually named for you. Press Enter here to access your user folder.
9. Down arrow and you will hear the names of about a dozen folders. Among the most important are:
   * Documents- By far your most important folder. This is where you will store files that you create like Word documents, Excel spreadsheets, and so on. Unless you specify otherwise, all Office files you create are saved to this folder.
   * Downloads: Unless you specify otherwise, files downloaded from the Internet go here by default.
   * Favorites: Favorites created in Internet Explorer are saved here. With the demise of Internet Explorer, this folder is no longer important.
   * OneDrive: If you have a OneDrive account for cloud file sharing, those files will be located here. Similarly, if you maintain a Dropbox account on your computer, a Dropbox folder is also located in your user folder.
   * Music, Pictures, and Video folders are also contained in your user folder. You may or may not use these. If you have lots of music or photos, you may prefer saving them to these folders to avoid cluttering your Documents folder with them.
10. Now arrow up or down to the Documents folder and press Enter.
11. Folders and files you have created are listed here. At the top of the list, folders appear alphabetically from A to Z. Under these, files not in folders are listed A to Z. We will return to the Documents folder soon and spend some time there.
12. Now press the Backspace key to go back up one level, returning to your User folder, with focus on Documents. The computer remembers the path you took.
13. Backspace again to ascend to the Users folder with focus on your user folder.
14. Backspace one more time and you land in the C drive folder with focus on Users.

Backspace one final time to return to the This PC folder.

1. Press Alt + F4 to exit File Explorer.

Now repeat the steps, this time going more quickly by using first-letter navigation.

1. Begin by either using the Windows E shortcut or by pressing the Windows key, typing in the first couple of letters of This PC and pressing Enter.
2. Press the first letter associated with your C drive and then Enter.
3. Press U for Users and then Enter.
4. Press the first letter of your User folder name and then Enter.
5. Press D a couple of times until you get to Documents and then press Enter.

With regard to ascending up through the folder hierarchy, in addition to backspacing, you can also press Alt + Left arrow or Alt Up arrow. Backspacing or Alt Left arrowing behave similarly. However, there is a subtle difference between backspacing/Alt Left arrowing versus Alt Up arrowing. Pressing Alt + Left arrow or Backspace works as described above if you went down through a folder path to arrive there. However, if you did not follow a folder path, nothing will happen if you press either of these keystrokes.

By contrast, most of the time, pressing Alt Up arrow will move up a level in the folder hierarchy, regardless of how you got there in the first place. For example, if I began by pressing Enter on my desktop shortcut to Dropbox and then pressed either Alt + Left arrow or Backspace, nothing would happen because I didn’t follow a folder path to get there. But if I pressed Alt Up arrow instead, this would move me up one level in my folder hierarchy, landing in my user folder because my Dropbox folder resides there.

### 2.6.2 Creating Folders, Selecting, Copying, Cutting and Pasting Files

You will be more efficient if you get in the habit of organizing your files in folders. At least initially, you will probably do most of this work in your Documents folder. As mentioned above, by default, the Documents folder is sorted alphabetically with folders at the top of the List view, and files not in folders underneath. You can navigate through the List view by pressing Home and End to quickly go to the top and bottom of the list, respectively. You can also up and Down arrow through the list, or first-letter navigate.

To create a new folder, press Control + Shift + N, type its name, and press Enter. The folder will now be placed alphabetically within the list of existing folders. If you ever want to rename it, press F2, edit the text, and press Enter.

Copying or moving files into folders involves three operations:

* Selecting the file or files.
* Copying or cutting them to the Clipboard.
* Navigating into the folder where you want to place them, and then pasting them.

Single or multiple files can be selected.

For single files:

1. Up or Down arrow or first-letter navigate to the file you want to copy or move. Placing focus on it selects it. If it is the first file in the list, and it is not already selected, you can also press the Spacebar to select it.
2. Press Control + C to copy the file, or Control + X to move it. JAWS will say “copied or cut selection to clipboard.” NVDA will say “Control + C or Control + X.” Narrator will say “C copied or X cut.”
3. Navigate to the folder where you want to place the file and press Enter to open it.
4. Press Control + V to paste the file. JAWS will say “pasted selection from clipboard.” NVDA will say “Control + V.” Narrator will say “pasted.”

To select contiguous files, that is, multiple files that are above or below each other in the list:

1. Navigate to the first file you want to select.
2. Hold down the Shift key and Down arrow to select the additional files you want to select. Your screenreader will say “selected” and the names of these additional files. If you go too far, with the Shift key still held down, Up arrow and your screenreader will say “unselected.”
3. Repeat the steps above to copy or cut the files and paste them.

To select noncontiguous files, that is, selecting some while skipping over others:

1. Navigate to the first file you want to select, as above.
2. Hold down the Control key and Down arrow past the files you don’t want to select. Your screenreader will say “not selected” and the file name for each one you go past.
3. With the control key still held down, press the Spacebar on those files you want to select. Your screenreader will say “Control + Space.”
4. Repeat the steps above to copy or cut the files and paste them.

For the above two operations, if you let up the Shift or Control key in the middle of the process, and then start arrowing again, this unselects everything you have already selected, and you will need to start over.

A few other useful file and folder selection keystrokes are:

* Control + A: Select all files and subfolders within a folder.
* Control + Shift Home: Select from the file or folder where your cursor is focused to the top of the list within a folder.
* Control + Shift + End: Select from the file or folder where your cursor is focused to the bottom of the list within a folder.

### 2.6.3 Deleting Files, Folders, and Using the Recycle Bin

Periodically clean up your computer by deleting files and folders you no longer need. This is a two-step process: moving them to the Recycle Bin and permanently deleting them from inside the Recycle Bin.

To move files or folders to the Recycle Bin, select them as outlined above and press the Delete key. Assuming you have changed the settings to display deletion confirmations (see Chapter 2.5.1 above), and If deleting a single file, Your screenreader will say, “Delete file dialog, are you sure you want to move this file to the Recycle Bin?” Press the Spacebar to confirm. If you have selected multiple files, your screenreader will say the number of files selected. If you are deleting folders, your screenreader will indicate that they are folders.

If you press the Delete key and the files simply go away without any deletion confirmation message, be sure to turn on the deletion confirmation setting.

You can permanently delete files and folders in the Recycle Bin. You can also restore files and folders to their original location if you mistakenly delete them. However, note that if you delete files and folders from an external device such as a thumb drive, they will be permanently deleted. You can’t get them back.

To access the Recycle Bin, press Windows + M or D to go to the Desktop, press R to get to the Recycle Bin icon, and press Enter. To permanently delete individual files or folders, down or Up arrow to that file or folder and press the Delete key. Your screenreader will ask you if you want to permanently delete this file or folder. Press the Spacebar to confirm. Press Control + A to select all files and folders if you want to empty the Recycle Bin, and then press Enter to confirm.

If you want to restore a deleted file or folder to its original location, Down arrow to that file or folder and press Enter. You land on a Restore button. Press Enter or Spacebar to confirm. Then press the Escape key to return to the Recycle Bin.

### 2.6.4 Folder Views

When you open most folders with a list of files in them, by default, subfolders within that folder are sorted alphabetically by name at the top of the list, with files not in folders sorted alphabetically below the subfolders.[[9]](#footnote-9) There are also various views for arranging files and folders. Views include details, list, tiles, content, small, medium, large, and extra large icons. I will limit discussion to the Details and Large Icons Views.

#### 2.6.4.1 Details View

For most folders, or more precisely, for folders primarily containing documents and audio files (as opposed to pictures or videos), the default View is the Details View, and it is generally the most useful and accessible one. For folders containing primarily documents, this view not only displays the filename, but also the date it was last saved or revised, its file type, and size. For folders containing primarily audio files, This view displays the filename, and music-related information like title, contributing artists, and album. For this information to be meaningful, it assumes the files’ author has properly tagged them to include this information.

The List view is also accessible, but only provides the file name.

It is best to start in the Documents folder to examine the Details view. To view this information:

1. Down arrow to a file. You will hear the filename with its extension, assuming it is set to hear the file extension (see Chapter 2.5.2).
2. Right arrow once to hear the date and time the file was last modified.
3. Right arrow again to hear the file type.
4. Right arrow one last time to hear the file size in kilobytes or megabytes.

Knowing when a file was last modified can be useful for verifying that you are working on the latest version of a document, or that it saved properly the last time you revised it. Knowing the size of a file can be useful if you are thinking of attaching it to an email message and there is a size limit on attachments, or you want to clean up your folders.

If you arrow up or down to a folder, you can Right arrow to hear the date modified and that the type is “folder.” However, you will not hear its size. With NVDA and JAWS, you can also get the size information by checking its properties. To do this:

With your focus on the folder, press the Applications key, Up arrow once to Properties, and press Enter. With NVDA, one of the types of information you will hear is the size of the folder. With JAWS, once you start hearing various properties spoken, press Insert B and you will also hear the folder size. As far as I know, it is not possible to detect folder size with Narrator.

You can also access Properties by pressing Alt and Enter together.

In addition, you can change the information provided in the Details View. I often do this in folders primarily made up of audio files because I don’t find the displayed items very useful. Default items in the Details view are name, number, title, contributing artist, and album. Unless I am organizing a music database, the only item I consider of any use is the name of the file. I would like to hear the date of the file and its size, but these do not appear by default. The quickest way to have the same information displayed in the Details view for documents is as follows:

1. Place your focus on the folder where you want to change the information displayed in the Details view.
2. Press the Applications key, Up arrow once to Properties, and press Enter (shortcut for Properties is Alt Enter).
3. Control + Tab to the Customize page of this multi-page dialog. You land on the Optimize this folder for combo box.
4. Up or Down arrow to Documents.
5. Tab to the Also apply this template to all subfolders checkbox and press the Spacebar if you want this version of the Details view to apply to subfolders. However, I have found that this does not work consistently.
6. Tab to the OK button and press Enter.

#### 2.6.4.2 Large Icons View

The default view for folders made up predominantly of pictures and videos is the Large Icons view. This is useful for sighted computer users because it allows them to preview pictures and photos by seeing an image of it. This view is of little use to screenreader users with limited or no usable vision. Moreover, this view can be confusing if you are unaware of it. Filenames are arranged in a grid which means that if you up and Down arrow, you will only hear the first file in a row of files, thus failing to detect most of them. The other icon views (small, medium, and extra large) behave in a similar fashion. To detect all the files, right and left arrow instead of up and Down arrowing. If you Right arrow, when you reach the end of a row, it will wrap around to the next row. You can also switch to the Details View and then up or Down arrow through the list of files.

#### 2.6.4.3 Changing Views

With Windows 10, to switch from the Large icons view to the Details view:

1. While in the folder with pictures or videos, press Alt to open the Upper ribbon in Windows File Explorer. You should first land on the Home tab. If instead, you land on the File tab, this means that your ribbons are not maximized. Press Control + F1 to do this. Otherwise, the remaining steps will not work.
2. From the Home tab, Right arrow twice to the View tab on the Upper ribbon.
3. Tab into the Lower ribbon to the Layout Toolbar change your view drop-down. It will also say Large Icons, indicating that this is the current view for the folder.
4. Press Enter which opens a grid with several rows of choices. If you Down arrow once, and then Right arrow once, you should land on Details (your screenreader program says “details grid”). If this does not get you there, try different combinations of the four arrow keys to find it.
5. Press Enter on Details grid to switch to that view.

You can make this the default view for all folders containing files of this type as follows:

1. While in this same folder after having change the view, press the Alt key to open the Upper ribbon.
2. Left arrow to the File Tab, Down arrow to Options, and press Enter.
3. Press Control + Tab once to go to the View Page of this multi-page dialog box.
4. The first place you land, your screenreader will say “You can apply this view to all folders (such as details or large icons) to all folders of this type, apply to folders button.”
5. Press the Spacebar and you will be asked “Do you want all folders of this type to match this folder's view settings?”
6. Press the Spacebar on the Yes button to confirm.
7. Tab to the OK button and press Enter.

While this seems to work for changing from one view to another, it does not seem to work for permanently changing the items shown in the Details view. When I have tried to permanently do this for folders with audio files, the changes do not remain saved. You may get better results by using the method I outlined above for changing the elements displayed in the Details view for individual folders and their subfolders.

To switch from the Large icons view to the Details view with Windows 11:

1. While in the folder with pictures or videos, press Alt to open the Command bar.
2. Right arrow to the View button and press the Spacebar to expand it.
3. Down arrow to Details and press the Spacebar to switch to this view.

To make this the default view for all folders containing files of this type, steps in Windows 11 are:

1. While in this same folder after having change the view, press the Alt key to open the Command bar, Right arrow to the More apps button, and press the Spacebar to expand it.
2. Down arrow to the Options button and press Enter.
3. This opens a multi-page dialog box. Press Control + Tab once to go to the View Page of this multi-page dialog box.
4. The first place you land, your screenreader will say “You can apply this view to all folders (such as details or large icons) to all folders of this type, apply to folders button.”
5. Press the Spacebar and you will be asked “Do you want all folders of this type to match this folder's view settings?”
6. Press the Spacebar on the Yes button to confirm.
7. Tab to the OK button and press Enter.

#### 2.6.4.4 Sorting Files Within Views

As mentioned above, by default, folders are sorted alphabetically by name at the top of the list, with files not in folders sorted alphabetically below the folders. You can change this to sort by date last modified, type of file, size of file and various other criteria. I frequently change to sort by last modified to quickly find files I have recently worked on. Then I change back to sort by name, keeping this as my default.

You can also sort by ascending and descending order. For example, the default for sorting by name is ascending, or in other words, alphabetically by folder and file name from A to Z.

With Windows 10, to change the sort criteria while in a given folder:

1. Press Alt to open the Upper ribbon, Right arrow to the View tab, Tab to the Sort by drop-down, and press Enter. Remember to have your ribbons maximized by first pressing Control + F1.
2. Down arrow through the options and press the Spacebar on the sorting criterion you would like to switch to.
3. If you want to switch between ascending and descending, it is quicker to Up arrow and press the Spacebar to make this change.

You may have had the experience of opening a folder and for some reason unknown to you, discovered that the folder was “upside down,” with the Z files at the top of the list and the A files at the bottom. Use the Sort By drop-down to change from descending order back to ascending.

To change the sort criteria while in a given folder with Windows 11:

1. Press Alt to open the Command bar, Right arrow to the Sort button, and press the Spacebar to expand it.
2. Down arrow through the options and press the Spacebar on the sort criterion you would like to switch to.
3. If you want to switch between ascending and descending, it is quicker to Up arrow and press the Spacebar to make this change.

#### 2.6.4.5 Folder Tree Views

A tree view organizes folders into a hierarchical view allowing you to navigate through folder levels from left to right. However, unlike list views, tree views cannot be used to navigate to and open individual files. Examples of places where you encounter them include the Save as dialog box for saving files, the Outlook folder structure, and JAWS Quick Settings, Settings Center, and Help topics.

From left to right, the tree view hierarchy is displayed as levels 0, 1, 2, 3, and so on. Use the Right arrow to open or expand a tree view level, the Left Arrow to close or collapse it, and the Up and Down arrow to move within a tree view level. You can also first-letter navigate between folders, provided that its level is open.

## 2.7 Text Reading, Navigation and Editing

### 2.7.1 Reading and Navigating Text

The following keystrokes are used for reading and navigating text in the body of Word and Notepad documents, Outlook messages, and pages on the Internet. Where JAWS, NVDA, and Narrator keystrokes differ, this is noted.

* Right/Left Arrow: Move to and read characters to the right and left of the cursor.
* Control + Right/Left Arrow: Move to and read the next and previous word.
* Down/Up arrow: Move to and read next and previous line.
* Insert + N: Read next sentence (JAWS).
* Insert + Y: Read previous sentence (JAWS).
* Alt + Down and Up arrow: Read next and previous sentence (NVDA and Narrator).
* Control + Down/Up arrow: Move to and read next and previous paragraph.
* Insert + Down arrow: JAWS and Narrator Say all command or continuous reading from the point of the cursor.
* Insert A: NVDA Say all command or continuous reading from the cursor when NVDA is set in Laptop keyboard mode.
* Control + Home: Move to the top of the document or web page.
* Control + End: Move to the bottom of the document or web page.
* Home: Move to the start of the line.
* End: Move to the end of the line.
* Control + Page up/Down: Move to previous and next page in Word.

### 2.7.2Text Selection and Editing

Most of the above keystrokes, when combined with the Shift key, select the corresponding text. Text selection keystrokes are:

* Shift Right arrow: Select characters to the right.
* Shift Control + Right arrow: Select words to the right.
* Shift + Down arrow: Select current line.
* Shift Control + Down arrow: Select current paragraph.
* Control + A: Select the entire document or web page text.
* Shift Control + Home: Select from the cursor point to the top of the document or web page.
* Shift Control + End: Select from the cursor point to the end of the document or web page.
* Shift Home: Select from the cursor point to the start of the line.
* Shift End: Select from the cursor point to the end of the line.

Once you have selected text, basic editing keystrokes are:

* Control + C: Copy selected text.
* Control + X: Cut selected text.
* Control + V: Paste selected text.
* Delete: Delete selected text.

Cut, paste, and delete functions are not applicable to web pages and other “read only” environments.

If you select text and then want to deselect it, press any of the four Arrow keys, or the Home or End keys. It is important to note that if you select text and then type a character or set of characters, the selected text will be replaced by those characters. Ditto for pressing the Spacebar, Tab, Enter key, and a number of other keys. If you do this mistakenly, immediately Press Undo (Control + Z) to cancel this keystroke and restore your selected text.

### 2.7.3 Understanding Cursor Logic When Editing

When deleting and inserting individual characters, it is important to understand the logic of cursor behavior. Knowing how your screenreader talks to you when doing this will help you avoid frustration, as well as make you more efficient and productive. TO get a sense of cursor behavior and the resulting screenreader feedback, open a new Word document or other text editor and do the following:

1. Type the word “chat,” minus the quotes.
2. Left arrow back until you hear the letter C.
3. Press the Delete key. You will hear the letter H. You have removed the letter C, and the word “hat” remains.
4. Position your cursor on the letter A and press the letter E. This places this letter before the letter A, now giving you the word “heat.”

The Backspace key removes the character just before the announced character, and announces characters as they are deleted. Do the following:

1. Place the cursor on the letter E in “heat.”
2. Press the Backspace key. You will hear the letter H which you have just deleted, leaving the word “eat.”

Many people find it more intuitive to backspace out characters because they hear the characters they are removing rather than the character just after the one deleted. Whichever your preference, the important thing is to understand the logic of your cursor behavior and screenreader feedback.

Here’s another little cursor idiosyncrasy worth understanding. If you are now left with the word “eat on the line, you might logically think there is no way to place text after the T in “eat.” After all, T is the last character on the line, so if you arrow to that letter and all new text goes before the T, how can you possibly place text after the letter T? The answer is that, after typing “eat,” a carriage return code is automatically placed after it. Right arrow once past the letter T and your screenreader will say something sounding like “blank.” Because this carriage return code is present, you can continue typing, for example, adding the letters I N G to compose the word “eating.”

You can also select text and type replacement text over it. If you have misspelled a word, rather than do the individual character editing steps above, you may find it quicker to select that entire word with Control + Shift Right arrow and then retype the correct word over it. One other thing: note that when you select a word, the space just after the word is also selected, so edit accordingly, to be sure the right number of spaces are present after the word.

## 2.8 Opening Applications and Individual Files

There are several ways to open applications and individual files. One way to open an application installed on your computer is to press the Windows key to bring up the Start menu where you first land in a search box. Begin typing the name of the application until you hear its full name, and then press Enter to open it.

To open an existing file previously created in an application, navigate to that file in whichever folder it is located and press Enter. The file will open in its default program. Files with a.docx file extension will open in Word, files with a.xlsx extension will open in Excel, and files with a.PPTX extension will open in PowerPoint.

### 2.8.1 Desktop Shortcuts for Files, Folders and Applications

You can create shortcuts for files, folders, applications, and web pages, enabling you to quickly open these items from the Desktop. I will cover the first three here. See Chapter 7.4.3 on how to do this for web pages.

Steps for creating desktop shortcuts for folders are:

1. Navigate to the folder for which you want to create a shortcut, but do not open it.
2. With Windows 10, press the Applications key or Shift + F10. With Windows 11, if you have an Applications key, press Shift Applications. Or if you do not, press Shift + F10, Up arrow to Show more options and press Enter.
3. Down arrow a number of times to the Send To submenu and press Enter or the Right arrow to open the submenu. Alternatively, Press the letter N to open the submenu more quickly.
4. Down arrow twice to Desktop create shortcut, and press Enter.
5. To verify, press Windows + D or Windows + M to go to the Desktop and first-letter navigate to the new shortcut. It will have the name of your folder followed by “-shortcut.”

There is one small difference for creating a shortcut for a file. After opening the Applications key options, if you want to open the Send to submenu quickly by pressing the letter N, you need to press it twice to get to the submenu, and then either press Enter or Right arrow to open it.

If you want to edit the shortcut name, press F2 which is the Rename keystroke. When finished editing, press the Enter key to retain your edits. Press Escape if you do not want to keep the edits.

To create a desktop shortcut for an application:

1. Press the Windows key and type in the name of the application until you hear its full name. Do not press Enter.
2. Press the Applications key, Down arrow to Open file location and press Enter. This places your cursor on the shortcut for opening the application. This shortcut is buried deep in your Programs folder, and is not easy to find.
3. Press Control + C to copy the shortcut to the Clipboard.
4. Press Windows + M or Windows + D to go to the Desktop.
5. Press Control + V to paste it there.

Here’s something that you have probably experienced when attempting to activate a desktop shortcut to a folder on your PC. You press Enter on the shortcut icon and rather than opening the folder, you instead hear “unavailable” or nothing at all. This happens when you have previously opened that folder during your current session.

The easiest way to deal with this is to return to the Desktop, and try to reopen it. I find that it pretty much always works the second time.

### 2.8.2 Creating Shortcut Keys for Opening Programs

Another way to quickly open an application is to assign it a shortcut key, also referred to as a hotkey. With a hot key, you will be able to open the application from anywhere on the computer. This hotkey will be a combination of Control + Alt plus some letter or number you add. Avoid choosing a key combination that will conflict with key combinations used in other contexts. For example, if you chose Control + Alt + 1 for some application, you will no longer be able to use that key combination in Word for creating a level one heading or in Outlook for switching to the Day View in the Outlook calendar. Also avoid Control + Alt + N because this is the hotkey for opening NVDA.

Steps are:

1. Press the Windows key and type in the name of the application until you hear its full name. Do not press Enter.
2. Press the Applications key, Down arrow to Open file location and press Enter. This places your cursor on the shortcut file for opening the application.
3. Press Alt Enter which opens the Shortcut page for that application’s Properties dialog.
4. Tab twice to the Shortcut key edit box, and type in the letter or number you wish to assign (Control + And Alt will automatically be added).
5. Tab to the OK button and press Enter.
6. If a Continue button appears, press the Spacebar.

You should now be done. However, if your user account does not have administrative rights, you will also have to Enter the administrator’s password after pressing the Continue button.

Now press Control + Alt and the designated letter or number together from anywhere on the computer to open the application.

## Additional Useful Windows Features

### 2.9.1 Installing and Uninstalling Applications

Installing new applications on your computer involves going to the website of the company whose app you wish to download and install. The easiest way to get to the website is to use your favorite search engine (Google, Bing, etc.) and type something like download and install the name of the software in the Address bar. The first search result is usually the correct one.

You will then need to find the appropriate Download link or button for the installation file. Where exactly it is located varies from site to site.

After activating the Download button or link, your web browser will usually indicate when the download is completed. Now navigate to your Downloads folder where the installation file will be at the top of the list because the Downloads folder is arranged chronologically, with the most recent download at the top.

Most installation files have a .EXE extension. Activate the file. A User account dialog appears early in the process. Tab two or three times to the Yes button, and press the Spacebar. Follow any additional steps until the installation process is finished. Often, a shortcut for opening the app is added to your Desktop as part of the installation process.

To uninstall a program, do the following in both Windows 10 and 11:

1. Press the Windows key to open the Search box, type the first few letters of Control + Panel, and press Enter when you hear it.
2. First-letter navigate to the Programs and Features link and press Enter.
3. You land in a list of your currently installed programs. Down arrow or first-letter to the program you want to uninstall.
4. Press the Applications key or Shift + F10. You land on Uninstall. Press Enter on this.
5. A User account control dialog opens. Tab to the Yes button and press Enter to agree to uninstall the program

The program should begin uninstalling. When you think you have finished, return to the list of programs and verify that it is no longer in the list. I have sometimes found that some programs fail to uninstall, and am not sure why this happens. On these occasions, I have called the Microsoft Disability Desk and they have succeeded in removing the program for me.

### 2.9.2 Tips for Finding Your Files, Including Recent Office Files

You will be less apt to lose files if you understand the folder structure of your computer and are comfortable navigating the Save as dialog box. Even then, there will be times when you simply cannot remember the name of a file you created a few days ago, or you have forgotten where you saved it. Here are a couple of ways to retrieve these hard-to-find files.

If you can remember one or two words in the filename, open the Start menu and type in those words in the Search field. Note that typing upper or lower case letters does not matter when performing searches. If you are lucky, the entire filename will populate the search box. If it does not, Down arrow through the various categories (which, depending on the words you have typed in, may include find results on the web, in folders, apps, and others), until you arrive at Find results in documents. If you find the file here, press Enter if you want to open it.

If instead of opening the file, you would just like to know its location on your computer, with Windows 10, you can Right arrow once, Down arrow to Open file location, and then press Enter. This places focus on the file where it is situated in your folders. You can now press Insert + T to hear the name of the folder where it is located. You can also press Alt D with any screenreader to go to the Address bar and hear its full folder path. With JAWS, you can also press Insert A to hear the folder path without actually going to the Address bar.

In addition, after Right arrowing in the Start menu, Copy path also appears in the context menu. You can then open Word or some other text editor and paste the full file path there. For example, I searched for a meatball recipe on my computer and was able to paste the following file path: “C:\Users\david\Dropbox\Training files\Recipe for Meatballs.docx.”

In Windows 11, after typing in the filename in the search box, you can press the Applications key, Down arrow to Open file location, and press Enter. However, I find that this works inconsistently. By contrast, Copy path, also present with the Applications key, does work consistently.

If you cannot remember anything about the filename, in Word, Excel, and PowerPoint, you can open recently used files as follows:

1. In the relevant Office application, press Alt F R to open the Open file dialog.
2. Tab several times to a list box where the most recently saved file is at the top of the list.
3. Down arrow through the files which descend chronologically.
4. Press Enter on the file you wish to open.

Or you can press the Applications key, where there are additional choices, including, open file location, open a copy, delete file, copy path to clipboard, and a few others.

If you are currently working in a Microsoft Office Suite file (Word, Excel, or PowerPoint), but are unsure where you saved it, here’s a quick way to find its location:

1. Press Alt F I to open the Info tab which is located in the File tab of the ribbon menus.
2. Tab to the Copy pat button and press Enter if you would like to copy the full file path to the Clipboard so that you can then paste it elsewhere.

Or Tab to the Open file location button and press Enter to navigate there. You can then press Alt D to go the Address bar and see its file path.

### 2.9.3 Copying File Paths

There may be times when you would like to copy a list of file names and paste them into a text editor like Word. If there are more than just a few, it is time-consuming to manually type them all out. Here are the steps for doing this more quickly:

1. Select files using the keystrokes found in Chapter 2.6.2 above.
2. Press Control + Shift + C to copy these file paths.
3. Open Word, and press Control + V to paste them.

The file names, preceded by their full file paths will be listed here. Here’s an example for a single file: "C:\Users\david\ Documents\college microwave cooking.pdf"

You will probably want to delete the file path, as well as the quotation mark at the end of each file name. . Use the Find and replace command in Word to do this, as follows:

1. Press Home to go to the start of the line for one of the file paths.
2. Select by word (Control + Shift Right arrow) across until you have selected the full path, minus the file name (for example from above, "C:\Users\david\ Documents\, including the opening quote).
3. Press Control + C to copy.
4. Press Control H to open the Find and replace dialog, and paste the file path into the Find field.
5. Tab to the Replace field, but leave it empty. This will result in deletion of the text in the Find field.
6. Tab to the Replace all button and press Enter to delete all these file paths.
7. You may be asked if you want to continue replacing throughout the rest of the document. If you receive this prompt, press the Spacebar to confirm.
8. To now remove the closing quote, press Control H again and type a quotation mark in the Find field. You do not need to first remove the earlier text.
9. Tab to the replace field and leave it empty again.
10. Tab to the Replace all button and press Enter to delete all the quotation marks.

You now have a clean list of all the file names.

### 2.9.4 Identifying the Version of Your Software

If you are having a problem with a specific software application, you will want to know what version you are using before asking for help. That will be the first question a tech support person will ask. There are various ways to find out this information. Some work better than others depending on what screenreader you are using, or for which software application you are trying to identify the version.

Windows 10 updates every spring and fall with a new build, while Windows 11 updates only in the fall. To find out which Windows version and build you are using, press the Windows key, type in “winver” minus the quotes, and press Enter. You will then hear the build and eventually Windows 10 or 11. For example, I hear, “About Windows + Dialog, Microsoft Windows Version 23H2 (OS Build 22631.3447) © Microsoft Corporation. All rights reserved. The Windows 11 Home operating system,” indicating that I am using the Windows 11 Fall 2023 version.

If using JAWS, with focus in the window for a particular application, press Control + Insert + V and JAWS will indicate the version of that software.

However, Control + Insert + V works poorly for identifying your Microsoft Office version. Regardless of your version, you hear 16 followed by some gibberish.

To find out your version of Office:

1. From anywhere on your computer, press Windows I to open Windows Settings.
2. Tab once, Down arrow to Accounts, and press Enter.
3. Tab several times to hear your Microsoft Office account type. For example, on my personal laptop, it says, “Microsoft 365 Family.”
4. Press Alt + F4 to close this window.

To find out your JAWS version, get into the JAWS menus using any of the approaches identified at the beginning of Chapter 1.2 and then press H (for the Help menu) and A (for About). The JAWS version and most recent update will be announced.

Regardless of which screenreader program you are using, for many software applications that use standard drop-down menus (Adobe Acrobat reader is one example), try pressing Alt to open the drop-down menus, press H, and then A for About, and the version will be announced.

To identify your version of NVDA, press Caps lock N to get into the NVDA menus and then press H (for the Help menu) and A (for About). The NVDA version will then be announced.

Finally, here’s a great JAWS trick for identifying multiple software versions. Press Control + Insert and V twice. Here is part of the text that is placed on the Virtual Viewer after doing this for Chrome:

Version Details Information: Google Chrome Version 122.0.6261.129, JAWS version 2024.2403.3.400, Microsoft Windows 11 Core Version 23H2

This information is placed on a Virtual Viewer so you can copy it to the Clipboard.

### 2.9.5 Quick Settings in Windows 11

Windows 11 has a convenient new feature that allows you to access some settings more quickly and intuitively than might otherwise be the case. I particularly like how you can use this feature to quickly check or adjust Wi-Fi connectivity, screen brightness, volume, and battery status. To activate Windows 11 Quick Settings, press Windows A.

You first land on the Wi-Fi Button which is checked if your computer is currently connected to Wi-Fi, and unchecked if not. You will also hear “one of six.” Right arrow to find three additional checkboxes (I do not know what the other two are nor why they do not appear). These include the following with their default status in parentheses:

* Bluetooth button (checked).
* Airplane mode button (not checked).
* Accessibility button: Pres the Spacebar here to access some accessibility settings you can activate, including Magnifier, Color filters, Narrator, Mono audio, Live captions, and Sticky keys.

When you open Quick Settings and land on the Wi-Fi Button, you can also Tab to the following:

* Manage Wi-Fi connections. Press the Spacebar here, and if connected, you will hear the current network. If not connected, you can connect here to an available network, following the steps outlined in Chapter 2.5.6.
* Brightness left/right slider: Left and Right arrow to decrease or increase the screen brightness percentage. If you are using a laptop and seeing the screen is unimportant to you, reduce screen brightness to conserve your laptop battery. On this Tab, you can also Up or Down arrow to the Mute button and press the Spacebar to mute your computer. With focus on the Mute button, Tab once to the Volume left/right slider to adjust your computer volume by Left and Right arrowing.
* Battery button: If using a laptop, you will hear your current battery status. Press the Spacebar here, to open a dialog where you can adjust your power settings.
* Edit Quick Settings: Here you can pin and unpin some settings.
* All Settings: Access all settings here. However, these are more quickly accessed by pressing Windows I.
* When finished in Quick Settings, press Escape to close the window. There is no OK button.

### 2.9.6 Managing Notifications

Screenreader users are often annoyed by unwanted notifications which repeatedly announce themselves and sometimes disrupt productivity. While it is nearly impossible to disable all unwanted notifications, there are several ways to eliminate them, as well as to customize alerts.

First, many applications have methods for tailoring notifications. For example, see Chapter 4.11.3 on modifying message arrival notifications for Outlook.

Second, if an application is frequently announcing notifications and you know you did not open it during the current session, review which apps automatically start up when booting up your computer. See Chapter 2.5.7 on disabling apps from the startup process. Unless you really want them to begin running every time you start up your computer, disable them. You can always open them later. Microsoft Teams is one app that generates lots of repetitive notifications if enabled on startup (which is the factory default). If you don’t use Teams, its notifications are of no use to you.

#### 2.9.6.1 Managing Notifications in Windows 10

Another way to manage notifications is within Windows Settings. How this is done differs substantially between Windows 10 and 11. I will cover Windows 10 in this section and Windows 11 in the next one. Note that, to the best of my knowledge, if you set notification preferences within an individual app, this overrides whatever settings you assign in Windows 10 and 11. For example, I noticed that my Outlook message arrival notification settings overrode those I tried to set in Windows 10 or 11.

In Windows 10, notifications are accessed and managed in the Actions Center. I will first give a short tour of this dialog and then use an example to show how to manage them.

1. Press Windows A to open the Actions Center.
2. Tab once to the Manage notifications dialog where you can enable notifications for individual apps.
3. Tab past this to the first app for which you receive notifications. By default, the first one is the app with the most recent notification. You will also hear the number of apps for which you have enabled notifications.
4. Down arrow to hear recent notifications from that app. After landing on a notification, you can Tab to hear more details about that notification, as well as clear it from the list.
5. You can also Tab one more time to the Clear all notifications for that app button.
6. Continue tabbing to each of the other apps.
7. Tab to the Clear all notifications button and press the Spacebar to clear notifications for all apps.

Here’s an example using Dropbox. As I was tabbing through my currently activated apps, I notice that Dropbox was one of them. With Dropbox, I receive notifications whenever a file is uploaded to my Dropbox or when a collaborator modifies a file in a shared folder. If you have several shared folders and collaborators frequently modify them, notifications could become very bothersome. To turn off or change how to receive notifications from this app:

1. Press Windows A to open the Actions Center.
2. Tab to Manage notifications and press Enter.
3. Tab to Dropbox where there are two tabs: a first one which you can activate to tailor how notifications are received, and a second one for toggling notifications on and off.
4. Pressing Enter on the first Dropbox button opens a dialog. Tab through the choices, among which are:
   1. Notifications Button which you can toggle on and off. You must toggle it on for the following options to appear in the dialog.
   2. Show notification banners checkbox. If this is enabled, you will hear the full text of the notification as it arrives.
   3. Show notifications in Action Center checkbox. Notifications will still be listed in the Actions Center, even if you turn off ways of receiving immediate alerts.
   4. Play a sound when a notification arrives checkbox. You might want to have a sound play and turn off banner alerts which can be more disruptive.
   5. Number of notifications visible in action center combo box: Here you can choose how many of the latest notifications appear.
5. When finished, press Alt + F4 to close the window, There is no OK button.

There is also a feature called Focus Assist in the Manage notifications dialog. Here you can set times of the day when you do not want to receive notifications, or you want to select just a few priority apps as exceptions. This way, you can concentrate on your work without any interruptions.

#### 2.9.6.2 Managing Notifications in Windows 11

I find managing notifications more complicated in Windows 11 than in Windows 10, primarily because it is cumbersome to add apps to the list of those for which you receive notifications. Once added, accessing notifications, modifying them, or turning them off is not hard to do. I will first discuss accessing notifications. This is done in the Notifications Center. Steps are:

1. Press Windows N to open the Notifications Center. This places focus on the most recent app for which you received a notification. Down arrow to hear the notifications, with the most recent one at the top of the list. For any of these, you can Tab to examine them in more detail, as well as clear them individually.
2. Or Tab once to the Settings button for that app. Press Enter if you want to modify how notifications are received for that app. There are two choices here: turn off, go to Notification settings for that app where you can select among the same options as described in the section above (banners, sounds, etc.), and make that app a high priority.
3. Or Tab to the Clear all button and press the Spacebar if you want to clear all notifications for this app.
4. Tab to the next app, for which you have the same set of buttons.
5. This is a temporary window, so when finished, press Escape or Alt + Tab to close it and go to another window.

As mentioned above, adding an app to the Notifications Center is more cumbersome than in Windows 10. Steps are:

1. Press Windows I to open Windows Settings, Tab until you hear “Settings, 1 of 11,” and press Enter.
2. Press Windows I again, Tab to “Display, 1 of 15,” Down arrow to Notifications, and press Enter.
3. Tab to the app you would like to enable. Be patient because this may involve a lot of tabbing.
4. When you land on the desired app, press the Spacebar to toggle it on.
5. Tab once to the More button, and press Enter here to open a dialog where you can adjust how notifications are received for this app.
6. When finished adjusting these options, tab to the Back button and press Enter to lock in these changes.
7. Press Alt + F4 to close this window.
8. Press Windows N to open the Notifications Center, and Tab through to be sure that this app is now present.

### 2.9.7 The Windows Clipboard

When you select text and then copy or cut it to the Clipboard by pressing Control + C or Control + X, only the latest text selection is placed on the Clipboard. With Windows, it is possible to place multiple selections on the Clipboard so you can paste them elsewhere. You must first enable the Windows Clipboard. Steps are:

1. Press Windows I to open Windows settings.
2. Type “clipboard” in the search box, minus the quotes, Down arrow to Clipboard settings, and press Enter.
3. Tab to the Save multiple items to the Clipboard toggle and press the Spacebar to turn it on.
4. Tab to Sync across devices. For privacy reasons, you may not want to enable this.
5. Press Alt + F4 to close the window. There is no OK button here.

To test out the Windows clipboard, open an existing Word document and select and copy several items. Then open a new document and Press Windows V. If you Up and Down arrow, a list of copied items appears in chronological order, with the most recent one at the top of the list. Press Enter on any of these to paste them into the new document.

Unfortunately, you can only paste them one at a time. It is not possible to paste all of them at once.

All the copied items remain on the Windows clipboard and across multiple applications, (for example, Word and Excel). There are two ways to clear the Clipboard. First, you can shut down the computer, or:

1. Press Windows V to open the Windows clipboard.
2. Down arrow to any of the copied items.
3. Tab to the More button and press Enter.
4. Down arrow to Clear all and press Enter.

Note that text you copy to the Windows clipboard does not retain any formatting from the original document. If you copy Excel formulas, only values are retained.

## 2.10 Microsoft Office Topics

This section covers a number of topics that are applicable across either the full suite of Microsoft Office applications, or at least two of them. These features can greatly boost your productivity.

### 2.10.1 Saving Office Documents

Rule Number One of document preparation is to save early and often. Some people mistakenly think that saving is the last thing you do after typing the text, spellchecking, and editing. This is a recipe for potential disaster. Follow this path and your own goof ups, inexplicable crashes, your screenreader abruptly going silent for no apparent reason, and other acts of God could cause you to lose hours of work. Get into the habit of doing an initial save just a couple of minutes into working on your document. When you pause to take a breath, reflexively press Control + S to update your save. Now when your computer misbehaves, the worst outcome is that you will have lost several minutes of work rather than several hours.

#### 2.10.1.1 The Save as dialog

For Word documents, Excel workbooks and PowerPoint presentations, initial file saving is performed in the Save as dialog box.

To perform an initial save, press F12 to open this dialog box (or press Control + S if you have enabled this keystroke to open the Save as dialog, using the steps outlined in Chapter 2.5.14 above). You land in an edit field where a filename is proposed, appearing as follows for each of the three Office Suite programs:

* Word: the Filename edit field is prepopulated with a proposed filename, comprised of the entire first line that you have typed in or a segment of that line if there happens to be punctuation in it, followed by the default.docx extension. If you are happy with this, press Enter or Alt S and the file will be saved to your default folder for saving documents, usually the Documents folder (see below for detecting and changing the default save folder). Alt S is the dialog shortcut for saving. Pressing Enter or Alt S saves you needing to tab six or seven times to the Save button. If you wish to give the file another name, simply type over the proposed name and press Enter to save it to the default folder.
* PowerPoint: the Filename edit field is prepopulated with a proposed filename, which is the text you have inserted in the Title placeholder of the Title slide, followed by the default.pptx extension. Here too, if you are happy with this, press Enter or Alt S and the file will be saved to your default folder for saving documents. Otherwise, type in a new title and press Enter.
* Excel: the Filename edit field is prepopulated with a generic filename (Book1, Book2, etc.), followed by the default.xlsx extension. You will want to rename this, typing over the prepopulated text to give it a filename reflecting the file’s content. Pressing Enter or Alt S then saves it to the default folder.

If instead of saving to the default folder, you want to save the file to a subfolder of the default folder, after pressing F12 press Shift + Tab twice to get to a list view of these subfolders. Now Down arrow or first-letter navigate to the subfolder where you want to save the file. Press Enter to get into it. Now either press Enter again or press Alt S to saved the file in this subfolder.

There are a couple of other useful places in the Save as dialog box worth examining. After landing in the Filename edit field, Shift + Tab three times to land in a tree view which you can navigate through Using the keystrokes mentioned earlier in this chapter. Begin Right arrowing through the various tree view levels to see where your file is located. This can be useful if you are currently in the file and can’t remember exactly where you saved it. The tree view maps the folder path.

You can also use the tree view to quickly save the file to another folder on your computer other than the Documents folder or one of its subfolders. For example, let’s say you want to save the file to the Music folder. Do the following:

1. Press F12 to open the Save as dialog box.
2. Shift + Tab several times to the tree view.
3. Press M until you hear “music,” and press Enter. You may hear “enter,” or you may hear nothing at all, but this locks it in.
4. Tab once to the List view of folders and files contained in the Music folder.
5. If you want to save your file to one of the subfolders in the Music folder, Down arrow or first-letter navigate to that folder and press Enter.
6. If you simply want to save your file to the Music folder, and not to any of its subfolders, ignore the step above.
7. Press Enter again or Alt S to save the file in this new location.

You can also save files in formats other than the default format. To do this:

1. Press F12 to open the Save as dialog box.
2. Tab once to the Save as type combo box, and Down arrow to your file format selection. File type choice options differ between applications.
3. Shift + Tab once back to the Filename edit box (where your new file extension has been added to replace the default extension) and press Enter or Alt S to save it.

After the initial save, press Control + S to save any subsequent changes you have made in the document. As stressed above, save early and often. Make frequent updating into a reflex. It’s your best defense against losing large amounts of work.

If you start working on a document, and want to exit it without saving it, press Alt + F4, Tab to the Don’t save button, and press Enter. This will close the document window without saving any changes.

#### 2.10.1.2 Changing the Default Folder Location for Saving Microsoft Office Files

For Office 2016, 2019, and 2021, the default folder for saving files is the Documents folder located in the user folder. However, if you have a Microsoft 365 license and you are signed into OneDrive, the default save location is the Documents subfolder of OneDrive. OneDrive comes with several preset subfolders and Documents is one of them. This can be confusing because most people assume “Documents” means the folder you have always had in your user folder, and not the one contained in OneDrive.

If you want to change your default file save location, steps are:

1. From within the relevant Office application, press Alt F T to open the Options category list.
2. Down arrow or first-letter navigate to the Save category.
3. Tab to the Default local file location to hear the folder path for the current default save location.
4. To change the default folder, either manually type in the new folder path, or with Word only, Tab once to the Browse button and press Enter. This opens the Modify location dialog where you first land in the Folder name edit field.
5. Press Shift + Tab three times to a tree view containing your computer’s folder structure. Navigate through the tree view using steps outlined in Chapter 2.6.4.5 above until you land on the desired folder.
6. Press Enter on this folder. You will hear either “enter” or nothing at all. Either way, this locks in that folder as your new default folder.
7. Tab to the Folder name edit field which is now populated with the folder you just chose, and press Enter. This returns you to the Save category dialog where you started from.
8. Tab to the OK button and press Enter.

For some strange reason, the option to browse your folder structure is not present in 365 versions of Excel and PowerPoint. So, when you get to step four above, you will need to manually type in the new default folder path. Because I no longer have access to earlier versions of Office, I cannot say if that is also the case for them.

Typing in the folder path correctly can be tricky. The best way to be sure you get it right is to:

1. Navigate into the folder you wish to make the default.
2. Press Alt D to go to the Address bar.
3. Press Control + C to copy the folder path to your Clipboard.
4. Repeat steps one through three above to get to the Default local file location edit box contained in the Save category dialog.
5. Press Control + A to select the folder path currently identified there, and then press Control + V to replace it with the new default folder path.
6. Tab to the OK button and press Enter.

#### 2.10.1.3 1 Autosaving Office 365 Files in OneDrive

Autosave is an Office 365 feature that automatically saves any revisions you make in a Word, Excel, or PowerPoint file if you have saved it to OneDrive. If you are signed into OneDrive, the Documents subfolder of OneDrive is your default save location for Office files.

If Autosave is enabled, when you press Alt + F4 to exit a document, you will no longer be asked to confirm whether you want to save, foregoing the option of not saving changes. Instead, you will simply exit the document. Any revisions will be saved, regardless of whether that was your intention.

While some people like Autosave, I prefer disabling it. I like simply pressing Control + S when I want to save, and retaining the option not to save. Pressing Control + S has become a reflex for me, and I rarely lose more than a minute or two of work if something goes wrong.

If you would like to disable Autosave, and again, this is only an issue for files saved to OneDrive and signed into their Microsoft 365 account, you will need to do this separately for each of the Office applications. Steps are:

1. In the relevant Office application, press Alt F T to open the Options categories dialog.
2. Down arrow or press S to go to the Save category.
3. Tab once. JAWS will say, “Autosave files stored in the Cloud by default checkbox. With NVDA and Narrator, or if you turn on the JAWS cursor (Insert and Numpad Minus), a fuller description of that checkbox will appear, also saying, “, in Word AutoSave OneDrive and SharePoint Online files by default.”
4. Press the Spacebar to uncheck this checkbox.
5. Shift + Tab back to the OK button and press Enter.

To test this out, first be sure that you are signed into OneDrive. Then compose a document and save it there. Make a few revisions, and press Alt + F4 and see if the dialog pops up giving you the choice of saving or not saving. Experiment a bit by checking and unchecking the Autosave checkbox identified above to be sure that Autosave behaves as desired. I have noticed that it may take one or two iterations for the disabling of Autosave to stick.

### 2.10.2 The Quick Access Toolbar

The Quick Access toolbar (QAT) allows you to assign shortcuts for Office commands that are hard to remember or involve more keystrokes than you prefer to type, especially if you use the command often. The QAT is present in all the Office Suite programs with ribbon menus, as well as with Windows 10 File Explorer. Because Windows 11 File Explorer does not use ribbon menus, you can not use the QAT with it.[[10]](#footnote-10)

For those applications where the QAT is present, it appears visually either above or below the ribbons. For a long time, it was only above the ribbons, and I find it confusing if it is below them. Therefore, I suggest you situate the QAT above the ribbons. Steps for doing this are:

1. In the relevant Office application, Press Alt F T to open the Options categories list.
2. Press Q to first-letter navigate to the Quick Access toolbar category.
3. Tab to the Show Quick Access toolbar checkbox and be sure it is checked.
4. Tab to the Toolbar position combo box, press the Spacebar to expand it, Up or Down arrow to Above the ribbon, and press Enter. Note that you must press Enter to lock in your choice.
5. Tab to the OK button and press Enter.

The remainder of this section assumes that you have made this change.

As we will see below, navigate to it by pressing Alt and then Up arrow, or Alt and then Shift + Tab, both of which make sense, given its location on the screen.

The QAT can be customized in each of these applications. Shortcuts initially set by Microsoft can be deleted and new ones can be added.

I’ll continue with Outlook to discuss how to navigate to the QAT, delete existing QAT shortcuts, and add new ones. To navigate to the QAT, press Alt, and then Up arrow once. It is important to press these keys separately, and not together. You usually land on the right-most command present on the QAT, but you may also land on the Customize toolbar submenu. Left arrow to see which commands are present on the QAT. The leftmost command on the QAT is assigned Alt 1, the next to the right is assigned Alt 2, and so on. You can set a maximum of ten QAT shortcuts per program (up to Alt 0).

Outlook comes with two preset QAT shortcuts: Send/receive all folders (Alt 1) and Undo (Alt 2). Because easy-to-remember shortcut keys exist for these two already (F9 and Control + Z, respectively), I don’t find I need them as QAT shortcuts. To delete one of these QAT shortcuts in Outlook:

1. While in the Outlook inbox, navigate to the QAT by pressing Alt, and then Up arrow once. Be sure to press these keys separately, not together.
2. Left or Right arrow to the command you want to remove from the QAT.
3. Press the Applications key. You first land on Remove from Quick Access toolbar. Press Enter on this.

Any QAT shortcuts to the right of the deleted shortcut will move up one number. That is, the previously designated Alt 2 shortcut will be reassigned Alt 1, Alt 3 will become Alt 2, and so on.

Repeat the same steps if you want to delete other preset QAT shortcut assignments.

You can add new QAT shortcuts in two ways: through the ribbons and through the Customize toolbar submenu. One QAT shortcut I like to assign in Outlook is the command for changing the sort order of inbox messages. Without a QAT shortcut, this involves either navigating to the command in the Lower ribbon of the View tab, or memorizing the ribbon shortcut key combination of Alt V A B F to sort by sender, and Alt V A B D to return to sorting by date. To assign a QAT shortcut for this command:

1. While in the inbox, press Alt to open the Upper ribbon, and Right arrow to the View tab.
2. Tab in the Lower ribbon to the Arrange by button, but do not press Enter.
3. Press the Applications key. You first land on Add to Quick Access toolbar. Press Enter on this.
4. Press Escape to close the ribbons.

A QAT shortcut is now designated for this command. If you removed the two presets mentioned above, this becomes the new Alt 1 QAT shortcut.

Now if you want to sort your inbox by sender, all you have to do is press Alt 1 F (F is short for “from”). To return to sorting by date, press Alt 1 D. With JAWS, to make the QAT shortcuts work correctly, you must press the Alt and 1 keys separately. Pressing them at the same time will not work. For example, if you press them together while in Outlook, JAWS will say,” that field is not available outside an open message.” With NVDA and Narrator, it is OK to press the Alt and number keys together.

You can use the Customize toolbar submenu to assign QAT shortcuts for a number of commands. In Outlook, I have found it useful to do this for emptying the Deleted items or Trash folder. Using a QAT shortcut is much faster than navigating to this command via the ribbons. To assign this QAT key:

1. Navigate to the QAT by pressing Alt, and then Up arrow once.
2. Right arrow to the Customize toolbar submenu and press Enter to open it.
3. Down arrow to Empty deleted items and press Enter.

This command is now assigned a QAT shortcut, Alt, plus one additional number above the highest number already assigned. When you press the QAT shortcut to empty the Deleted items folder, you will be asked to confirm that you want to empty it. Press the Spacebar on the Yes button to confirm.

Below are some additional commands for which you may wish to assign QAT shortcuts.

* Attaching files in Word, Excel and PowerPoint to an email message: Assign the QAT shortcut from within any of these programs via the Customize toolbar submenu. In the submenu, Down arrow to Email and press Enter. This command allows you to attach a file while in the window for that file, provided that it has already been saved. When you execute this command, you will land in the To field of your default email program. The file will already be attached and the Subject field will be pre-populated with the file name. All you need to do is address the message, add text to the message body and send it. You can edit the Subject field if you like.
* Create shortcut command in Windows 10 File Explorer: To assign it a QAT shortcut:

1. While in a folder such as Documents, navigate to the Home tab on the Upper ribbon.
2. Tab to the New item button.
3. Press Enter on Add to Quick Access toolbar.

When you activate the QAT shortcut, Down arrow once to Shortcut and press Enter to open the relevant dialog.

Copy path command in Windows 10 File Explorer: If you have selected a single file or folder, or multiple ones, you can copy the full file path to the Clipboard and then paste it in Word or some other text editor. To assign it a QAT shortcut:

1. While in a folder such as Documents, navigate to the Home tab on the Upper ribbon.
2. Tab to the Copy path button.
3. Press Enter on Add to Quick Access toolbar.

### 2.10.3 AutoText in Word and Outlook

AutoText is a handy tool for quickly inserting text that you would otherwise type repetitively. Think of how many times during the day you might type a salutation to a co-worker or friend, or sign-off at the end of an email message. On any given day, I write several messages beginning with “Hi all” followed by a comma. And at the end I sign off with “Thanks” or “Best regards” followed by a comma, and my first name on the next line. Rather than type these over and over again, speed all this up by using the AutoText tool in Word and Outlook. You will need to define a piece of AutoText separately in each of these two applications. I will use Outlook as an example to add “Hi all comma” to AutoText. Note that I wrote out the word “comma” just now so it is clear here in the text, but you will actually type the comma symbol immediately after the text, exactly as you would in an email message. Steps are:

1. In Outlook, press Control + N to start a new message and Tab to the body of the message.
2. Type in “Hi all comma” as you normally would.
3. Select this text.
4. Press Alt F3 which lands you in the Create new building block edit field.
5. Type in a letter or small number of letters that you can easily remember, for example, just a lower case h, and press Enter. This is not case-sensitive, so just stick with lower-case letters. Your AutoText and its corresponding keystroke, or keystrokes, are now defined.

From now on, when you want to insert this text in the body of an email, type h immediately followed by F3, and the text will appear.

There is no character limit on the amount of text you can select for AutoText. For example, you might use AutoText for quickly inserting the Zoom link for a recurring meeting, the agenda for a weekly office meeting, your email signature, or the boilerplate text for a newsletter. The only limiting factor is your ability to remember the keys you assign to your AutoText entries.

Steps are exactly the same for creating AutoText entries in Word.

It is easy to replace an AutoText entry with something else. For example, let’s say that in Outlook, I want to redefine my h entry of “Hi all comma” as “Hello all comma.” Repeat steps one through four above, but this time in step two, typing in and selecting the text “Hello all comma.” When you press Alt F3 to get into the Create new building block edit field, type in h, and then Enter, you will be asked “do you want to replace the building block entry?” Press the Spacebar to confirm.

If you later decide to delete an AutoText entry, or you just want to see the list of AutoText entries you have created in either Word or Outlook, they are found in the Quick parts gallery in the Insert tab of the ribbon. For Outlook, you must first be in the body of an email message you are currently preparing. Only then can you access the Quick parts submenu. Again, I will use Outlook as an example.

1. In Outlook, press Control + N to start a new message and Tab to the body of the message.
2. Press Alt, Right arrow once to the Insert tab, Tab to the Quick parts submenu and press Enter (shortcut is Alt N Q).
3. Press Enter on the AutoText submenu. This opens the list of your AutoText entries, listing the keystrokes you have created.
4. Down arrow to the entry you want to delete.
5. Press the Applications key, Down arrow to Organize and delete, and press Enter.
6. Tab to the Delete button and press Enter.

When I first discovered this tool, I went nuts creating scores of AutoText entries for everything from the name of my state blindness agency and workplace, to my bank account routing number and checking account numbers, to the titles and web addresses of previous books I have written. But over time, I have dropped most of these from my daily habits and come to use AutoText most frequently for email salutations and sign-offs. In any event, use AutoText for whatever segments of text work best for you.

### 2.10.4 Password-Protecting Files, Including Creating an Easy-to-Use Personal Password Management System

With Microsoft Office, you can protect a file by creating a password for it. This works for Word, Excel and PowerPoint files. Steps for doing this are:

1. While in the file, press Alt to open the ribbons, Left arrow to the File Tab, Down arrow to the Info tab and press Enter.
2. Tab to the Protect document submenu, and press Enter. The shortcut for getting here is Alt F I P.
3. Down arrow to Encrypt with password and press Enter.
4. You land in an edit field. Type in a password for the file and press Enter.
5. You are asked to confirm the password. Type it in again and press Enter.
6. Press Escape to return to the workbook or main body of the document.
7. Save the file if you have not already done so, or press Control + S to save it with this revision, now updated with password protection included.
8. To be sure it works, press Alt + F4 to exit the file and then reopen it. You are prompted to enter the password. Type it in and press Enter. You are now in the file.

Be sure to choose a password that you can remember. If you forget it, you are completely out of luck.

After protecting a file with a password, you can change the password by getting back into the file and repeating the steps above. You can also remove password protection by returning to the edit field where you first entered the password, deleting the text, pressing Enter, and saving the revised file.

This brings me to the topic of how you can create an easy-to-use personal password management system. There are many password manager applications on the market, some paid and others free. Popular examples are 1Password which carries a modest monthly subscription fee, and KeyPass which is free. All of these applications have several common characteristics, including:

* You are required to create a master password which enables you to open a secure vault where you can store usernames and passwords.
* They enable you to generate strong passwords with many characters, combining upper and lower case letters, numbers and special characters.
* Your secure vault is stored online so it is automatically backed up, not just saved locally on your computer.
* They can be used across multiple devices, including computers, smartphones and tablets. With smartphones like the iPhone, you will need to enable touch or face ID in order to quickly log in.

While you may decide to use one of these applications, there is a learning curve for getting accustomed to using them. As an alternative, you can recreate all of the elements above by creating a password-protected Excel or Word file where you store your usernames and passwords. Password managers generate strong passwords by stringing together a bunch of random characters. You can create a strong password yourself that you then copy and paste into the password field of a login page. With Chrome and Edge, you can save login information for some websites so you don’t have to retype these credentials every time you log into a site.[[11]](#footnote-11) For those sites where this does not work, you can open the password-protected file and copy and paste the password, or you can generate a password that you can remember, while still being a strong one. Strong passwords contain a mix of upper and lower case letters, numbers, and special characters.

If you save your password-protected file in Dropbox, OneDrive or Google Drive, this stores them online. And if you use an iPhone and enable touch or face Id, this will allow you to log in to apps more easily.

This way, you can develop a do-it-yourself password management system with a relatively flat learning curve. I have done this in Excel with account names contained in column A, user ID’s in column B, passwords in column C, and login page URL’s in column D. However, this last column is optional. I just like having login page URL’s handy.

Telling you about my strategy is not meant to discourage use of password management applications, some of which have additional valuable features. However, as a technology instructor, I have found it useful to demonstrate this alternative to my trainees. For anybody with basic knowledge of Word, Excel, and cloud sharing services like Dropbox or OneDrive, it takes just a couple of minutes to learn this technique, versus the several hours required to get comfortable with a password manager app. It is a quick and easy way to begin transitioning out of the all too common bad habit of using the same password for everything, frequently forgetting passwords, or having no password management system at all.

While I could have also created this system in a Word file, Excel does a much better job of handling lists such as these.

If you would like to build yourself such a system, in Appendix V, complete the exercise entitled “Build a Secure Password Management System in Excel.”

### 2.10.5 Microsoft Office Accessibility Checker

Microsoft has a useful tool for flagging accessibility issues for the Office Suite of products. It has been available for quite some time for Word, Excel and PowerPoint, and only more recently for Outlook. Note that this utility does not work with files with the older 1997/2003 Office extensions (.doc,.xls and.ppt). Resave such files with the newer file extensions ending with X (.docx,.xlsx and.pptx).

To run the Accessibility Checker for Word, Excel, and PowerPoint, press Alt to open the Upper ribbon, Right arrow to the Review tab, Tab to the Check accessibility split button and press Alt + Down arrow to expand it. Then press Enter on Check accessibility. To use shortcut keys instead:

* For Word and PowerPoint, press Alt R A 1, and Enter.
* For Excel, press Alt R A, and Enter.
* For Outlook you must be in the message preparation window. Press Alt V A.

After activating the Accessibility Checker, you may first land on the Keep the Accessibility Checker running while I work checkbox. Press the Spacebar if you wish to do this. Tab to the Inspection results tree view. If no accessibility issues are present in the file, this will be indicated. Otherwise, a tree view appears with the accessibility issues encountered grouped into three categories:

* Errors: Content that makes the document difficult or impossible to read and understand for persons with disabilities. A frequently-encountered example is absence of descriptive text for a graphic in a PowerPoint slide or chart in an Excel worksheet (referred to as “alternative text”).
* Warnings: Content that in most (but not all) cases makes the document difficult to understand for persons with disabilities. An example is text that is hard to read on a PowerPoint slide.
* Tips: Content that people with disabilities can understand but that could be presented in a different way to improve the user’s experience. One example is absence of headings in a lengthy Word document, thus impeding efficient navigation and making it hard to understand document structure and organization.

Each accessibility issue appears at level 0 of the tree view, along with how many instances of that problem have been identified. Each specific instance of that problem is listed at level 1. If you simply want to navigate to that point in your file, press Enter. You can also rectify the problem within the Accessibility Checker. Below is a step-by-step example of adding alt text to a PowerPoint image which previously had none:

1. After opening the PowerPoint presentation, press Alt R A 1 and Enter to run the Accessibility Checker.
2. Tab to the Inspection results, and Down arrow to Missing Alternative text in the tree view. This is categorized as an error.
3. Right arrow to open level 1 of the tree view, and Down arrow to the first instance of a graphic lacking alt text.
4. Press Alt + Down arrow, and Down arrow through several options. For alt text, these include: add a description, label as decorative, and learn more. Choose decorative if the graphic conveys no substantive information. Choose learn more if you want to get help on this topic.
5. Otherwise, press Enter on Add a description, type in the text, and press Escape when finished. The image will now have ALT text that will be announced by a screenreader.

Open the link below to read about common errors, warnings and tips provided by the Accessibility Checker for the Microsoft Office Suite:

[Rules for the Accessibility Checker](https://support.microsoft.com/en-us/topic/rules-for-the-accessibility-checker-651e08f2-0fc3-4e10-aaca-74b4a67101c1)

### 2.10.6 Dictation in Word and Outlook 365

If you are not a great typist, or want to prepare a short Outlook message, Word document, or PowerPoint slide, try the Dictate feature. Use it to quickly record notes or prepare a draft document. Provided that you speak reasonably clearly, the results are impressive in terms of being error-free. This feature is only available with an Office 365 license.

The first time you use the Dictate feature in Word or Outlook, you may need to navigate to it in the Home tab of the ribbons. To do this in Word, press Alt to open the Upper ribbon, Left arrow to the Home tab if you are not already there, press Control + Right arrow to move by group to the Dictate button, and press the Spacebar to check it. In Outlook, your cursor must be positioned in the body of a message you are preparing before executing these steps. From now on, you can use the shortcut key which is Alt H D.

With your cursor positioned in the location in the Word document or Outlook message where you want to add text, press Alt H D to start dictation. You should hear a chime. When you are finished dictating, press Alt H D again to end dictation. You will not hear a chime at this point. Check if your dictated text has been inserted.

You can add punctuation marks by saying them. Among the most common are: period, comma, question mark, new line, and new paragraph. For more information about dictation and the full set of words you can say related to punctuation and editing, check out this link from MS Office Support:

[Dictate in Microsoft 365](https://support.microsoft.com/en-us/office/dictate-in-microsoft-365-eab203e1-d030-43c1-84ef-999b0b9675fe#:~:text=Dictation%20lets%20you%20use%20speech,presentations%2C%20or%20even%20slide%20notes).

To access the various dictation options, first dictate a few words. Then press F6 several times to navigate to the Dictation settings submenu, and press Enter to open it. Options include: auto-punctuation, a profanity filter (checked by default), and a Spoken language submenu. If you want to change your dictation language, open this submenu, Down arrow to the language of your choice, and press Enter. English is the default language. If you switch to another language, this will be your new default dictation language until you return here to change it back again.

When you are finished changing Dictation settings, press Escape to return to your document.

# Chapter 3 Word

This chapter begins with an overview of ribbon menu navigation. The chapter covers all basic document formatting areas, as well as some more intermediate-level topics. It also discusses saving documents with the Save as dialog and some other useful tools. Spellchecking, proofreading, and collaborative tools are covered in Chapter 9.

## 3.1 Ribbon Menus

A general overview of Ribbon menu structure and navigation was presented in Chapter 2.4.1.1. Here are more specifics on the Word ribbons. Word Upper ribbon tabs (and shortcut keys for getting to them more quickly) include:

* File (Alt F)
* Home (Alt H)
* Insert (Alt N)
* Design (Alt G)
* Layout (Alt P)
* References (Alt S)
* Mailings (Alt M)
* Review (Alt R)
* View (Alt W)
* Help (Alt Y)

Context-specific tabs will also appear when you format tables, pictures, and various other things. For example, if your cursor is situated in a table and you press Alt to open the Upper ribbon, as you Right arrow, two additional Table Tools tabs will appear: a Design tab and a Layout tab. These two tabs contain commands specific to table formatting. They only appear when your cursor is positioned inside a table.

When should you use the ribbon menus? The short answer to this question is “it depends.” First, some background, and then, a couple of examples.

Why was the ribbon structure introduced in the first place? The answer has bearing on strategies for how screenreader users access commands. For sighted users, many more commands are readily visible in the Lower ribbon than in a typical menu bar with a drop-down menu. This is because of the horizontal layout of the Lower ribbon. Over 40 commands are readily visible in the Lower ribbon of the Home tab. This many commands cannot be displayed on the screen for a drop-down menu, which is a narrow vertical strip. While a sighted user can easily point and click on whatever command icon they wish to activate, the screenreader user may be required to press Tab many times to the same place. This means that, at least for some commands, learning the shortcut key or accessing a command via the Applications key is the more efficient choice. It depends on the command and how often you think you will use it. To tease out the pros and cons of using the ribbons, the options for accessing the Font dialog and the Margins submenu are good examples.

The Font dialog can be accessed in three ways: In the Home tab Lower ribbon; via the Applications key context menu for Word; and by pressing the shortcut key. I will talk about these options from the least efficient to the most efficient in terms of numbers of keystrokes.

The least efficient way to access the Font dialog is through the ribbon menus. This involves:

1. Pressing Alt to access the ribbon menus, either landing on the Home tab or Pressing the Left arrow one or more times if you land elsewhere on the Upper ribbon.
2. Pressing Control + Right arrow twice to the Font group.
3. Pressing Tab about 15 times to the Font dialog launcher and Pressing Enter.

This totals about 20 keystrokes, which is inefficient.

A much quicker way to get to the Font dialog is to go in via the Applications key as follows:

1. Press the Applications key, or Shift + F10 if your keyboard does not have an Applications key.
2. Down arrow several times to Font and press Enter.

This totals only four keystrokes, clearly preferable to the ribbon option.

The shortcut key for accessing the Font dialog is Control D, obviously the quickest way to get there.

By definition, shortcut keys are always more efficient for executing commands than any of the alternatives. Does this mean that you should use up lots of brain cells to memorize loads of shortcut keys? Probably not. If you rarely change your fonts, remembering that the Font dialog can be found by pressing the Applications key and Down arrowing a few times is fine. But if you frequently change fonts, try remembering Control D. More details on changing fonts are found in Chapter 3.2.2 below.

Now let’s talk about margins. These can be changed via the ribbons or the shortcut key. They do not appear in the context menu, so using the Applications key is not an option. The shortcut key is Alt P M. To navigate there via the ribbons, do the following:

1. Press Alt to open the Upper ribbon.
2. If you land on the Home tab, Right arrow three or four times to the Layout tab.
3. Tab into the Lower ribbon a few times to the Margins submenu and press Enter.

This totals eight or nine keystrokes. Because the Margins submenu happens to be one of the first stops in the Layout tab’s Lower ribbon, it is relatively painless to access the Margins submenu via the ribbons. This is clearly not the case for the Font dialog launcher, which is located much deeper in the Lower ribbon of the Home tab.

More details on changing margins can be found in Chapter 3.2.4 below.

For any command you want to execute, you will want to consider the following questions in deciding whether to access it via the ribbons, Applications key, or shortcut key:

* How many keystrokes are required to navigate to the command in the ribbon menus?
* Is the command present in the context menu accessed via the Applications key or by pressing Shift + F10?
* How easy is it to memorize the shortcut key?
* How frequently will you use the command?

As you gain experience formatting Word documents, more and more shortcut keys will eventually lodge themselves in your memory. And based on how often you use various commands, you will also figure out what is the best choice for you.

## 3.2 Formatting Basics

This section covers the basic requirements for properly formatting the body of a Word document. If you are comfortable with these commands, you are well on your way to creating professional-looking documents.

A number of the most important formatting commands are located in the Font and Paragraph dialogs. I will start with these.

### 3.2.1 Format Checking with Insert + F

Insert + F (F for “format”) is a valuable keystroke in both JAWS and NVDA for identifying a number of the most important elements of font and paragraph formatting. You will first hear information on font formatting, and then paragraph formatting. With Narrator, Insert + F provides font formatting information only, not paragraph formatting.

Font-related formatting information you will hear includes:

* Attributes (bold, italics, underline)
* Font name (Arial, Times New Roman, etc.)
* Color foreground and background (black on white, etc.)

Paragraph-related formatting information you will hear with JAWS and NVDA includes:

* Line spacing (single space, double space, etc.)
* Indentation (if any)
* Alignment (left, center, right, or justify)

If you press Insert + F in a Word document without first selecting text, you will hear formatting information associated with your cursor point only. If you move your cursor elsewhere in the document, the formatting might very well be different there.

If you first select some text, and then press Insert + F, you will hear formatting information for the selected text. However, if formatting is not uniform throughout the selection, you might hear things like “mixed point size,” “mixed font,” “mixed alignment,” and so on.

Before making font and paragraph format changes, you should always press Insert + F to hear your current formatting. After making changes, you should verify by pressing Insert + F again.

If you are new to using this keystroke, the amount of information read to you all at once can be overwhelming. With both JAWS and NVDA, if you hold down the Insert key and then press F twice, you can press the Up and Down arrows to read each font and paragraph format setting separately. When finished, press the Escape key to return to the document.

### 3.2.2 The Font Dialog

As mentioned earlier in this chapter, the best ways to access the Font dialog are to either use the shortcut key (Control D) or press the Applications key, Down arrow to Font, and press Enter.

You can change many things in this dialog, but I will limit discussion to the font name, attributes, point size, and color. Here are the steps:

1. Select the text for which you want to change font formatting.
2. Press Control D to open the Font dialog (or access it via the Applications key).
3. You land in the Font edit combo box. Type the first letter of the font name you want and Down arrow until you hear your font choice (you can also type in the first few letters or the entire font name).
4. Tab once to the Font style edit combo box. Up or Down arrow to choose either Regular, Italic, Bold, or Bold Italic.
5. Tab once to the Size edit combo box. Up or Down arrow to choose your point size choice or type in the point size you want.
6. Press Enter if these are the only formatting changes you want to make.
7. Press Insert + F to verify that your choices have registered.

If you also want to change the color of your text, Tab one more time past the Size edit combo box to the Color button. The Color button is a bit quirky, but consistent in its quirkiness. Steps for changing font color are:

1. On the Color button, press the Spacebar. Don’t press Enter here because it will not be clear where you land.
2. This brings you into a color picker palette, which is navigated as follows. If you press Home or the Up arrow as far as you can, your screenreader will say “automatic,” which means that the foreground color is black. If you now press the Down arrow once, you will land on a color and hear “accent 1,” “accent 2,” etc. These “accents” are different shades of that color, moving from lighter to darker shades. You can Right and Left arrow to find other colors. If you simply want black, either press the Up arrow until you hear “automatic,” or press Home once. When you hear the color you want, press Enter. Do not press the Spacebar, even though your screenreader may tell you to do so, because it will not get you out of the color picker.
3. Yet once out, you will not hear that anything changed. For example, if it said Accent 1 before you attempted to make a change, it still says that rather than Automatic. Fortunately, this is a mirage. Tab once and Shift + Tab back once. You will hear that you have actually made the change.
4. Now press Tab quite a few times to the OK button and press Enter or Spacebar to make your changes.

Again, this Color button is quirky, but as long as you hit the keys just right, it will work every time. Also, be sure to press Insert + F to check your work. Note that different versions of JAWS will announce color information differently. JAWS 2021 says “black on white.” But with earlier versions, you may hear “default on default,” and even “black on black,” which is nonsensical. Unless you have changed the default foreground and background colors, which you should not do for normal text, black text on a white background is the default.

Although you can bold and italicize text via the Font dialog, this is done more easily with shortcut keys. First, select the text you want to change. Useful shortcut keys are:

* Control + B: Bold on/off.
* Control + I: Italicize on/off.
* Control + U: Underline on/off.

These are toggles. If text is already bolded, pressing Control + B will turn bolding off. Your screenreader will say “bold off” or “bold on.” Ditto for italicizing and underlining.

### 3.2.3 The Paragraph Dialog

The most important formatting options here include:

* Alignment (left, center, right, justify)
* Left and right indentation
* Special, which refers to indenting the first line of every paragraph, as well as hanging indentation
* Before and After paragraph spacing
* Line spacing (single or double being the most common)

There are other options in this dialog, but I will limit discussion to the ones listed above. Here goes!

First, select the text for which you want to change paragraph formatting. If you want to do this for the entire document, press Control + A to select all the text.

The Paragraph dialog launcher is found in the Home tab, but similar to the Font dialog, navigating to it is not worth the trouble. Instead, use either the shortcut key (Alt H P G) or open the context menu with the Applications key, Down arrow to Paragraph, and press Enter.

The first place you land is the Alignment combo box. You can Down and Up arrow to move between the four choices. These are:

* Left: Places text flush against the left margin. This is the default.
* Center: Centers text on the line. You may want to use this for titles and some section headings.
* Right: Places text flush against the right margin. You will rarely, if ever, use this.
* Justify: Places text flush against both the left and right margins.

After Up or Down arrowing to your choice, Tab to Left Indent. If you want to indent an entire paragraph, or several paragraphs, press the Up or Down arrow to move to the desired value or type it in (usually 0.5 inches).

Tab once to Right Indent and enter your value in the same way as for Left Indent.

Tab to Special where the default choice is None. Down arrow once to First line if you want to indent the first line of every paragraph. Now press Tab once and you will hear “0.5,” or in other words, one half inch. You can Up or Down arrow to change this, but the default is one half inch, and you will usually leave it this way.

People often manually press Tab once on the first line of every paragraph, or worse, press the Spacebar five times. Other than the time-consuming nature of doing this, if you are visually impaired and move some of your text around while editing, you might unwittingly scatter some of these tabs and random spaces inside your paragraphs. Indenting the first line in the Paragraph dialog is a more efficient and cleaner way to do this.

Now press Tab until you hear “before.” You may also hear “0 point” because for Normal text, 0 point (or no spacing), is the default Before paragraph spacing. You should not change this for normal text. In the discussion of headings and styles below, we will see that, by default, Before paragraph spacing is more than 0 point for headings.

Now press Tab until you hear “after.” This comes by default from the factory as 8 point. Because 11 or 12 point is the typical size of regular print for sighted readers, 8 point translates to a bit less than a full blank line of spacing after each paragraph. If you want to remove any built-in spacing between paragraphs, change this by Up or Down arrowing to 0 point.

Blind screenreader users need to keep one important consideration in mind. Many of us (myself included) often press Enter twice when ending a paragraph: The first Enter is the usual hard return everybody does at the end of a paragraph. The second hard return is to manually place a blank line between one paragraph and the next one. This makes it easier for the blind user to hear when one paragraph ends and another one begins because the screenreader program says “blank” for the empty line between paragraphs. If this is your practice, you can continue doing it. However, be sure to set your After paragraph spacing at 0 point. If you fail to make this adjustment, you will be putting excessive spacing between paragraphs—the 8 point spacing from the factory in addition to the 11 or 12 point spacing you add when you press Enter that second time. Be sure to avoid making this unsightly error.

Now Tab to the Line spacing combo box. This is set to single spacing by default. If you want to change to double spacing, Down arrow twice to Double.

Now Tab to the OK button and press Enter or Spacebar to make these changes.

It’s always a good idea to confirm your changes have registered by pressing Insert + F again. After hearing the font information, and if you have made some of the paragraph formatting changes mentioned above, your screenreader will say something like “line spacing double, first line indented by zero point five inches, alignment left.” To check Before and After paragraph spacing, you have two choices. You can return to the Paragraph dialog and press Tab to go through and see if your chosen values are still there. Or you can navigate to the Before and After paragraph spacing options in the Layout tab of the ribbon. Shortcut keys for these are Alt P S B and Alt P S A, respectively.

### 3.2.4 Setting Margins

A margin is the blank space between the physical edge of a page and where print begins. In Word, default margin dimensions are one inch from the top, bottom, left, and right edges of the page.

To know what your current margins are with JAWS, you can press Insert + F1, which brings up a Virtual Viewer with Screen-Sensitive Help. You will hear a lot of information, and eventually the left, right, top, and bottom margin dimensions. If JAWS speaks too fast for you to hear the margins, you can use your Up and Down arrow to read the text line by line. When finished, be sure to press Escape to exit JAWS Screen-Sensitive Help and return to the document. If you are reading this book electronically in Word, press Insert + F1 now to hear the margin dimensions.

Neither NVDA nor Narrator have such a help tool, so you need to get into the Margins submenu to detect your current settings. We will see how this is done in a moment.

You can access the Margins submenu via the ribbons or use the shortcut key (Alt P M). Margins are at the top left corner of the Lower ribbon of the Layout tab, so when you Right or Left arrow to the Layout tab, press Tab just a few times to land on the Margins submenu, and press Enter.

You will now hear “last custom margins settings” or “normal.” Normal is one inch all around. As you press Tab to move through the options, you will hear “narrow,” which is 0.5 inches all around, “moderate” (left and right 0.75 inches, one inch top and bottom), and several others. When you land on the one you want, press Enter or Spacebar. This will return you to the document with the margins changed for the entire document if it only has a single section, or just for the section you are in (see more on sections in Chapter 3.9.2).

If you want to set your margins with dimensions other than the pre-determined configurations mentioned above, you need to set custom margins. To do this:

1. Open the Margins submenu as above.
2. Press Shift + Tab once to Custom Margins and press Enter.
3. You land in an edit spin box for the top margin. The current top margin value is displayed. Press the Up or Down arrow to adjust by one-tenth inch increments, or manually type in your new choice.
4. Press Tab, and type in your desired bottom margin.
5. Press Tab to Left and type in the value.
6. Press Tab to Right, type in the value, and press Enter.
7. With JAWS, press Insert + F1 once again to hear your new margin dimensions.

As mentioned above, NVDA and Narrator do not have an Insert + F1 equivalent for quickly checking current margins. You instead have to navigate to the Custom margins dialog and press Tab to move through and hear the dimensions.

### 3.2.5 Changing Default Font, Paragraph, and Margin Settings

To change font defaults:

1. In the Font dialog, make changes as instructed in Chapter 3.2.2 above. Common default font settings might be Times New Roman, Arial, or Calibri; Regular; 11 or 12 point; with black (automatic) for color.
2. Press Tab a number of times to the Set as default button. Press Enter or Spacebar.
3. Be careful here because audio feedback is deceptive. You land on an OK button that appears to say that Pressing it will change the default. Do not press Enter here.
4. Instead, press Tab twice to a radio button. Up arrow to the All documents based on the Normal template radio button, and press Enter.
5. To test this, open a new document with Control + N and press Insert + F to check formatting. You should now hear your new default font settings.

To change paragraph defaults:

1. Press Alt H P G, or use the context menu to get into the Paragraph dialog, make whatever changes you wish (most important are Alignment, First Line indentation, Before and After spacing, and Line Spacing).
2. Press Tab a number of times to the Set as default button. Press Enter or Spacebar. As above with setting default fonts, be careful here because of the misleading audio feedback.
3. Press Tab twice. Then Up arrow to select the All documents based on the Normal template radio button, and press Enter.
4. To test this, open a new document with Control + N and press Insert + F to check formatting. You should now hear your new default paragraph settings.

To change margin defaults: First, note that you may never need to do this because the most commonly accepted margin defaults are one inch all around. But if you need to change them, do the following:

1. Press Alt P M to open the Margins submenu.
2. Press Shift + Tab once to the Custom margins dialog, and press Enter.
3. In the four edit spin boxes (Top, Bottom, Left, Right), type in your desired default margins.
4. Tab a number of times to the Set as default button, and press Enter.
5. Press Enter again to confirm that you want to change your default margins. Note that this is not as tricky as for changing font and paragraph defaults.
6. To test this with JAWS, open a new document with Control + N and press Insert + F1 to check your margins. With NVDA and Narrator, open a new document, reopen the Custom margins dialog, and press Tab to move through Top, Bottom, Left, and Right to hear your new default margins.
7. Press the Escape key.

## 3.3 Bulleting and Numbering Lists

Often in Word documents, you will want to create lists of items to set them apart from standard text. Bulleting is used if the order or sequencing of the items in the list are not important. Numbering is used if the order matters. Bulleted and numbered lists are also referred to as unordered and ordered lists, respectively. A good example is a food recipe. You use bulleting to list the ingredients because their order does not matter. You use numbering to list the directions for preparing the recipe because the order obviously matters.

I will start with bulleting, navigating to the dialog via the ribbons. Steps are:

1. Select the text you want to bullet.
2. Press Alt to open the Upper ribbon. Use the Left arrow to the Home tab if you are not there already.
3. Press Control + Right arrow three times to the Paragraph group in the Lower ribbon. You land on the Bullets split button.
4. Press Enter or Spacebar here if you want to bullet the text with the default bullet format, which is a black round dot about half the size of the adjacent text. This will return you to the document and your selection will be bulleted.
5. If instead, you want to check out other bulleting options, press Alt + Down arrow to expand the split button options which appear in a grid.
6. Use the four arrow keys to move through the various choices, and press Enter or Spacebar on the one you want. Other options include hollow dots, check marks, and a few more.

If you use the shortcut key instead (Alt H U, this opens the Bullets split button and you can use the four arrow keys to move through the options. Press Enter or Spacebar on your choice.

If you want to add an additional bullet in the middle of your list, navigate to the end of the line above and press Enter. A new line with a bullet will appear. If you are at the bottom of the list and you want to add another item, with your cursor situated at the end of the line, press Enter once and a new bullet will appear. If you press Enter a second time, bulleting will end and text will revert to normal formatting.

If you want to remove bulleting, there are two ways to do this. First, select the bulleted text. If you navigate to the Bullets split button in the Lower ribbon, if using Word 365, you will hear the type of bullet format you have selected (with earlier versions, you only hear that it is checked). Press Enter or Spacebar to uncheck Bullets. This will remove them.

Second, you can press the shortcut key (Alt H U), and arrow to the None button. Press Enter or Spacebar and that too will remove bulleting.

Here’s an even easier way to bullet a list if you want to use the default bullet style which is a solid circle. Select the text and then press Control + Shift + L. That’s all!

However, this is not a toggle, so pressing Control + Shift + L will not remove bullets. To clear bullets, you will need to return to the ribbons using the steps described above for accessing the None button.

Steps for creating numbered lists closely parallel those for bulleting.

1. Select the text you want to make into an ordered list.
2. Press Alt to open the Upper ribbon. Use the Left arrow to the Home tab if not there already.
3. Press Control + Right arrow to the Paragraph group in the Lower ribbon where you first land on the Bullets split button. Tab once to the Numbering split button.
4. Press Enter or Spacebar here if you want to number the text with the default numbering format, which is 1 period, 2 period, 3 period, etc.
5. If instead, you want to check out other numbering options, press Alt + Down arrow to expand the split button options.
6. Right arrow through the various choices, and press Enter or Spacebar on the one you want. Other options include letters, Roman numerals, and a few more.

If you use the shortcut key instead (Alt H N), this opens the Numbering split button and you can arrow through the options, pressing Enter or Spacebar on your choice.

To add an additional item in the middle of your numbered list, navigate to the end of the line above and press Enter. A new line with the next number will appear. All following items in the list will be correctly renumbered. If you are at the bottom of the list and you want to add another item, press Enter once and the next number in the sequence will appear. Press Enter a second time, and numbering will end, returning you to normal formatting.

Finally, to remove numbering, there are two ways to do this. First, select the numbered text. If you navigate to the Numbering split button in the Lower ribbon, if using Word 365, you will hear the numbering format you have selected (with earlier versions, you only hear that it is checked). Press Enter or Spacebar to uncheck numbering. This will remove them.

Second, you can press the shortcut, Alt H N, and arrow to the None button. Press Enter or Spacebar and that will also remove numbering.

## 3.4 Headings and Styles

Styles are powerful tools for ensuring consistent document formatting, as well as for aiding navigation. Headings are used to organize and format text.

Headings distinguish different types of content and help readers find information. You can define headings at different levels (level one, level two, etc.) to clearly establish a hierarchical structure of a document. Lower level headings are subordinated to, or nested under, higher levels. Think of a book where all the level one headings are parts of the book, level two headings are chapters within the parts, and level three headings are sections within the chapters.

A style is the full set of font and paragraph format choices that come together to make up the appearance of headings or normal text. Normal text is text that forms the main body of a document. There are other style types (for tables, footnotes, title pages, and others), but discussion here is limited to headings and normal text.

The value of using styles is especially significant if you are preparing a large document. Imagine that you are writing a 15-page term paper or a 75-page consultancy report. You begin by outlining it at several levels. You want to format titles for your sections. You navigate through the text to find the section titles, formatting them one by one. You try to keep straight in your head which one is at which level. Depending on how many titles you need to format and how talented a typist you are, the whole process might take anywhere from 30 minutes to a couple of hours. Unfortunately, you will probably make a few mistakes along the way. Chances are good too that you will later decide to adjust the formatting and you have to repeat the whole tedious exercise again.

Using headings and styles makes this process quick and easy, both to do once, and to change later. Automating it minimizes formatting errors and inconsistencies. This is true for sighted writers, and doubly so for visually impaired writers. After all, the sighted writer can eyeball documents to detect formatting errors. The visually impaired writer can’t do this, making use of headings and styles even more advantageous.

Use headings and styles to format any document that lends itself to an outline structure, not just lengthy documents. They can also be used for a short essay or a two-page resume.

I will first discuss how to navigate a document with headings. Then we’ll see how to add headings to a document. After that, I will cover the power of styles as a formatting tool.

### 3.4.1 Navigating Headings With Your Screenreader

With JAWS, there are two ways to navigate headings in Word documents. First, you can press Insert + F6, which gives a list of headings. Up or Down arrow to move through the headings, or first-letter navigate to the heading you want. Press Enter and it will place focus in the document on that heading. You can also press Home and End to the first and last heading in the list, respectively. This also works with Narrator.

Second, and only with JAWS, you can press Insert + Z, which takes you out of Edit mode and places you in a virtual mode. JAWS will say “Quick Keys on.” You can then press H to go to the next heading, and Shift H to go to the previous heading. You can also press 1 on the number row to go to the next level one heading, 2 to go to the next level two heading, and so on. Insert + Z is a toggle, so press it again to return to Edit mode. JAWS will say “Quick Keys off.”

With NVDA, there are also two ways to navigate headings. For both, you must first switch to Browse mode, which is equivalent to the JAWS Quick Keys mode. To get a list of headings:

1. Press Insert + Spacebar to switch to Browse mode.
2. Press Insert + F7, which opens the Elements list.
3. Press Shift + Tab once to a series of radio buttons for the types of elements NVDA can navigate in Word documents. These include links, headings, annotations, errors, and charts.
4. Up or Down arrow to Headings.
5. Press Tab once and you are now in the Headings Tree view. You can navigate here by pressing the Up and Down arrows or first-letter navigating.

Unfortunately, presenting the headings this way is confusing because tree views are organized in levels different than those of headings. For level one headings, NVDA will say “level zero” because it is identifying its level in the tree view hierarchy rather than its level in the headings hierarchy. Level one in the tree view hierarchy means it is a level two heading, and so on. Consequently, I prefer using JAWS or Narrator to access headings lists.

You can also navigate headings by activating Browse mode in NVDA or Scan mode In Narrator with Insert and Spacebar, as above. Then you can press H and Shift H to go to the next and previous heading, as well as navigate by heading level with the keys 1, 2, 3, etc.

Browse mode for NVDA and Scan mode for Narrator are toggles. NVDA makes a noise when you activate it and a different noise when you turn it off. Narrator will say “Scan mode on” and “Scan mode off.”

### 3.4.2 Adding Headings

This is quick and easy. To add a level one, two or three heading, place your cursor anywhere on the line you want to make into a heading, and press the following keystrokes:

* Control + Alt + 1: For heading 1.
* Control + Alt + 2: For heading 2.
* Control + Alt + 3: For heading 3.

If, for example, you want to change a heading 1 into a heading 2, just place your cursor on the line with the heading 1 formatting, and press Control + Alt + 2to turn it into a level two heading.

To remove heading formatting, place your cursor on the heading you want to remove, and press Control + Shift + N. This removes the heading and changes it into normal text.

### 3.4.3 What Is a Style?

A style is the sum of all font and paragraph formatting for a particular segment of text. You can create styles for many different items in your document, but the most important are heading levels and the main body of your text, which is called the Normal style.

Heading styles help to visually set text apart from the rest of the document. Heading 1 text may be bolded, have a large point size, be a color other than black, and be centered. Before paragraph spacing may be as much as 24 point, serving to visually separate it from the text that precedes it.

How you decide to format a given heading should not be considered in isolation from the other heading level styles or the Normal text style. Style format decisions need to be considered as an ensemble that creates a visual hierarchy because lower level headings are subordinate to higher level headings. In other words, a level one heading should visually be a “bigger deal” than a level two heading. A level two heading should be a “bigger deal” than a level three heading. And all headings should clearly stand apart from the normal text.

An example of such a hierarchy could be:

* Level one heading: Bold, Times New Roman, 16 point, black on white, center aligned, 24 point Before paragraph spacing, 0 point After paragraph spacing
* Level two heading: Bold, Times New Roman, 14 point, black on white, left aligned, 10 point Before paragraph spacing, 0 point After paragraph spacing
* Level three heading: Bold, Times New Roman, 13 point, black on white, left aligned, 6 point Before paragraph spacing, 0 point After paragraph spacing
* Normal text: Regular, Times New Roman, 12 point, black on white, left aligned, 0 point Before paragraph spacing, 8 point After paragraph spacing

As the above example illustrates, heading level and normal text styles are primarily set apart by point size, bolding, color, alignment, and Before and After paragraph spacing.

The most important font and paragraph format settings were discussed earlier in this chapter. But once again, they are listed below.

Font formatting considerations include:

* Font name or design: Times New Roman, Arial, Calibri, etc.
* Attributes: Bold, italics, underline, or Regular.
* Point size.
* Font color.

Paragraph formatting considerations include:

* Alignment (left, center, justify, right).
* Left and right indentation.
* First line indentation for Normal text only.
* Before paragraph spacing (may be variable with larger point sizes for level one heading, descending downwards for levels 2 and 3, 4, etc., always 0 point for Normal text).
* After paragraph spacing: 0 point for headings, variable for Normal text (see the Paragraph dialog section above for special considerations related to Normal text).
* Line spacing (single spacing for headings, usually single or double for normal text).

### 3.4.4 Changing Styles for a Single Document

This process is the same for all heading levels, as well as for Normal text. We will use the level two heading style as an example. Steps are:

1. Navigate to a current level two heading in your document and select the entire line or lines. To select a single line, I prefer pressing Home to the beginning of the line an then Shift End to select it. This is safer than pressing Shift + Down arrow to select the line. This guarantees your cursor focus will remain fully on the line with the level two heading rather than the line below it. If your focus strays from the line with the heading, the remaining steps will not work.
2. Open the Font dialog, either navigating there via the Applications key or using the shortcut key (Control D), and make your changes.
3. With your cursor still on that level two heading, open the Paragraph dialog, either navigating there via the Applications key or using the shortcut key (Alt H P G), and make your changes.
4. With your cursor still on the level two heading, open the Styles submenu. The shortcut is Alt H L. If you navigate there via the ribbons, it is in the Home tab. You can press Control + Right arrow several times to the Styles group. This is the first command in this group.
5. You land on the Heading 2 button. Do not press Enter or Spacebar here. Instead, press the Applications key. You land on “update heading 2 to match selection.” Press Enter on this. This changes the formatting of all other level two headings in your document to reflect the changes you made on the selected text.
6. To test this, navigate to any other level two heading in the document and press Insert + F to confirm that the font and paragraph formatting has changed.

When you complete the above steps for Normal text, your screenreader will say “Normal text button” when you land in the Styles submenu. When you press the Applications key, you will land on “update Normal to match selection.”

### 3.4.5 Changing Default Styles for Future Documents

You may not care for the default styles that come with your computer and wish to change them. However, you can only change defaults for new documents, not for previously saved documents. To make style changes in already-saved documents, follow the steps in the previous section.

To know what your current default styles are for a particular heading level, or for Normal text, open a blank Word document. For Normal text, press Insert + F and your screenreader will reveal your default font and paragraph formatting. For a heading level, press the shortcut key for that heading level (Control + Alt + 1, 2, 3, etc.). Now press Insert + F to reveal the default font and paragraph settings for that heading level.

Using the level two heading example again, here’s how to change your default style:

1. Open a new blank document. This is critical. If you attempt this in a document that has already been saved, nothing below will work.
2. Type in a few words of text and press Home and then Shift End to select the line.
3. Press Control + Alt + 2 to mark the selected text as a level two heading.
4. Repeat Steps 2 through 6 from the previous section. This changes level two heading formatting for the current document only.
5. Open the Styles submenu again (shortcut: Alt H L). This lands you on the Heading 2 button.
6. Press the Applications key, Down arrow once to Modify, and press Enter. This opens the Heading 2 properties dialog.
7. Shift + Tab several times to the Only in this document radio button. Down or Up arrow once to the New documents based on this template radio button.
8. Tab twice to the OK button and press Enter.
9. To test this, press Control + N to open a new document. Then press Control + Alt + 2 to make it a level two heading, and then press Insert + F to verify that the default formatting changes have registered.

### 3.4.6 Defining Shortcut Keys for Lower Level Headings

Word has predefined shortcut keys for level one, 2, and 3 headings only. You can theoretically go up to nine heading levels. That said, think hard before adding too many additional levels because this will make your document more challenging to read and write. Rarely go beyond four heading levels.

One way to mark text with lower level headings is to press Alt Shift Right arrow, and continue Right arrowing until you hear the heading level you want. Or press Alt Shift Left arrow to make the heading levels descend.

You can also define shortcut keys for lower level headings. Steps for assigning a level four heading shortcut key are:

1. Open a blank or existing Word document, and press Alt Shift Right arrow until you hear Heading level 4.
2. Open the Styles submenu. Again, the shortcut key is Alt H L. This should land you on the Heading 4 button.
3. Press the Applications key, Down arrow once to Modify, and press Enter. This opens the Heading 4 Properties dialog.
4. Press Shift + Tab three times to the Format button and press Enter. Note that you must press Enter here: the Spacebar will not work.
5. Up or Down arrow to the Shortcut key button and press Enter.
6. This opens an edit box where you type in your shortcut key. Press Control + Alt + 4 (the actual keystroke combination, not the words) to make this your shortcut for level four headings.
7. Tab to the Assign button and press the Spacebar.
8. Tab to the Close button and press the Spacebar.
9. Tab again to the OK button and press Enter or Spacebar.
10. To test this out, type some text, press Control + Alt + 4, and confirm that it creates a level four heading.

This remains your shortcut for level four headings as long as this copy of Word is on your computer. Use the same steps for assigning shortcut keys for levels five and above.

### 3.4.7 More Things You Can Do with Headings and Styles

#### 3.4.7.1 Selecting Similar Text to Mark As Headings

Let’s say you are the recipient of a document whose author has formatted the text in a way that mimics headings, but is not marked up as such. I recently received a document where section titles were bolded and sub-sections were italicized, but no headings had been applied. I thought that adding headings would make document navigation easier, as well as aid in better understanding document structure and content.

In such a situation, you could quickly apply level two headings to all the bolded text and level three headings to all the italicized text rather than laboriously searching through the entire document to find all of these and manually assign them headings. First, if you want to retain the author’s formatting, make a mental note of the author’s font and paragraph formatting for the text that will be assigned headings. Then do the following:

1. Select one of the lines of text formatted in a way that you would like to mark up as a heading. In this example, select one of the lines with bolded text, which will eventually be marked as a level two heading.
2. Open the Home tab of the Ribbon, Control + Right arrow to the Editing group, Tab to the Select submenu, and press Enter to expand it.
3. Down arrow to Text with similar formatting, and press Enter. In this example, all the bolded text in the document is now selected.
4. To assign all the selected text level two headings, press Alt H L, where you will probably first land on the Normal button. Right arrow a few times to the Heading 2 button and press Enter. This assigns all the bolded text level two headings with the document’s current style for that heading level.
5. Press Insert + F6 to open the Headings list and verify that you now have some level two headings.
6. To change the heading two style to correspond to the author’s initial formatting, select one of the level two headings and apply the author’s font and paragraph formatting to that selection.
7. Press Alt H L to open the Styles submenu. You should land on the Heading 2 button.
8. Press the Applications key, and press Enter on Update heading 2 to match selection.
9. Repeat the above steps for any other text you want to mark as headings at other levels.

#### 3.4.7.2 Shifting Heading Levels

On occasion, you might want to shift all heading levels up or down in a document. For example, you might want to turn all level one headings into level two headings, level two headings into level three headings, and so on. Or you might want to shift up so that all level two headings turn into level one headings, all level three headings turn into level two headings, and so on. I have done this when merging several documents into a single one and needed to alter my heading levels.

You can change all the heading levels one by one, but there is a quicker way. I will use the example of a document with a single level one heading, and several level two and three headings where I want the heading one to become a heading two, the heading twos to become level threes, and the level threes to become level fours. In this scenario, it is important to start with the lowest levels and move up. If I start from the opposite direction, the headings would become scrambled. Steps are:

1. Place focus on a current level three heading.
2. Press Alt H L to open the Styles submenu, landing you on the Heading three button.
3. Press the Applications key, Down arrow to Select all (no data), and press Enter. This selects all similarly formatted text in the document - in other words, all current level three headings.
4. Press Alt H L again and Right arrow once to the Heading four button.
5. Press the Applications key, and press Enter on Update heading four to match selection. All initial level three headings have now become level four headings.
6. Place focus on a current level two heading and repeat the above steps to change all of these into level three headings.
7. Presumably, there was only one initial level one heading. Place focus on it and press Control + Alt + 2 to turn it into a level two heading.

To shift heading levels in the other direction, be sure to start the process from the highest heading level and work your way down.

## 3.5 Headers and Footers (Including Page Numbering)

Headers are situated between the physical top edge of your page and the top margin. If your top margin is set at one inch, your header text will be at one half inch from the top of the page. When you insert a header, by default it will repeat at the top of every page of the document. Headers may include page numbers, very short pieces of text, or small graphics (like a company logo).

Footers are located between the bottom margin of the page and the physical bottom edge of the page. Like headers, by default they will repeat on every page.

Page numbers are inserted in either headers or footers. Word has a useful shortcut key for adding page numbers to headers and footers when you are in the Header or Footer panes. It is Alt + Shift + P held down together.

JAWS also has a convenient way for you to check if you have a header or footer in your document. Press Insert + F1 for JAWS Screen-Sensitive Help (we used this earlier for detecting margin dimensions). If there is a header or footer, just before JAWS starts reading the margin dimensions, it will say something like “header: 1” or “footer: 1,” which indicates the existence of a header or footer with page numbering. Note that only the number one is designated regardless of what page you are currently on.

If there is also text in the header or footer, JAWS will read that too. An example of what you would hear if the header has both text and page numbering is: “Header: Freudian Analysis 1.”

NVDA and Narrator do not have such a tool. You will need to open the Edit Control + Of the Header or Footer submenu and Right and Left arrows to detect if there is anything there. Shortcut keys for Header Edit and Footer Edit are Alt N H E, and Alt N O E, respectively.

### 3.5.1 Header and Footer Insertion

Steps for creating headers and footers parallel each other. The shortcut for opening the Header submenu is Alt N H. For footers, it is Alt N O. To navigate to these dialogs via the ribbons:

1. Press Alt to open the Upper ribbon, and press the Right arrow once to the Insert tab if starting from the Home tab.
2. Press Control + Right arrow to the Header and Footer group. You land first on the Header submenu. Press Tab one more time to find the Footer submenu.

I will present the remaining steps just with headers because steps are identical for footers, and headers are used more frequently than footers. For example, headers are required for all three academic style guides covered in Appendix III.

1. On the Header submenu, press Enter to open it.
2. You first land on the Blank button. Press Enter on this.
3. This lands you flush left in the Header pane. Type in text here if you want left-aligned text in your header.
4. Tab once and your cursor moves to the center. Your screenreader will usually say 4.25 quote, indicating you are at the exact center of a page that is 8.5 inches wide. Type in text here to insert center-aligned text. As you type, it will automatically adjust.
5. Tab one more time and your cursor moves to the right side of the Header pane. Type in text here for right-aligned text. Often this will be a page number. If so, press Alt + Shift + P to insert the page number. Then left and Right arrow, and you should hear the page number.
6. Exit the Header pane by pressing Escape and Down arrow to return to the main body of your document.
7. If using JAWS, press Insert + F1 to verify that a header is now present. You will hear this information just before you hear margin dimensions.

### 3.5.2 Removing and Editing Headers and Footers

In theory, you can edit a header or footer by going to the Edit Control + In the Header or Footer submenu. But in practice, this sometimes works poorly with screenreader programs. It is often easier to entirely remove the header or footer and redo it. Here again, we’ll just talk about headers because the process is the same for footers.

1. Open the Header submenu as above.
2. Up arrow several times to the Remove button and press Enter or Spacebar
3. Now redo your header or footer if you want to replace it.

Shortcuts for removing headers and footers are Alt N H R and Alt N O R, respectively.

Be sure that your headers and footers have the same font formatting as the main body of your document. Using headers as an example, the easiest way to do this is as follows:

1. Get into the Header pane (shortcut: Alt N H E).
2. Press Control + A to select all text in the Header pane.
3. Press Control D to get into the Font dialog, make your changes, and press Enter.
4. Press Escape to move out of the Header pane, navigate to another page, and press Alt N H E again to get into that page’s Header pane.
5. Press Insert + F to verify that font formatting has changed correctly.

Note that if you have different headers or footers for the first page, you will have to repeat Steps 1 through 3 above for that page.

### 3.5.3 Different Headers or Footers on the First Page

Often, you may not wish to have headers or footers on the first page of your document, or you may want different header/footer text on page one than on subsequent pages. In both cases, you will need to know how to have a different header or footer on page 1. Steps for headers are:

1. After opening the Header submenu, Up arrow a few times to the Edit Control + And press Enter (or use the shortcut: Alt N H E to get into this edit field).
2. Press Alt to open the ribbons. This lands you on a Header and footer tab if you are using Word 365 (or a Design tab in other versions of Word).
3. Press Control + Right arrow several times to move to the Options group, and press the Spacebar to check the for Different first page checkbox.
4. With your cursor on the first page of your document, open the Header pane (shortcut key: Alt N H).
5. If you want to leave the header blank, press Escape and Down arrow to return to the main body of the document.
6. If instead, you want to insert text for your page one header, follow the steps above for doing this. Then press Escape and Down arrow to return to the main text of your document.
7. Now navigate to page two of your document. Insert a header, which will appear on all pages other than the first page.
8. Repeat the steps for creating a header, inserting whatever text and page numbering you want to appear on page two and beyond.
9. Press Escape and Down arrow to return to the main text.

### 3.5.4 Different Headers or Footers in Different Sections

You can also create different headers and footers for different sections of a document. Section breaks are required if some aspect of page formatting changes within a document. Chapter 3.9.2 discusses when sections are needed and how to insert them.

Section breaks are often needed in larger and more complex documents. A common example is a document where page numbering formatting changes. A document may have a title page and table of contents with no page numbering in the header or footer, an executive summary with Roman numerals, and the main text with standard page numbering. In such a case, you would want to designate each of these as separate sections, specifying different headers or footers for each section. Steps for doing this for headers are:

1. In your document, insert section breaks at the appropriate locations as described in Chapter 3.9.2,
2. Assuming you want the section two header to be different from the section one header, place focus somewhere in section two, and create a header for that section.
3. While still in the header pane, press Alt to open the ribbons. This lands you on a Header and footer tab if you are using Word 365 (or a Design tab in other versions of Word).
4. Press Control + Right arrow several times to move to the Navigation group, Tab to the Link to previous section Button and press the Spacebar to uncheck it.
5. If using JAWS, press Insert + F1 in this section and the previous section to check if there are now different headers in each section. With NVDA, press Alt N H E to get in the Header pane and arrow around to see header content.

To access the Header and footer tab for headers that exist already, press Alt N H E to get into the Header pane. From here, repeat steps three through five above to delink this section’s header from the previous section.

## 3.6 Tables

Use tables when you can present information more clearly and succinctly than with text alone, keeping in mind that you should still summarize main points in the body of your document.

If the table you are creating contains numbers and calculations, it is better to create the table in Excel first. This is because it is more straightforward to do calculations in Excel and import the data into Word. See Chapter 3.6.5 below on how to import table data from Excel. If your table is primarily text, creating it in Word is preferable because Word handles text editing better than Excel. Generally speaking, limit your tables to no more than five or six fairly narrow columns. Otherwise, you will not be able to fit the table on the page without it exploding.

It is my opinion that, generally speaking, JAWS provides a significantly better experience than NVDA and Narrator when dealing with tables. With JAWS, audio feedback is clearer and more consistent when navigating within tables and more useful information about formatting is also provided.

### 3.6.1 Navigating Within and Between Tables

There are several ways to navigate within tables in Word. First, you can use Control + Alt and the four Arrow keys to move up and down columns and across rows. Second, you can Press Tab and Shift + Tab to move to the next and previous cell. Note that this will also select the cell content. To replace text inside a cell, press Tab or Shift + Tab to move into the next or previous cell and type over the existing text.

JAWS has an additional way to navigate within a table using what is called a Layered mode. This gives you additional flexibility. With your cursor inside the table, hold down Insert and Spacebar together. You will hear a click. Press T and JAWS will say “table layer.” Now you can use the following keystrokes to navigate with in the table:

* Left, Right, Up, and Down arrows: to Move to the next cell to the left, right, above, and below.
* Control + Left, Right, Up, and Down arrows: to move to the first and last cell in a row, and to the top and bottom cell of a column.
* Home and End: Another way to move to the first and last cell in a row
* Control + Home and End: To move to the top left and bottom right cell of a table.

To exit this layered mode, either Press Escape (a chime will sound) or Press Alt + Tab to move away from the window.

Some other useful keystrokes for moving inside a table are:

* Control + Alt + Home: Move to first cell, or in other words, to the top left cell.
* Control + Alt End: Move to last cell, or in other words, to the bottom right cell.
* Alt Windows Period: With JAWS only, read current column.
* Alt Windows Comma: With JAWS only, read current row.

With JAWS, with focus in a table you can also press Insert + F1 for Screen-Sensitive Help. A great deal of useful information about table formatting and keystrokes is provided.

There are several ways to navigate between tables in a Word document. With JAWS, press Insert + Z to turn on Quick Keys mode. Then Press T and Shift T to move to the next or previous table, respectively. When finished navigating, press Insert + Z again to turn off Quick Keys mode and return to Edit mode.

With JAWS you can also get a list of tables by pressing Control + Insert + T. Up or Down arrow to the table you want to navigate to, and press Enter.

With NVDA and Narrator, turn on Browse and Scan mode s, respectively, with Insert and Spacebar. Then Press T and Shift T to move to the next or previous table. When finished navigating, press Insert and Spacebar again to return to Edit mode. NVDA and Narrator do not have any keystrokes for listing tables.

### 3.6.2 Reading Column and Row Headers

As you navigate cell by cell within the body of a Word table, both JAWS and NVDA should not only read the data contained in a particular cell, but also the corresponding column and row headers. This makes it much quicker and easier for screenreader users to understand table content.

Column headers are the cell data contained in the top row of a table. Row headers are the cell data contained in the leftmost column.

Let’s say you have a table with monthly bill costs. Types of bills (rent, electricity, etc.) are Listed down the first column, while the months of the year (January, February, etc.) appear across the top row. And bill costs are presented in the body of the table. “Rent” is called a row header because all the data in its corresponding row have to do with rent costs. “January” is called a column header because all the data in its column have to do with January costs.

If JAWS behaves properly, as you move horizontally across a row, you will first hear the column header and then the data in the cell where your cursor is focused. For example, if you are on the row for rent. When you Right arrow, JAWS will say, “January, $1,000, February, $1,250 and so on.”

Now, as you move vertically up and down a column, you will first hear the row header and then the data in the cell where your cursor is focused. For example, if you are on the January column. When you Down arrow, JAWS will say, “rent, $1,000, electricity, $300 and so on.”

NVDA column and row header reading behavior is similar to that of JAWS. The only difference is that NVDA also indicates the column and row numbers as you navigate within Word tables.

For JAWS, if for some reason, column and row headers are not reading properly, see Chapter 8.1.2.5 on how to correct this in Quick Settings.

As far as I know, it is not currently possible to read Word table headers with Narrator.

You will see later that Excel has an extremely useful equivalent feature called the Define Name command (see Chapter 5.2.2) and that similar reading behavior is an important accessibility criterion for tables encountered on web pages.

### 3.6.3 Creating Tables

Tables may have up to three parts: A title or caption at the top; the body with rows and columns in the middle; and notes on sources at the bottom.

#### 3.6.3.1 Table Body

The first step is to create the body of the table. To do this, open the Insert tab, press Tab several times to the Tables submenu, and press Enter (shortcut: Alt N T).

This lands you in a grid where your screenreader says “1X1 table,” meaning one column by one row. Right arrow to increase the number of columns, and Down arrow to increase the number of rows. Press Enter or Spacebar when you have the number of columns and rows that you want. As mentioned above, the number of columns should not exceed five or six, given the finite physical width of a page in Word.

After you create the table, your cursor is placed inside the top left cell of the table. Your screenreader program tells you the row number and column number (example: “row 1 of 4, column 1 of 5”). Using the navigation keys mentioned above, you can now move inside the table to add column titles along the top row, row titles down the left column, and your data in the other cells.

By default, tables inserted into a Word document have thin gridlines around all the cells, thus setting the table apart from the rest of the text. Border gridlines surround the entire table, and horizontal and vertical gridlines surround all the individual cells. The default size and color for all of these are 0.5 point black.

How do you verify if you have gridlines when you cannot see them? This is easy with JAWS. With your cursor positioned inside the table, press Insert + F1 for JAWS Screen-Sensitive Help (we used this earlier for checking margin dimensions, and for the presence of headers and footers). JAWS starts saying lots of stuff. If there are gridlines, you will hear them indicated just after you hear “table padding.” If the defaults are in place, JAWS will say, “Cell border: Surrounding single line with width of 0.5 points. Table border: Surrounding single line with width of 0.5 points.” If you hear no cell or table border information just after “table padding,” this means that no gridlines are present.

Determining whether gridlines are present is a bit more complicated with NVDA, but doable. With your cursor somewhere inside the table:

1. Press Alt Q to search for commands and type in borders.
2. Down arrow to Borders and shading and press Enter.
3. If you land on the All radio button, this signifies that gridlines are present. If you land on the None radio button, the table is formatted without gridlines.

You may wish to change the gridline configuration. You can select the entire table or an individual row and then change the gridline configuration for that selection. Because there are so many variations on how you can do this, I will start by removing all gridlines to make the process easier to understand. Here are the steps:

1. Place your cursor anywhere in the table.
2. Press Alt to open the Upper ribbon and Right arrow to the Table Tools Design tab. Note that when you are in a table and open the Upper ribbon, at the extreme right, two new Table Tools tabs appear—a Design tab and a Layout tab. Do not confuse these with the Design and Layout tabs further to the left on the Upper ribbon. Those concern formatting of the overall document.
3. On the Table Tools Layout tab, Tab just a few times to the Select submenu (shortcut: Alt J L K) and press Enter.
4. Down arrow to Select Table, and press Enter.
5. Open the Upper ribbon again, and Left arrow once to the Table Tools Design tab along the Upper ribbon.
6. Tab into the Lower ribbon to the Borders and shading button (shortcut: Alt J T O) and press Enter.
7. This opens the Tables and borders dialog where you first land on a list of radio buttons. Up or Down arrow to None and press Enter. This will remove whatever gridlines currently exist.
8. Now place your cursor anywhere in the table if you want to change gridlines for the entire table. Or place it somewhere in a specific row if you want to alter gridlines for just that row.
9. Return to the Select submenu in the Table Tools Layout tab. Down arrow to Table or Row, and press Enter on the one you want to change.
10. Now return to the Borders and Shading dialog of the Table Tools Design tab.
11. Tab to Top Border, and check it if you want gridlines to appear for this. Note that you must Press Enter to check or uncheck the checkboxes in this dialog. Pressing the Spacebar will not work, which is inconsistent with how checkboxes are supposed to work, but is just the way it is here.
12. Tab to Bottom Border and check or uncheck it.
13. Tab to Left Border and check or uncheck it.
14. Tab to Right Border and check or uncheck it.
15. Tab to the OK button and press Enter or Spacebar.

Admittedly, this is complicated. If you think you have messed up, the easiest thing is to select the table again, and in the Tables and borders dialog, press Enter on the None radio button to clear any existing gridlines and start over.

You can add additional rows or columns, or delete them. This is most easily done using the context menu reached via the Applications key. With your cursor located on the row or column where you wish to insert additional rows or columns, press the Applications key, Down arrow to the Insert submenu, and press Enter. Your choices here are: insert columns to the left, insert columns to the right, insert rows above, and insert rows below. Press Enter on your choice.

To add more rows at the bottom of the table, navigate to the last table cell at the bottom right. JAWS will say, “Last cell in table. Warning: pressing Tab here adds an extra row.” NVDA and Narrator do not say anything, but pressing Tab here has the same effect.

The Delete option in the context menu lists four radio buttons: shift cells left, shift cells up, delete entire row, and delete entire column. Press Enter on your choice.

#### 3.6.3.2 Title or Caption

You should add a title above your table. While it is possible to simply type the text above the table, it is better to use the Captions command in the References tab of the ribbons. This will facilitate consistent formatting and numbering, as well as make the whole process of constructing tables less burdensome.

To add a caption to a table, first make sure that your cursor is located somewhere in the body of the table. Then:

1. Navigate to the References tab along the Upper ribbon.
2. Press Control + Right arrow to jump by group to the Captions group. The first command here is the Insert Captions button. Press Enter on this, which opens a dialog. The shortcut for this is Alt S P.
3. Type in your table title. By default, the labels Table 1, Table 2, etc., will be added to your title.
4. Tab to the Labels combo box, where your choices are Table or Figure (this dialog is also used for inserting captions on figures and diagrams). The default is Table.
5. Tab to Position, where your options are Above Selected Item or Below Selected Item. The default is the above position. Do not change this.
6. Tab to the Exclude label from caption checkbox, which is unchecked by default. Check this if you do not want the default labels Table 1, Table 2, etc., to appear.
7. Tab to Numbering. Here you can change the numbering style (Roman numerals, add chapter numbers, etc.) of the default labels, if you choose to keep them.
8. When finished, Tab to the OK button and press Enter or Spacebar.

By default, the table number, with a colon after it, and the table title are placed on the same line in regular text. If you need to alter this, after first creating the caption, press the Up or Down arrow to get back into it, and make whatever changes you need using the Font or Paragraph dialogs.

If you have several tables in your document and insert a new one in the middle or reorder them, table numbering in the captions will not automatically adjust. To do this, press Control + A to select the entire document and press F9. This will refresh the captions and correctly renumber the tables.

#### 3.6.3.3 Notes on Sources

The last part of a table is notes on sources, as well as whatever other explanatory notes you may wish to add. Similar to captions, you might decide to “cheat” by simply typing source notes just below the table. However, there is a better way to do this that keeps the notes as part of the table, making it easier to maintain consistent formatting. This involves inserting an additional row at the bottom of the table, merging the cells in that row, and typing in your notes there. You then customize the gridlines to hide them, following steps in Chapter 3.6.3.3 above. On a printed page, the gridlines do not appear to be part of the table, but they actually are. Electronically they appear fainter than the other “non-hidden” gridlines. Steps to add this new row at the bottom of the table with accompanying notes are:

1. At the bottom right of your table, press Tab once to add an additional row.
2. Press Alt to open the Upper ribbon and Right arrow to the Table Tools Layout tab.
3. Tab to the Select submenu and press Enter.
4. With your cursor still in the row you just inserted, Down arrow to Select Row and press Enter.
5. Press the Applications key, Down arrow to Merge cells, and press Enter.

Let’s say your table has four columns. Now if you Up arrow once and Down arrow once to get back into the merged row, JAWS will say “number of columns changed from four to one.” Narrator says “Merged cell, spans four columns.” Unfortunately, NVDA does not clearly indicate the presence of merged cells.

You can now Type in your notes in this merged cell, allowing text to wrap around to additional lines within the row, or pressing Enter to add more notes in the same cell. In both cases, the row height will adjust automatically to accommodate your text.

You are now ready to hide the left, right, and bottom gridlines for this row, but not the top gridline because this will remain the bottom-most visible gridline in your table. To do this:

1. With your cursor still situated in the merged cell, press Alt to open the Upper ribbon.
2. Once again select the row by navigating to the Table Tools Layout tab, pressing Tab to the Select submenu, pressing Enter, using the Down arrow to Select Row, and pressing Enter.
3. Open the Upper ribbon again, and Left arrow once to the Table Tools Design tab along the Upper ribbon.
4. Tab into the Lower ribbon to the Borders and shading button and press Enter.
5. Down arrow to Custom.
6. Tab to Top Border and press Enter to check it.
7. Tab to Bottom Border and press Enter to uncheck it.
8. Tab to Left Border and press Enter to uncheck it.
9. Tab to Right Border and press Enter to uncheck it.
10. Tab to the OK button and press Enter or Spacebar.

The left, right, and bottom gridlines should now be hidden. The top border remains visible, thus making it appear to be the bottom border of the table.

You may ask whether using captions and hiding gridlines is worth all the effort. If you are inserting just one or two tables in your document, perhaps not. However, if you anticipate having quite a few tables, this will ultimately save you work, as well as help avoid formatting mistakes and inconsistencies.

Word tables can be quite complicated to format correctly. Below, we will see how to create styles to make them look more professional.

### 3.6.4 Table Styles

If your document contains a fairly large number of tables, this feature can save you significant time in ensuring that all your tables are correctly and consistently formatted.

To choose a style from the Styles gallery:

1. Create a table and place your cursor somewhere inside it.
2. Open the ribbons and Right Arrow to the Table Tools Design tab.
3. Press Control + Right Arrow to the Table Styles button or submenu and press Enter (whether you have a button or submenu depends on your version of Word).
4. A gallery of over 100 table styles appear, varying from extremely plain to very colorful and elaborate. Press Tab to move through them and press Enter on the one you want and your table will now have this style.

Unfortunately, this is a very visual gallery. Sighted computer users can simply hover their mouse over a style and they will see the design. Screenreader users are obliged to Press Enter on a style and use Insert + F and Insert + F1 (this last one in JAWS only) to get an idea of the table style. But its advantage is that it is quicker to use a prefabricated style rather than create your own. The disadvantage is that it is time consuming to explore them without sighted assistance. Also, even though there are over 100 of them, these styles may not meet your specific needs.

To create your own custom style, you should be in a blank, unsaved Word document. Your cursor focus does not need to be in a table. To create a custom table style:

1. Press Alt H L S. This places focus in the Create new style dialog.
2. Type a name for your style.
3. Tab to the Modify button and press Enter.
4. Tab to the Style type combo box and Press T for Table.
5. Tab to the Style based on combo box. If you want to base your new style on a style from the gallery mentioned above, Down arrow to that style. If you have no such gallery style in mind, continue Tabbing to Apply format to whole table. Here you can also select specific rows or columns, which is useful if you have already selected a gallery style upon which to base your custom style. But if you are starting from scratch, stick with applying the style to the whole table.
6. Tab past the various options here (for font, bold, borders, etc.) to the This document only radio button. Trying to change formatting in this series of tabs is very clunky and rather inaccessible using a screenreader program.
7. On the This document only radio button, Down arrow to New documents based on this template radio button. Selecting this will ensure that you can use this new custom style in future documents.
8. Tab once to the Format button and press Enter. Here you can Up and Down arrow to Font, Borders and Shading, Paragraph, and other settings. The settings you will most commonly change are the ones for fonts and borders.
9. Using fonts as an example, Up or Down arrow to Fonts and press Enter. This opens the same Font dialog presented in Chapter 3.2.2. Make your changes and press the OK button at the end of the dialog.
10. Press the OK button a second time if these are the only style changes you wish to register.
11. Otherwise, Press Shift + Tab to get back to the Format button and press Enter to make more changes.
12. If, for example, you want to define gridline styles for your tables, Up or Down arrow to Borders and shading and press Enter. You land on the same dialog discussed in the last section on adjusting gridlines. Make whatever changes you wish here, Tab to the OK button, and press Enter. When finished, Press Enter on the second OK button. Your new table style has been created.

To change the table style to your new custom style:

1. Place your cursor somewhere in the table.
2. Press Alt to open the Upper ribbon and Right arrow to the Table Tools Design tab. Be careful here because the first Design tab you encounter (just one to the right of the Insert tab) is the Design tab for the overall document, not the Table Tools Design tab.
3. Once on the Table Tools Design tab, Tab in the Lower ribbon to the Table Styles button and press Enter.
4. You may land on the Plain table grid button. Press Shift + Tab and your Custom table style button should appear.
5. Press Enter on this and you will be returned to your table, now formatted with your custom style.
6. To verify, move around among the cells and Press Insert + F to check font formatting. Also with JAWS, Press Insert + F1 to check gridline formatting. Remember that this information is spoken just after you hear “table padding.”

### 3.6.5 Importing Data from Excel to Create a Word Table

If you are already familiar with Excel, this is fairly easy to do, provided that the width of the columns you import from Excel fit within the left and right margins of your Word document. Do not import more than five or six columns from Excel because table size is limited by page size in Word. .

Steps are:

1. In Excel, select the data range of the table. Limit this strictly to the columns and rows containing the column and row headers and data in the body of the table. Do not select any title you may have created (usually in cell A1). This text is best entered later as a caption.
2. Press Control + C to copy the selected data range.
3. Open a Word document and press Control + V to paste the data table with the font formatting from Excel and without gridlines.
4. If you want to include printable gridlines, do not press Control + V. Instead, press the Applications key, Down arrow to Paste options, Right arrow to Use destination styles, and press Enter. Note that font styles will be consistent with those of the Word document.

In Chapter 3.6.3.1, I discussed how to determine the presence or absence of gridlines by either using Insert + F1 (JAWS only) or searching for the Borders and shading command using Alt Q.

To paste the Excel table into Word keeping it linked so that any updates within Excel also appear in the Word table (which does not occur using the above pasting techniques, select and copy the Excel data as above, press the Applications key, Down arrow to Paste options, and Right arrow to either Link & Keep Source Formatting or Link & Use Destination Styles, and press Enter.

The first of these will link Excel data without gridlines, and the second will link data and add gridlines.

If you revise the data in Excel by changing a few numbers here and there, linking with Word works well. However, if you add or delete rows and columns in Excel, it is less predictable. Checking your work is important here.

What better way to summarize the above than in a table! The first column lists the four paste options. For each of these, the remaining two columns indicate whether gridlines appear, and if font names are imported from Excel or remain the same as in the Word document. If font names are identical in Word and Excel, it does not matter whether you choose original or destination formatting. If they are different, most of the time you will want to choose a destination style option so that table formatting is consistent with your Word document. Here goes!

|  |  |  |
| --- | --- | --- |
| Paste Option | Gridlines | Excel Font |
| Simple paste (Control + V) | No | Yes |
| Use destination styles | Yes | No |
| Link & Keep Source Formatting | No | Yes |
| Link & Use Destination Styles | Yes | No |

Now do whatever additional table formatting (adding captions, source notes, etc.) you wish, using techniques covered earlier in this section.

## 3.7 Footnotes and Endnotes

Add footnotes and endnotes when you want to provide additional information in your document, but you feel that it does not belong in the main body. Common examples are additional facts that illuminate the main text, statistical details, and source document citations. Footnotes are situated at the bottom of the page, just above the bottom margin. Don’t confuse these with footers which appear below the bottom margin and serve a different purpose. Endnotes appear at the end of the document or at the end of individual chapters.

I will deal primarily with footnotes, which are more commonly used than endnotes.

### 3.7.1 Creating and Editing Footnotes

Steps for creating a footnote are:

1. Place your cursor at the precise point in the main body of the text associated with your eventual footnote. The cursor should be to the immediate right of the text or punctuation mark, with no spaces between.
2. Press Alt to open the Upper ribbon, and Right arrow to the References tab.
3. Tab into the Lower ribbon to the Insert footnote button and press Enter. The shortcut key is Alt S F. Oddly, if you navigate there in the ribbons, Control + F is mistakenly identified as the shortcut key.
4. You land in the Footnote pane at the bottom of the page. A numbered superscript appears at the left side of the Footnote pane.
5. Type in your text. I have inserted a footnote at the end of this sentence.[[12]](#footnote-12) The audio feedback you hear varies depending on which screenreader you are using and its settings. We’ll see how to navigate to the footnote shortly.
6. When finished inserting text, Up or Down arrow to exit the Footnote pane and return to the main body of your document. Do not press Enter or Tab, which will instead add a line or tab in your footnote text.

When you create a footnote, a numbered superscript is placed in the main body of the document at the point where you initiated this action.

There are two ways to get back into the Footnote pane if you want to edit the text. One way is to go to the bottom line of the page where you inserted the footnote and continue Down arrowing to get into the Footnote pane, or Up arrow once or twice from the top of the next page. You can now edit it using standard text editing keystrokes.

The second way is through the ribbons. In the References tab, Tab to the Show notes button and press Enter (the ribbon shortcut is Alt S H). You can now Down arrow through all your notes and edit them. If you have a lot of notes to edit or your document is quite large, this may be quicker than trying to find them one by one at the bottom of your document’s many pages.

### 3.7.2 Navigating to Footnotes in the Text Body and Deleting Them

The Go to next footnote and Go to previous footnote commands are located in the Footnotes group of the References tab. The shortcut keys are Alt S O N to go to the next footnote, and Alt S O P to go to the previous one. This places the cursor in the main body of the document near the footnote’s superscript, not in the Footnote pane. If you want to delete a footnote, use this command. You delete a footnote in the main body of the text by deleting the superscript that is found there. You do not do it by deleting the text in the Footnote pane, which would instead leave a footnote with no text. After deleting a footnote, all following footnotes are automatically renumbered correctly.

Although it does not place your cursor in the Footnote pane, JAWS has a quick way to hear footnote text read. Press Insert + Z to turn on Quick Keys. Now Press O to jump to the next footnote, or Shift O to go to the previous one. JAWS will read the footnote text. However, as with the ribbon shortcuts above, your cursor is actually on the footnote superscript in the main body of the text. If you want to delete the footnote, turn off Quick Keys by pressing Insert + Z again to return to Edit mode, Left or Right arrow to the footnote superscript and delete it.

Also with JAWS, you can open a Virtual Viewer to access a Footnote list. To open the Virtual Viewer, press the Windows and Semi-Colon keys together. This gives you a list of four items to view. The first is Comments. Down arrow once to Footnotes and press Enter. JAWS indicates how many footnotes are in the document. Down arrow and you will hear a numbered link. The text of the footnote appears under the link. Continue Down arrowing and you will hear the link and text for the second footnote, and so on. Press Enter on the link to navigate to the location of the footnote’s superscript in the main body of your document, or press Escape to exit the Virtual Viewer. You can also use this tool for deleting footnotes because it puts your cursor in the vicinity of the superscript in the main body of the text.

Other than the Word ribbon shortcuts mentioned above, NVDA and Narrator have no quick way to navigate to footnote superscripts in the main body of the text.

### 3.7.3 Footnote Styles

The footnote text format needs to be consistent with that of the main body of your document. To check formatting, go into the Footnote pane and press Insert + F to hear font and paragraph format settings.

The default footnote font that comes from the factory is Calibri 10 point (just slightly smaller than the normal style default of Calibri 11 point). If you change the main body font, you will need to change the footnote font settings too. You should definitely make the footnote font name the same as in the main body. You may elect to have a slightly smaller font size for footnotes relative to the main text. For this book, the main body font is Arial 12 point, and the footnote text is Arial 11 point.

Regarding paragraph formatting, main body and footnote text alignment should be the same. Default footnote line spacing is single. Do not change this even if main body text is double spaced.

To change footnote formatting and make it consistent throughout your document, you will need to change the footnote style. To do this:

1. Place the cursor somewhere on the text in one of your Footnote panes.
2. Press the Applications key, Down arrow to Styles, and press Enter.
3. You land in an edit combo box. If the words “Footnote text” do not already appear, type in the first few letters and Down arrow to it.
4. Tab to Modify and press Enter.
5. Shift + Tab to the Format button and press Enter.
6. You land on the Font button. Press Enter which opens the same Font dialog as in Chapter 3.2.2. Make whatever changes you wish (font name, style, size, color.
7. When finished, Tab to the OK button and press Enter.
8. Press Enter on the Apply button.
9. Press Insert + F in one of your footnotes to verify that your desired changes have been made. I have added a second footnote here, so you can test this out if you like[[13]](#footnote-13)

If you also want to make paragraph format changes for your footnote style, repeat steps one through five above, and Down arrow to the Paragraph dialog and press Enter.

Finally, you can assign a shortcut key for Footnote text style. I have found this useful because sometimes text contained in the Footnote pane appears there in Normal or some other style, and this makes it easy to change it. Steps are:

1. Repeat steps one through five above.
2. Up or Down arrow to the Shortcut key button and press Enter.
3. This opens an edit box where you type in your shortcut key. I have designated Control + Alt F as my shortcut for footnote text.
4. Tab to the Assign button and press the Spacebar.
5. Tab to the Close button and press the Spacebar.
6. Tab again to the OK button and press Enter or Spacebar.

### 3.7.4 Customizing How You Hear Footnotes with JAWS

With JAWS, you can customize what feedback you hear on footnotes as you are reading through the document line by line or in Say all mode. Customization is done in JAWS Quick Settings. To access these options, while in Word, press Insert + V to get into Quick Settings. In the edit box where you land, type in the first few letters of the word “footnote.” Now press the Down arrow to “comments, footnotes and endnotes detection” and press the Spacebar to cycle through the four options, which are:

* Off: No footnote information is provided.
* On: Says “footnote” only.
* On with text: Reads the footnote text. With Eloquence voices, JAWS reads this information with a lower pitch (no pitch change for other voices).
* On plus count: In Say all mode, the same feedback is provided as with On with text. When using the Down arrow to read by line, it will tell you the number of footnote superscripts on the line.

When you have made your selection, Tab to the OK button and press Enter.

If you wish to hear footnote text as you are navigating through the document, On with text is your best choice. Note also that to get a list of footnotes using the JAWS Virtual Viewer mentioned above, Footnote Detection needs to be turned on.

I sometimes prefer to turn off footnote detection because it can be difficult to distinguish where text at the bottom of a page ends, footnotes start and end, and text at the top of the next page begins. This is especially true if I am trying to edit the text at the bottom or top of a page adjacent to a footnote.

NVDA and Narrator have no such customizations for varying audio feedback for footnote text. As you navigate through the main body of the text, NVDA says, “footnote 1, footnote 2, etc.” Narrator says, “footnote reference 1, footnote reference 2, etc.”

### 3.7.5 Endnotes

Endnotes typically are placed at the end of a document section or chapter. In professional academic journals, they are often preferred over footnotes. They too are created in the References tab. The shortcut key is Alt S E. Once in the Endnote pane, create them the same way footnotes are created.

By default, endnote numbering appears as lowercase Roman numeral superscripts.

With JAWS, you can navigate to endnotes by similar means as footnotes. Press Insert + Z to turn Quick Keys mode on. Press the letter D to move to the next endnote. You can also use the Virtual Viewer. Press Windows + Semi-Colon, Down arrow to Endnotes, and press Enter. In this Virtual Viewer, endnotes are presented the same way as footnotes.

Ribbon shortcuts to navigate to the next and previous endnotes are Alt S O X and Alt S O V, respectively.

It is easy to convert footnotes to endnotes and vice versa. You can do this any time while preparing a document. Steps are:

1. In the References tab of the ribbon, Tab to the Footnote and endnote dialog and press Enter.
2. You land on a radio button with Footnotes selected by default. Down or Up arrow to Endnotes.
3. Tab to the Convert button and press Enter.
4. Tab to the OK button and press Enter.

After converting, you can choose if you want your endnotes to be located at the end of the document or the end of a section. You might pick the latter if your document is lengthy, divided into chapters, and you prefer endnotes to appear at the end of each chapter. Press Tab again and you can change the endnote numbering format if you want something other than Roman numerals.

## 3.8 Citations and Bibliographies

Correctly creating and formatting citations and bibliographies can be time consuming and frustrating. Fortunately, Word’s Citations and Bibliography feature Takes much of the misery out of this process. All relevant commands are found in the Citations and Bibliography group of the References tab.

### 3.8.1 Creating Citations

The first step in creating your citations is to choose a style type. Appendix III discusses the three most important academic style guides used in the United States. If you are a college student or somebody writing an article for a professional or literary journal, you will want to read that appendix, and choose the style appropriate for you. If choice of style guide really doesn’t matter to you, sticking with the default APA style should be OK.

To choose a style, in the Citations and Bibliography group, Tab to the Styles combo box (shortcut: Alt S L). These are listed alphabetically, with APA first. Press the Down arrow and you will find Chicago, MLA, and several others. Down arrow to your choice and press Enter.

The next step is to create your citations. Don’t wait until the end of your project to do this. Ideally, add citations as you encounter them while doing background research and drafting your document.

Regardless of the citation style you use, there are important pieces of information to collect in order to create complete citations. For books and/or journals, you need to collect: The author name (or names if multiple authors); title of publication; article title (if using a journal); date of publication; place of publication; publisher; volume number of a journal, magazine, or encyclopedia; and page number (s).

For websites, you will need to collect: The author and/or editor name; title of the website; company or organization that owns or posts to the website; URL (website address); and date you visited the site or when the content was first posted there.

You can create citations with your cursor focus on the point in your document text where you want it to first appear. You can also save citations in a separate file reserved exclusively for listing references, and later Insert them in your document towards the end of the report preparation process.

When you insert a citation into the body of your document, the last name of the author and the date of the publication will appear between parentheses. For example, for a book, you might see (Salinger, 1949). There is a comma between the author name and the year.

Assuming you are inserting citations into the body of a document, the process for adding a citation is as follows:

1. Place focus at the precise position of your document body where you want to insert the citation. If, for example, you wish to place the citation at the end of a sentence, just between the last word of the sentence and the period, press the Spacebar to put one space after the last word of the sentence and just before the period.
2. Navigate to the Citations and Bibliography group in the References tab. The first stop in the group is the Insert Citation submenu (shortcut: Alt S C). If you navigate there via the ribbons, Press Enter to open the submenu. Press Enter on Add new source, which opens a dialog.
3. In the combo box, Down arrow to your source type (book, journal article, and many more). I will use a book as an example.
4. Tab to Author and, if a person, type in the author name as you would normally type a name (first name followed by last name). The last name will automatically appear in the citation and in the alphabetical ordering of the bibliography.
5. Or Tab once to Corporate author and check this checkbox if appropriate. Then Tab to an edit field where you type in the name of the company.
6. Tab to Title and Insert the book title.
7. Tab to Year and enter the year of publication.
8. Tab to City and enter where the book was published.
9. Tab to Publisher and enter the name of the publishing company.
10. Tab to Tag Number. A tagging code is assigned to the reference by Word, usually based on the first few letters of the author’s last name. You can change this, but only do so if you have already devised a citation classification system of your own. Otherwise, do nothing here.
11. Tab to the OK button and press Enter. Your citation has been created in the body of the document.

### 3.8.2 Inserting Existing Citations Into a Document

Steps for inserting previously created citations are different depending on whether you are inserting them elsewhere in the same document where they were initially created, or in a different document. To insert a citation in a document where that citation already exist in at least one other place:

1. Place your cursor precisely where you want the citation to appear in the body of the document.
2. Navigate to the Insert citations dialog in the References tab and press Enter.
3. Down arrow or first-letter navigate by author last name to the citation you wish to insert and press Enter.

When you create citations, they are automatically saved to a master list of citations. You can use this master list to insert previously-generated citations in other documents on your computer. Steps are:

1. Place your cursor where you want the citation to appear in the body of your document.
2. Navigate to the Manage sources dialog in the References tab and press Enter.
3. Down arrow or first-letter navigate by author last name to the citation you wish to select.
4. Tab to the Copy button and press Enter. Then press Escape to exit this dialog.
5. Return to the References tab, tab to the Insert citations submenu, and press Enter to open it.
6. Your focus should be on the citation you just selected although you may not hear it. To be sure, Down and Up arrow once to hear it, and then press Enter to Insert the citation in the document.

#### 3.8.3 Creating a Bibliography

After inserting several citations into your document, you can now generate a bibliography. Don’t worry if you are not completely finished. As we will see below, It is easy to edit and update your citations and bibliography.

To generate a bibliography:

1. Go to the end of your document. The bibliography must start at the top of a new page. Press Control + Enter to insert a page break. Your cursor is now at the top of the last page of your document.
2. Navigate to the Bibliography submenu in the Citations and bibliography group of the References tab. Press Enter on this. The shortcut is Alt S B.
3. In the submenu, Down arrow to move through the three choices and press Enter on the appropriate choice, depending on the style you are using: References for APA; Works Cited for MLA; or Bibliography for CMOS.

A bibliography is now generated with a level one heading at the top. The citations are listed alphabetically by author underneath.

#### 3.8.4 Editing and Updating Citations and Bibliographies

Use the Manage sources dialog (shortcut key: Alt S M) to edit individual citations. Steps are as follows:

1. Navigate to and open the Manage sources dialog in the References tab.
2. Down arrow or first-letter navigate by last name to the author whose citation you wish to edit.
3. Tab to the Edit button and press Enter.
4. Tab through the options, making desired changes.
5. Tab to the OK button and press Enter.
6. You are asked to confirm that you want to update the citation in both your master list and within this document. Press Enter to confirm.

If you changed either the last name or year of publication or both, this will be reflected in the citation appearing in the body of the document. However, if you have already generated a bibliography in the document, you will need to update the bibliography as follows:

1. Navigate to the bibliography you created, and make sure your cursor is placed somewhere in the bibliography field. When you Down arrow into it, Your screenreader will say “bibliography” and the first citation. If you Down arrow too far, your screenreader will say “end bibliography.”
2. Press the Applications key, Down arrow to Update field, and press Enter.

If you changed the author’s last name, the citation will sort itself properly so that it appears in the correct alphabetical order, Any other revisions will also appear.

If you want to delete a citation from a document, you will need to find it in the body of the document and manually delete it. To quickly locate the citation you want to delete, use the Find command (Control + F), type in the author’s last name and press Enter. I prefer backspacing out the text until I am sure it is gone.

If you now want to update the bibliography so that this reference no longer appears, the Update field command mentioned above will not work for removing it. The easiest thing to do is to delete the entire text of the existing bibliography and recreate it.

#### 3.8.5 Bibliography Styles

If you are required to follow one of the academic style guides,, you will need to make some font and paragraph format changes to make the bibliography consistent with the overall document. See Appendix III.3.3.1 on how to make these changes.

When you generate a bibliography, there will be a level one heading at the top, saying either Bibliography, References, or Works Cited, depending on the choice you made above. The first letters of these words will be capitalized. Do not change this.

The heading will have the default heading 1 formatting for Word. Unless you have already changed it, the heading will have the factory settings. Font format settings are Cambria or Calibri 16 point bolded, with a blue color. Go into the Font dialog (Control D) and change this to the font formatting of your overall document.

Regarding paragraph formatting of the reference documents, the following should already be in place:

* Left alignment
* Hanging indentation of 0.5 inches (found in the Special combo box)
* Above paragraph spacing of 0 point

If these are set differently, change them to the above settings. If you only want to make these changes once, you are now done. However, you can set this as a custom bibliography style so that you can quickly generate new bibliographies that incorporate these changes. To do this:

1. Select the heading 1 text and the entire bibliography.
2. Open the Bibliography submenu (shortcut: Alt S B).
3. Shift + Tab to the “save selection to bibliography gallery” button and press Enter.
4. Type a name for your custom bibliography style in the Building block edit field (for example: APA References or MLA Works Cited).
5. Tab to the Description edit field and put in a description if you wish. This is optional, but useful if you create several styles and need to keep them straight in your head.
6. Tab to the OK button and press Enter.

Your custom bibliography style is now added to the list under the existing three options. To verify that it works, delete the initial bibliography and generate a new one using your new style. Press Insert + F on the heading and the bibliography text to see that font and paragraph format changes have registered.

Note that even though you have changed the level one heading style for the bibliography, this does not change the heading 1 style for the overall document.

#### 3.8.6 Exporting Your Master List of Citations to Another Computer

The file containing your master list of citations is stored locally on your computer. To be able to use it on another computer, you will either want to save it to a cloud app folder so you can access it on other computers where you are using one of those apps, or you will want to copy and paste the relevant file to a thumb drive and paste it to the other computer.

To copy the master list file:

1. In the References tab, open the Manage sources submenu.
2. Shift + Tab once to Browse and press Enter.
3. Shift + Tab until you hear “Style,” and Down arrow to Sources.xml. This is the default name of the master list file.
4. Press Control + C to copy it to the Clipboard,
5. Navigate to where you want to paste the file. If in a cloud app folder where you intend to access the citations on one of your other shared computers, press Control + V to paste it.
6. Or open a thumb drive, paste it there, and then paste it somewhere on the other computer you are using.

You may wish to rename the file so you don’t get confused by having it with the same generic filename on different computers. Also, you can rename if you want to have several master lists for different projects you are working on.

The first time you want to insert a citation in a document on the new computer using this master list:

1. Place focus where you want the citation to appear in the body of your document.
2. Navigate to the Manage sources dialog in the References tab and press Enter.
3. Shift + Tab to Browse and press Enter.
4. Shift + Tab to the tree view and navigate to the folder where the file is located.
5. Tab once to the list view, Down arrow to the master list file, and press Enter.

You can now use the master list to add citations to documents on this computer, as well as add new citations to the master list on this computer. If you use a cloud sharing app like Dropbox, be sure to save the file there on all your shared computers. That way, any revisions to your master list will be reflected on other shared computers, and you won’t need to repeat the steps above to keep your citations consistent between them.

## 3.9 Some Special Topics

The items in this sub-section may be needed for more complex documents. Word is a very powerful application, so the topics covered here only scratch the surface of all the things you can do with Word.

### 3.9.1 Inserting Pictures

You can insert pictures and other graphic elements into a Word document. The easiest way to do this is with a simple copy and paste method. First, select the image file (common file extensions are.JPG,.PNG, and .TIF) from your list of files and folders. Then press Control + C to copy the file. Now navigate to your Word document, place focus where you want to Insert the image and Press Control + V to paste it there.

After you paste a picture into a Word document, there are a number of formatting issues you need to consider. These include adding descriptive text (most commonly referred to as “alt text”), resizing, positioning, and captioning.

The first step is to select a picture, or as it is generically referred to in Word—a “graphic.” There are several ways to select graphics. I will cover a universal way and a JAWS-specific way. The universal way is to press Control + Alt + 5 and then Tab to select graphic by graphic through your document. In theory, it is possible to select multiple graphics, but I have not been successful in doing this with any screenreader, so I will stick to individual graphics.

Regarding the JAWS-specific way to do this, graphics are referred to as one category of “objects.” To select an object with JAWS:

1. Hold down Control + Shift and O together. This brings up a list of objects in your document.
2. Up or Down arrow to the object you wish to select, and press Enter to select it. Note that you must Press Enter - the Spacebar will not work. JAWS indicates that the object is selected.

Once a graphic is selected, you can add descriptive text (commonly referred to as “alt text”), resize, and add captions. How to add these elements is discussed below.

After inserting a graphic, to make it accessible, you need to add alternative text, or alt text for short. This is text that you will hear with your screenreader program, but is not visible to the sighted user. For screenreader users with Word 365, artificial intelligence (AI) – generated text is spoken. JAWS also tells you the image’s dimensions. NVDA and Narrator both indicate that a picture is present, but do not indicate dimensions.

If AI-generated alt text is present, it is very generic and often inaccurate. If no AI-generated alt text is present, you need to add it. If it is already there, you will usually need to revise it.

To add or revise alt text:

1. Select the graphic using the keystrokes outlined above.
2. Press the Applications key, Up arrow to Edit alt text, and press Enter. Your screenreader program should now say “Description edit.”
3. If no AI-generated alt text is present, type in your alt text here. If AI-generated alt text is present, you must manually delete this text if you do not want it, and then type in your own alt text. I usually press Control + A to select all of it, and type my replacement text over it.
4. When finished typing in your alt text, Press Escape (not Enter or Tab) to lock in the alt text and return to the document. Your screenreader should now announce the alt text whenever you encounter the graphic in the body of your document.

When you paste an image into a Word document, it is inserted with dimensions that you may want to change. As mentioned above, when you select an object with JAWS, the dimensions will be announced. To detect dimensions with NVDA and Narrator:

1. Select the image and press the Applications key.
2. Up arrow to Size and position, and press Enter.
3. Tab several times to first hear its width and then its height.
4. Press the Escape key to exit this dialog.

To resize an image:

1. Select the graphic.
2. Press the Applications key, Up arrow to Size and position, and press Enter.
3. Tab to the Absolute height edit spin box. A couple of tabs past this is the Absolute width edit spin box. In one or the other (but not both), either type in the number of inches you want for height or width, or Up or Down arrow to the value you want (these are 0.1 inch increments). The value should automatically adjust in the other spin box to ensure that the picture is not distorted.
4. Tab to the OK button and press Enter.

Various options are available for positioning the graphic within a page. These are referred to as “text wrapping” options. By default, a picture is inserted in line with text. This means that it is tied to the position within the document where it is inserted. Also, and even if it does not fill the entire width of the page, no text appears to its right or left, only above and below. It is also left-aligned. However, you may prefer that text within a paragraph flows to the left or right of the graphic so it is more visually appealing. Or you may wish to change the alignment, or make other adjustments. For further information on how you can make these and other adjustments to the position of a graphic, visit this Microsoft Support page: [Wrap text around a picture in Word](https://support.microsoft.com/en-us/office/wrap-text-around-a-picture-in-word-bdbbe1fe-c089-4b5c-b85c-43997da64a12).

As with tables, you will often want to include captions (see Chapter 3.6.3.2 on how to add these). Graphics are referred to as “figures” in the Captions dialog. As a general rule, figure captions appear below the picture. The same Captions dialog is used for both tables and figures. To add a caption to a graphic:

1. Select the graphic.
2. Press the Applications key, Up arrow to Insert captions, and press Enter.
3. Type in a title for the graphic. By default, they are numbered with the labels Figure 1, Figure 2, etc.
4. Tab to the Labels combo box, where your choices are Table or Figure. If it does not already say Figure, Up or Down arrow to it.
5. Tab to Position, where your options are Above selected item or Below selected item. Up or Down arrow to Below selected item.
6. Tab to the Exclude label from caption checkbox, which is unchecked by default. Uncheck this if you do not want the labels Figure 1, Figure 2, etc., to appear.
7. Tab to New label, and press Enter if you want to change the label from Figure to something else like Picture, Diagram, or Chart.
8. Tab to Numbering. Here you can change the numbering style (Roman numerals, add chapter numbers, etc.).
9. Tab to the OK button and press Enter.

### 3.9.2 Sections

Section breaks are most frequently inserted when you wish to change some aspect of page formatting in a document. Section breaks are more common in longer and more complex documents. Situations where you would insert section breaks include:

* When repaginating inside a document (see the example of tables of contents in Chapter 3.9.3 below).
* When changing page number formatting. One example could be if you have created an executive summary which uses small Roman numeral formatting (i, ii, iii, etc.) and Arabic numbering (1, 2, 3, etc.) for the main body of the text.
* When changing header or footer text within the document.
* When temporarily changing from portrait to landscape orientation. You might need to do this if you are inserting a table that is too wide to fit on the page with portrait orientation.
* When inserting columns in the text (see Chapter 3.9.4 below).

There are several types of section breaks. I will use Next page section breaks for describing how to insert a new section in a document:

1. Place your cursor at the top of the page where the main body of your text begins.
2. Open the Upper ribbon and Right or Left arrow to the Layout tab.
3. Tab into the Lower ribbon to the Break submenu (shortcut: Alt P B) and press Enter.
4. Down arrow to the Next page button and press Enter.

Now if you Up arrow once and Down arrow once, both JAWS and NVDA will say the page number and indicate that you are in section 2 of the document. Listen carefully here to the page numbering. In some versions of Word, the default is that page numbering continues from the last page of the previous section, while in other versions, it restarts on page one. Depending on your reason for adding a section break, you may need to adjust repagination. The next section on adding tables of contents covers this.

### 3.9.3 Tables of Contents

A table of contents is a useful tool for navigating a document, as well as for giving readers a quick glimpse of document organization and content. They can be quickly generated once you have inserted headings into your document. See Chapter 3.4.2 on how to add headings.

If you are creating a table of contents for a newsletter that will be sent to readers by email, page numbering will not be an issue, and it can be placed just beneath whatever introductory text you generate. It is not possible to generate a table of contents in Outlook. Create your document and accompanying table of contents in Word and copy and paste the final version into the body of an email.

If the table of contents is intended for a report or book, it should begin on a separate page after your title page and before the text of your manuscript. Follow steps three through five below to generate it.

To properly situate the table of contents for a manuscript and then generate it:

1. At the bottom of your title page, press Control + Enter twice to create a page break after the title page and another one just before the beginning of your text.
2. Place your cursor on the space between these two page breaks.
3. Open the Upper ribbon and Right or Left arrow to the References tab.
4. Tab into the Lower ribbon to the Table of contents submenu (shortcut: Alt S T), and press Enter.
5. Press Enter a second time on the Automatic table one button. A table of contents is now generated with all headings up to level three and corresponding page numbers listed. At the top, the title “Contents” is also inserted.

You can easily update a table of contents. Do this for any of the following reasons:

* You add or remove text that will change the page numbers.
* You add or remove headings.
* You change the text in any of the existing headings.
* You change the format of the table of contents.

To update the table of contents, your cursor can be anywhere in the document. Pressing Tab twice past the Table of contents submenu in the References tab gets you to the Update table button (shortcut: Alt S U). When you get into this dialog, you land on a set of radio buttons with two choices: Update page numbers only, or Update entire table. Up or Down arrow to the one you want, and press Enter

A few adjustments are now needed. Generally, it is a good idea to limit your table of contents to just level one and 2 headings. Level three headings can be included if they are not too numerous. The default is three levels. Level 4, 5, and 6 headings should not appear. In the single file containing this entire book, I have limited the table of contents to just the first level because including lower-level headings would make the table of contents very long.

To limit the number of heading levels:

1. Open the Table of contents submenu.
2. Tab to the Custom table of contents dialog and press Enter.
3. Tab to the Show levels edit combo box, and Up or Down arrow to the last heading level you want appearing in the table of contents.
4. Tab to the OK button and press Enter.
5. If you have already created a table of contents, you will be asked if you want to replace the existing table. Press Enter or Spacebar to confirm. If you have not yet created it, do so now, using the steps outlined above.
6. In your document, navigate to the Table of contents and Verify that only the correct heading levels are shown.

In addition to the Show levels edit combo box, there are two checkboxes worth mentioning in the Custom table of contents dialog:

* Show page numbers checkbox: This is turned on by default. Uncheck it if your table of contents is intended for an electronic newsletter to be contained in the body of an email message. It will not include page numbers.
* Use hyperlinks instead of page numbers checkbox: This is checked on by default, and you should always keep it checked. Note that the wording is a bit deceptive. If you keep the Show page numbering checkbox checked, page numbering will still be displayed.

For manuscripts, an additional adjustment is required. Because your table of contents follows the title page, and the table of contents also takes up at least one page, your manuscript text will begin on page 3 or 4. This page numbering will be reflected in the table of contents. Consequently, you will need to repaginate the document so that the main text starts on page 1. The first step for doing this is to insert a section break. Thus, insert a Next page section break as outlined in the previous section.

Depending on your version of Word, after adding this new section, page numbering may continue from the previous section, or it may restart on page one. Up and Down arrow where you have added the new section to determine this.

If you need to repaginate, do the following:

1. With your cursor situated at the top left corner of the first page of this new section, open the Upper ribbon and go to the Insert tab.
2. Press Control + And Right Arrow to the Header and footer group.
3. Tab to the Page number submenu and press Enter (shortcut: Alt N N U).
4. Down arrow to Format page numbers and press Enter.
5. Tab to the Continue from previous section checkbox and Press the Spacebar to uncheck it.
6. Tab to the Start at edit combo box and Up arrow to 1.
7. Tab to the OK button and press Enter.

Now Up arrow once and Down arrow once, and for the newly created section, your screenreader should say, “page 1, section 2.”

Regardless of whether you needed to repaginate this new section or not, remember to update the table of contents so that correct pagination is displayed.

### 3.9.4 Multi-Column Formatting

You may wish to use multi-column formatting to prepare a newsletter or flyer. You can use it for an entire document or a section of a document. Because text navigation and editing can be a bit complicated in a multi-column environment, it is better to convert your text towards the end of the document preparation process.

Steps for converting standard text to multiple columns are:

1. Select the text that you wish to convert. Assuming this is a fairly large amount of text, use the Extended text selection process (see Chapter 3.10.6 below) to select it.
2. Navigate to the Layout tab of the Upper ribbon.
3. Tab to the Columns submenu (shortcut: Alt P J) and press Enter.
4. To accept default formatting, Down arrow to the number of columns you want, and press Enter.

The default formatting includes automatically calculated column width, and blank space between columns. For example, if you select two columns on a standard 8.5 by 11-inch page with one-inch left and right margins, each column will be three inches wide with one-half inch blank space between columns, totaling 8.5 inches. If you wish to alter any of these parameters, repeat steps one through three above, and then:

1. Down arrow to More, and press Enter. This opens a dialog.
2. Up arrow to the number of columns you want.
3. Tab to Line between and press the Spacebar if you want a narrow line to appear between the columns.
4. Tab to Width and change it if you want.
5. Tab to Spacing (this is the space between columns), and change it if desired.
6. Tab to the checkbox which is checked by default. If you uncheck this, you will need to press Shift + Tab to go back an manually adjust the various column widths. Probably, you will rarely uncheck this checkbox.
7. Tab to Apply to, where your choices are Entire document, Selected text, or Section, depending on how you have highlighted the text. Up or Down arrow to the appropriate selection.
8. Tab to the OK button and press Enter.

A few other important points to highlight. First, if you select text (rather than the entire document) and insert columns, section breaks will automatically be inserted at the beginning and end of the multi-column text. If you want the multi-column text passage to appear on separate pages than the text before and after it, press Control + Enter where the new sections begin and end to insert page breaks.

Within the multi-column text, you can insert a column break if you want to start a new column before it would naturally wrap back to the top of the next column to the right. To do this:

1. In the Layout tab of the ribbons, Tab to the Breaks submenu and press Enter. The shortcut key is Alt P B.
2. Down arrow to the Column button and press Enter.

JAWS has a few keystrokes that are helpful when formatting columns. With your cursor in one of the columns, press Insert + F1 for JAWS Screen-Sensitive Help. JAWS will say something like: ”The cursor is in text column 1. The section contains 2 newspaper style columns which are 3 Inches wide. The columns are evenly spaced. The gap between columns is 0.5 Inches wide. There is a vertical line between the columns. The document has 3 sections. The cursor is in section 2.”

Also, be sure that breaks are set to be revealed in JAWS Quick Settings. This is a default setting, but it is good to verify. To do this:

1. While in Word, press Insert + V to access Word Quick Settings.
2. In the edit box where you land, type in “break.”
3. Down arrow once to the Page, section, and multiple column breaks checkbox and check it.
4. Tab to the OK button and press Enter.

JAWS will now detect page, section, and column breaks while reading through the document. This is particularly helpful in revealing when a new column starts, and verifying that section breaks are correctly inserted at the beginning and end of multi-column text passages.

NVDA reveals this information by default as you Up and Down arrow through the document. When NVDA encounters the beginning of a multi-column text section, it will say something like “Section two, one of two columns.” At the end of the multi-column section, it will say “Section 3, one of one columns,” indicating a return to standard text.

Narrator does not announce any information when you enter or exit multi-column text passages.

You can also quickly navigate to section breaks by using the Windows special character. Press Control + F to open the Find command, type in the special character which is “^B” minus the quotes, and press Enter. Press the Spacebar to proceed to the next section break. The keystroke for the caret symbol is Shift 6 on the number row.

Unfortunately, none of the screenreaders have keystrokes for toggling between columns. Just use standard navigation and reading keys for moving by paragraph and Say all mode. Note that if you Down arrow to read line by line, when you reach the bottom of a column, Down arrowing again will not move you to the top of the next column. It will instead move you to the first line of the next section in standard text. Only paragraph and Say all navigation will move you to the top of the next column.

Finally, you may wish to put a border around your columns. This is especially appropriate if you choose to put a line between columns. It would look strange to have only a line between the columns but not around them. To add borders:

1. With your cursor situated in the section with the multi-column text, go to the Design tab of the Upper ribbon.
2. Tab into the Lower ribbon to Page borders and press Enter.
3. Down arrow to the Box radio button.
4. Tab through and you should hear that the top, bottom, left, and right borders are checked.
5. Tab to Apply to and Down arrow to “This section.”
6. Tab to the OK button and press Enter.

You can also select various customizations in this dialog, such as changing the line format, width and color.

## 3.10 Additional Tools for Text Reading, Selection, and Editing

You may already be familiar with the above keystrokes. However, you might be less familiar with some of the tricks and tips in this section, so read on.

### 3.10.1 Find, and Find and replace

The Find command is useful for searching for specific pieces of text. Press Control + F and type in the word or words you want to search for. Your screenreader will announce how many results have been found. Press Enter and Word will jump to the first occurrence of the word from your cursor position, as well as remind you to press the Spacebar to jump to the next occurrence. Press Escape to return to the text if this is the occurrence you were looking for. If not, press the Spacebar to jump to the next one, and each subsequent occurrence. If your cursor is no longer situated in the Find dialog, you can press Control + Page down and Control + Page up to navigate to the next and previous occurrence of your search text, respectively.

Because invoking the Find command changes the behavior of the Control + Page up and Control + Page down keystrokes, these no longer perform their original functions of navigating to the previous and next page. This can be annoying. To remedy this, press Control + G to invoke the Go to page command, type in a page number, and press Enter and Escape. Control + Page up and Control + Page down will once again work for navigating to the previous and next page in your document. This same issue is experienced with the Find and replace command below.

The Find and replace command is a great time-saver if you have to replace numerous occurrences of a word, phrase, or special character with something else, or you need to delete it. The shortcut key is Control H. A few examples help to illustrate its utility.

The screenreader program “JAWS” should be written in all caps. But if you have mistakenly written it with only the first letter capitalized, and you have repeated this many times in your document, it will be tedious to find every occurrence and manually correct it. Instead, do the following:

1. Press Control H, which lands you in the Find edit field. Type in the incorrect “Jaws” (minus the quotes).
2. Tab once to the Replace field and type in the correct “JAWS” in all caps, minus the quotes.
3. Tab several times to the Replace all button, and press Enter or the Spacebar. Your screenreader will say “All done. We made 46 replacements,” or whatever the correct number is.
4. Your focus is on an OK button. Press the Spacebar to finish.
5. Press the Escape key to exit the Find and replace dialog.

Here’s another example, and one I use frequently. If you copy and paste text from the Internet into Word, it often comes in with lots of unwanted hard returns between lines. The special character for the hard return is caret P. Press Shift 6 on the number row to type the caret symbol. To remove the extra hard returns, type in “caret P” twice in the Find field, type it in once in the Replace field, Tab to Replace all, and press Enter or the Spacebar. This will remove the unwanted hard returns while preserving those for separating paragraphs. Repeat this until you are down to zero replacements. Press the Escape key when finished.

To entirely delete multiple occurrences of some text, type the text in the Find field, leave the Replace field empty, Tab to Replace all, and press Enter.

Additional special characters that I have sometimes found useful to find, and sometimes also replace include:

* ^B: Section break.
* ^G: Graphic image.
* ^l: line break, also known as a vertical tab.
* ^M: Manual page break.
* ^t: Tab.

A complete list of special character symbols can be found at:

[Twenty Helpful Search Strings for Finding Special Characters in Word](https://learn.microsoft.com/en-us/previous-versions/technet-magazine/ff956107(v=msdn.10)?redirectedfrom=MSDN)

### 3.10.2 Skim Reading Text

Often, it is not worth your time to read every word in a document. You may want to get a quick general sense of a document’s content before reading it in-depth. You can save yourself a lot of time and be more efficient if you have a skim reading strategy.

Sighted readers often skim read by glancing in a few key places on the page and moving on. How can screenreader users accomplish the same thing? The basic idea is to jump from paragraph to paragraph, listening to just enough text to get a general idea of the content. There are several ways you can do this. Below are a few of them.

The keystroke to jump to the next paragraph and read it is Control + Down arrow. To skim read, hold down Control + And don’t let it up. Now Down arrow to hear the first few words of the next paragraph. Once you have a quick sense of its content, Down arrow to move to the next paragraph, listen a bit, and so on. Obviously, when you arrive at an important paragraph, listen all the way through. Because Control + Down arrow is a Windows keystroke, it works with all three screenreaders.

With JAWS and Narrator, another way to achieve the same result is to use a combination of Quick Keys mode and Scan mode, respectively and P (for paragraph). With JAWS, press Insert and Z together to turn on Quick Keys mode. Now press the letter P to jump to the next paragraph, read a bit, press P again, read some more, and so on.

With Narrator, press Insert + Spacebar to turn on Scan mode. Now press the letter P to jump to the next paragraph, and proceed the same way as mentioned in the previous paragraph.

NVDA does not support first letter paragraph navigation with P, so only the Control + Down arrow technique will work.

JAWS also has a useful Skim Reading utility. Access it in the JAWS Manager by pressing Insert + F2, and then the letter S several times to navigate to the Skim Reading tool. Press Enter to open this dialog. You first land on a list of radio buttons. The first option in the list is Read the first line of every paragraph. The second one is First sentence of every paragraph. Up or Down arrow to your choice. The advantage of this tool is that you can start it up with a single keystroke and listen continuously without having to press any other keys. It can be a very nice way to skim through a document while sitting back in your chair and munching on a bag of Doritos. However, if you do not want to hear each entire line or sentence, you can press the Right Shift key to interrupt speech and immediately move to the first line or sentence of the next paragraph and continue skim reading. Press the Left Shift key to interrupt speech and return to the previous paragraph and read its first line or sentence.

The JAWS Skim Reading tool is quite versatile and does other things too. See Chapter 3.10.5 on using it to quickly find and navigate to format changes in Word documents, including highlighted text.

### 3.10.3 Go To Command

If you are in a large document with many pages, the Go To command will help you to quickly navigate to a given page. Press either Control + G or F5 to open the dialog, type in the page number you want to navigate to, and press Enter. Now press Escape to exit the dialog and you will now be situated at the top of that page.

The Go to command default is page, but you can also use it to navigate to other elements in your document, including bookmarks, discussed in the next section.

### 3.10.4 Bookmarks

Insert bookmarks in documents so you can quickly navigate to important passages in the text. You need to know how to create bookmarks, as well as how to navigate to and manage them once you have created them. To add a bookmark:

1. Navigate in your document to the place where you want to Insert the bookmark.
2. Press the shortcut key Alt N K. The Bookmarks command is situated in the Lower ribbon of the Insert tab, but is difficult to find. Alternatively, you can press Control + Shift + F5.
3. You land in an edit field. Type in the name of your bookmark. The name cannot have any spaces between words. Type in a single word, or if you want it to have more than one word, place an underscore between the words or use camel case (examples: world\_news or WorldNews). You also cannot repeat the same name in your document - each name must be unique.
4. Press Tab once to the Add button and press Enter or Spacebar.

Once created, use the Go To command to navigate to your bookmarks. Steps are:

1. Press Control + G or F5.
2. By default, the Go To command is set for Pages. To change this, press Shift + Tab once, and Down arrow to Bookmarks.
3. Press Tab once and you land in a combo box with your list of current bookmarks.
4. Down arrow or first-letter navigate to your bookmark choice, and press Enter.
5. Press Escape to exit the dialog and land on your bookmark location.

With JAWS, there is another way to navigate to bookmarks which is quicker than the above method. Turn on Quick Keys mode by pressing Insert + Z. Now press B and Shift B to go to the next or previous bookmark.

To delete bookmarks if you no longer want them:

1. Press Alt N K or Control + Shift + F5 to get into the Bookmarks dialog.
2. Up or Down arrow to the bookmark you want to delete.
3. Tab to the Delete button and press Enter or Spacebar.

### 3.10.5 Highlighting Text and Accessing It With the JAWS Skim Reading Tool

An alternative to bookmarking is highlighting. Many sighted students use a colored marker (usually yellow) to highlight text that they want to refer back to while studying. Unlike with bookmarks, you can highlight large segments of text. And then use the JAWS Skim Reading tool to quickly navigate to those passages, as well as create a summary document containing all or some of the highlighted text. This is just one use of the Skim Reading utility. It is also a versatile tool for finding and quickly accessing format changes in Word documents. Neither NVDA nor Narrator have a comparable tool.

I will first discuss how a student can highlight text as a study aid, and then access it efficiently. After that, I will discuss an example where one of my clients needed a way to find text passages where sighted work colleagues had changed the font color to draw attention to those passages. The first example involves changing the background color of selected text, while the second one involves changing the foreground color.

To change the background color, first select the text you want to highlight. Then navigate to the Text highlight split button in the Font group of the Home tab. The default color is yellow. Press enter or Spacebar to accept the default, or Press Alt + Down arrow to expand the split button and pick another color. The ribbon shortcut key is Alt H I (my mnemonic device is Alt followed by the first two letters of “highlight).

From here on, I will assume you choose the yellow default background. If you Press Insert + F to check formatting, it should say “black on yellow” rather than the “black on white default. Note that it may not say this immediately, but after a few tries, JAWS will eventually indicate the new background color.

After highlighting text, you can now use the JAWS Skim Reading tool to quickly access your highlights as follows:

1. With your cursor located anywhere in the Word document, press Insert + F2. This opens the JAWS Manager where a number of JAWS utilities are found.
2. Press the letter S several times to the Skim Reading tool and press Enter.
3. Down arrow to the Use rule type: attribute and color rule radio button.
4. Tab to the Color or attribute rules: background color” combo box and press Y to first-letter navigate to yellow.
5. Tab to the Speak unit combo box and choose between lines, sentences, or paragraphs containing text. Which of these you choose depends on how you have highlighted the text. If you have primarily highlighted individual lines or sentences, choose one of those in the combo box. If you have tended to highlight entire paragraphs, choose that one. Experiment a bit for best results.
6. Tab to the Start skim reading button and press Enter to have the highlighted text read back to you in Say all mode.
7. Or probably more useful, Tab one more time to the Create summary button and press Enter.

Activating the Create summary button generates a Skim reading results window with each of the highlighted text segments appearing as links. Press Enter on any of these links to get back into the Word document at that point. The Skim reading results window remains open as a separate window, so you can Alt + Tab back and forth between it and the Word document, activating other links to return to the document at their corresponding locations.

After you have skim read highlighted text, JAWS saves the rule so you don’t need to repeat the steps above to specify your skim reading parameters. From now on, when you open the Skim Reading tool you will immediately land on the Rules history combo box. Up or Down arrow through the rules you have created. For the above example, JAWS says, “star slash yellow,” minus the quotes. The star before the slash signifies the default foreground color )black). Yellow after the slash indicates this to be the background color.

You can then Tab to the Create summary button or the Start skim reading button to perform these actions again.

You might find it useful to create a new file where you can save the highlighted text. To do this:

1. In the Skim reading results window, press Control + A to select all the text.
2. Press Control + C to copy it to the clipboard.
3. Press Control + N to open a new Word document.
4. Press Alt H V T to paste the text only. Don’t do a simple paste because this will keep the link formatting which is no longer useful when saved in a new document. Each former link will be numbered.

To delete rules if you no longer need them, return to the JAWS Skim Reading tool and Tab a number of times to the Delete rule button or Delete all rules button, and then press Enter to activate it.

To see how JAWS reads highlighted text, several blocks of text have been highlighted in this section (including this paragraph). Try the various tools above to check it out. First, verify that the font coloring has changed by pressing Insert + F anywhere in this paragraph. You should hear that font colors are black on yellow.

Now let’s create another rule, this time to detect changes in the foreground color. The issue is that sighted colleagues have changed the font color to red for text that they want you to review. Here too, I have changed the foreground color to red in a few places, this sentence included, where if you press Insert + F, you should hear “red on white.” If this is your first time creating a Skim Reading rule, do the following:

1. Press Insert + F2 to open the JAWS Manager.
2. Press S several times to the Skim Reading tool and press Enter.
3. Down arrow to the Use rule type: attribute and color rule radio button.
4. Tab to the Color or attribute rules: text color” combo box and press R to select red.
5. Tab to the Speak unit combo box and choose between lines, sentences, or paragraphs containing text.
6. Tab to the Start skim reading button and press Enter or Spacebar to have the highlighted text read back to you.
7. Or Tab again to the Create summary button and press Enter.

You can now navigate the red-colored foreground text in all the same ways as outlined earlier.

This rule will be sabed with JAWS saying, “red slash star,” minus the quotes. JAWS is indicating red as the foreground color against a default white background.

If you have previously used rules and have not deleted them, JAWS remembers this, and it is quicker to create a new rule. Steps are:

1. Press Insert + F2 to open the JAWS Manager.
2. Press S several times to the Skim Reading tool and press Enter.
3. This time you immediately land in the Use rule type combo box with your focus on the last rule that you used.
4. Up arrow to “Less new greater.”
5. Tab through all the choices, making your selection or selections. You can make rules for detecting the full array of font attributes (bold, italics, superscripts, etc.), as well as combinations.
6. Tab to either the Start skim reading button or the Create summary button and press Enter to generate the list of results and create the new rule.

Finally, what if you want to remove the color formatting changes discussed above. You could manually remove them individually. But if there are a large number of them, this will be tedious and time-consuming. You can instead use the Find and replace command covered in Chapter 3.10.1. However, there will be a few twists and turns. The process can be finicky, but if you can make it work, it will be less tedious than removing color changes one at a time. It involves a lot of tabbing, and there are several places where it really matters whether you press Enter or Spacebar. Press the key I specify.

I will first cover removing the red font foreground color, reverting it back to the black default. From anywhere in the document:

1. Press Control + F to open the Find dialog.
2. Tab once to the Search split button and press Alt + Down arrow to expand it.
3. Down arrow to Advanced find and press Enter.
4. Tab to the More button and press Enter. If it instead says Less button, continue tabbing.
5. Tab to the Format menu button and press Enter.
6. You land on the Font tab. Press Enter again.
7. Tab to the Font Color button and press the Spacebar to open it.
8. If using Word 365, you should be able to Left arrow several times to red. With other versions, you may need to arrow around a bit more to find it. Press Enter.
9. Tab several times to the OK button and press Enter.
10. Press Alt P until you hear that the Replace tab is selected.
11. Tab to the Replace all button and press Enter. Because you are replacing with the black default foreground color, there is no need to repeat the process of selecting a replacement color.
12. Rerun the red foreground color rule with the JAWS Skim Reading tool to confirm that no red font coloring remains.

Most of the steps for removing yellow text highlighting are identical to those listed above. However, after completing step five above (that is, pressing Enter on the Format menu button), when you land on the Font dialog, Up or Down arrow to Highlight and press Enter. Now skip steps six through nine, and repeat steps ten through twelve. The background color for all text should be returned to the white default.

### 3.10.6 Extended Text Selection

Sometimes you need to select a large block of text, perhaps several pages, and repeatedly pressing keystrokes for selecting smaller segments of text is inefficient. Both JAWS and NVDA have an Extended text selection command that makes this process much quicker and easier than trying to select a large number of lines or paragraphs.

To perform Extended text selection with JAWS:

1. With your cursor situated at the beginning of the text you wish to select, press Control + Windows + K, which is the keystroke for creating a temporary placemarker. JAWS will say “marking place.”
2. Place your cursor at the end of the text you wish to select, and press Insert + Spacebar, and then M. Be sure to hold down the Insert and Spacebar together until you hear a click. Then press M. Don’t try to hold down all three keys together. JAWS will say “selecting between marked place and current position.”
3. The text is now selected, and you can copy it with Control + C, cut it with Control + X, or delete it with the Delete key. If you copy or cut the selected text, you can then navigate to where you want to paste it and press Control + V.

With NVDA:

1. With your cursor situated at the beginning of your text selection, press Insert + F9. NVDA will say “start marked.”
2. Place your cursor at the end of your text selection, and press Insert + F10. NVDA will tell you how many characters have been selected.
3. You can now copy, cut, paste, or delete your selection.

Here’s another way that works with all three screenreaders because it is a Windows process. However, audio feedback may not be very good.

1. At the beginning of your text selection, press F8. JAWS will say “extended selection mode on.” Narrator won’t say anything, but it is on.
2. Navigate to the end of the text you want to select.
3. Use standard keystrokes to copy, cut, or delete the text.

### 3.10.7 Paste Text Only

Often when you copy and paste text from one application to another, simply pasting with Control + V will import undesired formatting from the original source. This frequently happens when copying text from a website into a Word document. You may very well import font styles, sizes, and colors that are very strange. Using the Paste text only command can help avoid problems like this.

Let’s say you are on a web page and wish to copy text from there and paste it into a Word document. First, select the text and copy it as you normally would by pressing Control + C. Now press the Applications key, Down arrow twice to Paste options, Left arrow once to Paste text only, and press Enter. Alternatively, use the shortcut key, which is Alt H V T.

### 3.10.8 Word Count

Teachers often require a word count limit on class assignments. Newspapers specify word limits for article submissions.

There are several ways to get a word count. One way is to go to the Review tab of the Upper ribbon, Tab several times into the Lower ribbon to Word count, and press Enter. This reveals the number of pages in the document, the word count, and several other statistics. The ribbon shortcut is Alt R W. You can also press Control + Shift G to get the same information.

With JAWS, you can also get a word count by opening the Status bar with the keystroke Insert Page up. You will first hear the page you are on, the total number of pages in the document, and then the word count.

To get the word count for a segment of text rather than the entire document, select the text and repeat any of the keystrokes above to get statistics for just that text.

### 3.10.9 Customizing the Status Bar

You can quickly access some useful information about the status of your document on the Status bar. Visually, the Status bar is a horizontal window at the bottom of your screen. To access it:

* With JAWS, press Insert + Page down.
* With NVDA, press Insert + Shift + End to access it if using Laptop keyboard mode or Insert + End if using Desktop mode.
* With Narrator, press F6 until you hear Status bar. Then Down arrow line by line to hear document status information.

To customize what information appears in the Status bar:

1. While in an open document, press F6 until you get to the Status bar pane.
2. Press the Applications key, Down arrow through the list, and press the Spacebar to check those options you would like listed in the Status bar.
3. Press Escape when finished.

There are many options. I find that the most useful are page number, vertical position on page, and word count. If you have some usable vision, information related to zoom levels may also be useful.

Using similar procedures, it is also possible to customize the Status bar in Excel and PowerPoint. However, I don’t find the Status bar information available for those applications particularly useful.

### 3.10.10 Inserting Special Characters

On occasion, you may need to add foreign accents, currency symbols, or other special characters into your documents. There are several ways to do this. One way is to use the various associated keystroke combinations. Here are a few examples:

* French acute E: Control + Apostrophe, followed by E.
* German umlaut: Control + Shift + Semi-colon, followed by the associated vowel.
* Copyright: Control + Alt C.

To access a table with commonly used international character symbols and their corresponding keystroke combinations, activate the link below:

[Keyboard shortcuts for international characters](https://support.microsoft.com/en-us/topic/keyboard-shortcuts-for-international-characters-108fa0c1-fb8e-4aae-9db1-d60407d13c35)

If using JAWS, you can quickly access a list of 49 special characters by pressing Insert 4. Then first-letter navigate to the symbol you wish to insert and press Enter. For example, to Insert the euro symbol into your document, press Insert 4 to open the special characters list, press E several times until you hear euro, and then press Enter.

If you are unable to find the special character you need with either of the above two methods, use the four-digit ASCII or Unicode number. This is a more tedious way to insert a special character because you must first search for the numeric code and then type it using the Number pad. I googled “ASCII code for euro” and found that it is 0128. To insert it, toggle the Number pad on, and while holding down the Alt key, type 0128.

For those special characters you find especially difficult to remember, after inserting them into one of your documents the first time, consider creating a new document and storing them there for future use.

# Chapter 4 Outlook

Outlook is the Office Suite program for reading and sending email messages. You can also save contacts, schedule appointments and meetings, and create custom folders for storing messages. While many alternative programs exist (webmail, email on your smartphone, among others), I find that Outlook is easier to use, more efficient, and more consistent and predictable than these alternatives.

Microsoft has recently introduced a new version called “New Outlook.” The version that has been used for many years is now referred to as “Outlook Classic.” The bulk of this chapter devotes itself to Outlook Classic. The last section (Chapter 4.12) can help you to explore the New Outlook.

After installing Microsoft Office, you will need to load your existing email account or accounts into Outlook. When I try to do this for my students, sometimes it works seamlessly; other times it fails. While this process may not be completely inaccessible, it often flunks the usability test. In recent months, the process of adding a Gmail account has become impossible to figure out, at least for me. Unless you are a bona fide tech expert, don’t waste time trying. A call to the Microsoft Disability Desk is often the most painless way to get this job done. Before calling, be sure you know both your email address and password. If you have forgotten your password, the Disability Desk can help you create a new one.

## 4.1 Message Basics

### 4.1.1 Reading and Deleting Messages

When you first open Outlook, focus goes to the top message in the list of messages in your Inbox. By default, messages are arranged chronologically, with the most recently received message at the top of the list and the oldest one at the bottom. Down arrow or Up arrow to a line with information for each message. This includes the name of the sender, the subject, the date, and size of the message. If one or more files are attached to the message, this too is indicated.

Press Enter to open a message. Focus will be placed at the top of the body of the message. Use standard reading keystrokes to read and navigate through the body of the message.

To access other fields in the message, press Shift + Tab. This will enable you to access the Subject, Date, To, and CC fields. Ordering is not consistent between the various versions of Outlook, or at least I have not been able to detect any pattern. However, if there are attachments, it is always the case that a single Shift + Tab, starting from the top of the message body, brings you to the list of attachments (more on attachments below).

Why is information in some of these other fields useful? Beyond just yourself, it is good to know who else has received the message, whether in the To or CC field. If the message was sent just to you, or to you and just a few others, chances are good that the sender is expecting you to reply. But if you are just one in a large group of recipients, or it has been copied to you, then you are usually being sent the message for informational purposes, and probably no response is expected from you.

When finished reading the message, press Escape once. This will usually return you to the Inbox. I say “usually” because sometimes escaping tosses you out of Outlook and into another window. This often happens when you have been working with messages with attached files. When this happens, Alt + Tabbing once or twice returns focus to the Inbox window.

If you now want to delete the message from the Inbox, simply press the Delete key and it will be moved to your Deleted items or Trash folder. You will not be asked for a confirmation. Be diligent in deleting messages you no longer need. If thousands of messages accumulate in your Inbox, your efficiency in finding the messages you actually need will suffer.

Also, be cautious about getting on lots of commercial mailing lists. In extreme cases, I have had students who received 40 or 50 messages per hour, most of which were total garbage. Their ability to find the one or two messages that actually mattered was severely hampered. In such cases, consider creating a new email account and no longer using this problematic one. Alternatively, you could unsubscribe from unwanted bulk email lists, but this is time-consuming. For some of these lists, senders purposely make it difficult to unsubscribe.

### 4.1.2 Preparing Messages

You will usually initiate the process of preparing a new message from your Inbox. However, you can also do this from another folder containing lists of messages. These include your Sent items, Deleted items, Drafts folders, and any custom folders you have previously created.

To prepare a new message:

1. Press Control + N which will place your cursor in the To field.
2. Type the email address of a recipient. If you want to address the message to more than one recipient, place a semi-colon after each address to separate them.
3. Tab to the CC field, and type in addresses for those to whom you want to copy the message.
4. Tab to the Subject field and type in text that reflects the content of the message.
5. Tab to the Message body field and compose your message.
6. Press either Alt S or Control + Enter to send the message.

The very first time you press Control + Enter to send a message, a dialog opens asking if you want to use this keystroke as a shortcut for sending messages. Tab to the Don’t show this message again checkbox and press the Spacebar to check it. Then Tab to the Yes button and press Enter. This dialog will no longer pop up.

After the message is sent, focus is returned to the folder where you began preparing the message. At any point in preparing the message, you can press Shift + Tab to navigate back to the various fields. I mentioned above that, when tabbing and Shift + Tabbing through a message you have received, the order is inconsistent. However, when you are preparing a message, the Tab order is consistent and predictable.

Here’s some advice on email etiquette. Take time to put text in the Subject field that meaningfully reflects the content of your message. For example, if you are on a technology discussion list, don’t type in vague stuff like “A Question,” or “Problem with Outlook.” Instead, be specific by typing “Problem Creating Outlook Folders.” If you consistently type in vague text on the Subject line, recipients will conclude that you don’t know what you are doing.

### 4.1.3 Replying To and Forwarding Messages

There are two ways to reply to a message you have received – replying to just the original sender or replying to the original sender and all other recipients. To reply to just the sender:

1. Open the message and press Control + R.
2. This lands you in the body of the message and the subject starts with RE: to indicate that this message is a reply. Type in your message.
3. Press Alt S or Control + Enter to send it.

To reply to the sender and all other recipients, press Control + Shift R and repeat steps 2 and 3 above. This is called Reply to all.

Here’s some sage advice on using Reply to all. Before sending, and especially if you think your message is sensitive or potentially negative in some way, always Shift + Tab to verify the addresses in the To and CC fields. If you are a veteran emailer, you inevitably know of horror stories where you either sent a message to an unintended recipient, or you received a message that was clearly not meant for your ears or eyes. Just thinking about this dredges up bad memories and nausea. In best case situations, such faux pas were just mildly irritating. Unfortunately, I also know of situations where the results were very ugly. So always doublecheck before sending. Even better, if you ever think that a message could be remotely offensive, don’t send it. Even if you are diligent in doublechecking your addressees, remember that those same addressees might not be as careful as you, and could cause problems in the next round of replies. If you really feel like you need to vent some pent-up frustration, use old-fashioned technologies like the telephone instead. Email is an effective communication tool for many things. Resolving interpersonal conflicts is not one of them.

After receiving a message, you may wish to forward it to other people. To do this:

1. Arrow to the message in your message list or open the message.
2. Press Control + F which places focus in the To field.
3. Type in the email address or addresses of the intended recipients.
4. If you want to add a message from yourself, Tab to the message body and type it in.
5. Press Alt S or Control + Enter to send the message.

The Subject field will begin with FW: to indicate it is a forwarded message.

### 4.1.4 BCC Field

Use the Blind carbon copy, or BCC field to hide addresses among recipients. This is most frequently done for privacy and confidentiality purposes. As you know, it is inappropriate to share other people’s phone numbers without their permission. The same goes for email addresses. If you have ever received a message that said, “From John Smith to John Smith,” this is an indication that the sender used the BCC field to prepare it.

The BCC field does not automatically appear. To add it, you need to be in the window for preparing a message. Steps for adding it are:

1. Press Control + N to initiate preparation of a new message.
2. Press Alt to open the Upper ribbon, and Right arrow to the Options tab.
3. Tab to the BCC button and press Enter. The shortcut key is Alt P B.

The BCC field now appears between the CC and Subject fields. Any addresses you insert here will not be seen by the recipients. The BCC field will now appear in all future messages. To remove it, repeat the steps above.

### 4.1.5 Issues Related to Selecting Addresses

There are various ways you can enter email addresses in the To, Cc and BCC fields. If you have no previous history of exchanging emails with a particular recipient, you will need to type in the full address. If you have some previous history of exchanging messages with a recipient, typing in the first letter or first several letters of that person’s address may auto-populate the address field with that person’s address. If you hear the desired address as you are typing, either press Enter or the Tab key to input that address. After doing this, it is a good idea to Tab to the next field, and then Shift + Tab back to verify that the correct address has been entered.

Let’s say that you have several addresses in memory that begin with the letter M and you want to send a message to Mary Jones. If you press M and hear somebody else’s address, Down arrow to see if Mary Jones is in the list. If she is, press Enter or Tab to insert that address. If her address does not appear, press Alt K and this may extend the list to more addresses beginning with the letter M.

Auto-populating of addresses, as well as getting a full list of addresses, used to work reliably in Outlook. In the last few years, this seems to have broken. Sometimes addresses for people you seldom communicate with appear, while regular correspondents fail to appear in the list. Pressing Alt K may extend the list, but with no guarantee of finding the desired address.

To ensure that you don’t lose addresses, be diligent in adding addresses to your Contacts folder. They are not automatically added just because you have a history of exchanging messages with a person. See Chapter 4.7 on how to add contacts.

There are several ways to access addresses in your Contacts folder for preparing messages. The two ways I prefer involve first navigating to the Contacts folder. The quickest way to get there is to press Control + 3 from anywhere in Outlook. Once in the Contacts folder, you can use the following technique if you have a Microsoft 365 account.

1. First-letter navigate to the last name of the person whose address you want to use. Note that you can only press that first letter once, and will then need to Down arrow through other last names beginning with that letter until you find the contact you want.
2. Press Enter to open the contact dialog.
3. Press Alt H E to address a message to that person. You land in the Subject field, with the address already inserted in the To field.
4. Complete the message and send it.

If this does not work for you:

1. Repeat steps 1 and 2 above.
2. Tab to the Email edit field.
3. Select the email address and copy it with Control + C.
4. Escape out of the Contact dialog and return to the Inbox.
5. Press Control + N to prepare a message.
6. Press Control + V to paste the address in the To field.
7. Complete the message and send it.

I have found that my iPhone is more reliable in remembering the full list of recipients with whom I have a history of corresponding. If the above steps don’t work, I search my native Mail app there and usually find the address I am looking for. This works despite the fact that I do not regularly enter email addresses into my iPhone contacts.

## 4.2 File Attachments

People often have the impression that dealing with attachments is complicated and confusing. This may especially be the case for saving them and attaching them to a new message which can involve navigating to the ribbons and opening a sometimes confusing dialog box.

While that is one approach, I am going to ignore that and show you a simpler and quicker way that involves selecting, copying and pasting files. In this section, I will cover opening attached files without saving them, saving attached files you have received, and attaching files to a message you are preparing. I will also talk about dealing with multiple attachments.

### 4.2.1 Opening Attachments

To open an attached file without saving it:

1. Open the email message with the attachment.
2. Press Control + Home to place your cursor at the top left of the message field.
3. Shift + Tab once to place focus on the attached file and press Enter (note that pressing the Spacebar will not work here).
4. You first land on a Save button. Tab twice to the Open button and press Enter or Spacebar.

The attached file now opens in a separate window and you can read through it. When you are finished with it, press Alt + F4 to close the window. If this is the first time you are opening a Word, Excel, or PowerPoint file, you will hear that the file is in Protected view. It is very important that you disable this. Otherwise, the file will behave improperly. See Chapter 2.5.3 on how to disable Protected view.

### 4.2.2 Saving Attachments

The quickest and easiest way to save an attachment from a message you have received is to select, copy, and paste it. Steps are:

1. Open the message with an attached file.
2. Shift + Tab once to land on the attached file. This selects it.
3. Press Control + C to copy the file to the Clipboard.
4. Navigate to where you want to save it and press Control + V to paste it there.

### 4.2.3 Attaching Files

Attaching files from your Documents folder or some other folder on your computer to a message you are preparing simply involves reversing the save process in the previous section. Steps are:

1. In the folder on your computer where the file is located, Up or Down arrow to, or first-letter navigate to the file you wish to attach. Either of these selects the file.
2. Press Control + C to copy it to the Clipboard.
3. Open Outlook and prepare a message, following the steps enumerated in Chapter 4.1.2 above, inserting one or more addresses in the To field.
4. With your cursor situated somewhere in the body of the message, press Control + V to attach the file. You must be in the message body for this to work.
5. Shift + Tab once to verify that the attachment is there.
6. Press Alt S or Control + Enter to send the message.

Be sure to include text in the Subject field, body of the message, or both, referencing the attachment so recipients are aware it is there. Also note that you can attach multiple files. If they are all located in the same folder, you can select and copy them using the same file selection keystrokes outlined in Chapter 2.6.2. If the files are not all located in the same folder, you will have to select them separately.

### 4.2.4 Multiple Attachments

You may receive messages with multiple attachments or wish to attach more than one file to a message. To access multiple attachments in a message you have received, open the message and Shift + Tab once. Focus will be placed on the first attached file. You will hear the file name and “one of five attachments,” or whatever the total number is. Right arrow to move to the second attachment, and so on. Up and Down arrowing do not work here.

Once you have placed focus on an individual file, you can open it or save it using the steps identified above. You can also save all the attachments to your computer. It is advisable to create a new folder and save them there. If instead, you simply save them to your Documents folder, they will scatter around alphabetically. You probably want to keep them together, at least at first. Steps are:

1. Open the message containing multiple attachments.
2. Shift + Tab once to place focus on the first attachment.
3. Press Control + A to select all the files. Note that you may not hear anything after you do this, or what you hear is inconsistent, but don’t worry.
4. Press Control + C to copy the files to the Clipboard.
5. Navigate to the folder where you want to save them and press Control + Shift + N to create a new subfolder.
6. Type in an appropriate folder name and press Enter.
7. Press Enter again to place focus inside the new folder.
8. Press Control + V to paste the files in the new folder.

If you want to attach multiple files to a message you are preparing:

1. Follow the steps in Chapter 2.6.2 for selecting contiguous or non- contiguous files.
2. Press Control + C to copy them to the Clipboard.
3. In the body of an email message, press Control + V to paste the files.
4. Press Shift + Tab once to verify that the files are there.
5. Press Alt S or Control + Enter to send the message.

## 4.3 Navigating Folders Using the Tree View

So far in this chapter, I have only talked about the Inbox folder. There are other important folders you will want to access, including Sent items, Deleted items or Trash, Drafts, Calendar, Contacts, Outbox, and custom folders that you create yourself. There are more folders, but these are the most important ones. You navigate to these through a tree view.

The tree view presents a hierarchical view of the folder structure of your email account or accounts. From left to right, the folder hierarchy is displayed as levels 0, 1, 2, etc. Right arrow to open or expand a folder, Left arrow to close or collapse a folder, and Up and Down arrow to move within a folder level.

The precise nature of your folder structure varies according to your account provider (Gmail, Microsoft, Comcast, etc.), as well as your account type - IMAP or POP3

IMAP (Internet Message Access Protocol) is a method of accessing email messages that downloads them to your computer, but also leaves copies on the server. If you delete a message on your computer, this will be reflected on the server.

Another popular email protocol is called “POP3.” With POP3, messages are downloaded to the computer, but any actions you take on the computer will not be reflected on the server. The advantage of using an IMAP mail server is that users can check their mail from multiple devices (computers and smartphones) and always see the same messages. In essence, this synchronizes your messages on all your devices. POP3 does not.

Whichever provider and account type you have, the important thing for you is to understand the logic of your tree view structure. Because it is a very common arrangement, I will use the example of a Gmail IMAP account.

The Outlook Tree View can be accessed in two ways. You can either press Control + Y or Shift + F6 to open it. We will now take a tour using Control + Y for a fictitious account called john.smith@gmail.com.

1. Starting from your Inbox, press Control + Y, your screenreader will say “Go to folder dialog tree view, the number of unread messages, inbox.” After “inbox,” you may also hear “closed” if you have created some custom folders (more on this later).
2. Left arrow once. You will hear level 0 john.smith@gmail.com open, indicating that the account folders are still visible and expanded, but that you have moved left to level 0.
3. Left arrow one more time. You will hear john.smith@gmail.com closed, indicating that the account folders are now collapsed. You are at level 0 and as far left as you can go.
4. At level 0, if you Up arrow, you will hear “To-Do List.” If you Down arrow, each account you have added to Outlook will be listed in the level 0 column.
5. Down or Up arrow back to john.smith@gmail.com closed.
6. Right arrow once and you will hear “john.smith@gmail.com open,” indicating that you have expanded the account so its various folders are now visible.
7. Down arrow once to hear “level one inbox.” You will also hear the number of unread messages in this folder. You may also hear the word “closed” if there are level two folders to the right of the inbox folder.
8. Continue Down arrowing through the level 1 column for this email account. Folder names you will hear are Gmail closed, Calendar, Contacts, Drafts, Outbox, and numerous others.
9. Up arrow back to Gmail closed, and Right arrow once and you will hear “Gmail open.”
10. Down arrow once and you will hear “Level 2 Drafts,” indicating that you have moved to the level 2 column where folders of Gmail are listed. Important folders here are Drafts, Sent mail, Trash, Important, and Spam.

Let’s stop our tour momentarily at this point. If you have a Gmail IMAP account, it is critical that you know about opening or expanding this level 2 area. Otherwise, you will not be able to access these important folders. In addition, and this is a weird thing about this folder structure, you may have redundant Drafts and Deleted items folders at level 1 of the tree view. I do not know why these duplicate folders exist. They appear to be there only to confuse you. So, let’s say you save a draft message and then go to this redundant level 1 Drafts folder and find it empty. If you do not know that your draft message invariably goes to the level 2 Drafts folder, you will think that it has disappeared, and you will freak out.

While this folder structure may seem unnecessarily complicated, with some practice you will soon get used to it.

Once your level 1 and 2 folders are expanded, you can use first-letter navigation to move quickly, and then press Enter to get into that folder. For example, starting from the Inbox, press Control + Y and then S to quickly navigate to Sent items. Press Enter to get into that folder. Press Control + Y again, and then C to navigate to the Calendar or Contacts folder, and so on.

As mentioned above, you can add multiple email accounts to Outlook. I currently have four accounts loaded into my Outlook: a work account, a personal Gmail account, my Microsoft account (which I rarely use), and a Bay State Council of the Blind president’s account, Over time, I have developed a few strategies for efficiently navigating my tree view, as well as avoiding confusion about which folder I am currently in. These include:

* Making liberal use of first-letter navigation, including the first letter of my various email addresses found at level zero of the tree view. This enables me to move quickly to the account I want to access. Also, if I Right arrow once to open or expand level one of that account, when I press the letter I, I know for sure that this is the inbox for that account.
* Closing or collapsing tree view levels for accounts I am not currently using. If I leave level one open for just two of my four accounts in the tree view, I can press the letter I fewer times to get to the inbox I am interested in accessing. I typically collapse the Microsoft and Bay State accounts so I can move more quickly between the two accounts I use much more frequently - my work and personal accounts.
* Using the number of unread messages in my inbox folders as a clue for quickly detecting which inbox corresponds to which account. While I cannot say I do this by design, I habitually have far fewer unread messages in my work account inbox than in my personal one. So if I press I and hear “Inbox 17 unread messages,” and then “inbox 78 unread messages,” I know that the first one is my work account inbox and the second one is my personal one.
* Setting the most commonly used inbox as my Outlook start (or default) folder. Follow the steps in Chapter 4.11.11 to change the folder you first land in when you open Outlook.
* Using the following keystrokes for moving around quickly between folders:
  + Alt Left arrow: Move back one folder.
  + Alt + Right arrow: Move forward one folder.
  + Control + 1: Move to the last folder you were in with a list of messages. This could be the Inbox, Sent items, Deleted items/Trash or Drafts folders.
  + Control + 2: Move to the Calendar folder.
  + Control + 3: Move to the Contacts folder.

## 4.4 Custom Folders

You can create your own folders for organizing and easily retrieving important messages. After creating a custom folder, you can easily move or copy messages to it. This is preferable to leaving them in your Inbox where they will be harder to find as the number of messages grows. You can also create rules for automatically moving messages to one of these custom folders.

### 4.4.1 Creating and Managing Custom Folders

All custom folder-related actions are performed in the Folder tab of the ribbons. Sometimes, when you Right arrow, the Folder tab does not appear. It should be between the Send/Receive and View tabs. Outlook has a Classic and Simplified ribbon view. The Simplified view does not include the Folder tab. Screenreader users should use the Classic view. To switch to it:

1. From the Inbox, press Alt to open the Upper ribbon.
2. Press the Applications key, Down arrow to Use Classic ribbon, and press Enter.
3. Reopen the Upper ribbon, and the Folder tab now appears.

None of the following steps are possible with the Simplified ribbon view.

Where you start the process of creating a custom folder determines where it will appear in the tree view. If you start from inside your Inbox, the custom folder will become a level 2 folder situated to the right of your level 1 Inbox. If you open the tree view from your Inbox, you will hear “Inbox closed,” indicating that you have one or more level 2 folders currently collapsed to the right of your level 1 Inbox.

If you start the process from inside level 0 where the name of your account is, your custom folders will appear at level 1, the same level where Inbox, Gmail closed, etc. appear. In the example below, we will start from inside the Inbox.

1. From inside the List view of your Inbox messages, press Alt to open the Upper ribbon and Right arrow to the Folder tab.
2. Tab to the New folder button and press Enter (shortcut key is Control + Shift + E).
3. Type in the custom folder name and press Enter.

The new folder has been created and you are returned to the Inbox.

There are several ways to copy or move messages from a folder with lists of messages (Inbox, Sent items, Drafts, Deleted items/Trash) to the custom folder. I will show just one way. Using the Inbox as an example, here are the steps:

In the Inbox message list, arrow to a message to select it. To select multiple contiguous messages, arrow to the first message, hold down the Shift key and arrow down to select additional messages. To select non-contiguous messages, press the Control key on the first message you want to select, Down arrow past those you do not want, and Spacebar on those that you want to select. You must keep the Control key held down throughout the selection process.

1. Press Control + C to copy or Control + X to cut the selected message or messages. Most of the time, you will want to cut because one reason for having custom folders is to clean out Inbox clutter.
2. Press Control + Y to open the tree view. You will either hear “Inbox closed” or “Inbox open,” depending on whether the level 2 folders associated with it are collapsed or expanded.
3. If you hear, “Inbox closed,” Right arrow to expand it, and Down arrow or first-letter navigate to the custom folder. If you hear, “Inbox open,” Down arrow or first-letter navigate to it.
4. Press Enter to get into the custom folder.
5. Press Control + V to paste the message or messages into the custom folder.

You can perform four actions on existing custom folders – rename, copy, move, and delete. To do any of these, your focus must be inside the folder.

To rename a custom folder:

1. Starting from inside the folder you want to rename, press Alt to open the Upper ribbon and Right arrow to the Folder tab.
2. Tab several times into the Lower ribbon to the Rename folder button and press Enter.
3. Type in a new name for your folder and press Enter. The renamed folder will now reposition itself alphabetically in the tree view within its level.

Why would you want to copy or move a folder? The only reason I can think that you might want to copy a folder is if you had more than one account added to Outlook and you wanted to copy it to one of those other accounts. You might want to move a folder if you would like it to be situated at a different level in your folder structure. For example, you might decide that you want to move a folder from level one to make it a level two subfolder of your Inbox. I will only describe the steps for moving a folder.

1. Starting from inside the folder, press Alt to open the Upper ribbon and Right arrow to the Folder tab.
2. Tab several times into the Lower ribbon to the Move folder button and press Enter.
3. You land in a dialog box with the tree view. Arrow to, or first-letter to the folder for which you would like to make this folder a subfolder.
4. Tab to the OK button and press Enter.

You can delete a custom folder and all its contents if you no longer need it. If you do not want to delete some of the messages contained in this folder, copy or move them to another folder before deleting it. To delete a custom folder:

1. Starting from inside the folder, press Alt to open the Upper ribbon and Right arrow to the Folder tab.
2. Tab several times into the Lower ribbon to the Delete folder button and press Enter.
3. You will be asked to confirm that you want to move the folder to the Deleted items folder. Press the Spacebar on the Yes button to confirm. This folder now becomes a subfolder of the Deleted items or Trash folder.

### 4.4.2 Creating Rules for Moving Messages to Custom Folders

You can create rules for automatically moving messages to designated folders. For example, if you are a member of a discussion list with a high daily volume of traffic, it can be useful to automatically move messages from that list to a custom folder so you can read them later. This will avoid cluttering up your Inbox.

You can set several types of rules for moving messages. As an example, I will set a rule for moving all messages from such a discussion list to one of my custom folders. Steps are:

1. In your Inbox, place focus on a message from the relevant sender.
2. Press the Applications key, Down arrow to the Rules submenu and press Enter.
3. You land on the Always move messages from [name of sender] button. Press Enter on this.
4. This places you in a tree view of your Outlook folders. Navigate through the tree view to the custom folder where you want all messages from this sender to be moved, and press Enter.

All previous and future messages from this sender will now be automatically moved to this custom folder.

There are numerous other types of rules you can create. To explore these, in the Rules submenu mentioned in step 2 above, Down arrow to Create rule, and press Enter. This opens the Create rule dialog box where there are a series of checkboxes for designating other types of rules, including sound notifications for alerting you when a message has been moved as a result of a rule.

If you decide to delete an existing rule, do the following:

1. Starting from one of the folders in the relevant account, open the Info tab in the File Tab, Tab to Manage rules and alerts, and press Enter (the shortcut key is Alt F I R).
2. Tab several times to a list box which displays the existing rules, and Down arrow to the rule you want to delete.
3. Press the Delete key. You are asked to confirm that you want to delete the rule. Press Enter or the Spacebar to confirm.

Note that as you tab through, a Delete button appears before the list box. You can use this button to delete a rule, but only if the rule you are looking for is the most recently created one. If you have created more than one rule, it is more straightforward to ignore this button and proceed to the List box mentioned above.

Be careful about creating rules for moving messages from a sender who is important to you. If you do this, you will need to remember to regularly visit this folder. I don’t do this because I don’t trust myself to remember. But you might be different. You might think about creating a priority or VIP custom folder and then define rules to automatically move messages from a set of important senders to that folder.

## 4.5 Sorting or Arranging Messages

By default, messages are arranged or sorted chronologically, with the most recent messages received at the top of the list and the oldest ones at the bottom. You can rearrange the messages in many different ways. I often rearrange them by “from,” so they appear alphabetically with sender addresses beginning with the letter A at the top of the list and those beginning with Z at the bottom. I can then first-letter navigate, or quickly press the first several letters of the name of the sender I want. If I want to find a message from John Smith that I received about three weeks ago, it is quicker to rearrange by sender rather than Down arrow a bunch of times to find it. To rearrange messages in this way in your Inbox:

1. From within the Inbox, press Alt to open the Upper ribbon.
2. Right arrow to the View tab.
3. Tab into the Lower ribbon several times to the Arrange by button and press Enter or the Spacebar. You land on the Date button which is for arranging messages chronologically.
4. Right arrow once to the From button and press Enter. You can also simply press the F key. Messages are now arranged alphabetically from A to Z by sender.
5. Press Home to verify that the A messages are on the top of the list and the Z messages are at the bottom. If an email address starts with a number, it will be above the A messages in the list.

This only rearranges messages in the folder you are currently in, not other message list folders. When you are finished finding the messages you were looking for, return the list to the default chronological order by repeating steps one through three above, and pressing Enter on the Date button, or pressing D.

The ribbon shortcut key combination for changing the sort order to the From view is Alt V A B F (for view, arrange by, and from). To change it back to the Date view. Press the sequence Alt V A B D.

This is a lot of keystrokes. Because I use this command several times a day, I have added this command to the Quick Access toolbar to speed things up. Read about the Quick Access toolbar in Chapter 13.3.2.

Many other choices exist for sorting messages (by recipient, subject, size, attachments, etc.). If I am in my Sent items folder, I will sort by “To,” that is, who I sent messages to. Occasionally, I will sort by subject if I want to isolate a message thread. I don’t find any of the other sort options particularly useful.

## 4.6 Search and Advanced Search

You can conduct simple searches and more refined searches in Outlook. Reliability of Outlook simple searches has fluctuated greatly over the years. For several years, I didn’t waste my time searching Outlook messages. I would try to search, knowing full well that there were messages in my folders conforming to my search terms, but often came up with nothing. Searching on my iPhone worked much better. Admittedly, I have only recently started using Advanced Search, so that tool may have always been reliable. Dependability of simple searches, at least with Outlook 365, seems better these days.

Searches can be performed in all Outlook folders, but I will largely limit this discussion to messages, and start from the inbox. To Perform a simple search, press Control + E together, type in your search term, and press Enter. The number of search results will be announced. Down arrow through them and perform whatever operations you want to do with them as you would in any other message list (read, delete, reply, forward, etc.).

A simple search finds the desired text in all message fields, message folders, and attachments contained in the email account your are situated in when you start the search. When finished examining your search results, press the Escape key to return to the full list of messages in the folder where you initiated the search.

Often you are interested in only searching within the folder where you are currently situated, rather than all folders. Press Control + Alt + K, type in the text you want to search for, and press Enter.

Perform more refined searches with the Advanced Search feature. Press Control + E, Tab once to the Advanced Search button, and press Enter.

You first land in the Search in combo box with a list of folder options for conducting the search. Choices are:

* Current mailbox: all message list folders in the current account.
* All mailboxes: all message list folders in all accounts added to your Outlook app.
* All Outlook items: All folder types (message lists, contacts, calendar, etc.) in all accounts added to your Outlook app.
* Current folder: Only messages in the folder where you are currently located.

Note that this does not behave like a normal combo box. Up or Down arrow to your choice and press Enter. Pressing the Spacebar or tabbing does not lock in your selection.

Now Tab through a number of filter fields to tailor your search. Note that their order is not necessarily logical. Fields include:

* Attachments: Up or Down arrow to the Yes button if you want to include Microsoft Office (Word, Excel, and PowerPoint) attachments in your search. These are full text searches on both filenames and the text body of attachments. Press Enter on your choice. Then Tab to the Attachment contains edit box and type in your search text.
* From: Type in the email address or name to search for a specific sender. This field is not case-sensitive.
* Body: Type in here to search for specific text in the body of email messages.
* Received start and end date pickers: You can specify start and end dates for when messages were received. These are grids. Up and Down arrow to go back and forward one week. Left and right arrow to go back and forward day by day. Press the Spacebar on your choices.
* Subject: Type in here to search for specific text in the subject field of email messages.
* To: Type in the email address or name to search for a specific recipient. This field is not case-sensitive.
* Add options: Press the Spacebar here to go through a series of checkboxes to further refine your search. Among the additional options present are CC and BCC fields, importance, and several others.
* When finished specifying your filters, Tab to the Search button and press Enter. This is a rather long dialog, so it may sometimes be quicker to Shift + Tab back to the Search button instead.

Experiment a bit to get comfortable with Advanced Search. Carry out several searches to see what works best for you. In some cases, simple searches will quickly yield the results you want. In other cases, more narrowly focusing with Advanced Search is better. Note that you can also conduct simple searches in the Calendar and Contacts folders. If you know that is where you want to search, it is easier to get into one of those folders and do a simple search from there.

For a concise audio demonstration of the Advanced Search feature conducted by a member of the Boston area Visually Impaired and Blind User Group (VIBUG), activate the following link:

[Outlook Advanced Search Demo, VIBUG, May 2022](http://www.vibug.org/audio/vbg0522-advanced-outlook-search.mp3)

## 4.7 Contacts

You can create contacts for individual email addressees as well as for groups of people. In this section, I discuss two ways to do each of these.

### 4.7.1 Individual Contacts

I used to be pretty sloppy about maintaining email addresses in my Contacts folder. When I typed in the first few letters of an address in the To field, the entire address reliably appeared so that I did not need to type in the full address. I would then either press Enter or the Tab key to lock it in. For several years now, having the addresses I want to appear has become less dependable. Consequently, I have become more diligent about maintaining my Contacts list. It’s not very time-consuming, and also preferable to losing addresses and then having to ask somebody else for them.

There are two ways to create a new contact. You can create one from scratch, or you can grab it from a message you have received. The latter way is faster and easier.

To create a contact from scratch:

1. Press Control + Y to open the Contacts folder, press C until you hear Contacts, and then press Enter. You can get there more quickly by pressing Control + 3.
2. Press Control + N to open the New contact dialog box.
3. Type in the full name of the contact. This is a required field.
4. Tab past two unrequired fields (company and job title) to the File as edit combo box. By default, the contact is filed with the last name first. You can change this to first name first, or type something else in. This last possibility could be useful if the contact is a name of a person or a company with three words or more, and you want to make sure it is listed with the correct word first.
5. Tab several times to the Email edit field and type in the email address.
6. Tab one more time to the Display as edit field and type in the address as you would like it to appear when addressing a message. This is useful because when addresses autofill correctly, they will do so based on what you type in here.
7. To save the contact, press the Escape key once and you will be asked whether you want to save your changes. Press the Spacebar to confirm.

There are many more fields you could fill in, but I limit myself here to the email address.

If you have received a message from somebody, it is faster and easier to create a new contact by getting the address from a message. To do this:

1. Open a message sent to you by the person whose address you want to add to your Contacts list.
2. Shift + Tab to the From field where that person’s name and/or email address appears. Note that, even if all you hear is the person’s name, what we are about to do will still work.
3. Select the name or email address You can do this by pressing Control + A, or by pressing Home to get to the start of the From field and then pressing Shift End to select the address.
4. Press the Applications key, Down arrow to Add to Outlook contacts, and press Enter. Alternatively, after pressing the Applications key, press D to get into the following dialog more quickly.
5. You land in the Full name edit field that is pre-populated with the person’s name. Edit it if it does not appear as a full name.
6. Press the Escape key and you will be asked if you want to save the contact. Press Enter or the Spacebar to confirm.

Alternatively, you can save and close the contact by pressing Alt S. It’s that easy. The Email edit field and Display As fields have already been filled. You are returned to the address field in the message where you first selected the address. Press Escape to exit the message.

Not only is this fast, but you do not have to worry about typing in names and email addresses correctly. I have a friend with a last name that is impossible to spell, at least for me. It would take me forever to type in her name and email address correctly. But I don’t have to worry about this if I create her contact from a message I have already received from her.

### 4.7.2 Creating Contact Groups in Outlook

You can create a single contact for a group of people, thus saving you the time of having to find a bunch of individual addresses and laboriously entering each one into the To field. Use the method below for small groups of five to ten people. The groups should be stable. Members should rarely enter or leave the group. This is because making changes to an existing Contact group is complicated. For larger and more fluid groups, I strongly prefer using the Excel method described in the next section.

There is a hard way and an easy way to create a Contact Group. I will only cover the easy way.

If you have already sent a message to all the people you want to be in the Contact group, navigate to this message in your Sent items folder. Alternatively, if you have received a message that contains all these email addresses in your Inbox, prepare a Reply to all message to them, replacing the original Subject field text with “Test – please disregard.” Send the message and navigate to it in your Sent items folder. If you have neither of these, address a message to all of these people, type “Test – please disregard” in the Subject field, send it, and navigate to it in your Sent items folder. Remaining steps are:

1. Open the message and Shift + Tab to the To field where all these addresses are contained.
2. Press Control + A to select all the addresses, and Control + C to copy them to the Clipboard.
3. Press escape to get out of the message.
4. Press Control + 3 to get into the Contacts folder.
5. Press Alt to go to the Home tab of the Upper ribbon of your Contacts folder.
6. Tab to the New contact group button and press Enter.
7. In the Untitled contact group edit field, type in the name you want to give to the Contact group.
8. Tab once to Members list and press Enter.
9. Tab several times to Select members contacts and press Control + V to paste in the addresses.
10. Tab to the OK button and press Enter.
11. Press Escape and you will be asked if you want to save your changes. Press the Spacebar to confirm.
12. To test this, prepare a new message, typing in the first few letters of the Contact group name and confirm that the To field auto fills with it.

### 4.7.3 Creating Contact Groups from Excel

To address Outlook messages to larger groups, and where members frequently join or leave the group, it is easier to keep a list of the email addresses in Excel rather than using Outlook contact Groups. You can then copy the addresses from Excel and paste them into one of the Outlook address fields. Only minimal knowledge of Excel is required. Steps are:

1. Open the Excel file with the relevant email addresses listed in one of the columns.
2. Move your cursor to place focus on the cell with the first address.
3. Press Control + Shift + Down arrow together to select from this address to the last address in the column. Alternatively, you can press Shift + Down arrow repeatedly to select each individual address.
4. Press Control + C to copy the addresses.
5. Alt + Tab to the Outlook Inbox if it is already open. Otherwise, open Outlook.
6. Press Control + N to prepare a new message.
7. Press Control + V to paste the addresses in the To field. Alternatively, Tab to the BCC field and press Control + V if you want to paste them there (see Chapter 4.1.4 on how to add the BCC field to messages). Note that semi-colons are automatically placed between the addresses to separate them.
8. Prepare the rest of the message. When finished, press Alt S or Control + Enter to send it.

## 4.8 Calendar

You can use the Outlook Calendar for scheduling events. In this section, I will use the following nomenclature. An event is a collective term for appointments and meetings. An appointment is an event that you schedule for yourself only. A meeting is an event that you schedule with others. In some work settings (like the Carroll Center for the Blind where I work), use of the Outlook Calendar is required for scheduling meetings. You can also synchronize (“sync” for short) events with your smartphone if you have one. I will first cover how to access the Calendar to see what events you have on it. After that, I will discuss how to schedule events.

### 4.8.1 Accessing the Calendar

You can either navigate to the Calendar folder via the tree view, or by pressing Control + 2. There are four Calendar views that appear differently on the screen for sighted users. These are:

* Day view: the screen is filled with a single day with lines for 30 minute increments (8:00 Am to 8:30 AM, 8:30 AM to 9:00 AM, etc.). The shortcut key for this view is Control + Alt + 1.
* Work week view: the screen contains five panes for Monday through Friday, each of which has lines for 30 minute increments. The shortcut key is Control + Alt + 2.
* Full week view: the screen contains seven panes for all days of the week, each of which has lines for 30 minute increments. The shortcut key is Control + Alt + 3.
* Month View: A grid is presented with five rows of seven days (Sunday through Saturday). No time increments are visible within the days. The shortcut key is Control + Alt + 4.

For screenreader users, navigating the Day, Work week, and Full week views is exactly the same. Within a day, up and Down arrow to go back and forward by 30 minute increments. Left and Right arrow to go back a day and forward a day.

For the Month view, moving by single days is the same as for the other views: Left and Right arrowing goes back a day and forward a day. However, up and Down arrowing goes back a week and forward a week. And pressing Page up and Page down goes back five weeks and forward five weeks.

In any of these views, you can press the Tab key to go forward to the next event, and Shift + Tab to go back an event. When you do this, you will hear the name of the event, time and date, and name of the organizer. If it is a recurring event, this will also be indicated.

If you wish to delete an appointment, you can press the Delete key after tabbing to it. No confirmation request will be heard. It will simply disappear, so be careful before doing this. Steps for deleting meetings are different and covered below.

If you press Enter after tabbing to an event, you will be placed in the event’s dialog box and you can edit it. When finished editing, press the Escape key and then press Enter to confirm you want to save the revisions.

### 4.8.2 Creating Appointments

As mentioned above, an appointment is an event you schedule for yourself only. There are several ways to do this. I will cover just two of them.

1. Open the Calendar folder and press Control + Alt + 1 to access the Day View. You could also pick the Work week or Full week view, but I will stick with the Day view here.
2. Navigate to the day and time for the meeting by Left and Right arrowing to move by day, and Up and Down arrowing to move by time increments within a day. As an example, I will schedule an appointment on May 23 at 1:00 PM.
3. Press Control + N which opens the Appointment dialog box.
4. You first land in the Title edit field. Type in the name of your appointment.
5. Tab to the Start date field which is already populated with the date you navigated to in the Day View.
6. Tab to the Start time field, already populated with the time you navigated to in the Day View. If you want to change this, you can Down arrow by half hour increments. If the time is other than a 30 minute increment, you can type it in, for example 145 for 1:45 PM. You do not have to type in the colons. Outlook is usually smart enough to guess whether the time is AM or PM. But you can also type in P or A for PM or Am, as in 145p for 1:45 PM. You can also type in just the hour, for example, 3, and the field will auto-populate with 3:00 PM.
7. Tab to the End date field, already populated with the same day.
8. Tab to the End time field, populated with the time 30 minutes after the start time. Changing this time behaves similarly to the Start time field.
9. Tab past the Recurring button (which may not be present in earlier versions of Outlook such as 2016, and I will deal with recurring events later) to the Location edit combo box. Type in a location if you like. Note that this is optional for appointments.
10. Tab to the edit field where you can type in notes. this field is announced differently depending on the screenreader and Outlook version you are using. This field is optional. Note that you must Press Shift + Tab to get out of this field if you want to go back to other fields in the dialog. Pressing the Tab key will only insert one-half inch tabs into the text body here.
11. Press either Alt S or the Escape key. If you press the Escape key, you will be asked if you want to save your changes. Press the Spacebar to confirm. The appointment is now entered in your Calendar.

With the second method, you will need to manually type in start dates and time. Steps are: Here’s the second way:

1. From anywhere in Outlook, press Control + Shift A to open the Appointments dialog.
2. You first land in the Title edit field. Type in a name for the appointment.

Tab once to the Start date edit combo box which is prepopulated with today’s date. If the appointment is not for today, type the date in MM/DD/YY format. If the date is not too far off in the future, you can also Down arrow day by day to the desired start date.

Tab to the Start time edit field, and type it in, for example typing 315p for 3:15 PM.

1. Complete steps eight through eleven above.

### 4.8.3 Scheduling Meetings

In essence, scheduling a meeting involves creating an appointment and converting it into an email that you send to invitees. There are numerous ways to do this, but I will only cover the quickest way, involving use of a shortcut key to open the Meeting dialog. Steps are:

1. From anywhere in Outlook, press Control + Shift Q to open the Meeting dialog.
2. You first land in the Title edit field. Type in a name for the meeting.
3. Tab to the Required field. Type in the email addresses of your meeting invitees. These email addresses will appear in the To field of the email message you are about to send.
4. Tab to the Optional field and type in addresses of those for whom attendance is optional. Most of the time, you will probably not use this field. These addressees will appear in the CC field.
5. Tab once to the Start date edit combo box, prepopulated with today’s date. If the appointment is not for today, type the date in MM/DD/YY format. If the date is not too far off in the future, you can also Down arrow day by day to the desired start date.
6. Tab to the Start time edit field, and type it in, for example typing 315p for 3:15 PM.
7. Tab to the End time edit combo field and type it in similar to above.
8. Tab to the Location edit combo box. While technically optional, common sense dictates that you should identify a location so invitees know where the meeting will take place.
9. Tab to the edit field which becomes the message body for the email invitation. You might type in welcoming remarks, add the meeting agenda, Zoom invitation links and phone numbers, or other pertinent information. Or you might leave this field blank if invitees already have the information they need.
10. Press Alt S or Control + Enter to send the email invitation to invitees.

### 4.8.4 Responding to Meeting Requests

If you receive a meeting invitation, there are several methods for responding to the meeting organizer. The quickest and easiest is to:

1. Down or Up arrow to the email in your Inbox without opening it. Your screenreader says “meeting request” to indicate that it is not a standard email message.
2. Press the Applications key, Down arrow to Accept, and press Enter. Other choices are Tentative and Decline.
3. After pressing Accept, you land on an OK button. Press Enter on this if you wish to send a confirmation without writing a response message.
4. Otherwise, tab twice to a set of three radio buttons where you can Up or Down arrow to select one of two additional choices: Edit the response before sending, or Don’t send a response. If you choose the first of these, you will be placed in an edit box where you can type the text of a response and send it. If you choose the second option, the meeting will be moved to your Calendar and the organizer will not be notified. You might choose this option if, say, this is a mandatory meeting called by your boss and you do not want to clutter his or her Inbox with an unnecessary confirmation message.

Once you have accepted the invitation, the meeting information will be moved to your Outlook Calendar.

Alternatively, from inside the message you can Shift + Tab several times to the Accept button and press Enter.

If the meeting location and/or date and time are not mentioned in the subject or body of the meeting request message, you will of course want to know these things before accepting the invitation. To do this, open the message and Shift + Tab a few times to hear the meeting location. Shift + Tab one more time to hear the proposed date and time.

As mentioned above, if you accept an invitation, the meeting invitation is automatically transferred to your calendar and the notification message is removed from your Inbox. If you prefer the invitation message not be deleted from your Inbox, do the following:

1. Press Alt F T to open Outlook options, and Down arrow once to the Mail category.
2. Tab a bunch of times to the Delete meeting requests and notifications from Inbox after responding checkbox, and press The Spacebar to uncheck it. To get here more quickly, press Alt D twice.
3. Tab a bunch more times to the OK button and press Enter. To get there more quickly, press Alt O a few times to Other, and then Tab just a few more times to the OK button.

### 4.8.5 Recurring Events

To schedule appointments or meetings that repeat on a regular basis, you can schedule them recurrently rather than one by one. To save space, I will only cover this using the Control + Shift Q quick key option for scheduling meetings. I will set a recurrence pattern of one meeting every week.

1. Press Control + Shift Q to open the Meeting dialog.
2. Fill in meeting name, invitees, start and end date and time, location and the message body fields as outlined above.
3. If using Outlook 365, and assuming you have filled in the information above and your cursor is located in the message body edit field, Shift + Tab back to the Make recurring button and press the Spacebar to open the Recurrence dialog.
4. If you are instead using Outlook 2019 or an earlier version, from any location within this dialog, press Alt to open the Upper ribbon. You land on the Meetings tab. Tab into the Lower ribbon to the Recurrence button and press Enter to open this dialog.
5. Tab to the Recurrence pattern radio button which is weekly by default. You can up or Down arrow to other choices which include monthly, yearly, and daily. We will stick with weekly for this example.
6. Tab to the Recur every edit box which is set at 1 by default. You could type 2 or 3 over this if you wanted your meeting to recur once every two or three weeks. We will stick with 1 here.
7. Tab through the Recurrence pattern checkboxes for each of the seven days of the week. Press the Spacebar for those days you want checked.
8. Tab to the Range of recurrence radio buttons and up or Down arrow to your choice. These are: End by – Gives you the option to pick a terminal date; End after Gives you the option to pick a total number of occurrences; and No end date – Although this sounds like forever, it expires after one year, beyond which you will need to create the appointment/meeting again.
9. If you choose End by, when you Tab once, a default date calculated as either 10 or 25 occurrences (depending on your version of Outlook) from and including the start date is specified. Type in a new date if this is not the one you want. If instead you choose End after, when you Tab once, a default of 10 or 25 occurrences is specified. Type in a different number if you want.
10. a number other than the default.
11. Tab to the OK button and press Enter to lock in the recurrence pattern.
12. Press Alt S or Control + Enter to send the meeting invitation to the invitees.

How about scheduling recurrent events with a monthly pattern of some sort? I am a member of the Visually Impaired and Blind User Group (VIBUG), a Boston area group that meets from 1:00 to 3:00 PM on the second Saturday of every month. To set up this recurrence pattern.

1. After entering information for the next occurrence of the event as described above, get into the Recurrence dialog.
2. Tab to the Recurrence pattern radio button, and Down arrow to Monthly
3. Tab once to where you have a choice of two radio buttons – day or The. “Day” means some specific day of the month, for example, the 12th or 15th. “The” means the third Thursday or second Saturday of the month. For this example, we want to choose “The,” so Up or Down arrow to The.
4. Tab once to an edit combo box, whose choices are, first, second, third, fourth, and last. For this example, Down arrow to Second.
5. Tab once to a combo box listing the days of the week, and Down arrow to Saturday.
6. Tab once to an edit box where a default of one is present, indicating that this event will occur every month. If the event were to be scheduled every two or three months, you would instead type 2 or 3 here.
7. Repeat steps eight through eleven above to set terminal dates, save the appointment, and send the invitation if you are organizing a meeting.

If the recurrence pattern were every second and fourth Saturday of the month, you would need to create these as two separate events. It is not possible to create it as a single recurring event.

### 4.8.6 Canceling or Deleting Events

Steps are slightly different for canceling appointments and meetings, as well as for recurring events.

To cancel a single appointment, Tab or Shift + Tab to it in one of the Calendar views, and press the Delete key. There is no prompt to confirm. The appointment is simply deleted from your Calendar.

To cancel a recurrent appointment:

1. Tab or Shift + Tab to the appointment in one of the Calendar views, and press the Delete key.
2. You land on an OK button where you receive the following prompt: “Do u want to delete all occurrences of the recurring appointment, or just this one?”
3. To delete just this occurrence, press the Spacebar.
4. To delete the entire series, Tab twice to the Delete this occurrence radio button, Up or Down arrow once to the Delete the series radio button, and press Enter.

The above process can be confusing because the first time you Tab, you land on the Cancel button. However, this is for canceling this process, not for canceling the event itself.

The process for cancelling meetings is slightly more complicated because of the need to alert invitees of the cancellation.

To cancel a single meeting:

1. Tab or Shift + Tab to the meeting in one of the Calendar views, and press the Delete key.
2. Press the Escape key. You will receive the prompt: “Do you want to cancel this meeting?”
3. Be careful here. You land on a rather deceptive OK button. Pressing the Spacebar here will not cancel the meeting.
4. To actually cancel the meeting, Tab twice to the No, don’t cancel radio button, Up or Down arrow once to Yes send a cancellation radio button and press Enter.

To cancel a single meeting in a recurrent series of meetings:

1. In one of the Calendar views, Tab or Shift + Tab to the meeting you want to cancel and press the Delete key.
2. Press the Escape key. You receive the prompt: “Do u want to delete all occurrences of the recurring appointment, or just this one?”
3. To delete just this occurrence, press the Spacebar.
4. Be careful here. You are not finished. Press the Escape key once. You land on an OK button.
5. Tab twice to the No, don’t cancel radio button, Up or Down arrow once to Yes send a cancellation radio button and press Enter.

Meeting invitees will now receive an email alerting them to the cancellation.

To cancel an entire series of recurrent meetings:

1. In one of the Calendar views, Tab or Shift + Tab to any of the meetings in the series, and press the Delete key.
2. Press the Escape key. You receive the prompt: “Do you want to delete all occurrences of the recurring appointment, or just this one?”
3. Tab twice to the Delete this occurrence radio button, and Up or Down arrow once to the Delete the series radio button and press Enter.
4. Press the Escape key once. You land on an OK button and are asked if you want to cancel this series.
5. Tab twice to the No, don’t cancel radio button, Up or Down arrow once to Yes send a cancellation radio button and press Enter.

Invitees are now sent an email alerting them that the series of meetings has been canceled.

### 4.8.7 Dismissing Event Reminders

Once you have one or more appointments or meetings in your Calendar, When you open Outlook, reminders will pop up for events coming shortly, as well as for past events. If you do not dismiss these, repeated reminders for past events will accumulate and annoy you. To dismiss reminders, as soon as they pop up, Tab to the Dismiss button for an individual event, or the Dismiss all button for multiple ones, and press the Spacebar to dismiss them.

## 4.9 Other Folders

So far in this chapter, I have discussed the Inbox, Sent items, and Contacts folders. Other important folders worth covering are Drafts, Spam or Junk, and Deleted items or Trash. Press Control + Y to open the tree view of your Outlook folders, and navigate your tree view as outlined in Chapter 4.3.

### 4.9.1 Drafts Folder

If you have started preparing a message but don’t have time to finish and send it, you can save it to the Drafts folder by pressing Escape. You will then be asked if you want to save your changes. Press Enter or the Spacebar on the Yes button to save it to the Drafts folder. Later, you can navigate to the Drafts folder to complete the message and send it.

As mentioned in Chapter 4.3 above, if you are using a Gmail IMAP account, you may encounter two Drafts folders: an empty superfluous one at level 1 of the tree view, and the “real” one at level 2 after you open the Gmail folder. This level 2 folder is where you will find your draft messages.

As much as possible, I avoid using my Gmail Drafts folder. For many people, including me, the Gmail Drafts folder is dysfunctional, and has been this way for many years. When I go into a draft message, make my revisions, and attempt to send it, I always get the message, “The operation can not be performed because the message has been changed.” This is of course total nonsense because the reason I opened this draft message was because I intended to change it!, After hearing this, the only way I can get away from this message is to close Outlook and reopen it. This seems to be a problem unique to Gmail accounts. Check if this behavior occurs on your own computer before investing much time in composing drafts.

When this happens with my Gmail account, to complete the draft message and send it, I use a strange workaround. Rather than opening it and making revisions, I press Enter on the draft message and immediately press the Escape key without pressing any other keys. I then press Enter again, make my revisions, and send it. This usually works, but not always. Until Google fixes this longstanding problem, the best strategy is to completely avoid using the Gmail Drafts folder.

I also find editing messages a bit awkward. I prefer to prepare the body of my messages in Word and save them there, especially if they are long messages and proper formatting is important. When I am ready to send the message, I address a new message, type in a subject, copy and paste the text from my Word document into the body of the email message, and send it.

One other thing you should keep in mind if you are going to use the Drafts folder. Because you have not yet sent the message, the newest draft message you have started will not necessarily be at the top of your Drafts folder list. Do not keep an excessive number of drafts, or you may have difficulty finding the one you want. Delete most drafts you no longer need. If you have already addressed the draft message, you can sort messages by “To,” that is, who the message is being sent to, and then first-letter navigate to the intended recipient.

### 4.9.2 Deleted Items or Trash Folder

Google calls this folder “Trash,” while most other email providers call it “Deleted items.” When you press the Delete key on a message, it is moved to this folder. The message is not permanently deleted. If you want to retrieve a deleted message, navigate to the folder via the tree view, and copy or move it back to the desired folder.

With Gmail, as with Drafts, there may be a superfluous Deleted items folder at level 1 of the tree view, and a “real” one at level 2 of your Gmail folder.

You can empty the Deleted items folder using the following steps:

1. Press Alt F I to open the Info tab.
2. Tab to a combo box listing the accounts you have installed in Outlook. Up or Down arrow to the account for which you want to delete all messages, and press Enter to select it.
3. Tab to the Mailbox settings group tools submenu and press Enter.
4. Down arrow to Empty Trash or Deleted items folder and press Enter. Your screenreader will prompt, “Everything in the Trash or Deleted items folder will be deleted. Continue. Yes button.” Press Enter or the Spacebar to confirm.

To save myself the trouble of having to remember this, I much prefer assigning a quick key for doing this in the Quick Access toolbar (see Chapter 13.3.2).

### 4.9.3 The Gmail Important Folder and the Outlook Focused Inbox

For Gmail and Microsoft (Outlook.com, Live.com, Hotmail.com) accounts, it is possible to filter out a lot of commercial clutter in your message lists. Even if you are fairly diligent in redirecting these messages to your Spam or Junk folder (see the next section *on how to do this) or unsubscribing from them, many will still go to your Inbox.*

As mentioned above, the Important folder is found at level two of the Gmail account folder structure. According to Google, messages are labeled as important “**based on Google's adaptive understanding of your interests and priorities**.” This presumably has something to do with your patterns over time about which messages you open or immediately delete without opening them. *In my own case, the Important folder lists only messages from real live people, discussion lists which I frequently read, and billing information from Amazon and utility companies. These messages are still present in my Inbox. If I delete them from the Important folder, they will not be deleted from my inbox. To keep the Important folder up-to-date, every few weeks, I delete all its messages.*

The Focused Inbox performs a similar function for Microsoft account types in Outlook, but is only available for the 2021 and 365 versions of Outlook. To activate this view:

1. While in the Inbox message list, press Alt to open the Upper ribbon, and Right arrow to the View tab.
2. Tab into the Lower ribbon to the Focused Inbox checkbox and press the Space bar to check it.

Your Inbox message list will now be limited to messages from senders similar to those mentioned above for the Gmail Important folder. Repeat the above steps to return to the full list of inbox messages.

### 4.9.4 Spam or Junk Folder

Outlook automatically redirects messages it determines to be nuisance emails to your Junk or Spam folder. Gmail accounts call this folder “Spam” while most other account types call it “Junk.” On occasion, Outlook mistakenly places messages there that you actually want in your Inbox. It is a good practice to visit your Junk or Spam folder every few days to doublecheck if important messages have not been mistakenly put there. You should also delete all unwanted messages to clean up this folder.

For senders whose messages you do not want diverted to the Junk folder, Options exist for preventing this. You can also block certain senders whose messages you don’t want landing in your Inbox. You can do this from the Inbox, Deleted items or Junk folder. Steps are:

1. Up or Down arrow to a message from a relevant sender.
2. Press the Applications key, Down arrow to the Junk submenu, and press Enter to open it. This submenu is referred to as “Junk” even if your account type calls it “Spam.”
3. Down arrow to the appropriate option and press Enter. Choices are block sender, never block sender, never block sender’s domain, and never block this group or mailing list. If you are in the Junk folder, “not junk” is another option. If you choose this last option, you will be asked for confirmation to move the message back into the Inbox.

I have not found it to be an airtight guarantee that such designations will stick in the future. For senders I do not want to block, overkill may be a wise strategy. Select all three options: Never block sender, Never block sender’s domain, and Never block this group or mailing list. Try the Not junk option also. Even then, don’t assume it will always work. The best strategy is to visit this folder every few days to be sure that messages from individual senders and mailing lists who matter to you are not being diverted there.

## 4.10 Syncing Outlook Account Data Across Devices

Syncing account data allows you to use both your computer (or computers) and smartphone to manage email messages, Calendar events and phone and email contacts. It is convenient to read, prepare, and delete email messages on one device and see all those changes reflected on your other devices.

With the iPhone, it is quick and easy to ask Siri to schedule events and have them appear on the native Calendar app. Because my iPhone is always with me, I can get reminders of upcoming events and check my Calendar from anywhere. I prefer using my Outlook Calendar on the PC for inviting people to meetings, accepting invitations, and putting Zoom meeting links into the Calendar.

It is also advantageous to have your email contacts synced across devices. This makes it easier to make phone calls, prepare emails, and is also a good way to back up your contacts to the Cloud so that you do not lose them when you get a new computer or phone.

Yet figuring out how to make all this work correctly can be baffling and frustrating. I limit discussion here to Outlook accounts, Google accounts, and iPhones. Here are some important things you need to know to successfully sync data.

First, folder data syncing behavior varies. For email folders (Inbox, Sent items, Trash, custom folders, etc.), these data are automatically saved to the Cloud if you use a Microsoft exchange account in Outlook. These include your Microsoft account, as well as Hotmail and live.com accounts. This is also the case if you add your Gmail account to Outlook as an IMAP account. Calendar and Contact folder data behave differently. In the next subsection, I cover Outlook syncing requirements. Discussion of iPhone syncing procedures follows.

### 4.10.1 Syncing Considerations in Outlook

Syncing your Calendar events and contacts across your devices requires that you add your Microsoft account to Outlook because only a Microsoft Exchange type of account is able to sync across devices. If you are like many people who have only added a Gmail, Comcast or other non-Office account to Outlook, you will need to ad this account. For non-MS Office Exchange accounts, you will find that the Calendar and Contact folders at level one of the tree view says, “this computer only,” meaning that syncing is not possible. For some accounts, there will not even be a level one Calendar folder. Syncing will not be possible with these accounts either.

There are a couple of exceptions to this rule. If you are using a paid Google Workspace account, Gmail Calendar information can be synced across devices. This is my situation. When I accept meeting invitations from both my work and personal Gmail Inboxes, they appear in my respective online Google work and personal Calendars, as well as on my iPhone.

It is also possible to purchase third party software to sync Calendars, but I will not cover this here.

This leaves you with the following options to consider:

* Add your MS Office account to Outlook and use its Calendar and Contacts folders to store this information, thus allowing you to sync across devices.
* If you have a paid Google Workspace account, use its level one Calendar and Contacts folders as the repositories for this information. Its Calendar will work for meeting invitations you have received in both your work and personal Gmail Inboxes.
* If you use the online Google Calendar (see Chapter 12.5) and prefer continuing to use it, the Outlook Calendar may not be worth the bother. Either accept meeting invitations using your online Gmail account or copy and paste meeting information from Outlook to events you create online with Gmail.
* If your primary email client is Outlook, consider adding your Microsoft account to Outlook to preserve your contacts in the Cloud and to be able to access them on your iPhone.

### 4.10.2 Syncing on the iPhone

To successfully sync with your iPhone, you need to add the email account you have decided to use with Outlook to your Mail, Calendar, and Contacts settings.

To add an account to Mail, open Settings/Mail/Accounts/Add accounts. Then choose the correct account type. Choices include Microsoft Exchange, Google, and several others. Then type in your email address and password. Once added, you can toggle on or off Mail, Contacts, Calendar, and a few other things. This step must be done first.

If you toggle on Contacts, you can now find them in one of the lists appearing in the Contacts app, as well as in the Contacts tab of the Phone app.

Assuming you toggled on Calendar above, To add the account to the native iPhone Calendar app, open this app and double tap on the Calendars button at the bottom of the screen. If the account appears here, double tap on it to select it. If it does not appear, there is an Add Calendar button near the bottom of the screen. Double tap there and add it.

If you are like me, preferring to quickly add events to your iPhone using Siri rather than going through the tedium of opening the Calendar app and typing in the information, go to Settings/ Calendar/Default Calendar, and select the same email account as above. When you ask Siri to schedule events, they should now appear on all your devices. On your iPhone, the account used for creating the event is identified for each meeting.

After completing these steps, experiment by adding test events and contacts to Outlook and seeing if they show up on your iPhone. Then add test events and contacts in the other direction. Ask Siri to create events on your iPhone and see if they show up in both the iPhone and Outlook Calendars.

### 4.10.3 Other Syncing Issues

* If you have multiple accounts in Outlook, and you receive and accept an invitation, but the meeting information is not moved to your preferred Outlook Calendar folder, go to the Trash or Deleted items folder of the email account from which you accepted the invitation, find the deleted invitation message,, copy and paste it into the Inbox of the account associated with your preferred Calendar, and accept the invitation from there. The meeting information should now be properly synced across your devices.

If you have both work and personal accounts in your Outlook, Just be careful to prepare and send meeting invitations from the correct account to keep work and personal affairs separate. Also, if syncing problems seem to involve a work account, ask your network administrator for assistance. There may be issues related to granting permission to view and edit Calendars and how work and personal Calendars are managed.

Here are two useful articles for learning more about the ins and outs of syncing and account data backup. First, from Microsoft Support:

[Sync basics - what you can and cannot sync](https://support.microsoft.com/en-us/office/sync-basics-what-you-can-and-cannot-sync-5537d587-4930-4ac2-b044-3568509b1294#:~:text=Sync%20basics%20-%20what%20you%20can%20and%20cannot,and%20their%20...%20%204%20more%20rows%20)

And a comprehensive blog authored by Svetlana Cheusheva:

[How to back up Outlook emails automatically or manually](https://www.ablebits.com/office-addins-blog/backup-outlook-emails/)

## 4.11 Other Useful Tools and Commands

### 4.11.1 Detecting the Number of Messages in a Message List

It used to be consistently possible to open the Status bar and hear the number of messages in your Inbox or other folders containing a list of messages. This still might work for some people, but is unreliable for others. I have found that the easiest and most dependable way to do this is to place your focus on a message in the message list, and press the following keystrokes:

* JAWS and Narrator: Insert + Up arrow, Insert + Tab, or Insert + Numpad 5. With the last of these only Caps lock works with Numpad 5.
* NVDA: Insert + Tab or Caps lock Numpad 5 (as with Narrator, Insert does not work as a modifier key). .

With one exception, you will first hear all the typical information you hear when Down arrowing through a message list (name of sender, subject, and date and time). You will then hear the message number and finally the total number of messages in the list (example: one of 150).

The one exception is when you press Insert + Numpad 5 with JAWS. In this case, you hear only the read/unread status and number of the current message, and the number of messages in the list (example: message read, 10 of 405).

### 4.11.2 Turning Off the Reading pane

The Reading pane causes message lists to misbehave in a couple of ways. It can visually hide parts of messages, causing them to read incorrectly. Down arrowing can make the unread message labels disappear even if you have not opened them. If you encounter either of these problems, you will want to turn off the Reading pane. To do this:

1. Press Alt to open the Upper ribbon, and Right arrow to the View tab.
2. Tab to the Reading pane submenu and press Enter (the shortcut key is Alt V P N).
3. Down arrow to Off and press Enter or the Spacebar to uncheck it. If it is already unchecked, pressing Enter or the Spacebar will not uncheck it.

### 4.11.3 Turning Off New Message Notifications

By default, whenever a new message arrives in your Inbox, your screenreader will announce the sender and subject. This may be distracting and can hinder your privacy if people nearby hear the announcement. To turn this off:

1. Press Alt F T to open the Options categories menu
2. In the Category list, Down arrow once to Mail (do not press Enter).
3. Tab several times to the Message arrival sound checkbox which is checked by default. I like to keep this one on. You will hear a “boing” when messages arrive.
4. Tab to Show an envelope icon in the Taskbar checkbox and press the Spacebar to uncheck it.
5. Tab to the Display a desktop alert checkbox and press the Spacebar to uncheck it.
6. Shift + Tab back to the OK button and press the Spacebar. You could Tab instead, but this is an extremely lengthy dialog box. Shift + Tabbing is much faster.

### 4.11.4 Message Preview

Outlook’s Message Preview mode allows you to go through a message list and hear the first several lines of message text in addition to standard message header information (sender, subject, date and time, and message size.), thus giving you a quick idea of message content. It can also save lots of time because you no longer need to open short messages to read them. Nor waste time opening messages that you would otherwise have deleted as soon as you heard a bit of the text.

Enabling Message Preview involves adding a new column to the table where the list of messages are arrayed. Steps for enabling Message Preview are:

1. While in the message list for the folder you want to enable preview mode, open the View tab, Tab to the Add columns button, and press Enter. The ribbon shortcut is Alt V A C.
2. Tab to Auto-forwarded which is the first item in a list of message fields.
3. Press M a few times to first-letter navigate to Message.
4. Tab twice to the Add button and press Enter, thus adding an additional column to each line in your message list.
5. Tab to the OK button and press Enter.

The new column wit Message Preview is now added, but when you listen, you will notice a problem. Message Preview is last in the reading order, meaning you will have to first hear all the rest of the message header information before hearing the preview. If you keep it this way, it will take an annoyingly long time to hear the preview, thus defeating the whole purpose. To resolve this, return to the Add columns dialog and move the preview up in the reading order. My preference is to have it read third, after sender and subject. Steps for making this change are:

1. Press Alt V A C to open the Add columns dialog.
2. Tab to “Not selected Importance,” the first item in the list of currently displayed columns. (Message is now present at the bottom of this list because we added it earlier).
3. Down arrow or press M to first-letter navigate to Message. It will probably be the tenth item in this list of ten items.
4. Tab once to the Move up button and press Enter. If you Shift + Tab back once, you will notice that it is now the ninth of ten items.
5. Tab once and press Enter to move it up again once in the sequence. If you Shift + Tab back once, you will notice that it is now the eighth of ten items.
6. Tab to the OK button and press Enter.

Now listen to a message in the list, and reading order should now be sender, subject, Message Preview , date and time, and message size.

A Move down button is also present in the dialog. You can also find a Remove button just before this list if you want to delete a field. Experiment a bit to figure out your preference.

If you want to apply this view to additional folders, steps are:

1. While in the folder where you added Message Preview , go to the View tab, Tab to the Current View submenu, and press Enter.
2. Down arrow to Apply current view settings to other folders, and press Enter.
3. This opens a tree view of your folder structure with checkboxes for each folder and subfolder. Press the Spacebar on those folders to which you wan to apply this new view which includes Message Preview .
4. The next tab allows you to apply this view to all subfolders of any folders you have checked. But see below on why you should not do this.
5. Tab to the OK button and press Enter.
6. Navigate to one of the folders you think you have chosen and verify that the preview now appears.

Do not choose the apply current view to all subfolders option because you are presumably starting this process in your Inbox where the From field is the first header field. Applying your Inbox view to other account subfolders will mess up your Sent items folder. The From field will replace the To field, and you will only see that all messages are sent from you, which is useless. Therefore, either judiciously check the correct checkboxes in the tree view, or add the Message Preview column one folder at a time.

If you decide you no longer wish to use Message Preview in a folder where it is enabled, remove it as follows:

1. Press Alt V A C to open the Add columns dialog.
2. Tab to “Not selected Importance,” and press M to first-letter navigate to Message.
3. Shift + Tab once to the Remove button and press Enter.
4. Tab to the OK button and press Enter.

Message Preview is a real game changer because anything you can do to save time and keystrokes when plowing through your email inbox every day is worth trying out.

### 4.11.5 Flagging Messages

Like me, you may be guilty of sometimes telling yourself that a message is important for reading later or taking some follow-up action, but then forgetting to do it. Flagging messages and later filtering them when you have more time to find them can help you break this bad habit. Relevant keystrokes can be found in the ribbons and Applications key.

To flag a message for follow-up later, with your focus on it in the Inbox, press the ribbon shortcut key combination Alt H U M. Alternatively, press the Applications key, Down arrow to the Follow up submenu, and press Enter twice (twice because Flag message is the first item in this submenu). Now when you Up or Down arrow through your Inbox, your screenreader will announce “red flag.”

To unflag a flagged message, the ribbon shortcut key combination is Alt H U E. If using the Applications key, open the Follow-up submenu mentioned above, Down arrow once to Clear flag, and press Enter.

Getting a list of flagged messages in your Inbox involves using the Filter command in the Home tab of the ribbon. The ribbon shortcut key combination is Alt H L F. When finished with this filtered list, press Escape to return to your unfiltered Inbox.

### 4.11.6 Creating Signatures

A signature is text that appears at the bottom of every message you send, or in other words, a footer. In a job setting, signatures are commonly used to display contact information. People sometimes add signatures with a few lines of a favorite song lyric or some catchy quote. I don’t much care for this latter type of signature, being usually too smarmy for my taste. Constant repetition from the same person gets old fast. Never use such signatures in professional and academic settings. Contact information is the only acceptable type of signature in these contexts.

While it is possible to format text and insert it into the Signature dialog box, it is much easier to first prepare it in Word. Here are the steps:

1. Prepare your text in Word, press Control + A to select all, and press Control + C to copy the text to the clipboard.
2. Open Outlook, and press Alt F T to open the Options category list.
3. In the Category list, Down arrow once to Mail.
4. Tab several times to the Signatures button and press the Spacebar. This opens the Signatures dialog, landing you on an OK button that you do not want to activate yet.
5. Tab to the New button and press the Spacebar. Focus is placed in the Name edit field.
6. Type in a name for your signature (for example, “Work” if you are creating it for your job), and press enter.
7. Tab to the 'new messages' combo box. Down arrow to the name of your new signature. There is often a delay here, so you may need to Down arrow several times until you hear it. This will add the signature at the bottom of all new messages you prepare.
8. Tab to the 'replies and forwards' combo box. Down arrow to the name of your new signature. Here too, there might be a slight delay. This will add the signature at the bottom of all replies and forwarded messages you prepare.
9. Tab multiple times to the Edit Signature edit field, ignoring all the formatting options. It is just before the OK button.
10. Press Control + V to paste your signature into this edit field.
11. Tab to the OK button and press the Spacebar. Focus will be back in the Options dialog box.
12. Press Escape to exit this dialog.

To test that your signature has been added, press Control + N to prepare a new message. Tab to the body of the message and Down arrow. The signature should now appear at the bottom of the message.

To delete a signature that you no longer want:

1. Press Alt F T to open the Options category list.
2. Down arrow once to Mail, tab several times to the Signatures button, and press the Spacebar.
3. Tab to the Select signature to edit list box, and place focus on the signature you want to delete.
4. Tab to the Delete button and press Enter. Confirm that you want to delete it.
5. Press Escape to exit this dialog.
6. To test that this signature has been deleted, press Control + N to prepare a new message. Tab to the body of the message and Down arrow. The signature should no longer appear.

### 4.11.7 Saving Messages

For those messages you consider especially important, it is a good idea to save them to your computer, somewhere external to Outlook. While custom Outlook folders are also a good place to store messages for later use, I don’t entirely trust messages to remain there permanently. Too many times, messages have inexplicably disappeared from my custom folders. Saving them elsewhere is the best way to avoid these unpleasant surprises.

You can save messages in different file formats, the most common being .MSG and .TXT. The MSG format saves only the message body text in HTML format. In contrast, the TXT format saves the complete message, including the message header (sender and recipient email addresses, time stamp, and subject line), as well as the message body. This is my preferred format for saving Outlook messages. Steps for doing this are:

1. With focus either in an open message or on it in a message list (inbox, sent items, etc.), press F12 to open the Save as dialog.
2. You land in the Filename edit field, where the message subject line followed by the default .MSG Outlook file extension appears.
3. Tab once to the Save as type combo box, and Up arrow to Text Only (\*.txt).
4. Shift + Tab once to verify that the file extension has changed.
5. Press Enter to save to the default folder location, or Shift + Tab back to change the save location, as explained in Chapter 2.10.1.2.

When you navigate to the TXT file and press Enter, it will open in Notepad, which is the default app for opening this file format. If you would rather open it in Word, use the Open with command accessed via the Applications key.

### 4.11.8 Automated Out of Office Messages

People often prepare Out of Office reply messages when they are going to be absent from work due to vacation, sick leave, or some other reason. There are several ways to do this, and this depends in part on the type of email account you have at work:

* If your workplace operates in the Microsoft environment, your work email account is a Microsoft Exchange account, and you will do it through the Info tab in Outlook.
* If your workplace operates in the Google Workspace, you can set this up online. This method is covered in Chapter 12.6.6.
* You can set it up in Rules and Alerts. Use this method for other account types.
* I will cover the Microsoft Exchange account and Rules and Alerts methods in this section.
* Before starting the process of creating your auto-reply message, it is easier to draft the text of your message in Word, and copy it to the Clipboard for eventual pasting.
* In the Auto-reply dialog. Here’s a typical example: “I will be out of the office until [insert date] an unable to respond to your message until then. If your message is time-sensitive, please contact [colleague name and contact information].”
* You may wish to save this text in Word so you do not have to retype it the next time you need to prepare an out of office reply.

#### 4.11.8.1 Microsoft Exchange account Method

* Steps for creating an out of office reply with a Microsoft Exchange account are:

1. Starting in one of the folders in your Exchange account, press Alt + F + I to open the Info tab.
2. Tab to the list of accounts where your work account is selected.
3. Tab to the Automatic replies button and press Enter.
4. You land on the Do not send automatic replies radio button, Down arrow once to the send automatic replies radio button.
5. Tab once to the Only send during this time range: checkbox and press the Spacebar to check it.
6. Tab to the Start date edit box, and type it in MM/DD/YYY format.
7. Tab to the Start time edit box and type it.
8. Tab to the End date edit box and type it.
9. Tab to the End time edit box and type it.
10. Tab to the Auto-reply message for people inside my organization edit box and paste your message from the Clipboard.
11. To add a message for people outside your organization, press Control Tab. If this option does not appear, you will need to contact your network administrator.
12. Tab to the OK button and press Enter.
13. Press Escape to exit the Info tab.

* The auto-reply message will be disabled on the end date and time that you specified when creating it. If you want to disable it before then, return to the Info tab and tab to the Turn off button and activate it.

#### 4.11.8.2 Rules and Alerts Method

This method involves first creating a message template and then creating a rule for it to be automatically sent. Delete the rule when it is no longer needed. As mentioned above, draft the text first in Word and save it.

To create an Outlook message template:

1. Starting in the account inbox for which you wish to create the out of office message, prepare a message, copying and pasting text from the Word file in the Subject field and body of the message. Do not address the message.
2. Press F12 to open the Save as dialog where you land in the filename edit field pre-filled with the text you just inserted in the Subject field, and a.MSG file extension.
3. Tab once to the Save as type combo box, and Up or Down arrow to Outlook Template (\*.oft)
4. Shift Tab once back to the Filename edit field, and press Enter to save it.

an.OFT extension (standing for (“Outlook file template), is saved in the default folder for templates, a rather long and convoluted file path which starts in your user folder.

After creating the template, you need to create a rule for using it. Steps are:

1. Starting from the account from which you want to send an auto reply message, press Alt F I to open the Info tab, tab to Manage rules and alerts, and press Enter.
2. You land where it identifies the folder to manage which should be the folder where you started from. Tab to the New rule button, and press Enter.
3. You land in the Step 1 Select a template combo box. Down arrow to Apply rule on messages I receive.
4. Tab to the Next button and press Enter.
5. You land on Select a condition with a list of checkboxes. Down arrow to Sent only to me, and check this checkbox, or to the Where my name is in the To box and check this one, depending on your preference. You may decide to check additional checkboxes if you like.
6. Tab to the Next button and press Enter.
7. Under Step 1: select action, Down arrow to the Reply using a specific template checkbox and check it.
8. Tab to Step 2 edit the rule description, Down arrow to Tab to the Select a Reply Template Combo box, and press Enter.
9. You land in a Look in combo box. Down arrow to User templates in file system and press Enter.
10. You should hear the file path to your template. For example, I hear “ reply using C:\Users\david\AppData\Roaming\Microsoft\Templates\Out of Office Reply.oft.”
11. Tab to the Finish button and press Enter. You then land on an OK button. Press Enter on this too.

If you have added multiple accounts to your Outlook, check that you have successfully created this rule by sending a message from one of your other accounts to this one. Hopefully, you will receive the autoreply message in this other account within a few seconds. If you don’t have multiple accounts, ask a colleague to send you a message and confirm that they receives the auto reply.

Steps for deleting the rule when you have returned to the office are:

1. Starting from the account where you created the rule, press Alt F I to open the Info tab.
2. Tab to Manage rules and alerts and press Enter.
3. Tab to the Delete button and press Enter. If this is the only rule you have created for this account, you will land on it. Otherwise, Up or Down arrow to it.
4. This opens a deletion confirmation dialog which says, “Delete rule where my name is in the To box,” or whatever the rule type is that you selected earlier.
5. Press Enter on the Yes button to confirm.
6. Tab a number of times to the OK button and press Enter.

Be sure to verify that you actually deleted the rule. If you have more than one account in your Outlook desktop client, send a message from a different account to the account were you created the rule. Wait a minute or two and be sure you no longer receive the out of office message. If you don’t have multiple accounts added to your Outlook, confirm with a colleague. If you do not verify, you risk continuing to send out of office messages to people trying to contact you.

If it is now time to leave the office again, and you have saved your message text in a Word file as advised above, replace the initial template with a revised one as follows:

1. Copy and paste the original text into the subject and Message body fields, making whatever modification you need, presumably at least changing the return date.
2. Press F12 to open the Save as dialog where you land in the filename edit field pre-filled with the text in the Subject field.
3. Tab once to the Save as type combo box, and Up or Down arrow to Outlook Template (\*.oft)
4. Tab to the Save button and press Enter.
5. This will open a Confirm Save as dialog which says, “Out of Office Reply.oft already exists. Do you want to replace it?”
6. Tab to the Yes button and press Enter.

Repeat the above steps for creating a new rule.

### 4.11.9 Reverse Sort

By default, message lists like those in your Inbox or sent items folder are arranged chronologically with the newest messages at the top of the list and the oldest ones at the bottom. However, you may open your Inbox some day and discover that the order is now “upside down” for some mysterious reason. If this happens, you can quickly fix it by using the Reverse sort command which is found in the View tab of the ribbons. Press Alt to open the Upper ribbon, Right arrow to the View tab, Tab to the Reverse Sort button (shortcut key: Alt V R S), and press Enter. Some people prefer having their oldest messages arranged at the top of the list. If you are one of these rare individuals, use the Reverse sort command to get them in your preferred order.

### 4.11.10 Expanding and Collapsing Groups

It is useful to know about this command for two reasons. First, if you open Outlook one day and find that today’s messages are “collapsed,” you will want to know how to undo this so you can access them. Second, it can be a useful housecleaning tool for speeding up the chore of deleting large numbers of unwanted messages.

It sometimes happens that you open your Inbox and hear “today collapsed.” You then Down arrow, and only find messages from the day before or earlier. Fortunately, this is easy to fix. Press either Enter or the Spacebar to expand it. You can now Down arrow through today’s messages and read them.

The Expand/collapse groups command can be useful for speeding up the process of clearing unwanted messages out of your folders. By default, message lists are expanded.

To collapse groups:

1. Press Alt to open the Upper ribbon, and Right arrow to the View tab.
2. Tab to the Expand/collapse groups submenu (the shortcut is Alt V E) and press Enter. The four submenu choices are: Collapse this group, Expand this group, Collapse all groups, and Expand all groups.
3. Down arrow to Collapse all groups and press Enter.

How collapsed groups appear depend on how they are initially sorted. If sorted by date and today happens to be Tuesday, collapsed groups are listed as follows: today, yesterday, Sunday, last week, two weeks ago, three weeks ago, last month, and older.

If you are OK with deleting all messages in a particular folder that are more than one month old, this can be quickly done by Down arrowing to the Older collapsed group, pressing Delete, and then Enter to confirm moving them to the Deleted items or Trash folder.

If a message list is initially sorted by sender (See Chapter 4.5 on how to do this), they are collapsed alphabetically with the name of the sender, number of total messages, and number of unread messages in the group indicated. For example, as you Down arrow, you will hear: From: Amazon.com: 6 item(s), 5 unread; From: Andrew Jones: 11 items; and so on.

My favorite example concerns a student I had several years ago who had allowed about 20,000 messages to accumulate in his inbox. We first sorted his messages by sender and then collapsed all the groups. He then navigated to the collapsed Facebook group which contained about 8,000 messages. With one or two keystrokes, he moved all those messages to his trash folder. The process took about ten minutes because it takes time to move such a massive number of messages from one folder to another, but that was much better than deleting them one by one.

When finished sorting by sender, and/or collapsing all groups, repeat the above steps to return to the default with all groups expanded and sorted by date.

On occasion, people find that the Expand Collapse submenu command is grayed out or unavailable. If this happens to you, do the following to make it appear:

1. Open the Arrange by submenu in the View tab (shortcut: Alt V A B).
2. Up arrow twice to Show in groups and press the Spacebar to check it.

### 4.11.11 Changing the Outlook Start (or Default) Folder

If you are using more than one email account with Outlook, and want to change the inbox that initially appears when you open the app (called either the “start” or “default” folder), do the following:

1. Press Alt F T to open Outlook options.
2. Down arrow or press A to the Advanced category.
3. Tab to Outlook Start and exit browse, and press Enter.
4. You land in the tree view of your Outlook folders. Using the same keystrokes outlined in Chapter 4.3 above on navigating your folder tree view, navigate to the desired folder, and press Enter.
5. Shift + Tab back several times to the OK button and press Enter.
6. To verify that Outlook opens in the new folder, press Alt + F4 to exit Outlook and reopen the app.

## 4.12 Exploring the New Outlook

Microsoft has been developing a new version of Outlook since 2023. While it initially had serious accessibility problems, as of early 2025, it is now mostly accessible. It is called the “New Outlook” while the existing version is called “Outlook Classic.” The Windows 10 and 11 native Mail app is no longer available. It too is rather confusingly called “Outlook.” This new native version will not be covered here.

Because of initial accessibility problems, many screenreader users who have heard of the New Outlook have been worried. Will Outlook Classic suddenly go away? Will screenreader users no longer have access to the familiar Outlook they have been using for years, forcing them to learn how to use Gmail online or some other unfamiliar application? The answer to both of these questions is a definitive no. Microsoft will continue to support Outlook Classic until 2029, and has fixed all major screenreader accessibility problems while continuing to address minor ones.

The first question you might ask is, “Should I switch to the New Outlook and abandon Outlook Classic?? There is no imperative to do this any time soon. Do it when you are ready or come to the personal conclusion that it fits your needs better than the classic version. This might not be the case right now, but as Microsoft continues to refine the New Outlook, you might find that there are advantages to switching over. Or you can go back and forth if you think the New Outlook handles some functions better than Outlook Classic.

The purpose of this section is to allay the above fears and provide guidance to those who wish to explore the New Outlook. It is not meant to be exhaustive, but can help you in getting your feet wet. I only discuss its use with Microsoft 365 because that is the only license type to which I have access.

### 4.12.1 Switching Between Classic and New Outlook

It is quick and easy to switch between the two versions. While preparing this section, I went back and forth many times.

To switch to the New Outlook:

1. In Outlook Classic, press Alt to open the Upper ribbon.
2. Tab once or twice to the Try the New Outlook button and press the Spacebar.
3. You land on the Switch button. Press the Spacebar again.
4. Press Insert + T to hear the title of the window, which is “Mail” and your email address. You are now in your default inbox for the New Outlook.
5. To switch back to Classic, press Alt which opens the New Outlook Upper ribbon. The first tab is the Home tab. In the Home tab, tab several times to the Try the new Outlook Toggle switch which is on. Press the Spacebar here.
6. A feedback dialog opens asking why you want to switch back. Tab a bunch of times to the Skip feedback button and press Enter and you will be back in Outlook Classic. For me at least, the first ten or so tabs are silent, so don’t worry as long as you eventually hear something.

### 4.12.2 Ribbon Menu Navigation and Initial Settings You Should Change

Like Classic Outlook, the New outlook has ribbon menus. However, Lower ribbons are navigated differently. Starting from the Inbox message list and similar to Classic Outlook, press Alt to open the Upper ribbon. Right and Left arrow to move from tab to tab along the Upper ribbon. Down arrow once to the first item in the Lower ribbon, and then Right arrow through the Lower ribbon commands for that tab.

You can also tab a few times to find a number of commands that will e the same, regardless of which Upper ribbon tab you are starting from. More on some of these commands later.

Your New Outlook experience will be better if you change two settings right off the bat. Steps are:

1. Starting from your Inbox, press Alt to open the Upper ribbon and Right arrow to the View tab.
2. Down arrow once to the View settings button, but do not activate it.
3. Right arrow once to the Conversations button menu and press the Spacebar.
4. Down arrow to Show each message separately and press the Spacebar to check it. This registers your change and exits you out of the ribbons.
5. Press Alt again, landing you back on the View tab. Similar to Outlook Classic, it remembers which tab you were last on.
6. Down arrow once to the View settings button, Right arrow to the Reading pane button menu, and press the Spacebar.
7. Down arrow to the Hide Reading pane radio button and check it.

Similar to Outlook Classic, Upper ribbon tabs differ depending on the window you are in. Here is a quick listing of several of these tabs and commands appearing in their Lower ribbons:

While in a message list like your Inbox:

* Home tab: New, Archive, Delete, Reply, Reply all, Forward, Flag
* View tab: Settings (for accessing all settings), Conversations, Preview, Sync, Ribbon (for switching between Simplified and Classic ribbons), Reading pane.
* Help tab: Help button, Tips, Support, Feedback. These same options appear in Help tabs for all folders.

While in the Message preparation window after pressing Control + N:

* Insert tab: Attachments, Links, Signatures,
* Format tab: Fonts.
* Options tab: Editor (for spell check), Check accessibility, Show BCC, Show CC, Request receipt, Importance, Save draft.

I will cover the Lower ribbon options for the Calendar folder in the subsection on the Calendar.

I will also say more below about how to access the full array of Settings, as well as how to access some of the more useful ones.

### 4.12.3 Accessing Keyboard Shortcut Lists

A good place to begin your exploration of the New Outlook is checking out the lists of keyboard shortcuts. If you are familiar with Classic Outlook, you will find that many keystrokes are the same. Different lists appear depending on what folder you are in when you open the lists. To do this from your Inbox:

1. Toggle off the JAWS Virtual PC cursor (Insert + Z) or the NVDA Browse mode (Insert + Spacebar).
2. Press the question mark. You will hear that a modal dialog opens.
3. Toggle back on the JAWS Virtual PC cursor or the NVDA Browse mode.
4. Down arrow to read the keystroke combination line by line. You can also navigate by heading to hear categories. For example, from the Inbox, heading three categories include: Write email, Email list, Read email, Go to, and Email actions.
5. When finished, activate the Close button. You can also Alt Tab away from the window and return to it. You will land back in the Inbox.
6. Toggle off the JAWS Virtual PC cursor or the NVDA Browse mode if that is your preference. Otherwise, leave it on.

If starting from your Inbox, keyboard shortcuts listed are only for Inbox actions. To explore shortcuts for the Calendar, press Control + 2 to open that folder and repeat the steps above to access keyboard shortcuts for Calendar actions. To access keyboard shortcuts for the Contacts or People folder, press Control + 3 and repeat the above steps.

### 4.12.4 Message and Folder Basics

Many keystrokes are the same in New Outlook and Outlook Classic. Most of the time you can keep the JAWS Virtual PC cursor or NVDA Browse mode on, but there will be times when you will be required to toggle them off. When required, I will note this below. You can also experiment to see which works best for you. Remember that these toggles are Insert + Z for JAWS and Insert + Spacebar for NVDA.

Once you switch screenreader cursor modes as above, it is useful to then press Control + Shift + I so your inbox behaves correctly. Focus will be on the top message in the inbox and you can Down arrow to other messages. Or if you begin pressing the Tab key instead, it will move you through various buttons near the top of the window.

In the inbox, try the following keystrokes:

* All basic keystrokes for reading, preparing sending, replying to, and forwarding messages are the same as with Outlook Classic.
* Down and Up arrow to move within message lists. Press Control + Home to get to the first message in the list and Control + End to go to the last one.
* Control + Y for opening the folder tree view, and the various arrow keys for moving between and within tree view levels.
* Moving between folders: Control + 1 to go to the last folder you were in with a list of messages, Control + 2 to go to the Calendar, and Control + 3 to move to the People or Contacts folder.
* It is easy to Attach files to a message you are preparing. Similar to Outlook Classic, first select and copy the file or files you wish to attach, using standard file management keystrokes. Then paste them while in the body of the message you are preparing. As with Outlook Classic, from the message body, Shift Tab once to verify that the attachment or attachments are there. Then send the message.
* Opening attachments you have received, as well as saving them to your PC is a bit more complicated than in Classic where you can copy and paste. To save an attached file you have received:

1. Open the message, Shift Tab to the More actions button menu, and Spacebar to open it. Alternatively, you can shift tab to the filename to select it and press the Applications key to get the options below.
2. Down arrow to Save as and press Enter. This opens the standard Save as dialog.
3. Choose where you would like to save the file, and after saving, access it from there.

* One of the options is Copy, but as of early 2025, this did not work for me.
* To open an attachment from within Outlook:

1. Open the message, Shift Tab to the More actions button menu, and Spacebar to open it.
2. Press Enter on Open. If an Office file like Word, it will specify the correct app. If some other file type, it will only say Open.

* There is also a Preview option, but this involves several clunky steps. Opening the file is more straightforward.

### 4.12.5 Settings

Earlier, I covered a couple of initial settings you should change. Here I will discuss accessing the full array of Settings, and some of the more useful ones you may wish to change. To access Settings:

1. Starting from your Inbox, press Alt to open the Upper ribbon and Right arrow to the View tab.
2. Down arrow once to the View settings button, and press The Spacebar.
3. Tab once past a Search box to a list of settings. Settings are organized in a list of higher level tabs and lower level subtabs. Down arrow through the six tabs which include Accounts, General, Mail, Calendar, People, and Premium. Spacebar to select the desired tab.
4. Tab once to a list of subtabs, Down arrow through them, and Spacebar to select a subtab.
5. You can now tab through the settings included in the selected subtab.
6. If you make a change, tab to the Save button and activate it. A Discard button is also present.

Listed below are where you can find various settings you may be interested in changing:

* Accounts tab: add and sign into email accounts here, Google calendar and contacts sync across devices (unlike with Outlook Classic).
* Mail tab: In the Display subtab, includes Focused inbox (off by default), Message organization and Reading pane (both of which were discussed above), Message preview (off by default), In the Compose and reply messages subtab, Show BCC field.
* General tab: under Accessibility, Set Keyboard to set to Outlook for Windows. You can also let people know you prefer accessible content.
* The next subsections provide step by step instructions for two important settings.

#### 4.12.5.1 Syncing Google Accounts

A big advantage of the New Outlook over Outlook Classic is that you can sync Google calendars and contacts. This is only possible With Classic if you pay for a syncing utility.

If you have already added an account to Outlook Classic, it will show up in the tree view in the New Outlook, but you need to go through an initial syncing process. Steps are:

1. Press Control + Y to open the tree view.
2. Navigate to your Gmail account at level 0 and Right arrow to open it.
3. Down arrow to where you can start the sync process.
4. In the window that says you are already partially synced in with 9 categories, activate the button for seeing this list. Down arrow to the Done button and press Enter.
5. Activate the Open New Outlook button and the list of inbox messages for this account should now appear.

You can also add new accounts in the Your accounts subtab of the Accounts tab in Settings.

#### 4.12.5.2 Changing the Outlook Start Folder

To change the account inbox where Outlook first lands when you open the app, and assuming the account has already been added to the New Outlook (see above), do the following:

1. In Settings, select the Accounts tab and then the Your Accounts subtab.
2. Tab to the Manage button labeled with the account you want to designate as the start account and press the Spacebar.
3. Tab to the options which include remove and Set as primary account, and activate this last one.
4. Confirm in the “are you sure?” popup by pressing the Continue button,
5. You may need to go through the dialogs related to optional data sharing and applying settings, or you may just hear, “Gettings thing ready.”
6. When finished, the new default start inbox will open.
7. Press Alt + F4 to close the apt and reopen it to verify that the start inbox has changed as desired.

### 4.1.6 Custom Folders

For creating and managing custom folders with Classic Outlook, refer to Chapter 4.4 Above.

Steps for creating a folder in the New Outlook are:

1. Press Control Y to open the tree view and navigate to the folder for which you want to create a custom folder (referred to from here on as a subfolder).
2. Press the Applications key, Down arrow to Create new subfolder and press Enter.
3. Type the name of the new subfolder and press Enter.

TO move or copy messages into a subfolder:

1. Select the message or messages you wish to copy or move.
2. Press the Applications key, Down arrow to either the Copy submenu or Move submenu, and press Enter.
3. You encounter a Search box. Type in the name of the subfolder where you want to place the messages and press Enter. This pastes them in the subfolder.

To perform the four actions you can do on an existing subfolder:

1. Press Control Y to open the tree view and navigate to the subfolder.
2. Press the Applications key and Down arrow to the same actions as in Outlook Classic, including rename, copy, move, and delete.

### 4.1.7 Calendar

Press Control + 2 to go to the Calendar folder.

With the JAWS Virtual PC cursor off and NVDA Focus mode on, keystrokes that are the same as in the Outlook Classic Calendar include:

* Tab and Shift + Tab to the next and previous event, respectively.
* In the Day view, Up and Down arrow to move by 30 minute increments within a day, and Left and Right arrow to go back and forward one day, respectively.
* Useful commands found in the Calendar Ribbons are:
* Home tab: New event, Day, work week, Full week, and Month views, Filter (for viewing selected event categories only), Share calendar.
* View tab: Same four Calendar views and Filter as above.
* To create a new event you must first be in the Calendar folder. Press Control + N. This dialog is used both for creating appointments (events for just you) and meetings (which generate an email to invitees). This is pretty much the same as the Classic Outlook Create meeting dialog opened with Control + Shift + Q (you can also use this shortcut in the New Outlook as long as you are already in the Calendar folder). There is no separate dialog for creating an appointment.
* In the New event dialog, you first land in the Add details for the event edit field where you give the event a title. Tab once to the Invite attendees edit combo box to add attendees. Tab once to the Optional field if you want to CC somebody about the meeting. Skip these two fields if you are just creating an appointment for yourself. All remaining fields (start date and time, end time, recurring, etc.) are the same as with the Classic dialog covered in Chapter 4.8.3 above. Pres Control + Enter or Alt + S to send a meeting invitation or save an appointment.

# Chapter 5 Excel

Excel is a powerful application for organizing, manipulating, and analyzing data. It is an essential tool in work and academic environments, and can be used for managing lots of personal information. Just a few examples of common uses include:

1. Budget preparation and monitoring
2. Tracking inventory
3. Tabulating and analyzing survey data
4. Maintaining contact lists

I often advise my trainees to use Excel for anything that involves crunching numbers or making lists. While it is possible to do these things in Word, Excel is far more flexible and powerful for performing these tasks.

While reading this chapter (as well as when working in Excel), you should set your screenreader punctuation level at most or all. Setting it at some or none will fail to detect a number of punctuation marks like parentheses, colons, and a few more that are important in the syntax for creating functions. To change punctuation levels for the three screenreaders, see Chapter 8.1.1 for JAWS, 8.2.2 for NVDA, and 8.3.1 for Narrator.

## 5.1 The Basics

### 5.1.1 Terminology

A spreadsheet is a document that stores data in a grid of horizontal rows and vertical columns. Rows are usually labeled using numbers (1, 2, 3, etc.), while columns are usually labeled with letters (A, B, C, etc.). Individual row/column locations, such as C3 or B12, are referred to as cells, and each has a cell coordinate. For example, cell A3 is located in the first column and third row, cell E10 is located in the fifth column and tenth row, and so on. “Spreadsheet” is a generic term for any such document or file, including, but not limited to Excel.

An Excel file is called a workbook and may be composed of a single worksheet or many worksheets. Think of a sheet as a page.

Until you rename them, they are assigned the generic names “Sheet1, Sheet2, Sheet3, etc.” Worksheets are where information is entered and manipulated in a workbook.

When you first open a new blank Excel file, and press Insert + T to hear its title, you will hear “Book1, Sheet 1, A1.”

A blank spreadsheet is a vast area with thousands of columns and over one million rows. Columns and rows are labelled with letters and numbers, respectively. A cell reference or cell coordinate is expressed as its letter and number combination. For example, cell A1 is located in the first column and first row, cell C5 is located in the third column and fifth row, and so on. A “data range” is a group of contiguous cells. For example, the data range from B2 through B9 refers to the cells containing B2, B9 and all the cells in between in this column. A data range can also be a rectangular block of cells. The data range of B2 through F9 includes the rectangular block of cells with B2 located at the top left, B9 at the bottom left, F2 at the top right, and F9 at the bottom right.

Four types of data can be entered in cells: text, numbers, formulas, or functions. Numbers may be expressed as simple numbers, currency, dates, percentages, or in several other formats.

A formula is an expression that calculates the value of a cell, and is created by combining cell references with mathematical operators such as the symbols for adding, subtracting, multiplying, or dividing. An example is “=A1+A2” minus the quotes, for adding the values in cells A1 and A2.

Functions are predefined formulas in Excel that perform specific calculations using a set of values, called arguments, and in a particular order. They are written with a specific syntax, starting with the function name followed by parentheses. An example is “=SUM(A1:A10)” minus the quotes for summing up all the values in cells A1 through A10. Functions can be very simple or quite complex.

Most formulas and functions contain cell references or numbers from elsewhere on the spreadsheet. For example, if numbers are contained in columns A and B, a formula or function can be typed in column C to total the numbers in the respective rows of columns A and B. However, in composing the formula or function, you would not type in the actual numbers in those cells, but rather the corresponding cell coordinates.

The distinction between formulas and functions can be a bit fuzzy, and people often use the two terms interchangeably. Don’t worry too much about it. There will be much more on formulas and functions below.

### 5.1.2 entering Data and Navigating Spreadsheets

Use the arrow keys to move one cell at a time among the column’s and rows of the spreadsheet. The Up and Down arrows move up and down columns. The left and Right arrows move across rows.

After typing data in a cell, pressing any of the arrow keys will conserve that data in the cell and move the focus to the next cell in the direction that you just arrowed. You can also press the Tab key to move one cell to the right, equivalent to pressing the Right arrow key. In addition, pressing the Enter key will conserve the data and move the cursor one cell below. If you type in data and press the Escape key, none of the data you just typed will be conserved. If you sense that you have made a typing error, immediately press the Escape key to prevent replacing correct data with the mistaken keystroke. Failing to do this is a common frustration for beginners.

From anywhere on a spreadsheet, pressing Control + Home moves the focus to cell A1, the top left corner of the spreadsheet. Pressing Control + End places the focus on the cell that is the intersection of the right-most column with at least one cell containing data, and the bottom-most row with at least one cell containing data. For example, if the right-most cell with data is F32 and the bottom-most cell with data is A 47, pressing Control + End will place focus on cell F47. This keystroke is especially useful for exploring a spreadsheet that you did not prepare yourself. If pressing Control + End lands the cursor in cell F47, you know that all data in the sheet are located somewhere between A1 and F47. There are no data to the right of column F, nor below row 47.

While using the four arrow keys to navigate one cell at a time is useful for moving around in small areas, navigate quickly over large blocks of filled and unfilled cells by pressing the Control key in combination with the four arrow keys. This is referred to as “navigating by region.” A region is a range of cells that contain data and are bordered by blank cells. It is synonymous with a data range.

### 5.1.3 Simple Formulas

There are three categories of formulas:

* Those containing operators which are the keys for adding, subtracting, multiplying, and dividing data from two or more specified cells.
* Those containing functions for making calculations over a range of data.
* And those containing a combination of operators and functions.

Let’s begin by typing the numbers 1000 in cell A1 and 250 in cell A2. Don’t type in a comma separator in 1000. Under this data, we will input several of the simplest and most common formulas.

All formulas begin with the equal sign, signaling to Excel that a formula is being entered in the cell. The equal sign is located two keys to the right of the zero key on the number row of your keyboard. When you type the equal sign, your screenreader will say “type in a formula and press Enter.” We will start with simple formulas using operators for adding, subtracting, multiplying, and dividing two numbers.

1. Addition: In cell A3, type “=A1+A2,” minus the quotes, and press Enter to go down one row. Press Shift Equal (again, two keys to the right of zero on the number row) to make the plus sign. Up arrow once and you will hear “1250 has formula A3.” Your screenreader first says the result, then indicates this is a formula so you know it is not just a typed-in number. Then you hear the cell coordinate.
2. Subtraction: In cell A4, type “=A1-A2,” minus the quotes, and press Enter. The dash is one key to the right of zero on the number row. Up arrow once and you will hear “750 has formula A4.”
3. Multiplication: In cell A5, type “=A1\*A2,” minus the quotes, and press Enter. Press Shift 8 on the number row to make the asterisk sign. Up arrow once and you will hear “250000 has formula A5.”
4. Division: In cell A6, type “=A1/A2,” minus the quotes, and press Enter. The Slash key is just below the semicolon on the Home row. Up arrow once and you will hear “4 has formula A6.”

Now we will cover a few of the most frequently-used functions, including those for calculating the sum and average of values in a column, and finding the minimum and maximum values in that column. These functions have a three-component structure: the equal sign, short text indicating the function to be calculated, and the data range upon winch that function will be performed. Because we have data in all the cells from A1 through A6, we will use this data range. To make it easier to read the text, I will put the function on its own line and then explain it on the next line.

In cell A7, type:

=sum(A1:A6)

This totals the values in the column from cell A1 through cell A6. The three components of the function are:

* The equal sign indicating that this is a function or formula.
* The text of the function “sum” indicating that this is the calculation to be executed.
* The data range, written beginning with a left parentheses, the first cell in the data range, a colon indicating “through,” the last cell in the data range, and a right parenthesis ending designation of the data range.

In cell A8, type:

* =average(A1:A6)

This calculates the average value (also known as the mean) of the data range from A1 through A6.

In cell A9, type:

* =min(A1:A6)

This identifies the minimum value in the data range from A1 through A6.

In cell A10, type:

=max(A1:A6)

This identifies the maximum value in the data range from A1 through A6.

Excel has a vast variety of available functions that can be used to make calculations. A good starting point for learning more about functions and formulas is:

[Overview of formulas in Excel](https://support.microsoft.com/en-us/office/overview-of-formulas-in-excel-ecfdc708-9162-49e8-b993-c311f47ca173)

Here you can find introductory information on formula basics, descriptions of the most commonly used functions, how to construct more complex or advanced formulas and functions, and additional reference materials and tutorials.

## 5.2 Constructing a Table

### 5.2.1 Building Blocks for a Basic Data Table

Let’s put together a table with monthly expenses for the Smith family. You usually start by putting in a name or title at the top left of the worksheet in cell A1. Then you put text down column A and across row 2. Then you enter data in the middle of the table. Let’s get started.

1. In cell A1, type “Monthly Expenses for the Smith Family for the Year,” minus the quotes.
2. Type “Expense” in cell A2, minus the quotes.
3. In column A, from cells A3 to cell A10, list the following eight expense categories: Water, Electricity, Groceries, Cell phone, Cable, Rent, Transportation, and Entertainment.
4. In cell A11, type “Monthly Total,” minus the quotes. We will eventually sum the monthly columns along row 11.
5. In row 2, starting in cell B2, type in the months of the year across this row, with January in cell B2, February in cell C2, and so on until December in cell M2.
6. In cell N2, type “Annual Total,” minus the quotes. We will eventually sum the rows to calculate the annual amount for each type of bill

Not counting the name of the table at the top, most basic data tables are composed of three parts:

* Row headers: Text going down the left column. In this case, the types of bills. “Electricity” is a row header because all data across that row relate to electricity bills.
* Column headers: Text going across the top row of the table. In this case, each of the twelve months and the last column totaling the year. “January ” is a column header because all the cost data down the January column relate to bill costs for that month.
* Table body: To the right of the first column and under the top row is where data appear. If data are numeric (simple numbers, dollars, percentages, etc.), they are referred to as “values.” In this table, each monthly bill expense will be entered.

### 5.2.2 Define name – A Feature That Makes Using Excel Much Easier

After you have typed in your row and column headers, it is time to introduce an Excel feature that greatly improves readability of tables for screenreader users on the PC. When I show this feature to a screenreader user who has been struggling with Excel for a long time, he or she usually has one of those head-slapping “I wish I had known about this years ago” moments.

Sighted users can easily interpret Data in the body of a table. Let’s say the number 750 appears in cell E8 of this table. With a quick glance, a sighted user can determine that this number corresponds to the cost of rent for April. However, a screenreader user would need to Up arrow several times to the top of the column to find April, Down arrow back to 750, and then Left arrow back to column A to figure this out. This is time-consuming in even a small table like this one. It is much worse with larger tables.

Using the Define name feature largely eliminates this problem. As you move cell by cell along a row, you will hear the column header and content for each cell,. As you move cell by cell up or down a column, you will hear the row header and content for each cell. With the JAWS Eloquence voice, column and row headers are spoken in a lower pitch than the cell data. Also with JAWS, headers are read first, followed by cell content. The order is reversed with NVDA. And as of the writing of this book, this feature did not work with Narrator.

To make this feature work correctly, it is critical that you start with your focus in the cell that is the intersection of the row and column headers you want read as you move around in the body of the table. Most of the time, this will be the cell in the top left corner of your table. This does not mean the name or title you gave the table, located in the row above in cell A1.

In this table, the types of expenses are listed down column A and the months of the year are listed along row 2. The intersection of the row and column headers is therefore cell A2, and this is where you will place focus before proceeding to the next steps, which are:

1. Press the Applications key, Up arrow twice to Define Name, and press Enter.
2. Type in the word “title,” minus the quotes, and press Enter.
3. To test it out, move around inside the table. As you move right and left, you should hear the column headers and cell content. As you move up and down, you should hear row headers and cell content.

This is an Excel feature designed for accessibility, so steps are no different between screenreaders. When you save the file, title reading will also be saved.

While you can activate this feature at any time, I get it going as early as possible when constructing a table. It makes all subsequent actions (data entry, navigation, creating formulas and functions, editing, etc.) much easier and less prone to error.

For some tables, you may not want to hear both column and row headers as you navigate, but just one or the other. For example, think of a bus schedule where the stops are listed along row 2,and down column A are the times of the first bus in the morning. In this case, hearing the row headers (that is, the time of the first bus) and times in the middle of the table as you up and Down arrow, would only be confusing. In this case, you would only want column headers read to you as you move left and right along rows. To hear only column headers:

1. Navigate to the leftmost cell in the row where the column headers are located (usually the top row of the table, not counting the row with the table name).
2. Press the Applications key, Up arrow to Define Name, and press Enter.
3. Type in the single word “columntitle,” minus the quotes and with no spaces between column and title, and press Enter. Note that this is not case-sensitive. If you like, you can instead write it as “ColumnTitle,” with the C and T capitalized so your screenreader speaks it normally.
4. To test it out, move around inside the table. As you move right and left, you should hear the column headers and cell content. As you move up and down, you should only hear cell content, and no row headers.

To only hear row headers:

1. Navigate to the cell just above the topmost row header you want read, usually near the top of column A.
2. Press the Applications key, Up arrow twice to Define Name, and press Enter.
3. Type in the single word “rowtitle,” minus the quotes and with no space between row and title, and press Enter. Here too, use upper case for R and T if you prefer it to read normally.
4. To test it out, move around inside the table. As you move up and down, you should hear the row headers and cell content. As you move left and right, you should only hear cell content, and no column headers.

You also need to know how to delete these for a couple of reasons. First, if you mistakenly start the above steps from the wrong cell, table reading may become incomprehensible. You must first delete any previous title reading designations before you can redefine them. Second, sometimes in the course of editing spreadsheets, you may delete some rows or columns. This may cause title reading to no longer work. Here too, you will need to delete whatever you first put in before you can redefine them. You can start the deletion process from anywhere in the spreadsheet. Steps are:

1. Press Alt to open the Upper ribbon, and Right arrow to the Formulas tab.
2. Tab into the Lower ribbon about ten times to the Name manager button and press Enter. The shortcut key is Control + F3.
3. You land in a combo box where any Define name settings you have created for that file are listed. Assuming you only have one, your focus lands on it.
4. Press the Delete key. You are asked for a deletion confirmation.
5. Press the Spacebar to confirm, and Escape to return to your spreadsheet.

It is also possible to define column and row headers for several tables on the same sheet. You will need to do this to avoid confusion. If, for example you have defined names for a table beginning near the top left of the sheet, and you then add more tables below or to the right of this first table, the column and row headers of the first table will be read as you navigate within these other tables. You will then hear the wrong column and row headers read for these tables.

To Define name for the first table on a worksheet with two tables, you need to specify the data range of that table. The column and row headers specified will only be operative within this data range, and will not interfere with reading column and row headers for any tables outside this data range.

Using our current table as an example, the top left corner of the data range is cell A2. Because the furthest right column is column N, and the bottom row is row 11, cell N11 is the bottom right cell of the data range. Steps for defining names for this data range are:

1. Navigate to cell A2, the top left cell of the data range.
2. Press the Applications key, Up arrow to Define Name, and press Enter.
3. Type in “title..N11” here. After the word title, you type in two periods and then the bottom right cell coordinate of the data range. Now press Enter.
4. To test it out, move around inside the A2-N11 data range where you will hear column and row headers. Now move the cursor outside this data range (to the right of column M or below row 11), you will no longer hear these column and row headers spoken.

Let’s now say there is a second table on this worksheet whose top left corner is in cell A15 and bottom right corner is in cell G23. To use the Define name feature to read this table’s column and row headers, repeat the above steps, substituting A15 as the start point in step 1, and cell G23 as the bottom left cell coordinate in step 3.

The same name cannot be repeated in a single file. If you are working with multiple sheets, you cannot use the word “title” on more than one of these sheets. If you attempt to do this, you will hear the following error message: “This name already exists. Names should be unique.” To get around this, instead type in “title1, title2, etc.” without the quotes or any spaces.

If you start the Define name process in the wrong cell, as you navigate through the sheet, the verbal feedback you hear will be extremely confusing. There are also times when you may have initially started the Define name process in the correct cell, but after having edited the sheet by inserting and deleting some rows or columns, it might have become messed up. In such cases, you will need to delete the title or titles you created. To do this:

1. Press Control + F3 to open the Name Manager (this is found in the Data tab of the ribbons).
2. You land in a combo box where the titles you have created are listed. Up or Down arrow to the title you want to delete, and press the Delete key.
3. You are asked to confirm the deletion. Press Enter to confirm.

You can now repeat the Define name process beginning in the correct cell.

In conclusion, the Define name feature is a great tool for making Excel sheets more readable. Use it whenever you create tables yourself, as well as when you receive a file from somebody else. The only piece of bad news is that they don’t always work well for files you get from sighted people. This is because sighted folks sometimes insert lots of blank columns and rows to visually separate data categories. This makes it hard or impossible to find a cell at the top left corner that forms the intersection of the column and row headers you want to designate as titles. QuickBooks, a popular financial management application, generates balance sheets, profit and loss statements, and other standard accounting reports in Excel format that have this problem. Chapter 5.10 offers strategies for dealing with difficult spreadsheets, including identifying the best cell for initiating the Define name process.

### 5.2.3 Entering Data and Summing Columns and Rows

Now it’s time to add some numeric values in the body of the table. Beginning in cell B3, and going down to cell B10, type in numbers for each of the January expense types. Just type in numbers. Don’t worry about typing in dollar signs. That will come later.

Remember that after typing in a number, you can either press Enter or the Down arrow key to go to the cell below.

When finished, make sure your focus is on cell B11, just one cell to the right of where you typed “Monthly total.”

In cell B11, we will sum the January column. When new to Excel, it can be challenging to enter functions. You should type slowly because you may not be accustomed to using several keys (left and right parentheses, the equal sign, and a few others). Excel is pretty unforgiving about typing errors. Also note that there are never any spaces in formulas and most functions. Even if you are a proficient typist, entering these can be a painstaking process. However, the good news is that you won’t have to type too many of them. As we will soon see, for the current table, you will only need to type in two functions. All the remaining ones will be copied and pasted.

First, be sure you know the addresses of the first and last cells of the data range you want to sum. Here the first cell is B3 and the last one is B10. In cell B11, type:

=sum(B3:B10)

And press Enter.

### 5.2.4 Copying Formulas and Functions Using Relative and Absolute Cell References

When copying formulas and functions, there are two types of cell reference or address types to consider: relative and absolute. They behave differently when copied and pasted to other cells. When a cell containing a formula or function is copied and pasted to another cell, the formula or function will adjust “relative” to the original formula. In contrast, a**bsolute references remain constant regardless of where they are pasted**.

By default, all cell references containing formulas or functions are **relative references**. When pasted across multiple cells, they change based on the relative position of rows and columns. For example, if you copy the formula **=A1+B1** from row 1 to row 2, the formula will become **=A2+B2**. These are very convenient whenever you need to repeat the same calculation across multiple rows or columns, saving the time and effort you would need to expend if you had to type in each formula individually.

There are times when you don't want the address of a formula or function contained in a cell to change when copied and pasted to other cells. A**bsolute references** do not change when pasted to other cells. You can use an absolute reference to keep a row constant, a column **constant, or both when composing a formula or function. To do this, t**ype the dollar sign (the keystroke is Shift 4 on the Number row):

* Before the column letter if you want the column to remain constant (example: $A1).
* before the row number if you want the row to remain constant (example: A$1).
* Or before both the column letter and row number if you want a cell held constant (example: $A$1).

Now let’s get back to our monthly expenses table for the Smith family and use relative cell references to copy and paste the sum function in cell B11 across row 11 to sum the columns for the other months, and the annual total column.

As we saw in earlier chapters, when copying and pasting files, folders or text, the order of operations is select, copy and paste. When copying formulas and functions in Excel, the order is slightly different – copy, select, and paste. First, you copy the formula or function. Second, you select a range of cells. And third, you paste the formula or function to those cells. So, do the following:

1. In cell B11 of the Smith table, press Control + C to copy the function created to sum the January column data.
2. Right arrow to C11, the cell for summing the February column.
3. Press and hold down the Shift key and Right arrow to N11, the bottom cell of the last column in the table.
4. Press Control + V to paste the function.

Because you are using relative cell references, Excel adjusts the function’s cell coordinates correctly as you paste across the row. For example, Right arrow a couple of times to cell D11 which is the function for summing the March column. Press F2, the keystroke for editing individual cells, and press the Up or Down arrow key to read the function. It should say:

=sum(D3:D10)

After pressing F2, you can also use the Left and Right arrows to read individual characters within the cell. When finished, press Escape to exit the cell edit mode. More on F2 later in this chapter.

You can follow a similar process to sum a row and then copy and paste functions down the relevant column. Once again, be sure you know the addresses of the first and last cells of the data range you want to sum. This time, we will start by summing the first bill category row (water), inputting the function in cell N3. The first cell for this data range is B3 and the last one is M3. In cell N3, type:

=sum(B3:M3)

And press Enter.

Now do the following to copy the function in cell N3 and paste it down column N to sum each bill category row for the year:

1. In cell N3, press Control + C to copy the function.
2. Down arrow to cell N4.
3. Press and hold down the Shift key and Down arrow to N11, on the last row of the table.
4. Press Control + V to paste the function.

When you are constructing a simple rectangular table like this one, and want to total all the rows and columns, it is this quick and easy. And you can do this early or later in the process of putting the table together. As data is inputted in the body of the table for each bill, the totals in the bottom row and furthest right column will automatically be recalculated.

Now we will add a new column O to the right to explore how to use absolute cell references. In cell O2, type in “Percent of Total.” Down this column We will calculate the contribution of each expense item to the grand total for the year.

Row 3 is the row for water. Here we will calculate the percent share of water to overall total annual expenses. If we type in a relative cell reference here, the formula would be =N3/N11, dividing annual water expenses by the annual grand total. However, if we copy this formula and paste it down the column using relative cell referencing, this will create a problem because the denominator will automatically adjust as follows: =N4/N12, =N5/N13, and so on. Because there are no data in cells N12 and N13, and you can’t divide by zero, you will hear, “#DIV/0! contains errors.”

To calculate correctly, we need to hold row 11 constant by typing a dollar sign before row 11. Do the following:

1. In cell o3, type =N3/N$11, and press Enter.
2. Up arrow back to cell O3, and press Control + C to copy the formula.
3. Down arrow to cell O4.
4. Press and hold down the Shift key and Down arrow to cell O11, on the last row of the table.
5. Press Control + V to paste the formula.

Using absolute cell references, the numerators adjust while the denominators do not, which is what we want (=O4/O$11, =O5/O$11, etc.).

You may not use absolute cell references very often when copying and pasting formulas and functions, but anybody who creates simple spreadsheets will sum columns and rows using relative cell references all the time.

### 5.2.5 Number Formatting In Cells

There are various ways that simple number formatting can be converted to other formats such as currency, percentages, dates, and time. We will use the Smith budget table as an example and format its numbers as dollars with two decimals. Initially, we will only do this for cell B3 – the top left cell of the data range containing numbers. Steps are:

1. With focus on cell B3, press the Applications key, Up arrow to Format cells, and press Enter.
2. This opens a multi-page dialog box where you land on the Numbers tab.
3. Tab once to the Categories combo box, and Down arrow to Currency.
4. Tab once to the Decimal place Edit spin box whose default setting is two decimals. If you wanted to change this to zero, you would type this in. While in theory, you can arrow to zero, I have found that this works poorly, so it is better to type it in if you wished to change the number of decimals.
5. Tab once to the Symbol combo box to select the type of currency. While there are more than 500 symbols to choose from, you land on dollars most of the time. If you land elsewhere in this combo box, press the Home key to get to the top of the list and Down arrow once to Dollars.
6. Tab to the Negative numbers list box which has four options: preceded by a minus sign; displayed as red; surrounded by parentheses; or both displayed as red and surrounded by parentheses. Sticking with the default (preceded by a minus sign) is best for accessibility.
7. Tab to the OK button and press Enter to make changes.

Obviously, it would be very laborious to make this change one cell at a time. To do it for multiple cells, here are two alternatives. One way is to select the data range of cells for which you want to change the number formatting. For this spreadsheet, the top left cell of the data range with numbers is cell B3, and the bottom right one is cell N3. Here’s a super quick way to change the number formatting of this data range to dollars with two decimals:

1. With your cursor in cell B3, press Shift + Control + End. This will select all cells from B3 to N11, as well as all cells within this rectangular block.
2. Press Control + Shift + 4 on the number row to change the cell format to dollars with two decimals. This is a convenient shortcut key that I use all the time.

Even faster, if all the cells with number values in the sheet are to be converted to dollars with two decimals, and are all contained in a single data region starting in cell A1, you can simply press Control + A to select all cells from A1 to the bottom right cell in that data region. Then press Control + Shift + 4 to convert to dollars with two decimals. This will not affect the formatting of cells in this data range which currently contain words rather than numbers. If you later insert numbers in currently empty cells in this data range, they will appear as dollars with two decimals.

There are twelve number format categories listed in the Category combo box of this dialog. Other than Currency which I already covered, the most commonly used ones and options for changing their formatting are:

* Numbers: decimal places, adding comma separators between thousands, and negative number formatting.
* Date: numerous options for displaying month, day, and year.
* Time: numerous options for displaying hour, minute, second, and A.M. or P.M.
* Percentage: number of decimal places.
* Special: Use this for columns containing ZIP codes to make them read properly. If you do not, the ZIP code will read like any other five-digit number (for example, “forty-four thousand three-hundred and thirty two”) rather than as individual numbers. Also, for any ZIP code beginning with zero, the zero will disappear from the cell. For example, my ZIP code is 02072. Without this special formatting, only 2072 would appear in the cell, even though I typed a zero at the beginning.

Below is a summary of shortcut keys that can help you out:

* Control + 1: Open Cell format dialog.
* Control + Shift + 4: Format as dollars with two decimals.
* Control + Shift + 5: Format as percentages with no decimals.
* Control + semi-colon: Format cells with todays date in MM/DD/YYYY format.

### 5.2.6 Merging and Centering Cells

We now come to what I consider to be the last step in creating a simple data table in Excel. Centering the name of the table just above its top row is something you may wish to do if you are planning to share the file with sighted users. This involves merging cells, that is, converting two or more cells into a single one. To merge and center the name of this table, do the following:

1. Go to cell A1 where the name of the table appears: “Monthly Expenses for the Smith Family for the Year,.”
2. Hold down the Shift key and Right arrow to cell O1, the rightmost column of this table.
3. Press Alt H M to open the Merge submenu. You land on the Merge and center button. Press Enter on this.

Your screenreader will now announce, “merged cells A1 through O1.” If you press Insert + F to hear about cell formatting, among other things, you will hear that cell content is horizontally centered. And if you Right arrow once, your cursor will land on cell P1 because cell A1 now extends to column O.

The three other options in the Merge submenu are:

* Merge across: Merge cells horizontally with left-aligned content.
* Merge: Merge cells vertically. Cell content will be vertically aligned along the bottom of the cell.
* Unmerge: Undo merging of previously merged cells.

## 5.3 Editing Basics

Basic editing actions include selecting cells, data ranges, entire rows, columns, and sheets, as well as deleting, copying, moving and pasting them. Selecting, copying and pasting formulas and functions were covered above in Chapter 5.2.4 and will not be repeated here.

### 5.3.1 Editing Individual Cells

To edit data within individual cells, press F2. When you press the Up or Down arrow keys, your screenreader will say the entire cell contents. This is especially useful for reading formulas and functions. After pressing F2, you can also Left and Right arrow to read individual characters within the cell, as well as use standard text editing keystrokes to delete or insert characters. Note that when you press F2, focus is placed on the right side of the cell. If you wish to keep changes after editing the cell content, press Enter. If you don’t want to keep changes, or you just want to get out of the cell, press the Escape key.

Often the quickest way to change cell content is to simply type over existing content and then press Enter, Tab, or arrow away from it. It is not necessary to select cell content before entirely replacing it.

### 5.3.2 Selecting and Editing Data Ranges

Similar to selecting text in other applications, like Word, several selection keystrokes involve combining the Shift key with navigation keystrokes. Below are a number of them.

* To select a single cell, simply place your focus on it.
* To select an entire row, press Shift + Spacebar.
* To select an entire column, press Control + Spacebar.
* To select multiple contiguous cells across a row one by one from left to right, hold down the Shift key and press the Right arrow repeatedly until you get to the end of the selection. Note that the Shift key must be held down from start to finish.
* To select multiple contiguous cells down a column one by one, hold down the Shift key and press the Down arrow repeatedly until you get to the end of the selection.
* To select a rectangular block of cells. Starting with focus on the top left cell of the rectangular data range, press Shift + Right arrow to select cell by cell across a row, and Shift + Down arrow cell by cell to the last cell at the bottom right of the data range. As you arrow along, your screenreader will read the content and address of the first and last cell in the data range you are selecting.
* To execute the above three operations with fewer keystrokes: hold down the Shift + Control + Right arrow keys to select across a row from the leftmost cell to the rightmost cell; hold down the Shift + Control and Down arrow keys to select down a column from the top-most cell to the bottom-most cell; and use these two keystrokes to select from the top left corner cell to the bottom right cell in a rectangular data range.
* Control + A selects an entire data region, that is, a block of contiguous cells containing data.

Note that, in making any of the above data range selections involving the Shift key, you must hold down the Shift key throughout the process. If you lift up in mid-process and continue arrowing, the previously-selected cells will become unselected and you will need to start over.

After making any of the selections above, you can:

* Copy the cells to the Clipboard with Control + C.
* Cut the cells to the Clipboard with Control + X.
* Paste the cells from the Clipboard with Control + V.
* Delete the cells with the Delete key.

### 5.3.3 Inserting and Deleting Rows and Columns

You can insert and delete rows and columns via the Applications key. Here you can Down arrow to find the Insert and Delete commands. You can also use ribbon shortcut key combinations which are far more efficient. If you are going to work much with Excel, it is worth memorizing the shortcut keys. The ribbon shortcut key combinations all begin with Alt H because they are located in the Home tab of the ribbons. They are:

* Alt H I R: Insert row.
* Alt H I C: Insert column.
* Alt H D R: Delete row.
* Alt H D C: Delete column.

Remember that for ribbon keystroke combinations, press the keys one at a time. Do not try to hold them down together.

Returning to the Smith Family Budget table, let’s say we want to insert a new row in the middle of the table. If your cursor is anywhere in row 5 and you press Alt H I R, row 5 will now become blank. That row’s previous content and everything below it will be moved down one row. If your cursor is anywhere in column B and you press Alt H I C, column B will now become blank. That column’s previous content and everything to its right will be moved one column to the right. Pressing Alt H D R will remove a row and move all rows below it up one row. Pressing Alt H D C will remove a column and move all columns to its right back one to the left.

To insert or delete multiple rows below your current cursor position, press Shift + Down arrow to select as many rows as you want, and then press Alt H I R or Alt H D R. If instead, you want to insert or delete rows above your current cursor position, you can press Shift Up arrow and then the same shortcut keys.

To insert or delete multiple columns to the right, first press Shift Right arrow to select them, and then press Alt H I C or Alt H D C. You can press Shift Left arrow if you want to select multiple columns to the left and then insert or delete them.

If you have already put functions for totaling rows or columns in your table, when you insert or delete rows and columns in the middle of your table, these functions will adjust correctly. For example, if I insert a new blank row 5, and the previous function summing column B was: =sum(B3:B10), it will automatically change to: =sum(B3:B11).

But be careful. If you insert a new blank row just above the row with the SUM function, it will not automatically adjust. You will need to change it manually. This behavior is the same when you insert columns.

If you have one or more formulas in existing rows and then you insert new rows, it is often a good idea to copy and paste one of the existing rows in to the new blank one. Then just change whatever you need to change in the new row while retaining the copied formulas or functions. This is easy to do, saves time, and avoids mistakes. Steps are:

1. Press Alt H I R in a cell where you want to insert a new blank row.
2. Up or Down arrow to a cell in one of the other rows already containing data, formulas, and functions. Press Shift + Spacebar to select the entire row.
3. Arrow back to the blank row and paste it with Control + V.
4. Edit the new row data as needed without changing the copied formulas and functions.

## 5.4 Sorting Data

In Excel, you can quickly and easily sort columns alphabetically, numerically and by date. While a bit more complicated than simple sorts, you can also perform multi-level sorts. Sort commands are found in three places: the Editing group of the Home tab, the Sort and Filter group of the Data tab, and via the Applications key. I will only discuss accessing them via the Applications key.

### 5.4.1 Simple Sorting

I will start with sorting alphabetically. If you are maintaining a list of contacts, you will often want to sort alphabetically by last name. Keep this in mind when first preparing your data table. Either input last names first, as in “Smith, John,” or create separate first and last name columns. If you input names in a single column and begin with first names, you will not be able to sort the data by last name. Assuming you have created a last name column, steps for sorting alphabetically are:

1. In the last name column, place your cursor on any of the cells containing a last name. Do not place it on the “last name” column header.
2. Press the Applications key, Down arrow to the Sort submenu, and press Enter.
3. You first land on A to Z. Down arrow to see the two other choices, which are Z to A, and by color. Avoid sorting by color because it is inaccessible.
4. Press Enter on A to Z and the column and its associated row data will now be sorted alphabetically with last names beginning with A at the top of the column.

To save yourself a lot of arrowing around, press the Applications key and then press the letter O to get right into the Sort submenu.

If there are any blank cells in this column, their associated row data will be moved to the bottom of the table.

To sort numeric column data, steps are pretty much identical. The only difference is that when you open the Sort submenu, choices are Smallest to largest and Largest to smallest. If, for example, you had a column with rankings (1 as best and 50 as worst), it would make sense to sort smallest to largest. In the Smith family budget table, you might want to sort the Annual total column largest to smallest so that the highest cost items appeared at the top of the table.

If there are any blank cells or text data in this column, their associated row data will be moved to the bottom of the table. For example, if you inputted the words “not available” in several cells in this column, all associated row data would be moved to the bottom after sorting.

To sort by date, here too, steps are identical, the only difference being that choices are oldest to newest and newest to oldest.

As above, for any blank cells or text data in this column, their associated row data will be moved to the bottom of the table. For some technical reason related to how Excel numerically codes dates, sorting by date only works for data after the year 1900.

When sorting column data, there are a couple of potential complications to guard against. When sorting alphabetically, it is possible that the row containing column headers could find its way into the middle of the table. For example, if row 2 contained column headers and you sorted by the Last name column, this row’s data could wind up in the middle of the table with the L in Last name causing it to move there.

If the last row contains functions for summing the columns and you then sort numerically, this last row will be moved to the top of the table, just below the row containing the column headers. This would happen with The Smith family budget table.

Inserting a blank row between the column headers row and the first row with data will avoid the first problem. If the column headers are contained in row 2 and the actual data begins in row 3, with your focus somewhere on row 3, press Alt H I R, making row 3 blank and shifting all the data rows down one row. Sorting alphabetically will now work correctly.

To correct the second problem, insert a blank row between the bottom row where any SUM functions are located, and the data row just above it. Sorting numerically will now work.

### 5.4.2 Multi-Level Sorting

You can also run multicolumn sorts. If you would like to try doing this yourself, open the file entitled “Donations by State.xlxx” in the Practice Files folder. In this sheet, the following column headers appear across row 1: Date, State, Name, and Donation.

Using this worksheet, let’s say we would like to first sort alphabetically by state, and then numerically by the amount of their donations. This way, all Alabama donors would appear at the top of the sheet with Wyoming donors grouped at the bottom. Then within each state, donations could be sorted from largest to smallest or smallest to largest.

As is the case here, I have found that this works best if your data sheet is as simple as possible with row 1 containing column headers and all the data below. Having a table title in row 1 with additional clutter in other rows below tends to complicate the multi-level sorting process.

Steps for sorting alphabetically by state and then numerically by donation are:

1. From anywhere in the sheet, press the Applications key and then O to open the Sort submenu.
2. Up arrow once to Custom sort and press Enter. You first land on the OK button, which is rather weird, but so it goes.
3. Tab to the Delete level button and press Enter. Even if this is the first time you are attempting to carry out a multi-level sort during a session, it will not work properly if you fail to first do this.
4. Tab to the Add level button and press Enter.
5. Tab to the My table has headers checkbox which is checked by default). If you keep this checked, when you get to the step for choosing sort columns, column header labels appear. If you uncheck it, column letters will be listed instead and you will need to remember which column headers are associated with which column letters.
6. Tab to the Column sort by combo box, and Down arrow to the column header That you want to sort by first. In this example, it would be “state” if you kept the column header checkbox checked. Otherwise, it would be the associated column letter.
7. Tab to the Order combo box where choices are A to Z or Z to A. We will stick with A to Z.
8. To specify the second sort level, Tab once again to the Add level button and press Enter.
9. Tab to the Column then by combo box, and Down arrow to the column header you want to next sort by. In this example, it would be “Donation.”
10. Tab to the Order combo box where choices are smallest to largest and largest to smallest. We will Down arrow to largest to smallest so that the biggest donors are at the top for each state.
11. Tab to the OK button and press Enter.

The process above could have continued for additional sort levels.

To perform additional multi-level sorts during this Excel session, you must first clear out any previous sorts in the Custom sort dialog before running new ones. To do this, Tab to the Delete level button and press the Spacebar. Continue tabbing around to the next Delete level button and press the Spacebar. Continue tabbing around until no more Delete level buttons are present. Then initiate your next multi-level sort.

## 5.5 Functions

While you can do a great deal with the simple formulas and functions discussed elsewhere in this chapter, as you become a more experienced user of Excel, you will want to expand your capabilities by exploring more advanced functions.

Let me repeat the definition of functions I made in Chapter 5.1.1 above. A function is a predefined formula that perform specific calculations using a set of values, called arguments, and in a particular order. They are written with a specific syntax, starting with the equal sign, followed by the function name, then by the various conditions such as data ranges and arguments surrounded by parentheses. A relatively simple example is “=SUM(A1:A10)” minus the quotes for summing up all the values in cells A1 through A10. We will see below that they can be much more complex.

Microsoft provides detailed documentation on individual functions. If you know the name of the function, you can search for it and open a page in Microsoft Support which is completely accessible and easily navigated with headings.

### 5.5.1 Searching for Information on Functions

I will use the IF function as an example. Searching for “Use the If function in Excel: yields the following result:

[IF function - Microsoft Support](https://support.microsoft.com/en-us/office/if-function-69aed7c9-4e8a-4755-a9bc-aa8bbff73be2#:~:text=Use%20the%20IF%20function%2C%20one,another%20value%20if%20it's%20false.&text=For%20example%3A,B4%2DA4%2C%22%22))

An explanation of the use of the function appears under a level one heading, Here is the text provided for the IF function:

“The IF function is one of the most popular functions in Excel, and it allows you to make logical comparisons between a value and what you expect. So an IF statement can have two results. The first result is if your comparison is True, the second if your comparison is False. For example, =IF(C2=”Yes”,1,2) says IF(C2 = Yes, then return a 1, otherwise return a 2).”

The function’s syntax is also presented, as well as illustrative examples, and links to related functions. I will list a number of useful functions later in this section.

If you are not sure what function you are looking for, or exactly how to ask about it, I have found it useful to ask an AI tool such as FSCompanion or Chat GPT,

Recently, I had a column of financial data, and wanted to count the number of cells in intervals of $0 to $500, $500 to $1000 and so on. I asked FSCompanion , “What is the Excel function for counting the number of cells with values between $0 and $500?” FSCompanion correctly identified the COUNTIFS function as the one I should use.

### 5.5.2 The Functions Library

However, even though FSCompanion and the Microsoft Support page both provided the detailed syntax for typing the function, I could not get it to work until I entered it step by step using the Functions Library in the Functions tab of the Excel ribbons.

Continuing with this example, and with my dollar value data in cells B3 through B16, steps were:

1. In the Functions tab, tab to the Functions Library and press Enter.
2. In the Search for a function edit field, type in COUNTIFS, and press Enter. You will hear a short description of what it does.
3. Tab once to the Help on this function Link where you can find out more about the function.
4. Otherwise, Tab to the OK button and press Enter so you can begin inserting the necessary information.
5. You now hear, “=COUNTIFS(), type in text, function Arguments, criteria\_range1 Edit.”
6. Type in the data range, in my example, B3:b16.
7. Tab to Criteria1 Edit, where you type in the first argument related to cell values. In this case, “>500,” minus the quotes (although quotes will be added as part of the function that is ultimately generated.
8. Tab to Criteria\_range2 Edit, and retype the range B3:b16.
9. Tab to the Criteria2 Edit field, and type “<1000, “minus the quotes.
10. Press Enter to generate the function.

In this case, it is:

=COUNTIFS(B3:B16,">500",B3:B16,"<1000").

The Functions Library is a real game-changer for entering advanced functions.

### 5.5.3 An Inventory of Useful Functions

There is a huge array of Excel functions, and reference information available from Microsoft Support is extensive. Some of the most commonly-used Functions in the areas of financial analysis, logical statements, counting, statistics, dates, and data lookup are presented below. Their data requirements are also specified. Each is linked to their respective Microsoft Support page where you can find out more.

Financial analysis functions are available for calculating interest rates, loan payments, depreciation, and investment value.

* [NPV](https://support.microsoft.com/en-us/office/npv-function-8672cb67-2576-4d07-b67b-ac28acf2a568): Calculates the net present value of an investment by using a discount rate and a series of future payments (negative values) and income (positive values). Data requirements: Interest rate (rate) and series of cash flows (values).
* [IRR](https://support.microsoft.com/en-us/office/irr-function-64925eaa-9988-495b-b290-3ad0c163c1bc): The internal rate of return is the interest rate received for an investment consisting of payments (negative values) and income (positive values) that occur at regular periods. It is useful in financial forecasting. Data Requirements: Series of cash flows (values) and an optional guess for the rate.
* [PMT](https://support.microsoft.com/en-us/office/pmt-function-0214da64-9a63-4996-bc20-214433fa6441): Calculates the payment for a loan based on constant periodic payments and a constant interest rate, for example, the monthly payment for a 30-year mortgage at a fixed interest rate. Data Requirements: Interest rate, number of periods, total principal payment.

Logical statements are used to evaluate conditions and return values based on whether a specified condition is true or false.

* [IF](https://support.microsoft.com/en-us/office/if-function-69aed7c9-4e8a-4755-a9bc-aa8bbff73be2): Returns one value if the condition is true and another value if the condition is false. Data Requirements: Logical test, value if true, and value if false.
* [AND](https://support.microsoft.com/en-us/office/and-function-5f19b2e8-e1df-4408-897a-ce285a19e9d9): Use this function to determine if all conditions in a test are TRUE. Data Requirements: Series of logical conditions.
* [OR](https://support.microsoft.com/en-us/office/or-function-7d17ad14-8700-4281-b308-00b131e22af0#:~:text=The%20OR%20function%20returns%20TRUE,functions%20that%20perform%20logical%20tests.): Use this function to determine if any conditions in a test are TRUE. Data Requirements: Series of logical conditions.

Counting functions are used to count the number of cells in a data range that meet certain specified criteria.

* [COUNT](https://support.microsoft.com/en-us/office/count-function-a59cd7fc-b623-4d93-87a4-d23bf411294c#:~:text=Use%20the%20COUNT%20function%20to,numbers%2C%20the%20result%20is%205.): Counts the number of numeric values in a range. Data Requirements: Range or series of values.
* [COUNTA](https://support.microsoft.com/en-us/office/counta-function-7dc98875-d5c1-46f1-9a82-53f3219e2509#:~:text=The%20COUNTA%20function%20counts%20cells,does%20not%20count%20empty%20cells.): Counts the number of non-empty cells in a range. Data Requirements: Range or series of values.
* [COUNTIF](https://support.microsoft.com/en-us/office/countif-function-e0de10c6-f885-4e71-abb4-1f464816df34): Counts the number of cells that meet a specific condition. Data Requirements: Range of values and criteria for counting.
* [COUNTIFS](https://support.microsoft.com/en-us/office/countifs-function-dda3dc6e-f74e-4aee-88bc-aa8c2a866842): Counts the number of cells that meet multiple conditions. Data Requirements: Range of values and criteria for counting.

Commonly-used statistical functions for analyzing data ranges include:

* [AVERAGE](https://support.microsoft.com/en-us/office/average-function-047bac88-d466-426c-a32b-8f33eb960cf6#:~:text=Description,the%20average%20of%20those%20numbers.): Calculates the average (or arithmetic mean) of a set of values. Data Requirements: Range or series of numeric values.
* [MEDIAN](https://support.microsoft.com/en-us/office/median-function-ea66592d-8df3-4e66-945c-75740408ddf0#:~:text=Returns%20the%20median%20of%20the,have%20values%20that%20are%20less.): Calculates the median (middle value) of a set of values. Data Requirements: Range or series of numeric values.
* [STDEV.S](https://support.microsoft.com/en-us/office/stdev-s-function-7d69cf97-0c1f-4acf-be27-f3e83904cc23): Note there is a period in this function, something that is rather uncommon. The standard deviation calculates the amount of variation or dispersion in a set of values. A low standard deviation indicates that the values tend to be close to the mean (average) of the set, while a high standard deviation indicates that the values are spread out over a wider range. Data Requirements: Range or series of numeric values.

Date functions are used for managing and analyzing data that involves dates, allowing you to perform calculations, manipulate dates, and automate tasks involving time periods.

* [TODAY](https://support.microsoft.com/en-us/office/today-function-5eb3078d-a82c-4736-8930-2f51a028fdd9): Returns the serial number of the current date. The serial number is the date-time code used by Excel for date and time calculations. It is useful if you want to display the current date on a worksheet, and have it automatically updated whenever you open it. It is also useful for calculating intervals. For example, if you know that someone was born in 1963, you might use it to find out how old they are. To insert today’s date in a cell, simply type “=TODAY()” minus the quotes.
* Now: Similar to TODAY, but also returns the current time. To insert the current date and time in a cell, type “=NOW()” minus the quotes.
* [DATE](https://support.microsoft.com/en-us/office/date-function-e36c0c8c-4104-49da-ab83-82328b832349#:~:text=The%20DATE%20function%20returns%20the,that%20represents%20a%20particular%20date.&text=The%20DATE%20function%20syntax%20has,include%20one%20to%20four%20digits.): Creates a date from individual year, month, and day components. Use it when you need to take three separate values and combine them to form a date. Date requirements: cell references for year, month, and day in that order.
* [DATEDIF](https://support.microsoft.com/en-us/office/datedif-function-25dba1a4-2812-480b-84dd-8b32a451b35c#:~:text=Calculates%20the%20number%20of%20days,Lotus%201%2D2%2D3.): Calculates the difference between two dates in terms of years, months, or days, with the units specified as “Y” for years, “M” for months, and “D” for days. Note that when I tried to do this through the Functions Library, it did not work. Here is an example of how you can type it in manually if the start date is in cell A1 and the end date is in cell A2: =DATEDIF(A1,A2,”D”) for the number of days, For years or months, type in Y or M between the quotes, respectively. Also note that only entire years or months result, no partial years or months are calculated.
* [NETWORKDAYS](https://support.microsoft.com/en-us/office/networkdays-function-48e717bf-a7a3-495f-969e-5005e3eb18e7): Calculates the number of whole working days between a start and end date. Working days exclude weekends and any dates specified as holidays. Used to calculate employee benefits accrued based on the number of days worked during a specific time period. Data requirements: start and end date cell references,,, data range of holidays, with this last being optional).

Lookup functions are used to search for and retrieve data from a specific row or column in a table or data range. They are useful for finding specific information within large datasets.

list of 4 items

* [XLOOKUP](https://support.microsoft.com/en-us/office/xlookup-function-b7fd680e-6d10-43e6-84f9-88eae8bf5929): Use this function to find things in a table or range by row. For example, look up the price of an automotive part by the part number, or find an employee name based on their employee ID. With XLOOKUP, you can look in one column for a search term and return a result from the same row in another column, regardless of which side the return column is on. Data Requirements: Lookup value, table array, row index number, and optional range lookup. Note that this function is only available for Excel 365, 2021 and 2024. Excel 2016 and 2019 users will need to use [VLOOKUP](https://support.microsoft.com/en-us/office/vlookup-function-0bbc8083-26fe-4963-8ab8-93a18ad188a1) and [HLOOKUP](https://support.microsoft.com/en-us/office/hlookup-function-a3034eec-b719-4ba3-bb65-e1ad662ed95f) instead for vertical and horizontal lookups, respectively.
* [INDEX](https://support.microsoft.com/en-us/office/index-function-a5dcf0dd-996d-40a4-a822-b56b061328bd#:~:text=The%20INDEX%20function%20returns%20a,within%20a%20table%20or%20range.&text=There%20are%20two%20ways%20to,specified%20cells%2C%20see%20Reference%20form.) and [MATCH](https://support.microsoft.com/en-us/office/match-function-e8dffd45-c762-47d6-bf89-533f4a37673a#:~:text=MATCH%20finds%20the%20smallest%20value,lookup_array%2C%20not%20the%20value%20itself.): These functions are often used together to perform more flexible lookups than other lookup functions. INDEX returns the value of a cell in a table based on the row and column numbers, while MATCH returns the relative position of a specified value in a single row or column. Data requirements are similar to those for other lookup functions.

## 5.6 Multiple Worksheets

So far, all our work has involved a single worksheet. However, you can have multiple worksheets in a single file. With large datasets and multiple tables, it quickly gets unwieldy to place them all on a single worksheet. Printing them in hard copy can also be a nightmare. If you have detailed company sales data for a year and want to present it on a monthly basis, it makes more sense to create twelve worksheets rather than put all twelve tables on a single worksheet.

To navigate an Excel file with multiple worksheets, press Control + Page down to go to the next worksheet and Control + Page up to go to the previous worksheet. This is a Windows keystroke so works with all three screenreaders.

With JAWS, you can get a list of worksheets by pressing Control + Shift + S (think of S for “sheets”). You can then Down arrow or first-letter navigate to a worksheet, and press Enter to open it. This is very useful for efficiently navigating a file with many worksheets. It is also helpful to see the order in which the worksheets are presented in case you want to reorder them.

To get a list of worksheets using NVDA, do the following:

1. Press Insert + F7 to open the Elements list.
2. Shift + Tab once and Down arrow to the Sheets radio button.
3. Tab once to the list of worksheets.
4. As with JAWS, either Down arrow or first-letter to a worksheet and press Enter to open it.

Getting a list of worksheets is not possible with Narrator.

There are a number of actions you can perform with multiple worksheets, including inserting, deleting, renaming, and moving and copying them. JAWS has a context menu for managing worksheets where you can conveniently access all these commands. With NVDA and Narrator, you will need to find each of these commands in the ribbons.

To open the JAWS Manage worksheets context menu, press Shift Insert S. I try to remember “SIS” - short for “sister.” In the order in which they appear as you Down arrow here, The most important commands are:

* Insert: When you press Enter, the first item is Worksheet. Press Enter again and a new worksheet will open with focus on cell A1. This worksheet appears one worksheet before the one where you started this operation.
* Delete: When you press Enter, you will be asked to confirm if you want to delete the current worksheet. Press the Spacebar on the Yes button if this is your intention.
* Rename: Generic worksheet names are Sheet 1, Sheet 2, etc. You should rename them if you plan on creating more than just a few worksheets. Otherwise, you will quickly lose track of which one is which. Press Enter here, type in a short name and press Enter again. If you then press Insert + T, your screenreader will read the filename, followed by “Excel,” and the worksheet name at the end.
* Move or copy: In this dialog, you first land on Move. After you have created a series of worksheets, use the Move command to reorder them. When you Down arrow to a worksheet in the list, pressing enter will Insert the current worksheet just before it. The bottom item on the list is “Move to end.” Press Enter here if you want to place the current worksheet last. If instead you want to create a copy of the current worksheet, Tab once to the Copy checkbox and press the Spacebar. Then Tab one more time to the OK button and press the Spacebar. The copy will have the same name as the original worksheet, followed by the number two in parentheses.
* Select all sheets: Use this command if you want to copy multiple worksheets to a different file. This avoids having to copy them one at a time.

Ribbon shortcut keys for the above commands that you can use with NVDA and Narrator are:

* Shift + F11: insert new worksheet.
* Alt H O R: Rename worksheet.
* Alt H O M: Move or copy worksheet.
* Alt H D S: Delete worksheet.

In some situations with multiple sheets, you may wish to create an additional sheet summarizing the most important data from the other sheets. For example, let’s say you have monthly profit data on twelve separate worksheets. You can insert a summary worksheet with links to the total monthly profits function in each of the monthly worksheets. If you make changes in any monthly worksheet that results in the total profit for that month changing, the change in the monthly total profit function will be fed through to the summary worksheet, thus automatically linking formulas in this sheet to the summary sheet. To do this, use the Paste links option discussed in Chapter 5.10.1 below.

## 5.7 Filtering

Filtering allows you to temporarily hide some data in a dataset so you can zero in on those data that you want to examine more closely. This is especially useful for working with large datasets. Filtering can be done for columns with text in them (city, state, country, etc.) as well as numeric values (simple numbers, currency, dates, etc. I will start with a couple of examples using just text.

Let’s say that you are the Eastern Massachusetts regional manager of a retail chain that operates throughout New England. The database you are working with contains 20,000 records with information on each store, employee, and transaction over the last year. If your goal is to focus on just the stores in the Boston area, filtering allows you to temporarily narrow the visible data. Instead of having to wade through 20,000 records, most of which are not relevant, filtering allows you to reduce the dataset to a more workable number of transactions. If you are only interested in analyzing data for the last three months, you could further narrow down the dataset using filtering. And if you want to focus on just a few products or employees, you could perform additional filtering.

I will demonstrate using an example with far fewer entries. In this section and the next one on pivot tables, I reference the file that accompanies this book entitled “Quarterly Sales By Employee.xlsx.” You may wish to open it to follow along and repeat the steps.

This worksheet contains quarterly sales data for employees in five fictitious electronics stores in the Boston area. Column headers in this workbook go across row 2 and include:

* Store (column A): The five stores (Boston, Cambridge, Quincy, Watertown, and Newton).
* Employee (column B): The first names of three employees in each of the stores, for a total of 15 employees.
* Quarter (column C): Quarters one through four of a particular year.
* Product (column D): Three products sold in each of the stores (iPhone SE, Samsung TV, and HP laptops).
* Quantity (column E): The number of each of these products sold by an employee in a particular quarter.
* Price (column F): The unit price in dollars for each of the products.
* Sales (column G): The formula for price times quantity expressed in dollars.

### 5.7.1 Filtering Columns Containing Text

As a first example, we will filter to narrow focus to just the Cambridge and Newton stores for the first quarter, and iPhone SE sales.

To turn on filtering, your cursor must be somewhere on the row containing the column headers (in this case, row 2). In addition, there can not be any blank rows between this row and the data rows. So, here goes:

1. With your cursor on the column headers row (in this example, row 2), press Control + Shift + L. If you now Left or Right arrow, JAWS and Narrator say “No filter applied dropdown button.” NVDA does not say anything.
2. Place your cursor on the cell containing the column header you first want to filter. We will start in cell A2 where the column header “Store” appears.
3. Press Alt and Down arrow together. This opens a dialog. However, what you hear does not give you a very clear indication of this.
4. Shift + Tab three times until you hear “tree view. Select all checked.” Under this are listed all the items or values present in the column you are filtering by. In this case, these are the five stores identified above.
5. Down arrow and press the Spacebar to uncheck all items that you want the filter to hide. We will uncheck Boston, Quincy, Watertown, while leaving Cambridge and Newton checked.
6. When finished checking and unchecking items, press Enter.
7. Down arrow in this column. You will notice two things: only the rows with the stores you left checked will appear. The unchecked rows are hidden. In this case Rows A3 to A38 and A75 to A146 are skipped over as you Down arrow. Also, as you Down arrow, JAWS and Narrator will say “adjacent to hidden cells,” at the boundary between the hidden and unhidden rows. NVDA says nothing.
8. To further filter by quarter, go to cell C2 where the column header “Quarter” appears.
9. Repeat steps three and four above.
10. This time, press the Spacebar to uncheck the Select all checkbox. Down arrow to the first Quarter and check this checkbox. All other quarters you want hidden are already unchecked. Press Enter
11. For the next filter, go to cell D2 where the column header “Product” appears.
12. Repeat steps three and four above.
13. Again, press the Spacebar to uncheck the Select all checkbox. Down arrow to iPhone SE and check this checkbox. The other products are already unchecked. Press Enter.

After you have filtered to focus in on the data you want to analyze, you can select the entire worksheet by pressing Control + A, and then copying and pasting the data into a new worksheet. Only the unhidden rows will be pasted into the new worksheet. Extracting the data this way from a larger dataset is preferable to attempting to continue working with it in the initial worksheet, especially if the dataset is large.

In the above example, for some columns, I left the Select all checkbox checked and for others I unchecked it. If there are only a few items in the list, the decision to check or uncheck the Select all checkbox is trivial. However, if the number of items listed is large, it is no longer a trivial decision. I once had a client who wanted to filter a column of vendors from whom the state agency where he worked had procured goods and services. There were over 9,000 rows and over 700 vendors listed in his worksheet, and he was interested in displaying the data for just three vendors. It was important that he unchecked the Select all checkbox. After doing that, he was also able to first-letter navigate to quickly find the checkboxes for the three vendors that interested him. Filtering reduced the number of unhidden rows to about 200.

When finished filtering in the initial worksheet, from anywhere in that worksheet, turn filtering off by pressing Control + Shift + L again. All previously hidden rows will reappear.

### 5.7.2 Filtering Columns Containing Numeric Values

There are quite a few options for filtering ranges of numeric values. Column G of the quarterly sales spreadsheet contains dollar amounts for quarterly sales for each product by employee, ranging from about $2,000 to $14,000. Steps are:

1. With your cursor on the column headers row (in this example, row 2), press Control + Shift + L to turn on filtering.
2. Place your cursor on the cell containing the column header you want to filter, in this case, cell G2 where the column header “Sales” appears.
3. Press Alt and Down arrow together to expand the Filtering dialog.
4. Shift + Tab five times to the Number filter submenu, and press Enter to open it. Note that you must Shift + Tab to it. If instead you Tab, it will not appear.
5. Down arrow through the numerous choices which include: Equals..., Does Not Equal..., Greater Than..., Greater Than Or Equal To..., Less Than..., Less Than Or Equal To..., Between..., Top 10..., Above Average, Below Average, and Custom Filter....
6. Press Enter on your choice. Most of these open a dialog where you can insert your desired filter value criterion.
7. When done, Tab to the OK button and press Enter.

### 5.7.3 Detecting Existing Filtering Information

Let’s say you have received a filtered sheet from somebody else and you would like to know which columns have been filtered. One thing you can do is to Right and Left arrow along the row containing the column headers. For those column headers that have been filtered, JAWS and Narrator will say, “filter applied dropdown button.” For unfiltered ones, you will hear “no filter applied dropdown button.” Once again, NVDA says nothing.

If this spreadsheet had a large number of columns, Right and Left arrowing along the column header row could be a bit time-consuming. However, with JAWS, you can quickly detect which columns are filtered by pressing Insert + F1. For the quarterly sales spreadsheet, after filtering the first, third and fourth columns, here’s what JAWS indicated:

“AutoFilter is On.

The auto filter range is from A2 to G182.

Filter 1 is on.

Filter 1 of 7 is Or.

Filter 3 is on.

For Filter 3, Criteria 1 is =2nd, but Criteria 2 is not defined.

Filter 4 is on.

For Filter 4, Criteria 1 is =iPhone SE, but Criteria 2 is not defined.”

The filter number corresponds to the column (1 is column A, 2 is column B, and so on). Note that I chose two criteria for the first filter (that is, two stores), and it did not speak very clearly. With a single selection for filters 3 and 4, it spoke more clearly, indicating which quarter and product criteria I had chosen for filtering.

## 5.8 Pivot Tables

Pivot tables are useful for reorganizing relevant data fields into tables so you can zero in on the information you want to analyze. They are called “pivot tables" because, from a visual perspective, dragging and dropping selected data columns from an initial data table “pivots” these into a new table.

I have used pivot tables for organizing conferences. I needed to track how many people had registered, how much they had paid, add up voluntary donations to the organization, their lunch choice, whether they preferred receiving the agenda electronically, in Braille, or large print, and several other things. I also used pivot tables to present results of a survey with ten or fifteen questions about the accessibility of voting machines. Without resort to pivot tables, figuring out how to organize and report results would have been messier, much more time-consuming, and prone to computational error. An added bonus to using pivot tables is that, after initial construction, they are quick and easy to update as you add new data. In the conference example mentioned above, I was able to regularly update and report statistics as new registration information came in prior to the conference.

### 5.8.1 Creating Pivot Tables

A generic table consists of up to three parts. Using the simple example of the Monthly Expenses table from earlier in this chapter, and using pivot table nomenclature, these are:

* Row labels down the leftmost column where the different bill types are listed.
* Column labels along the top row of the table. In this case, the months of the year.
* Values, the actual data in the table, in this case, the dollar amounts of each bill.
* These are the building blocks for constructing pivot tables. Pivot tables can have row labels and values, column labels and values, or both row and column labels and values. All must have values, and values must be numeric (quantities, dollars, percentages, etc.).

In this section, I will reference the quarterly sales by employee worksheet used in the previous section on filtering. I will construct several pivot tables from these data. The first one will be total sales by quarter for each of the stores. This will involve designating Store names as row labels, quarters as column labels, and sales amounts as values. Steps for creating this pivot table are:

1. Select the data range that includes the column header row and the data. In this workbook, the data range is A2 through G182. With your focus on cell A2, a quick way to select this data range is to press Shift Control + End.
2. Press Alt to open the Upper ribbon, Right arrow once to the Insert tab, tab into the Lower ribbon, and depending on your version of Excel, press Enter on either the Tables submenu (version 365), or on the Pivot table button for Earlier versions.
3. For version 365 only, You land on the Pivot table split button. Press Enter again.
4. You land in a dialog box where the selected data range may or may not be announced. Assuming the data range selected in step 1 above is correct, press Enter here.
5. You now land on cell A3 in a new blank worksheet. Do not navigate away from this cell. Otherwise, the next step will not work.
6. Press F6 a couple of times until you hear “pivot table fields, find words to search for.”
7. Tab once where you will find all your column headers listed.
8. Down arrow to the first of these that you want to be part of your pivot table, either as a row label, column label, or value. In this case, you first land on “store,” which is the variable we want to use as a row label.
9. Press the Applications key, Down arrow to Add to row labels, and press Enter. This returns you to the list of column headers. The checkbox for “store” is now checked.
10. Down arrow to the next column header in the list that you want to be either a column label or value. In this case, it is “Quarter,” which will be the column label.
11. Press the Applications key, Down arrow to Add to column labels, and press Enter. Here again, you are returned to the list of column headers, and the checkbox for “Quantity” is now checked.
12. Down arrow to the column header in the list that you want to be included for values. In this case, it is “Sales.”
13. Press the Applications key, Down arrow to Add to values, and press Enter. You are returned to the list of column headers, and the checkbox for “Sales” is now checked.
14. The pivot table is now ready to view. Press F6 several times until you have returned to the worksheet. You will know when you are there because you land in cell A3 every time. In this case, you hear “Sum of sales A3.”

Note that the order in which you add row labels, column labels and values does not matter. Simply add them in the order they appear as you Down arrow through the list.

The table appears as follows:

* The five stores are listed down column A.
* The four quarters are listed across row 4.
* The values appear in the body of the table. For example, the value of first quarter sales in the Boston store is contained in cell B5.
* Grand totals by quarter appear across the bottom row of the table.
* Grand totals by store appear down the last column of the table.
* The grand total for all stores and all quarters appears in the bottom right cell.

Note that the values only appear as simple numbers. Press Control + A to select the entire table, and press Control + Shift + 4 to quickly change their format to dollars with two decimal places. Also note that you should rename the worksheet using the steps outlined in Chapter 5.6 so you don’t confuse it with other pivot tables you will be creating on other sheets.

I frequently create pivot tables whose purpose is simply to count things. I mentioned above that I used pivot tables for planning a conference. I created pivot tables to count up the number of lunch choices, preferred agenda format (email Braille, large print), and a few more items. For these tables, I designated lunch choice and preferred agenda format as row labels. To add values, I inserted a column called “Quantity,” that I filled with the number 1 for all the entries.

### 5.8.2 Filtering Pivot Table Data

You can filter pivot tables to narrow your focus. Using the table just constructed, let’s say we are only interested in sales of the Boston store in the first quarter. We can filter this table as follows:

1. Navigate to cell A4 which contains the text “row labels,” and press Alt + Down arrow to open the Filter dialog.
2. Shift + Tab to the tree view where you land on the Select all checkbox which is checked. Press the Spacebar to uncheck it, thus unchecking all the store names underneath it in the list.
3. Down arrow to the Boston checkbox and press the Spacebar to check it. If you wanted to include other stores, you would Down arrow to them and also check them.
4. When finished checking and unchecking items, press Enter.
5. To filter the quarters, navigate to cell B3 which contains the text “Column labels,” and Down arrow to open the Filter dialog.
6. Shift + Tab to the tree view where you land on the Select all checkbox which is checked. Press the Spacebar to uncheck it, thus unchecking all the quarters underneath it.
7. Down arrow to the first quarter checkbox and press the Spacebar to check it.
8. Press Enter. The other quarter columns are now hidden and only the Boston first quarter sales values appear.

A wide variety of pivot tables can be constructed with a dataset such as that contained in the original worksheet. These might include:

* Total sales by employee
* Total sales by product.
* Product sales by store.
* Product sales by quarter.

These could be filtered to narrow in on subsets of products, employees, quarters, or stores.

### 5.8.3 Refreshing Pivot Tables

Once you have created a set of pivot tables, it is quick and easy to update them as new data is inserted in the initial data table, and as long as you use the following trick. If you want to Insert new rows, insert them somewhere in the middle of the table rather than under the bottom row. Similarly, Insert new columns between existing columns, rather than after the last one. The data range captured for recalculating the pivot tables will automatically adjust. Once you have inserted the new data:

1. Navigate to any of the sheets containing a previously-created pivot table.
2. Place your cursor on any cell with data in it.
3. Press the Applications key, Down arrow to Refresh, and press Enter.

All pivot tables are now updated with the new data incorporated in the calculations.

By contrast, if you add new rows below or new columns to the right of the existing ones, refreshing is more time-consuming. If at all possible, avoid doing this because you will need to repeat the steps below for each pivot table that you want to refresh.

Let’s say I have added data for a sixth store. The previous data range was A2 through G182, and now has been extended to G219. Also let’s say the name of the sheet is “data.” Steps for refreshing an individual pivot table are:

1. Navigate to the sheet containing one of the pivot tables you wish to update and place your cursor somewhere in this table.
2. Press the Alt key to open the Upper ribbon, and Right arrow to the Pivot table analyze tab. Note that this tab only appears when your cursor is situated in a pivot table.
3. Tab into the Lower ribbon to the Change data source split button and press Enter.
4. You land in an edit field where you type in the sheet with the raw data and the data range. The syntax is: the name of the sheet followed by the exclamation mark and then the new data range. In this case, type “data!a2:g219”without the quotes.
5. Tab to the OK button and press Enter.

This pivot table is now refreshed with calculations incorporating the new data. Unfortunately, you will need to repeat these steps for all previously-created pivot tables that you wish to refresh. In light of this, it is preferable to Insert the rows for the sixth store somewhere in the middle of the data table rather than below the bottom row.

## 5.9 Basic Visual Considerations for Formatting Worksheets

Figuring out how to Format worksheets for sighted audiences can be overwhelming. To avoid confusing you too much, this section covers just the basics. For many users, it’s all that’s needed. Chapter 5.10 will cover more advanced formatting topics, including printing considerations.

If you are preparing a spreadsheet for a sighted audience, the basic things you need to know about to make it visually acceptable are:

* Font and cell formatting information revealed by your screenreader with Insert + F.
* How to change font settings.
* Making cell dimension information understandable by switching to the Page layout view.
* Cell text visibility and column width adjustment to ensure that cell data is not hidden by data in adjacent columns.
* Text wrapping for columns with large amounts of text to prevent text from being cut off (or “cropped”) by data in adjacent columns, or to guard against the text extending across many columns.
* Row height adjustment for column headers to ensure that column header text is fully visible and that all column header text is contained in a single row.

For spreadsheets intended solely for on-screen viewing, failure to take the above items into account may result in sloppy and unprofessional appearance. If also intended for hard copy printing, this is more serious because text will be chopped off or explode all over the paper, making it unreadable.

There is at least one exception where appearance doesn’t matter. If you have a multi-page spreadsheet and one sheet contains the raw data for producing other sheets, sighted people do not concern themselves with the data sheet’s appearance, nor do they typically print them in hard copy. So, don’t worry about formatting these sheets.

### 5.9.1 Checking Cell Formatting with Insert + F

With focus on an individual cell, pressing Insert + F with JAWS reveals the following default font and cell formatting: Text color Black, background color White, Calibri, Regular, 11 point, highlighted, Horizontal alignment is General., Vertical alignment is Bottom., Number format is general., Normal, Cell dimensions are 50 points wide by 14 points high

Let’s unpack this information. Font formatting information is the same as what is revealed when pressing Insert + F in Word (name, point size, color, and attributes like bold and italics). But in Excel, rather than hearing paragraph formatting as is the case in Word, we hear various aspects of cell formatting, including:

* Horizontal alignment: The default is General, meaning that text automatically appears aligned left and numbers appear align right within the cell. These can be changed within the Font group of the Home tab of the ribbons. Options are left, center, and right.
* Vertical alignment: The default for both text and numbers is bottom. Other options available within the Font group of the Home tab are top and middle alignment.
* Number formatting: The default is General. This will appear for both text and simple numbering. Change these with the steps covered in Chapter 5.2.5 above.
* Cell width and height expressed in point size. To get a tangible sense of the meaning of point size, one inch equals 72 points. So a 50 point cell width is about seven-tenths of an inch wide, and a 14 point row height is a shade less than one-fifth of an inch high.
* With both NVDA and Narrator, pressing Insert + F reveals font information. NVDA also reveals information about cell borders. Regarding cell formatting, NVDA also reveals horizontal and vertical alignment, calling it “Default” instead of “General.” NVDA does not provide cell dimension information. Narrator does not reveal any formatting information beyond fonts.

### 5.9.2 Changing Fonts

Similar to Word, font settings include name, point size, color, and attributes. As mentioned in the last section, defaults for each of these are Calibri, 11 point, black on white, and regular (that is, no attributes like bold or italics).

When formatting Word documents, people change font settings all the time. However, you may rarely find yourself needing to change them in Excel if all you want to do is share them electronically or print them out without being too fancy. One situation where I change Excel fonts is when I want to copy and paste cell content from a spreadsheet into a Word document, and I want the Excel and Word fonts to be the same. It is better to change the fonts in Excel before copying and pasting into Word.

Steps for changing font formatting are:

1. Select the cells to be formatted.
2. Press Alt and H to open the ribbons and land on the Home tab.
3. Press Control + Right arrow twice to get to the Font group where the first item is the Font edit combo box for changing the name. Type in the first letter or first several letters of the font you wish to change to, and Down arrow until you land on it. Press Enter if this is the only change you want to make.
4. Otherwise, continue tabbing to find other settings commands like the Font size edit combo box, the Bold and Italics checkboxes, and Font color split button.

As with Word, you can also change cell attributes quickly by selecting the desired cells and pressing Control + B to bold or Control + I to italicize them. This is something you might want to do for the table title, column headers, and/or row headers.

For accessibility purposes, it is better not to change character color from the default of black text on a white background. In some earlier versions of my screenreader programs, I used to hear confusing things like “white on white” or default on default, the first of which is nonsensical and the second not very revealing. Fortunately, I currently hear black text on a white background. If you are not hearing these reassuring words, and want to be absolutely sure that these are your color settings, or want to change them, this is done for foreground and background color with the Font Color and Fill Color split buttons, respectively. Steps are:

1. To change the foreground or text color, press Alt H F C to expand the Font color split button.
2. If not there already, Up arrow in this color palette to Automatic, and press Enter to change to black.
3. To change the background color, press Alt H H to expand the Fill color split button.
4. If not there already, Up arrow in this color palette to No Fill, and press Enter to change to white.

You can arrow around in these color palettes to change foreground and backgrounds to other colors, but most people rarely do this.

### 5.9.3 Switching to Page Layout View

Detecting and adjusting column width and row height dimensions are important for cell formatting. However, how these are revealed is not initially intuitive. For column width and row height default dimensions, you may hear values like 8.11 and 14.4, respectively. What do these numbers mean?

Column width is specified as a number of characters. So this means that 8.11 characters in the current font can fit within the width of the column. But what type of characters are we talking about? Back in typewriter days, individual character size was fixed so that either 10 or 12 characters fit within one inch. Nowadays, fonts are proportional, meaning that fat letters like M take up more room than skinny letters like I. Thus, expressing column width non-proportionally is of no intuitive value.

Row height is expressed in terms of point size. In Excel, the default point size for characters is eleven, so row height includes this plus a bit of padding. [[14]](#footnote-14)

It is more straightforward to express these values in inches. Changing workbook views allows this. Steps for doing this for an individual Excel file are:

1. Press Alt to open the Upper ribbon, and Right arrow to the View tab.
2. Tab into the Lower ribbon to the Page layout view and press Enter. The ribbon shortcut is Alt W P.
3. Press Alt H O W, and column width will now be expressed in inches 8.11 becomes 0.70”. Your screenreader says quote because this is the symbol for inches.
4. Press Alt H O H to hear row height, which is now 0.20.“

This setting is retained when you save the file, but does not become the default.

To make this the default view:

1. Press Alt F t to open the Excel options.
2. You land on the General category, which is the one you want. Tab to the Default view for new sheets combo box.
3. Down arrow to Page layout view and press Enter.
4. Tab to the OK button and press Enter.

This becomes the default view for all new worksheets. For any previously saved worksheets, you need to change the view one at a time.

If you prefer dimensions expressed in centimeters rather than inches while in the Page layout view, do the following to make this the default:

1. Press Alt F t to open the Excel options categories.
2. Press A twice to go to the Advanced category.
3. Tab many times to the Display ruler units combo box (or to get there more quickly, press Alt U three times).
4. Down or Up arrow to Centimeters and press Enter.
5. Tab quite a few times to the OK button and press Enter.

### 5.9.4 Adjusting Column Width

You can manually adjust column width or automatically resize **columns** to fit the data. The automatic option is called “autofit.” If you are sharing spreadsheets with sighted people, it is important to know if your column widths are correct. Otherwise, sighted recipients may be unable to see data in some of the cells. JAWS calls this issue “cell text visibility.” I will use this term here.

If a column is not wide enough to accommodate the content of a particular cell, and the cell to its right also contains content, what you hear using a screenreader program and what visual users see is different. And depending on your software versions, this also may differ between cell content that is text or numbers.

Screenreader programs will read all cell content, regardless of column width, and even if there is content in the cell to its right.

For sighted users, if there is content in the cell to the right, they will only see the text that fits within the current column width. If a sighted user places focus on a particular cell, that cell’s full text becomes visible in the Formula bar, a long thin rectangle near the top of the screen and under the ribbons. However, if this sheet is printed out, it is not possible to detect any cut off characters on the hard copy.

If a cell text visibility problem exists, NVDA indicates this by default. The JAWS default is to not indicate it, but a setting can be changed for individual sheets. Narrator does not currently have a way to identify cell text visibility problems.

For JAWS, turning on the setting to detect cell text visibility issues is done in Quick Settings as follows:

1. From inside the Excel file for which you want to change this setting, press Insert + V to open Quick Settings.
2. Type “vis” in the search box, minus the quotes.
3. Down arrow to the Cell text visibility detection checkbox and check it.
4. Tab to the OK button and press Enter.

Unfortunately, this setting can only be changed for one file at a time. It cannot be made the default. In addition, I have found that JAWS does not always reliably indicate when there is no longer a cell text visibility problem, resulting in “false positives.” In my opinion, this is one area where NVDA does a better job than JAWS. NVDA identifies this problem without having to change a setting, and is also more reliable in telling you when you have fixed it.

If a column is not wide enough for the text content in cell A7, and there is content in cell B7 to its right, JAWS and NVDA will identify this as a cropped cell. NVDA will say “cropped at A7.” If cell text visibility detection is turned on, JAWS will say “cropped right at B7.” If there is no content in cell B7, NVDA will say “overflows A7.” JAWS will say “overlaps near B7,” or whichever cell the text extends to on that row.

Commands for changing column width are located in the Cells group of the Home tab but are hard to find. Instead use the shortcut keys, which are Alt H O W for adjusting manually and Alt H O I for autofit. While it is usually better to autofit rather than guess at a manual width, the manual command allows you to detect the current column width.

So, how do you go about changing column width? To change it manually, press Alt H O W, type in a new column width value, and press Enter. If you have changed to Page layout view, express the value in inches. It is not necessary to type the quotation mark for inches.

To autofit a column:

1. Press Control + Spacebar to select the column.
2. Press Alt H O I to autofit.
3. If you want to find out what the new column width is, press Alt H O W to reveal its new value, and then the Escape key when you are done.

You could also select multiple columns by pressing Shift Right arrow several times across a row, then Control + Spacebar to select the columns, and then you could either change column width manually or autofit them, as outlined above. However, with regard to autofitting, a table with lots of different column widths is unsightly. It is more appropriate to have a wider column where the row headers are located (Usually column A), and uniform widths for the remaining columns to the right. Another exception is a column containing notes with several sentences or paragraphs. Wider columns with text wrapping are appropriate here.

### 5.9.5 Text Wrapping

Text wrapping increases row height, causing text to appear on multiple lines within that cell. A common situation where you will want to wrap text for a sighted audience occurs when you have some notes in some of the cells, perhaps several sentences. If you don’t enable text wrapping, one of two things will happen. If there is content present in the next cell to the right, this text will be cropped. If instead there is no content to the right, this text will spill onto multiple cells to the right. A sentence or two may extend as far as seven or eight cells to the right. This does not look good.

In such situations, you should first manually widen column width to something greater than the default. Two and a half or three inches might be a reasonable adjustment. For all cells in a row with at least one wrapped cell, vertical alignment should be changed to Top. Steps are:

1. While anywhere in the column, press Alt H O W to open the Column width edit box.
2. Type in the new column width and press Enter.
3. Press Control + Spacebar to select the entire column.
4. Press Alt h W to enable text wrapping.

If text wraps to add new lines to an individual cell, the height of the entire row adjusts to accommodate this change. To hear the height of the current row expressed in inches (assuming you have switched to Page layout view), press Alt H O H. To find out how many lines are in the current cell, press F2 and Control + Home to get to the top left corner of the cell edit box,, and then Down arrow to read the text line by line.

Content in other cells on this row are vertically aligned to the bottom of the cell. This does not look good and needs to be changed to Top alignment as follows:

1. Select the rows where at least one cell in the row is wrapped. Shift + Spacebar is the keystroke for selecting an entire row. To select multiple contiguous rows, Press Shift + Down arrow, and then Shift + Spacebar.
2. Press Alt H to open the Home tab of the ribbon.
3. Press Control + Right arrow to move to the Alignment group where the Top checkbox is the first choice.
4. Press the Spacebar to check this checkbox.

If you wrapped text for an entire column (as instructed above), a quick way to select all rows in a table (with the exceptions of the table title row and the header row which should both remain bottom aligned), starting in the top left cell where data appears, press Control + Shift + End to select from that cell to the bottom right cell containing data.

A couple of final remarks related to text wrapping. You can manually insert a line break within an individual cell. Do this if you are typing entire paragraphs. To do this, navigate to the position in the cell where you want to add the line break, and press Alt Enter. That said, if you anticipate typing substantial amounts of text, do yourself a favor and type it in Word and then copy and paste it into Excel. It is much easier to navigate and edit text in Word than in Excel.

### 5.9.6 Adjusting Row Height for Column Headers

Column header labels should never be too lengthy. You don’t want them to be cropped by headers in adjacent cells, nor do you want them to be lengthy if data in the column are numbers or short bits of text. While you could easily adjust column width to accommodate header text, if the column were 1.5 inches wide and column data fit within the 0.70 inches default, the column would look unsightly. In situations like this with column header labels like Monthly Salary or Annual Amount, adjust row height to make header text appear on two lines rather than a single one. This involves both manually adjusting row height and enabling text wrapping for that row. Steps are:

1. With your cursor on the header row, press Shift + Spacebar to select the entire row.
2. Press Alt H O H to open the Row height edit box. In Page layout view, the default value may be 0.18” or 0.20.”
3. Type in the value that is double the current value and press Enter.
4. With focus still on the column header row, press Alt H W to enable text wrapping for all cells on that row.

Two-word column labels like those mentioned above will now appear on two lines within the cell. Shorter single-word labels will be bottom- aligned

## 5.10 More Advanced Formatting and Printing Considerations

If you would like to go beyond the basics and make your spreadsheets more visually appealing and easier for sighted users to navigate, you can add page headers and footers, and freeze panes. You can incorporate other formatting features such as borders, table formatting, and table styles. You should also read the section on printing if you want to produce hard copy for sighted audiences.

### 5.10.1 Headers and Footers for Sheets

Headers and footers can be added to appear at the top and bottom of printed sheets, respectively. Information commonly inserted in headers and footers include file and worksheet names, the date and time the file was last revised, and page numbers. If you have work colleagues who are experienced Excel users, ask them which information they typically put in headers and footers and whether they tend to left, center or right-align this information.

There are quite a few built-in options that can be inserted. To insert a header or footer:

1. Open the Page setup multi page dialog in the Layout tab (the ribbon shortcut key is Alt P S P).
2. Control + Tab to the Headers/footers tab.
3. Tab to the Header combo box where the word “None” is at the top of the list if you have not yet created a header for this file. If you had previously created one, it would be identified at the top of the list. While there is a list of fields you can insert in this combo box, it is better to add fields via the Custom header dialog.
4. Tab once to the Custom header dialog, and press Enter to open the Header pane. This lands you at the left margin of the Header pane.
5. Here is where you can most clearly control which information goes on the left, center and right of the header. Tab and Shift + Tab between the left, center, and right of the header pane, and use the following key combinations to insert that information at that spot in the Header: Date - Alt D; Time - Alt m; Pathname - Alt P; Filename - Alt e; Tab (Sheet name) - Alt a; and Insert Picture - Alt I. It is possible to insert more than one of these fields at the left, center, and right of the header pane. You can also simply type in text, although this is not done very often in Excel headers and footers.
6. When done creating your custom header, Tab several times to the OK button and press Enter. As you Tab to the OK button, you will hear the key combinations for the fields I just listed.
7. Pressing the OK button closes the Custom header dialog, but you are still in the Header/footer dialog, so Tab to a second OK button and press Enter to save your changes.

To delete an existing header, repeat steps one through three above to go to the Header combo box where the current header is at the top of the list. Down arrow once or twice to remove focus from it, and then press the Home key. Your screenreader should now say None. Tab to the OK button and press Enter to remove it. You can open the Custom header dialog to edit an existing header, but I find it easier to remove the current header and then start over.

### 5.10.2 Freeze Panes

The Freeze panes command is the sighted equivalent of the Define name command. It is used to “freeze” column and/or row headers so they can be visible no matter where the cursor is located in a spreadsheet. This is useful for sighted users in large spreadsheets with many columns and rows. For example, if the cursor is located in cell O187, without freezing the appropriate columns and rows, it will not be possible to interpret the data in that cell without doing a lot of time-consuming navigation. This is because the cursor is located too far down, as well as too far to the right, to see the associated column and row headers.

Where you position the cursor before initiating the Define Name command (see Chapter 5.2.2), can help you figure out where to initiate the Freeze panes command. This position is usually the cell diagonally just below and to the right of where you initiate the Define Name command.

In the practice file I used earlier for discussing filtering and pivot tables (Quarterly Sales By Employee.xlsx), if I wanted to use the Define name command, I would position the cursor in cell A2 before initiating the command. Once set for titles, as I arrowed right and left, I would hear the Column header in Row 2 and the content of the cell I am on. As I arrowed up and down, I would hear the row header in Column A and the content of the cell I am on.

To freeze panes correctly for this file, focus needs to first be on cell B3. This will enable sighted users of the file to see Column A no matter how many columns they are to the right, and rows 1 and 2 no matter how many rows down they are.

Steps for enabling Freeze panes are:

1. Place focus in the cell that is the intersection of: the column that is just to the right of the column or columns you want to always be visible, and the row just below the row or rows you want to always be visible.
2. Press alt to open the ribbons, Control + Right arrow about five times to the Windows group.
3. Tab to the Freeze Panes submenu, and press Enter to open it (the ribbon shortcut is Alt W F).
4. Press Enter on Freeze panes, the first selection here, to freeze both column and rows.

Other choices in this submenu are: Freeze Top Row and Freeze First Column. You will hear this even if you want to freeze more than one column or row.

When Freeze panes are enabled, pressing Control + Home no longer brings you to cell A1, but to the cell where the Freeze panes command has been initiated (cell B3 in the quarterly sales file example). You can still Left arrow and Up arrow to get to cells in the frozen columns and rows.

If you want to disable Freeze panes, follow the same steps as above to disable the setting. When you land in the submenu, it will say Unfreeze panes.

### 5.10.3 Formatting Tables

You can make your worksheets more visually appealing by using table styles which adds a number of visual elements, including bolding column and row headers, and varying background shading of alternating columns or rows. You can also add borders around entire tables, selected rows, columns or cells to make them stand out. If you have never done this before, ask experienced sighted users about appropriate table formatting choices.

#### 5.10.3.1 Table Styles

It is easy to select a table style, but understanding the pattern of the table styles is not readily apparent without a few workarounds.

To illustrate, I will use the example of a quarterly sales table of a retail store, where the name of the table “Quarterly Sales of the Acme Company” appears in cell A1. Table content appears as follows:

* The column header “Product” appears in cell A2, and the company’s various products are arrayed from cell A3 to A9. The row header “Total” appears in cell A10.
* Column headers for the four quarters appear in cells B2 through E2. Quarterly sales data for each product are presented down these columns.
* Cell F2 contains the column header “Annual,” and row totals will be summed down this column.
* Therefore, the table’s data range begins in A2 at the top left corner and F10 at the bottom right corner. The table name in cell A1 is not part of the table.

Steps for selecting a style for this table and then adapting it to your wishes are:

1. Select the table’s data range, which in this case is A2 through F10. To do this quickly, with your focus in cell A2, press Shift Control + Right arrow to select across to cell F2, and while continuing to hold down Control + Shift, Down arrow once to cell F10. Your screenreader will say the content and coordinate of the top left cell and then the content and coordinate of the bottom right cell.
2. Press Alt H T, which is the ribbon shortcut key to get into the Format as table submenu.
3. This opens a Table styles gallery. Right arrowing here presents a series of colors, including white and black/grey, white and blue, white and orange, white and grey, white and yellow, white and blue (lighter shades than the first set of blue and white options), and white and green. Down arrowing presents various shade levels of those colors (light, medium and dark). Arrow to a color and shade that appeals to you and press Enter to choose it.
4. You land in a dialog box where the cell range chosen is repeated. Tab once to the My table has headers checkbox and press the Spacebar if you want the top row to serve as the column header row. This will bold the column headers. Note that it does not bold the column containing row headers.
5. Tab to the OK button and press Enter.

This data range is now a formatted table. To get a sense of the characteristics of the table style you have chosen, beyond just its color and shading, and with your focus placed somewhere in this data range:

1. Press Alt to open the Upper ribbon, and Right arrow to the Table tools table Design tab. This is a context-specific tab. It will only appear if your focus is situated in the table’s data range. The shortcut key to get to it is Alt J T.
2. Press Control + Right arrow to navigate to the Table styles options group in the Lower ribbon.
3. To check or uncheck the various options in this group, press the Tab key to navigate through them. The options include: header row, totals row, banded rows, first column, last column, and banded columns. If banded rows or columns are checked, they will display alternate shading with the color you selected. To bold the first column, check the first column option. If the header row is checked, it will be displayed in bold font. If the totals row option is checked, a row for totals will be added to the table.
4. Press the Spacebar on any of these if you wish to check or uncheck them. Unfortunately, modifying a single one throws you back into the table. You have to repeat the above steps to get back here and continue modifying them one by one.
5. Repeat these steps until you have the desired formatting.

Note that checking the Header row and First column checkboxes will bold their cell content. In JAWS, they will also be read similarly to when the Define name command is used to speak column and row headers as you navigate within the table. However, headers are not consistently read with NVDA and Narrator. Therefore, to be sure they read properly, you should still use Excel’s Define name command for reading column and row headers (see Chapter 5.2.2 above).

To turn off table formatting so that the data range reverts to its original formatting, do the following:

1. Select the data range of the table.
2. Press Alt H E F to clear formatting.
3. Press the Applications key, Up arrow to the Table submenu, Down arrow to Convert to range, and press Enter.
4. You are asked whether you want to convert the table to a normal range. Press the Spacebar on the Yes button to confirm.

If you add banded rows or columns, you want to be sure they have sufficient color contrast with the cell content. The Excel Accessibility Checker is a useful tool for doing this. Access it as follows:

1. Press Alt, Right arrow to the Review tab, Tab to the Check accessibility split button, and Press Enter.
2. Tab to Inspection results. If you hear “no accessibility issues found,” then your table style choice is OK. However, if you hear “warnings,” then Down arrow through the results, presented in a tree view. This will reveal the problem, saying “hard to read text contrast,” and naming the sheet where the problematic table appears.
3. If this happens, clear the table style, choose another one, and rerun the Accessibility Checker.

Here are a few hints and caveats about the process of adding table styles:

* When you open the file, if you hear that it is in compatibility mode, this means that the file was originally saved in the older 1997/2003 Excel file format rather than the newer one beginning with Excel 2007. Turn this off for more dependable outcomes. Also note that the Accessibility Checker will not work in compatibility mode. Press Alt F I to get to the Info tab, Tab to the Compatibility mode convert button and press Enter. You will be asked to save it, which you should do.
* Navigating to the Table design tab on the Upper ribbon requires pressing the Right arrow quite a few times. If you are going to navigate there several times to modify format options, use the shortcut key which is Alt J T. Then press Control + Right arrow to more quickly navigate back to the Table styles options group in the Lower ribbon.
* Don’t check the Total row checkbox. It gives unreliable results.
* If you are going to add shading, select either banded columns or banded rows for easier readability for sighted readers.
* As of the writing of this book pressing Insert + F gives more dependable information about font color with NVDA and Narrator than with JAWS. However, none of the screenreaders are very dependable for identifying format information, so always seek feedback from a sighted person.

#### 5.10.3.2 Adding Borders

You can also format tables by surrounding the entire table, as well as cells within it, with borders of varying thickness. I should first clarify the difference **between borders and gridlines.** Borders of varying thickness may be added to make tables and/or parts of those tables stand out on the computer screen and on printed pages. **Gridlines** are thin horizontal and vertical gray lines that visually differentiate boundaries between cells on your computer screen. If you add borders, they will appear on both your computer screen and printed pages. Gridlines appear on your computer screen but not on printed pages, unless you change a setting to make them appear when printed.

As an example, lets format the table discussed above by adding thick borders on the top, bottom, left, and right edges of the entire table, another thick border below the column header row to set it apart from the other rows, and thin gridlines around the remaining cell edges in the table. Steps are:

1. To add thick borders around the entire table, select the table’s data range: A2 through F10.
2. Press the Applications key, Up arrow to Format cells, and press Enter. This opens the Format cells multi-page dialog. Press Control + Tab until you get to the Borders page.
3. Tab once to a series of radio buttons for adjusting border line thickness. Down arrow to the Thick radio button.
4. Tab to the Outline button and press the Spacebar. Now Tab through and you should hear that the top, bottom, left and right checkboxes are checked. Because you initiated this process by selecting the entire table, this choice will add thick borders around the entire table while leaving gridlines around all the interior cell edges.
5. Tab to the OK button and press Enter.
6. To now add a thick border to the bottom edges of the column header cells, select the cells in row 2 (cells A2 through F2).
7. To get to the Borders dialog more quickly, press the Applications key, and then F. Your focus should immediately land on the Borders page of the Format cells multi-page dialog box.
8. Tab once. Your focus should still be on the Thick radio button.
9. Tab to the Outline button and press the Spacebar. As you continue tabbing, you should again hear that the top, bottom, left, and right checkboxes are checked. The edges around the entire row will be thick, while the interior vertical edges will remain as gridlines.
10. Tab to the OK button and press Enter.
11. To also print the gridlines of the remaining cell edges, press the Alt key, Right arrow to the Page Layout tab, press Control + Right arrow until you get to the Sheets group. You first land on the View gridlines checkbox. Tab one more time to the Print gridlines checkbox and press the Spacebar to check it. When I tabbed to this command on my computer, my screenreader only said “print.” But when I tabbed past it, and Shift + Tabbed back to it, it said “gridlines print.”

To remove borders:

1. Select the desired data range.
2. Press the Applications key, and then F. Your focus should immediately land on the Borders page of the Format cells multi-page dialog box if you were there previously. If you land elsewhere, press Control + Tab until you get there.
3. Tab to the None button, and press the Spacebar to activate it.
4. Tab to the OK button and press Enter.

Adding borders correctly may require a fair amount of trial and error. JAWS has an extremely useful keystroke for revealing the border pattern of individual cells. After making border changes, spot-check them by navigating to a few cells and pressing Alt Shift B to check their border formats. For example, after I made the changes above, when I pressed this keystroke with my focus in cell A2, JAWS said “Black thin gridline right edge, thick black continuous left, bottom and top edge borders of active cell.” Spot-checking a few other cells in the table confirmed that I had formatted borders as intended. However, when I tried to mix things up a bit by adding borders of varying thickness, results were unreliable. Therefore, I would recommend that if you try to add borders, don’t attempt anything too elaborate. If using JAWS, continuously check your work with the Alt Shift B keystroke. Unfortunately, I am unaware of any reliable way to check border formatting with NVDA or Narrator.

Finally, you may wish to bold the cell content of selected rows or columns, such as column and row headers, or total rows or columns. This is easy. Simply select the data range, and then press Control + B to bold it.

A final observation: formatting Excel tables is finicky and temperamental. Screenreader feedback may be less than reliable. Consequently, the only way to be absolutely sure that you have formatted your table as intended is to have a sighted person look it over.

### 5.10.4 Printing

You can print individual worksheets, all worksheets for a multi-sheet file, or a selected data range or print area in a worksheet. To print a data range in a worksheet rather than the entire worksheet, first select the block of cells using the keystrokes discussed in Chapter 5.3.2 above. Steps for printing are:

1. Press Control + P to open the Print dialog.
2. Press Tab to the Print what combo box, and Down arrow through the choices, which are: active sheets, entire workbook, and selection. Press Enter on your choice.
3. If you are ready to print, press Tab to the Print button and press Enter. Otherwise, press the Escape key.

If your data selection is too large to fit on a single page, you need to consider how it will be arranged on multiple pages. Elements to consider include page size, font size, margin dimensions, and column and row height. Here are the Excel default settings, and I will use them in this section:

* Page size of 8.5 inches wide by 11 inches high in portrait mode.
* Calibri font with 11 point size.
* Top and bottom margins of 0.7 inches, and left and right margins of 0.75 inches.
* Column width of 0.7 inches and row height of 0.2 inches.
* No headers or footers, presence of which can effect the number of rows that fit on a page.

Based on this configuration, eight columns and 47 rows of data can fit on a single page on my computer. I am not prepared to say that this is universal, but it will work for illustrating what follows in this section.

If a worksheet has more columns and/or rows of data than will fit on a single page using this configuration, you need to know a few techniques for printing. JAWS in particular, has some useful tools to aid in the printing process.

Let’s say we have a worksheet that has 15 columns (from column A to O) and 65 rows. All this data will not fit on a single page. With JAWS, pressing Control + Shift + B brings up the Cells and page breaks list. This identifies where horizontal and vertical page breaks occur. In this case JAWS identifies the horizontal page break at A48, meaning that row 48 will be the first row on the second page. Down arrow once and JAWS indicates a vertical page break at cell K1, meaning that column K will be the first column on the second page.

Pressing Insert + F1 brings up JAWS Screen-Sensitive Help. Among other things, JAWS reads the following print-related information: 1 horizontal full page break, 1 vertical full page break, and 4 portrait pages can be printed from this worksheet.

The data ranges and default order of printing will be:

* A1 to J47 on page one.
* A48 to J 65 on page 2.
* K1 to O 47 on page 3.
* K48 to O 65 on page 4.

If you print a data range with horizontal page breaks, you will want to be sure that column headers appear on every page. Otherwise, readers will have difficulty interpreting data on page two and beyond. Likewise, If you print a data range with vertical page breaks, you will want row headers to appear on every page. And If you print a data range with both horizontal and vertical page breaks, both column and row headers should appear on each page. To do this:

1. Press the Alt key to open the Upper ribbon, and Right arrow to the Layout tab.
2. Tab into the Lower ribbon to the Print titles button and press Enter. The shortcut key is Alt P I.
3. Tab to Rows to repeat at top. If your print selection will have one or more horizontal page breaks, type here the row number or numbers of your column headers. If column headers are in row 2, type in here “2,” minus the quotes. If column headers are in two rows, say two and three, type “2:3” here, minus the quotes. The colon indicates rows two through three.
4. Tab to Columns to repeat at left. If your print selection has one or more vertical page breaks, type here the column letter or letters of your row headers. This is nearly always just Column A, so type “A” here, minus the quotes.
5. Tab to the Gridlines checkbox, and press the Spacebar to check this if you want narrow gridlines to appear between cells. This is one way to make table reading clearer for sighted viewers.
6. Tab to the Down then over radio button. This indicates the order of how data ranges will be printed. Leaving it this way results in the print order indicated above. Down arrow once to the Over then down radio button if you wish to change the page printing order.
7. Tab to the OK button and press Enter.

If possible, try to avoid data spilling onto lots of printed pages. An excessive number of vertical and horizontal page breaks can make it hard to understand the information if it is carved up into lots of slices. You should also avoid printing pages with just one or two columns or rows. If you find yourself in such a situation, there are a few things you can do. First, if the page is not wide enough to accommodate all your columns, switch from the default portrait mode to landscape mode by pressing Alt P O, Down arrowing to the Landscape button, and pressing Enter. Two or three more columns will now fit on a page, but with about twelve fewer rows.

Second, you can adjust margin dimensions to make them narrower, thus allowing more columns to fit on a page. To do this, press Alt P M, Tab to the Narrow margins button and press Enter. This changes the left and right margins from the 0.7 inch default to 0.25 inches, thus adding a bit less than one inch for fitting columns. This may not sound like much, but sometimes every little bit counts.

Third, you can use the Scale to fit feature in the Print dialog. Steps are:

1. Press Control + P to open the Print dialog.
2. Tab to the Scale to fit combo box and Down arrow through the choices, which are: no scaling, fit sheet to one page, fit all columns on one page, fit all rows on one page, and custom scaling options where you can designate a percentage for decreasing the size of characters on the printed page.
3. After making your choice, Tab once to get out of the combo box and lock in your choice. There is no OK button here.
4. If you are ready to send your work to the printer, Tab to the Print button and press Enter.

Scaling to fit does not change the point size in your electronic file, but it does change the point size of the text sent to the printer. You can calculate the point size of what is printed by pressing Alt P X. This indicates the percent of scaling. The default is 100 percent for no scaling. If you have introduced scaling, it might now say 75 percent. If the default font size is 11 point, 75 percent of this equals an 8.25 point size. You then need to judge if this is large enough to be easily visible to sighted readers. If you opt for custom scaling, with the 11 point default, you probably shouldn’t go much below 70 percent. The best strategy is to ask sighted people if they are able to read the print-out.

## 5.11 Additional Tools and Features

Excel has many more tools and features. Some of the most useful ones are described in this section. Two features unique to JAWS – monitor cells and chart reading – are also covered.

### 5.11.1 Paste Options

After selecting and copying text, formulas, or functions, you can perform a simple paste elsewhere by pressing Control + V. However, there are additional options for pasting data which are easily accessed via the Applications key. The most useful of these Paste options are values and links.

Use the Paste values option to paste the result (that is, only the value) of a formula or function rather than the formula or function syntax itself. For example, if cell A7 contains the function =SUM(A1:A6), and the resulting value is 750, using the Paste values option, I could paste only the 750 value elsewhere in the spreadsheet. Steps for doing this are:

With focus on the cell with the function or formula, press Control + C to copy it.

Navigate to the cell where you wish to paste the value.

Press the Applications key and Down arrow to Paste options, but do not press Enter.

Instead, Right arrow once to the Value button and press Enter.

The Paste link option is especially useful with multiple sheets. It allows you to copy and paste functions and formulas from one worksheet to another, thus “linking” those sheets. For example, let’s say you have monthly profit data on twelve separate worksheets. You can insert a summary worksheet with links to the total monthly profits function in each of the monthly worksheets. If you make changes in any monthly worksheet that results in the total profit for that month changing, the change in the monthly total profit function will be fed through to the summary worksheet. Continuing with this example, to paste a link from one worksheet to another, do the following:

1. Place your cursor on the cell in the monthly worksheet containing the total profits function for that month, and press Control + C to copy it.
2. Navigate to the summary worksheet and place focus on the cell where you want to paste it.
3. Press the Applications key and Down arrow to Paste options, but do not press Enter.
4. Instead, Left arrow once to the Paste link button and press Enter.

The syntax of this formula contains: the equal sign, the worksheet name from which the it is being copied surrounded by apostrophes, the exclamation sign, and the address of the cell being copied. For example, if the total profits function was contained in cell E26 of the February worksheet, the Paste links formula in the summary worksheet would be:

=’February’!$E$26

With multiple worksheets, consider creating a summary sheet for a file containing a large number of worksheets, and use the Paste links command to present data on this worksheet. This is a more convenient and effective way to communicate the most important data to colleagues, versus having these data scattered across several sheets.

### 5.11.2 Hiding and Unhiding Columns and Rows

In large sheets, using this feature aids efficient navigation by temporarily hiding columns or rows so you can quickly skip over them to get to columns or rows that interest you. Let’s say you are working on a spreadsheet with monthly data for an entire year. It is now December and you want to input data for that month’s bills. You would like to temporarily hide all the columns from January through November. If you do this, only three columns will remain visible: column A with the bill names, column M with December data, and column N with Annual Totals.

Steps for hiding the February through November columns (columns B through L) are:

1. With your focus anywhere in Column B, hold down the Shift key and Right arrow to select across to column L.
2. Press Control + Spacebar to select these columns. Note that this step is critical. People sometimes forget it and then wonder why things don’t work.
3. Press the Applications key, Up arrow twice to Hide, and press Enter.

In column A, you will now hear “adjacent to hidden cells.” Right arrow once and you will be in column M, again hearing “adjacent to hidden cells.” This indicates that columns B through L are hidden.

When ready to unhide columns B through L, do the following:

1. With your focus on Column A (the column just to the left of the hidden columns), hold down the Shift key and Right arrow once to column M (the column just to the right of the hidden columns with December data).
2. Press Control + Spacebar to select these two columns.
3. Press the Applications key, Up arrow to Unhide, and press Enter.

You can follow a similar process to hide and unhide rows. Remember that selecting multiple rows involves holding down the Shift key, Down arrowing to the last row you want to select, and then pressing Shift + Spacebar. After selecting rows, steps for hiding and unhiding them via the Applications key are the same as for columns.

### 5.11.3 Fill In Data Series

This is a useful tool for quickly filling adjacent cells in rows or columns with a regular pattern or interval of data, thus helping you to avoid lots of repetitive typing. Common uses include inserting numerical values with regular intervals, filling a data range with the months of the year, or days of the week. Below are a few examples.

I will start with an example of filling a column range with the numbers 1 through 50, starting in cell A1. Steps are:

1. In cell A1, Type 1.
2. Select cells down column A by pressing Shift + Down arrow to cell A50. Alternatively, press Control + G, type in A1:A100, and press Enter. Even easier, just select cells down the column to a cell that you know is past the range you ultimately want.
3. In the Home tab of the ribbon, navigate to the Edit group, Tab once to the Fill submenu and press Enter.
4. Down arrow to the Series dialog and press Enter. The ribbon shortcut key is Alt H F I S (a good mnemonic for this is “fill in series”).
5. In the Fill in series dialog, you first land on the Step value edit field where the number one is already entered. Do not change this because you intend to fill the series with each consecutive number.
6. Tab to the Stop value edit field which is blank by default. Type in 50 and press Enter.

Here’s another example using months. To fill a data series for the twelve months of the year across a row, beginning in cell A1, do the following:

1. In cell A1, Type “January,” minus the quotes.
2. Select cells across the row by pressing Shift Right arrow to cell L1. Alternatively, press Control + G, type in A1:L1, and press Enter. If you don’t know exactly where to end, just select cells across the row to a cell that you know is past the range you ultimately want. Later, simply delete data in the cells you don’t need.
3. In the Home tab of the ribbon, navigate to the Edit group, Tab once to the Fill submenu and press Enter.
4. Down arrow to the Series dialog and press Enter. The ribbon shortcut key is Alt H F I S.
5. In the Fill in series dialog, you first land on the Step value edit field where the number one is already entered. Do not change this because you intend to fill the series with each consecutive month.
6. Tab to the Stop value edit field which is blank by default. Leave it this way.
7. Tab past the OK button to the Row radio button. The other option is columns, but because you selected across a row, focus is already on this radio button.
8. Tab once to the Linear radio button, Up or Down arrow to the Autofill radio button, and press Enter.

If you had instead typed “Jan” in cell B2, Excel is smart enough to know that you wish to abbreviate the months to three characters. Thus, if you then repeated the steps above, the data series would continue filling as follows: Feb, Mar, Apr, etc.

You could also perform a similar operation to generate a data series with the seven days of the week.

Here’s an example using dates. At the Carroll Center where I work, staff are paid every second Thursday. This time, I will start in cell A1 and create a series down this column to list pay dates for every second Thursday. Steps are:

1. In cell A1, type the first date in the series (example: 10/27/2022).
2. Beginning in cell A1, press Shift + Down arrow to select a number of cells down that column.
3. Press Alt F I S to open the Series dialog.
4. In the Step value edit field, type the number 14 to indicate that you want to generate a series with dates two weeks apart, and press Enter.

In the example above, you could have typed 7 if you wanted to create a weekly series.

Finally, let’s use the Carroll Center pay date example to illustrate the use of the Stop value edit field by creating a series for every second Thursday in 2023. Steps are:

1. In cell A1, type 1/5/2023 which is the first Thursday in that year.
2. Press Control + Spacebar to select the entire column A.
3. Press Alt F I S to open the Fill Series dialog.
4. In the Step value edit field, type the number 14.
5. Tab once to the Stop value edit field. Type 12/31/2023, and press Enter.

There is no need to first figure out the date of that final Thursday. Excel will calculate this for you, not filling any cells beyond that date. In this example, the final Thursday in this bi-weekly series is 12/21/2023.

### 5.11.4 Comments and Notes

Similar to Word, you can add comments to Excel workbooks while reviewing work with collaborators, perhaps making suggestions for improvement or inserting questions where something is unclear. . Also, starting with Excel 365 and 2021, a Notes feature was introduced. Consider them like footnotes in Word. You might use them to identify data sources or explain how a formula or function was calculated.

As of early 2025, cells with comments and notes are announced as follows by the three screenreaders:

* JAWS 2025: Active comment, note.
* Narrator withWindows 24 H2: comment, note.
* NVDA 2024.4: no comments announced, erroneously identifies notes as comments.

Comments and notes are cell-specific, so to create one, start with your focus on the relevant cell.

To add a note:

1. press the Applications key, Up arrow to New note, and press Enter. Alternatively, press Shift + F2.
2. Type in the text and press Enter when finished.

to get a list of notes with JAWS, press Control + Shift + Apostrophe. Then Down arrow through them to hear them, as well as press Enter on a cell with a note to navigate to that cell. To the best of my knoledge, it is not possible to get a list of notes with either NVDA or Narrator.

If you are on a cell with a note, press Alt + Shift + Apostrophe to hear the text of that note with JAWS. With the other screenreaders, To read the note as well as edit it, press Shift + F2 on the cell with the note, use standard reading keystrokes to read it. With all three of the screenreaders, use standard editing keystrokes to revise it, and press Enter when finished.

To delete a note, press the Applications key, Up arrow to Delete note, and press Enter, or press the ribbon shortcut Alt R D.

To add a comment:

1. press the Applications key, Up arrow to New comment, and press Enter. Or use the ribbon shortcut Alt R C.
2. Type in the text, and press Control + Enter and then Escape when finished.

There are no screenreader-specific keystrokes to get a list of comments with JAWS. However, you can list them with Excel as follows:

1. Press Alt R H 1 which toggles on the Show comments checkbox. Note that this is not sabed. You must toggle it on it each time you open the file.
2. Press F6 to go to the Comments pane, and Tab to a tree view listing cells with associated comment threads.
3. Down arrow to expand a thread, and Right arrow to open an individual thread.
4. To interact with it, Tab once to hear the comment, and continue tabbing if you want to edit, respond to, or delete the thread.
5. To return to the sheet, press F6.

You can also use the Applications key to delete and reply to a comment thread, or quickly delete a comment thread with the ribbon shortcut Alt R D.

### 5.11.5 Removing Unwanted Verbosity

You may want to disable several Excel settings options that create confusing and distracting verbosity. Repeated prompts like “Quick analysis lens” or “Paste recovery options” can throw you off-track. When you type formulas or functions beginning with a letter, you may hear things like “=A abs,” or “=B bottox,” which may confuse you. You can Eliminate this unwanted verbosity in the Excel Options categories dialog. Note that the second and third category dialog boxes (Formulas and Advanced, respectively) are quite lengthy. In these dialogs, you can speed up the process of finding the setting you want and changing it by pressing Alt and a specified letter, rather than tabbing endlessly to the setting. These keystrokes will be identified below.

Steps for making three changes I would suggest are as follows:

1. Press Alt F t to open the Excel Options Categories dialog.
2. You first land on the General Category. Tab to the Show quick analysis options checkbox (just three tabs in) and press the Spacebar to uncheck it.
3. Shift + Tab back four or five times to the OK button and press Enter.
4. Press Alt F t to reopen the Excel Options Categories dialog.
5. Down arrow or press F to navigate to the Formulas Category.

Tab to the Formula autocomplete checkbox (or press Alt F to get there more quickly), and press the Spacebar to uncheck it.

Shift + Tab to the OK button and press Enter.

1. Press Alt F t to reopen the Excel Options Categories dialog.
2. Down arrow or press A to navigate to the Advanced Category.

Tab to the Show paste options button when content is pasted checkbox (press Alt S to get there more quickly), and press the Spacebar to uncheck it.

1. Shift + Tab to the OK button and press Enter.

### 5.11.6 Dropdown Lists

Dropdowns allow users to select from a pre-defined list of responses. Examples include ratings or rankings like one to five, good, average and poor, or pass/fail.

When you navigate to a cell with a dropdown, JAWS and Narrator announce the current selection, followed by “contains conditional formatting, data validation dropdown menu.” NVDA announces the current selected value followed by the word “submenu,” for example, “pass submenu” or “fail submenu.”

Press Alt + Down arrow to expand the dropdown list. Down or Up arrow to your choice and press Enter. Note that you must press Enter. The Spacebar will not work, nor will first-letter navigation. Press Escape if you don’t want to change the initial selection.

After making a selection, you can use standard copy and paste methods to paste the same choice in multiple cells down a column with the same dropdown list. This can save time because navigating within dropdowns is sometimes a bit sluggish.

Dropdown lists are created using Excel’s Data validation feature. There are two ways to create dropdown lists. Steps for the first way are:

1. With your focus situated in the first cell of a range where you intend to create the dropdown list, open the Excel ribbons and Right arrow to the Data tab.
2. Tab to the Data validation split button in the lower ribbon and press Enter (the shortcut is Alt A A V).
3. You first land on the Settings tab of a multi-page dialog.
4. Tab to the Allow combo box and Down arrow to list.
5. Tab to the Source edit box and type in your list choices, separated by commas. For example, “Good, Average, Poor,” minus the quotes. The commas are important because they tell Excel to place the options on separate lines.
6. Tab to the OK button and press Enter.
7. Copy the newly-created dropdown to the Clipboard, press Shift + Down arrow to select down the column to the last cell in the range where you want to copy the dropdown, and press Control + V to paste it into these cells.

The second method can save you time by avoiding having to retype the entire list if you anticipate that dropdown list selection choices will change in the future. Steps are:

In a range either below or to the right of the table where sheet data is contained, type the list options in separate cells down a column. For example, type good, average, and poor in cells F1, F2, and F3.

1. Repeat steps one through four above.
2. Tab to the Source edit box and Down arrow until you hear a cell reference.
3. Arrow until you hear the first cell of the data range where you have inserted your list choices (in this case, cell F1).
4. Shift + Down arrow to select all the cells of the data range where you inserted the list options (in this case, cell F3).
5. Tab to the OK button and press Enter.

The advantage of this second method is that if you edit the list, the dropdowns will automatically change without you needing to do anything more. If you prefer the list to be located on a separate sheet, first create a new sheet. Then select the list options, cut it, and paste it to the new sheet. When copying and pasting a data validation dropdown down a column, if you type the cell reference range into the source field of the Data validation settings dialogue, you should use absolute cell references with the dollar sign (see Chapter 5.2.4). Otherwise, copying a data validation dropdown down a column will paste incorrectly, adjusting the underlying formula in a way you do not want.

If you insert a new item in the middle of the list, the data range will automatically adjust. However, if you add items at the bottom of the list, you will need to return to the Source edit field of the Data validation dialog and manually update the data range.

Dropdowns are a nice tool to use in combination with sorting and filtering. After you have made all your selections, you can then use sorting or filtering to group similar dropdown selections in adjacent rows.

### 5.11.7 Monitor Cells With JAWS

To facilitate quick navigation to especially important areas of a large worksheet, you can designate up to ten monitor cells or data ranges. You can set these up with shortcut keys or via Quick Settings. To do this using shortcut keys, navigate to the cell you want to tag as a monitor cell. If it is a data range, set the data range first. Then press Insert + Shift + 1 to tag it as monitor cell one, Insert Shift + 2 to designate it as monitor cell 2, and so on. If you designate cell A5 as the first monitor cell, JAWS will say “setting monitor cell 1 to A5.” You can easily reassign monitor cells. For example, if you place the cursor on cell A14 and press Insert + Shift + 1, JAWS will warn you that this monitor cell is already assigned and ask if you want to replace it. Pressing Enter will confirm the reassignment of this monitor cell number.

Once assigned, you can read monitor cells individually or in a list. Press Alt + Shift + 1 to read monitor cell one, Alt Shift 2 to read monitor cell 2, and so on. Note that this only reads the cell content. It does not navigate to that cell.

To open a list of monitor cells, press Control + Shift + M. I especially like this keystroke because you can see all your monitor cell coordinates and content together. Also, if you Down arrow to one of them and press Enter, it will move to that cell.

You can also assign monitor cells, reassign them, and remove assignments in Quick Settings (see Chapter 8.1.4.3).

### 5.11.8 Creating Charts and Reading Them with JAWS PictureSmart

Charts are visual presentations of data that are often more effective for communicating results than tabular presentations. They are easy to create. But you might assume that they are inaccessible to screenreader users. However, if you are a user of JAWS 2024 or above, this is no longer the case thanks to the introduction of the PictureSmart Generative AI feature (see Chapter 1.2.4.1 for how to enable this revolutionary tool).

Among the most commonly used chart types are:

* Pie charts: Used to represent each data item as a percentage share of a total value. Each item is represented as a slice of a pie.
* Column charts: Typically used to compare several items in a specific range of values, such as comparing sales volumes of several retail stores. The numerical values appear as vertical columns.
* Bar charts: Used to display the same data as column charts, but as horizontal bars instead of vertical columns.
* Line charts: Often used to present trends over time. Monthly stock or commodity prices are examples.

I will demonstrate by creating a simple pie chart showing the percentage shares of annual tourist visits to New England from four countries. If you are using JAWS 2024 and want to try it yourself, open the practice file entitled, “New England Tourist Visits.xlsx.”

The countries are listed in cells A2 through A5. The corresponding numbers of tourist visits are listed in cells B2 through B5. The Steps for creating the pie chart are:

1. Select the data range containing the data, in this case A2 through B5.
2. Press the Alt key to open the Upper ribbon. If you first land on the Home tab, Right arrow once to the Insert tab.
3. The Charts group is fairly deep into the Lower ribbon, so press Control + Right arrow several times until you land on the Charts group, the first item here being the Recommended charts button.
4. Tab several times to the Insert pie or donut chart submenu, and press Enter.
5. You first land on the 2D pie button. This is a two-dimensional pie chart. There are several other choices here that you can arrow through, including a 3D pie chart which adds shading to give it a three-dimensional effect. We will stick with the 2D pie chart, so press Enter on that.
6. The chart is now visible to the right of the data.

To have PictureSmart describe the chart, do the following:

1. Maximize the window by pressing Alt and the Spacebar together, followed by X.
2. Press Control + Shift + O which brings up a list of objects. “Objects” include charts, pictures, and illustrations. You will hear something like “Chart 1, chart title E2 M17,” where cell E2 is the top left cell and M17 is the bottom right cell of the range where the chart has been inserted in the worksheet. This is the default chart title until you rename it.
3. Press Enter on it to select it (note that you must press Enter, Spacebar will not work).
4. Press Insert and Spacebar together, followed by P C.
5. After hearing the tick-tock sound a few times while results are being processed, A window opens with a description generated by Google Gemini opens.
6. To hear a richer description generated by Chat GPT, Down arrow to the More results link, and press Enter.

And here are those results.

Gemini: This is a pie chart that shows the percentage of people who live in four different countries. The countries are England, France, Italy, and Canada. The colors used to represent each country are blue, red, green, and purple. The majority of people live in England, which is represented by the largest purple slice of the pie chart. The second largest slice is Canada, which is represented by the blue color. The third largest slice is Italy which is represented by the green color. The smallest slice is France, which is represented by the red color.

ChatGPT: This image shows a pie chart with four different colored sections, each representing a different country. While the exact percentages are not visible, the sections appear to be of different sizes suggesting different values for each country. The colors and their corresponding countries are labeled below the pie chart as follows: - England: Blue - France: Red - Italy: Green - Canada: Purple The chart is titled "Chart Title" at the top, which is a placeholder typically used in templates before being replaced with an actual title. Additionally, the words "Chart Title" are repeated at the right side above the pie chart, possibly due to an error or oversight. There are sizing handles on the corners of the image, suggesting that the chart is within a software application that allows for resizing. The background of the chart is white and it is placed within a larger grey background. The overall appearance indicates this is a standard, straightforward pie chart commonly used in presentations or documents to represent data visually. End of description.

You can move, copy or edit charts. Let’s say you would like to change the data range where it appears visually on your worksheet. Do the following:

1. Press Control + Shift + O to access the list of objects.
2. If the pie chart is the only object in your worksheet, you land on it. If not, Down arrow to it, and press Enter to select it.
3. Press Control + X to cut it to the Clipboard.
4. Navigate to the cell where you want its top left corner to appear and press Control + V to paste it there.

You could also copy the chart by pressing Control + C and pasting it in a Word document.

Finally, you can add chart titles, X and Y axis titles, table legends, and data legends. To do this, first select the chart by pressing Control + Shift + O, and Enter to select it. You can then press Alt to open the Upper ribbon, and Right arrow to the Chart Layout tab of the ribbon. Here you can Tab into the Lower ribbon to Chart title, Axis titles, Legend, or Data Labels to add or change these. PictureSmart descriptions would of course note these enhancements.

## 5.12 Strategies for Interpreting “Difficult” Spreadsheets

Some spreadsheets you receive from sighted people will not be laid out in tidy rectangular blocks and may be difficult to decipher. For example, a convention among accountants is to add lots of empty cells between the data. Spreading things out like this visually separates categories and sub-categories. Horizontal and vertical cell merging may also be used for this purpose.

This makes it difficult for screenreader users to interpret sheet layout and the corresponding data. Choosing the best cell to initiate the Define name command can be tricky, and will probably yield less-than-perfect results.

The practice file entitled “Temple Income and Expenses.xls” is an example of a “difficult” spreadsheet. I received a version of this spreadsheet from a student who serves on a budget committee at her temple. She was having trouble figuring it out. I have adapted it for training purposes. The file has two sheets named Freeze Panes and Merged Cells.

I will start with the Freeze Panes sheet. The first clue that something odd was going on was when I pressed Control + Home. Rather than landing in cell A1, I landed in cell C3 instead. I correctly guessed that the spreadsheet author was using the Freeze panes command, the sighted equivalent of the Define name command. It is used to “freeze” column and/or row headers so they can be visible no matter where the cursor is located in a spreadsheet. See Chapter 5.11.2 for more on this feature. To verify whether Freeze panes is turned on, and to disable it if you want to do so, the Freeze panes submenu is located in the View tab of the ribbon. To disable it, press the shortcut Alt W F. You will hear Unfreeze panes if Freeze panes is already enabled. If desired, press Enter to disable it. Even when enabled, you will still be able to navigate in the range that is frozen by arrowing or Control + Arrowing.

Pressing Control and the arrow keys is very useful in this spreadsheet because its author has left many empty cells for visual layout purposes. If you go to the top of column A of this spreadsheet, and Control + Down arrow once, you jump to cell A3, which contains the word “Income.” Control + Down arrow again, and you jump to total income in cell A33, expenses in A35, total expenses in cell A130, and net income in cell A132. Down arrowing alone would waste lots of time.

Down arrowing through column B reveals actual budget line items. Corresponding dollar amounts for each month begin in column C. Column headers for the months February 2019 through February 2020 appear in cells C2through Q2. Amounts are totaled in column S. Each of the monthly columns are visually separated by empty columns.

If we place the cursor in cell B2 and initiate the Define name command here, this will greatly aid data interpretation. Cell B2 is the intersection of column B which contains the line items, and row 2 contains the months.

After getting a grasp on the logic of how the categories are organized in column A, and choosing the best cell to initiate the Define name command, it is now possible to understand the financial data in columns C through S. You will not be able to hear the categories (income, expenses, etc.) while navigating within the body of the table, because categories and individual line items are spread over two separate columns. However, you can now begin to understand what is going on.

Depending on how much effort you want to invest in making this spreadsheet more efficient to navigate and easier to understand, several tools discussed earlier in this chapter can be quite helpful. They are recapped below.

* Navigating with Control and the four arrow keys: In a large spreadsheet with lots of empty cells, this is your “best friend” for quick navigation. These key combinations will leapfrog you over groups of empty cells, as well as over continuous ranges of cells filled with data. Control and Down arrow together is especially useful for moving down the first few columns of this spreadsheet because there are so many empty cells. Down arrowing cell by cell would be Slow and frustrating.
* If the spreadsheet author has enabled Freeze panes, there are pros and cons related to disabling them. Unless you have some usable vision, freezing panes may be of limited value to you. If you want to be able to press Control + Home to get to cell A1, which could make navigating this spreadsheet more straightforward in some cases, disable Freeze panes by pressing Alt W F and unchecking it here. That said, the most logical place for the spreadsheet author to set Freeze panes is the cell containing the top left cell with data values, situated just to the right of its corresponding row header, and just below its corresponding column header. If this is indeed the case, keeping Freeze panes enabled and pressing Control + Home will quickly get you to that top left data cell.
* Hiding columns: Because this is a spreadsheet that is presumably updated and distributed on a monthly basis, you might only be interested in examining financial data for the most recent month. But because the author has inserted empty columns between each data column, navigating to the far right side of the spreadsheet is tedious. To render this more efficient, you can hide the columns you are not currently interested in. That way, it will be much quicker to get to the columns that you want to examine. In this spreadsheet, you may only be interested in viewing the February 2020 and totals columns (columns Q and S). If so, you can hide columns C through P. See Chapter 5.11.2 on how to hide and unhide columns and rows.
* Assigning monitor cells with JAWS: You might find that certain cells are especially important. For example, cells S33, S130, and S132 present totals for income, expenses, and net income, respectively. Assigning monitor cells to each of these will enable you to navigate to them quickly. See Chapter 5.11.7 on how to assign monitor cells with JAWS and navigate to them.

Adding comments: If you assign monitor cells to each of the three cells just mentioned, this is useful for navigation purposes, but you may not remember what the data in these cells refer to. You can add comments to each of them to remind you (Chapter 5.11.4).

Now press Control + Down arrow to go to the second sheet named “Merged Cells.” Sighted people often merge cells horizontally and vertically to visually indicate groupings and categories, or for purely aesthetic reasons. In such situations, it is important to listen carefully to which cells are being merged. Even then, it can be hard to figure out what is going on. Here are the merged cells in this sheet and why they are merged:

* In cell A1, we hear “Temple Monthly Income and Expenses - July 2019 to February 2020, merged cells, A 1 through L 1.”If you press Insert + F to check formatting, you also hear that the text is horizontally aligned. The intent here is to center the title above the table.
* In cell D2, we hear “2019, merged cells, D 2 through I 2.” And in cell J2, we hear, “2020, merged cells, J 2 through K 2.” In row 3 just below, months appear, and each of these are associated with the year in the merge cell above.
* In cell A4, we hear “Income, merged cells, A 4 through A 33.” And in cell A36, we hear “Expenses, merged cells, A 36 through A 130.” Pressing Insert + F reveals that text is top aligned. The purpose of vertical merging here is to indicate that data in the associated rows fall under these two broad budget categories.
* In column B, there are a number of other vertically merged cells, including: dues, tuition, and fees; Donations; other income; and a number of others. These represent income and expense sub-categories. We can determine which individual budget items are associated with these sub-categories by listening to the row numbers in the vertically merged cells, and then moving to column C to hear what they are.

# Chapter 6 PowerPoint

PowerPoint enables you to prepare slide show presentations. It has become ubiquitous at conferences and workshops. It is often simply expected that speakers will be providing a PowerPoint presentation to participants. Students are also often required to prepare PowerPoints for class projects.

I will begin with a short section on how to read an existing PowerPoint presentation. Even if you are not interested in learning how to produce a presentation, read this section if you don’t know the keystrokes for reading presentations. They are not intuitive. And even if you don’t plan on producing PowerPoint presentations yourself, you will almost certainly receive presentations from others and will want to know how to read them. I will then go through the steps of preparing a presentation and then discuss formatting considerations. I conclude with a discussion of strategies for making live presentations.

## 6.1 Reading a Presentation

When you open an existing presentation, you land in a list of slides called the Normal view. Down arrow once to move to the second slide. Your screenreader will tell you the title of that slide and say, “2 of 22,” indicating that you have landed on the second slide in a presentation with 22 slides, or whatever the total number is. Continue Down arrowing to hear more titles. You can press the home and end keys to get to the first and last slides in the presentation, respectively.

To read the full presentation, press the F5 key to open the Slide show view. Regardless of where your cursor is in the list of slides, pressing F5 will always open the Slide Show on the first slide. The entire text of the first slide should then be read to you.

Sometimes when you open the Slide show view, a glitch occurs. Your screenreader does not automatically read the first slide. But you can use standard reading keystrokes to read the text. For example, Up and Down arrow to read the title slide text, line by line.

Now press the Spacebar or Page down to go to the second slide and have it read to you. Note that the misbehavior mentioned above only occurs with the first slide.

To go back a slide and have it read to you in its entirety, press Backspace or Page up .

If you land on a slide and hear “has notes,” press Control + Shift + N to hear them. To return to the slide show, press Control + Shift + N again.

Within any slide, you can use standard reading keystrokes to read the text:

* Right/Left arrow: Move to and read characters to the right and left.
* Control + Right/Left arrow: Move to and read words to the right and left.
* Down/Up arrow: Move to and read line below and above.
* Insert + Down arrow: JAWS and Narrator Say all command or continuous reading from the point of the cursor.
* Insert A: NVDA Say all command or continuous reading from the cursor.

Note that these keys work only within an individual slide. If you press your screenreader’s Say all key, it will read to the bottom of that slide and stop.

When finished reading the presentation, press Escape to exit the Slide show view and return to the Normal view.

If your cursor is somewhere in the middle of the list of slides (say, the seventh slide), and you would like to get back into Slide show view from that point, rather than pressing F5, which always begins reading on the first slide, press Shift + F5 and the Slide show view will open at that point and read the entire slide in Say all mode. As above, press Spacebar and backspace to go forward and backwards one slide, respectively.

To summarize, the keystrokes you need to know are:

* F5: Open the Slide show view to the first slide and read it.
* Spacebar: Go to the next slide and read it.
* Backspace: Go to the previous slide and read it.
* Shift + F5: Open the Slide show view beginning with the currently selected slide.
* Escape: Exit the Slide show view.

You can also resave the PowerPoint file as a PDF and read it that way too. I will discuss this in greater detail later in this chapter (see Chapter 6.8).

## 6.2 Creating Slides in the Slide Area Pane

Individual slides are created and edited in the Slide area pane. Similar to a window on a house, a pane is a section of a window. The PowerPoint screen is partitioned into several panes. Move between them by pressing F6 and Shift + F6.

With your current focus in the Slide area pane, press F6 to move between the following panes: the Status bar, the Toolbar, the Upper ribbon, the Slide thumbnails pane, and wrap back to the Slide area pane. For the moment, the Slide notes pane does not appear. The Slide thumbnails and Slide notes panes will be discussed later in this chapter.

It can be confusing to follow instructions in the abstract. I suggest that you read through each section here and then use the information to prepare a presentation. Appendix III includes a step-by-step exercise that you can use for preparing a sample presentation.

### 6.2.1 The Title Slide

When you open PowerPoint, by default you land on a blank title slide. This will be the first slide of your presentation. There are two fields you can fill in: a title and sub-title field. You move between these fields by pressing the tab key. Press tab once and your screenreader will say “Title placeholder.” Press tab again and it will say “Subtitle placeholder.” Press Tab a third time and you will wrap back around to the Title placeholder.

You hear the term “placeholder” a lot with PowerPoint. A placeholder is, well, a place that holds something. That “something” could be text, a graphic, or a media icon for an audio or video clip.

Insert text by tabbing to a placeholder and pressing Enter. After inserting your text, press Escape to exit edit mode.

When you are in the Placeholder edit field, only press enter or tab if you want to add a new line or insert a tab in that placeholder. Initially, pressing escape may be counter-intuitive as a way to lock text into a placeholder, but you may eventually get used to the rhythm of tab, enter, escape, tab, enter, and escape.

As you navigate through the slide area, you will hear what type of placeholder you are on. The types and number of placeholders depend on the slide type you are using. I will discuss the various slide types later. For the moment, we’ll stick with the Title slide.

As you heard while tabbing around, a title slide has two placeholders: a Title placeholder and a Subtitle placeholder. To prepare a title slide:

1. Open PowerPoint and press Escape to get out of the Backstage view. You first hear “No selection. To select an object press Tab.”
2. Tab to the Title placeholder and press enter. This opens an edit field.
3. Type in the title of your presentation. You should keep it short because the font size in the final presentation will be quite large.
4. Press Escape.
5. Tab to the Subtitle placeholder and press Enter.
6. Type in typical Subtitle content like your name, organization, and/or presentation date. Press Enter after each of these to place them on their own line. Here too, keep the amount of text limited.
7. Press Escape to exit the Subtitle placeholder.

It is good practice to detect any errors and correct them before continuing to the next slide. Tab a couple of times to hear your title and subtitle again. To edit any placeholder text, tab to it, press Enter, and revise text within the placeholder using standard editing keystrokes, press Escape when done to exit edit mode.

### 6.2.2 Other Slide Layout Types

You have now created your title slide and it’s time to start in on slide 2. PowerPoint has a gallery of slide layout types that can be accessed via the ribbon menus, using the Applications key or using the shortcut key (Alt H I). We’ll first go there via the ribbons:

1. Press alt to open the ribbon menus, Tab several times to the New slide split button.
2. Press alt and Down arrow to expand the options.
3. This opens a set of buttons that you can arrow through. Slide types include: title, one content, two content, comparison, title only, content with caption, and picture with caption.
4. Press Enter or the Spacebar on your layout choice for the next slide.

To get to the same place using the Applications key, press it, Down arrow to the Layout submenu and press enter. This opens the same array of slide type choices.

Finally, the ribbon sequence of Alt H I also gets you into the choice of slide types.

Here’s an explanation of the nine built-in slide layout types:

* Title: Discussed above.
* Title and content: Title and single object placeholder for a total of two placeholders. Text entered on each line of the object placeholder will automatically be bulleted.
* Section header: Title and single object placeholder for a total of two placeholders. Text entered on each line of the object placeholder will not be bulleted.
* Title and two content: Title and two object placeholders on left and right for a total of three placeholders.
* Comparison: Title and a body and object placeholder on the left, and a body and object placeholder on the right for a total of five placeholders.
* Title only: Title placeholder at top center only.
* Blank: No placeholders.
* Content with caption: A title, object and body placeholder. The body placeholder appears under the object placeholder.
* Picture with caption: A title, and body placeholder. The body placeholder appears under the placeholder. It is not possible to enter text in the placeholder – only graphics or audio/video icons can be inserted.

Use the comparison slide layout for juxtaposing good and bad, pros and cons, old an new, etc. However, keep in mind that, with five placeholders, a comparison slide can quickly get cluttered and may be difficult to manage from a non-visual perspective. It might be better to split the information between two slides, the first one covering the good, pros, old, etc., and the second one covering the bad, cons, new, etc.

When you add a new slide, the first time you press the Tab key, focus will land on the Title placeholder. For two content and comparison slides, tabbing between placeholders proceeds in a counter-clockwise direction from the Title placeholder, and wraps back around to it. For any of the other slide types with two or more placeholders, tabbing proceeds vertically downwards from the Title placeholder, and also wraps back around to it.

Several ways to create a new slide were laid out above. There is a fourth way using Control + M. If you press Control + M after preparing the Title slide, a Title and content slide will appear. Pressing Control + M after any of the other slide layout types listed above will insert a new slide of that same type. For example, if you have just prepared a Comparison slide and press Control + M, a new blank Comparison slide will appear.

To prepare a second slide, using the Title and content slide type and the Ribbon shortcut key combination.

1. Press Alt H I to get into the New slide gallery.
2. Right arrow once to the Title and content button and press Enter.
3. Tab once to the Title placeholder, press enter to get in edit mode, and type in the title for your second slide.
4. Press escape, tab to the object placeholder, and press enter.
5. Type in text for your first talking point, and press Enter to go to the next line.
6. Type in text for your second talking point, and press Enter to go to the next line.
7. Repeat the above steps to input your remaining talking points.
8. When finished, press Escape to exit the placeholder.

Note that bullet points have automatically been added. This is the case for all object placeholders. For body placeholders, you can enter text, but bullets are not automatically added.

Now you can continue to add new slides, either pressing Control + M to add a new slide of the same type you have just used, or pressing Alt H I or the Applications key, and arrowing to a different slide layout type and pressing enter or Spacebar to add it.

### 6.2.3 Inserting Pictures and Alt Text

As they say, “A picture is worth a thousand words.” A presentation with only text is boring. Add pictures and other types of graphics to enhance the visual appeal of your presentation. Graphics should reenforce the message of your content. They should not be superfluous eye candy or gimmicky distractions.

Pictures can be obtained from several sources:

* Files saved on your PC, usually in JPG (often called “J peg”) or PNG file format.
* Searching for them online via the PowerPoint menus.
* Reputable websites with collections of images. These sites have free public domain images, images you have to pay for, and both. Unfortunately, very few of these sites are accessible.
* Copying images off of websites. Be sure you are not violating any copyright laws before using these images.

I will only cover using files already loaded onto your computer. Online searches are not very accessible, and I have not yet discovered an accessible site for downloading images.

You can easily copy and paste files already stored on your computer. To do this:

1. Select the image file on your computer.
2. Press Control + C to copy it.
3. Alt + Tab to PowerPoint where you have already opened a new slide and Tab to the object placeholder where you want to Insert the image. It is not necessary to press Enter to open the placeholder.
4. Press Control + V to paste the picture into the placeholder.

The picture now appears visually, and it is sized down from its original dimensions to fit into the placeholder. However, with some versions of PowerPoint other than the 365 licensed version, the blind screenreader user receives no audio feedback. With PowerPoint 365, text is automatically generated using artificial intelligence (AI). Yet this text is generic and rarely helpful. For example, “when I inserted the iconic photo of Boston Bruins star Bobby Orr flying through the air after scoring the winning goal of the 1970 Stanley Cup finals, the AI-generated alt text was, “A picture containing outdoor, feet.”

So, even if AI-generated alt text is automatically inserted, you will usually want to replace it with your own alt text to succinctly describe image content. Steps for doing this are:

1. With your focus on the placeholder where you have pasted the picture, press the Applications key, Up arrow to View alt text, and press Enter. Your screenreader will say “description edit.” It may or may not also speak any AI-generated text.
2. If AI-generated text is present, press Control + A to select it all before typing in your replacement text over it.
3. Type a short description of the picture.
4. Press Escape when you are finished. Your new alt text should now be spoken by your screenreader program.

To delete a picture from your presentation, Tab to the placeholder containing it and press the Delete key to remove it. No confirmation is requested.

After inserting a picture, run the slide show and get confirmation from a sighted person that it is properly sized. It usually will be, but in case it is not, you can change its dimensions. Steps are:

1. Tab to the object placeholder where the picture is located to place focus on it.
2. Press the Applications key, Up arrow to Size and position, and press Enter.
3. Tab to either the Height or Width edit spin box. The current height and width of the image appears in inches.
4. You can adjust either of these by up or Down arrowing to another value, or by typing in a new value. If you change the height, the width will automatically adjust, and vice versa. This ensures that the picture does not get distorted.
5. Tab to the Lock adjust ratio checkbox and be sure it is checked. This setting prevents distortion.
6. Tab to the OK button and press Enter.

Once again, get sighted confirmation that the picture is correctly sized in the Slide show view.

### 6.2.4 Inserting Audio and Video Clips

It is easy to insert short audio and video clips into a presentation. Common audio file types areMP3 and WAV. Common video file types include MP4 and WMV.

For files on your computer, follow the same steps outlined above for selecting, copying, and pasting pictures. After inserting these clips, the audio feedback you receive will differ depending on your version of PowerPoint. With my 365 version, when I Tab to the placeholder where I have inserted the clip, my screenreader says “audio” and “video” for these file types. For earlier versions of PowerPoint or your screenreader, your screenreader may say “media” for both file types.

If you want to hear your clip while in the Slide area pane, with your focus on the placeholder with the clip, press Alt P to play and pause it, and Alt Q to restart it.

Let’s say you have added your audio or video clip to a Title and content slide. During the slide show, when you press the Spacebar to open the slide containing an audio or video clip, by default, your screenreader first says the title of the slide, as well as any other text inserted in placeholders before the audio or video in a counter-clockwise direction. Pressing the Spacebar a second time then plays the audio or video clip. You can press the Spacebar again if you want to stop it from playing before it ends.

It is possible to start playing the clip immediately upon opening a slide without having to press the Spacebar a second time. To do this:

1. Place your cursor on the placeholder containing the audio or video clip.
2. Press Alt to open the Upper ribbon and Right arrow to the Playback tab. This tab only appears if your cursor focus is on the placeholder containing the media file.
3. Tab several times into the Lower ribbon to the Start combo box, and press Alt + Down arrow to expand it.
4. Down arrow to the Automatically button and press Enter.

Now when you press the Spacebar to open this slide in the slide show, instead of hearing the title first, your clip immediately starts playing.

To delete an audio or video clip, as with pictures, Tab to the placeholder containing it and press the Delete key to remove it.

### 6.2.5 Inserting Links into a Presentation

Insert web page hyperlinks (including YouTube videos) into presentations as follows:

1. On the relevant web page, press Alt D or F6 to go to the Address bar. You will hear “http” etc. Note that the text is already selected.
2. Press Control + C to copy the URL to the clipboard.
3. In the Slide area pane for the relevant slide, Tab to the object placeholder where you want to Insert the link, and press Enter.
4. Press Control + V to paste it, and press Enter to lock in the link so it can be activated later while making presentations.
5. If you do not want a bullet point to appear with the link, navigate to the leftmost character in the hyperlink and press Backspace once.
6. Press Escape to exit the placeholder.

When you open the presentation in Slideshow view, when you land on the slide containing the link, Down arrow to the line containing the link and press Enter to activate it. If you are trying to activate a hyperlink in a presentation prepared by somebody else and the hyperlink is not working, it may be because the author did not press Enter as in step four above. If this happens, try copying the URL to your Clipboard and pasting it into your browser.

## 6.3 Slide Thumbnails Pane

Each slide is prepared and edited in the Slide area pane. In the Slide thumbnails pane, you can delete, copy, and move slides that you have already created.

The Slide area and Slide thumbnails panes are adjacent, so you can move back and forth between them by pressing F6 and Shift + F6.

In the Slide thumbnails pane, down and Up arrow through your slides. You will hear the title of each slide. Using standard windows keystrokes, it is easy to edit the presentation.

To Delete a slide, after up or Down arrowing to it, press the Delete key. No confirmation is requested. The slide simply disappears.

To move a slide elsewhere in the presentation order:

1. Up or Down arrow to the slide to select it.
2. Press Control + X to cut it to the Clipboard.
3. Up or Down arrow to the slide you would like to place it after.
4. Press Control + V to paste it.

To make a copy of a slide and place it somewhere else in the presentation order, repeat the steps above, just pressing Control + C rather than Control + X in the second step to copy the slide to the Clipboard.

There are several reasons why you might want to delete or move slides. After having concentrated your efforts on creating your slides, you may think a different order is more logical or makes the presentation flow better. You may need to delete some slides because of time limits placed on your presentation by meeting organizers.

If you will be making repeated presentations on a particular topic to a variety of audiences in the future, you may create a master presentation with a lot of slides. In the Slide thumbnails pane, you can then create different versions of your presentation, tailoring them to different audiences and time limits. If you create a new presentation based on slides from a master presentation, be sure to save the new presentation with a different filename.

## 6.4 Slide Notes pane

You can add notes to provide more details to your presentation. These notes can serve as reminders of the things you want to say during your talk. Because they are included in the PowerPoint file, they can be sent to meeting participants so they have them for future reference. They can also be printed out for hard copy distribution.

Visually, the Slide notes pane appears directly below the Slide area pane as a large edit box. Slide notes are not visible to audiences while presentations are being given.

The Slide notes pane does not initially appear when you cycle through the panes with the F6 key. To make it appear, press F6 until you hear Toolbar Spellcheck. Tab once to the Slide notes button and press Enter or the Spacebar. Continue pressing F6 to get to the Slide notes pane. It is one pane before the Slide thumbnails pane. Once again, the pane order is Slide notes, Slide thumbnails, and Slide area. Any notes you add should be associated with individual slides. To add notes:

1. After making the Slide notes pane appear, press F6 until you get to the Slide thumbnails pane.
2. Up or Down arrow to the slide for which you want to create notes.
3. Press Shift + F6 to open the associated edit field in the Slide notes pane.
4. Type in your notes. However, keep in mind that it is easier to type them first in Word and copy and paste them here, rather than typing them in directly. This is because editing and spellchecking within the Slide notes pane works poorly.
5. When finished, press F6 once to return to the Slide thumbnails pane, arrow down to the next slide for which you want to add notes, and repeat the steps above.

If you want your screenreader to read the notes for a given slide while in the Slide show view, press Control + Shift + N. After reading the notes, press Control + Shift + N again to return to the slide show.

## 6.5 Formatting Considerations

PowerPoint is primarily a visual medium for conveying ideas to audiences. This section discusses the most important aspects of overall presentation and individual slide formatting. Getting a presentation to look right can be challenging for screenreader users. My advice is to take your best shot, but always have a sighted colleague check your work. Screenreaders don’t always give you accurate information about presentation appearance.

### 6.5.1 Themes

A theme provides a consistent format for the background pattern, font style, point size color, and bulleting of all your slides. Themes can be applied at any time in the process of creating your presentation. The default theme is called “Office.” It is simply black text on a white background – very plain and boring. You will want to change it to something more colorful.

Changing the theme is easy, but there is one big problem. The names of the themes are completely non-descriptive. Facet, gallery and integral are typical examples. Such titles give you no idea of what is on the screen. You will need sighted assistance to choose a theme. Also keep in mind that some themes have font styles and colors that may be difficult for someone with low vision or color blindness to read. Avoid choosing such themes.

It would be desirable for Microsoft to provide short descriptions of the themes somewhere. Unfortunately, I have never found any. Later in this section, I will provide descriptions of themes you may want to choose. I will also identify themes to avoid.

To change themes:

1. Press the Alt key to open the Upper ribbon and Right arrow to the Design tab.
2. Tab into the Lower ribbon to the Themes submenu and press Enter. This opens a grid palette with small pictures of the theme background patterns and font colors visible to sighted users. The first time you come here, you will hear “Office theme selected,” indicating this black text on white background to be your current theme.
3. Use the four arrow keys to move around in the palette grid and press Enter or the Spacebar on your choice.

Your entire slide show will now appear using this theme. You can change it to a different theme at any time. The next time you open the Themes submenu, your current theme will be indicated.

Many organizations have created their own theme templates in order to ensure consistent branding for their presentations. If you are preparing a presentation for your organization, be sure to check whether a template already exists. If so, it may be the policy of your organization to use that theme.

You should use font colors that clearly contrast with your background, such as dark against a light background or light against a dark background. Use a solid background color rather than a multi-colored pattern for easier readability.

Below are descriptions of several themes which provide adequate color contrast between foreground text and background patterns, and may be acceptable to use from an accessibility standpoint:

* Organic: The slide background resembles a light fine-grained wooden board. Title and Subtitle placeholders are on top of a white square with a thin green inside border. The text is dark grey. A horizontal green line provides visual separation between the placeholders. The text color and horizontal line are similar for other slide types. A brown ribbon extends from either side of the Title placeholder and appears to wrap around the wooden board. Other slides have a thin, light wooden border around the entire slide. The remaining background is white with a thin, green inside border. Bullets are solid green and round.
* Parallax: The Title slide has a light gray background which is slightly darker on the left and right, and becomes lighter towards the middle. Two blue and darker gray strips start near the upper left side of the slide. They get a bit thicker and curve slightly to the right as they descend towards just above the middle center of the slide. This provides a subtle three-dimensional effect as slide content seems to come closer. The background pattern is similar for other slide types, but with the blue and gray curving strips descending further down the slide as they curve towards the center. Placeholder text is black providing adequate contrast against the light gray background. Bullets are solid, round, and filled with the same blue as the blue strip in the background.
* Slate: The slide background is a rough textured black pattern resembling tile or slate roof shingles. Placeholder text is white. Bullets are white diamonds. White on black provides a good color contrast.
* Vapor trail: The Title slide has a black background with multi-color ribbons or “vapors” swirling around on top of the black. Shades of a red and orange ribbon tinged with black swoop upwards towards the middle top of the slide. Green and blue ribbons appear at the top right. Swirling red ribbons appear on the lower left side, morphing to green and blue as one moves across to the right. Title and Subtitle placeholder text is white on a black background with clear contrast. Other slide types contain the same design along the top, but solid black further down the slide. Placeholder text is white. Object placeholder bullets are solid white circles.
* Wood type: The Title slide has a white background. The Title placeholder has its own background pattern - gray mottled with fine white dots. Text is black with small white flecks. The Subtitle placeholder text is solid black. To the right and slightly above the Subtitle placeholder, is a red circle with small white flecks, as well as a single white line crossing it. Other slides have a similar pattern as the Title slide, but the red circle is smaller and the Title placeholder background is white. Object placeholder bullets are solid red squares.

Avoid the following themes due to poor color contrast: facet, slice, banded, basis, circuit, frame, metropolitan, parcel, and quotable.

### 6.5.2 Background Colors

To apply a solid color background rather than a theme, do the following:

1. While in the Slide area pane, press Escape to be sure you have not selected a placeholder. If you up and Down arrow, you should hear “no selection.”
2. Open the Upper ribbon and arrow to the Design tab.
3. Tab to the Format background button and press Enter (shortcut: Alt G F).
4. A color palette opens where you can arrow among different colors and shades of those colors. Press Enter or the Spacebar on your choice. To ensure correct color contrast, choose a light background color if you are using a dark font color for the foreground, or vice versa.
5. Tab to the Apply to all button and press Enter to apply this background color to the entire presentation.

If you wish to alter the background color during the same session, you will need to press F6 a couple of times to get back to these settings. Doing this through the Design tab will not work. If you save your presentation, exit out of it, and reopen it, you can apply a new color through the ribbons.

### 6.5.3 Changing Font Color

If you decide to change the background color instead of using themes, you will also want to change the font color. The default font color is black. You would not want to leave it this way if you chose a dark background color. Change the font color only after you have prepared all your slides because the directions below only change font color for previously-created slides, not any subsequent ones. Steps are:

1. Navigate to the View tab in the Upper ribbon.
2. Tab to the Outline view and press Enter.
3. Press F6 until you get to the Outline Tab. This replaces the Slide thumbnails pane when you switch to Outline view.
4. Press Control + A to select all.
5. Go to the Home tab of the ribbon. Tab into the Lower ribbon to the Font color split button, and press Alt + Down arrow to expand it.
6. This opens a color palette where you can use the four arrows to navigate through the choices. Similar to the background colors, they are organized in different shades.
7. Press Enter on your choice.
8. To verify that your color change took effect, press F6 to go to the Slide area pane, Tab to one of the placeholders to give it focus.
9. Press Insert + F to check formatting. Your new color should be identified.
10. Down arrow to several other slides and repeat the above two steps to check that the color has changed elsewhere in the presentation.

### 6.5.4 Transitions

Slide transitions are visual effects and sounds that affect the slide as a whole when you move from one slide to the next when in Slide show view. By default, slides silently appear as you move from one slide to the next during a slide show. Different visual and auditory effects can be introduced. However, be careful about using these. Anything too flashy or dramatic can seem gimmicky, diverting audience attention away from the actual content of your presentation. Overdoing it can even annoy audience members, so use transitions sparingly.

I will first cover visual transitions. You can apply transitions to individual slides, as well as to all of them. To apply a transition to an individual slide:

1. In either the Slide area or Slide thumbnails pane, navigate to the slide for which you want to set a transition. This will be the transition for when that slide opens during a slide show.
2. Press the Alt key to open the Upper ribbon and Right arrow to the Transitions tab.
3. Tab into the Lower ribbon to the Transition effects submenu and press Enter. This opens a grid. Use the four arrow keys to move around. Press the Spacebar on your choice.

As with themes, many of the transition names (morph, push, reveal, etc.) give you no idea about what they actually do. Other names (fade, blinds, dissolve) may give you some notion. Here too, you will need sighted assistance to describe the effect. As mentioned above, use them sparingly, if at all. My own personal inclination is to not use them, or only use very subtle ones.

Once you have applied a transition to a single slide as described above, you can apply that same transition to all slides in your presentation. With your focus on that same slide, in the Transitions tab, Tab to the Apply to all button and press Enter or the Spacebar.

To apply a sound transition to a single slide:

1. In either the Slide area or Slide thumbnails pane, navigate to the slide for which you want to set a transition. This will be the sound you hear when that slide opens during the slide show.
2. Press the Alt key to open the Upper ribbon and Right arrow to the Transitions tab.
3. Tab into the Lower ribbon until you hear Timing sound combo box. Press Enter to open it.
4. Down arrow through the choices and press Enter on your choice.

Among the choices are applause, arrow, bomb, click and cash register. There are numerous others. Once again, use these sparingly. You might use cash register a single time to inject a little humor into your presentation on a slide related to money, but once is plenty.

As with visual transitions, you can apply sound transitions to all slides. The only one I use is the click sound because it is very subtle and has a practical use. It will give you a little more auditory confirmation when you are moving from slide to slide. Otherwise, exercise caution when applying sounds to all slides because any of the more noticeable sound transitions may distract or annoy your audience.

Animations are another commonly used visual effect. These allow individual bullet points to fly into object placeholders during slide shows, Many sighted PowerPoint users employ them because it makes participants focus their attention on just one bullet at a time, rather than wander elsewhere on the slide. Animations could also be useful for non-visual presenters because they could hear just one bullet point at a time, rather than hearing the entire text of a slide all at once. Unfortunately, as of the writing of this book, they were not accessible with screenreaders. Although creating animations is fully accessible, during a slide show, screenreaders still read entire slides rather than one bullet at a time. Hopefully, this accessibility problem will be fixed in the future.

### 6.5.5 Understanding Placeholder Size and Position

Several tools exist for understanding the dimensions and locations of your title and content placeholders on a slide. These can aid you in detecting problems and making corrections. Using these tools can also increase your understanding of what is appearing on the screen.

Slides appear in landscape orientation. The default size of a PowerPoint slide is 13.33 inches wide by 7.5 inches high.

The Size and location dialog provides information on placeholder height, width, and location on the slide relative to the top of the slide. Use this dialog also if you need to resize and/or reposition a placeholder. I will use the example of a Title and two content slide, where the content on the left side contains bulleted text and the placeholder on the right side contains a picture. You must first Tab to a placeholder to give it focus. Beginning with the Title placeholder, do the following:

1. Tab to the Title placeholder to give it focus.
2. Press the Applications key, Up arrow to Size and position, and press Enter.
3. Tab to the Height edit combo box, which announces the height in inches. In this example, it is 1.45,”, the quote meaning inches.
4. Tab to the Width edit combo box, which here is 11.5 inches.
5. Tab to the Position button and press the Spacebar to check it so that additional information will appear.
6. Tab to the Horizontal position edit combo box, which here is.902,) or slightly less than one inch from the top of the slide.
7. Tab once to the From combo box where the default is from the top left corner of the slide. Another option in this combo box is center, but I don’t find this option useful, so I stick with the default.
8. Tab to the Vertical position edit combo box, which here is.4 inches.

I then Tab to the left content placeholder to give it focus, and repeat the above steps to understand its dimensions and position, and then do the same with the right placeholder which, in this case, contains a picture. Carrying out these steps allows one to map out the positioning of the placeholders on the slide, as well as their position relative to each other.

Because these are edit combo boxes, you can change placeholder dimensions or position by inserting values. However, I advise that you do this with the assistance of a sighted colleague.

With JAWS, you can obtain additional useful information on placeholders by pressing Control + Shift + D after tabbing to it. Here’s what I hear when I Tab to the left content placeholder which contains some bulleted text:

“object place holder is 438 points wide and 341 points high.

in inches, this is 6.0 by 4.7.

Shape dimensions relative to slide:

left edge is 48 points, or.66 inches, from slide boundary.

top edge is 133 points, or 1.8 inches, from slide boundary.

right edge is 474 points, or 6.5 inches, from slide boundary.

bottom edge is 66 points, or.91 inches, from slide boundary.

There are approximately 1 too many lines in this object place holder based on the current font size of 20 points.

Press ESCAPE to close this message.”

You hear all this in Say all mode, which can be overwhelming. But if you press Control + To interrupt speech, you can Up and Down arrow to read by line, listening for the number of inches. I don’t find hearing point size useful. In theory, the size an position information should coincide with what you first heard in the Size and position dialog, but there may be some anomalies. If so, the information in the Size and position dialog is more dependable.

As indicated at the bottom of the popup, remember to press the Escape key when finished examining this information.

Pressing Control + Shift + D with JAWS yields additional useful information. In this case, it alerted me that the placeholder probably has too many lines, as indicated by the statement “There are approximately 1 too many lines in this object place holder based on the current font size of 20 points.”

If I press Insert + F to check formatting of this placeholder, I hear that is 28 point size. While not entirely clear what this discrepancy means, I am at least alerted to the fact that I may want to reduce the number of lines of text in the placeholder. Normally, if the number of lines in the placeholder exceeds its limit with the current font size, the size will be automatically reduced. However, you never want to generate a font size that is too small to be seen from the back of a room. Nor do you want to jam an excessive amount of text into a placeholder. A good rule of thumb is to avoid font sizes below 18 point.

JAWS sometimes announces that one placeholder overlaps other placeholders although things are still visually correct. This is because it is only the dimensions of the placeholder that are overlapping, rather than the actual content. You can use thee above tools to determine whether a problem exists that needs to be addressed, but work in tandem with a sighted person to be sure all is visually correct.

## 6.7 Reading Inaccessible Graphics with JAWS PictureSmart

Introduced with JAWS 2024, the PictureSmart with Generative AI feature enables you to quickly get detailed image descriptions encountered in various places, including graphics in PowerPoint presentations. For instructions on initial enabling of this feature, see Chapter 1.2.4.1.

Once enabled, to get an image in a PowerPoint slide described, do the following:

1. While in the Slide area pane, Navigate to a slide containing an image.
2. Maximize the window by pressing Alt and the Spacebar together, followed by X.
3. Tab to the placeholder containing the image to give it focus.
4. Press the layered keystroke Insert and the Spacebar together, followed by P C. A tick-tock sound plays to indicate that results are being generated. After processing, a new window opens and a Google Gemini-generated summary description is read to you.
5. Down arrow to the More results link and press Enter to obtain a richer and more detailed description from Chat GPT.
6. To retain the text, press Control + A and then Control + C to copy all the text to the Clipboard, open Word and press Control + V to paste it there.

Below is a description of an otherwise completely inaccessible line chart that I received in a PowerPoint several years ago. Beyond the richness of the layout and color description, what is even more impressive is that it does a great job of explaining what is going on in the chart. Here is the full unedited description:

Gemini: The image is a line graph that shows the one-way registered passenger trips for the years 2018, 2019, and 2020. The x-axis shows the months of the year, and the y-axis shows the number of passenger trips in thousands.  
The line for 2018 is the highest, followed by the line for 2019, and then the line for 2020. The line for 2020 shows a sharp decrease in passenger trips in March, April, and May, which is likely due to the COVID-19 pandemic.  
 **ChatGPT:** The image presented is a line graph showing "One-Way Registered Passenger Trips (Both Dedicated and On-Demand)." The graph covers a period from July to June, which seems to align with a fiscal year as opposed to a calendar year, as indicated by the labels FY2020, FY2019, and FY2018.  
  
There are three lines on the graph, each representing one fiscal year:  
  
- The line for FY2020 is highlighted, most likely indicating the most recent data, but the color shade is not distinct, and I cannot describe the exact color.  
- The line for FY2019 is plotted with a lighter shade compared to FY2020.  
- The line for FY2018 is in a darker shade compared to FY2019.  
  
Each point on the lines is marked with a small 'X' and a numerical value indicating the number of trips in thousands. The vertical axis on the left-hand side of the graph starts from 140K and goes up to 175K with increments of 5,000 trips, and it is labeled with the number of trips.  
  
The graph illustrates the number of trips fluctuating over the months. For instance, October appears to show a peak for FY2018 (171K trips) and FY2019 (163K trips), while for FY2020 the value is lower (151K trips). In contrast, April shows a low number of trips for FY2020 (132K trips) indicating a significant drop from the previous year (161K trips).  
  
Month labels are shown along the horizontal axis at the bottom, running from July to June.  
  
Lastly, on the bottom left of the graph, there are three labeled keys corresponding to each fiscal year line, allowing the viewer to distinguish between the years by comparing the line type and the corresponding label.  
  
The graph does not denote statistical significance or provide additional context for the fluctuations in passenger trips, and without more information, one can only speculate on the causes or implications of the pattern. End of description.

In my opinion, the implications of this new tool are truly astounding for improving the accessibility of PowerPoint presentations, and especially charts containing data. Even if those sighted people who routinely prepare such presentations were aware of the need to add alt text to ensure greater accessibility, and very few actually are, it would be a big job to draft appropriate and meaningful text to describe and explain data charts. The presentation from which this graph was extracted had 23 inaccessible charts. With PictureSmart, it now becomes feasible to quickly generate rich and meaningful text for large numbers of such graphics, and add slightly edited descriptions to the slide notes.

## 6.8 Saving PowerPoint Files as PDF’s

If you save a PowerPoint file as a PDF, you may find it quicker to read and navigate the presentation than by just reading the PowerPoint itself. Also, if you share it with other screenreader users, they are more likely to be familiar with the keystrokes for reading PDF’s than those for reading presentations in PowerPoint.

One big advantage of reading presentations as PDF’s is that you can read them in Say all with your screenreader and read it continuously rather than slide by slide with the keystrokes enumerated at the beginning of the chapter. Also, slide titles are automatically tagged as headings, with the presentation title tagged as a level one heading, and all other slide titles as level two headings. Because PDF’s are formatted using HTML code, After opening the PDF with Adobe Acrobat Reader (see Chapter 10) or another PDF viewer, you can navigate the headings with the same keystrokes as on web pages by pressing H and Shift H to move to the next and previous heading.

However, keep in mind that this is not a substitute for delivering the initial PowerPoint in Slide Show view when presenting to live audiences.

Saving PowerPoints as PDF files will preserve the following:

* Slide formatting including fonts and themes.
* Alt text accompanying pictures.
* Links to web pages such as YouTube videos (assuming you Insert them into the presentation correctly as discussed in Chapter 6.2.5.
* Slide notes, provided that you follow the steps outlined below.

Steps for saving a PowerPoint file as a PDF are:

1. While in PowerPoint, press F12 to open the Save as dialog.
2. Tab once to the Save as type combo box, and press P several times to first-letter navigate to PDF. If your presentation does not have slide notes and you are not interested in retaining themes you have applied, proceed to step 6.
3. If it does have notes and/or you want to retain theme formats, tab to Options and press the Space bar. Note that you must press the Spacebar: pressing Enter will knock you out of the Save as dialog.
4. You first land on the All radio button. Keeping this option will preserve formatting. Otherwise, only the Office theme (black text on a white background) will be retained in the PDF.
5. Tab to the Publish what combo box and Down arrow to Notes pages.
6. Tab to the OK button and press Enter.
7. Normally, you would now tab to the Save button. However, I have found that this opens a context menu leading you down a rabit hole for mapping netword drives. Instead, Shift Tab back to the Filename edit box and press Enter here to save the PDF.

It is not possible to listen to or view audio and video clips included in your presentation. A graphic with a meaningless label will instead appear. If you intend to save a PowerPoint that includes audio or video clips, you should add alt text to them, using the same steps as for pictures (see Chapter 6.2.3 above)

## 6.9 Practical Tips for Creating and Delivering Presentations

Especially when new to PowerPoint, thinking about presentation content, slide type choice, moving around between placeholders and editing text, and manipulating the awkward JAWS spellcheck workaround (See Chapter 9.1.3 on how bad the PowerPoint Spellchecker is) can be too much to juggle all at once. Consequently, you may prefer to create content in Word, edit it and spellcheck it there, and then copy and paste the text into PowerPoint. That way, you can initially focus on preparing your text in a more familiar typing and editing environment. To make it easy to navigate through your slides, as well as keep track of how many you have, think about marking up each slide title with headings in Word. Don’t bullet text in Word because this will be done automatically when you copy the text from Word and paste it into PowerPoint object placeholders.

While in Word, don’t worry too much about the final order of the slides in your presentation. Reordering is really easy to do in the Slide thumbnails pane.

Limit each slide to just a few bullet points. Do not write full sentences because this may tempt you to read them out loud word-for-word. Excessive text is the most common symptom of a poor PowerPoint presentation. It indicates that the speaker is a PowerPoint amateur, lacks confidence in his or her grasp of the material, that he or she has weak presentation skills, or some combination of all of these. And if you type in too much text, font size automatically shrinks, even to the point of making it difficult for sighted observers to read from the back of a room.

All slide titles should be written in title case. The first letter of the first word of each bullet point should be capitalized, but no other words should start with a capital letter, unless of course other words are proper nouns or acronyms.

Here’s a piece of advice that is so obvious that you may wonder why I even mention it. Be 100 percent sure that all your text is spelled correctly. The sad fact is that I have seen presentations sprinkled with incorrect spelling. The presenter is broadcasting in big bold fonts to a large audience his or her sloppiness and lack of attention to detail.

While most of the steps for preparing PowerPoints are fully accessible, ask a sighted colleague to review the visual appearance of your slide show to be sure that:

* Text and images are large enough to be seen from the back of a meeting room.
* Color contrast between the foreground text and the background pattern is crisp and clear.
* Font style, color and size are consistent.
* Placeholders are not overlapping.
* Graphics such as imported photos are properly sized, correctly oriented, and are crisp and clear. If instead, they are fuzzy, this is probably because of insufficient pixelation. If this is the case, replace them because they will not look good when projected on a large screen.
* Visual slide transitions are not distracting.

Practice your delivery several times in private. Better yet, also do a dry run in front of trusted colleagues and be open to constructive coaching. These are the best ways to ensure that you respect the time limits imposed by meeting organizers. It will also help you to avoid needless meandering and repetition.

It is easy to underestimate how much time it will take to deliver your presentation. A good rule-of-thumb is to budget about 60 to 90 seconds per slide, not counting discussion time. For example, if you have been allotted a 30 minute slot in an agenda, prepare no more than 15 slides. If you move along fairly crisply through your presentation, this should allow about ten minutes for discussion.

So, you have finalized your presentation and it is now time to deliver it to a real live audience. If you are doing this face-to-face in a physical location, get there early enough to test out the technology you will be using to give your talk. If you are delivering it on your own laptop, take time with meeting organizers to hook up your laptop to the projection screen. Ask ahead of time about what connector cable type you will need to connect your laptop to the projector or monitor where you will be displaying your slides. Test out any microphones and speakers you will be using to ensure that the audio works properly. Give yourself ample time to do this because if there are any unforeseen glitches, the last thing you want to do is start delivering your presentation to a live audience before you have recovered your composure.

If delivering your presentation remotely via a platform like Zoom, here too, join the meeting ahead of time and test with the meeting host that screen sharing is working properly. Usually, you will only want to share the visual screen and not audio. You don’t want your screenreader rattling off all your bulleted text each time you open a new slide.

One nice thing about Zoom is that if you only share your visual screen while wearing headphones, you can hear your screenreader speak the text of your slide show, but your audience will not. Of course, if some audience members are blind or low vision, take time to explain your text to them and describe any graphics. Email them your presentation prior to the meeting or shortly afterwards. And with the advent of JAWS PictureSmart and Be My Eyes for Windows, don’t limit yourself to standard short alt text, but add more detailed descriptions to your slide notes.

If you are presenting remotely and have inserted audio clips into your PowerPoint, use the JAWS Sound Splitting feature when sharing your screen. To use it, do the following:

1. With the Window for your PowerPoint presentation already opened, and with your headphones on, press Alt S to open the Screen share dialog.
2. Tab to the Sharing options list box and Right arrow to the title of your presentation.
3. Tab past the Share sound checkbox, leaving it unchecked.
4. Tab to the Share button which now includes the title of your PowerPoint presentation, and press the Spacebar to start sharing your screen.
5. To now split your sound so that you alone hear JAWS, but audience members hear any audio clips inserted into your presentation, press Insert and the Spacebar together, followed by V to activate Volume in the JAWS layered command.
6. Press B for balance, and then either: Left arrow to route JAWS speech to the left and other audio to the right, or Right arrow to route JAWS speech to the right and other audio to the left.
7. When finished, press the Up arrow to restore balance to both sides of your headphones.

If delivering your slide show face-to-face from your laptop, turn down the computer volume to the lowest level where you can still hear the audio clearly, but others can not. If you are positioned at a podium or a head table, chances are you will be far enough apart from your audience so they will hear little or none of your screenreader speech. Alternatively, you can wear a small single earphone. That way, you can hear your slide show with one ear and audience reaction with the other one. Finally, if you are a fluent Braille reader, you can print out your text on an embosser and silently refer back to it while speaking, or use an electronic braille notetaker.

# Chapter 7 Browsing the Web

This chapter reviews keystrokes for reading web page content with the three screenreaders. Many of the keystrokes are the same. If you are already comfortable with one screenreader, you can pick up the basics of another one fairly quickly. The chapter also identifies general strategies for effective web navigation. Browser programs covered are Google Chrome, Microsoft Edge, and Mozilla Firefox.

Much of this chapter’s content is drawn from my book entitled “When One Web Browser Is Not Enough: A Guide for Windows Screenreader Users,” which came out in August 2020. While much has changed since then, most of the basics have not.

## 7.1 The Most Important Keystrokes for Web Navigation

The first thing to say about navigating the web with a screenreader program is that there is good news and bad news. The good news: if you can master about a dozen keystrokes, you are well on your way to being able to effectively navigate the web with all three browsers. The bad news: every website is different and exhibit varying degrees of accessibility. No matter how proficient you get with these and other keystroke combinations, some sites may be difficult or impossible to navigate because the web developer did not adequately take accessibility into account when designing the site. Another possibility is that sites were developed and tested using one or two browsers and not the others, leading to variations in accessibility.

Whatever the reason, there will be times when a site is more accessible using one browser, and less accessible using another. When you encounter a roadblock with one browser, your first trouble shooting strategy should be to try another one. This is the most important reason for being comfortable using multiple browsers. A second strategy when running into roadblocks is to switch screenreaders. Trying various combinations of browsers and screenreaders increases your chances of getting the information you want from finicky websites.

Because every website is different, consider the various keystrokes enumerated in this section as a set of tools to be used flexibly. If one keystroke doesn’t do the job, reach into your toolbox and try another one.

For screenreader users, it often appears that web pages are cluttered with lots of extraneous stuff: ads, decorative graphics, and social media links that just get in your way. Your goal should be to quickly jump over the clutter in order to zero in on meaningful content. Screenreader programs have an array of keystrokes that help you accomplish this. Fortunately, many of these keystrokes are the same for JAWS, NVDA, and Narrator. There are also a number of Windows keystrokes that are universal across all browsers.

Real estate agents stress the importance of “location, location, location.” To become an effective web surfer, “listen, listen, listen!” When exploring websites, constantly ask yourself questions like: Was that a heading? Which level was it? Was that a button? If so, can I Press B for button to get there faster next time? What was the first letter of that link? If I bring up the Links list, will first lettering to it be the fastest way to get there? Is that the only edit box or combo box on the page? If so, can I just Press E or C from anywhere on the page to quickly jump there? While this may sound like audio overload, you can train your ears so that effective listening becomes second nature. Moving around web pages will soon become less frustrating and more fun.

Now let’s talk about how you might go about exploring an unfamiliar website to get a broad sense of what information is available on the site and how you might quickly find content. First, how do you get to a new website? If you open a browser, and do not land on a web page, you can immediately type in the site address and press Enter. If you first land on a web page, press Alt D or F6 in any browser to access the Address Bar, type in the web address, and press Enter. See Chapter 7.4 for more details about opening web pages.

When I go to a website for the first time, I want to know right off the bat how many headings and links are on the page. Your screenreader will often tell you this information when you open the page, but not always. A lot of accompanying noise is also present so you may not catch this information.

JAWS and Narrator can both give summary information with a single keystroke. With JAWS, from the top of the page, press Insert + F1 to open JAWS Screen-Sensitive Help. You will hear the number of links and headings on the page. After hearing this information, press Escape to exit the Virtual Viewer and return to the web page.

With Narrator, press Insert S for a similar summary. With Narrator, you can also press Insert plus S twice quickly to get the following info: the number of links, landmarks, and headings on a page, and a list of popular links for a page, these being links on the page that get the most traffic. The Popular links feature is unique to Narrator.

With JAWS and Narrator, you can also press Insert + F6 and Insert + F7 to get lists of headings and links, respectively. Both will tell you how many of each are on the page.

NVDA does not have separate keystrokes for accessing lists of headings and links. All are found in the Elements list dialog. Lists of form fields and buttons are also found here. To access the NVDA Elements list dialog, do the following:

1. Press Insert + F7 to land in the Elements list dialog. This puts you in a tree view of one of these element types, although it may not initially be apparent which type is being listed.
2. Press Shift + Tab once to go to a set of radio buttons with types of elements. Use the Up and Down arrow keys to go to the Headings radio button.
3. Press Tab once to go to the Headings tree view. Unfortunately, what you hear is confusing because NVDA presents the information in a tree view rather than in a simple list view. Tree views are organized in levels different than those of headings. For level one headings, NVDA will say “level zero” because it is identifying its level in the tree view hierarchy rather than its level in the headings hierarchy. Level one in the tree view hierarchy means it is a level two heading, and so on.
4. Shift + Tab once again and arrow up or down to the Links Radio button.
5. Tab once and the Links tree view now appears.
6. Press escape to exit the Elements list dialog.

Why is this information useful? Headings are the screenreader user’s “best friend” for web navigation. When properly incorporated by web developers, headings and their hierarchy mark up web pages similar to how an outline logically organizes the sections of a book or an essay. Navigating by heading can help you get a general sense of what is on a web page, as well as aiding in quickly zeroing in on the content you want to access. I want to know how many headings are on the page to determine whether moving by heading is likely to be a viable navigation strategy. If I hear that there is only one heading on the page, or there are none (which occasionally happens), I will need to find another navigation strategy. If I hear that there are 40 or 50 headings, that too may be a problem because too many may hinder efficient navigation. I find that somewhere in the range of five to 15 headings is best – not too many, not too few.

Hearing the number of links gives a rough indication about how “busy” the page is. Pages like the New York Times home page can have 350 to 800 links on any given day. If you hear numbers like these, you can probably assume that there will be lots of clutter, thus making navigation more challenging than on pages with fewer links.

### 7.1.1 Headings and Heading Levels

Once you have determined that heading navigation might help you out, press H to go to the next heading and Shift H to go to the previous one. If you navigate through all the headings on a page, this can give you a quick general idea of what information may be accessed on that page. If you Down arrow to read by line under the heading, you may hear a sentence or two expanding a bit on what the heading is all about. A well -designed page will have consistent information under each heading. As you move through the headings, you may hear that some of them are also links, indicating that you can press Enter to open another page related to that topic. Press Enter on one of these links to open a new page.

Heading levels may also help you understand a web pages organization and logical hierarchy if the web developer has correctly structured it, as well as quickly find content. Web pages can have up to six heading levels. Navigate levels by pressing the heading level number key on the number row of your keyboard. Press one on the number row for level one headings, two for level two headings, and so on.

If you press 3 to jump to a level 3 heading, you will first hear the level 1 and level 2 headings that precede it in the headings hierarchy. This can aid in providing context, as well as make navigation more efficient. For example, the four heading levels on the website of a restaurant I often go to are:

* Level 1: Name of the restaurant.
* Level 2: Dinner menu.
* Level 3: Food categories (appetizers, main courses, desserts, etc.)
* Level4: Specific dishes within the categories.

This web page has over 150 headings. Without a logical hierarchy, understanding how information was presented would be confusing, and navigation would be inefficient. If I want to quickly jump to the dessert choices, I can press 3 just a few times, as opposed to pressing H over 100 times.

Once you understand this logical structure, you may not want to hear the full text of the preceding higher heading levels. With JAWS, you can eliminate this verbosity (see Chapter 8.1.5.6).

On well-designed websites, navigating to a level one heading immediately brings you to that page’s main content: for example, the headline of a news article. If you discover that navigating to a level one heading works on one page, it will almost always work on that site’s other pages too.

### 7.1.2 Links

As mentioned above, access the JAWS and Narrator Links lists by pressing Insert + F7, or via the NVDA Elements list dialog.

On many websites, links to the most important pages tend to be clustered higher in the list. If you are exploring a site for the first time, after going through the headings on the home page, Down arrowing through the first 15 or 20 links in the Links list may be a good way to get a sense of the most important pages on the site. Web developers often build these in as main or secondary navigation regions which appear on every page of the site (see Chapter 7.2.1 below for more on regions). For example, on many college websites, links you often find near the top of the list include admissions, registration, academic calendar, financial aid, faculty directory, and course catalog.

Webpages also usually have a footer region at the bottom of each page containing a set of links that act like a site map identifying important links. This can be another way to better understand website organization and available content.

Pressing Enter on a link activates it, redirecting you to another page on a site, or somewhere else on that page if it’s a Same page link. With JAWS, you can move to the next and previous link by tabbing and Shift + Tabbing, respectively. With NVDA and Narrator, you can do this by pressing K and Shift K. However, navigation is more efficient with the Links list. After opening it, press Home and End to go to the first and last link in the list, respectively. You can up or Down arrow through the list. If you know the first letter of the link, pressing that first letter until you find the desired link is the most efficient way to navigate links. To activate a link, press Enter.

If instead, you wish to go to the location of that link on the current page without activating it, press Tab once and then press Enter on the Move to link button.

In sum, for many websites, or at least for those without major accessibility problems, using the above combination of headings and links can give you a quick general idea of what information is available on a website.

### 7.1.3 Find Command for Searching text

Often you just want to find some specific text, rather than go on a general exploration of a web page. The Find command can save time. With JAWS, press Control + F, type in the text you want to search for, and press Enter. You land on the first occurrence of that text after your current cursor location. If that is not the occurrence you want, press F3 to go to the next one. Continue pressing F3 until you find the occurrence you want.

Corresponding keystrokes for NVDA and Narrator are Control + Insert + F for the first occurrence and Insert + F3 for subsequent occurrences.

You can be imaginative in your searches. If I am on an Amazon page and I want to quickly find an item’s price, I will type the dollar sign in the Find command edit box and press Enter. Or if I am looking for a telephone number for a business and am pretty sure I know the three-digit area code, I will type that in, and quickly find it if it is on that page.

Even if the text you are looking for is not present on the page, you will immediately be told “search string not found.” This is still better than wasting time navigating around the page.

### 7.1.4 Form Fields

A form field is an element that allows users to provide input. Five types of common form fields are encountered on web pages: edit fields, combo boxes, buttons, checkboxes, and radio buttons.

With JAWS, you can access the Forms List by pressing Insert + F5. With NVDA, press Insert + F7 to bring up the Elements list dialog. Shift + Tab once to the list of radio buttons, arrow up or down to the Forms radio button, and Tab once to go to the Forms List. Narrator does not have a key command for listing forms.

The JAWS and NVDA Forms Lists are useful for previewing how many and what types of forms are on the page. You can arrow up or down to the form you want, and press Enter to be placed there on the page. However, a far better way to quickly navigate to form fields is to learn the screenreader quick keys for the various form types. These are:

* E: Edit box.
* C: Combo box.
* B: Button.
* X: Checkbox.
* A: Radio button (JAWS).
* R: Radio button (NVDA and Narrator).
* F: Form field of any kind.

You can press the Shift key in combination with any of the above quick keys to go back to the previous form field of that type.

Let’s consider each of these in turn.

Edit boxes are used for typing in text such as your name, street address, and city of residence. Press E and Enter or Spacebar to get into it. By default, your screenreader will make a noise of some sort to indicate that you have entered an edit box. Another noise is heard when you exit by pressing Escape or Enter. In JAWS, these sounds can be changed. Alternatively, you can turn off the sounds in favor of a spoken message of “Forms mode on” and “Forms mode off” (see Chapter 8.1.5.1 on how to do this). I will refer to these noises as “boings” from here on.

#### 7.1.5 A Short Digression on Cursors

Why press E and then Enter for entering edit boxes? It is because you are switching cursors. Pressing the letter E is a screenreader keystroke made using a special cursor that is part of your screenreader program. It means nothing to a sighted person navigating the same screen. JAWS refers to this is the “Virtual PC Cursor.” The NVDA equivalent is referred to as “Browse mode.” Narrator calls it “Scan mode.”

Pressing Enter or Spacebar to get into the edit field changes to the PC Cursor, the same cursor that sighted people use. At this point, both the screenreader user and the sighted user are in the same place. Both can type in text. Escaping out of the edit field causes you to revert to a virtual cursor. JAWS will say “Virtual PC Cursor” to indicate this. Narrator will say “Scan mode.” NVDA just makes a sound. Thus, navigating form fields involves switching back and forth between a special virtual screenreader cursor and what I sometimes refer to as the “sighted person cursor.”

If you are in an edit field, pressing Tab and Shift + Tab will move you to the next and previous form field, respectively. You will not hear any boings because tabbing and Shift + Tabbing keeps you in the form fields, rather than exiting you out.

By contrast, you can press the Escape key to exit an edit field. You will hear a lower pitched boing as you exit. With JAWS, if you remain in the default automatic forms field mode (see Chapter 8.1.5.2 for more about this), you can also Down arrow to leave the edit field. Both will conserve whatever text you have typed into the edit box.

Combo boxes are drop-down lists of pre-identified selections. Lists of states and countries of residence are typical examples. Press C and Enter or the Spacebar to get into a combo box. As with edit fields, you will hear a boing upon entering and another boing when exiting. Arrow up or down to make your selection. You can also first-letter navigate to your selection. To exit out, either press Escape or Tab to the next form field. Either of these will register your selection.

Sometimes combo boxes misbehave with screenreader programs. As you Down arrow, the screenreader program goes silent, or the page changes altogether. An “insurance policy” to guard against this and other misbehavior is to press the Alt and Down arrow keys together to expand the list. Your screenreader program will usually say “open list box” to indicate that the combo box is now expanded.

Thus, for both edit boxes and combo boxes, a similar two-step process is needed to switch between virtual and PC cursors. This is not the case for the remaining types of form fields.

Buttons are most frequently used to execute an action after some previous form fields have been filled in. Examples are OK, next, previous, continue, submit and go buttons. Press B and Shift B to go to the next and previous button, respectively. Press the Spacebar or Enter to activate a button.

Press X and Shift X to go to the next and previous checkbox, respectively. Press the Spacebar to check a checkbox, and Spacebar again to uncheck it. It is possible to check multiple checkboxes on web pages. For example, you may be asked which of the following ten activities are among your favorite hobbies. In this case, you can check more than one.

With JAWS, press A to go to the next radio button. With NVDA and Narrator, press R instead. Radio buttons may be confused with checkboxes. The distinction is that you can only select a single radio button while you can select multiple checkboxes. This introduces a subtle difference in how to check radio buttons versus checkboxes. Unlike checkboxes where you can press the Spacebar to check and uncheck a checkbox, the only way to uncheck a radio button is to press the Spacebar on a different one. For example, let’s say you are asked a question that has yes and no radio buttons. If the Yes radio button is already checked and you Spacebar on it, nothing happens. But if you press the Spacebar on the No radio button, this checks it and simultaneously unchecks the Yes radio button.

### 7.1.6 Tables

Tables are frequently used to display financial information such as transaction histories, investment returns, and loan product details. You may also encounter tables on transportation sites with bus and train schedules. From the top of the page, press T to navigate to the first table. This places the cursor in the top left cell of the table. Your screenreader will tell you how many columns and rows are in the table, as well as the text contained in the cell.

There are several ways to navigate within tables. Hold down the Control, Alt and Up or Down arrow keys together to move up and down a column. Hold down the Control, Alt and Right or Left arrow keys together to move left or right along a row.

If the web developer has designed the table with accessibility in mind, as you navigate left and right along a row, your screenreader program will first read the column header along the top row of the table, and then the content of the cell where your cursor is located. As you navigate up and down a column, your screenreader will read the row header in the left-most column, and then the cell content. Your screenreader may also read column and row headers with a higher pitch than the cell content. This makes it much easier for screenreader users to interpret cell content.

Another way to move along a row, cell by cell, is to Down arrow to move from left to right. Press the Up arrow to move from right to left. Pressing the right and Left arrows will read character by character within a cell.

With JAWS, you can avoid having to hold down the Control + And Alt keys by using “layered” keystrokes. With the cursor situated in a table, hold down the Insert and Spacebar keys together until you hear a click. Then press T and JAWS will say “table layer.” Now use just the four arrow keys to move up, down, left, and right. You will receive the exact same audio feedback as when holding down the Control, Alt and arrow keys, as above. Additional keystrokes you can press in the JAWS Table layered mode are: Home and End to go to the beginning and end cells of a row, Control + Up or Down arrow to go to the top or bottom of a column, and Control + Home and Control + End to go to the top left and bottom right cells. To exit the layered mode, press the Escape key. You will hear a chime. Also, Alt + Tabbing away from the page or navigating out of the table exits the layered mode.

## 7.2 Other Useful Keystrokes

### 7.2.1 Regions/Landmarks

Web pages may also be divided up into regions or landmarks. JAWS uses the term “region” while NVDA and Narrator use the term “landmark.” Press R to go to the next region with JAWS. To go to the next landmark with NVDA and Narrator, press D.

When navigating by region or landmark, you will hear terms like banner, navigation, and main region/landmark, among others. Down arrowing will lead to links or text.

Currently, not that many screenreader users use region/landmark navigation. In the 2024 WebAIM survey of assistive technology users,[[15]](#footnote-15) less than 20% of respondents said they frequently used regions/landmarks. Usage has not budged much from earlier surveys.

Given the idiosyncrasies of web page design, there are sometimes sites where this type of navigation is especially effective. For example, I use TurboTax to complete my tax forms. This application does a poor job with headings, but a good job with regions. Relevant content is located in the main region/landmark, which is quickly accessed with the letter Q with JAWS and Insert + N with Narrator. As a result, I am able to efficiently input my tax data using JAWS or Narrator. NVDA does not currently have a quick key for navigating to main landmarks.

### 7.2.2 Non-Linked Text

With JAWS and NVDA, pressing N jumps to the next block of non-linked text: that is, text that is not links, graphics, or form fields. This can be a good “second best” strategy when heading navigation is not working well, the idea being that non-linked text may be meaningful text content. I often use this to jump over repetitive elements to more quickly access content, but it is generally not as reliable as when a page is appropriately marked up with headings.

I also use N when there are repetitive elements just below a heading, often a series of social media and other links. I press H to go to the heading, and then N to jump closer to the content I want.

### 7.2.3 A Few More Keystrokes

A few more keystrokes you may find useful on some web pages are:

* G: Next graphic, especially if alt text is presented.
* L: Next list.
* I: Next item in a list.
* K: Next placemarker (see Chapter 7.11.3 on creating placemarkers).
* V: Next visited link.

There are more screenreader keystrokes relevant for web browsing. Access them by opening the following links:

[JAWS Navigation Quick Keys](https://support.freedomscientific.com/Training/Surfs-Up/Quick_Keys.htm)

[NVDA Command Key Quick Reference](https://www.nvaccess.org/files/nvdaTracAttachments/455/keycommands%20with%20laptop%20keyboard%20layout.html)

[Narrator Keyboard Commands and Touch Gestures](https://support.microsoft.com/en-us/help/22806/windows-10-narrator-keyboard-commands-touch-).

## 7.3 What is Web Accessibility?

Web accessibility means that people with disabilities can perceive, understand, navigate, and interact with the Internet, and that they can do so using the assistive technology tools at their disposal. For persons with little or no usable vision, that means using screenreader programs, sometimes in conjunction with refreshable braille displays. For those with varying degrees of usable vision, screen magnification programs like ZoomText, Fusion, and Windows + Magnifier are the main tools.

### 7.3.1 Web Content Accessibility Guidelines

Web Content Accessibility Guidelines (WCAG)[[16]](#footnote-16) are the most widely recognized and accepted standards for web accessibility. These guidelines have been put together by an international group of web experts called the World Wide Web Consortium (W3C). WCAG has evolved over time to keep pace with technological change. WCAG 2.0 and 2.1 were published in 2008 and 2018, respectively. Version 2.2 was released in October 2023, and WCAG 3.0 is already being developed with an expected release date five or six years from now.

A set of detailed criteria are elaborated under four broad principles. As an everyday user of the web, familiarity with the WCAG criteria can help you to better understand what you can reasonably expect from websites in terms of accessibility. When you run into accessibility roadblocks, familiarity with these criteria will aid you to more precisely describe problems to website owners if you want to recommend improvements.

WCAG identifies four general accessibility principles to be used by web developers and policy makers. Within these broad areas, specific criteria are laid out. These principles are:

* Perceivable. The contents of the page must be detectable to everyone, regardless of disability.
* Operable. All users must be able to interact with the components of the page.
* Understandable. All users must be able to understand the meaning of the information on the page, as well as any instructions for interacting with page components.
* Robust. No matter what a web page looks like or what it contains, it has to remain accessible – able to be used and understood – on a wide variety of devices and using a wide range of assistive technologies.

Use “POUR” as a mnemonic to remember the four WCAG principles.

There are three levels of WCAG Conformance.

* Level A: A minimum level of accessibility that will not meet the needs of all people with disabilities.
* Level AA: provides accessibility for most people and is the level that most web developers aim for. It is the standard for most policy actions or legal proceedings undertaken in the United States related to web accessibility.
* Level AAA: the highest standard of accessibility. It is often aspirational, rather than always achievable, although certain AAA criteria may be important to achieve, depending on one’s target audience.

### 7.3.2 Usability

Usability is closely related to accessibility. The W3C website states that “**Usability** is about designing products to be effective, efficient, and satisfying.”[[17]](#footnote-17) In the context of web browsing, a web page is “usable” if it is reasonably straightforward for screenreader users with average skills to interact with it. A website might be technically accessible, but difficult to use. In such cases, information can theoretically be accessed, but with considerable difficulty and frustration. A skilled “power user” might be able to access information on a particular site. At the same time, accessing that same content might be extremely difficult for the majority of users.

The W3C website has a page entitled [Understanding WCAG 2.1](https://www.w3.org/WAI/WCAG21/Understanding/). Here you can find links to the specific accessibility success criteria with explanations and examples. While all the success criteria are important, I consider the following to be the most crucial for making a site usable or “blind friendly” for the typical screenreader user. Links to relevant WCAG pages are included for more detailed explanations.

* Logical use of headings and heading levels. [Criterion 1.3.1: Info and Relationships](https://www.w3.org/WAI/WCAG21/Understanding/info-and-relationships.html) and [Criterion 2.4.9: Section Headings](https://www.w3.org/WAI/WCAG21/Understanding/section-headings).
* Consistent and predictable organization of content from one page to the next. [Criterion 3.2.3: Consistent Navigation](https://www.w3.org/WAI/WCAG21/Understanding/consistent-navigation)
* Form controls function properly, are clearly labeled, and are easily navigated. Labels for links clearly communicate associated content. [Criterion 2.4.4: Link Purpose (In Context)](https://www.w3.org/WAI/WCAG21/Understanding/link-purpose-in-context.html), and [Criterion 2.4.9: Link Purpose (Link Only)](https://www.w3.org/WAI/WCAG21/Understanding/link-purpose-link-only.html)
* Tables are understandable and easily navigable using standard screenreader keystrokes, including reading of column and row titles to aid interpretation of cell content. [Criterion 1.3.1: Info and Relationships](https://www.w3.org/WAI/WCAG21/Understanding/info-and-relationships)
* All controls and functionality can be accessed using a keyboard. [Criterion 2.1.1: Keyboard Accessible](https://www.w3.org/WAI/WCAG21/Understanding/keyboard)
* Image content (pictures, charts, etc.) are marked up with meaningful descriptive text (also known as alt text). [Criterion 1.1.1: Non-text Content](https://www.w3.org/WAI/WCAG21/Understanding/non-text-content)

### 7.3.3 The Future of the Web Content Accessibility Guidelines

Digital communications technology continues to rapidly evolve. Development of the next version of WCAG, dubbed “WCAG 3.0” was initiated in early 2021. WCAG 3.0 aims to address accessibility needs of people with a wider array of disabilities than was previously the case. Earlier versions of WCAG primarily focused on web content. WCAG 3.0 will broaden focus to include additional digital technologies such as mobile and desktop applications, and other digital content formats like PDF and ePub documents.

## 7.4 Options for Opening Web pages

This section begins with a discussion of which page you want to land on when you first open your browser. I will then cover creating bookmarks/favorites and desktop shortcuts which are extremely useful for quickly accessing frequently visited webpages.

For opening a browser, all three provide three options: open on a new tab page; open on the last page you were on during your previous session; or open a specific page or set of pages. The page or pages you choose are alternately called start or landing pages. If you pick one specific page, it may also be referred to as a homepage. For the sake of clarity, I will stick with the term “start page.”

I will first explain the concept of Tabbed browsing. Then I will lay out the process of selecting your start page.

Many people choose to make Google their Start page because they want to be able to quickly access the Google search engine. However, if you opt to set your start page as a new tab rather than a specific page, you can immediately perform a search with your default search engine. Alternatively, you can type in the site address you wish to open if you know it already.

### 7.4.1 Tabbed Browsing

Tabbed browsing is a form of navigation that allows a user to browse multiple web pages in a single window. The additional pages are denoted by tabs at the top of the browser window, hence the label “Tabbed browsing.” Keystrokes are the same for all browsers.

When you have multiple web pages open, navigating to them behaves differently than when you have multiple Word or Excel files open. In these latter cases, you can Alt + Tab through all the open files. However, when Alt + Tabbing through your open windows, only the last web page you opened for any given browser will open.

If you use Control + T to load new web pages onto tabs, rather than Alt D or F6, you can consistently cycle through all the tabs you have opened in a particular browser by pressing Control + Tab. Close the current tab by pressing Control W or Control + F4. This will land you on one of the other web pages opened during the current browsing session.

Besides making it easier to work with multiple web pages, using Control + T to open a new website or perform a search is quick and easy. When you press Control + T to open a new tab, if you know the address of the web page, you can immediately type it in and press Enter, which will open the site. Or if instead, you want to perform a search, here too, you can immediately start typing in your search term, press Enter, and your default search engine will generate search results. There is no need to navigate to an edit field or the Address bar.

The three screenreaders do not consistently say the same thing when opening new tabs. They will usually say something like “Address and search bar edit,” indicating that you can either type in a web address or a search term. So, if I type in “carroll.org,” minus the quotes, and press Enter, this will bring me directly to the Carroll Center for the Blind website. Or, if instead, I type in the search term “Carroll Center for the Blind,” and press Enter, this will open a search results page using my default search engine for that browser. If my default search engine is Google, results will appear exactly as they would if I had already been on the google.com web page and then performed a search.

### 7.4.2 Universal Method for Creating and Managing Favorites and Bookmarks

To quickly go to frequently-visited websites, use favorites and bookmarks. This saves you the time of repeatedly searching for them. If you want to be an efficient web navigator, you will want to have a well-organized set of favorites or bookmarks, as well as a few desktop shortcuts for the sites you visit most frequently.

Chrome and Firefox call these “bookmarks,” while Edge calls them “favorites.” These are just different words for the same thing.

Because you can organize these in folders, you can have lots of them and still easily find them. You might have quite a few bookmarks organized in folders for finances, news, school, entertainment, and so on. By contrast, you would not want to clutter your desktop with 40 or 50 web page shortcuts. If you have a large number of desktop shortcuts to wade through, this defeats the whole notion of shortcuts. Create desktop shortcuts for only those web pages that you visit with great frequency. Think of them as your “favorite favorites.”

I will not go over the processes for creating, accessing and managing bookmarks and favorites in the various browsers. Instead, I will present a universal approach for centralizing creation and management of favorites/bookmarks in a single folder. Doing all this in one place greatly simplifies and streamlines the whole process of managing them if you use multiple browsers. And even if you use a single browser, the process outlined below is easier to learn and use than doing it in any of the individual browsers.

First, create a new folder somewhere on your computer. This could be in the Documents folder. However, if you use Dropbox, OneDrive, or Google Drive for Desktop, create it in one of those places because this will back up the folder to the cloud, and allow you to access it on your other devices. Second, create a desktop shortcut for this folder (see Chapter 2.8.1 on how to do this). This will speed up the process of creating, accessing, and managing your favorites.

Steps for creating a favorite are:

1. On the web page you want to make a favorite, and in whatever browser you happen to be in at the moment, press Alt D or F6 to navigate to the Address bar where the page’s URL is already highlighted.
2. Press Control + C to copy the URL to the Clipboard.
3. Open the Favorites folder shortcut that you have created on your desktop.
4. To add the favorite to one of the subfolders here, navigate to it and press Enter. Skip this step if you do not want to place it in a subfolder.
5. If using Windows 10, press Alt H W S which is the ribbon shortcut key for creating a shortcut (I use the Boston slang term “wicked smart” as my mnemonic for this). If instead, you are using Windows 11, at this point, press the Alt key. You land on the New button which is collapsed. Press the Spacebar to expand it. Down arrow to Shortcut and press Enter.
6. With either Windows version, you now land in an edit field. Press Control + V to paste the URL here, and then press Enter.
7. Type in the name you want to give the favorite in this second edit field, and press Enter.

Managing favorites in this folder is easy because you use the same keystrokes as when managing files and folders elsewhere on the computer. Relevant keystrokes are:

* Control + Shift + N: Create new folder.
* Enter: Open folder.
* Backspace: Go back up one folder level (Alt + Left arrow and Alt Up arrow will also work).
* Control + C: Copy favorite.
* Control + X: Cut favorite.
* Control + V: Paste favorite.
* F2: Rename folder or favorite.
* Delete: Delete favorite or folder.

As in your Documents folder, you can first-letter navigate to folders and individual favorites. You can also select multiple folders and favorites, something that is not possible when you manage them in the other browsers.

Many people who have made the transition away from Internet Explorer to one of the other browsers cite grappling with bookmarks as a big challenge. If you adopt the above approach, you can sidestep these problems.

### 7.4.3 Creating Desktop Shortcuts

As mentioned above, create desktop shortcuts for those web pages that you consider your “favorite favorites.” The procedure is quick and easy for Chrome. A universal method can be used with Firefox and Edge.

#### 7.4.3.1 Chrome

To create a desktop shortcut with Chrome:

1. Open Chrome and navigate to the web page for which you want to make a shortcut.
2. Press Alt and F together, Up arrow to the Cast save and share submenu, and press Enter.
3. Down arrow to Create shortcut, and press Enter.
4. This opens an edit box pre-populated with the web page title. Edit it if you like. When done, tab once to the Create button and press Enter.

Note that if you create a desktop shortcut in Chrome using the steps above, that shortcut will only open the associated web page in Chrome, even if Edge or Firefox is your default browser. If you want to be able to open the shortcut with a default browser other than Chrome, create the shortcut using the universal method outlined below.

#### 7.4.3.2 Universal Method for Creating Desktop Shortcuts for Web pages

Steps for doing this are:

1. In any browser, open the webpage for which you want to create a desktop shortcut.
2. Press Alt D or F6 to go to the Address bar.
3. Press Control + C to copy the URL to the Clipboard.
4. Press Windows + M or Windows + D to go to the Desktop.
5. Press Control + Spacebar to unselect any icon that may already be selected on the Desktop. This step is crucial - none of the subsequent steps will work without doing this.
6. Press the Applications key, Up arrow to the New submenu, and press Enter to open it.
7. Down arrow to Shortcut and press Enter. This opens the Create shortcut Dialog box.
8. In the Type the location of the item edit box, press Control + V to paste the URL here, and then press Enter.
9. Type a label for the shortcut in this second edit field, and press Enter.

If you use this universal method to create a desktop shortcut, the associated web page will open in your default browser, regardless of which browser you were in when you created it.

#### 7.4.3.3 Creating Desktop Shortcuts To Be Opened with a Specific Browser

There may be times when you want to designate a browser other than your default browser for opening a web page. For example, Microsoft’s Bing AI chat engine only works when opened in Edge. Therefore, if my default browser is Chrome or Firefox, following the methods in the previous two sections will not open a desktop shortcut correctly. Using this example, here are the steps for creating a desktop shortcut which will open in Edge, regardless of my default browser designation:

1. Press the Windows key to open the Start menu search box, and begin typing in Edge until you hear the name of the application.
2. Press the Applications key, Down arrow to Open file location, and press Enter. This lands you on the shortcut for opening Edge.
3. Press the Applications key again, Up arrow once to Properties, and press Enter.
4. You land in the Target edit field where the file path for the executable shortcut is identified. Press Control + A to select it and Control + C to copy to the Clipboard.
5. Open a blank text editor such as Word or Notepad and press Control + V to paste it here.
6. Press the End key to be sure you are at the end of this file path, and press the Spacebar once.
7. With any browser, open the web page for which you want to create a desktop shortcut.
8. Press Alt D or F6 to go to the Address bar, and Press Control + C to copy the URL to the Clipboard.

Alt + Tab back to the text editor and press Control + V to paste the URL. You should now have text that contains the file path to your browser’s shortcut file ending with a .EXE extension, followed by a space, and then the URL.

From here on the remaining steps are the same as those described above for the universal method for creating desktop shortcuts, namely:

1. Press Windows + M or Windows + D to go to the Desktop.
2. Press Control + Spacebar to unselect any icon that may already be selected on the Desktop.
3. Press the Applications key, Up arrow to the New submenu, and press Enter to open it.
4. Down arrow once to Shortcut and press Enter.
5. Press Control + V to paste the file path and URL here, and then press Enter.
6. Type a label for the shortcut in this second edit field, and press Enter.

If you would also like this desktop shortcut to appear in your favorites folder and not open in the default browser, simply copy it from the Desktop and paste it into your favorites folder.

## 7.5 Switching Browsers

It is easy to change your default browser, as well as to change browsers for a particular web page where you are situated.

### 7.5.1 Changing Your Default Browser

Why ever change your default browser? Why not just pick one browser and stick with it forever? Or only change on very rare occasions? There are several reasons. You may like Firefox as your default, but you open a site, and it says that the site works best with Google Chrome. If you think you will be going back to that site frequently over the next several hours or days, you may find it is quicker to change the default to Chrome. Or you may be about to navigate to a “busy” web page cluttered with lots of ads, graphics and social media links that make reading and navigation tedious and frustrating. You may wish to switch your default browser temporarily to Edge in order to take advantage of its Immersive Reader feature (see Chapter 7.11.1 below).

As mentioned in Chapter 2.5.10, it is quick and easy to switch default browsers with Windows 10. It takes a bit more effort in Windows 11.

To switch default browsers with Windows 10:

1. Press the Windows Key to open the Start menu search box.
2. Type the first few letters of “Default App Settings System Settings.” As soon as you hear these words, press Enter.
3. Tab several times to the Web browser button. Your current default browser will be identified here.
4. Press Enter or Spacebar to open a pop-up. Tab to your new default choice, and press the Spacebar to select it.
5. Press Alt + F4 to close this window (there is no OK button to activate).

As mentioned in Chapter 2, Microsoft has made the process of changing default browsers a bit more complicated with Windows 11. I used web browsers in Chapter 2.5.10 as an example of how to change default programs with Windows 11. Check out that section of the book for instructions on how it is done.

### 7.5.2 Switching Browsers for a Specific Web page

You may want to change browsers when something seems broken and you suspect that switching browsers may help. For example, you press Enter on a link and nothing happens. Or the choices in a combo box don’t appear. Switching browsers involves copying the URL from the first browser and pasting it into the other one. Steps are:

1. In the source browser, press Alt D or F6 to go to the Address bar edit box. The URL is already selected.
2. Press Control + C to copy it.
3. Open the destination browser.
4. If the destination browser is set to open in a new Tab, press Control + V to paste the URL, and Press Enter to open it. Or if the destination browser is set to open on a specific page, press Alt D or F6 again, press Control + V to paste the URL, and press Enter.

Note that this will not work with many secure sites where you have already logged in. The log in page will open rather than the page you attempted to load.

## 7.6 Menu Structure of the Browsers

This section provides an overview of the menu structures of Google Chrome, Microsoft Edge and Mozilla Firefox.

You probably won’t spend lots of time in the various browser menus, but it’s good to know your way around. Once you open a browser, the lion’s share of your time is spent navigating to and browsing content. And you can use shortcut keys to perform many common commands, rather than navigating to them in the menus. Memorizing some of these keystrokes is well worth the modest effort because the most frequently used ones are universal across the browsers.

Still, there will be times when you may wish to access the menus. You may wish to change some settings, create desktop shortcuts, bookmarks, or favorites, or perform some other function for which there is not a shortcut key.

Similar to context menus accessed via the Applications key, Chrome and Edge also use context menus. You can Up and Down arrow through the commands. As you do this, corresponding shortcut keys are identified. Firefox uses classic drop-down menus rather than context menus. I’ll start with Firefox.

As with any standard drop-down menu, open the Firefox menu bar by pressing the Alt Key. You will first land on the File menu. Right and Left arrow to the other menus. Particularly important ones are the Bookmarks and Tools menus. Settings and Add-ons (the Firefox equivalent of extensions) are found here. To access a command in any of these menus, Down or Up arrow to the command you want to execute, and then press Enter on it.

Although a departure from the familiar drop-down menu structure used in Firefox and the retired Internet Explorer, navigating the Chrome and Edge menus is quick and easy. Once you get used to this lean and mean menu style, you may prefer it over more traditional menus.

Google Chrome commands are organized in a single drop-down context menu. While the commands in the list are subject to frequent change, the basic structure hasn’t changed in all the time I have been using Chrome (since 2018). Press Alt + F to open the context menu. You land on New tab and hear that there are about 23 items in the list (this may vary by one or two). Down or Up arrow to the command you want to execute, and press Enter. Shortcut keys are clearly identified as you Up and Down arrow through the context menu.

As of March 2025, moving down the list in the Chrome context menu, items were: New tab, New window, New incognito window, Your profile name sub menu, Passwords and autofill sub menu, History submenu, Downloads, Bookmarks and lists sub menu, Tab groups sub menu, Extensions sub menu, Delete browsing data, Make text smaller, Make text larger, Full screen, Print, Search with Google Lens, Translate, Find and edit sub menu

, Cast save and share, More tools submenu, Settings, Help submenu, and Exit. This wraps around, so Up or Down arrow to the desired command, depending on which gets you there quicker. To exit the context menu, press Escape.

The Edge menu structure is very similar to that of Chrome. As with Chrome, press Alt + F to access the context menu. Up and Down arrow through and you will see that many of the items are the same.

## 7.7 History

You can access a list of web pages that you have visited in recent days, weeks and months using Browsing history. You can also search and delete Browsing history. Accessing your Browsing history is useful if you want to quickly return to a recently-visited website or specific web page. Deleting your Browsing history is done primarily for privacy reasons, especially if you are using a public or shared computer.

Control H is the universal keystroke for accessing Browsing history. Each browser displays history in different ways. Firefox presents a clearly laid out tree view structure for viewing History by date and site. Viewing History in Chrome and Edge by date and site is less well laid out.

While each browser has different steps for deleting Browsing history, there is a universal method for all browsers. Press Control + Shift + Delete and Tab through several check boxes to clear various things. Browsing history is one of these choices. After pressing the Spacebar to check it, tab to the OK button and press Enter.

### 7.7.1 Firefox

To view History in Firefox:

1. Press Control H to open History in a new tab.
2. Tab to the View button and press the Spacebar to expand it. Here you can Down arrow to select among five choices: by date and site (the default view), by site, by date, by most visited, and by last visited. Press Enter on your choice and Tab to a tree view to see your History displayed.
3. With the default By date and site view, the tree view is organized as follows: date at level zero; site at level one; and individual pages within the site at level two.
4. Press Enter on a page to open it.

You can also press the Applications key and delete individual sites or pages from your History, bookmark the site or page, and do several other things.

### 7.7.2 Edge

Edge’s History is organized in a tree view. There is only a single view – by date and page, with date and level zero and individual pages at level one. To access it:

1. Press Control H to open the History tab.
2. Tab to the tree view where dates are listed at level zero of the tree view.
3. Right arrow to open level one of the tree view and Down arrow through the pages listed.
4. Press Enter on the page you would like to visit to open it.

You can also press the Applications key for additional choices like deleting a page from history and several others. To close the History tab, press Control + F4 or Control W.

### 7.7.3 Chrome

As with Edge, when you press Control H, this opens a new tab. Browsing history is organized in a table. Inside the table, level 2 headings appear with browsing history dates. The table has four columns. The first column has a check box for selecting the page. You must tab into it to make a selection: arrowing to it will not work. The second column contains a link to the web page. Pressing Enter will open the page. Also, because these are links, you can use the Links List to find the page you want to open. If the page has been previously bookmarked, a check box for removing it from the Bookmarks list appears in the third column. This column does not appear for pages not previously bookmarked. The last column has an Actions button. Pressing this button opens a context menu with two options: Remove the page from History and additional actions for that page.

## 7.8 Extensions/Add-Ons

These are small software programs that customize the browsing experience, adding more functionality for specific and limited tasks. Chrome and Edge call them extensions, while Firefox calls them add-ons. Popular tasks perform by extensions include blocking advertisements, enhancing security, screen customization, and correcting grammar and spelling. Many are available for more than one of the browsers.

While there are literally thousands of extensions/add-ons out there, don’t go overboard. The vast majority do little to enhance your browsing experience,, and many are inaccessible. For example, Grammerly is one of the most popular extensions used by students to check grammar. However, it has been totally inaccessible for years and repeated screenreader user requests to make it accessible have only been ignored. That said, there are a few extensions/add-ons worth considering. uBlock Origin is a popular extension for blocking advertisements, most notably on YouTube. It can be added with Edge, but no longer works with Chrome. When you attempt to download it in Chrome, you encounter the message, “This extension is no longer available because it doesn't follow best practices for Chrome extensions.” It has presumably been removed because it reduces ad revenue, an important source of money for YouTube’s parent company which is Google.

The Chrome Read Aloud eextension strips away clutter on “busy” web pages” to improve readability. Although this book does not deal with low vision issues, the ZoomText smart invert Chrome extension enables ZoomText and Fusion users to use the invert brightness and color schemes more effectively.

You can search for extensions by using a search engine or through the extension manager in the browser menus. For Chrome, I will use the Read Aloud extension as an example to illustrate the process of downloading and managing extensions. I will use the uBlock Origin extension as an example for Edge, and the AdBlock add-on as an example for Firefox.

### 7.8.1 Chrome

To add an extension to Chrome:

1. In Chrome, open a new tab, type “Read Aloud extension for chrome store,” and press Enter. Note that character case does not matter when typing search terms.
2. Press H to get to the heading for this extension.
3. Down arrow under the heading to the Add to Chrome button and press the Spacebar.
4. Tab to the Add extension button and press the Spacebar. Your screenreader will confirm that the extension has been added. It is also immediately activated.

Alternatively, you can access the Chrome Store in the Extensions submenu of the Chrome context menu. Accessing this submenu is covered just below in relation to managing extensions.

To manage extensions that you have downloaded to Chrome:

1. Press Alt + F to open the Chrome context menu, Down arrow to the Extensions submenu, and Enter to open it.
2. Press Enter on Manage extensions.
3. Press H to navigate by heading. Each of your installed extensions has a level three heading. Underneath the heading is a Details button which you can activate to find out more about the extension, a Remove button if you want to delete it, and an Extension enabled toggle button. Press the Spacebar to enable or disable the extension.

### 7.8.2 Edge

To add extensions to Edge:

1. Press Alt + F to open the Edge context menu, Down arrow to Extensions, and press Enter.
2. Tab to the Get extensions button and press Enter.
3. This opens the [Microsoft Edge Add-ons](https://microsoftedge.microsoft.com/addons/Microsoft-Edge-Extensions-Home) page.
4. In the search box, type in the name of the extension and press Enter to generate a search.
5. Search results are displayed in a table. Press Enter on the Get button for the extension.
6. This opens a dialog. Tab to the Add button and press Enter. You should hear a confirmation that it has been added to Edge.

To manage installed extensions:

1. Press Alt and F together to open the Edge menu, Down arrow to Extensions and press Enter.
2. Tab to the Manage extensions button and press Enter.
3. This opens a new tab. Press H to go to the Installed extensions level two heading.
4. Down arrow to the extension you want to manage.
5. From here, steps are exactly the same as those outlined above for Chrome for accessing details, removing extensions, and enabling/disabling them.

Press Control + F4 or Control W to close the Extensions Tab when finished.

### 7.8.3 Firefox

To install an addon with Firefox, do the following:

1. Press Alt to open the Menu bar, Right arrow to Tools, Down arrow to Add-ons and Themes, and press Enter. The shortcut key to open the Add-ons Manager is Control + Shift + A.
2. In the search box, type in the name of the add-on you want to download, and press Enter. In this example, it is “AdBlock.”
3. Press H to navigate to the AdBlock heading, which is also a link. Press Enter to open the link.
4. Press Enter on the Add to Firefox link.
5. Press Alt A to allow the download. You will receive verbal confirmation that it has been added to Firefox.

Note that it is a good idea to exit Firefox after downloading a new add-on so the Manage add-ons page loads correctly.

To manage Firefox add-ons:

1. Press Alt to open the Menu bar, Right arrow to Tools, Down arrow to Add-ons and press Enter.
2. Press H to navigate to the Installed add-ons heading.
3. Down arrow to the Enable checkbox and press the Spacebar to enable it. Press the Spacebar again if you want to disable it.
4. If you want to delete the add-on, Down arrow one more time to More options and press the Spacebar to expand the list.
5. Down arrow to Remove and press Enter.

## 7.9 Accessing and Changing Browser Settings

## 7.9 Accessing and Changing Browser Settings

Changing settings can be confusing because the exact sequence of keystrokes for accessing the various settings categories are not always intuitive, subject to change, and differ between browsers. Rather than describe these keystroke sequences for each browser, something that will almost certainly become outdated as new browser versions are released., I will limit myself to describing the Steps for finding some of the most important settings you may wish to change. Most will involve using the search box. These include synchronizing across devices, browser startup page options, setting your default search engine, changing download options, and a few more.

To access Settings for both Chrome and Edge, press Alt + F, Up arrow to Settings, and press Enter. To get there more quickly, press Alt + F and then S with Edge or G with Chrome. To access Settings in Firefox, press Alt and Right arrow to Tools, Up arrow to Settings, and press Enter. In each browser, this opens a Tab, just like any other web page you open as a tab. You may first land in a search box. press the Escape key if you do not want to perform a search.

Steps for changing some of the most commonly used settings for each of the browsers appear below.

### 7.9.1 Syncing Across Devices

With each of the browsers, you can sync your personal information across devices (bookmarks, extensions, search history, open tabs, saved passwords, payment info, addresses, phone numbers, settings, preferences, and more). You can also create multiple profiles, such as work and personal profiles. The first step is to create an account if you have not already done so.

This is your Gmail address and password for Chrome, your Microsoft account for Edge, and your Firefox account for Firefox. I will only cover Chrome and Edge. Relatively few people maintain Firefox accounts.[[18]](#footnote-18) Instructions for creating accounts can be found by activating the following links:

* [How to Create a New Gmail Account](https://www.rightinbox.com/blog/how-to-create-a-new-gmail-account)
* [How to create a new Microsoft account](https://support.microsoft.com/en-us/account-billing/how-to-create-a-new-microsoft-account-a84675c3-3e9e-17cf-2911-3d56b15c0aaf)

Once you have created these accounts, be sure to store user IDs and passwords somewhere handy so you can quickly access them later.

#### 7.9.1.1 Chrome

Assuming you already have one or more Gmail accounts, steps for syncing are:

1. Press Alt + F and then G to get into Settings.
2. Press Escape to exit the search box, and press H to go to the You and Google heading.
3. Down arrow to the Turn on sync button and press Enter.
4. Sign into your Google account. If you are already signed in, this will be indicated. You will also have the option to switch accounts if you have more than one.
5. Press Enter on the Yes I am in button.
6. Press the Spacebar on Manage people.
7. Press the Spacebar on Add person.
8. Choose a name and a photo.
9. Press the Spacebar on Save. A new window will open and ask you to turn on sync.

(Optional) Turn sync on in Chrome with a Google Account for the new profile.

#### 7.9.1.2 Edge

With Edge, you can add multiple profiles. Profiles allow multiple users to operate in a shared environment while maintaining access to their personalized browser settings, bookmarks, and extensions.

Assuming you already have a Microsoft account, steps for syncing are:

1. Press Alt + F and then S to get into Settings.
2. Press Escape to exit the search box, and press H to go to the Your profile heading.
3. Down arrow to the Add profile button and press Enter. Note that if any profiles have already been added, they will be listed just below this button.
4. You are told “Create profiles to sign in with additional email accounts, and to keep work and personal browsing separate. Or, add a profile for each family member.” Press the Add button underneath this text.
5. A new tab opens where you are asked to sign in. This will enable you to bring over your passwords, history, and other things from that account. Press Enter on the Sign in to sync data button.
6. Sign in with your email and password for that account.

The additional profiles are now available for selection and syncing.

### 7.9.2 Changing Your Startup Page

Each browser gives you three options for setting the initial page you land on when you open the browser: a new tab, continuing where you left off during your last session, or a specific page or set of pages. Let’s start with Chrome.

#### 7.9.2.1 Chrome

1. Press Alt + F and then G to open the Settings tab.
2. In the search box, type startup, and press Enter.
3. Tab once or twice until you hear “main region” or “main landmark,” depending on your screenreader.
4. If you do not land on it immediately, press H to navigate to theon startup level two heading.
5. Down arrow to the three radio buttons. Press the Spacebar on the Radio button of your choice. If you select either the New tab page or Continue where you left off radio button, you are done, and can press Control W or Control + F4 to close the Settings tab.
6. Otherwise, continue Down arrowing to the Use current pages radio button and press the Spacebar. If you want to choose this option, have only the desired page or pages open when you start. While it is possible to select and unselect among open pages, this is more complicated.
7. Down arrow to the Use current pages link and press Enter
8. Exit Chrome and reopen it to verify that your new Start page choice has registered.

If you choose the New tab option, when you open Chrome, you can immediately type in either a web address or a search term. Pressing Enter will then either open the page or generate a search results page with your default search engine. Because I like to be able to quickly access the Google search engine, I prefer the New Tab start page option. I prefer not to use the second Continue where you left off option because different Start pages open from session to session. I find this confusing. Choose the third Use current pages option if you want to always have the same Start page or pages. Some workplaces may prefer that your browser always opens on the organization’s website. Or you may have several pages that you open when you begin working on your computer every day, and it is quicker to have them all appear on startup, rather than manually reload them every time. Whichever option you choose, it is easy to change later.

#### 7.9.2.2 Edge

The Edge Start page choices are exactly the same as those for Chrome. Navigate to them as follows:

1. Press Alt + F, Up arrow to Settings, and press Enter.
2. You first land in a search box. Tab once to the Navigation area where 17 settings vcategories are listed.
3. Down arrow to Start, Home and New tab page,and press Enter to select it.
4. Tab several times to the same three radio button choices as above for Chrome and make your selecction similar to above.

#### 7.9.2.3 Firefox

With Firefox, you have the same three startup page options as for Chrome and Edge, but the steps for accessing them is a bit complicated. Do the following:

1. Press the Alt Key to open the Menu bar, Right arrow to Tools, Up arrow to Settings, and press Enter.
2. In the search box, type “tab,” and press Enter.
3. Tab once or twice to the search results page.
4. From the top of the page, press H to go to the Startup heading
5. Down arrow to the Open previous windows and tabs checkbox and press the Spacebar if you want all tabs from the previous session to open on startup. If you do not want this, be sure to uncheck it. If you don’t, it will override the other options discussed below.
6. Press H several times to go to the New Windows and Tabs heading.
7. Down arrow or press C to go to a combo box, and press Enter to open it.
8. Up or Down arrow to your choices which include Firefox home, custom URLs, and blank page.
9. If you choose the blank page option, press Enter and this startup option is selected, meaning that a single new tab will open on startup
10. If you choose Custom URLs, tab to Paste a URL where you can paste in a web address. But if you already have the desired tabs open and only those tabs, it is easier to tab one more time to Use current pages, and press Enter.
11. Press Alt + F4 to exit Firefox and reopen it to verify that your desired startup choice now appears.

### 7.9.3 Changing Your Default Search Engine

When you press Control + T to open a new tab, focus lands on the address and search bar. If you then type in key words and press Enter, a search will be performed using your default search engine. The initial default search engine is Google for Chrome and Firefox. It is Bing for Edge.

#### 7.9.3.1 Chrome

To change your Chrome default search engine:

1. Press Alt + F and then G to open the Settings tab.
2. In the search box, type “search engine,” and press Enter.
3. Tab once or twice until you hear “main region” or “main landmark,” depending on your screenreader.
4. Press H to navigate to the Search engine heading.
5. Down arrow to hear the current default search engine.
6. Down arrow to the Change button and press Enter if you want to change it.
7. Press Enter on the radio button of your choice. Note that pressing the Spacebar on these radio buttons did not work the last time I tried this in March 2025. Options are Google, Bing, Yahoo, Duck Duck Go, and Yandex.
8. Tab to the Set as default button and press Enter. You should hear that the default search engine has change dto your new choice.
9. If you do not, repeat the above steps until you receive confirmation. Again, this was not behaving properly the last time I checked it out.
10. Press Control + T to open a new tab, type a search term and press Enter. Results should now be generated by your new default search engine.

#### 7.9.3.2 Edge

Steps for changing your Edge default search engine are:

1. Press Alt + F, and then S.
2. In the search box, type “search engine,” and press Enter.
3. Tab several times to Settings main region/landmark.
4. There is quite a bit of content here. Press Control + F in JAWS, or Control + Insert + F with NVDA or Narrator to use the Find command. Type address bar and search and press Enter.
5. Down arrow once to the Address bar and search button and press the Spacebar.
6. Press B until you hear “Search result match: Search engine used in the address bar default) Button collapsed Has Popup listbox. “ You will also hear the current default search engine. Press the Spacebar to expand.
7. Down arrow to your choice and press Enter. The same five options listed above for Chrome are available.
8. Press Control + T to open a new tab, type a search term and press Enter to confirm that results are now generated by this new default search engine.

#### 7.9.3.3 Firefox

This is much easier with Firefox than with Chrome or Edge. Steps are:

1. Press the Alt Key to open the Menu bar, Right arrow to Tools, Up arrow to Settings, and press Enter.
2. In the search box, type “search engine,” and press Enter.
3. Tab once or twice to the Default search engine group.
4. Down arrow to your choice and press Enter. Options are Bing, DuckDuckGo, Amazon.com, eBay and Wikipedia
5. Press Control + T to open a new tab, perform a search, and verify that search results open in your new default search engine.

### 7.9.4 Download Settings

With each of the browsers, you can change the default download folder location on your PC. You can also adjust settings here to open a Save as dialog box each time you download so you can designate a save location other than your default download folder. The factory default download location is the Downloads folder located in your user folder.

#### 7.9.4.1 Chrome

To access download options in Chrome:

1. Press Alt + F and then G to open the Settings tab.
2. In the search box, type “downloads,” and press Enter.
3. Tab once or twice until you hear “main region” or “main landmark,” depending on your screenreader.
4. Press H to navigate to the Downloads heading.
5. Down arrow once to hear “location.” Down arrow once more to the Change button, and press Enter to change the default location of files and folders that you download from the web.
6. This opens the Location dialog where you can Shift + Tab to select a new default downloads destination folder.

By default, when you activate a download button or link on a web page, files and folders automatically begin downloading to your PC. When the download is finished, you receive a notification that the download is complete.

Just below the Change button mentioned above under this same Downloads heading, is the Ask where to save each file before downloading toggle button. Press the Spacebar if you would like to have the option of changing the save location of individual files or folders as you download them. Some people also change this setting because they prefer not having automatic downloads.

#### 7.9.4.2 Edge

To access similar Downloads Settings options in Edge, steps are:

1. Press Alt + F, and then S.
2. In the search box, type “downloads,” and Enter.
3. Tab several times to the navigation region or landmark., Down arrow to the Downloads category and press Enter to select it.
4. Tab to the Main region or landmark. You first land on the Change location button where you can designate a new default location for your downloaded files and folders. The current default location folder path is identified just below this button.

Below this folder path is the Ask me what to do with each download checkbox. And under that is a short description of what that checkbox does when activated: “Always ask me if I want to save a file or open it without saving.” This opens the same dialog mentioned above with Chrome.

#### 7.9.4.3 Firefox

To change the default location for downloaded files and folders in Firefox:

1. Press the Alt Key to open the Menu bar, Right arrow to Tools, Up arrow to Settings, and press Enter.
2. In the search box, type “downloads,” and press Enter.
3. Press H to go to the Downloads heading.
4. Down arrow to the Browse button and press Enter to designate a new default save location for downloads.

Under this is the Always ask you where to save files checkbox. Check this if you prefer this option over automatic downloading to the default location.

### 7.9.5 Cookies

A cookie is a piece of information sent from your computer to the Web Browser that the Browser software saves so that it can be quickly accessed the next time you visit a particular site. First Party Cookies are used to personalize your experience with websites. In such cases, you have explicitly decided to visit that site and provide personal information (usernames and passwords, preferences, contact and billing information, etc.).

Any cookie used by a website other than the one you are currently visiting is called a 3rd Party Cookie. These are the cookies used to generate targeted advertisements. They sometimes lead to obnoxious things happening. Most commonly, these include being inundated with loads of unwanted email messages and persistent popup ads when browsing the web. Third party cookies also raise privacy concerns.

It is useful to know how to enable cookies for those sites where you want information to be retained. It is also useful to know how to block third party cookies for the reasons mentioned above. The various browsers give you the ability to set global protection levels against cookies, as well as the ability to allow or block cookies for individual sites. Click the link below to listen to an interesting podcast on the history of the use and abuse of cookies:

[How the Cookie Became a Monster, Planet Money, November 18, 2022](https://www.youtube.com/watch?v=sbXM2dE6C-A)

For some sites, the first time you visit the site you are asked if you want to allow cookies. You can allow or block them at that point. You can also make adjustments in the browser settings. Below are steps for blocking and allowing cookies for the three web browsers.

#### 7.9.5.1 Chrome

To allow or block cookies for a specific site:

1. Navigate to the home page on that site.
2. Press Alt D to go to the Address bar, and press Control + C to copy the URL to the Clipboard.
3. Press Alt + F and then G to get into Settings.
4. In the search box, type in “privacy” and then Tab to the main region
5. Press H several times to go to the Privacy and security heading, Down arrow to Site settings, and press Enter.
6. Under the Permissions heading, press Enter on Cookies and site data.
7. Several level two headings now appear. Under the Sites that can always use cookies heading, press the Spacebar on the Add button for a site where you always want to use cookies. Or under the Sites that can never use cookies heading, press the Spacebar on the Add button to block a specific site.
8. You land in an edit box. Press Control + V to paste the site’s URL here.
9. Tab to the Add button to include that site in the list of allowed or blocked sites.

#### 7.9.5.2 Edge

To block or allow cookies for a site, do the following:

1. Navigate to the site for which you want to block or allow cookies.
2. Press Alt D to go to the Address bar, and press Control + C to copy the URL to the Clipboard.
3. Press Alt + F and then S to get into Settings.
4. In the search box, type “cookies and site data,” and Tab to the main region.
5. Down arrow to the Manage and delete cookies and site data button and press Enter.
6. To block cookies for a site, navigate to the Block heading, Down arrow to the Add site to block list button and press Enter. Or to instead allow cookies for a site, navigate to the Allow heading, Down arrow to the Add site to allow list button and press Enter.
7. Press Control + V to paste the site URL, Tab to the Add button and press Enter.

#### 7.9.5.3 Firefox

To allow or block cookies for a specific site:

1. Navigate to the home page of the site you want to block or allow.
2. Press Alt D to go to the Address bar, and press Control + C to copy the URL.
3. Press Alt and Right arrow to Tools, Up arrow to Settings, and press Enter.
4. In the search box, type in “cookies and site data,” and Tab once.
5. Press H to go to the Cookies and site data heading.
6. Down arrow to the Manage exceptions button and press Enter.
7. You land in an edit field. Press Control + V to paste the URL of the site you want to block or allow.
8. To block cookies for this site, Tab to the Block button and press Enter. Or to instead allow cookies for this site, Tab to the Allow button and press Enter.
9. If you have previously identified sites for blocking or allowing cookies, you can also remove them from a list.

You can also adjust global settings for cookies. To do this:

1. Press Alt and Right arrow to Tools, Up arrow to Settings, and press Enter.
2. In the search box, type in “enhanced tracking protection,” and Tab once.
3. Press H to go to the Enhanced Tracking Protection heading.
4. Down arrow through the several radio buttons for various levels of global protection against cookies, including Standard - Balanced for protection and performance. Pages will load normally; Strict - Stronger protection but may cause some sites or content to break; and Custom - Choose which trackers and scripts to block.
5. Press the Spacebar on the global setting you want to select.

### 7.9.6 Pop-Ups

A pop-up is a window that suddenly appears ("pops up") in the screen foreground. Reputable websites and apps often use pop-ups to convey useful information (updates, cloud storage apps warning you that you are almost out of space, etc.), but frequently they are nuisances like ads and unwanted notifications. For screenreader users, they can be disorienting because the screen content site visitors were trying to access suddenly seems to disappear. Pressing the Escape key or a Close button may or may not remove the popup. In such cases, you may need to close the window for that web page by pressing Control + F4, or exit the browser entirely by pressing Alt + F4. Some websites require that pop-ups be allowed for that site to behave properly.

Below are steps for blocking and allowing pop-ups for individual websites for the three browsers.

#### 7.9.6.1 Chrome

1. To block or allow pop-ups for a specific site, first navigate to that site.
2. Press Alt D to go to the Address bar and press Control + C to copy the URL for that page.
3. Press Alt + F and then G to get into the Settings Tab.
4. In the search box, type in “privacy” and then Tab to the main region
5. Press H several times to go to the Privacy and security heading, Down arrow to Site settings, and press Enter.
6. Under the Permissions heading, Down arrow to Pop-ups and redirects and press Enter.
7. Under the Block heading, press the Spacebar on the Add button if you want to block pop-ups for a specific site.
8. You land in an edit box. Press Control + V to paste the site URL.
9. Tab to the Add button to add that site to the list of blocked sites.

An Allow heading appears after the Block heading mentioned in step 7 above. To allow pop-ups for a specific site, go to that heading and repeat steps 8 and 9 above.

#### 7.9.6.2 Edge

1. To block or allow pop-ups for a specific site with Edge, first navigate to that site.
2. Press Alt D to go to the Address bar and press Control + C to copy the URL for that page.
3. Press Alt + F and then S to open Settings.
4. In the search box, type “site permissions,” and Tab to the main region.
5. Press H to go to the All permissions heading.
6. Down arrow to the Pop-ups and redirects button and press Enter
7. Press H to go to the Pop-ups and redirects heading.
8. Down arrow to the Block (recommended) checkbox which is checked by default. And as mentioned, it is recommended to leave this on as a global setting.
9. To block pop-ups for a specific site, continue to the Block heading, Down arrow to the Add site to block list button, and press Enter.
10. You land in an edit field. Type in the URL for the specific site, Tab to the Add a site button, and press Enter.

To allow pop-ups for a specific site, there is an additional Allow heading after the Block heading. Follow similar steps as above to allow a site. You can also remove previously- blocked or added sites here.

#### 7.9.6.3 Firefox

Pop-ups are blocked by default in Firefox, so unless you change the global default to allow them, any changes for individual websites relate to allowing them. To change settings for a specific site, first copy the URL to the Clipboard, and then:

1. Press Alt to open the Menu Bar, Right arrow to Tools, Up arrow to Settings, and press Enter.
2. In the search box, type “pop,” press Enter to start a search, and press escape to exit the search box.
3. Press H to go to the Search results heading, and then press H again to go to the Permissions heading.
4. Down arrow to the Block pop-ups checkbox which is checked by default. It is advised to keep it checked.
5. Down arrow to the Exceptions button and press Enter if you want to allow pop-ups for a specific site.
6. You land in an edit field. Paste the URL of the site for which you want to allow pop-ups.
7. Tab to the Save changes button and press Enter.
8. If you had previously unchecked the Block pop-ups checkbox, then any subsequent saved changes would relate to blocking pop-ups for that site.

If you have previously identified sites for blocking or allowing pop-ups, you can also remove them from the list that appears here.

### 7.9.7 Clearing the Cache

The Cache is a place on your PC where you can store data, so that these data do not need to be downloaded repeatedly. Most websites have many of the same elements on multiple pages. A company logo is one example. Because it is quicker to load an element from your hard disk than from the web, the Cache exists on your hard disk to store data that repeatedly appear on a site. This can speed up the responsiveness of your browser when opening previously visited web pages.

The first time you visit any page on a site, the browser downloads logos and various other items into the Cache. It then displays them as part of the page you are viewing. For each additional page you visit, if the same elements are displayed, they do not need to be downloaded again, thus saving time.

For various technical reasons unknown to most people, myself included, the Cache sometimes gets “confused.” There is probably a fancier term for this, but this conveys the message. A confused Cache can result in quirky behavior when downloading pages. Examples include partially loaded or badly formatted webpages, pages that update incorrectly or not at all, and incomplete pictures, among other things.

When your browser seems to be performing oddly, clearing the Cache is one of the first things to try. Recently, pages on my PC were loading very slowly into Chrome and Firefox. I was also getting thrown out of Firefox abruptly. Clearing the Cache seemed to improve responsiveness.

Steps for clearing the Cache are similar among the browsers. Start by pressing the universal keystroke combination of Control + Shift + Delete. This opens a browsing history dialog box. Its title differs slightly between the browsers. There are several check boxes here for deleting other things beyond just the Cache. These include cookies, browsing and download history, and login passwords.

After tabbing to the checkbox for clearing the Cache in Chrome and Edge, you will first hear “Cached images and files.” The amount of space that will be freed up is announced too. You are also told that “Some sites may load more slowly on your next visit.” Firefox only says “Cache.”

After checking the check box for clearing the Cache and any other history elements you want to clear, Tab to the OK, Clear data or Clear now Button and press Enter.

## 7.10 YouTube

YouTube is of course one of the most popular websites on the planet. You can access videos and accompanying audio for just about any topic imaginable. In this section, you can find some hints on how best to navigate the website, helpful quick keys for playing videos, and getting descriptions of paused videos with JAWS PictureSmart.

Earlier editions of this book also covered use of free apps for downloading videos. However, Google has cracked down on these third party apps and most of them no longer work. They have also been lowering the boom on ad blockers. Thus I add the caveat here that these could possibly soon be deactivated too.

### 7.10.1 Searching for and Playing YouTube Videos

Searching for YouTube videos is quick and easy. There is only a single edit field on the YouTube page. With JAWS, just press E and then Enter to get into the search box. You can do this from anywhere on the page because JAWS wraps back to the top of the page when pressing quick keys. NVDA and Narrator do not wrap around, so press Control + Home to start from the top of the page. Then press E and Enter to get into the search box.

After typing in your search term, press Enter. Each search result is a heading and a link, so press H until you get to the video you want to play, and then press Enter.

Here are a few hints. First, after typing in a search term and pressing Enter, press Escape to be sure you are not still in the search box. Focus sometimes remains in the search box.

Second, consider installing an add blocker extension for your web browser (see Chapter 7.8) so desired content will immediately play.

Third, enable Audio ducking (see Chapter 8.1.5.5 on how to do this with JAWS, 8.2.2 For NVDA, and 8.3.2 for Narrator). This will make it easier to hear your screenreader keystrokes while the video is playing.

While playing a video, there are a number of useful quick navigation keys you can access, and several ways to do this. I will first discuss executing commands with the default screenreader navigation mode toggled on (JAWS Virtual PC cursor, NVDA Browse mode, and Narrator Scan mode), and then with these modes toggled off, using YouTube’s native command keystrokes. I use a mix of these, depending on which is the more efficient for executing the command.

With your default screenreader cursor modes on, once the video starts playing, Tab once or twice to the first left/right slider related to moving through the video play time and press Enter to get into this field. With JAWS and Narrator, use the following keystrokes:

* Spacebar or K: Pause and resume playing.
* Up/Down arrow or Right/Left arrow: Move forward/back five seconds.
* Page up/Down: Move forward/back one minute.
* 1 through 9: Move to the 10 through 90 percent points in the video.
* Home/End: Move to beginning/end.

To make the above keys work with Narrator, once you Tab into the Left/right slider, you need to manually disable Scan mode by pressing Insert + Spacebar.

To adjust the volume of the video (and this will adjust independently of the overall system volume of your computer), continue tabbing to the second left/right slider, and use the following keystrokes:

* Up/Down arrow or Right/Left arrow: Raises/lowers volume by five percent.
* Home: Mutes volume.
* End: Maximizes volume.

To slow down or speed up playback, continue tabbing to the Settings button and press the Spacebar to expand it. Down arrow to the Playback submenu and press Enter. Normal is the default speed. There are 25 percent increments, ranging from 25 to 200 percent. Up or Down arrow to your choice and press Enter to change the playback speed.

Finally, you can press Shift N to go to the next video. However, I do not find that this works consistently.

Similar to the Google Workspace, YouTube has a set of native keystroke commands you can use when playing videos. First, press Insert + Z to turn off JAWS Virtual PC cursor mode, or Insert + Spacebar to turn off NVDA Browse mode or Narrator Scan mode. The most useful native YouTube keystrokes are:

* K or Spacebar: Pause/resume playing.
* 1 through 9 on the Number row: Jump to 10 through 90 percent of the video play time. Press 0 to jump to the end of the video.
* J: Jump back ten seconds.
* L: Jump forward ten seconds.
* Shift period: Increase playback speed. Your screenreader will say “greater.”
* Shift comma: Decrease playback speed. Your screenreader will say “less.”

There is no native keystroke for raising or lowering the video volume separately from the overall system volume.

### 7.10.2 Getting Image Descriptions with JAWS PictureSmart

Beginning with JAWS 2024, the PictureSmart with Generative AI feature allows you to get image descriptions of YouTube videos by pausing it in several places and listening to the description. For a more complete discussion of PictureSmart, see Chapter 1.2.4.1.

Before playing the video, press Alt Spacebar X to maximize your window. Now do the following:

1. Start the video, and press F11 to toggle on full screen view.
2. press Insert + Z to turn off the virtual PC cursor.
3. When you wish to pause for a description, press the Spacebar or K. However, you can still get a description of you leave the video playing.
4. Press Insert + Spacebar and then P.
5. Press Shift W for PictureSmart to begin processing a description of the window.

Because the results are a description of the full window, you will also hear some information about the YouTube screen layout. Switching to full screen view makes the video take up more of the screen, so most of the description will be about the video image, rather than other parts of the YouTube window.

Remember from the discussion above that, with the JAWS Virtual PC cursor off, you can press 1 through 9 to move by ten percent time increments through the video. Do this and repeat steps two through four above to get a sampling of image descriptions at various points in the video.

To give you a little flavor, here’s an excerpt from the Chat GPT results for one of the most classic music videos of all time:

The image you're referring to shows a screenshot of a YouTube video, specifically the music video for "Thriller" by Michael Jackson. The video player is paused at a timestamp of 9 minutes and 45 seconds. In the scene, you can see a group of people dancing in a street at night. They appear to be portraying zombies, judging by their costumes and makeup, which include disheveled clothing and pale, eerie makeup to make them look undead.

The man who stands out in the middle of the frame is wearing a red jacket with a black V-shape strip, red pants, and black shoes, resembling an iconic outfit known from the "Thriller" music video. It's a well-lit scene with blue and purple hues, adding to the eerie atmosphere. The setting appears to be a deserted urban street with industrial buildings in the background.

## 7.11 Additional Useful Tools

This section identifies several more tools to enhance your browsing experience. They include copying and pasting hyperlinks, switching to reader views to reduce web page clutter, adding placemarkers, tips and tricks for copying text from the web without unwanted formatting, and a few others.

### 7.11.1 Copying, Pasting, and Labeling Hyperlinks

A hyperlink is a word, phrase, or image that you can press Enter on to jump to a new web page, document or a new section within the current web page or document. Hyperlinks are often visually distinguished from regular text with blue and underlined formatting.

A link to a YouTube video is an example of a hyperlink. Let’s say you would like to share such a link with a friend by email. You can easily copy the web page address and paste it into a Word document or email message. You can also create a custom label. Steps are identical in all browsers for copying, as well as for pasting into a Word document or the body of an email message. To do this:

1. On the web page you would like to share, press Alt D or F6 to go to the Address bar. You will hear “http” etc. Note that the text is already selected.
2. Press Control + C to copy the URL to the Clipboard.
3. Navigate to an open Word document or the body of an email message and press Control + V to paste it there.

If you are reading this electronically with Word, below is an unlabeled hyperlink from YouTube that you can open:

[https://www.YouTube.com/watch?v=TRUjr8EVgBg](https://www.youtube.com/watch?v=TRUjr8EVgBg)

If you want to give the hyperlink a more user-friendly label than “http” etc., there are two ways to do this. Here’s one way:

1. In Word or Outlook, situate the cursor somewhere in the text of the URL that you have already pasted in.
2. Press the Applications key, Down arrow to Edit hyperlink, and press Enter.
3. Tab once to the Text to display edit field, type in your label, and press Enter.

Here is the same hyperlink as above, but this time with a more meaningful label:

[America the Beautiful, sung by Ray Charles](https://www.youtube.com/watch?v=TRUjr8EVgBg)

Here’s the second way to add a label to a hyperlink:

1. After having copied a web page’s URL to the Clipboard, Alt + Tab to the Word document where you wish to insert a hyperlink.
2. Select the text in the Word document that you wish to serve as a label for the hyperlink.
3. Press Control + K to open the hyperlink dialogue
4. Press Control + V to Paste the URL.
5. Press Enter to create the hyperlink

If you are creating a Word document that will contain numerous links, you should do this extra labeling step. Then you can press Insert + F7 to open a links list with JAWS or Narrator (or an elements list with NVDA), and first-letter navigate to the hyperlink you want to activate. Otherwise, you will just have a list of links that all begin with “http,” etc. with no meaningful labels.

### 7.11.2 Reader Views

Reading text on a web page cluttered with advertisements, inaccessible graphics, and loads of superfluous links can be frustrating. Switching to a reader view can cut out this clutter, resulting in a cleaner reading experience. Safari on the iPhone has long had an excellent reader view. PC-based web browsers have lagged until recent years. Microsoft Edge and Mozilla Firefox have built-in features called Immersive Reader and Reader View, respectively. Chrome has a similar utility called “Reader mode ” that you need to install first.

#### 7.11.2.1 Reader Views with Edge and Firefox

The Edge Immersive Reader and Firefox Reader View features are very easy to Activate. On the page you would like to read, just press F9 in both Edge and Firefox. Then press H to go to the first heading, press your screenreader Say all keystroke and listen to the text. It’s that simple.

There is no default setting to permanently keep these reader views enabled. You will need to press F9 for each web page. Also, this functionality does not exist for all websites. However, I find it works for most sites where I want to use it.

After activating Reader mode, just below the top of the page, there are buttons for accessing options for changing to other voices, as well as adjusting their speed. My preference is to continue with my own screenreader voice.

Here’s one word of caution about hyperlinks. if you wish to copy a URL and paste it elsewhere as a hyperlink, turn Edge’s Immersive View off before doing so. A URL in Immersive View adds “read” plus a colon and a couple of slashes before the standard URL, causing failure to generate a correct URL. This does not appear to be the case for the Firefox Reader View or the Chrome Reader mode discussed below.

#### 7.11.2.2 Reader Mode with Chrome

Chrome also has a Reader mode that provides the same reading experience as the Edge and Firefox reader views. However, it is not built-in, and is instead categorized as “experimental.” Consequently, you need to add it to your browser.[[19]](#footnote-19) To do this:

1. In the Chrome Address bar, type “chrome://flags” minus the quotes, and then press Enter.
2. In the search box on this page, type reader, and press Enter.
3. Press H to navigate to the Enable reader Mode heading.
4. Down arrow to the combo box, press Enter to open it, Down arrow to Enable, and press Enter.
5. Press Alt + F4 to close Chrome, and then reopen it.

After Reader mode has been added, To activate it on a “busy” web page, press F6, Tab once or twice to the Enter Reader mode button and press Enter. To exit Reader mode on the same page, press F6 again, Tab to the Exit Reader mode button, and press Enter.

Unfortunately, on the laptops of my trainees, it only works about half the time. I have not been able to figure out why it works for some people but not for others. After pressing F6 and tabbing around, the Enter Reader mode button fails to appear. In addition, I have encountered a fair number of web pages where the Chrome Reader mode fails to work while the Edge Immersive view does.

### 7.11.3 Placemarkers

A Placemarker is the web page equivalent of a bookmark, enabling you to quickly navigate to that point on a web page in the future. Using placemarkers can save you time if it requires a large number of keystrokes to arrive at that location on the page, or the text you are looking for is hard to find. They are particularly useful on complex websites. They can be anchored to text, elements of the current web page, or to a website's domain. Placemarkers can also be used in PDF documents.

You can create placemarkers with both JAWS and NVDA, although with NVDA you must first download and install an add-on. Narrator does not have a placemarker feature at this time.

#### 7.11.3.1 JAWS

To create a placemarker using JAWS:

1. For the first placemarker you want to create, navigate to that text on the web page, and press Control + Windows + K. JAWS will say, “temporary placemarker set.”
2. To now turn this into a permanent placemarker, press Control + Shift K. You should land in a combo box where the first choice is stated as, “temporary document.”
3. Tab to the Add button and press Enter.
4. You land in an edit box populated with the text from the web page.
5. Tab to “Define for all pages on current domain,” and check this checkbox if you want that text marked on all pages of the website. Leave it unchecked if you are only interested in marking it on this page.
6. Tab to “anchor to text,” and check this checkbox if you want specific text to be marked.
7. Tab once to verify it is the correct text, but don’t modify it.
8. Tab to the OK button and press Enter or Spacebar to save it.
9. For any additional placemarkers you wish to create during this session, it is not necessary to mark it first as a temporary placemarker. Instead, press Control + Shift K, and Down or Up arrow to temporary document.
10. Repeat steps three through eight above to make this a permanent placemarker.

After you have added permanent placemarkers, press K and Shift K to navigate to the next and previous placemarker, respectively. You can also press Control + Shift K to open the list of placemarkers. Then arrow up or down, or first-letter navigate to the one you want, and press Enter.

As an example, open the link below:

[Google Search - Carroll Center for the Blind](https://www.google.com/search?q=carroll+center+for+the+blind&rlz=1C1CHBF_enUS832US832&oq=carroll+center+for+the+blind&aqs=chrome..69i57j69i60j69i61j0l3.5681j0j7&sourceid=chrome&ie=UTF-8)

From the top of the page, if you press H for heading, it takes quite a few keystrokes to go to the text “search results.” If you perform lots of Google searches, this can quickly get very tedious.

Now set a placemarker, anchoring it to the text “search results.” Pressing K just once will get you to that location on the page every time.

To delete a placemarker:

1. Press Control + Shift K to open the placemarker list.
2. Up or Down arrow to the one you want to delete.
3. Tab to the Remove button and press Enter.

There is also a Remove all button here. Tab to this and press the Spacebar if you want to remove all placemarkers for this website.

#### 7.11.3.2 NVDA

With NVDA, as mentioned above, you will first need to download and install an add-on called “Placemarkers” before you can create them. To add and install NVDA add-ons, see Chapter 8.2.4. After installing this add-on:

1. Navigate to the text on the web page that you want to mark.
2. Select some of the text at that point for labeling the placemarker. This is not required, but a good idea if you are going to create several placemarkers and you want to generate a list of them.
3. Press Insert Shift Control K to mark it. Admittedly, this is an awkward keystroke combination, but try your best. NVDA will say “Saved position at character” and some number.
4. Repeat this process for any other placemarkers you wish to create.
5. Move to the next or previous placemarker with Insert K or Insert Shift K, respectively.

You can access a list of placemarkers with the keystroke combination Insert Alt K. Up or Down arrow to a specific placemarker, and if you Tab here, you can create a note for the placemarker. Tab a couple of times more to delete the placemarker. You can also delete a placemarker by navigating to it and pressing the keystroke combination Control + Shift Insert Delete.

### 7.11.4 Copying and Pasting text from the Internet

Often when you attempt to copy and paste text from one application to another, simply pasting with Control + V will import unwanted formatting from the original source. This is especially true when copying text from a website. You may very well import bizarre font styles, sizes, and colors. Using the Paste text only command can help avoid problems like this.

Let’s say you wish to copy text from a web page and paste it into a Word document. Steps are:

1. Select the web page text and copy it as you normally would with Control + C.
2. Navigate into your Word document, and place the cursor where you want to paste the text.
3. Press the Applications key, and Down arrow to Paste options. Do not press Enter here because this would execute a standard paste, which is what you want to avoid.
4. Instead, Left arrow once to Keep text only, and press Enter.

The pasted text now appears with the default font and paragraph formatting of the Word document. Unwanted formatting from the web page has been stripped out.

Alternatively, use the Paste text only ribbon shortcut which is Alt H V T.

When you copy and paste text from the Internet into Word, it often comes in with lots of unwanted blank lines between your text. You will need to remove the coding for extra hard returns between the paragraphs. The symbol for the hard paragraph return is ^p, the caret being the special character above 6 in the number row on your keyboard (keystroke: Shift 6). My mother always used to tell me to eat my peas and carrots when I was a kid, so that is how I remember the caret P key combination.

To quickly delete the extra hard returns:

1. In Word, press Control H. This opens the Find and replace dialog box.
2. You land in the Find edit field. Type here “^p^p” minus the quotes and with no spaces. Letters must be in lower case.
3. Tab once to the Replace edit field, and type in a single “^p” minus the quotes.
4. Tab to Replace all and press the Spacebar. You will hear the number of replacements made. This will get rid of some of the excess hard returns, but not necessarily all of them.
5. Press the Spacebar on the OK button and immediately press Alt A to remove more unwanted hard returns.
6. Repeat the step above several times until you are down to either one or zero replacements.
7. When finished, press the Escape key to exit the dialog box and return to your document.

### 7.11.5 Saving Images from the Web

“A picture is worth a thousand words,” as the saying goes. Images, or graphics, are ubiquitous on the web. They spice up any site. While there are numerous sites with large stocks of photos, most are difficult to navigate, and most have a not-so-hidden agenda of steering you towards buying their pictures. Consequently, it can be hard to download the pictures you want.

However, if you run across a picture you would like to download in the process of browsing, it is very easy to save it to your computer. Here are the steps:

1. Press G for “graphic” to place focus on the picture you would like to download.
2. Press the Applications key (Shift + F10) to open the Context menu.
3. Down arrow to Save picture as, or Save image as (the exact language differs between browsers), and press Enter.
4. This lands you in the Filename edit field of a standard save as dialog box. The most common file name extensions for graphics found on the web are.JPG and.PNG. If desired, rename the file to be more descriptive of its content, but don’t alter the file extension.
5. Shift + Tab several times back to set the location where the file will be saved.
6. Tab back to the file name field and press Enter to save it in its desired location,

If you plan on using downloaded graphics in some public or commercial way, be sure to find out about any copyright restrictions governing their use.

# Chapter 8 Screenreader Customizations

With all three screenreaders, you can make a number of customizations to render your computing experience smoother and more efficient. This chapter shows how to do this for several applications with each of the three screenreader programs. The bulk of the chapter will be devoted to JAWS because it has the widest array of customization possibilities.

## 8.1 JAWS Customizations

Most JAWS customizations are set in Quick Settings and Settings Center. While there is significant overlap between these two areas, the most important difference is that default changes across all applications can only be set in SETTINGS CENTER, while QUICK SETTINGS is limited to application-specific changes. Roughly speaking, Settings Center customizations are more general in nature while some of those in Quick Settings are a bit more application-specific. If this sounds rather vague and imprecise, that’s because it is.

There are a dizzying number of possible customizations, and it can be challenging to identify the most useful ones. Keeping straight which ones are set in Settings Center, Quick Settings, or in both makes it more challenging. Hopefully, in some future version of JAWS, all will be consolidated in one place.

I will first take us on a tour of the Quick Settings and Settings Center dialogs, and then discuss several of the most useful JAWS customizations.

Let’s start our tour of Quick Settings with your cursor focus in Outlook. Press Insert + V to open the Quick Settings dialog for Outlook. Dialog elements are described below:

* You first land in a search box where you can type in the name of the setting you want to change. As you type individual letters, JAWS reveals the number of search results as they narrow. Down arrow to the setting you searched for.
* As an alternative to searching, you can Tab once to a tree view and navigate through it to find the setting you want to change.
* Tab to the Read only edit field. Here you can read about the setting you are focused on in the search results or tree view, including options for changing the setting.
* Tab to a checkbox where you can expand or collapse the tree view we encountered a couple of tabs back.
* Tab to the OK button to save changes.

For some customizations, I prefer to use the search box, while for others I prefer the tree view.

The Settings Center dialog closely resembles the Quick Settings dialog, but with one major difference. Let’s start with your focus in a web browser window like Google Chrome. Press Insert and six on the number row to open the Settings Center dialog for the open browser. Settings Center dialog elements are described below.

* Similar to Quick Settings, the first, second and third tabs are a search box, a tree view, and a Read only help area, respectively.
* The next Tab is an OK button for saving changes. Unlike Quick Settings, no checkbox appears for expanding and collapsing the tree view.
* Now comes the big difference: Tab past the OK button to a combo box with a long list of applications. Focus will be on the program from which you initially opened Settings Center. Pressing the Home key will bring you to the top of the list for making the setting a default for all relevant programs. For example, if you open the Settings Center while in Chrome, any changes you make will be for Chrome only. But if you Tab to this list and press the Home key, changes will be for all applications. In this case, this would include all browsers and PDF viewers like Adobe Acrobat Reader.
* Tab one more time to wrap back to the search box where we started.
* If you wish to make a default change, from the search box, you can also press Control + Shift + D rather than tabbing to the list of applications.

Now some useful customizations and the most efficient way to change them. I will assume you want to make changes for all browsers, not just a single one. If instead, you only want to make changes for a single browser, ignore the steps below related to making default changes in Settings Center.

### 8.1.1 General Customizations

#### 8.1.1.1 Punctuation Levels

Sometimes announcement of punctuation marks (colons, semi-colons, parentheses, etc.) can seem excessive, hindering your reading experience. With JAWS, you can choose among four levels of spoken punctuation:

* None: This is useful for casual reading of articles on the web or long Word documents that you are not editing yourself.
* Some: A limited set of punctuation marks are spoken.
* Most: This is the default. Among the most important punctuation marks included here, but not in Some, are colons, semi-colons, parentheses, and quotes.
* All: This is useful when editing text.

In Quick Settings, punctuation levels can be changed for individual applications, while they can only be changed globally in Settings Center. Most of the time, you will be interested in changing them temporarily for a single program. Consequently, I will only cover changing them in Quick Settings. Steps to change to None to make for a better casual reading experience are:

1. Open the application for which you want to change punctuation levels.
2. Press Insert + V to open Quick Settings.
3. Type the first two or three letters of the word “punctuation” in the search box.
4. Down arrow to Punctuation level where the default is Most. Press the Spacebar a couple of times to “None.” Pressing the Spacebar here cycles through the four options.
5. Tab to the OK button and press Enter to make the change.

You may find it useful to change punctuation levels to All if you are proofreading a Word document or an email message. This will enable you to hear all the punctuation. When finished with None or All, you may want to change this setting back to Most or Some.

A shortcut key to temporarily change punctuation levels was introduced in JAWS 2021. The keystroke is Insert Shift 2. Press this keystroke repeatedly to cycle through the four levels. In this context, “temporary” means that punctuation levels will revert back to the default level when you navigate away from the current window. This is a useful feature because you are often only interested in making a change on the fly.

In the Settings Center, you can customize which punctuation marks are spoken at each level, as well as get a comprehensive list of what is currently spoken at each level. As of the writing of this book, there were 193 punctuation marks listed. To access this list and make any changes:

1. Starting in any application, press Insert + 6 to open the Settings Center.
2. Press Control + Shift + D to make a default change for all applications. This is required if you access Punctuation in the Settings Center.
3. Type “punctuation” in the search box. Note that typing just the first two or three letters is sufficient to make the full word appear.
4. Down arrow to Customize punctuation and press the Spacebar.
5. Down arrow through the list to hear each punctuation mark and the current level at which it is spoken.
6. To change the level where a particular punctuation mark is spoken, press the Spacebar to cycle through the four choices. Stop when you get to your choice.
7. Down arrow to the next punctuation mark for which you want to change the level at which it is spoken, and repeat the previous step.
8. When finished making your changes, Tab to the OK button and press Enter.

#### 8.1.1.2 Typing echo

Typing echo is the audio feedback that is “echoed” back to you when you type text. It can be changed in both Settings Center and Quick Settings. There are four options:

* Characters: You hear each character as you type. This is the default.
* Words: You hear no characters, but hear the full word after you have finished typing it and either press the Spacebar or a punctuation mark like a period or comma.
* Both characters and words: You hear individual characters as you type, as well as the entire word after you press the Spacebar or a punctuation key.
* None: JAWS remains silent as you type.

Character echo is the default factory setting. Typing echo can also be temporarily changed by pressing insert 2 on the number row and toggling through the four choices.

I will only cover changing the default in Settings Center. Steps are:

1. Starting in any application, press Insert + 6 to open the Settings Center.
2. Press Control + Shift + D to make a default change for all applications.
3. Type “echo” in the search box, minus the quotes.
4. Down arrow to Typing echo where the default is Characters.
5. Press the Spacebar several times to cycle through the choices, and stop on your choice.
6. Tab to the OK button and press Enter.

#### 8.1.1.3 Detect Languages

JAWS sometimes starts reading text with foreign language pronunciation, making it incomprehensible. You can turn this off in either Settings Center or Quick Settings. I will do it in Quick Settings. Steps are:

1. Press Insert + V to open Quick Settings.
2. In the search box, type in the first few letters of “language.”
3. Down arrow to the Language detect change checkbox and press the Spacebar to uncheck it.
4. Tab to the OK button and press Enter.

Text should now read normally in your default language.

#### 8.1.1.4 Speak Dollars

When turned on, numbers preceded by a dollar sign are read using the dollars and cents format. For example, “dollar three point nine five” will be read as “three dollars and ninety five cents,” thus making it sound more like when spoken aloud.

Change this in Settings Center as follows:

1. Starting in any application, press Insert + 6 to open the Settings Center.
2. Press Control + Shift + D to make a default change for all applications.
3. Type “the first few letters of “dollar” in the search box.
4. Down arrow to the Speak dollars checkbox and press the Spacebar to check it.
5. Tab to the OK button and press Enter.

#### 8.1.1.5 Number Processing

You can change how JAWS reads numbers. Altering this can make reading more comprehensible depending on whether it is a phone number, serial number, code of some sort, or just a big number. Choices are:

* Controlled by synthesizer: Leaves it up to JAWS to figure out how numbers are read. This is the default.
* Single digits: Reads numbers as a series of single numbers.
* Pairs: Reads numbers as a series of paired numbers.
* Full numbers: Reads numbers as complete numbers.

To change this setting:

1. Press Insert + 6 to open Settings Center.
2. Type the first few letters of “number processing” in the search box.
3. Down arrow to Number processing and press the Spacebar to cycle to your choice.
4. Tab to the OK button and press Enter.

#### 8.1.1.6 Disabling and Enabling the JAWS Voice Assistant

The Voice Assistant feature was introduced in JAWS 2021, It allows speech input for executing selected JAWS commands. It can be initiated by voice or a keystroke combination. To initiate it by voice, say “Hey Sharky.” You will then hear a short noise, after which you concisely speak the command. The same short noise will repeat, indicating that the command has been executed. You can also enable it with the keystroke combination Insert Alt Spacebar, all held down together. You will hear the same noises as when you initiate it by voice.

The Voice Assistant is enabled by default. If you want to disable it, or change some of its settings, do the following:

1. Open the JAWS window. If you have set JAWS to run from the System Tray, press Insert + J to open the JAWS menus.
2. Press U to open the Utilities submenu.
3. Press Enter to open the Voice Assistant submenu.
4. Down arrow to Settings and press Enter to open this dialog.
5. The Enable Voice Assistant checkbox is checked by default. To disable it, press the Spacebar to uncheck it. Then Tab to the OK button and press Enter.
6. If you want to keep it enabled, several more settings appear. Tab to the Wake Word radio buttons and Up or Down arrow to choose one of the two options if you want to be able to invoke the Voice Assistant by voice, either “Hey Sharky” or “Sharky.”
7. Tab to the Do not listen for wake word checkbox and check it if you prefer not having to say “Hey Sharky” or “Sharky” to invoke the Voice Assistant.
8. Tab to the Enable Voice Assistant sounds checkbox ‑ which is checked by default. If you are going to use the Voice Assistant, keep this checked to receive a prompt when it is time to speak.
9. Tab to the OK button and press Enter.

In some situations, you might find it useful to enable the Voice Assistant sounds and disable the “Hey Sharky” voice command. This way, you would enable the Voice Assistant solely with the Insert Alt Spacebar keystroke combination. If I were working in an office environment, I might be a bit embarrassed to have colleagues hear me blurt out, “Hey Sharky” periodically through the day.

To learn more about the array of JAWS keystrokes that can be invoked using the Voice Assistant, visit Chapter 1.2.3.2 on how to access JAWS Help Topics. On either the Contents page or on the Search page, you can find information about using the Voice Assistant. Several tables list the voice commands you can invoke. Just a few examples of JAWS voice commands you can speak are Links list, Settings Center, and Quick Settings. You can also use it to invoke some frequently-used navigation keystrokes in Word, Outlook, and web browser applications. This list will almost certainly expand in future JAWS versions.

### 8.1.2 Word Customizations

While all of the customizations described so far in this chapter are relevant for multiple applications, including Word, the customizations in this next section tend to be more applicable to Word than to other applications.

#### 8.1.2.1 Comments, Footnotes, and Endnotes Detection

As you navigate through a Word document, JAWS can announce when it encounters a comment, footnote, or endnote. To access the various options:

1. Press Insert + V to open Quick Settings.
2. In the search box, type the first few letters of “comments, footnotes, and endnotes detection.”
3. Down arrow to the Comments, footnotes, and endnotes detection checkbox and press the Spacebar to cycle through the four choices, which are:
   * On: Comments, footnotes, and endnotes are announced as you navigate through the document. This is the default.
   * Off: Comments, footnotes, and endnotes are not announced.
   * On + Count: The number of Comments, footnotes, and endnotes on the current line is announced.
   * On with Text: Choose this option if you want to hear the full text of comments, footnotes and endnotes as you navigate through the document.
4. After making your selection, Tab to the OK button and press Enter.

It is important to note that comments, footnotes, and endnotes are not actually located at the place where they are referenced as you navigate through the document. You will need to access them using the related commands in the References tab of the Word ribbons.

#### 8.1.2.2 Outline Level Indication

This option controls whether to indicate outline levels while reading through a Word document or Outlook message. For example, when you encounter bulleted and numbered lists, JAWS says “level one.” JAWS says “level zero” when you navigate past the list and return to normal paragraph style. This setting is turned on by default. Many people prefer to switch off this verbosity. Yet it can be helpful in situations where you have several levels present in bulleted and numbered lists. This setting can only be changed in Quick Settings. From Word or Outlook steps for switching it off are:

1. Press Insert + V to open Quick Settings.
2. Type “outline” in the search box.
3. Down arrow once to the Outline level indication checkbox and press the Spacebar to uncheck it.
4. Tab to the OK button and press Enter.

Try this out with your cursor situated in one of the many numbered or bulleted lists in this book.

#### 8.1.2.3 Indentation

This option controls whether or not JAWS indicates the presence of indentation as you navigate through a document. When proofreading, this can be useful to be sure you have not accidentally added tabs or spaces. It can be changed in both Settings Center and Quick Settings. Most of the time, you will want to do this for Word only, so we will use Word in Quick Settings as an example. Steps are:

1. While in Word, press Insert + V to open Quick Settings.
2. Type “indent” in the search box.
3. Down arrow to Indentation. The default setting is Ignore.
4. Press the Spacebar once to select Indicate.
5. Tab to the OK button and press Enter.

When a change in indentation occurs, you will hear things like:

* “Two spaces,” indicating the location of a bullet or number at the beginning of the first line of a hanging indent of one-quarter inch.
* “Five spaces,” indicating the location of the first character in the second line of a hanging indent of one-half inch.
* Left margin,” indicating that you have returned to non-indented text aligned with the left margin.

To hear JAWS express the cursor position more precisely in inches, press the Alt and Delete keys together. You will hear the position of the cursor relative to the left and top edges of the page, as well as the page number. For example, you may hear “PC cursor active, one inch from left, 2.9 inches from top, page three.” If your page has normal margins of one-inch, this indicates that your current cursor position is flush with the left margin, and 1.9 inches from where text begins at the top of the page.

When finished proofreading, repeat the steps above to restore the Ignore setting.

#### 8.1.2.4 Indicate Capitalization

When proofreading a document, temporarily changing this in either Settings Center or Quick Settings can be useful for checking for correct capitalization. The presence of capitalization will be indicated by a higher pitch voice than for lower case letters. I will describe steps using Quick Settings.

To have capitalization indicated in Say all mode:

1. Press Insert + V to open Quick Settings.
2. Type the first few letters of “capitalization” in the search box.
3. Down arrow once to Capitalization, where it will say “ignore” if still in default mode.
4. Press the Spacebar once for it to say “indicate.”
5. Tab to the OK button and press the Spacebar.

When finished proofreading, repeat the above steps to return to ignore when in Say all reading mode.

You can also be more granular in how you have capitalization indicated. There are four options:

* On character: This indicates capital letters only when reading by character and when spelling. This is the default.
* Never: Select this if you do not want JAWS to indicate capital letters.
* On word and character: JAWS indicates capital letters when reading by word or character, and when spelling.
* On line, word, and character: JAWS indicates capital letters when reading by line, paragraph, word, and character, and when spelling. This is the best choice for proofreading.

Steps for changing this setting for the current application are:

1. Press Insert + V to open Quick Settings.
2. Type the first few letters of “capitalization” in the search box.
3. Down arrow to Indicate capitalization and press the Spacebar to cycle to your choice.
4. Tab to the OK button and press Enter.

Here too, when finished proofreading, you will want to change back to the default setting of indicating capitalization by character only, because the preferred proofreading setting can be very distracting.

#### 8.1.2.5 Reading Table Column and Row Headers

This setting allows you to hear table column and row headers read to you as you navigate within tables, greatly facilitating interpretation of cell data. It is the Word-equivalent of the Define name command in Excel. In theory, both column and row headers are read by default as you navigate within a table. In reality, my experience has been that JAWS sometimes switches this off for some reason. It is also possible to have only row or column headers read, or header reading can be turned off.

Adjust this in Quick Settings as follows:

1. Press Insert + V to open Quick Settings.
2. Type the first few letters of “tables” in the search field.
3. Down arrow to Automatic tables.
4. Press the Spacebar to cycle through the choices, which include: both row and column, off, column, and row.
5. After making your selection, Tab to the OK button and press Enter.

This is now the default for all documents, until you return here to change it.

Note that this setting is not available for Word 2013 or earlier. For those versions, to hear column and row headers read back to you, for each individual table, you must insert a bookmark in the top left corner cell with a unique name (for example, title1, title2, etc.). Chapter 3.10.4 discusses inserting bookmarks in Word.

#### 8.1.2.6 Page Header and Footer Announcement

The most commonly known way to detect the presence of page headers and footers with JAWS is to press Insert + F1 for Screen Sensitive Help If they are present, you will hear this just before margin dimensions are read out. You can also have their presence automatically indicated when you open a Word document if you make a change in Quick Settings. Steps for making this change are:

1. Open Word and press Insert + V to open Quick Settings.
2. Type "header” in the Search box.
3. Down arrow to the Header and footer detection checkbox and press the Spacebar to check it.
4. Tab to the OK button and press Enter.

When enabled, upon opening a document, JAWS announces the presence of headers and footers in the current section of the document.

If the option for Page, section, and multiple column breaks is set to On (which it is by default), the presence of headers and footers in a section will be announced at the same time that section changes are announced.

### 8.1.3 Outlook Customizations

Only one Outlook customization will be covered here. By default, there used to be a great deal of distracting verbosity when opening messages. Default settings were switched in JAWS 2020 or 2021, so this excess verbosity is no longer the default, and how to adjust it in Quick Settings will not be covered here.

#### 8.1.3.1 Layout Tables

These are tables used exclusively for formatting purposes. You can choose to ignore them or hear information about them (numbers of columns and rows). In many cases, this only introduces excess verbosity and does nothing to improve navigation effectiveness. You change this customization in Quick Settings. Layout tables are often present in Outlook messages, and most people prefer to ignore them.

To access this customization in Outlook’s Quick Settings, you must first be in a window for an existing message, rather than in one that you are currently preparing. Otherwise, this option will not appear in Quick Settings. Logically speaking, just changing the setting so JAWS ignores layout tables should work. Yet I find that it is necessary to turn off all relevant table reading settings. To do this:

1. Open an existing Outlook message, preferably one with lots of unnecessary table-related verbosity.
2. Press Insert + V to open Quick Settings, and type “table” in the search box.
3. Down arrow to the Layout table ignore checkbox and press the Spacebar to check it.
4. Down arrow to Automatic table titles, and press the Spacebar until it says, “off.”
5. Tab to the OK button and press Enter.
6. To verify, if you are not already in a message that previously had lots of unwanted table-related verbosity, open one now to see if it has been removed.

Keep in mind that changing these settings will remove table detection for all messages, including those where you might want table formatting information to be read. In such cases, return to Quick Settings and switch back the above settings. I prefer to leave table reading off because table formatting that is actually useful is relatively rare in outlook messages, or at least in the ones I receive.

### 8.1.4 Excel Customizations

#### 8.1.4.1 Cell Text Visibility Detection

Turning this on alerts you that cell content is partially hidden to sighted users, or “cropped.” You will then either have to reduce the number of characters in the cell or increase column width to accommodate the entire content of the cell. See Chapter 5.8.1 on adjusting column width. Cell visibility detection is turned off by default. Steps for turning it on are:

1. From inside the Excel file for which you want to change this setting, press Insert + V to open Quick Settings.
2. Type “vis” in the search box, minus the quotes.
3. Down arrow to the Cell text visibility detection checkbox and press the Spacebar to turn it on.
4. Tab to the OK button and press Enter.

If, for example, you are in cell A5 and there is a text visibility problem, JAWS will announce “cropped right at B5,” indicating that text in cell B5 is partially hiding the text in cell A5. If the text in cell A5 spills over into cell B5, but there is nothing there to crop the text in cell A5, JAWS will say, “overlaps right near B5,” or whichever is the right-most cell A5’s text extends to.

If you now save this file, cell text visibility detection remains on only for this file. You cannot make this the default, and must do it for each file individually. Moreover, this setting is inconsistent. Often, even after increasing column width the correct amount, JAWS still announces that the cells are cropped.

NVDA does a better job on this, always announcing the presence of cropping. In my opinion, announcing cropping should be the default for JAWS. Otherwise, most JAWS users will not even know there is a problem because JAWS announces all cell content, regardless of whether it is fully visible or not. Also, once column width is adjusted, NVDA reliably indicates that the problem no longer exists. For these reasons, I have developed the habit of double-checking with NVDA when column widths may need to be adjusted due to cell text visibility issues.

#### 8.1.4.2 Cell Verbosity

This option controls whether to announce both cell content and coordinates (that is, cell addresses) or only cell content as you navigate through a spreadsheet. The default setting is to announce both cell content and coordinates. Most of the time you will want full verbosity. However, once you are thoroughly familiar with a particular spreadsheet or are concentrating on data entry, turning off cell coordinates can be a good option, at least temporarily. To change this setting:

1. In Excel, press Insert + V to open Quick Settings.
2. Type the first few letters of “cell verbosity” in the search box.
3. Down arrow to this setting which is set as “content plus coordinates” by default. Press the Spacebar once to switch to “content only.”
4. Tab to the OK button and press Enter.

As with cell text visibility, this cannot be changed to the default, but must be changed for each individual file.

#### 8.1.4.3 Monitor Cells

As noted in Chapter 5.9.6, you can designate up to ten monitor cells or data ranges to enable quick navigation to important areas of your worksheets. In that section, I identified shortcut keys for assigning, reassigning, and navigating to monitor cells. Alternatively, You can assign and reassign monitor cells in Quick Settings, but this is a bit slower. If you wish to remove individual monitor cell assignments, or clear all of them at once, you must do this in Quick Settings. In this section, I will cover how to perform all of these actions.

To assign monitor cells in Quick Settings:

1. Place your cursor on the cell that you want to assign.
2. Press INSERT + V to open the Quick Settings dialog, and type "monitor" without the quotes in the search box.
3. DOWN ARROW to the Monitor cell 1 unassigned checkbox (assuming that is the one you want to assign), and press the Spacebar to check it. You will hear that it is assigned to the cell you have designated.
4. Tab to the OK button and press Enter.

To reassign a monitor cell, navigate to the new cell you want to designate as the new monitor cell and repeat the above steps. To clear an individual monitor cell assignment, repeat the above steps to navigate to the monitor cell you want to clear, and press the Spacebar. JAWS will indicate that this monitor cell is now unassigned. And finally, to clear all monitor cell assignments:

1. Press INSERT + V to open the Quick Settings dialog.
2. Type "monitor" without the quotes.
3. DOWN ARROW to the Clear checkbox and press the Spacebar to check it.
4. Tab to the OK button and press Enter.

#### 8.1.4.4 Comments Announcement

If you use comments or notes in Excel (see Chapter 5.9.3), you can use this option to indicate whether a cell has an associated comment. The default setting is On. To access this setting:

1. While in Excel, press Insert + V to open Quick Settings.
2. In the search box, type in the word “comment,” Down arrow to the Comments detection checkbox, And press the Spacebar to check or uncheck it.
3. Tab to the OK button and press Enter.

### 8.1.5 Web Browsing Customizations

#### 8.1.5.1 Forms Fields Entry/Exit Notification Sounds

By default, when you Enter an edit box or combo box, JAWS makes a sound. JAWS refers to the initial default sounds as “boings.” When you exit an edit field or combo box, JAWS makes a slightly lower pitch boing. For some people, including me, the difference between the two boings is a bit too subtle. I have reset the exit sound with a camera shutter, which is more distinguishable than the initial boing to me. In addition, you can turn the Forms mode entry and exit sounds off. If you do this, when you Enter and exit, JAWS will say “Forms mode on” and “Forms mode off,” respectively. Steps for changing these sounds are:

1. Starting in one of the browsers, press Insert + 6 to open the Settings Center for that browser.
2. Press Control + Shift + D if you want to make changes for all web browsers and PDF viewers. Skip this step if you want to make changes for only the browser you are currently using.
3. Tab once to the tree view, Down arrow to Forms mode, and Right arrow to expand the tree view.
4. Down arrow to the Enable sound notifications checkbox and press the Spacebar to uncheck this if you would rather hear JAWS say “Forms mode on/off” than hear sounds. Then Tab to the OK button and press Enter.
5. Otherwise, if you want to hear sounds, Down arrow to Select sound for leaving Forms mode, and press the Spacebar.
6. Down arrow or first-letter navigate to the sound you want to select. For example, press C for camera shutter.
7. Either press Alt P, or Tab once and press the Spacebar to hear a sample of this sound.
8. Tab to the OK button to accept.
9. Tab to a second OK button to save the change and exit Settings Center.

#### 8.1.5.2 Forms mode Customization

You can choose among three ways to enter and exit Forms mode: auto, semi auto and manual. Auto is the default. Semi-auto and manual are generally more appropriate for experienced users.

It can be useful to know how to change between these modes because of requirements of different applications. One example is Google Drive, where files and folders used in Google Workspace applications are managed and stored. You should change to manual to make Google Drive more accessible.

When set to auto mode, JAWS automatically enters Forms mode when you press Tab, Shift + Tab, or the Up and Down arrow keys to move to an edit field. To indicate you have entered Forms mode for edit fields and combo boxes, you will hear a boing. When finished with the edit field or combo box, you can press ESC to exit Forms mode. With edit fields, you can also press UP or DOWN ARROW to exit Forms mode. You will hear a lower pitch boing when exiting edit fields and combo boxes. This assumes you have not disabled Forms entry/exit sound notifications discussed in the previous section.

Choosing manual prevents JAWS from automatically placing you in Forms mode as you navigate using any of the commands including the Tab Key. When you move into an edit field or combo box, you must press ENTER first to type text or select a combo box choice. To manually exit Forms mode, press the Escape key.

Semi-auto is a hybrid of auto and manual. You will only enter Forms mode if you land on a control while navigating with Tab or Shift + Tab. Forms mode will not be activated if you navigate with the ARROW keys or navigation quick keys. You must manually exit Forms mode when semi-auto is active.

To access and change Forms mode options:

1. Starting in one of the browsers, press Insert + 6 to open the Settings Center for that browser.
2. Press Control + Shift + D if you want to make changes for all applications. Skip this step if you want to make changes for just that one browser.
3. Tab once to the tree view, Down arrow to Forms mode, and Right arrow to expand this level of the tree view.
4. Down arrow once to Select Forms mode, and press the Spacebar to cycle between the three choices: auto, semi-auto and manual.
5. After making your choice, Tab to the OK button and press Enter.

#### 8.1.5.3 Automatic Web page Reading

By default, when you open web pages, JAWS begins to read continuously from the top of the page, resulting in excess verbosity. You wind up constantly hitting the Control key to stop the computer from yapping. This can be turned off as follows:

1. Starting in one of the browsers, press Insert + 6 to open Settings Center for that browser.
2. Press Control + Shift + D to make a default change for all applications.
3. Start typing the word “document” in the search box. You will only need to type the first two or three letters for the full search term to autofill.
4. Down arrow to the Document and web pages automatically read when loaded checkbox, and press the Spacebar to uncheck this.
5. Tab to the OK button and Press the spacebar.

When a web page loads, JAWS will now tell you the page title and the number of regions, headings and links on the page, With JAWS 2023, it will also announce the number of Smart Glance highlights. Speech will then stop. This is useful information to have, and it is nice that this is all you hear before JAWS stops talking.

Note that if you make this a setting for all applications, it will also operate when opening PDF files with Adobe Acrobat DC. Instead of reading continuously, JAWS will be silent. You will need to use standard reading keystrokes to start reading the PDF.

#### 8.1.5.4 Say all Scheme

When reading text on the web, sometimes constant interruptions with announcements of links and headings becomes annoying. Wikipedia articles are good examples. There may be as many as 5 or more links in a single sentence, making it hard to concentrate on hearing the text. You can turn off heading and link announcement in Say all mode so that you can focus on listening to the text only. You can still hear headings and links announcements when not in Say all mode. Steps are:

1. Starting in one of the browsers, press Insert + 6 to open Settings Center for that browser.
2. If you want to make a default change for all applications, press Control + Shift + D.
3. Type “scheme” in the search box.
4. Down arrow to Select scheme where the default is no change. Press the Spacebar until you hear “Say all text only.”
5. Tab to the OK button and press Enter to make the change.

#### 8.1.5.5 Audio ducking

Enabling Audio ducking is useful when listening to audio that can compete with the JAWS voice. Listening to music or a video in YouTube is a good example. Or if I am stuck in an especially boring Zoom meeting and want to check my emails, I am thankful that Audio ducking exists. With Audio ducking enabled, audio volume from other programs is temporarily lowered (or “ducked”) while JAWS speaks, allowing you to more easily hear the JAWS voice which remains at full volume. Audio ducking can only be set for all programs. Steps for enabling Audio ducking are:

1. Starting in any application press Insert + 6 to open the Settings Center.
2. Press Control + Shift + D to make a default change for all applications.
3. Type either “audio” or “volume” in the search box.
4. Down arrow to the Lower audio volume of programs while JAWS speaks checkbox, and press the Spacebar to check it.
5. Tab to the OK button and press Enter.

To temporarily enable or disable Audio ducking, press Insert and the Spacebar together, followed by D to toggle Audio ducking on and off. While it is possible to turn Audio ducking off, I cannot think of any reason why a JAWS user would ever want to disable it.

#### 8.1.5.6 Heading Level Announcement

Announcement of heading levels may help you understand a web pages organization and logical hierarchy if the web developer has correctly structured it, as well as quickly find content. Navigate levels by pressing the heading level number key on the number row of your keyboard. If you press 3 to jump to a level 3 heading, you will first hear the level 1 and level 2 headings that precede it in the headings hierarchy. These are referred to as “ancestors.” Hearing ancestor headings can aid in providing context. But once you understand the ancestor logic, you may not want to always hear the full text of these preceding heading levels. You can eliminate this verbosity, instead hearing a single sound for the ancestor headings you are skipping over, and just the text and heading level you are navigating to. Inclusion of this sound is good for alerting you that there are higher level headings you have skipped over. To make this change:

1. While in a web browser such as Chrome, press Insert + 6 to open Settings Center. If you want to make this change for all browsers, press Control + Shift + D
2. Type heading in the search box.
3. Down arrow to Heading Navigation using 1-6, and press the Spacebar to toggle between the three options which are: Speak ancestor headings when jumping to a new section (the default, Play Sound when Jumping to a New Section, and Restrict to section.
4. Choose the Play Sound when Jumping to a New Section option.
5. Tab to the OK button and press Enter.

## 8.2 NVDA Customizations

Some of the customizations listed above for JAWS are possible with NVDA. They are accessed in the Document formatting, Speech settings and Browse mode dialogs in the NVDA menus. NVDA has a powerful tool called Configuration Profiles which allow you to customize NVDA for specific tasks. Using this tool creatively vastly expands customization possibilities. Add-ons can also be downloaded and installed to extend NVDA functionality.

### 8.2.1 Customizations in the Document Formatting Dialog

You can change which elements are detected when navigating the web. To access the Document Formatting dialog, you can either use the shortcut Insert Control D, or go in via the NVDA menus. To access this dialog through the menus:

1. Open the NVDA menus by pressing Insert + N.
2. Down arrow to the Preferences submenu and press Enter.
3. Press Enter on Settings.
4. Down arrow to or first-letter navigate to Document Formatting.
5. Tab through the choices which are organized in groups. Press the Spacebar to check or uncheck your choices. Relevant settings for web browsing are contained in the Elements Group, and include headings, links, graphics, lists, block quotes, landmarks, frames, and a few more.
6. Tab to the OK button and press Enter.

Most of the time, you will want these elements to remain checked (the default), especially headings and links. Unlike with JAWS where reading of these elements is only turned off in Say all mode, when you uncheck them in NVDA, they are no longer detected in any reading mode.

### 8.2.2 Customizations in the Speech Settings Dialog

Changing NVDA voices and languages were covered in Chapter 1. Beyond these, punctuation levels can be altered here, and Audio ducking can be enabled and disabled. NVDA punctuation levels are identical to those for JAWS (none, some, most, and all). The default is some. To change punctuation levels:

1. Open the NVDA menus by pressing Insert + N.
2. Down arrow to the Preferences submenu and press Enter.
3. Press Enter on Settings.
4. Down arrow or first-letter navigate to Speech.
5. Tab to the Punctuation level combo box, and Up or Down arrow to your choice.
6. Tab to the OK button and press Enter.

NVDA has three Audio ducking choices:

* No ducking: Disables Audio ducking.
* Duck when outputting speech and sounds: NVDA lowers the volume of other audio when NVDA is speaking or playing sounds. This may not work for all synthesizers.
* Always duck: The volume of other audio will remain lower the whole time NVDA is running.

To change Audio ducking settings:

1. Open the NVDA menus by pressing Insert + N.
2. Down arrow to the Preferences submenu and press Enter.
3. Press Enter on Settings.
4. Down arrow or first-letter navigate to Speech.
5. Tab to the Change button and press the Spacebar.
6. Tab to the Audio ducking combo box and Up or Down arrow to your choice.
7. Tab to the OK button and press Enter.
8. Tab to a second OK button and press Enter.

Audio ducking can be temporarily changed using the Insert Shift D key combination.

### 8.2.3 Customizations in the Browse Mode Dialog

In this dialog, you can turn sounds off for entering and exiting form fields. You can also stop NVDA from automatically reading a web page when it is loaded. To access this dialog and change these settings, do the following:

1. Open the NVDA menus by pressing Insert + N.
2. Down arrow to the Preferences submenu and press Enter.
3. Press Enter on Settings.
4. Down arrow to or first-letter navigate to Browse mode.
5. Tab to Automatic Say all and press the Spacebar to uncheck it if you don’t want web pages to be automatically read when loaded.
6. Tab to Audio indication of focus in Browse mode and press the Spacebar to uncheck it if you don’t want to hear sounds when entering and exiting form fields, or when toggling Browse mode on and off. You will instead hear “Browse mode” and “Focus mode” when you toggle it on and off, respectively. This is my personal preference.
7. Tab to the OK button and press the Spacebar to save your changes.

If you turn off the Automatic Say all setting, when you load a new page, NVDA will tell you the web page title, and then say “clickable” and the label of the first link on the page. It will then stop speaking. If you turn off Audio indication of Browse mode, instead of hearing noises when entering and exiting form fields, NVDA will say, “Focus mode” when entering form fields and “Browse mode” when exiting them.

### 8.2.4 Configuration Profiles

NVDA configuration profiles are a great tool for customizing your screenreader experience. They allow you to save different sets of settings and quickly switch between them. By creating different profiles for different tasks, you can save time and effort by not having to change the settings every time you switch tasks. Beyond the Normal configuration profile which serves as your default, you might create custom profiles for reading articles on web pages and documents with minimal verbosity, and another one for editing and proofing your own Word documents with much more verbosity than you typically want to hear. Among the things you can customize in a configuration profile are: the synthesizer voice and its rate, keyboard shortcuts, verbosity to reveal different amounts of formatting and punctuation, mouse and cursor settings, and the appearance of the NVDA window. You can also create application-specific profiles.

I will first describe the general steps for creating and saving a configuration profile and then list some settings you may want to change for a few potentially useful configuration profiles you may wish to create. Steps for creating and saving a new profile are:

1. For application-specific configuration profiles that you want to be automatically triggered when you open that application, first open that application. If, ultimately, you want to manually invoke it, it does not matter in which application you start.
2. Press Insert + N to open the NVDA menus, Down arrow to Configuration profiles, and press Enter. Normal is always in this list, as well as any previously created profiles. To get here more quickly, press Insert + N and then C, or Control + Insert P (whichever is easier on your fingers).
3. Tab once to the New button and press Enter.
4. Type in a name for this new profile.
5. Tab to a series of radio buttons, Up and Down arrow through the options, including manual activation current application (the open app appears in parentheses), and Say all. Choose manual activation to be able to start it when you decide to switch.
6. Tab to the OK button and press Enter.
7. You are NOW asked if you want to activate THE NEW PROFILE. If YOU WANT TO CONFIGURE ITS ETTINGS NOW, Tab TO Yes AND PRESS Enter. If YOU prefer configuring IT LATER, CHOOSE No. I WILL CHOOSE Yes.
8. Press Insert + N, Down arrow once to Preferences, press Enter, and press Enter again on Settings.
9. You land on the General category and first hear “Normal configuration.”. But when you Down arrow once, you will hear that you are editing the new profile. It is the active configuration profile. Any settings changes you make for this profile will be saved when you exit NVDA, this because the Save configuration when exiting NVDA checkbox is enabled by default in the General settings category.
10. Navigate through the various Settings category dialogs, make desired changes, Tab to the Apply button and press Enter, thus keeping you in the NVDA menus, rather than throwing you out.
11. When done, press Insert + Q to quit NVDA. The updated configuration profile is saved upon exiting.

To confirm success, reopen NVDA. Even though you may have exited while the custom configuration profile was active, NVDA still reopens with the Normal configuration profile activated. Press Control + Insert P to quickly access your list of configuration profiles, Down arrow to the profile you had just revised and press Enter. Now see if it works.

When first learning the mechanics of creating a configuration profile, make one or two quick changes that are easy to verify, such as simply changing the person’s voice. Once you understand the process, make your actual custom profiles. Be creative and experiment. Don’t worry too much about making mistakes because, once you get the hang of creating profiles, you can easily modify or delete them and start over.

The customization options are nearly infinite. Here are just a couple you may wish to consider and where in the NVDA menus you can find the settings you may want to change.

To proofread a Word document, it would be useful to hear all punctuation and have document formatting revealed (fonts and paragraph formatting, etc.). You might also want to change the voice person to keep track of which profile you are using. Consider adjusting the following:

* Speech: person voice and perhaps a slower rate so you hear the detailed information that will be revealed, all punctuation rather than the default level of some.
* Document Formatting: Font group- name, size, attributes, Superscripts and subscripts, styles, colors; Pages and spacing group: page numbers, line indentation paragraph indentation (e.g. hanging indent, first line indent), line spacing (single, double, etc.), alignment.

You may also want to create a configuration profile for casual reading of articles on the wed, perhaps also taking advantage of Microsoft Edge’s Immersive Reader feature. For this, you may want to specify Edge as your triggered application, as well as set minimal verbosity levels for punctuation and a few other things. To be sure Edge is triggered with this profile, first open Edge and be sure your focus remains there. Then repeat the steps above, and when you get to step 5, choose the Current application radio button which should specify MS Edge. Settings you will want to change include:

* Speech: person voice and perhaps a faster rate, no punctuation rather than the default level of some.
* Document Formatting: My strong preference would be to keep headings, links, and graphics checked because I think these are important to hear while navigating web pages, and perhaps uncheck the remaining elements (lists, block quotes, groupings, landmarks, articles, frames, and clickable) to reduce verbosity. Yet all this is entirely up to you.
* Alternatively, you might want to create a profile for reading in Say all mode with minimal verbosity, regardless of which application you are in. The idea here is that. while in Say all mode, you are often interested in just hearing text with no punctuation or other attributes spoken. In this case, choose the Say all radio button when you get to step 5 above. Just keep in mind that for any profiles triggered by Say all, you will still need to first manually activate the profile. Then press Insert A to read the text in Say all mode.

It is easy to modify or delete configuration profiles. Press Insert + N and then C, or Control + Insert P (whichever is easier on your fingers), to land in the list of configuration profiles. Down arrow to the one that interests you. When you now tab, options include (in the order in which they appear in the dialog): radio buttons for manual, current application, and say all triggers; rename; delete; and temporarily disable trigger options.

To modify the profile’s settings, press Enter on it, reopen NVDA Settings categories, make your changes and exit NVDA to save them.

### 8.2.5 NVDA Add-Ons

NVDA has a large number of add-ons for extending functionality. These can be downloaded at the [NVDA Community Add-ons website](https://addons.nvda-project.org/index.en.html), a page easily navigated using headings. As of the writing of this book, there were almost one hundred add-ons available on this page.

To find information on a specific add-on and download it to your PC:

1. On the heading for that add-on (which is also a link), press Enter to open the web page for that add-on.
2. Press H to go to the level one heading. Under the heading, you can find information about how to use the add-on.
3. To download it, press Enter on the Stable version link. The installation file will be downloaded to your Downloads folder.
4. Now in NVDA (you can use any screenreader to execute the above two steps), press Enter on the downloaded file.
5. A User account dialog pops up asking you to confirm if you want to install this add-on. Tab twice to the Yes button and press Enter. The add-on will quickly be installed.
6. NVDA prompts you to close and reopen NVDA to enable the add-on to be activated. Press Enter on the Yes button to do this.

To manage add-ons:

1. Press Insert + N to open the NVDA menus, Down arrow to the Tools submenu, and press Enter.
2. Down arrow to Manage add-ons and press Enter.
3. You land in the Installed add-ons combo box where those add-ons that have already been installed are listed.
4. Down or Up arrow to one of the add-ons
5. From here you can Tab to buttons and links for accessing help and information about the add-on, disabling it, removing it, and getting more add-ons (this opens the NVDA Community Add-ons page mentioned above).

Here are a few add-ons you may want to try out. Links to their individual pages are also provided:

* [Zoom Accessibility Enhancements](https://addons.nvda-project.org/addons/zoomEnhancements.en.html): This add-on provides keyboard shortcuts to handle alerts for different events while in Zoom meetings and makes the process of using remote Control + More accessible.
* [systrayList](https://addons.nvda-project.org/addons/systrayList.en.html): This add-on enables the Insert + F11 key combination to open the System Tray and allows NVDA users to received similar audio feedback as with JAWS when navigating the System Tray.
* [Say Product Name and Version](https://addons.nvda-project.org/addons/sayProductNameAndVersion.en.html): Press Insert Shift V to hear the version of the software running in the open window. Press this key combination twice to copy this text to the Clipboard so that you can paste it elsewhere.
* [Placemarkers](https://addons.nvda-project.org/addons/placeMarkers.en.html): See Chapter 7.11.2.2 about using this add-on to create placemarkers on web pages with NVDA.
* [Add-on Updater](https://addons.nvda-project.org/addons/addonUpdater.en.html): Installed NVDA add-ons do not automatically update, nor are you prompted when a new update is released. Activating this add-on detects updates and installs them.

[Numpad Nav Mode](https://addons.nvda-project.org/addons/numpadNavMode.en.html): This add-on is very useful for those who use the Numpad as their primary means of navigation for the Home, End, Page up, Page down, and arrow keys. It also facilitates keyboard use in Laptop mode. Once installed, users can activate Numpad navigation manually or set it as the default.

## 8.3 Narrator Customizations

The array of Narrator customizations are more limited, but there are still a number of useful ones. Several of them can be quickly and easily activated with shortcut keys.

### 8.3.1 Verbosity Levels

You can change verbosity levels for indicating formatting and punctuation. Verbosity levels for text reading, including formatting, can be changed in the Narrator Settings menu or with a shortcut key. Change them in the menus as follows:

1. Press Control + Windows + N to open Narrator Settings.
2. Tab to the Change the level of detail Narrator provides about text and controls combo box.
3. Up and Down arrow through the five options, ranging from text only to all text details. Press Enter on text only to select the least encumbered reading experience, or press Enter on All text details when proofreading document formatting.

Alternatively, you can use the shortcut key Insert + V to cycle between these choices.

You can change the amount of punctuation verbosity that Narrator reveals by pressing Insert Alt Plus or minus on the Number pad. Verbosity levels are:

* Default: Reveals little to no punctuation. Natural pauses will indicate items such as commas and periods.
* Math: Reveals most mathematical symbols.
* Some: Reveals limited punctuation, such as commas and periods.
* Most: Reveals additional symbols, such as parentheses.
* All: Reveals all punctuation, including all special symbols. This is the best choice when proofreading a document.

### 8.3.2 Audio ducking

In Narrator Settings, you can customize Audio ducking. First, press Control + Windows + N to open Narrator Settings. Then Tab to the Lower the volume of other apps when Narrator is speaking checkbox and press the Spacebar to enable Audio ducking. You are done. There is no final OK button in this dialog.

# Chapter 9 Tools for Proofreading and Review

All three screenreader programs have useful tools for proofreading text. This chapter will begin by discussing spellchecking, the most important tool for correcting typing mistakes and some grammatical errors. In Chapter 3.4, I covered styles. Using styles for font and paragraph formatting will ensure more consistent document formatting. Using the proofreading tools in this chapter will further ensure you are formatting documents consistently and correctly.

The JAWS Text Analyzer utility is used primarily for correcting punctuation mistakes, although it can also be used for detecting font formatting inconsistencies. The JAWS Speech and Sound Schemes tool is a powerful way to detect font formatting errors. The NVDA Document Formatting and Narrator Verbosity utilities detect a wide array of format settings. They are easy to use and will detect numerous errors that you could otherwise fail to detect. If you consistently use these tools, in combination with spellcheck and styles, you will cut down substantially on typing, punctuation, and formatting errors. Your documents and email messages will have a more professional look.

Most of the tools covered in this chapter can be used for both proofing Word documents and Outlook messages. That said, I vastly prefer doing the bulk of text composition and formatting in Word. If I want to prepare an Outlook message longer than two or three sentences in length, it is more efficient and reliable to first prepare the text in Word. Once finalized, I then select and copy the text from Word and paste it into the body of an email message. Experience has taught me that too many things can go wrong when preparing and formatting text in an Outlook message. First, your unfinished message can disappear without you ever knowing why, forcing you to start over. Second, I mentioned in Chapter 4.9.1 that the Outlook Drafts folder is often dysfunctional with Gmail accounts, my own included. I have little confidence that when a message contained in this folder is ready to go that I will be able to send it off smoothly. I avoid saving unfinished messages to the Drafts folder whenever possible. Instead, I save the text as a Word file until ready to copy and paste it into an Outlook message. Third, as of the writing of this book, all versions of Outlook use the older 2013/2016 Word Spellcheck utility. I prefer the newer 365/2019 version, so like to spellcheck in Word rather than Outlook. And finally, even though default fonts are identical between Word and Outlook (Calibri 11 point), a single line of text in an email message is much longer than in a Word document. To test this, I copied and pasted the beginning lines of this paragraph into a blank Word document and the body of an email message. The first line of the email message contained 47 words while only 17 words were contained in the first line of the Word document. This makes text editing more time-consuming in Outlook because of the longer distance needed to navigate within message lines to get to the text to be edited.

As you will see below, the PowerPoint Spellcheck utility works very poorly. Here too, I prefer to do the bulk of my PowerPoint editing in Word first, and then copy and paste the text into PowerPoint.

Other people often review documents that you prepare. This is of course a central role for teachers. You may also collaborate on documents with co-workers on a team. Word has two useful tools in these contexts. Comments can be electronically inserted into documents by reviewers. You will need to know how to access and delete them, as well as how to prepare comments yourself. Teachers or collaborators may also suggest specific text changes. The Track Changes (also known as Revisions) tool enables you to detect these editing suggestions, as well as accept or reject them.

## 9.1 Spellchecking

Spellcheck your work early and often to correct typos. Keep in mind that when a sighted person sends out a document with lots of typing errors, other sighted people think it’s just because that person is sloppy. When a visually impaired person does this, some sighted folks will take pity, assuming that because he or she is blind they just can’t do any better. Prove them wrong!

I will first discuss spellchecking Word documents and Outlook messages, the two applications where you will presumably do the bulk of your spellchecking. I will then discuss spellchecking Excel spreadsheets and PowerPoint presentations.

The Spellcheck utility has evolved over the years. One challenge is that the Spellcheck dialogs differ between the Office programs, even for Office 365. Word and Outlook 365 use the version that came with Word 2019, while PowerPoint 365 uses the 2016 version, and Excel uses the 2010 version. Hopefully sometime soon, Microsoft will choose one version and stick with it.

### 9.1.1 Spellchecking in Word and Outlook

There are several versions of Spellcheck for Word: a 2013/2016 version, a 2019 version, and a constantly evolving 365 version. I will cover the older 2013/2016 version and the 365 one. Don’t be surprised if what I describe below does not line up exactly with your version.

How can you know which version you are using with Word and Outlook? With the older version, when you press F7 to start, you will first land on the Ignore button. With the newer version, after pressing F7, you will first hear “editor.”

#### 9.1.1.1 Spellcheck in Word and Outlook 2013 and 2016

To start spellchecking, press F7. As mentioned above, the first time you Press F7 while spellchecking, you will land on the Ignore button. For all subsequent times, you will land on the button you previously selected. In other words, you will land in different places in the dialog while spellchecking.

As you spellcheck, focus jumps to the first word or grammatical construction that the utility thinks is misspelled or incorrect. It will first read the misspelled word, letter by letter, and then the suggested correct spelling, letter by letter. If Spellcheck thinks it has encountered a grammatical error, it will explain the error and suggest a change. One example is extra spaces between words.

Because you land in different places in the Spellcheck dialog depending on your previous selection, it’s a good idea to know the order in which the buttons appear in the dialog. Here’s a list of the buttons you can move through with Tab and Shift + Tab in their correct order, their corresponding shortcut keys, and what they do.

* Change (C): Accept suggested correct spelling.
* Change all (L): Accept suggested correct spelling for all occurrences of this misspelled word in this document.
* Ignore (I): Ignore suggested spelling change and retain current spelling.
* Ignore all (G): Ignore suggested spelling change for all occurrences of this spelling in this document.
* Add (A): Add this word to the permanent dictionary.
* Change combo box: List of suggested spelling changes. Down arrow to move to the correct option, Tab once to the Change button, and press the Spacebar to accept.

In the dialog, you have the option of tabbing to the button you wish to select and pressing the Spacebar to activate it. Or you can press the shortcut key for that button, provided that your cursor is not already situated on it. That’s the theory. In practice, pressing the Spacebar often works more cleanly than using the shortcut key.

Inevitably, you will sometimes encounter glitches. Here are a few common ones and their potential solutions:

* The screenreader fails to read the incorrect and suggested correct spelling. With JAWS, you can press Insert + F7 and JAWS will say it this time. This does not work with NVDA or Narrator. With these screenreaders, press Escape to get out of The Spellcheck, and press F7 to get back in. Hopefully, you will hear the information this second time.
* No spelling suggestions are given. Press Escape to get out of Spellcheck. Your cursor will be situated on the line with the presumed spelling or grammatical error. Read through it and make the correction manually. If you Escape out of Spellcheck, your previous corrections are not lost. When you Press F7 to resume spellchecking, you will come back into it right where you left off.
* While not a glitch, sometimes you don’t have enough context to know if you should accept the suggested spelling change. With JAWS, press Insert C (for context) and JAWS will read the full line where the word is located. This should help you make the right choice.
* Alternatively, with any of the screenreaders, press Escape to get out of Spellcheck, Up arrow and Down arrow once. This will read you the entire line. With JAWS, you can press Insert + Up arrow and JAWS will read you the current line. With NVDA, you can read the current line by pressing Num Pad 8. With Narrator, press either Insert I or Insert + Up arrow. Now press F7 to get back into Spellcheck and you will return to exactly where you left off.

#### 9.1.1.2 Spellcheck in Word and Outlook 365

Although some folks disagree, my opinion is that this version of Spellcheck is a big improvement over earlier versions for two reasons. First, it automatically gives much more contextual information, so you can quickly decide whether or not to accept suggested changes. Second, you always land in the same place in the dialog, rather than on the previously-activated button. This is less confusing than with the older version. That said, because Microsoft is constantly tweaking this version, it can drive you a little crazy.

As with the older version press F7 to start spellchecking, and press the Spacebar to activate the Editor button. For documents of one hundred words or more, you will then hear a percentage calculation of correct spellings in the document.

If errors have been detected, press the Spacebar to start checking spelling and grammar (see later in this section if you only want to check spelling).

In the Tab order, here’s what you will encounter in the dialog:

* Your screenreader will read the misspelled word letter by letter, and then the suggested correct spelling, letter by letter. It will then read you the phrase or sentence where that word appears, giving you immediate contextual information. You can press Enter to accept the change and move to the next misspelling, or you can press Tab twice to move to a split button and press the Spacebar on that to accept the change.
* A Read context or Read original sentence button: Press the Spacebar on this button and the full sentence where the word appears will be read back to you with a Microsoft synthesized voice, giving you additional contextual information.
* A split button with the first suggested spelling or grammar correction. Press the Spacebar to accept or Press Alt + Down arrow for more options. Options include: Change all – change all occurrences of the incorrect spelling to this correct spelling; Add to AutoCorrect; Read aloud – hear the word again in its entirety; and Spell out – hear again letter by letter.
* Additional split buttons you can move through by tabbing if there is more than one suggested correct spelling.
* Ignore button (I)
* Ignore all button (G)
* Add button (A)

If spellchecking a document or selection of fewer than 100 words, you will not hear a percentage calculation. Tab several times until you hear the number of detected misspellings, and then press the Spacebar to start the process of making corrections.

By default, both spelling and grammar errors are announced when you run the Spellcheck utility in Word and Outlook 365. But there may be times when you want to focus exclusively on spelling errors. To do this:

1. Press F7 to open the Spellcheck utility, but do not press the Spacebar to start detecting errors.
2. Instead Tab to Corrections: Spelling, where the number of possible spelling errors are announced.
3. Press the Spacebar to start the Spellcheck utility, and only spelling errors will be flagged.

If you instead hear “Corrections: Grammar, two of two,” this means that the Spellcheck utility has not detected any spelling errors in your text.

### 9.1.2 Spellcheck Excel Spreadsheets

Spellchecking Excel spreadsheets with the three screenreader applications requires a few workarounds. As with Word or Outlook, start Spellcheck by pressing F7. The Spellcheck utility will detect the first perceived misspelling from where your cursor is situated. You first land on the Suggested language combo box in the Spellcheck dialog. And guess what? This is not the 2019 or 2016 Spellcheck dialog, but the one from Office 2010 and earlier!

Unlike in Word, you will not first hear the misspelled word and suggested correct word, letter by letter. If you just want to hear the suggested replacement spelling, Shift + Tab once to the list of suggested corrections. You will hear the first recommended word, and JAWS will spell it out. With NVDA and Narrator, press Caps lock and Numpad 5 twice to hear it spelled out character by character. You can also Down arrow to alternative choices. To accept a spelling change, press Enter on it.

Other elements of the Spellcheck dialog resemble those of the Word/Outlook 2010 version. Fortunately, it is not that different from newer versions. Instead of tabbing, you can use the following shortcut keys:

* Alt C: Change (accept the suggested correction).
* Alt L: Change all.
* Alt I: Ignore once.
* Alt G: Ignore all.
* Alt A: Add to dictionary.

How to hear misspelled words varies between the screenreaders. With JAWS, press Insert + F7 and JAWS will spell out both the misspelled word and suggested correct choice.

To hear the misspelled word with NVDA, after landing on the Suggested language combo box, Shift + Tab twice to Not in dictionary. Then Down arrow once to hear the word spoken in its entirety. Now Left and Right arrow to hear it spoken character by character. You can also use this technique with JAWS if you can’t remember the Insert + F7 keystroke mentioned above.

with Narrator, hearing the misspelled word character by character is a bit more cumbersome. As above, Shift + Tab twice after landing on the Suggested language combo box. You will hear the misspelled word in its entirety. Press Caps lock and Numpad five twice to hear it spelled out. Unfortunately, you will first hear "not in dictionary” spelled out before hearing the misspelled word. If you do not have a Number pad, press Caps lock and K twice.

If you start spellchecking with your focus on a cell other than A1, when you get to the last misspelled word on the sheet, you will be asked if you wan to continue checking from the beginning. Press the Spacebar if you want to do that; otherwise, press Escape to exit the Spellcheck utility. To spellcheck workbooks with multiple sheets, you must perform it in each individual worksheet.

## 9.1.3 Spellchecking PowerPoint Presentations

Spellchecking in PowerPoint works poorly with screenreader programs. It is possible to use it with a rather awkward JAWS workaround. While I am aware of an NVDA workaround, I was not able to replicate it, and even if I could, it was simply not worth the effort. To the best of my knowledge, no Narrator workaround exists, and if one actually does exist, I doubt it’s worth trying.

Before discussing the JAWS workaround, I strongly suggest you do one of the following two things instead. First, simply check your spelling while preparing your presentation and make corrections manually. PowerPoint presentations should not be too wordy, so there is not nearly as much to check as with a lengthy Word document. If you are a decent speller, this should probably suffice. Better yet, prepare your text and any speaker’s notes in Word, including spellchecking it there. Then copy the text from Word and paste it into the individual placeholders.

Regarding the JAWS workaround, if you want to try this out, you can use the practice file entitled “Disclosure and Accommodations badly spelled.ppt.”

when you start spellchecking with F7, two strange things happen. First, focus does not immediately land on the Spellcheck dialog. You must press Tab to place focus on it. And second, you either hear nothing or just the word “edit.” You do not hear the incorrectly spelled word and the proposed correct spelling. To hear the misspelled word and the suggested correction, press Insert + F7, and JAWS will say them.

Now press Tab or Shift + Tab to go to whichever button you want to choose (change, ignore, etc.) and press it.

Let’s say you pressed the Change button to accept the proposed correction. This brings you to the next misspelled word and the same problems occur again. You must Tab once, which places focus on the Change All button. Press Insert + F7 again to hear the misspelled word and proposed correction. If you want to accept it, Shift + Tab once and then Spacebar on the adjacent Change button.

Assuming that you will be accepting the bulk of the suggested changes, you can perhaps develop a rhythm of Tab, Insert + F7, Shift + Tab, Spacebar, Tab, Insert + F7, Shift + Tab, Spacebar, and so on. And if you are a decent typist with a reasonably good grasp of spelling, resorting to this workaround is tolerable.

## 9.2 Detecting Punctuation Errors

Spellcheck detects extra spaces between words, but this is the only type of punctuation error it finds. Nor is it entirely dependable for finding all occurrences of this type of punctuation error. Fortunately, there are better tools for detecting an array of punctuation errors. Before describing these below, keep in mind that when proofreading, it can be useful to adjust screenreader settings to read all punctuation. How to make these changes was covered in Chapters 8.1.1 for JAWS, 8.2.2 for NVDA, and 8.3.1 for Narrator.

### 9.2.1 JAWS Text Analyzer

Text Analyzer is especially valuable for detecting punctuation errors, although it can also be used for checking font formatting. NVDA and Narrator have no comparable tool.

Hold down Alt + Windows + I together and Text Analyzer will jump to the next punctuation error or format change, which it calls an “inconsistency.” It will also announce a column number (as in, “space run at column 473”), but this has no practical value. Your cursor is placed in the text where the perceived error is located. Left or Right arrow a few times in this vicinity to find exactly where the problem is and manually correct it. Press Alt + Windows + I again to jump to the next inconsistency, and continue on until Text Analyzer says, “no more inconsistencies in document.”

Punctuation errors that Text Analyzer detects include:

* Space runs: Extra spaces between words. Also detects incorrectly placed tabs.
* Stray punctuation: Periods, commas, and other punctuation marks with at least one space between them and preceding characters.
* Unclosed/unopened quotes: Missing quotation marks at the beginning/end of a quote.
* Unopened/unclosed parentheses: Mismatched parentheses, i.e., only the left or right parenthesis is present with no corresponding right/left parenthesis nearby.
* Missing capitals: No capital letter at the beginning of a sentence.
* Inverted capitals: Inverted lowercase and uppercase letters. For example, the first letter of a proper noun is lowercase while the rest of the word is uppercase.

Regarding space runs, in principle, Spellcheck detects these too, calling them extra spaces between words. However, Text Analyzer is much more reliable. I have often spellchecked documents, then immediately ran Text Analyzer, and found that Spellcheck failed to detect a number of space runs that Text Analyzer caught.

Text Analyzer has one unfortunate shortcoming. With regard to parentheses and quotation marks, mismatches are signaled on each line, resulting in lots of what I will call “false positives.” For example, if a quotation starts on one line and ends on another line, Text Analyzer incorrectly identifies both the starting and ending quotation marks as inconsistencies. It is the same for opening and closing parentheses. It would be a big improvement if Text Analyzer did not flag these as inconsistencies provided that the quote or text in parentheses started and ended in the same paragraph.

Text Analyzer can also detect font changes, including font name, size, attributes, and color. This can be useful for detecting unexpected font anomalies.

You can customize Text Analyzer to choose what you want detected. For example, if you have many headings in your document, you may want to stop it from detecting font changes, so that you can focus on punctuation errors. Alternatively, you may wish to check just font changes if you are expecting few or no font changes in a document, and you want to be sure that you did not inadvertently insert some. I have used Text Analyzer for this and have sometimes been surprised at how many weird and inexplicable font changes have found their way into my documents, even after assiduously updating my normal text style to supposedly prevent such errors.

Text Analyzer customization is done in JAWS Settings Center. Steps are:

1. Press Insert + 6 (on the number row) to open Settings Center.
2. Press Tab once to get to the tree view.
3. Down arrow or first-letter navigate to Text Analyzer.
4. Right arrow once to expand the tree view where a list of formatting and punctuation categories are listed. These categories are symbols, punctuation inconsistencies, and font changes.
5. Right arrow on one of these categories to expand its corresponding list in the tree view.
6. Down arrow through the list, pressing the Spacebar to check on or off the items you want detected or not detected.
7. Open additional categories in the tree view and check or uncheck the items you want detected or not detected.

When finished, Tab to the OK button and press Enter or Spacebar.

### 9.2.2 Find and Replace

While neither NVDA nor Narrator have a tool like JAWS Text Analyzer, you can use Word’s Find and replace dialog to correct some of the punctuation errors mentioned in the preceding section. In fact, if you suspect that the number of space runs or stray punctuation errors may be numerous, it is quicker to use Find and replace to correct them all at once, rather than correct them one-by-one with Text Analyzer.

To detect and correct space runs using Find and replace, do the following:

1. Press Control H to open the Find and replace dialog.
2. In the Find edit field where you first land, type in two spaces.
3. Tab once to the Replace field and type in a single space.
4. Tab three times to the Replace all button, and press Enter or the Spacebar. Your screenreader will say, “all done. We made 19 replacements,” or whatever the number is.
5. Press Enter on the OK button.
6. If you mistakenly put in more than two unwanted spaces between words, this will not delete all the errors. Now press Alt A to perform Find and replace again.
7. Press OK and Alt A until you hear zero replacements. Then press Escape to exit the Find and replace dialog.

You can also use Find and replace To correct stray punctuation mark errors (commas, periods, colons, and semi-colons). Using stray commas as an example, type space comma in the Find edit field and comma by itself in the Replace edit field. Then repeat steps four through seven above.

The other types of errors detected by Text Analyzer (unclosed/unopened parentheses and quotes and a few others) cannot be corrected using this method, but using Find and replace is a good way to quickly get rid of a substantial number of common punctuation errors in your documents.

## 9.3 Proofreading Text Formatting

In Chapter 3.2.1, I covered using Insert + F to reveal font and paragraph formatting at individual points of a document or for a segment of selected text. While this is useful for spot-checking formatting at individual points in a document, Insert + F does not give a more global view of document formatting. Think of Insert + F as a good tool for giving a micro-level glimpse of document formatting. The tools discussed below provide a more complete, or macro, picture. If you discover unintended formatting changes, you can then correct them.

### 9.3.1 JAWS Speech and Sound Schemes

The Speech and Sound Schemes tool helps you detect font formatting changes by telling you what changes have occurred as you navigate through the text. There are several categories of schemes, but we will only discuss the Classic category. To open Speech and Sound Schemes, hold Insert Alt S down together. JAWS will say “select a scheme dialog.” It will also say the current default scheme, which if you have never opened this before is the Classic scheme within the broader Classic category. To change the scheme, press the Down arrow or first-letter navigate to the one you want and press Enter.

Within the Classic category you can choose among schemes which give you varying amounts of formatting information. The most relevant Classic choices are:

* Classic: No font information is read back to you. This is what you are used to hearing.
* Classic, attributes: Bold, italics, and underlining are read back to you.
* Classic, attributes, and font: Font name as well as bold, italics, and underlining are read back to you.
* Classic, attributes, font, and color: Font name, bold, italics, underlining, and color are read back to you. You should choose this one when you are proofing your formatting because it provides the most information.

When you change the scheme, it becomes the default for Word until you change it back again. Use these various schemes only when you are proofreading. Remember to switch back to Classic when you are done. Otherwise, you will continue to hear this formatting feedback in all Word documents. It will quickly drive you crazy.

### 9.3.2 NVDA Document Formatting

This tool serves a similar purpose as JAWS Speech and Sound Schemes, but can be used to reveal much more than just font changes. To access it, you can either use the shortcut Insert Control D, or go in via the NVDA menus. Steps for accessing document formatting through the menus are:

1. Open the NVDA menus by pressing Insert + N.
2. Down arrow to the Preferences submenu and press Enter.
3. Press Enter on Settings.
4. Down arrow or first-letter navigate to Document Formatting.
5. Tab through the choices, and use the Spacebar to check those elements that you wish NVDA to detect.
6. Tab to the OK button and press Enter or Spacebar.

As you Tab through the Document Formatting dialog, you will find that there are quite a few format settings that NVDA can announce as you read through a document. Most are relevant for Word documents. A few are useful for Excel and web browsing. The choices are organized in groups and include:

* Font: Name, size, attributes, emphasis, style, color.
* Document information: Comments, editor revisions, spelling errors.
* Pages and spacing: Page numbers, line numbers, line indentation, paragraph indentation, line spacing (single, double, etc.), alignment.
* Table information: Tables, row/column headers, cell coordinates, cell borders.
* Elements: Headings, links, lists, block quotes, landmarks, frames, clickable.

The only drawback to using the NVDA Document Formatting tool is that it cannot be toggled on and off. Therefore, when you are finished proofreading, you will need to go back into the dialog and uncheck all the items that you no longer want announced. You will definitely want to do this. As with JAWS Speech and Sound Schemes, the verbal feedback on format changes can be overwhelming. However, I recommend that you do not uncheck items in the Elements group. These are important for web browsing.

### 9.3.3 Narrator Verbosity Levels for Formatting

You can vary the amount of verbosity Narrator speaks for proofreading document formatting. This was mentioned in Chapter 1.4.1 as one of the elements in Narrator Settings. You can quickly cycle through the five verbosity levels by pressing Insert + V. The levels are:

* Level one: Text only.
* Level two: Some control details.
* Level three: All control details (the default level).
* Level four: Some text details: gives most text attributes (bold, italics, heading levels, etc.).
* Level five: All text details.

Level five is best for proofreading a document. This level provides complete details about heading levels, font attributes, type and size, bulleting and numbering, and other formatting information.

## 9.4 Tools for Collaborative Review

Word has two useful tools you can use when working collaboratively on documents – Comments and Track Changes. You can insert comments into documents if you have questions or suggestions on ways to revise a document. Comments are usually focused on identifying possible substantive revisions. Comments are a great tool for reviewing documents among collaborators.

Track Changes (also known as Revisions) focus on detailed editing. This is important for legal documents. Exact wording and precise punctuation are important in such documents and are subject to negotiation. Lawyers and others drafting contracts frequently use Track Changes.

I need to make one caution here. Track Changes is a great visual tool. Yet interpreting the audio feedback provided by your screenreader program can be challenging. If you have to use Track Changes because you have sighted colleagues who use them, then by all means, bite the bullet and try to become comfortable with them. But if you have an alternative way to work collaboratively on documents where it is important to monitor lots of proposed small changes, you may prefer using that instead. For example, some reviewers and editors put proposed changes in brackets. You can then use the Find command (Control + F) to search for left brackets.

### 9.4.1 Comments in Word

You can insert electronic comments in Word documents. These are useful when collaborating on documents with others. Also, instructors will often insert comments in term papers and other assignments.

There are two versions of the Comments feature in Word, an older “legacy” version and a newer one introduced for Office 365 in the Summer of 2021 called “Modern Comments.” This version was rolled out gradually to Word 365 users.

As far as I know, Microsoft never communicated the rationale for a gradual rollout of Modern Comments, nor the reasoning behind who got it when. Many users of the Comments feature simply discovered one day that it seemed broken, and had no idea why. I consider myself luckier than most because I did not receive Modern Comments until July 2022. By that time, I had some idea of what to expect. As you might imagine, and as the article below makes clear, some longtime Comments users were not happy:

[Microsoft's Modern Comments leave users reaching for the rollback](https://www.theregister.com/2021/05/20/word_modern_comment/)

Perhaps because many people complained, Microsoft added an option to Office 365 for reverting to the older way of working with comments. Steps for reverting back to the legacy version are outlined in the next sub-section.

The “modern” aspect has something to do with integration with comments features of other Microsoft applications, as well as the ability to receive notifications in Outlook. I will not deal with this aspect of comments, but you can read more about it at [Using modern comments in Word](https://support.microsoft.com/en-us/office/using-modern-comments-in-word-edc6ae71-0a2d-49fe-8faa-986f1e48136a#:~:text=The%20modern%20comments%20experience%20in,Word%2C%20Excel%2C%20and%20PowerPoint).

If you are unsure which version of Comments you are running, the easiest way to figure it out is to start preparing a comment, and listen to what your screenreader says when you land in the edit field. To add a comment, press the Applications key, Up arrow once or twice to New comment, and press Enter. With the legacy version, you will either hear “Comments pane, edit,” or just “edit.” With Modern Comments, your screenreader will either say, “start a conversation” or at least something containing the word “conversation.”

In the discussion below about creating, editing, replying to, and editing comments, differences between the legacy and modern versions are noted.

#### 9.4.1.1 Disabling Modern Comments in Word 365

If your primary interest in using Comments is to garner reactions from reviewers in a single iteration and you are not interested in following a discussion thread or somehow integrating Word Comments with other Microsoft applications, you will find that the legacy version meets your needs and is mor straightforward to use than Modern Comments. If you have Modern comments switched on, and would prefer to revert to the legacy version, do the following:

1. Press Alt F T to open the Word Options category list where you land on the General category.
2. Tab to the Enable modern comments checkbox and uncheck it.
3. Shift + Tab back to the OK button and press Enter.
4. To make this change take effect, exit all open Word documents and reopen the application.

Preparing, editing, deleting and replying to comments should now conform to the legacy procedures. Microsoft may eventually remove this option, but if people continue to complain about the Modern version, they may keep the option to disable it.

#### 9.4.1.2 Creating Comments

To create a comment:

1. Place your cursor on the line where you want the comment to appear. If you wish to reference specific text on a line, select that text first.
2. Press the Applications key, Up arrow once or twice to New comment, and press Enter. Alternatively, you can press Control + Alt M. This opens the Comment pane where you can type in text.
3. With the legacy version, when finished typing, press Escape to exit the Comment pane and return to the document. Do not Press Enter or Tab. These will just put a hard return or tab in the Comment pane.
4. Or if using Modern Comments, when finished, press Control + Enter, followed by Escape.

Here’s a practical tip about inserting comment text. Typing in comment and reply text directly into the Comment pane can be finicky, especially if the comment or reply is lengthy. I find it more efficient and less frustrating to prepare my text in a separate document window, and then copy and paste it into the Comment pane.

#### 9.4.1.3 Accessing Comments With Screenreaders

With all three screenreaders, it is possible to navigate comment by comment, as well as get a list of comments. I have inserted four comments in this section. If you are reading this book in Word, after reading through this section, use the ways mentioned here with your screenreader of choice to access them.

JAWS has several ways to access comments that are already in documents. The easiest way is to switch from Edit mode to Quick keys mode. Press Insert + Z and JAWS will say “Quick keys on.” Now Press N to jump to the next comment after your cursor point, and JAWS will read it. Shift N will go to the previous comment and read it. If instructors have inserted comments into term papers, this is a great way to get a quick sense of their impressions.

With JAWS, you can also open a Virtual Viewer to access a list of comments. To open the Virtual Viewer, press the Windows and Semi-Colon keys together. This gives you a list of four items to view. The first item in the list is comments. Press Enter and JAWS will indicate how many comments are in the document. Down arrow and you will hear a numbered link for each comment, including its text, author, and time stamp.

Press Enter on the link to navigate to the location of the comment in the text, pressing Enter on a link navigates to the vicinity of the comment in your document, but does not place your focus within the comment itself. Press Escape if you just want to exit the Virtual Viewer.

With JAWS, you can also customize what feedback you hear on comments as you are reading through the document line by line or in Say all mode. Customization is done in JAWS Quick Settings. To access these options, while in Word, press Insert + V to open the Quick Settings dialog. In the edit box where you land, type in the word “comment.” Now Down arrow to “comments, footnotes and endnotes detection” and press the Spacebar to cycle through the four options, which are:

* Off: No comment information is provided.
* On: Says “has comment.” This is the default.
* On with text: Reads the comment, as well as the name of the comment’s author. With Eloquence voices, JAWS reads this information with a lower pitch (no pitch change for Vocalizer Expressive or Microsoft voices).
* On plus count: In Say all mode, the same feedback is provided as with On with text. When Down or Up arrowing to read by line, JAWS will indicate the number of comments on the line.

After making your choice, Tab to the OK button and press Enter.

If you wish to hear comments as you are navigating through the text, On with text is your best choice. If you do not want to hear any comment information, choose Off.

With NVDA, comments are one form of “annotation.” Analogous to the JAWS Quick Keys method mentioned above, with NVDA press Insert + Spacebar to switch to Browse mode, and then press A to jump to the next annotation. Note that if there are other types of annotations contained in the document, these will also appear. This includes Track Changes/Revisions, discussed later in this chapter.

You can access a list of comments in the Elements list as follows:

1. Press Insert + Spacebar to switch to Browse mode.
2. Press Insert + F7 to open the Elements list.
3. Shift + Tab once to the list of element types.
4. Up or Down arrow to the Annotations radio button.
5. Tab once and the list of comments will appear. Up or Down arrow to move through the comments to listen to them.
6. Press Enter on one of them if you wish to navigate to the location of that comment in your document. Otherwise, press Escape to exit the Elements list.
7. Press Insert + Spacebar again when you want to exit Browse mode and return to Edit mode.

To get a list of comments with Narrator, you can open Word’s Review pane by pressing Alt R T P, and then either H or V. You can Down arrow to read the comments line by line. Then press Escape twice to return to the main document. You can not use the Review pane to navigate to any of the comments.

#### 9.4.1.4 Editing, Replying To, and Deleting Comments with the Legacy Version

To perform these operations, your cursor focus must be inside the Comments pane. I have found the best way to do this is by using the ribbon shortcut. The shortcut key to go to the next comment is Alt R N. To go to the previous comment, press Alt R V. The Comments group is located in the Review tab.

You can delete individual comments as well as reply to them, but your focus must be inside the Comment pane to do this. Otherwise, you will be unable to access these two choices via the Applications key.

You may decide to delete an individual comment after you have revised the text to address it, or because you decide to ignore it.

To delete an individual comment with the legacy version:

1. Press Alt R N or Alt R V to navigate to the next or previous comment, respectively.
2. Press the Applications key, Down arrow to Delete comment, and press Enter.

To reply to a comment:

1. Press Alt R N to navigate to the next comment to which you want to reply.
2. Press the Applications key, Down arrow to Reply to comment, and press Enter.
3. Type the text of your reply, and when finished, press Escape.

Replies will appear in the list of comments, so use the same procedures described above to navigate to them.

#### 9.4.1.5 Editing, Replying To, and Deleting Comments with the Modern Version

Unlike the legacy version, deleting and replying is not done via the Applications key, but via the Comments thread dialog. As with the original version, access it with the ribbon shortcuts of Alt R N and Alt R V to get into the next and previous thread dialog, respectively.

While there are a number of things you can do in the Comment thread dialog, Most people simply want to first read the comment and then delete it. Assuming this to be the case, here is the most efficient way to accomplish these two tasks:

1. Press Alt R N to get into the next comment thread from your cursor point. you first hear the name of the person who initiated the thread.
2. Shift + Tab twice to the Comment content read only pane to hear the text.
3. Tab several times to the More thread actions button and press the Spacebar to expand it.
4. Down arrow to Delete and press Enter to delete the thread.

It is also possible to edit comment threads and compose replies in this dialog.

#### 9.4.1.6 Deleting All Comments

When you have finalized your document, be sure to delete all comments before circulating it to others. To delete all comments at once, the shortcut key is Alt R D O. To navigate to this command via the ribbons:

1. Press Alt to open the ribbons and Right arrow to the Review tab.
2. Press Control + Right arrow several times to get to the Comments group.
3. Tab to the Delete split button, and press Alt + Down arrow to expand the options.
4. Down arrow to Delete all comments in document, and press Enter. Note that as you Down arrow, you will first hear “delete all comments shown unavailable.” Ignore this and continue Down arrowing.

To verify that you have indeed deleted all the comments, use any of the methods outlined above for detecting existing comments. You should now hear that there are no comments in your document.

### 9.4.2 Track Changes or Revisions

This is a Word feature also found in the Review tab of the ribbons. It is supported by JAWS and NVDA, but not currently by Narrator. The terms Track Changes and Revisions are used interchangeably. This tool is used to display text changes, that is, insertions, deletions, and format changes. As with the Comments tool, Track Changes is used in collaborative or team settings. The tool is most commonly used when very specific word changes are important. Lawyers and contract negotiators frequently use Track Changes. For them, precise wording and punctuation are critical. A misplaced comma or incorrect word choice could have major impacts. In such situations, it is important for all parties to see specific suggested text changes. A grammar instructor might also use Track Changes to clearly identify writing mistakes in an assignment submitted by a student. So too might a professional editor reviewing a manuscript submitted for publication.

To turn Track Changes on, hold down Control, Shift, and E together (this is a toggle). JAWS says, “Track Changes on.” NVDA and Narrator do not announce it. At this point, any edits (insertions, deletions, and font changes) you make will be registered. Note that font changes are announced as “properties.”

If you later turn Track Changes off, any subsequent edits will not be registered.

Once you have activated Track Changes, when you insert new text and navigate through the document, JAWS will announce the text and say that it has been inserted. JAWS will do the same for deleted text. NVDA will only announce insertions when you are navigating the document. To also hear deletions, you will need to use one of the methods identified below. Font changes (font name, attributes like bold and italics, point size, and color) are announced as “properties” by both JAWS and NVDA. To detect what actual font changes have been made, navigate just past where the change is announced and press Insert + F.

With JAWS, you can customize how revisions are announced as you move through the text. This is done in Quick Settings, which is opened with Insert + V. Your cursor lands in the search box where you can type in Track Changes. You will get only one search result, so press the Down arrow once. Then press the Spacebar to cycle through the seven options, which are:

* Do not detect revisions: The option is turned off.
* Speak revision type: JAWS announces the type of revision made. For example, inserted text or deleted text. This is the default.
* Speak revision type plus count: JAWS also announces the revision’s placement in the document. For example, if this is the third revision, JAWS says “third.”
* Speak revision type and author: JAWS also announces the username of the individual who made the revision.
* Speak revision type and author plus count
* Speak revision type, author, and date: JAWS also announces the date the revision was made.
* Speak revision type, author, and date plus count

After making your selection, Tab to the OK button and press Enter or Spacebar.

With NVDA, you can only hear the revision type and the accompanying text.

Parallel to how comments are accessed, JAWS has several ways to access revisions beyond simply navigating through the document. Turn on Quick keys with Insert + Z, and press R to jump to the next revision, or Shift R to go to the previous one.

You can also access a list of revisions using the same Virtual Viewer used for comments, footnotes, and endnotes. Track Changes must first be turned on for this to work. Press the Windows and Semi-Colon keys together and Down arrow or first-letter navigate to Revisions. Now press Enter and the virtual comments viewer opens, announcing the total number of revisions in the document (note that if a reviewer deleted some text and inserted something to replace it, that counts as two revisions, not a single one). Down arrow now, and you will hear links with the text of the revisions immediately under the links. Press Enter on one of the links if you wish to go to that revision in the text, or press Escape to exit the Virtual Viewer.

You can access revisions several ways with NVDA. First, activate Browse mode by holding down the Insert and Spacebar together. Then press A, which will jump to the next “annotation.” Revisions count as annotations, as do comments. Unlike with JAWS, it is not necessary to have Track Changes turned on for this to work.

Also, with Browse mode on, you can bring up the Elements list with Insert + F7. Press Shift + Tab once and Up or Down arrow to the Annotations radio button. Now Tab to the list of annotations. This list includes inserted and deleted text, as well as comments, and they are clearly labeled as such.

Once revisions have been made to a document, you have the ability to accept or reject them via the Applications key. The easiest way to do this is to press the Left or Right arrow until the cursor is inside the revised text. JAWS clearly says “revision” when you move into a revision and “out of revision” when you move out of it. So, for example, if the change is an insertion, and with your cursor inside the revision text, press the Applications key, and Down arrow to Accept insertion or Delete insertion. Press Enter on your choice. The change is made, and is no longer counted as a revision in your document. If the change you want to accept or reject is a deletion or a format change, this will also be clearly stated in the context menu.

When arrowing into or out of revisions, NVDA will also indicate this. However, NVDA’s audio feedback on this is less straightforward than that of JAWS.

There is one important caveat to note here. If Word detects that the revision you want to make has a spelling error, the context menu will consist of Spellcheck options. The Accept Revision and Reject Revision options will not appear in the context menu. You will need to address the Spelling issue before you can accept or reject the revision.

As was the case with comments, you should remove all traces of revisions from your final document before circulating it. Do this by accepting all revisions. The shortcut key is Alt R A 2 S. It does not matter whether Track Changes is turned on or off for this to work. To navigate there via the ribbons:

1. Navigate to the Review tab on the Upper ribbon.
2. Press Control + Right arrow to get to the Tracking group.
3. Tab to the Accept split button and press Alt + Down arrow to expand the options.
4. Down arrow to Accept all changes and stop tracking, and press Enter.

Use one of the above-mentioned JAWS or NVDA methods for listing or navigating to revisions to confirm that none remain in the document.

# Chapter 10 Accessing PDF Files with Adobe Acrobat Reader DC

A portable document format file (PDF) is a file format designed to present documents consistently across multiple devices and platforms. Note that I will use an apostrophe in this book for the plural form of PDF because it reads better with screenreaders (PDF’s rather than PDFs). PDF’s are frequently used for financial and legal documents so that recipients cannot change them in any way. Professional journal articles and promotional flyers with elaborate formatting and images are other examples of documents that commonly appear as PDF’s.

While each of the web browser applications have PDF viewers, for the most consistent results in terms of accessibility, screenreader experts usually recommend using Adobe Acrobat Reader DC. This is free software that can be downloaded from:

[Adobe Acrobat Reader DC Download Free PDF viewer for Windows, Mac OS, Android](https://get.adobe.com/reader/)

When you download this software, read through the page carefully. There are several checkboxes that are checked by default for downloading additional software. If you do not want to download this software, be sure to uncheck these checkboxes before downloading the Acrobat Reader DC installation file.

## 10.1 Acrobat Reader Accessibility Settings

Once downloaded and installed, Acrobat Reader usually detects that you are using assistive technology software, and you land in the first panel of the Accessibility setup wizard. Proceed through it as follows:

1. You first land on a tab with three radio buttons for adjusting assistive technology settings. Up or Down arrow to your choice: all accessibility options, screenreader options, and screen magnification options. If you only use a screenreader program, choose this radio button. If you have some usable vision, choose the All accessibility options radio button instead.
2. Tab to the Next button and press Enter.
3. If you chose the All options radio button in the first panel, the second panel identifies screen magnification options. Go through these if you have some usable vision. In the order in which they appear, tabs are: a high contrast checkbox; a combo box with four high contrast foreground and background color options; a field highlighting color combo box; a required field color combo box; and a disable text smoothing checkbox (check this if you want a crisper delineation between foreground characters and the background). When finished in this panel, Tab to the Next button and press Enter.
4. There is nothing to change in this pane whose first option is Infer reading order from document, Tab to the Next button and press Enter.
5. You first land on a set of radio buttons for determining how much of the PDF is loaded upon opening it. Up or Down arrow to the Read the entire document at once radio button. This is recommended, because in most instances, you will want to access the entire document, list of headings, links, etc. This is the only recommended change in this pane. Tab to the Next button and press Enter.
6. Tab once to the Reopen document to the last page viewed checkbox. Leave it unchecked if you want PDF’s to always reopen on the first page. Otherwise, check it if you want your place to be saved from the previous session for each file.
7. Tab to the Done button and press Enter.

You can later return to adjust the additional settings described below as follows:

1. Press Enter on the Acrobat Reader DC desktop shortcut, which was created during the program installation process.
2. Press Alt to open the menu bar. This is a classic drop-down menu setup. You should first land on the File menu. However, as of early 2023, many of my clients were unable to access the menu bar. If you press the Alt key and instead of hearing File menu, it is silent, jump to the next subsection for instructions on what to do. Otherwise, continue to the next step.
3. Right arrow once to the Edit menu, Up arrow several times to the Accessibility submenu and press Enter.
4. Down arrow to the Setup assistant and press Enter.
5. Follow the steps outlined above to make any desired accessibility changes.

There is one more change to make. Disabling Protected view is absolutely crucial. Otherwise, PDF’s will behave in unpredictable and annoying ways. you may not be able to read them with your screenreader, nor fill out and save forms. To disable Protected view:

1. Press Alt to open the menu bar, Right arrow once to the Edit menu, Up arrow to Preferences, and press Enter.
2. This opens a categories list. Press S until you get to Security enhanced.
3. Tab once to the Enable Protected view at startup checkbox and press the Spacebar to uncheck it.
4. Tab to the OK button and press Enter.
5. Pres Alt + F4 to close Acrobat Reader. You must close it for the change to take effect.

### 10.1.1 What To Do If You Are Unable to Access the Menu Bar

A problem began surfacing with my clients in early 2023. If you press Alt, and do not hear “File menu,” you need to disable the newest version of Acrobat reader. Otherwise, menu items will not be accessible. Steps for doing this are:

1. Press Alt F which lands on Open.
2. Up arrow seven or eight times to Disable New Acrobat Reader and press Enter.
3. Tab to the Restart button and press Enter.

If you land in a dialog where you can learn about the paid version of Acrobat. Tab to the Close button and press Enter.

After reopening Acrobat Reader, press Alt and the menu bar should now open normally, first landing you on the File menu. You can now follow the steps listed in the previous section for accessing the Setup Wizard and disabling Protected view in Preferences.

## 10.2 Setting Acrobat Reader As Your Default PDF Viewer

Each web browser has a feature for viewing PDF’s. Because Edge is a Microsoft product, it is the factory default PDF viewer. This means that when you open any PDF, it will open in Edge. After installing Acrobat Reader, you will want to make that app your default PDF viewer. This is because Acrobat Reader is more consistently accessible than any of the browser PDF viewers, at least with JAWS.

Here are two ways to change your default PDF viewer. The first way works with both Windows 10 and 11:

1. Navigate to a PDF in one of your folders. Note that if the folder is in Details view, Right arrowing twice will identify the file type which will be the current default.
2. Press Alt Enter to open the Properties dialog for that file.
3. Shift + Tab once to the Opens with change dialog, (which also identifies the current default), and press Enter to open the dialog.
4. Tab once to a list of available PDF viewers, and Down or Up arrow to your choice.
5. Tab to the Set default button and press Enter.
6. Press Escape to exit the dialog.

A second way to change the default viewer, but only with Windows 11 is:

1. Press the Windows Key to land in the search box, and type the first few letters of “Default app settings system settings.” When you hear these words, press Enter.
2. Tab several times to the Set a default for a file type or link type edit field.
3. Type the file type, being sure to place a period before the extension, in this case, “.PDF” minus the quotes.
4. Tab once and you will hear the file type and its current default application. As mentioned above, the Windows factory default is Microsoft Edge.
5. To change the default, press the Spacebar, Tab to a list box of suggested apps, and Down arrow to Adobe Acrobat.
6. Tab to the Set default button and press Enter.
7. Navigate to a PDF file and press Enter on it to confirm that it opens in Adobe Acrobat Reader.

## 10.3 Reading and Navigation Keystrokes

Assuming no major accessibility problems exist with the PDF you have opened, all standard reading and navigation keystrokes used with Word work with PDF’s. This includes navigating to next and previous pages with Control + Page down and Control + Page up, respectively. A few keystrokes are different:

* Search command: To search for text, press Control + Insert + F (rather than Control + F as is the case with Word), type in the text, and press Enter. That keystroke works with all three screenreaders for finding the first occurrence of a search term. To jump to the next occurrence, press F3 with JAWS, and Insert + F3 with NVDA and Narrator.
* Go to page command: With any of the screenreaders, press Control + Shift + N to hear your current page location. You can then type in a page number and press Enter to go to that page.

With JAWS, you can also find out your page location by pressing F4 (which toggles off the Acrobat Reader Tools pane), and then pressing Insert + Page down. This brings up the Status bar. You will hear “4/20,” indicating that you are on the fourth page of a 20 page document. To subsequently access the Status bar during the same session with this PDF, just press Insert + Page down. It is not necessary to press F4 again.

## 10.4 Reading PDF’s with Varying Levels of Accessibility

Reading PDF’s used to be an accessibility nightmare. Fortunately, tools have been developed in recent years to remedy a number of accessibility problems.

To make PDF’s accessible, those who prepare them need to take two factors into account: tags, which label and structure the content, and reading order, which controls the sequence in which the content is voiced to the user. If both factors are properly addressed, screenreader users will be able to efficiently navigate and reading will be clear and comprehensible.

Tagged PDF’s provide a logical structure for screenreader users, greatly enhancing usability. Tags identify types of content such as headings, tables, links, and form fields.

Untagged PDF’s can be read like other documents, but screenreader users will not be able to use quick navigation keys, and may have difficulty understanding the organization of a document. Also, processing can take a long time. If the document is large (I will somewhat arbitrarily say 50 pages or more), the screenreader user experience can be very frustrating.

When opened in Acrobat Reader, untagged PDF’s need to be processed. A dialog appears including:

* Radio buttons for reading the entire document or just the current page.
* A Reading order combo box.
* A checkbox for not displaying this screen in the future. Checking this will use the options set in the Reading Preferences when you first installed Acrobat Reader.
* A Confirm button to initiate processing.

Unless you have a specific reason for wanting to change any of the default settings for processing documents, either press Enter when the dialog opens or Tab to the Confirm button and press Enter. Regarding the checkbox for not displaying this dialog again, I prefer not to check it because I want to know if a PDF is untagged.

When processing begins, your screenreader typically informs you of progress in terms of pages, percentages, or both. When finished, reading automatically starts from the top of the document.

I will go through a set of examples using some of the files contained in the Practice Files folder accompanying this book. To follow along, open them in a separate window and press Alt + Tab to switch between this text and the PDF.

### 10.4.1 Fully Accessible PDF Files

PDF’s can be designed to be fully accessible in much the same way as web pages on the Internet. You can navigate as follows:

* By heading, by pressing H.
* By heading level, by pressing 1, 2, 3, etc. on the number row.
* By table, by pressing T, and within tables, by pressing Control + Alt and the four arrow keys.
* To form fields, by pressing E to get to edit fields, X to get to checkboxes, and so on.

You can also open lists of headings, links, and form fields using the same screenreader keystrokes used on the web.

If the PDF is an accessible form (referred to as a “fillable form”), after having partially or completely filled it out, you can save the revised file.

The standard two-page Internal Revenue Service (IRS) tax form is a good example of a fillable PDF form. Open the file entitled “Form 1040.pdf.” All the keystrokes mentioned above will work with this file.

To save the revised file after filling some of the form fields, press Control + S. To save it with a new filename or in a different folder, do the following:

1. Press the Alt key to open the menu bar. This lands you on the File menu.
2. Down arrow to Save as and press Enter.
3. You will first hear a long folder path sequence. Ignore this and press the Spacebar to land in the Filename edit field of the standard Save as dialog (see Chapter 2.10.1.1 for the full discussion of the Save as dialog). If you are revising a previously blank form, you may want to rename the file here to create a new file and preserve the original blank form.
4. Press Enter if you want to save it in the same folder as the original blank PDF. Otherwise, Shift + Tab back several times to designate a different folder location.

Unfortunately, you will often encounter unfillable forms. These are PDF’s that have not been created with accessible edit fields and checkboxes. They are inaccessible because you will not be able to fill them out independently. Instead, you will have to print them in hard copy and have a sighted person fill them out for you with a pen or pencil.

### 10.4.2. Changing Reading Order

For PDF documents, “reading order” refers to the sequential presentation of content by screenreaders and other assistive technology. Ideally, the screenreader reads the content as it appears on the screen, and in a way that is comprehensible. However, reading problems occur from time to time in untagged or improperly tagged PDF’s. Text may sound jumbled or garbled. Words sound like they are running together without spaces between them. If you are using Eloquence voices with your screenreader, reading may even switch to a foreign language accent or syntax.

Most of the time, changing to a different reading order will quickly fix the problem. To change reading order, press Control + Shift + 5 (on the number row). You land in the Change reading options dialog, and on the Read the entire document radio button. Tab once to the Reading order combo box. Focus is on the current reading order.

From the top of the list, reading order options are:

* Infer reading order from document.
* Left-to-right, top-to-bottom.
* Raw print stream.
* Tagged reading order (this fourth option is not always present).

Up or Down arrow to any option other than the problematic one you started with and press Enter. My experience has been that any option other than the initial one resolves the reading order problem. Press Control + S to save the file with its new reading order.

In the Practice Files folder accompanying this book, the file “What Is Mixed Reality.pdf” is an example where reading is garbled. Changing reading order to one of the other choices will make it read clearly.

If using an Eloquence voice with JAWS, the file “Team Viewer.pdf” reads with a German accent, even though it is an English language document. Somehow, a foreign language tag has been inserted into the PDF. Here too, changing the reading order resolves this problem.

If you are using an English Vocalizer Expressive voice with JAWS, you will not experience this language-related reading order problem unless you have also installed a Vocalizer Expressive voice in the “offending” language. The “Team Viewer.PDF” file will only read the document with a German accent if you have installed a Vocalizer Expressive German voice on your computer.

### 10.4.3 Accessing Scanned Images and Other Problematic PDF’s with JAWS Convenient OCR

If a PDF has been created from a scanned image, it is not directly accessible with a screenreader. JAWS uses Optical Character Recognition (OCR) technology to access these types of PDF’s. The JAWS utility is called Convenient OCR. It only works with Acrobat Reader.

Convenient OCR is very easy to use. Assuming Acrobat Reader is your default, just open the PDF. Because scanned images are all untagged, you will first get the dialog that comes up when you open untagged documents. Just press Enter.

JAWS will now say the following: “Alert: empty document dialog. This document may be a scanned image which makes it difficult or impossible for JAWS or Fusion to read without first scanning the document with OCR. Would you like JAWS to OCR the document now?”

Press the Spacebar on the Yes button, and the scan will begin. If the PDF is only a single page, processing takes just a few seconds. If it is several pages long, you will hear “tick-tock” intervals (the same sound you hear when installing JAWS updates) while being processed.

Once processing is finished, JAWS will read the PDF to you in Say all mode.

You can also Tab once and press Enter to open the document in Word. Here, you can save the text if desired. Note that there may be errors in the output, especially if the quality of the original scanned image was poor. If you import the text into Word, it is likely that you will need to edit and modify formatting to make the document presentable to others.

Convenient OCR may also be successful in accessing other types of PDF’s which would be otherwise unreadable with screenreaders. One such example is the untagged file entitled “Ascentria NSTs Journeys and Choices.pdf,” which can be found in the Practice Files folder. When you first open this file, You encounter a total of 26 completely unreadable graphics. However, if you close the file and reopen it through a context menu, you can read the text. Steps are:

1. Press Alt + F4 to close the file.
2. Place focus on the file in the Practice Files folder.
3. Press the Applications key, Down arrow to Convenient OCR to Word with JAWS, and press Enter.
4. Wait for the document to be processed. If it is large, you will hear “tick-tock, tick-tock” while it is being processed.

When processing is finished, the document opens in Word. In all likelihood, formatting will be very messy. Any tables will probably be scrambled. However, text will be readable, and you will be able to get a sense of the document’s content.

NVDA has an OCR feature, but I have never been able to make it work, so will not cover it here. There are several ways to perform OCR with Windows. I have never tried any of these, but if you wish to find out more, activate the following link:

[Five OCR Ways to Extract Text from Images on Windows 10](https://www.nextofwindows.com/5-ocr-ways-to-extract-text-from-images-on-windows-10)

## 10.5 Adding Placemarkers

Similar to web pages, you can add placemarkers to PDF’s to enable quick navigation to important text in the document. You can do this with JAWS and NVDA, but not with Narrator. As on the web, you first mark a point in the document as a temporary placemarker and then mark it as permanent.

With JAWS, steps for inserting placemarkers in PDF’s are as follows:

1. For the first placemarker you wish to insert, navigate to the text in the PDF that you want to mark, and press Control + Windows + K to mark it as a temporary placemarker. JAWS will say “temporary placemarker set.”
2. Press Control + Shift K. This opens the Placemarker list dialog where you land on “temporary document.”
3. Tab to the Add button and press Enter. You land in an edit box populated with the text of the line that you marked as a temporary placemarker. Edit this to make it shorter, or leave it unchanged, and then press Enter.
4. To create additional placemarkers during the same session, it is not necessary to first create a temporary placemarker. Navigating elsewhere in the PDF automatically marks the new position as a temporary placemarker.
5. At this new position, press Control + Shift K to open the Placemarker list dialog, previously created permanent placemarkers are listed here. Up or Down arrow to “temporary document” and repeat step three above to make it permanent.
6. Press Control + S to save the PDF with these placemarkers. Note that if you use the Save as command to rename the file, the placemarkers will not be carried over to this renamed file.

Similar to placemarkers on web pages, to navigate to the next and previous placemarker, press K and Shift K, respectively. You can also press Control + Shift K to open the list of placemarkers. Then arrow up or down, or first-letter navigate to the one you want, and press Enter to navigate to it in the PDF.

To delete a permanent placemarker:

1. Press Control + Shift K to open the placemarker list.
2. Up or Down arrow to the placemarker you want to delete.
3. Tab to the Remove button and press Enter.

There is also a Remove all button in the placemarker dialog for deleting all permanent placemarkers at once.

To try this out, open the file entitled “college microwave cooking.pdf.” Create three or four placemarkers, navigate through them, and remove one or two. If you now press Control + S to save the updated file, and then reopen it, the previously-created placemarkers should still be there.

To create placemarkers with NVDA, see Chapter 7.11.2.2.

## 10.6 Saving Word and PowerPoint Files as Accessible PDF’s

Many files you create in Word or PowerPoint can easily be saved as PDF’s. Taking a little time to create accessible source files will yield more accessible PDF’s. To make Word documents and corresponding PDF’s as accessible as possible, add headings with appropriate levels. Any tables created will also be accessible. Graphics should all have accompanying alt text. For PowerPoint presentations, make sure that each slide has a title placeholder and that alt text is provided for graphics. When saved as a PDF, each slide title becomes a heading, making the PDF more easily navigable and its content and structure understandable. Before saving the PDF, run the Accessibility checker for Word or PowerPoint to identify any accessibility issues that may be present (see Chapter 13.3.5). Address these issues before converting the Word document or PowerPoint presentation into a PDF.

Creating fillable PDF’s can only be reliably done using Adobe Acrobat Pro DC. Unfortunately, the Pro version of this software is expensive and the process for creating fillable forms is not accessible. Although it is possible to create forms in Word, it is neither easy to create such forms, nor is it easy to fill them out.[[20]](#footnote-20)

To save a Word file as a PDF:

1. In Word, press F12 to open the Save as dialog.
2. You land in an edit field where a filename with the default .DOCX extension is proposed.
3. Press tab once to navigate to the File type combo box, and press P to select PDF.

Shift + Tab once to return to the filename edit field. A PDF file extension should have replaced the.DOCX file extension. Press Enter to save the file as a PDF.

## 10.7 Options for Opening PDF’s in Word

There are various ways to open a PDF file in Word, but one important caveat needs to be mentioned. Rarely will the imported PDF come into Word cleanly formatted. Text will be preserved, but you will almost certainly encounter unwanted font and paragraph formatting. Form fields will not be preserved. There may be ways to tidy this up with the pro version of Adobe Acrobat, but I am only discussing the free version here.

As mentioned above in Chapter 10.4.3, if you encounter a scanned image and process it with the JAWS Convenient OCR feature (available beginning with JAWS 2021), press the Tab key for a prompt to open the file in Word, and press Enter. You can now view, edit, and save it in Word.

You can also open PDF files while in Word. To do this:

1. Press Control + F12 which opens the standard Open file dialog.
2. Shift + Tab to open either the list view or tree view to find your file and press Enter on it. You will receive the following prompt: “Word will now convert your PDF to an editable Word document. This may take a while. The resulting Word document will be optimized to allow you to edit the text, so it might not look exactly like the original PDF, especially if the original file contained lots of graphics.”
3. Press Enter to confirm conversion.
4. If the file is a fillable form, after confirming that you want to convert it in the previous step, you will also hear: “This PDF contains interactive features that are not supported by PDF Reflow. Word will not display this content.” This text is then followed by identification of the file path. Here again, press Enter to confirm.
5. The file now opens in Word, and if you press Insert + T, the window title is the PDF file name (example: John’s Resume.PDF Word).

Spot check formatting with Insert + F and you will usually detect some unwanted font and paragraph formatting. The most efficient way I have found to clean this up is to do as follows:

1. Press Control + A to select the entire document, and then Control + C to copy it to the Clipboard.
2. Press Control + N to open a new Word document.
3. Press Alt H V T to paste text only. Text will come in with your Word default font and paragraph formatting.
4. If you want to save the Word file, press F12 to open the standard Save as dialog, and follow steps outlined in Chapter 2.10.1.1.

Another way to open a PDF file is to use a free application called [Doxillion](https://www.nchsoftware.com/documentconvert/download-now.html). The easiest way to download it is to place focus on a PDF in one of your file folders and then press the Applications key. Down arrow to Convert file and press Enter. You will be prompted to download and install Doxillion. Follow the steps for download and installation. The next time you press the command a dialog for converting with Doxillion will appear.

Results between these approaches are variable. As mentioned above, they will be complicated by the presence of graphics, tables, and form fields in the original PDF. Use trial and error to arrive at best results.

## 10.8 Opening and Downloading PDF’s from the Internet

PDF files are often encountered on the web. In the past, you could open PDF files in Acrobat Reader while on the web, provided you made the necessary adjustment in the Acrobat Reader Accessibility Settings. This is no longer possible. These files now automatically open in the web browser’s PDF viewer and are not consistently accessible. Therefore, it is advisable to save the PDF to your computer and then open it in Acrobat Reader. There is of course no airtight guarantee that the PDF will be accessible when opened on your PC. But that will be an accessibility issue with that particular PDF, not with the web viewer.

With each browser, you can download the PDF to your PC by using the standard Save As Dialog. With your focus in the open PDF window, press Control + S to open the Save As dialog. In the edit field where you land, a filename with a PDF ending is proposed. Rename it if you like. Then press Enter to save it to your default Downloads folder. If you wish to save it somewhere other than your default downloads folder, follow standard steps in the Save as dialog to do this (see Chapter 2.10.1.1.

Sometimes when you access an online PDF, you may hear “Open Parent Document button.” If this happens, press the Spacebar to activate it. Then press Control + S to open the Save As Dialog, and repeat the steps above to download it to your computer.

# Chapter 11 Cloud Storage with Dropbox and OneDrive

Cloud storage is a way to save files and folders online so they can be accessed on multiple devices, as well as shared between those who have been given permission to access them. It is also a great way to automatically back up your files and folders to a safe online location. This can help you avoid catastrophic losses if your computer melts down and files are only saved locally on your hard drive.

How does cloud storage work? Think of a triangle where your computer is at the bottom left, your smartphone or another computer you use is at the bottom right, and your online account is at the top center. If you save a file or folder in your cloud storage folder on your computer (bottom left of the triangle), that file or folder will immediately be uploaded to your online account (top of the triangle). Then when you turn on your other device, the file or folder will be downloaded there (bottom right).

For most free cloud storage accounts (including those covered here), you can use them on up to three devices. I use them on my home computer, my work computer, and my iPhone. Any changes I make on one device is synchronized with the other two.

Among the most popular cloud storage services are Dropbox, OneDrive, and Google Drive. This chapter will cover Dropbox and OneDrive. Google Drive will be covered in the next chapter, together with other Google applications.

## 11.1 Dropbox and OneDrive Pricing Plans

There are various personal plans for Dropbox and OneDrive. As of the time this book was written, a free Dropbox account entitled you to two gigabytes (GB) of storage on up to three devices. For two terabytes of storage, Dropbox Plus costs $9.99 per month, and a family plan (up to six members) costs $16.99 per month. For more details on the various options, including additional features, visit:

[Buy your Dropbox plan for Personal or Professional Use](https://www.dropbox.com/buy)

When you purchase a computer with the Windows operating system, five gigabytes of free storage with OneDrive are included on up to three devices. You just need to sign up with your Microsoft account to access the OneDrive folder located in your user folder. If you purchase a Microsoft 365 annual license ($69 for an individual account and $99 for up to six people), one terabyte of storage (that is, 1000 gigabytes) of OneDrive storage is included in this package. This is a great deal. For more details, visit [OneDrive Cloud Storage Pricing and Plans](https://www.microsoft.com/en-us/microsoft-365/onedrive/compare-onedrive-plans?activetab=tab%3aprimaryr1)

## 11.2 Creating a Dropbox Account and Installing the Desktop Version

You will first need to create a Dropbox account, and if you want to manage files in the familiar Windows environment, install the desktop version on your computer. This involves several steps and can be a bit clunky. To create a free account, start by going to [How to download and install Dropbox](https://help.dropbox.com/installs-integrations/desktop/download-dropbox).

Under the first level two heading, you can follow the instructions for downloading and installing the software, and signing up for a free account. You will also need to be on the lookout for an email asking you to verify your identity.

Once the program is installed on your computer, a Dropbox shortcut appears on your Desktop. The Dropbox folder is located in your user folder.

With the paid accounts for both programs, you can select folders to download to your computer, and others to be stored only in the cloud. If you anticipate using a significant amount of this storage space, considering which folders you want to take up space on your computer may be an important issue.

For individuals, there are four categories of sharing: between your devices, with other people without editing rights, with other people with editing rights (also known as sharing collaboratively), and between apps on your smartphone. Each will be discussed below.

## 11.3 Sharing Between Your Devices

If you work on more than one device, you will derive benefits from cloud sharing because you can share files and folders between them. I work on a personal computer, a computer at work, and an iPhone. With these cloud storage applications installed on my three devices, I can effortlessly share files and folders between them. If I add, delete or revise a file on one device, these changes will be synchronized across my other devices. Before cloud sharing became commonplace, I spent a lot of time carting around files on a thumb drive so I could copy and paste them between my work and personal computers. Nowadays, any changes I make on one computer are reflected on the other computer, and vice versa. All without the hassle of constantly copying and pasting between computers and a thumb drive.

If you want to use a cloud sharing application on your work computer, check first with your organization’s information technology manager about whether this is allowed. For security and privacy purposes, such sharing is not allowed in many state and local government agencies, health care and finance companies, and educational institutions.

When you purchase a Windows PC, a OneDrive folder is already placed in your user folder. However, you will need to sign in with your Microsoft email and password to allow syncing between your devices. You should add a desktop shortcut to the OneDrive folder. It is not included as part of the initial setup. Use the procedures in Chapter 2.8.1 to do this. You can now add folders and files to these folders and manage them using the same procedures and shortcut keys that you use in any other folder on your PC. The only difference is that these folders and files will automatically be backed up to the Cloud, and be available on any of the other devices where you have Dropbox and OneDrive installed, including your smartphone.

The three other forms of sharing are discussed below. These are: sharing with other people without editing rights; sharing with other people collaboratively; and sharing with other apps on your smartphone.

## 11.4 Sharing Without Editing Rights

With both Dropbox and OneDrive, it is quick and easy to share files and folders with other people without granting editing rights. Recipients of your shared files and folders can download these to their computers, but whatever they do with them will not modify your own files in any way. Recipients are not required to have their own Dropbox or OneDrive accounts when you share without granting editing rights.

### 11.4.1 Dropbox

Steps for sharing without granting editing rights are:

1. In your Dropbox folder, place focus on the file or folder you wish to share. Do not open it.
2. Press the Applications key, Down arrow to Copy Dropbox link, and press Enter. This generates a hyperlink and places it on the Clipboard.
3. In the body of an email message, paste the link from the Clipboard by pressing Control + V. A URL appears.
4. Send the email message to those recipients with whom you wish to share the file or folder.

When recipients press Enter or click the mouse on the URL in the email, they will be redirected to a web page. The title of this page will say the name of the file or folder, and the name of your default web browser. Exact steps for downloading the file or folder change periodically when Dropbox revises its website. As of the writing of this book, after landing on the web page, press B several times to navigate to the Download button and press Enter. The file or folder will now be downloaded to your PC’s Downloads folder.

If you have shared a folder, the name of the folder will have a zip extension. All folders that you download from the Internet have this extension. This is called a Zip file. If recipients press Enter on the zip file, they will now have access to all the folders and files contained in the shared folder. They can open them here. They can also copy or move them elsewhere on their PC. But as mentioned above, none of the recipients’ actions will affect the folders and files on the computer of the person who originally shared.'

Here's a great little trick to simplify sharing Dropbox files and folders without editing rights. It’s how I do it all the time. You can edit the hyperlink so that the shared file or folder downloads directly to the recipient’s Downloads folder. This saves them time. It also saves you the effort of having to explain how to perform the download from the Internet if they don’t know how to do it already. Steps are:

1. Repeat steps one through three above for copying and pasting the hyperlink.
2. On the line containing the URL, press End to place focus just after it.
3. Left arrow back into the URL and stop on the zero, the last character of the URL.
4. Type the number 1 to insert that character just before the zero.
5. Press the Delete key once to remove the zero.
6. Down arrow out of the URL.
7. Send the email message.

When email recipients press Enter on the URL, the file or folder should download directly to their Downloads folder. There is no equivalent technique for simplifying the sharing process with OneDrive or Google Drive.

### 11.4.2 OneDrive

To share without editing rights in OneDrive:

1. In your OneDrive folder, place focus on the file or folder to be shared.
2. Press the Applications key, Down arrow to Share, and press Enter.
3. Tab several times to the Copy link button and press Enter. This generates a hyperlink and places it on the Clipboard.
4. In the body of an email message, paste the link from the Clipboard by pressing Control + V. A URL appears.
5. Send the email message to those recipients with whom you wish to share the file or folder.

When recipients press Enter on the URL in the email, they will be redirected to a web page. The title of this page will say the name of the file or folder, and the name of your default web browser. As with Dropbox, exact steps for downloading the file or folder change periodically. As of the writing of this book, steps were:

1. After landing on the web page, Down arrow several times to the folder name.
2. Press the Applications key, Down arrow to Download, and press Enter.

As with Dropbox, the file or folder will now download to your PC’s Downloads folder. Folders will have a zip extension, and can be accessed in the same way as with Dropbox.

Unlike with Dropbox, there is no way to simplify the downloading process by editing the URL. Consequently, whenever I share files and folders without granting editing rights, I always do it in Dropbox.

## 11.5 Sharing Collaboratively

Use this sharing method for team projects where you need to work collaboratively, jointly editing files and storing folders in a place where all team members can access and revise them. All those granted permission to edit files and folders must have Dropbox or OneDrive accounts. While these processes are accessible, they can be a bit finicky and may require a bit of Tabbing and Shift + Tabbing around to gain focus on the field where you insert recipient email addresses. Also remember that recipients must already have Dropbox or OneDrive accounts to become collaborators. Confirm this with them before sending a request to collaborate.

### 11.5.1 Dropbox

To share folders collaboratively with others:

1. In your Dropbox folder, place focus on the folder you wish to share.
2. Press the Applications key, Down arrow to Share, and press Enter.
3. You land in the Contact name edit field. However, you may not hear this. Tab and Shift + Tab back to it to verify. Type in the email addresses of those you want to share with. If you are going to share with several people, it may be better to type the email addresses in Word first, and then copy and paste them into this edit field because text editing works poorly here. Be sure to type a semi-colon between email addresses if you intend to share with multiple recipients.
4. Tab to the Can edit combo box. “Can edit” is the default. This means that those you share with can edit files and folders within the shared folder, including adding and deleting files and subfolders, revising and renaming them, and commenting.
5. Otherwise, Down arrow to the second choice in the combo box, which is “can view, download, and comment.” If you Up or Down arrow in this combo box, press the Spacebar to make the selection.
6. Tab to the Add a message edit field, where you can insert an optional message that will appear in the body of the email sent to recipients.
7. Tab to the Share button and press Enter. You may or may not hear a confirmation that the file or folder has been shared.

If you are a recipient of a request to share with editing rights, you will receive an email message with a link. Procedures for adding the folder to your Dropbox and becoming a collaborator are subject to change. Don’t be surprised if they are different when you try. Steps as of early 2023 were:

1. Press Enter on the link which brings you to a web page with the title “Claim Invitation - Dropbox.”
2. Down arrow or press B several times to the Add to Dropbox button and press Enter. You may or may not hear a confirmation that the folder has been added to your Dropbox.
3. Open the Dropbox folder on your PC where it should now appear.

### 11.5.2 OneDrive

To share folders collaboratively with others:

1. In your OneDrive folder, place focus on the file or folder you wish to share.
2. Press the Applications key, Down arrow to Share, and press Enter.
3. You land in the Enter the name or email address for people to share with edit field. Here too, as in Dropbox, you may not initially hear this. Tab and Shift + Tab back to hear it. Type in the email addresses of those you want to share with. Be sure to place a semi-colon between email addresses if you intend to share with multiple recipients.
4. Tab to the Can edit combo box and Down arrow to your choice. The two options are: can edit, delete, comment, and add the folder; or can view, download, and comment.
5. Tab to the Add a message edit field, where you can insert an optional message that will appear in the body of the email sent to recipients.
6. Tab to the Send button and press Enter.

If you receive this type of sharing request, the same caveats mentioned above for Dropbox about the frequency of changes apply. When last checked in late 2022, the process was not accessible with JAWS, only with Narrator and NVDA. Also, because the cursor mode did not dependably remain in Browse or Scan mode, I had to repeatedly press Insert and the Spacebar to return to these modes, as well as press F5 numerous times to refresh the screen.[[21]](#footnote-21) Steps are:

1. Press Enter on the link in the message. This will bring you to a web page where the list of files in the folder appears.
2. Down arrow quite a few times to the fifth item in the command bar submenu which is labeled Add shortcut to my files, and press Enter.
3. Navigate to the OneDrive folder on your PC to verify that the folder now appears there.

## 11.6 Checking Storage Space

It is important to know how much storage space you are using, especially for free accounts with limited storage capacity. If you have installed the Dropbox and OneDrive apps on your iPhone and signed into them, this is the easiest place to do it. Also, steps are less subject to change than on your PC.

For the Dropbox iPhone app, open the Settings tab which appears at the bottom right of your screen. The amount of storage you are currently using and your total storage capacity is displayed on this screen.

For the OneDrive iPhone app, open the Home tab which appears at the bottom left of your screen. Then at the top left of your screen, open the menu button with your account name on it. The amount of storage you are currently using and your total storage capacity is displayed at the bottom of the screen.

## 11.7 Sharing with Other Apps On Your Smartphone

When you install the Dropbox and OneDrive apps on your smartphone, these will synchronize with your Dropbox and OneDrive folders on the PC. This is also the case for Google Drive. Not only can you access these files and folders there, but you can export them to, or import them from, other apps on your smartphone.

It is beyond the scope of this book to provide detailed instructions on how to use the various iPhone apps, as well as for popular apps used in conjunction with them. However, below is a short discussion of some of my favorite iPhone apps with links to iPhone App Store pages where you can find out more about them.

### 11.7.1 RecUp (Dropbox Only)

Developed by Irradiated Software, this app costs only $1.99. It’s easily the best two bucks I’ve ever spent! RecUp is an easy-to-use voice recorder that automatically uploads MP3-formatted audio recordings to a folder in Dropbox (but only Dropbox). You can listen to the recordings on your phone or on your computer. You can efficiently manage uploaded files on your computer, deleting, renaming, and moving them elsewhere. The quality of the audio is also quite good. Find out more at:

[‎RecUp - Record to the Cloud in the App Store](https://apps.apple.com/us/app/dropvox-record-voice-memos/id416288287)

### 11.3.2 Drafts

Developed by Agile Tortoise, this app is free, but also has an in-app purchase option. With the paid version, you can do extremely elaborate things to organize and manage notes. However, I use the free version to simply create notes and export them to one of my cloud sharing apps as text files. I absolutely hate editing text on my iPhone, so the big advantage with Drafts is that I can dictate a note and quickly get it into Dropbox, OneDrive, or Google Drive, and deal with the text on my PC where I am far more efficient.

While this can be done with other apps, including the native Notes app on the iPhone, you can accomplish this with far fewer finger flicks with the Drafts app. You can also share text in emails, text messages and copy the text and paste it in an edit field of some other iPhone app. You can also customize the list of sharing options, deleting those you are not interested in using, as well as moving the ones you want to use higher up the list to save on finger flicking.

To learn more, go to [Drafts in the App Store](https://apps.apple.com/us/app/drafts/id1236254471).

### 11.7.3 Voice Dream Reader

Developed by Voice Dream LLC, this used to be a one-time only purchase. However, in early 2024, ownership changed and the new owners introduced a subscription model. Those who previously purchased the app can continue to use it for free. However, new users as well as previous purchasers who want to use new features, must pay a annual subscription of $79.99.

With this app, you can import files in various text and audio formats (Word, PDF, ePub, MP3, WAV, and several others). You can also download books from Bookshare. While it is possible to read or listen to files on your iPhone directly in Dropbox, OneDrive, or Google Drive, navigation is more flexible with this app. In ePub format, it is very easy to navigate by heading. I listen to this book using ePub files that I have imported from Dropbox. You can also adjust the speed of audio files in Voice Dream. This is not possible in Dropbox, OneDrive, or Google Drive. The developer is very attuned to accessibility concerns. Find out more at:

[‎Voice Dream Reader in the App Store](https://apps.apple.com/us/app/voice-dream-reader/id496177674)

### 11.7.4 Cloud Music App Pro

Developed by Mymacapps.com, this app costs $3.99. It is an easy-to-use alternative to iTunes and the iPhone’s native Music app for syncing music stored in cloud sharing apps. Syncing steps are straightforward. Playlists are automatically created by artist and album. It is completely Voiceover accessible, and on those rare occasions when I have contacted the developers about problems, they were very responsive.

## 11.8 Comparing the Cloud Sharing Apps

I have covered Dropbox and OneDrive in this chapter, and will cover Google Drive, which is Google’s cloud sharing app, in the next chapter. Should you try to figure out which is the best for you, and just use that one? Or use two of them? Or all three?

I will first summarize the main strengths and weaknesses of each one.

For free accounts, Google Drive provides a maximum of 15 GB of storage. OneDrive allows 5 GB, and Dropbox just 2 GB. So, when it comes to free storage, Google Drive is the clear winner.

Regarding paid accounts (and I can only speak about prices in the United States), with a Microsoft 365 account, you are entitled to one TB of storage as part of the overall $70 annual license package. Google Drive has several pricing options, starting at $20 annually for 100 MB, and costing more for larger storage capacities. For $9.99 per month, Dropbox allows up to 2 TB of storage. If you already have Microsoft 365, OneDrive is the best deal. For me personally, that terabyte of storage is an important reason why I prefer Microsoft 365 over other ways of purchasing the Office Suite. Google’s flexible pricing structure is a big advantage if you don’t have Microsoft 365 and need more than a bare minim amount of storage capacity.

Beyond pricing, also consider which cloud sharing apps most of your friends and colleagues use. Remember that it takes two to tango. If you are going to collaborate with others, you will need to work in an environment that is familiar to them. To some extent, this is generational. For personal use for those older than 30 or 40, Dropbox often wins out on this score because it has been around longer than the others. That said, both OneDrive and Google Drive have been adopted by many organizations, not just for file storage, but also as part of a larger package which includes their array of software products. Microsoft and Google compete to promote SharePoint and Google Workspace, their respective enterprise-level content management systems. For personal use, my impression is that Google Drive is more commonly used among those under 30.

If you often share files and folders without editing rights, Dropbox is the best for sharing in this way if you use the “Equals one” trick discussed in Chapter 11.1.2.1 above. This eliminates the need for recipients to visit a website where the download process is subject to change, and some recipients may have difficulty figuring out how to do it. Using the Dropbox Equals one Technique, upon activation of the link, files and folders are immediately sent to the recipient’s Downloads folder, thus cutting out the step of going to a web page.

Sometimes with Dropbox, this “equals one” trick does not work, but you are instead redirected to a web page where pressing B a few times to get to the Download button and Enter works. The process is also pretty easy with Google Drive. Unfortunately, it is problematic with OneDrive. If I want to share in this way, I will copy and paste from OneDrive to Dropbox and share from there.

Regarding sharing collaboratively, steps for inviting others to share can be a bit finicky, but generally are OK. Yet when it comes to agreeing to become a collaborator, this process is absolutely horrendous with OneDrive, and often simply cannot be accomplished. With GDFD, steps for adding a shortcut to your My Drive folder are a bit complicated, but work consistently. That said, I have occasionally encountered a glitch when on the receiving end of a sharing invitation. After creating a shortcut to the My Drive folder. It only shows up in GDFD after a delay of several hours. With all cloud sharing apps, the process of accepting an invitation is subject to change when updates occur.

If you regularly use a smartphone app that works better with one cloud sharing app than with the others, or works exclusively with one cloud sharing app, this might be a reason to keep using that particular cloud sharing app. As mentioned above, one of my all-time favorite iPhone apps is RecUp for making audio recordings. It only works with Dropbox. This, plus the nifty “equals one” download trick, are two important reasons why I really like Dropbox.

For what it’s worth, let me describe my own cloud sharing practices.

I do all my day-to-day work in Dropbox. Consequently, I have changed my Word and Excel settings so that all files I create in those applications are saved to Dropbox. Many of my friends and work colleagues also use Dropbox, although they are also using OneDrive with greater frequency. I realize now that I could just as easily do my daily work in OneDrive or GDFD, but as a creature of habit, I am still doing it in Dropbox.

Although my storage capacity is limited in my free Dropbox account, I have a Microsoft 365 account with plenty of storage space there. I am using about 150 GB of OneDrive storage for documents, music, BARD books, and other audio. I also move folders initially created in Dropbox to OneDrive that I am no longer actively working with, but that I still want to retain.

However, whenever I want to share some of those OneDrive files or folders stored there without granting editing rights, I temporarily copy them to Dropbox and share from there, using the “equals one” Dropbox trick.

Regarding sharing collaboratively, something that I do not do very often, I have tended to use Dropbox. But with the advent of GDFD, I anticipate using this more frequently in the future, at least with those collaborators who have Gmail accounts. Because of the serious problem mentioned above, I do not share collaboratively with OneDrive unless I cannot avoid it.

For many years, I have used the RecUp app to make audio recordings which I then manage from Dropbox. I have also created a folder in Dropbox where I copy and paste audio files that I then export to the Voicedream Reader app on my iPhone. After exporting the files, I delete them from Dropbox to free up space.

With increasing frequency, work colleagues share folders with me in Google Drive or individual Googledocs or Googlesheets. I also create registration forms and other types of forms in Googleforms, one of a small number of apps that are accessible for creating forms. I access both my work and personal My Drive folders with GDFD. If colleagues want me to edit or update a Googledoc or Googlesheet, I usually take the lite approach, revising in Word or Excel, and converting back to the Google format.

That’s how things have evolved for me. Everybody’s situation is different, Figure out what works best for you based on your own needs. One thing is clear: cloud sharing can be a valuable tool in your digital toolbox, allowing you to efficiently back up, store, and share your files and folders in multiple ways. For me and many others, it has become an absolutely essential file management tool.

# Chapter 12 Google Workspace Applications

Formerly referred to as the Google Suite, the Google Workspace is the array of free online software products available from that company. Among the most commonly used Google apps are:

* Google Drive: where files and folders are stored and managed. Similar to Dropbox and OneDrive, you can share files and folders with other people with and without editing rights from here.
* Google Docs: For document preparation, the Google equivalent of Word.
* Google Sheets: For spreadsheet preparation, the Google equivalent of Excel.
* Google Slides: For preparing presentations, the Google equivalent of PowerPoint.

A few more products include Google Mail (or Gmail) for emailing; Google Calendar for creating appointments and meetings; and Google Forms for creating questionnaires, surveys and other types of forms. All of the above-mentioned applications will be covered in this chapter.

When you work with Google apps, you are operating in an online environment. As we will see below, Google Drive for Desktop is a partial exception. Why do I say “partial?” The answer is that when you download and sign into this app in your desktop environment, as is the case with other cloud sharing apps like Dropbox and OneDrive (discussed in the previous chapter), folders and files on your PC are synchronized with your Google Drive account which is stored online.

## 12.1 Some Initial Considerations

Before discussing each of the Google applications, it is useful to lay out some initial information about where the Google apps exhibit consistent and less consistent behavior. While this information will be repeated for each app, first talking about it in a central location helps to understand patterns where they exist. Also available for some of the apps are quick and convenient ways to get listings of native Google keyboard shortcuts.

### 1.1.1 Opening Apps, New Files, and Menus

There are consistent patterns for opening each of the apps online, as well as opening new files. To open an app in your browser’s address bar, simply type in the shortened name of the app, followed by google.com. Here they are for each of the apps covered in this chapter:

* Drive: drive.google.com.
* Docs.google.com.
* Sheets.google.com.
* Slides.google.com
* Mail.google.com (gmail.com also works).
* Calendar.google.com.
* Forms.google.com.

For apps not covered here, the same pattern exists. For example, type meet.google.com to open Google Meet, and groups.google.com to open Google Groups.

To open a brand new file, you don’t have to open the app first. In fact, opening the app first and attempting to create a new file is surprisingly complicated. There are easier ways to do this. As long as you have signed into your account at some point in the past, in your browser’s address bar, type in the shortened name of the app, followed by dot new. For example, docs.new, sheets.new, slides.new, and forms.new. While there are other ways to open new files in these apps, this is the quickest way.

The pattern for opening and navigating menus is the same for Docs, Sheets, and Slides. After turning on required accessibility settings (see below), press Alt and single letters together to get on the menu bar for an app. Alt + F works for all of these to land on the File menu on the Menu bar. Right and Left arrow to other menus (Edit, Format, etc.). Down and Up arrow to access commands. The File menu is quite important and contains similar commands for these three apps. Among the most useful are: share, new, open, make a copy, email, Add shortcut to Drive, move, send to trash, download, rename, and print.

These three apps also have a Main toolbar which centralizes a number of important formatting and editing commands.

For the remaining apps covered in this chapter, ways to access menus and commands vary.

### 1.1.2 Accessibility Settings Across Apps

The most important area where things are less consistent relates to accessibility settings. With each of the Workspace apps, you will need to make at least one adjustment to make the app work properly with your screenreader program, thus enabling you to access Google’s native keystrokes. In such situations, the JAWS Virtual PC cursor or the NVDA Focus mode must be toggled off. Adjustments vary from one app to the next. While I will repeat them in my discussion for each app below, as well as how to make these changes, I will also list them here:

* Drive: Turn off the JAWS Virtual PC cursor and NVDA Browse mode by pressing Insert + Z and Insert + Spacebar, respectively.
* Docs: Enable both screenreader and Braille support. The shortcut keys for these are Control + Alt + Z and Control + Alt + H, respectively.
* Sheets: Enable both screenreader and Braille support with the same keystrokes as for Docs.
* Slides: Enable both screenreader and Braille support for most actions with the same keystrokes as for Docs. But disable Braille support when reading presentations.
* For editing Docs, Sheets, and Slides files, you must toggle off the JAWS Virtual PC cursor or NVDA Browse mode. Chances are good that you will wind up toggling these on and off quite a bit.
* Gmail: Enable keyboard shortcuts, and turn off the JAWS Virtual PC cursor or NVDA Browse mode most of the time because native Google keystrokes are used a lot.
* Forms: No additional changes. Keep the JAWS Virtual PC cursor and NVDA Browse mode enabled for most actions.

### 1.1.3 Keyboard Shortcut Help

For the apps discussed in this chapter, listings of keyboard shortcuts are readily available for all except Forms.

For Drive, Docs, Sheets, Slides, and Calendar:

1. With the JAWS Virtual PC cursor or NVDA Browse mode toggled off, Press Control + Slash, after which you will hear “Keyboard Shortcuts.”
2. Toggle the JAWS Virtual PC cursor or NVDA Browse mode back on.
3. Keyboard shortcuts are presented in tables under level three headings for various categories. Use standard table navigation keystrokes to read them.
4. When finished, press Escape to return to the file you are working on.

To access the Gmail Keyboard shortcut listings, press the question mark instead of Control + /.

## 12.2 Google Drive, Including Drive for Desktop

### 12.2.1 Google Accounts

With Google Drive, you get 15 GB of space for free. There are several personal account pricing tiers for additional storage with what the company calls Google One. As of January 2025, two plans and their subscription prices in the United States were:

Basic: 100GB, $2 a month or $20 annually

Premium: 2TB, $10 a month or $100 annually

Discount offers may be available for the first three months of the above plans. Additional plans are available to access Gemini, Google’s AI tool. Prices and plan features are subject to change.

You are required to have a Gmail account to use the Google Workspace.

If you do not already have a Gmail account, you will need to get one to be able to operate in the Google Workspace environment effectively. Without one, you will not be able to use Google Drive for Desktop. In addition, Gmail account holders will only be able to share files with you in read-only mode. You will not be able to edit them. If your primary account is with another email service (Microsoft, Comcast, Verizon, etc.) and you want to keep it that way, use your new Gmail account just for Google applications.

### 12.2.2 Google Drive for Desktop

While it is possible to manage files and folders solely in Google Drive online, I much prefer doing most of this work using Google Drive for Desktop (GDFD). GDFD is a free app that you can download to your computer. It creates an additional drive on your PC that behaves pretty much the same as any other folder on your PC. It allows you to access and manage your Google Drive files and folders in the familiar Windows environment, rather than in the more challenging online environment. When it comes to sharing, you will still need to understand a few things about the online environment, but using GDFD greatly flattens the file management learning curve.

To download and install GDFD:

1. Go to: [Use Google Drive for desktop at Home, Work, or School](https://support.google.com/drive/answer/7329379#zippy=%2Cdownload-install-google-drive-for-desktop).
2. Press B to go to the Download & install Google Drive for Desktop button, press the Spacebar to expand, Down arrow to Google Drive for Desktop and press Enter to download the installation file.
3. In your Downloads folder, activate the file entitled “**Google Drive setup.exe**,” and follow the instructions. At some point in the process, you will need to enter your Gmail account address and password.
4. Once installed, a new drive and folder with your Gmail address as its name appears. It contains a subfolder entitled “My Drive.”[[22]](#footnote-22) This is the same My Drive folder accessed online (more on this later). To navigate to the My Drive folder and create a desktop shortcut for it:
5. For Windows 10 users, press the Windows key and type “This PC” in the search box. Usually, typing just the first one or two letters suffices. For Windows 11, see the options outlined in Chapter 2.5.9 for accessing This PC. Press Enter.
6. Depending on how your folder view is set up here, either Right arrow or Down arrow to Devices and drives. If it says “collapsed” here, press the Spacebar to expand it.
7. Down arrow or Right arrow to the name of your Gmail account, and press Enter.
8. Press the Spacebar to select the My Drive folder.
9. Press the Applications key. Down arrow a number of times to the Send To submenu and press Enter or the Right arrow to open it.
10. Down arrow twice to Desktop create shortcut, and press Enter.
11. To verify that the shortcut is now on the Desktop, press Windows + D or Windows + M to go to the Desktop and first-letter navigate to the new shortcut whose name is “My Drive – shortcut.”
12. Press F2 to rename the shortcut if you wish. I have two My Drive desktop shortcuts: one for my work account, and another for my personal account, and have renamed them to differentiate them.

File management procedures are nearly identical to those for other folders on your computer such as your Documents folder. The only caveat is that if you move files or folders around that are shared collaboratively with other people, this can break the sharing link. Other than that, procedures for creating folders, selecting, copying, cutting, pasting, renaming and deleting are the same as those listed in Chapter 2.6.2 and 2.6.3 on file management basics.

GDFD is a file repository like Dropbox or OneDrive: you can save any Windows-compatible file type here. There is only one difference: you can store and share Google Workspace file types here, while you cannot store these file types in Dropbox or OneDrive.

Basic file management commands are exactly the same in the My Drive folder as in other PC desktop folders like the Documents folder. Differences relate to collaborating with other people.

### 12.2.3 Overview of the Google Drive Online Environment

It is useful to first give an overview of the Google Drive online environment and folder structure. This makes it easier to understand how file sharing and collaboration work.

To open Google Drive online, type drive.google.com in the Address bar of your browser, and then press Enter. You may need to log into your Google account. Once you are in, the Window title should be My Drive, your name, and the name of your browser.

Google apps, including Drive online, have an array of what are referred to as “native keyboard commands,” quick keys developed by Google for navigating and executing commands in the Google Workspace environment. These will not work if your screenreader is in its default cursor mode when you open a web page: Virtual PC cursor mode with JAWS, Browse mode with NVDA, and Scan mode with Narrator. If you are not sure about what I am talking about here, see Chapter 7.1.5 for more on the various screenreader cursor modes used on the web.

When you open a Google app such as Drive or Googledocs on the web, to use Google’s native online keyboard commands for editing, navigating and accessing commands, it is necessary to toggle off your screenreader default cursor mode that operates when you open a web page. To do this:

* With JAWS, press Insert + Z. JAWS will say, “Use Virtual PC cursor off.”
* With NVDA, press Insert + Spacebar to turn off Browse mode. NVDA will make a sound. If you prefer that NVDA says words instead, see Chapter 8.2.3 on how to switch off sounds. If you change this setting, NVDA will now say, “Focus mode.”
* With Narrator, press Insert + Spacebar to turn off Scan mode. Narrator will say, “Scan off.”

When you toggle off the JAWS Virtual PC cursor mode, if you Alt + Tab away from the Googledoc or sheet, and return to it, the Virtual PC cursor may be still toggled off. Just press Insert + Z again to be sure. With NVDA and Narrator, Browse mode and Scan mode remain switched off for these apps. When in doubt, toggle these modes to be sure. Memorize these keystrokes: you will use them constantly in the Google online environment. Also when it appears that a keystroke you just attempted to use has not responded properly, press F5 to refresh the screen and try again.

After toggling the JAWS Virtual PC cursor or NVDA Browse mode off, press Alt + g and then F, Google’s native keystroke combination to open the Folder view. Let me repeat this clearly: you need to press Alt and G together, and then F to make this keystroke combination work.

This brings you to the highest level of the Drive online folder structure. You should hear your screenreader say, “Folder in view,” and some number of folders between nine and twelve.

From the top of the list, Down arrow to My Drive (closed). This is the same folder that you can access on your PC with GDFD. If you were to Right arrow and navigate around using standard tree view keystrokes, you would see all the same folders.

Down arrow through a list of additional folders, which include: Computers, Shared with me (sometimes alternately labeled Items Shared with Me), Recent, Starred, Trash, and Storage. If you have an enterprise account, a Shared drive folder also appears. This Shared folder is also present for personal accounts if an enterprise account owner has shared a folder with the personal account owner.

The My Drive folder is by far the most important folder. All your subfolders and files are located here. If you use GDFD, you don’t need to learn a whole set of native Google keystrokes and new procedures, some of which are sometimes frustrating to use. This is because the My Drive folder is synced with GDFD, meaning that any changes you make in the GDFD My Drive folder will appear in the My Drive online folder, and vice versa.

The Shared with me (or Items Shared with Me) folder is where you access a file or folder that you have been invited to collaborate on. While you can work on it from here, I find it easier to create a shortcut for it that will appear in the My Drive folder. This will enable you to access it in GDFD, rather than having to find it online every time you want to open it. And once you have created a shortcut to My Drive, you will easily be able to manage it from within GDFD.

If you are like me and prefer doing the bulk of your Google Drive file management using the desktop version, thus minimizing your exposure to Drive online, this is the only folder you really have to know anything about in the online environment. This is because you must come here to access files and folders that others have invited you to collaborate on. There is no way to do this without going online.

Google Drive has many native keystrokes for navigation and file management. These are further discussed in Chapter 12.2.10 below. But next up is file sharing and collaboration.

### 12.2.4 Sharing Collaboratively

I will first cover how to become a collaborator when somebody else has invited you to work on a file or folder. I will then discuss how you invite others to collaborate.

#### 12.2.4.1 Becoming a Collaborator on Somebody Else’s File or Folder

So, now your GDFD is set up, you know a bit about Drive online, and you have just received an email inviting you to collaborate on a shared Google file or folder. The subject field of the email will indicate the name of the sender, followed by “via Google Drive Folder shared with you,” and the folder name. When you open the email, you will be told that somebody has invited you to either contribute to, view or comment on a folder being shared with you. These refer to different levels of collaboration granted to you by the owner of the file or folder:

* Contribute: The owner has granted you full editing rights, including authorization to add subfolders, edit documents, and delete and rename them.
* View: You can open and view the files, but not revise them in anyway.
* Comment: You can add comments (this is rarely done).
* Once granted access, you could do all your work in Drive online, but I much prefer doing all this in GDFD. This involves adding a shortcut to your My Drive folder. I will show you two ways to do this: one starting from within the email you received, and another by going directly to Drive online, and bypassing the email.
* To become a collaborator via the email you have received, steps are:

1. Open the email you received from the owner to see the folder or filename.
2. You will see two links, one with a more or less gibberish name and the other with the actual file or folder name. Press Enter on either of these to open Google Drive online. Alternatively, you could just navigate to the Shared with Me folder and find it there without opening the email. The usefulness of The email is that it notifies you that somebody has invited you to collaborate.
3. If not yet logged into your Google account, log in here with your Gmail address and password.
4. Press Insert + F7 to open the JAWS Links list or NVDA Elements list, and activate the Shared with me link. This link might also be called Items Shared with me.
5. Toggle off the JAWS Virtual PC cursor or NVDA Browse mode.
6. Up or Down arrow to the file or folder you have been invited to collaborate on. These are usually listed chronologically, so it should be near the top.
7. Press Control + Alt + R to open the Add shortcut to Drive dialog, where you first land on the Suggested Tab.
8. Right arrow to the All locations Tab and press Enter to select it.
9. Tab once to My Drive and press Enter.
10. Tab to the Add Button and press Enter. Your screenreader should say, “Adding shortcut, shortcut added to My Drive.”
11. Open GDFD and verify that the shortcut is now in your My Drive folder.

If it does not appear, wait a few hours and go back in. It should be there then. I am not sure why this is inconsistent and when I asked Google Accessibility about this, they had no idea.

If it is there, you can now access and manage this file or folder on your PC with GDFD, using the Windows keystrokes you already know from Chapter 2 for creating new folders, and selecting, copying, cutting, pasting, renaming, and deleting files and folders. Because this has been added as a shortcut, it does not take up any of your Google Drive storage space.

Here is a second way to create a shortcut to your My Drive folder that does not involve going in via the email: [[23]](#footnote-23)

1. Open your browser, type drive.google.com on the Address bar, and press Enter.
2. You are now on the Google Drive page for your account. Press Insert + Z to turn off the Virtual PC cursor for JAWS, or press Insert + Spacebar to turn off NVDA Browse mode or Narrator Scan mode.
3. Press Alt + g and then F to go to the Folder view.
4. Down arrow to Shared with Me or Items Shared with Me and press Enter.
5. Down arrow or first-letter navigate to the file or folder that is being shared with you to select it. Files and folders are sorted chronologically in this folder, with the most recent at the top of the list.
6. Press Control + Alt + R to open the Add shortcut to Drive dialog, where you first land on the Suggested Tab.
7. Right arrow to the All locations Tab and press Enter to select it.
8. Tab once to My Drive and press Enter.
9. Tab to the Add Button and press Enter. Your screenreader should say, “Adding shortcut, shortcut added to My Drive.”
10. Open GDFD and verify that the shortcut is now in your My Drive folder.

If you have an enterprise account at work, a colleague may share a folder with you via the Shared Drive folder rather than the Shared With Me folder. The Shared Drive option does not exist for personal accounts. You will know that a colleague is sharing with you in this way because the subject field of the email you receive will say that you have been added to the Shared Drive with the folder name indicated.

To access this shared folder, you don’t have to go online to find it. As mentioned above, if using an enterprise Gmail account, your GDFD account folder contains an additional subfolder entitled Shared Drive. Open this folder and you will find the folder shared by your colleague there. You are not required to go through the steps above on accessing the Shared with Me folder.

#### 12.2.4.2 Inviting Others to Collaborate

Steps for inviting others to collaborate when you are the file or folder owner are:

1. Place focus on the folder to be shared in the GDFD My Drive folder.
2. Press the Applications key, Down arrow to Share with Google Drive, and press Enter.
3. This opens an HTML page where you might or might not immediately land in the Add people and groups edit combo box. If you hear the standard popping noise you hear on the web when you land in an edit field, start typing in the email address of the intended recipient or recipient.
4. If you do not hear it, press E for edit until you get to this edit combo box, press Enter to get into it, and type in the recipient addresses.
5. Tab to the Change permissions menu. The default setting is edit (full editing rights). Press the Spacebar to expand this list if you instead want to restrict to either viewing or commenting, Down arrow to your choice, and press Enter. If you do not press Enter, changing away from full editing rights will not stick.
6. Tab to the Notify people checkbox (which is check by default), so recipients get an email alerting them of the request to share. Keep this checked.
7. Tab to the Message edit box, and add an optional message if desired.

Tab to the Send button and press Enter to send the email to your collaborators.

### 12.2.5 Sharing Without Editing Rights

You can also share links for files and folders so that people can download these to their Downloads folder. This is called sharing without editing rights or sharing non-collaboratively. This means that any changes they make after receiving the files has no effect on your own files.

If the owner has sent you an invitation to access a folder without granting editing rights, do the following to download it to your computer:

1. Activate the link in the email that you received from the folder owner. This will bring you to a web page whose title includes the folder name.
2. Press B until you get to the folder’s name collapsed menu button, and press the Spacebar to expand it.
3. Down arrow to Download and press Enter. Typically, when the download is finished, it is announced.
4. Navigate to your Downloads folder where a ZIP file with the folder name appears at the top of the list, assuming you have not changed the default folder sort criterion to something other than most recent download on top.
5. Open the ZIP file where a standard subfolder is located with the same folder name and with its contents inside.
6. Select the subfolder, press Control + C to copy it, navigate to your preferred save location, and paste it there with Control + V.
7. If some of the files contained in the folder are Google-formatted files, it is probably a good idea to save the folder to your My Drive GDFD folder.

When you are the owner, steps for sharing without editing rights are:

1. Place focus on the file or folder to be shared within the GDFD My Drive folder.
2. Press the Applications key, Down arrow to Copy link to clipboard, and press Enter.
3. Paste the link in the body of an email and send the message to the intended recipients.

### 12.2.6 Removing People from Shared Folders Owned by You

To remove access to a user with whom you have already shared a folder with editing rights:

1. In GDFD, place focus on the folder.
2. Press the Applications key, Down arrow to Share, and press Enter.
3. You land in the edit combo box listing those with whom you have shared the folder. Down arrow to the email address of the person whose access you wish to remove.
4. You will hear Change permission submenu. Press Enter to open it.
5. Down arrow through the options, which include Viewer, Commenter, Editor Organize, add, and edit files (this is checked if it is the current sharing status), Add expiration For viewer and commenter roles, Transfer ownership, and Remove access.
6. Press Enter on Remove access (or one of the other options if you prefer to modify sharing access in one of those other ways).
7. Tab to the Save button and press Enter. You will hear “access updated.”

### 12.2.7 Removing Yourself from a Folder Owned by Somebody Else

In GDFD, place focus on the shortcut to the shared folder, press Delete, and then press the Yes button to confirm. This only removes the shortcut in My Drive, but the folder is still shared. You might want to remove your collaborator status in order to clean up your Shared with Me folder. If you don’t do this from time to time, this folder may get crowded with files and folders you no longer want.

To remove yourself as a member of a shared folder, this must be done in Google Drive online. Steps are:

1. Open a new tab in your browser, type drive.google.com, and press Enter.
2. Press Insert + Z to turn off the Virtual PC cursor for JAWS, or press Insert + Spacebar to turn off The NVDA Browse mode or the Narrator Scan mode.
3. Press Alt + G, and then F to open the Folder view.
4. Down arrow to Shared with Me and press Enter.
5. Down arrow to the folder to be removed from sharing status, and press the Delete key.
6. You are asked to confirm that you want to remove the file or folder, and also told that collaborators will still have access.
7. Press Enter on the Remove button.

#### 12.2.8 Removing Others from a Folder Owned by You

To remove folder collaborators for a folder that you own:

1. In GDFD, place focus on the folder that you own.
2. Press the Applications key, Down arrow to Share with Google Drive, and press Enter.
3. Tab to the Add people and groups edit combo box, and Down arrow to the person you want to remove.
4. Press Enter to select the person.
5. Tab to the Change permissions menu and press the Spacebar to expand the list.
6. Down arrow to Remove and press Enter.

### 12.2.9 Checking Your Storage Use

As mentioned earlier, you get 15 GB of storage space with a free Google account. This is shared across Google Drive, Gmail, and Google Photos. Knowing this breakdown can be useful if you are approaching your storage limit and need to delete something.

To get a quick idea of your overall storage use, open Google Drive online, toggle off the JAWS Virtual PC cursor or NVDA Browse mode, and Tab once. You will hear the number of GB’s used.

Open Google One to get a breakdown of how much you are using in Google Drive, Gmail, and Google Photos. To go there:

1. In your browser, go to one.google.com.
2. If you have multiple Google accounts, select the one you are interested in.
3. Press H to go to the Storage and more with Google One level one heading.
4. Press B to go to a button which reveals the amount of storage currently used. An example of what you might hear is, “Storage 13% used 2.08 GB of 15 GB button.”
5. Press Enter on this button, and then L until you get to a list of three items.
6. Down arrow to hear the storage capacity used for each of the three categories: Google Drive, Gmail, and Google Photos.
7. There are links below each of these. Press Enter on one of these to access the full list of files and folders currently using storage in that category.

If you are nearing your storage capacity, Google will probably bother you with constant notifications to buy more storage. At this point, you probably want to get serious about removing unwanted files and folders. Unless you have accumulated tens of thousands of email messages because you never delete them, the amount of storage used by Gmail is negligible.

While you can delete Google Drive files and folders and Google photos here, it is much easier to do this in GDFD and your smartphone’s Google Photos apps, respectively. If you think lots of photos are being saved to your Google account and you are not sure why, you can adjust the Google Photos app settings so that photos are not automatically uploaded.

### 12.2.10 Summary of Useful Online Google Drive Keystrokes

I strongly prefer managing my Google files and folders in GDFD rather than in the online environment, but this is my personal preference. You may wish to make up your own mind. Below is a list of keystrokes for exploring the online environment:

* Alt + G and then F: Folder view.
* Control + Alt + R: Add shortcut to Drive dialog.
* Alt + G and then L: Toggle between Grid and List view.
* In the My Drive tree view, Right and Left arrow to move between folder levels, and Down and Up arrow to move within a tree view folder level. Press Enter on a folder to access its files and subfolders.
* Alt + A: With focus on a folder or file, opens a context menu with actions such as new folder, open, download, share, information, rename, and move to trash.
* Delete: Remove a file or folder.
* Alt + N: Opens the Create menu. Down arrow to create a new folder, Doc, Sheet, Slide or Form. While each of these actions have a shortcut key, with this menu, you don’t have to memorize any of these additional keystrokes.
* To further acquaint your self with Drive Online, open the web page below and listen to this informative Freedom Scientific free webinar posted in September 2024:
* [Navigate and Manage Google Drive with JAWS](https://www.freedomscientific.com/webinars/navigate-and-manage-google-drive-with-jaws/)
* NVDA users will also find this webinar useful because all Google keystrokes mentioned are the same. The only difference relates to being sure you are in NVDA’s Focus mode.

## 12.3 Googledocs

Googledocs is the Google equivalent of Word. While it lacks some of the advanced features of Word, all basic features and quite a few intermediate or advanced features are present. Many reading and editing keystrokes are the same as with Word. Carrying out some formatting tasks may also be more intuitive with Googledocs. Googledocs is a particularly useful tool for collaboration between people jointly working on documents. It allows multiple users to edit a document simultaneously, making it possible to collaborate with others in real-time. Documents are autosaved as you draft them, a feature that some users consider an advantage, while others do not. I consider the inability to disable autosave to be the most significant shortcoming of Googledocs. Consequently, I personally would never use it for composing large documents, or documents of any degree of complexity, fearing that I might save my mistakes and have to waste significant time fixing them.

To open Googledocs, on the Address bar of your browser, type “docs.google.com” minus the quotes, and then press Enter.

Do three things to make Googledocs accessible with a screenreader:

* Press Control + Alt + Z to enable screenreader support.
* Press Control + Alt + H to enable Braille support. Do this even if you do not use Braille. Otherwise, the Say All command will not work.
* With JAWS, press Insert + Z to turn off the Virtual PC cursor. With NVDA press Insert + Spacebar to switch from Browse mode to Focus mode.

When you enable screenreader and Braille support the first time, these will stay set in future sessions. By contrast, you will need to switch off the JAWS Virtual PC cursor each time you open Googledocs. With NVDA, Googledocs opens in Focus mode, but there will be times when you want to switch to Browse mode.

Note that sometimes refreshing your browser screen by pressing F5 helps if the app seems to be misbehaving.

### 12.3.1 Opening a Googledoc

Assuming you are signed into Google, the quickest way to open a blank Googledoc is to open your browser, and in the Address bar, type “docs.new,” minus the quotes, and then press Enter. If you are already in a Google app window (Drive, Sheets, etc.), this is the most reliable way to make this work because it is clear you are signed in.

Without opening a browser, you can also open a blank Googledoc from within the Google Drive for Desktop app. With Windows 11, from inside the GDFD My Drive folder:

1. Press Alt to open the Windows 11 menu.
2. You land on the New button which is collapsed. Press the Spacebar to expand it.
3. Down arrow to Googledoc and press Enter.

The quickest and easiest way to open an existing doc is from within GDFD. Within your My Drive folder, simply navigate to the filename for the doc and press Enter.

You can also open an existing doc from within Googledocs. Steps are:

1. Open a new tab in your web browser, type in “docs.google.com,” minus the quotes and press Enter.
2. With your JAWS Virtual PC cursor or NVDA Browse mode still on, press B several times to go to the Open file picker button, and press Enter.
3. Press Insert + Z to turn off the JAWS Virtual PC cursor, or Insert + Spacebar to turn on the NVDA Focus mode.
4. Down arrow to the doc that you wish to open, and press Enter.

It is also easy to open a Word File in Googledocs from within GDFD. With focus on the Word document, press the Applications key, Down arrow to Open with Googledocs, and press Enter. If you are using Windows 11 and do not detect this option in the context menu, open Show more options and you should find it.

### 12.3.2 Text Reading and Basic Editing

All reading keystrokes (Left/right arrow to read characters, Control + Right/Left arrow to read words, etc.) are the same as in Word. So too are text selection keystrokes. Control + B, Control + I, and Control + U are the same for bolding, italicizing, and underlining text, respectively.

Control + Alt + 1 through Control + Alt 6 work for creating headings in Googledocs. In Word for headings four and lower, you must assign keystrokes yourself. TO change text to Normal style in Googledocs, press Control + Alt + 0 (in Word, the equivalent is Control + Shift + N).

With both JAWS and NVDA, Insert + F also works for checking font and paragraph formatting.

Keystrokes are slightly different than in Word for aligning text:

* Control + Shift + L: left align.
* Control + Shift + E: center align.
* Control + Shift R: Right align.
* Control + Shift J: Justify.

### 12.3.3 Menu Overview and Navigation

To open the Googledocs menu, be sure that your JAWS Virtual PC cursor is off or that your NVDA Focus mode is on. Then press Alt and F together to land on the File menu. Each menu area has a shortcut key (these are listed below) that you can memorize if you like. At a minimum, remember Alt and F together so you can get onto the menu bar. You can then Right and Left arrow to move between menu categories.

When you press Alt + F, your screenreader should say “File menu, one of nine.” If instead, you hear, “New tab, one of 19 or 20,” you have opened your browser menu. Press Escape and try again.

To access commands for any of the menu categories, Down or Up arrow. You will find that there are quite a few submenus. Press Enter or Right arrow to expand them, and Left arrow to collapse them.

Listed below are the menu categories, their respective shortcut keys, and some of the most important commands within them:

File menu (Alt + F): share, new, open, make a copy, email, Add shortcut to Drive, move, send to trash, download, rename, page setup (margins, orientation), print.

* Edit menu (Alt + E): find and replace, paste without formatting.
* View submenu (Alt + V): nothing very significant here.
* Insert menu (Alt + I): images, tables, charts, breaks, headers, footers, page numbers, comments, footnotes, table of contents.
* Format menu (Alt + O): paragraph styles, line spacing, alignment, bullets and numbering, header and footer format.
* Tools menu (Alt + T): spelling and grammar, accessibility settings.
* Help menu (Alt + H): list of keystrokes, command search.
* Accessibility menu (Alt + A): speak various format items, navigate to next/previous heading, and many others.

It is sometimes buggy to bring up the menus. if pressing Alt + F or any of the other shortcuts fail to bring up the menu categories, there are a few things you can try. First, refreshing the page by pressing F5 frequently helps. Second, try adding the Shift key to the key combination: that is, Alt + Shift + F rather than just Alt + F to bring up the File menu.

Sometimes, you succeed in opening the menus by pressing Alt + F or one of the other menu bar shortcuts, but Right arrowing fails to keep you on the menu bar, instead moving you to commands within the various menus. When that happens, press Control + Shift F which toggles between Compact and normal menu controls. Be sure you are using Normal controls.

### 12.3.4 The Main toolbar

All the font and paragraph formatting commands can be found in the Main toolbar. Because you can pretty much find everything here for basic formatting, it can be very helpful, especially for beginners. That said, as we will see below, the Format menu has strong intuitive appeal for some commands.

To open the Main toolbar, press Alt + F (or any of the menu shortcuts), and then Tab a few times. You will hear, Main toolbar, Undo (Control + Z) button. Right or Left arrow between the commands.

Among the most useful items on the Main toolbar are: font name, size and color, bulleted lists, numbered lists, line spacing, clear formatting and a few others. If shortcut keys exist for these commands, they are identified. Some of the most useful ones I have found here include:

* Spelling and grammar: Control + Alt + X.
* Decrease font size: Control + Shift + Comma.
* Increase font size: Control + Shift + period.
* Numbered list: Control + Shift + 7.
* Bulleted list: Control + Shift + 8

### 12.3.5 Document Formatting

As is the case with both JAWS and NVDA in Word, press Insert + F to reveal some aspects of font and paragraph formatting. The amount of information revealed is less extensive than in Word. For example, when I pressed Insert + F on a heading 1 using JAWS, I heard, “Font is bold Arial 16 point, Paragraph formatting centered.” In NVDA, you also hear foreground and background color information. In Word, I would also have heard style and line spacing information.

#### 12.3.5.1 Font Settings

The Main toolbar menu is the best place to change most font settings. To do this:

1. Select the text you want to format.
2. Press Alt + F together or any other menu shortcut to go to the menu bar.
3. Press Tab twice to go to the Main toolbar.
4. Right arrow to the Font list and Down arrow through the choices. The current font for the selected text is at the top of the list and it is checked. Below that are some other commonly used font types. Additional font types are further down the list. Unfortunately, you cannot first-letter navigate to your choice.
5. Press Enter on your choice

To change font size, press Control + Shift + Comma and Control + Shift period to decrease and increase font size, respectively. On the Main toolbar, you can also Right arrow two or three times past the Font list to the Font size combo box, Down arrow to your choice, and press Enter. If you can remember them, using the two shortcut keys for increasing and decreasing font size are obviously much quicker.

Continue Right arrowing to the Text color button menu, and Down arrow to go through the foreground color options. Press Enter on your choice. One Right arrow past this is the Highlight color button menu where you can change the background color. This could be useful for students wishing to highlight text.

Unfortunately, you are obliged to make each font setting change separately. Unlike with Word, there is no dialog you can Tab through to make several changes all at once. Therefore, with the exception of using the shortcuts to increase and decrease font size, it is a bit slower to make font changes in Googledocs than in Word.

#### 12.3.5.2 Paragraph Settings, Including Bulleted and Numbered Lists

These are most efficiently changed in the Format menu. It is quicker to use the Format menu where these settings are found within several submenus. To access them open the Format menu using the shortcut Alt O. Then Down arrow to the various submenus. You can move even more quickly if you use the single shortcut letter to open the submenus, which are included in parentheses below:

* Align and indent submenu (A): Right arrow to expand, Down arrow to your alignment choice (left, center, right, and justify), and press Enter. You can instead use the shortcut keys Control + Shift + L for left, Control + Shift + E for center, Control + Shift R for right, and Control + Shift J for justified. Continue Down arrowing to Increase and Decrease indentation. If you press Enter on one of these, indentation will be adjusted by one-half inch. Indentation shortcuts are Control + Right and Left bracket to increase and decrease indentation, respectively. Down arrow one more time and press Enter to open the Indentation options dialog. Tab to Left where the default is 0.5 inches and type a new value if you want to change this. Tab once to Right where the default is 0 inches and type a new value if you want to change this. Tab once to Special indentation where the default is No special indentation. To change this, Down arrow to the other two options which are First line indentation and Hanging indentation. First line is important if you would like to indent the first line of each paragraph. Press Enter to select this, and Tab once where the default is 0.5 inches, something you will rarely want to change. to save any new Indentation options, Tab to the Apply button and press Enter.
* Line & paragraph spacing submenu (L): Right arrow to expand. Among the line spacing options are Single, 1.15 (the default), 1.55 inches, and double. Continue Down arrowing to Add space before paragraph or Add space after paragraph. Default before and after paragraph spacing for normal text is 0 point. If you add before or after paragraph spacing, the default is 10 point. Down arrow one more time to Custom spacing, where you can change before and after paragraph spacing values if desired.
* Bullets and numbers submenu (T): By far the quickest way to create bulleted and numbered lists is to use the shortcut keys (Control + Shift 8 for bullets and Control + Shift 7 for numbers). These will add the default bullet format which is a round black dot for bullets, and simple numbering followed by a period. Within this submenu, you can change to other formats (hollow bullets, Roman numerals, etc.).

These paragraph settings options are also present on the Main toolbar, but it is less efficient to make these changes there.

#### 12.3.5.3 Headings and Styles

As mentioned in Chapter 3.4, headings and styles are powerful tools for ensuring consistent document formatting, as well as for aiding navigation.

Adding headings to a Googledoc is very easy. To apply a heading style to a single line of text, from anywhere on that line, simply press Control + Alt + 1 through Control + Alt 6 to apply any of those heading level styles to that line. For example, if you press Control + Alt + 2, your screenreader will announce, Heading two style applied.” Press Control + Alt + 0 to apply the Normal style, or remove a heading style. To apply a style to more than a single line of text, you must first select the lines.

Updating a heading style within a document is also relatively easy. I would say that it is perhaps more straightforward than in Word. Using level two headings as an example, steps are:

1. Select the text of one of the current level 2 headings in your document and make whatever font and paragraph changes you wish to make.
2. Press Alt O to open the Format menu.
3. Down arrow to the Paragraph styles submenu (P), and Right arrow to expand it.
4. Down arrow to the Heading 2 submenu, and press the Right arrow to expand it.
5. Down arrow to Update heading 2 to match, and press Enter.
6. Navigate to one of the other level 2 headings in the document and press Insert + F to verify that the heading style has been correctly updated.

Changing default styles is much quicker and easier in Googledocs than in Word. In Word, there are more steps to change a single default style. You also have to change them one at a time. To change one or more default styles in Googledocs:

1. Update one or more styles in a current document using the steps listed above.
2. Press Alt O to open the Format menu.
3. Down arrow to the Paragraph styles submenu (P), and Right arrow to expand it.
4. Up arrow once or twice to the Options submenu and Right arrow to expand it.
5. You land on Save as my default styles. Press Enter. Your screenreader will announce, “Your default styles have been saved.”

There are two other options in this submenu of interest:

* Use my default styles: Choose this option to change the styles of the current document to your default styles.
* Reset styles: Choose this option to change your defaults back to the factory defaults.
* Factory default styles are all Arial, black text on a white background, single spaced and left aligned. Point size and before and after paragraph spacing vary. Here are the defaults for heading levels one through three and normal text:
* Heading 1: 20 or 16 point, bold, 0 point before and after paragraph spacing.
* Heading 2: 14 point, bold, 2 point before paragraph and 0 point after paragraph spacing.
* Heading 3: 13 point, bold, 2 point before paragraph and 0 point after paragraph spacing.
* Normal: 12 point, regular, 0 point before paragraph and 8 point after paragraph spacing.
* Note that these might vary slightly from one computer to the next, as well as between web browsers and their versions. For your own computer, check by opening a new Googledoc, inserting headings and normal text and checking the various format settings. If you download a Googledoc as a Word file, these formats should be retained. But it is always a good idea to doublecheck.
* With regard to navigating headings in Docs, native Google keystrokes exist for moving heading by heading. But they are unwieldy and inefficient. Use the JAWS and NVDA methods below instead.
* With JAWS, you can use the layered command for turning on Quick keys to Navigate headings and heading levels efficiently. Turn off the Virtual PC cursor. Then press Insert and Spacebar together, followed by G. JAWS will say Quick keys. Similar to Word, press H and Shift H to go to the next and previous heading. Press 1, 2, 3, etc. to go to the next level 1, 2, 3, etc. heading. Press Escape to turn off Quick keys and return to Edit mode.
* If you also have NVDA installed on your computer and want to use this layered JAWS keystroke, you must first disable the Control + Alt + N hotkey to open NVDA. This is because Control + Alt + N is part of the native Google keystroke configuration for headings navigation, and this results in a conflict. To do this:

1. Press Windows + M or Windows + D to go to the Desktop.
2. Press N to go to the NVDA Icon, but do not press Enter on it.
3. Press Alt Enter to quickly open the Properties dialog.
4. Tab twice to the Shortcut key edit box, and delete Control + Alt + N.
5. Leave the edit field blank if you are not interested in assigning a new NVDA hotkey. Or to assign a new one, type in the single letter. Control + Alt is automatically added. Be sure the key chosen does not conflict with an existing key assignment.
6. Tab to the OK button and press Enter.
7. Press Enter on the Continue button.
8. You should now be done. However, if you do not have administrative rights, you will also have to Enter the administrator’s password after pressing the Continue button.

* At present, it is not possible to bring up the JAWS headings list in Docs. Workarounds are to either switch to NVDA or download the file as a Word document.

With NVDA, press Insert and the Spacebar to switch to Browse mode, press the same keys as above with JAWS to navigate by heading and heading level. This is the same way to use quick key navigation with NVDA in Word.

Also with NVDA, while in either Browse or Focus mode, you can open the Elements list (Insert + F7 and then access the headings list. However, as I mentioned in Chapter 3.4.1, the NVDA headings list expresses heading levels in a confusing way.

#### 12.3.5.4 Margin Settings

Margin settings are found in the Page Setup dialog in the File menu. Default dimensions are one inch top, bottom, left and right. To change these:

1. Press Alt and F together to open the File menu.
2. Up arrow twice to Page Setup and press Enter.
3. Tab to the Top edit field and type in your new setting, for example.75 for three-quarter inch.
4. Tab to the Bottom, Left, and Right edit fields, and type in dimensions here.
5. Tab to the OK button and press Enter.

These are your new margin settings for this document only, The Set as default button is found one tab past the Right margin edit field, but you would probably not want default margin dimensions to be other than one inch all around.

Other settings in the Page Setup dialog you can change are orientation and page size. Defaults are portrait orientation and 8.5 by 11 inch page size.

### 12.3.6 File Menu Commands

Many important commands are found in the File menu which is opened by pressing Alt and F together. The most crucial thing to know is that, because Googledocs are autosaved, if you do not give the file a name, it will still be saved, and with the name Untitled document. To give the file a meaningful filename, use the Rename command.

Below are useful File menu commands, listed in the order in which they are encountered as you Down arrow through the menu:

* New submenu: Open a new tab containing a blank Googledoc or template.
* Open: Open recent Googledocs or Word files into Googledocs that are stored in your Google Drive folder by Down arrowing to your choice and pressing Enter.
* Save as Googledocs: This menu item will appear if you are working on a Word file that you have uploaded to Googledocs. Press Enter and the file will be saved as a Googledoc with the same file suffix and a GDOC extension. This now becomes the active file.
* Make a copy: Because Googledocs are autosaved, use this command to preserve a previously saved document that you do not want to alter and edit the copy. Its filename will be “copy of” and the original filename.
* Share submenu: The first option here is Share with others. Press Enter to open the Share dialog where you can add email addresses of people with whom you would like to share the file, designate levels of editing privileges and send an email informing them that they have been granted sharing privileges. They will then be able to find the file listed in the Share with me folder in Google Drive online.
* Email submenu: Press Enter on Email this file to address a message and add it as an attachment in various formats, including Word, PDF, RTF, and TXT.
* Download submenu: Download the file in Word format to your Downloads folder. Other formats include PDF, RTF, TXT, PDF, and ePub.
* Rename: This is the Google equivalent of Save as. Give your file a meaningful name here. Otherwise it will be saved with the name untitled document. While you can designate a save location in this dialog, it is easier to simply save it without designating a location, and then moving it to its desired location from within GDFD.
* Move to trash: Use this to delete the file. Deleted files can be restored within 30 days from the Google Drive online Trash folder.
* Version history submenu: This submenu has two options. The first option is Name current version. You can name the current version and then continue working with the file, which will be autosaved as you proceed. The second option, See version history, provides a list of earlier file versions going back in one hour intervals. If you land on one of these, you can Tab to the More options button, expand it, and save a copy.
* Language submenu: Open this and Down arrow to other languages you would like to work in while composing your document.
* Page setup: Among other things, you can change margins here (see Chapter 12.3.5.4 above).
* Print: Opens the Print dialog where you can change several print-related settings and send your document to a printer. You can also use the universal shortcut key, Control + P, to open the dialog.

### 12.3.7 Help Resources

Useful help resources can be accessed via the Help menu (the shortcut key is Alt H). Among these are:

* Press Control + Slash to open a new tab containing a list of shortcut keys. After pressing Control + Slash, press Insert + Z with JAWS to turn on the Virtual PC cursor, or Insert + Spacebar to return NVDA to Browse mode. In this new tab, shortcut keys appear under the following headings: Text formatting,, Paragraph formatting,, With objects,, Editing,, Navigation,, Menus,, and Comments.
* Press Alt and the Slash keys together to search for and execute commands, saving you the effort of having to locate them in the menus. After typing in your command search term, Down arrow to the command you wish to execute. This is the equivalent of the Microsoft Office Tell Me feature with Alt Q (see Chapter 13.3.1 ).
* Visit [Google Workspace User Guide to Accessibility - Google Workspace Learning Center](https://support.google.com/a/users/answer/1631886?hl=en#docs), and navigate to the Googledocs heading. There are a number of links under this heading to informative web pages related to editing, reviewing, and accessibility.

### 12.3.8 Other Useful Tools and Features

#### 12.3.8.1 Spellcheck

The Spellcheck submenu is found in the Tools menu. You can also use the shortcut key combination, Control + Alt X, to start this utility.

In the submenu, you can make adjustments by checking and unchecking the Show spelling suggestions and Show grammar suggestions checkboxes, if you only want to proof your document for one of these. The default setting is to check for both.

To start spellchecking, press Control + Alt X. Elements of the Spellcheck dialog are listed below in their tab order:

* You first hear the incorrectly spelled word and a proposed corrected spelling. Unlike with Word, you do not hear these spelled out letter by letter. You can press Insert and 5 twice on the Numpad to spell them out if you like. Also unlike in Word, only one correction choice is proposed, rather than several options. If the correction option proposed is not the correction you want, you must Escape out of Spellcheck and manually correct. To accept the proposed correction, press Enter or Spacebar on this button and proceed to the next spelling or grammar error.
* Ignore button: Press this to reject the proposed correction and proceed to the next proposed correction.
* Accept button: An alternative way to accept the proposed correction.
* More options button menu: Press the Spacebar to expand and Down arrow through the options, which include: Accept all (with the number of occurrences found in parentheses), Ignore all (with the number of occurrences found in parentheses), Add to personal dictionary, and View personal dictionary.
* Previous suggestion button: Return to the last correction and change your choice if desired.
* Next suggestion button: Proceed to the next proposed correction.
* Close button: Close Spellcheck. Alternatively, press the Escape key anywhere in the dialog to return to the document.

#### 12.3.8.2 Headers and Footers, Including Page Numbering

To insert page numbers to a header or footer, do the following:

1. Open the Insert menu (Alt I).
2. Down arrow to the Page numbering submenu and Right arrow to expand it.
3. Up or Down arrow through the options which include: Page number and header starting on the first page, Page number and footer starting on the first page, and More options.
4. If you want to start page numbering on the first page, choose one of the first choices. To examine other options, press Enter on More options which opens a dialog with the following tabs.
5. Tab to the Header radio button. Up or Down arrow once if you wish to insert page numbers in a footer instead of a header.
6. Tab to the Show on first page checkbox, and uncheck it if you do not want page numbers to appear on the first page of your document.
7. Tab to the Start at radio button. If you want to adjust how page numbering is changed from the last page of a previous section, Down arrow to that radio button. If there are no previous sections, this radio button is dimmed out.
8. Tab to the Start at Edit field, where the default is page 1. To change this, type in a different page number.
9. Tab to the Apply button and press Enter to save your changes.

By default, page numbering appears right aligned. I do not know how to change this to left or center alignment without sighted assistance. That said, right header alignment is the requirement for most academic styles.

To add a header or footer that is exclusively text to your document:

1. Open the Insert menu (Alt I).
2. Down arrow to the Header and footer submenu and Right arrow to expand it.
3. Up or down arrow to Header or Footer and press Enter.
4. The cursor lands at the left margin. Begin typing text here if you want your header or footer text to be left aligned. If you want text to be right aligned, press the End key and type it in. Centering text does not appear possible without sighted assistance.
5. Press the Escape key to return to the main body of your document.

To remove a header or footer, repeat steps one through three above for inserting text, press Control + A to select all, and then press the Delete key to remove the text and/or page numbering.

If you would like to create a header or footer with left aligned text and right aligned page numbering, first insert page numbering, and then add header or footer text using the steps outlined above.

I think header and footer creation and editing is better handled by Word. If I were to create headers or footers in Googledocs, I would download the file in Word format and use the procedures discussed in Chapter 3.3 to verify that text and page numbering alignment is correct.

#### 12.3.8.3 Realtime Collaboration

If you are sharing a Googledoc with others, and you all have full editing rights, you can simultaneously edit it. Editing actions of collaborators will be announced. You will be notified when individual collaborators are entering and leaving paragraphs to examine them. If you find the level of verbosity to be distracting, you can disable these notifications. Steps are:

1. Open the Tools menu (Alt T).
2. Up arrow to Accessibility and press Enter.
3. Tab to the Turn on collaborator announcements checkbox and press the Spacebar to uncheck it (it is on by default).
4. Tab to the OK button and press Enter.

## 12.4 Googlesheets

Googlesheets is the Google equivalent of Excel. Many reading and editing keystrokes are the same as with Excel. It is a particularly useful tool for collaboration between people jointly working on spreadsheets. It allows multiple users to edit simultaneously, making it possible to collaborate with others in real-time. A typical example is a shared database where multiple users need to enter and update data on an ongoing basis. As is the case with Googledocs, spreadsheet files are autosaved while you work on them.

To open Googlesheets, on the Address bar of your browser, type “sheets.google.com” minus the quotes, and then press Enter.

Similar to Googledocs, you need to do three things to make Googlesheets accessible with a screenreader:

* Press Control + Alt + Z to enable screenreader support.
* Press Control + Alt + H to enable Braille support. Do this even if you do not use Braille.
* With JAWS, press Insert + Z to turn off the Virtual PC cursor. With NVDA press Insert + Spacebar to switch from Browse mode to Focus mode.

When you enable screenreader and Braille support the first time, these will stay set in future sessions. By contrast, you will need to switch off the JAWS Virtual PC cursor or the NVDA Browse mode every time you start a new session, and sometimes during the same session when you move back and forth between windows.

Note that sometimes refreshing your browser screen by pressing F5 helps if the app seems to be misbehaving.

### 12.4.1 Opening a Google sheet

Assuming you are signed into Google, the quickest way to open a blank Googlesheet is to open your browser, and in the Address bar, type “sheets.new,” minus the quotes, and then press Enter. If you are already in a Google app window (Drive, Docs, etc.), this is the most reliable way to make this work because it is clear you are signed in.

You can also open a new blank sheet from inside the My Drive folder of Google Drive for Desktop (GDFD), To do this with Windows 10:

1. Press Alt to open the Upper ribbon where you land on the Home Tab.
2. Tab to the New item dropdown in the Lower ribbon, and press Alt + Down arrow to expand it.
3. Down arrow to Googlesheets, and press Enter.

With Windows 11, from inside the GDFD My Drive folder:

1. Press Alt to open the Windows 11 menu.
2. You land on the New button which is collapsed. Press the Spacebar to expand it.
3. Down arrow to Google sheet and press Enter.

The quickest and easiest way to open an existing sheet is from within GDFD. Within your My Drive folder, simply navigate to the filename for the sheet and press Enter.

You can also open an existing sheet from within Googlesheets. Steps are:

1. Open a new tab in your web browser, type in “sheets.google.com,” minus the quotes and press Enter.
2. With your JAWS Virtual PC cursor or NVDA Browse mode still on, press B several times to go to the Open file picker button, and press Enter.
3. Press Insert + Z to turn off the JAWS Virtual PC cursor, or Insert + Spacebar to turn on the NVDA Focus mode.
4. Down arrow to the sheet that you wish to open, and press Enter.

It is also easy to open an Excel File in Googlesheets from within GDFD. With focus on the Excel file, press the Applications key, Down arrow to Open with Googlesheets, and press Enter. If you are using Windows 11 and do not detect this option in the context menu, open Show more options and you should find it.

### 12.4.2 Navigation and Basic Editing

Most basic navigation keystrokes are the same between Googlesheets and Excel. These include:

* The four arrow keys to navigate between adjacent cells.
* Control + And the four arrow keys to move over filled and unfilled data ranges.
* Control + Home to go to cell A1 from anywhere in a sheet.
* Control + End to go to the cell that is the intersection of the last column and last row with at least one cell containing data.

Many editing keystrokes are also similar, including:

* = sign to begin a formula.
* F2: edit cell
* Formulas are written similarly: Example: =sum(a1:a10) to sum the data range A1 through A10.
* Cut (Control + X), copy (Control + C), and paste (Control + V).
* Although the same keystrokes are used for row selection (Shift + Spacebar) and column selection (Control + Spacebar) as in Excel, there is an important difference. In Googlesheets, if you press Shift + Spacebar one time in a row containing data, only the filled data range is selected. You must press it a second time to select the entire row. You must also press Control + Spacebar twice to select an entire column.

### 12.4.3 Menu Overview

To open the Googlesheets menu, be sure that your JAWS Virtual PC cursor is off or that your NVDA Focus mode is on. Then press Alt and F together to land on the File menu. Each menu area has a shortcut key (these are listed below) that you can memorize if you like. At a minimum, remember Alt and F together so you can get onto the menu bar. You can then Right and Left arrow to move between menu categories.

When you press Alt + F, your screenreader should say “File menu, one of ten.” If instead, you hear, “New tab, one of 19 or 20,” you have opened your browser menu. Press Escape and try again.

To access commands for any of the menu categories, Down or Up arrow. You will find that there are quite a few submenus. Press Enter or Right arrow to expand them, and Left arrow to collapse them.

Listed below are the menu categories, their respective shortcut keys, and some of the most important commands within them:

* File menu (Alt + F): share, new, open, import, make a copy, email, Add shortcut to Drive, move, send to trash, download, rename, print.
* Edit menu (Alt E): paste special, delete rows and columns.
* View menu (Alt V): show, freeze.
* Insert menu (Alt I): insert rows and columns, new sheets, comments.
* Format menu (Alt O): numbers, alignment, wrapping, font size.
* Data menu (Alt Shift D): sort, filter, pivot tables.
* Tools menu (Alt T): accessibility settings, spelling.
* Accessibility menu (Alt A): verbalize to screenreader (for reding row and column titles).

It is sometimes buggy to bring up the menus. if pressing Alt + F or any of the other shortcuts fail to bring up the menu categories, there are a few things you can try. First, refreshing the page by pressing F5 often helps. Second, try adding the Shift key to the key combination: that is, Alt Shift F rather than just Alt + F to bring up the File menu.

* Sometimes, you succeed in opening the menus by pressing Alt + F or one of the other menu bar shortcuts, but Right arrowing fails to keep you on the menu bar, instead moving you to commands within the various menus, and making it hard to know where you are. When that happens, press Control + Shift F which toggles between Compact and normal controls. Be sure you are using Normal controls.

### 12.4.4 Main toolbar

Similar to Googledocs, many important commands can be found in the Main toolbar. Because you can pretty much find everything here for basic formatting and editing, accessing commands here can be very helpful, especially for beginners. To open the Main toolbar, press Alt + F (or any of the menu shortcuts), and then Tab a few times until you hear, Main toolbar, Undo (Control + Z) button. Right or Left arrow between the commands. If shortcut keys exist for these commands, they are identified. Some of the most useful ones here include: Format as currency ‑, Format as percent ‑, Decrease decimal places ‑, Increase decimal places ‑, More formats ‑, Font list ‑, Decrease font size (Control + Shift + Comma) ‑, Font size, Increase font size (Control + Shift period) ‑, Borders ‑, Horizontal align ‑, Vertical align ‑, Text wrapping ‑, Insert comment (Control + Alt M) ‑, Create a filter, Filter views ‑, and Functions.

### 12.4.5 Constructing a Table

I will not build a table step by step as I did in Chapter 5.2 on Excel. Nor will I cover procedures that are exactly the same as in Excel pertaining to spreadsheet navigation, creating, editing, and copying formulas. I will instead discuss how to find the commands in the Googlesheets menus for building simple tables and how to use them. These commands include:

* verbalize to screenreader: the equivalent of the Excel Define name command.
* Insert and delete rows and columns.
* Cell formatting for numeric values.
* Merge cells

#### 12.4.5.1 Verbalize to Screenreader

* The Verbalize to screenreader command is the Googlesheets equivalent of the Excel Define name command. This is very useful because column and row headers are announced as you navigate within a table, thus greatly assisting in interpreting cell data. This command is found in the Googlesheets Accessibility menu. Steps for activating it are:

1. Place your cursor on the cell that is the intersection of the column and row whose headers you want announced as you move around in the table body. I will use cell A2 as an example here.
2. Press Alt A to open the Accessibility menu.
3. Down arrow once to the verbalize to screenreader submenu, and Right arrow to expand it.
4. Down arrow to Verbalize row 2 on column changes, and press Enter.
5. Repeat steps two and three above to reopen the Accessibility menu and the verbalize to screenreader submenu.
6. Down arrow to Verbalize column A on column changes, and press Enter.

What does this wording mean? Verbalize row 2 on column changes” means that as you Left and Right arrow in the body of the table, column headers in Row 2 will be spoken after hearing the cell data. Verbalize column A on row changes” means that as you Up and Down arrow in the body of the table, row headers in Column A will be spoken after hearing the cell data.

Once verbalization has been turned on, when you return to the verbalize to screenreader submenu, and Down arrow, options to Stop verbalizing row 2 and Stop verbalizing column A will appear. Press Enter on one of these if you want to do this.

#### 12.4.5.2 Inserting and Deleting Rows and Columns

Commands for inserting and deleting rows and columns are found in the Insert and Edit menus, respectively. But you can find all relevant options by first selecting them (Shift + Spacebar twice to select a row and Control + Spacebar twice to select a column), and then pressing the Applications key.

After selecting a row, you will find Insert one row above, Insert one row below, and delete row in the context menu.

After selecting a column, you will find Insert one column left, Insert one column right, and delete column in the context menu.

As is the case with Excel, press Shift + Down arrow several times to select multiple cells, and then repeat the steps above to insert or delete multiple rows. Press Shift + Right arrow several times to select multiple cells, and then repeat the steps above to insert or delete multiple columns.

To speed things up, memorize the following four key sequences that are Insert and Edit menu shortcuts

* Alt I R R: Insert a row above (the current row becomes blank).
* Alt I C C: Insert column to the left (the current column becomes blank).
* Alt E D D: Delete current row.
* Alt E D E: Delete current column.

#### 12.4.5.3 Cell Formatting

Choices similar to Excel are available for formatting cells with numeric values (see Chapter 5.2.5 on how these are handled in Excel). To change how numeric values appear in Googlesheets, first select the cell or cells you wish to format. Then press Alt O to open the Format menu, Down arrow to the Number submenu and Right arrow to expand it. The most commonly used numeric value options and their default formats are listed below:

* Automatic: Simple numbering with no decimals unless you manually type them in.
* Number: Numbering with comma separators and two decimals (example: 1,000,000.00).
* Percent: Percentage sign and two decimals (example25.00%).
* Currency: Dollar sign with two decimals ($1,000.00).
* Currency rounded: Dollars rounded to nearest dollar (example: $12.86 rounded up to $13).
* Date: Two-digit month/two-digit day/four-digit year (example: 07/04/2023).
* Time: Hour:minutes:seconds AM or PM (example: 5:37:00 PM).
* Date time: The above two combined (example: 07/04/2023 5:37:00 PM).

Numeric values can be customized through the options at the bottom of the submenu, including:

* Custom currency: Many international currencies, with different formats for these currencies (example: six different formats for dollars including dollars with no decimals, starting with USD, etc.).
* Custom date and time: Includes various ways to express months, days and years. Unfortunately, date customization is confusing and provides poor audio feedback on how changes appear visually.
* Custom number format: numbers of decimals, comma separators, negative values.
* Using the following shortcuts can make you more efficient:
* Alt O N C: Dollars with two decimals
* Alt O N P: Percentages with two decimals
* Alt O N D: Two-digit month/two-digit day/four-digit year.

#### 12.4.5.4 Merging Cells

People often center the title of their table, using the Merge command. Assuming the text of the table’s title is in cell A1, do the following:

1. With focus on cell A1, hold down the Shift key and Right arrow to the last column in the table. For example, if columns extend to column G, hold down Shift Right arrow until you get to cell G1. As you select cells across the row, Googlesheets will tell you which cells are selected.
2. Press Alt + F and Tab two times to Open the Main toolbar.
3. Right arrow to the Merge cells button and press Enter. You hear, “A1 through G1 selected. Merged selection A1 through G1 selected.”
4. To center the text, press Control + Shift + E.

* If you navigate to a merged cell, your screenreader will say the text in the cell and which cells have been selected.
* To remove cell merging, with focus on the merged cell, return to the Main toolbar and Right arrow. Your screenreader will now say,: Merge cells Toggle button Pressed.” Press Enter to unmerge the cell. Also press Control + Shift + L to be sure the text is left aligned in the newly unmerged cell.

### 12.4.6 Multiple sheets

To navigate to the next sheet in Googlesheets, press Alt + Down arrow or Control + Shift + Page down. To navigate to the previous sheet, press Alt + Up arrow or Control + Shift + Page up. After a lot of verbosity about numbers of rows and columns is rattled off, You may eventually hear the sheet name,. Unlike with Excel, pressing Insert + T does not reveal the sheet name.

* Press Alt Shift K to get a list of sheets. Then Up or Down arrow to the sheet you want to open, and press Enter. First-letter navigation is not possible. This is a big inconvenience if your spreadsheet contains a large number of sheets. However, you can press Home and End to go to the first and last sheet in the list, respectively.
* Regarding the various actions you can take related to multiple sheets, press Shift + F11 to create a new sheet. You can also perform this action via the Insert menu. New sheets are placed just after the sheet where you initiated this action. This contrasts with Excel where new sheets are placed before the initial sheet.

Pressing Alt Shift S opens a context menu where you can perform various actions related to multiple sheets. In the order in which they appear as you Down arrow, here are the most useful actions:

* Duplicate: This inserts a copy of the current sheet just before it. Its title is “copy of,” followed by the current sheet name.
* Copy to submenu: The two options include Copy to new spreadsheet and Copy to existing spreadsheet.
  + Copy to new spreadsheet opens a dialog where you can open a link to the new spreadsheet. Its filename remains “Untitled spreadsheet” until you rename it.
  + Copy to existing spreadsheet also opens a dialog where you can select an existing Googlesheets file and insert it. It will appear as the last sheet in the file where it has been inserted. Its title will be “copy of” with the original sheet name.
* rename: Similar to Excel, default sheet names are generic “Sheet 1, Sheet 2, etc.” Be sure to rename them. Otherwise, you will quickly lose track of which sheet is which.
* Move right: Activate this to move the sheet one position down the list. You will hear the sheet name followed by its movement, for example, “USA, moved from position 4 to position 5.” Unfortunately, you can only move sheets one position at a time which can be tedious in spreadsheets with lots of sheets. This option does not appear if you are situated on the last sheet in the list.
* Move left: Same as above in the opposite direction. This option does not appear if you are situated on the first sheet in the list.
* Delete: Delete the current sheet. You are given a heads up prompt. Tab to the OK button and press Enter to confirm sheet deletion.
* All of the above is pretty intuitive and quickly grasped. But as mentioned, in a file containing a large number of sheets, navigating between sheets and moving them around is tedious. In such situations, working with JAWS and Excel is more efficient.

### 12.4.7 Sorting and Filtering Data

Both sorting and filtering commands are found in the Data menu, whose shortcut key is Alt D.

#### 12.4.7.1 Sorting

Column data can easily be sorted alphabetically, numerically, and by date. To sort alphabetically:

1. In the column you would like to sort by (I will use column A as an example here), place the cursor on one of the cells in that column containing data. Do not place the cursor on the column header.
2. Press Alt D to open the Data menu.
3. Down arrow once to the Sort submenu and Right arrow to expand it.
4. Submenu choices are: Sort sheet by column A - A to Z, or Sort sheet by column A – Z to A. Press Enter on your choice.

Steps for sorting column data numerically and chronologically are the same. Submenu choices for both remain A to Z and Z to A. For numeric sorting, A to Z sorts with the smaller values at the top of the column and larger numbers at the bottom. For chronological sorting, A to Z sorts with older dates at the top of the column and more recent dates at the bottom. For both numeric and chronological sorting, any cells with words or blanks rather than numbers will appear at the bottom of the column.

#### 12.4.7.2 Filtering

As mentioned in Chapter 5.6, filtering allows you to temporarily hide some data in a sheet so you can isolate those data that you want to examine more closely. This is especially useful for working with large datasets. In other words, you are “filtering out” the data you are not currently interested in.

I will use the same file referenced in Chapter 5.6 that I used for demonstrating filtering with Excel: “Quarterly Sales By Employee.xlsx.” You may wish to open it in Googlesheets. To do this, first copy the Excel file to your GDFD folder. Then with focus on the Excel file, press the Applications key, Down arrow to Open with Googlesheets, and press Enter. If you are using Windows 11 and do not detect this option in the context menu, open Show more options and you should find it.

This worksheet contains quarterly sales data for employees in five fictitious electronics stores in the Boston area. Before initiating filtering, delete any rows above the column headers to ensure reliable and consistent results. For this file, I have deleted the first row which had the title of the table. The Sheets shortcut to delete the current row is Alt E D D.

Column headers in this workbook now go across row 1 and include:

* Store (column A): The five stores (Boston, Cambridge, Quincy, Watertown, and Newton).
* Employee (column B): The first names of three employees in each of the stores, for a total of 15 employees.
* Quarter (column C): Quarters one through four of a particular year.
* Product (column D): Three products sold in each of the stores (iPhone SE, Samsung TV, and HP laptops).
* Quantity (column E): The number of each of these products sold by an employee in a particular quarter.
* Price (column F): The unit price in dollars for each of the products.
* Sales (column G): The formula for price times quantity expressed in dollars.

As an example, I will filter to narrow focus to just the Cambridge and Newton stores. To turn on filtering, the cursor can be anywhere on the sheet, provided that there are no rows above the column header row. Once again, this is why I deleted the first row which contained the table title. In addition, there can not be any empty rows between the column header row and the data rows. Steps for filtering are:

1. From anywhere in the data sheet, press Alt D to open the Data menu, Down arrow to Create a filter, and press Enter.
2. Navigate to the column header row 1 where you should now hear “Has filter drop down.”
3. Place your cursor on the cell containing the column header you first want to filter. I will start in cell A1 where the column header “Store” appears.
4. Press Control + Alt R, which opens a dialog. It is announced that you are in a context menu and on the Sort command.
5. Tab Several times to the Clear button and press the Spacebar.
6. Tab to the Filter edit box (more on what this is in a moment).
7. Down arrow where unchecked checkboxes appear for each of the five Boston area stores. They are all unchecked because I cleared them a moment ago. Press Enter on the check boxes that you want to appear, in this case, Cambridge and Newton. You must press Enter, and not Spacebar.
8. Tab to the OK button and press Enter.

You immediately hear some useful information, including how many rows currently appear and the total number of rows,, in this case, “72 of 180 rows displayed.”

My focus is still in cell A1 where I initiated this filter. If I Down arrow and Up arrow back to cell A1, my screenreader now announces, “Has filter dropdown with applied filter,” indicating that I have applied a filter to data in that column. If I Down arrow one row, it says A38 because rows 2 through 37 are now hidden.

I could now carry out additional filtering for these two stores, for example narrowing down to just one or two quarters or one product. To do that, I would position the cursor on the appropriate column header (Quarter or Product), and repeat steps four through eight above.

The Filter edit box mentioned above is useful for first-letter navigation if you have to make your selections from a long list of possible values. In this example, I only have five stores to select from, but if I had to select from a list of 50 or 100 stores, first-letter navigation is obviously faster than Down arrowing through all the choices. If I type C in the Filter edit box, I land on Cambridge and I can then press Enter to check it. I then backspace out the C and type N for Newton, and press Enter to check that check box.

To keep filtering on, but unhide all the store rows:

1. With the cursor on the column header for the stores (cell A1), press Control + Alt R, to open the Filter dialog.
2. Tab to the Select all button and press the Spacebar, which rechecks all the check boxes
3. Tab to the OK button and press Enter.
4. Down arrow to find out that all the rows have been restored.

To completely turn off filtering, press Alt D to open the Data menu, Down arrow to Remove filter, and press Enter. You no longer hear “Has filter dropdown” as you move along the column header row.

Filtering works very nicely in tandem with multiple worksheets because you can copy filtered data to new sheets and perform further analysis on the filtered data

### 12.4.8 Additional Topics

#### 12.4.8.1 Adjusting Column Width

To adjust the width of a column, you must select the column first by pressing Control + Spacebar twice. After pressing it the first time, you hear the range where data are present. Pressing Control + Spacebar the second time actually selects the entire column, and your screenreader will tell you this.

Googlesheets expresses column width in pixels. The default is 120 pixels. There are 96 pixels in one inch, so this default equals 1.25 inches. Similar to Excel, you can change column width both manually and by autofitting.

To manually change column width:

1. Press Control + Spacebar twice to select the column.
2. Press the Applications key, Down arrow to Resize column, and press Enter. This opens a dialog where you either land on the first of two radio buttons or in an edit field. The default of 120 pixels is mentioned.
3. Tab to the edit field and type in a new value, keeping in mind that 96 pixels equals one inch.
4. Tab to the OK button and press Enter. You will be told that the column has been resized to this value.

To autofit column width:

1. Press Control + Spacebar twice to select the column.
2. Press the Applications key, Down arrow to Resize column, and press Enter.
3. In the dialog, Tab to the radio buttons and Down arrow to Fit to data.
4. Tab to the OK button and press Enter. You will be told that the column has been fit to data.
5. To find out what this new autofitted pixel value is, return to the Resize dialog and Tab to the edit box to see it.

#### 12.4.8.2 Wrapping Text

How to do this in Excel was covered in Chapter 5.8.2. As mentioned there, text wrapping increases row height, causing text to appear on multiple lines within that cell. Use the Text Wrapping feature when preparing spreadsheets for a sighted audience. Let’s say you have some notes in some of the cells, and you don’t use text wrapping. One of two things will happen. If there is content present in the adjacent cell to the right, this text will be cropped. If instead there is no content to the right, this text will spill onto multiple cells to the right. A sentence or two may extend as far as seven or eight cells to the right, which does not look good.

Another situation appropriate for text wrapping relates to column headers. If your column headers have text that is wider than its overall column width, this will also be cropped to the right or spill into cells to the right and look bad. Text wrapping will increase the height of that cell, as well as all other cells on the column header row, improving its visual appearance.

While it is possible to wrap text for a single cell, I will do it for all cells in a column. The first thing you should do is manually adjust column width using the steps outlined in the previous section. I will use the example of three inches, which translates to 288 pixels.

Steps are:

1. Select the column and manually adjust its width to 288 pixels.
2. Press Alt O to open the Format menu.
3. Down arrow to the Wrapping submenu, and Right arrow to expand it.
4. Down arrow to Wrap and press Enter.

#### 12.4.8.3 Hiding and Unhiding Columns and Rows

As mentioned in Chapter 5.9.1 on Excel, in large sheets, using this feature aids efficient navigation by temporarily hiding columns or rows so you can quickly skip over them to get to columns or rows that interest you. I will use the same example as in the Excel chapter on this topic. Let’s say you are working on a spreadsheet with monthly data for an entire year. It is now December, and you want to input data for that month’s bills. You would like to temporarily hide all the columns from January through November. If you do this, only three columns will remain visible: column A with the bill names, column M with December data, and column N with Annual Totals.

Steps for hiding the February through November columns (columns B through L) are:

1. With your focus anywhere in Column B, hold down the Shift key and Right arrow to select across to column L.
2. Press Control + Spacebar twice to select these columns.
3. Press the Applications key, Up arrow twice to Hide, and press Enter.
4. Down arrow to Hide columns B-L and press Enter.

When you want these columns to reappear, steps for unhiding them are:

1. With your focus on Column A (the column just to the left of the hidden columns), hold down the Shift key and Right arrow once to column M (the column just to the right of the hidden columns with December data).
2. Press Control + Spacebar twice to select these two columns.
3. Press the Applications key, Down arrow to Unhide columns, and press Enter.

Follow a similar process to hide and unhide rows. Selecting multiple rows involves holding down the Shift key, Down arrowing to the last row you want to select, and then pressing Shift + Spacebar twice. After selecting rows, steps for hiding and unhiding them via the Applications key are the same as for columns.

#### 12.4.8.4 Freezing Panes

As mentioned in Chapter 5.10, freezing panes is the sighted equivalent of the Define Name command, or its Google Sheets equivalent, Verbalize to screenreader. If you receive a Google sheet from a collaborator, if you press Control + Home and land somewhere other than cell A1, chances are good that Freeze panes is turned on. For example, if you press Control + Home and land in cell B2, row 1 and column A are probably frozen. To be sure, Up arrow once to cell B1, and if that row is frozen, your screenreader will say, “Inside frozen rows.” Down arrow, and it will say, “Outside frozen rows.” You will receive similar audio feedback for frozen columns when you arrow in and out of them. This audio feedback is a nice feature that you do not get with Excel.

The Freeze submenu is located in the View menu. To access it, press Alt V, Down arrow twice to the Freeze submenu, Right arrow to expand it, and Down arrow through the options, which include:

* No rows: Press Enter on this to unfreeze all rows. Your screenreader will say, “Unfroze all rows.”
* One row: Select this to freeze just the current row. For example, if focus is on row 1, only that row will be frozen. You will hear, “Froze one row.”
* Two rows: Select this to freeze the current row and the one under it. For example, if focus is on row 1, rows 1 and 2 will be frozen. You will hear, “Froze two rows.”
* No columns: Press Enter on this to unfreeze all columns. Your screenreader will say, “Unfroze all columns.”
* One column: Select this to freeze just the current column. For example, if focus is on column A, only that column will be frozen. You will hear, “Froze one column.”
* Two columns: Select this to freeze the current column and the one under it. For example, if focus is on column A, columns A and B will be frozen. You will hear, “Froze two columns.”

#### 12.4.8.5 Realtime Collaboration

Similar to Googledocs, if you are sharing a Google sheet with others, and you all have full editing rights, you can simultaneously edit it. Editing actions of collaborators will be announced. You will be notified when individual collaborators are entering and leaving sheets. If you find the level of verbosity distracting, you can disable these notifications. Steps are:

1. Open the Tools menu (Alt T).
2. Up arrow to Accessibility and press Enter.
3. Tab to the Turn on collaborator announcements checkbox and press the Spacebar to uncheck it (it is on by default).
4. Tab to the OK button and press Enter.

## 12.5 Reading Google Slides Presentations

I am not presenting a full description of how to work with Google Slides because, as of the writing of this third edition, it is not accessible for screenreader users to make presentations to audiences. When delivering a presentation in the Slide Show view, only slide titles can be detected by screenreaders, while the Remaining slide content cannot be read. This accessibility shortcoming makes the application pretty much useless for most screenreader users. A possible exception may be skilled Braille users who can type up notes and read them separately in hard copy or on a Braille display as the Slide show advances.

The current workaround is to prepare the presentation with Slides, download it to your computer as a PowerPoint file, and present it with that application. But if PowerPoint is already available to you, the obvious question is why waste your time learning Slides? Spend your time more productively by learning PowerPoint instead.

Google is aware of this fundamental accessibility flaw and hopefully they will fix it sometime in the not too distant future. For this reason,

I limit my discussion to reading a Google Slides presentation if you receive one from others. To do this,, you need to do three things. First, be sure that screenreader support is enabled (Control + Alt + Z), and that Braille support is disabled (Control + Alt + H). If you have used Docs and/or Sheets before, chances are that that both are already enabled. For most other things you do in Slides, Braille Support should be enabled. But to read a presentation, you must disable it. And as with other Google apps, toggle off the JAWS Virtual PC cursor (Insert + Z or the NVDA Browse mode (Insert + Spacebar).

Read the full text of a presentation in the Filmstrip view. The shortcut to open this view is Control + Shift Alt + F, all held down together. If you find this key combination awkward, open it through the Accessibility menu. Press Alt A, Down arrow to Go to Filmstrip, and press Enter. Now Down arrow, Right arrow, or press Page down to go to the next slide where its entire content will be read. Up arrow, Left arrow, or press Page up to go to the previous slide and read it.

## 12.6 Google Mail, Also Known as Gmail

Google Mail, or Gmail, is the Google equivalent of Outlook. It has several advantages over Outlook. First it is free, so that is a big plus. Second, you can use it on any computer. This can be useful in a pinch when you are not around your own computer, and thus don’t have access to a desktop application like Outlook.

But Gmail has some weaknesses relative to Outlook. Some of the most basic operations like reading and deleting messages, and dealing with attachments require a few more keystrokes than Outlook. While only one or two additional keystrokes per task, if you read and delete lots of messages daily, the numbers quickly add up. Being comfortable with web browsing is a pre-requisite for using Gmail online, while no such knowledge is necessary for using Outlook.

To access the app, go to gmail.com from your web browser. If not signed in already, type in your email address and password. The next time you go there, you will already be logged in.

Some people have several Gmail accounts, or have a work or school account that has been set up in the Google Workspace. I have a personal Gmail account and my Carroll Center work account is also a Google account. If you need to switch between accounts:

1. Open Gmail.com.
2. Press B several times to go to the Gmail Account button (which identifies your current account in parentheses). This button is collapsed so press Enter to expand it.
3. Down arrow to the other account you want to open and press Enter.
4. This opens a new tab with the Inbox for this account.

If you Down arrow and do not find the account, it may be that you have never logged into it before, or have not done so for a long time. Continue Down arrowing to the Add an account button and press Enter. Here you can type in that account’s address and password to open it.

Continue Down arrowing past the Add and account button where you will find the Sign out of all accounts option. This is useful if you want to assist another person on your computer and need to access their Gmail account. Without first signing yourself out, you cannot access other people’s accounts. Also, if using a computer that is not your own, it is extremely important to sign out when done to protect your privacy.

If you have several accounts, create a desktop shortcut for each account the same way you do it for any web page using the method laid out for creating shortcuts within Google Chrome (see Chapter 7.4.3.1). This way, you can

avoid the cumbersome process of switching accounts every time you open Gmail.

When you open your Inbox page and press Insert + T, the web page title includes the folder name (referred to as “labels” in Gmail), number of unread messages, your Gmail account, the name of the app, and the name of your browser (example: Inbox (20) – david.kingsbury@carroll.org - Gmail - Google Chrome).

### 12.6.1 Enabling Keyboard Shortcuts, Disabling Conversation Threads, and Changing the Number of Messages Displayed

These are changed in Settings: The first is crucial. The second reduces confusion, and the third depends on personal preference.

Similar to the other Google apps, you can use native Google shortcut keys for quick navigation and initiating tasks like creating and deleting messages. To use these native keystrokes, you must first enable them. You only have to do this once. Steps are:

1. From the top of the page, press B several times to the Settings button, and press Enter.
2. Tab to the See all settings button, and press Enter.
3. Press Control + F with JAWS or Control + Insert + F with NVDA to open the Find dialog, type “keyboard,” and press Enter.
4. Down arrow to the Keyboard shortcuts On radio button which you would normally press the Spacebar to select it. However, you must press Enter instead to make it stick. Do this, and then Up and Down arrow a few times back to it to be sure it has indeed been selected.
5. Press Control + F with JAWS or Control + Insert + F with NVDA again, type “save,” and press Enter.
6. Press Enter on the Save changes button to update settings.

Inbox messages are usually organized in conversation threads by default. If you are like me and find these confusing, you will want to disable them so each message appears by itself. To disable conversation threads:

1. On this same See all Settings page, press Control + F with JAWS or Control + Insert + F with NVDA, type “conversation view,” and press Enter.
2. Down arrow to the Conversation view off radio button and press Enter to check it. As above, pressing Spacebar does not seem to work.
3. Press Control + F with JAWS or Control + Insert + F with NVDA again, type “save,” and press Enter.
4. Press Enter on the Save changes button to update settings.

The default number of messages displayed in message lists (Inbox, Sent, Drafts, etc.) is 50. To change this:

1. On the See all Settings page, press Control + F with JAWS or Control + Insert + F with NVDA, type “maximum,” and press Enter. This lands you on “Maximum page size.
2. Down arrow to the Show combo box and press Enter to open it. Up or Down arrow to your choice. Options are 10, 15,20,25, 50, and 100.
3. Press Escape on your choice.
4. Press Control + F with JAWS or Control + Insert + F with NVDA again, type “save,” and press Enter.

### 12.6.2 Important Keystrokes

When you are ready to use Gmail with the native keystrokes enabled, the first thing you do after opening Gmail is to toggle off the JAWS Virtual PC cursor (Insert + Z), or the NVDA Browse mode (Insert + Spacebar). This must be done every time you start a new Gmail session.

Here is a list of commonly used native Gmail keystrokes:

* X: From the top of a message folder page (Inbox, Sent, etc.), quickly go to first message in Inbox (X also selects and unselects messages).
* Down and Up arrow: Go to next and previous message in the Inbox list.
* Shift + 3: Delete message.
* Enter: Open message.
* N: Jump to message body and read in Say all mode.
* Alt + Left arrow: After reading a message, return to Inbox with focus on the message just read.
* C: Compose new message.
* Control + Shift + C: Add CC field.
* Control + Shift + B: Add BCC field.
* Control + Enter: Send message.
* G I: Go to most recent message in Inbox message list.
* G T: Go to most recent message in sent items message list.
* G D: Go to drafts.
* G C: Go to contacts.
* G N: Go to next page of messages.
* G P: Go to previous page of messages.

### 12.6.2 Reading and Deleting Inbox Messages

To navigate through your list of Inbox messages, press G I which lands you on the most recent message at the top of your message list, telling you the message sender, subject, date and time, and a message preview. The letter X is the Google keystroke for selecting messages. This will be important later for at least one reason: selecting multiple messages for deletion.

To open this message, press Enter. To open any subsequent messages in the message list, Down arrow to the message and press Enter. Once opened, press N to get to the body of the message where your screenreader will read in Say all mode. You will hear some of the message header information before hearing body text.

To use standard screenreader keystrokes to read parts of the message (Up and Down arrow to read by line, Right and Left arrow to read by character, etc.), you must first turn the JAWS Virtual PC cursor back on (Insert + Z) or return to NVDA Browse mode (Insert + Spacebar). Note that this does not put focus in the message body, but somewhere higher up on the screen. You will need to Down arrow a number of times to get back to the body text. In my opinion, having to switch cursor modes and then Up or Down arrow a bunch of times to get to where you want to read the message is a major irritant compared to Outlook.

When finished reading the message, and with your JAWS Virtual PC cursor or NVDA Browse mode off, either press G I to return to the Inbox with focus on the most recent message at the top of the message list, or Alt + Left arrow to return to the Inbox with focus on the message you just opened. This distinction is important. If you have just read the 25th message in your Inbox and now want to navigate to the 26st one, you do not want to return to the top of the Inbox and then have to Down arrow 26 times. But there will also be times when you want to quickly get back to the top of the list to see your most recent message.

To delete one or more messages while in the Inbox:

1. In the Inbox list, press X on the first message to be deleted (X also unselects).
2. Down arrow to any other messages to be deleted and press X.
3. Press Shift + 3.

The messages are moved to Trash. There is no announcement that they have been deleted. Focus lands on the message just below the last one that was deleted.

The default number of messages displayed on a page is 50. This can be changed to a maximum of 100 in Settings. Press G N to go to the next page of messages and G P to go to the previous page. Pressing G I will always move you back to the most recent message in your Inbox. Pressing G T will do the same in the Sent folder.

### 12.6.3 Composing Messages

To compose a message:

1. Press C which places focus at the To field.
2. Address the message to the recipient or recipients (more on addressing messages below).
3. Neither the CC or BCC fields automatically appear. Press Control + Shift + C to add the CC field and/or Control + Shift + B to add the BCC field. If you forget these keystrokes, you can Shift + Tab back before the To field to find these. Type in addresses.
4. Tab to the Subject field and type the text.
5. Tab to the message body and type your message
6. Press Control + Enter to send the message. You should hear, “message sent.”

Here’s a bit more information on addressing messages to recipients. As you type, addressee names may populate based on your emailing history. If you hear the correct recipient address, press Tab to lock that address in, placing your focus just after that address where you can type in an additional address if you want to send a message to multiple recipients. .

. If you type the first letter or two of the address, you can also Down arrow to find other addressees beginning with those letters and lock them in as above. To confirm you have inserted the correct address or addresses, Left arrow to hear them.

To reply to a message:

1. Open the message from your Inbox.
2. Press R to reply to the sender or A to reply to all recipients.
3. Focus is placed at the top of the message body. Type your message.
4. Press Control + Enter to send.

To forward a message:

1. Press F. Focus is placed in the To field, Add recipients here.
2. Tab to the message body. Type in text if desired.
3. Press Control + Enter to send the message.

### 12.6.4 File Attachments

To attach one or more files to a message:

1. Compose the message.
2. Within the Compose dialog, Tab past the message body field to the Attach files button and press Enter.
3. This opens the standard Attach files dialog. Shift + Tab back several times and select one or more files.
4. Press Enter when done.
5. Tab once to the Send button and press Enter to send the message.

Regarding attachments you have received, you can download to your Downloads folder, your Google Drive folder, or open in one of the Google apps if it is an appropriate format like a Word, Excel, or PowerPoint file.

To access an attachment you have received:

1. Open the message.
2. Press Insert + Z to switch the JAWS Virtual PC cursor on, or Insert + Spacebar to turn on NVDA Browse mode.
3. Press G to quickly get to the Attachments graphic.
4. From here, Down arrow or press B to get to one of the following three buttons and press Enter to activate your choice:
   1. Download button: Download to your Downloads folder.
   2. Add to Google Drive button: Add the file to Google Drive.
   3. Edit button: If the file is compatible with one of the Google apps, such as Microsoft Word, Excel or PowerPoint, open and edit it in Docs, Sheets, or Slides, respectively. As soon as you open the file, it will automatically be saved in Google Drive.

If you have received multiple attachments, you can access each of the individual files with the same choices as above. There will also be a Download all attachments button. Activating this will download a ZIP file to your Downloads folder. Its name will include the subject line of the message you received.

### 12.6.5 Some Other Actions

Folders are called “labels” in Gmail parlance. To access labels, use the following native shortcuts with your JAWS Virtual PC cursor and NVDA Browse mode off:

* G I: Go to Inbox.
* G T: Go to sent items.
* G D: Go to drafts.
* G C: Go to contacts.

Any message that you have not sent is automatically saved as a draft. You can press G D to go to the Drafts folder, complete it and then send it. Also go here to periodically delete drafts you no longer want. Because of this autosave behavior, there is a strong likelihood that you will save lots of unintended drafts. Therefore, it is a good idea to clean out this folder from time to time so you can more easily find the drafts you actually want to complete and send.

There is no quick key combination to go to the Trash folder. But you can access it by typing GL TRASH, and pressing Enter. GL provides a list of labels, but Down arrowing does not reveal Trash, so you must type it.

In the Trash folder, you can return a deleted message to your Inbox by Down arrowing to the message, pressing the Applications key, Down arrowing to Return to inbox menu, and pressing Enter.

### 12.6.6 Other Useful Gmail Features

Here are a couple of Gmail features that you can use in complimentary fashion with Outlook if that is your primary email client.

#### 12.6.6.1 Accessing Gmail Contacts and Exporting Them to Outlook

When you have had correspondence with a person, their email address is automatically entered into your list of contacts. To access and edit them, go to: contacts.google.com.

There is a single heading on this page indicating how many contacts you have. Down arrow through them to hear the person’s name and email address. There is a checkbox before each contact for selecting them. You can then Tab to an Edit button, press Enter, and add some information like, company name, phone number and a few others.

Only about twenty contacts are listed on this preliminary page. You can search for individual contacts by toggling off the JAWS Virtual PC cursor or the NVDA Browse mode. Then press Slash, type in the contact name, and press Enter to find one or more search results.

Perhaps the best way to get a full list of your contacts is to download a comma separated values (CSV) file to your computer. Steps are:

1. From the top of the page and with the JAWS Virtual PC cursor or the NVDA Browse mode on, press X to get to the checkbox for the first contact, and press the Spacebar to select it.
2. Up arrow a few times to the Selection actions button and press Enter.
3. Toggle the JAWS Virtual PC cursor or the NVDA Browse mode off.
4. Down arrow to All and press Enter to select all contacts.
5. Press Enter on the More actions button.
6. Down arrow to Export and press Enter.
7. A list of download options appears, including: Google CSV, Outlook CSV, and vCard (for iOS Contacts). Up or Down arrow to your choice. Choose the Google CSV or Outlook CSV option if you simply want a spreadsheet with the contacts listed.
8. Tab to the Export button, and press Enter.
9. Navigate to your Downloads folder to access the file.
10. Open the CSV file in either Excel or Googlesheets.

There will be far more columns than interest you, but you can find contact names, organizations and email addresses without any difficulty in this CSV file.

If you download an Outlook CSV file, you can import them into Outlook. This is useful if you have just added Outlook to a new computer, or want to supplement current Outlook contacts with the fuller list of Gmail contacts accumulated over time.

Before doing this, you need to delete most of the CSV file columns, keeping just the First name, Last Name, Email address, and perhaps the Company and Job title columns. There are three different email address columns. Just keep the first one and delete the other two. Then save the updated CSV file.

To bring these contacts into Outlook:

1. Open Outlook, press Alt + F to open the File menu, Down arrow to Open and export, and press Enter.
2. Down arrow to Import/export and press Enter.
3. Down arrow to Import from another program or file, and press Enter.
4. In the Import a file dialog, press Enter on Comma separated values.
5. Tab to the Browse button and press Enter.
6. Shift + Tab back to the standard list box and tree view to locate the CSV file, and press Enter on it.
7. Tab to a set of three radio buttons and Up or Down arrow to your choice: Replace duplicates with items imported, Allow duplicates to be created, and Do not import duplicate items. The third radio button is probably your best choice if you think that your current Outlook contacts are pretty much up to date and don’t want them replaced.
8. Tab to the Next button and press Enter.
9. In the Select destination folder: Tree view, press C until you get to Contacts, and press Enter.
10. Tab to the Finish button and press Enter.

All the imported contacts should now appear in your Outlook Contacts folder.

#### 12.6.6.2 The Vacation Responder

You have probably received auto-reply messages from people when they are on vacation. Here are the steps for preparing such messages with the Gmail Vacation Responder feature:

1. Open gmail.com.
2. With the JAWS Virtual PC cursor or NVDA Browse mode remaining on, press B several times to go to the Settings button, and press Enter.
3. Down arrow to the See all settings button, and press Enter. If you don’t find it, try tabbing instead.
4. Search for “vacation” to find the text “Vacation responder.”
5. Down arrow to the two radio buttons for Vacation responder On and Off, and select the On radio button.
6. Down arrow to the First day edit field, delete all prefilled text, and type in the first day in MM/DD/YYYY format, and press Enter. Be sure to type it in exactly this way. It does not seem very flexible.
7. Down arrow the Fixed end date checkbox, and check it if there is a fixed end date.
8. Down arrow to the End date edit field, and type it in the same way as in the Start date field.
9. Down arrow to the Subject edit field, and type in something like: “Out of Office Reply.”
10. After this field, there is a long list of formatting buttons. Press E to quickly jump past these to the Vacation responder edit field and press Enter to get into it.
11. This is the message body that recipients will see for the duration of your vacation. Provide information about the start and end dates of your vacation, and who to contact while you are away. When finished, press Escape.
12. Press B to go to the Save button and press Enter. You will be redirected to your Inbox page.

## 12.7 Google Calendar

The Google Calendar is a nice alternative to the Outlook Calendar. It has several advantages over the Outlook Calendar, including:

* It is free, the only requirement being to have a Gmail account.
* It is quick and easy to learn. With just a handful of keystrokes, most of which are intuitive and easy to remember, you can handle all basic event scheduling and editing functions.
* Screenreader verbosity is minimal. By contrast, I find Outlook annoyingly verbose.

To access the Google Calendar, open a new tab in your browser, type “calendar.google.com,” minus the quotes, and press Enter. You may need to log in with your Gmail account the first time, but your browser usually remembers you in subsequent sessions. If you are going to use the Google Calendar with any frequency, create a desktop shortcut for this web page using the steps outlined in Chapter 7.4.3.

### 12.7.1 Calendar Navigation

As with other Google Workspace apps, turn off the JAWS Virtual PC cursor with Insert + Z, or the NVDA Browse mode with Insert + Spacebar so that you can use native Google keystrokes. Below is a list of the native keystrokes I consider most essential for navigation

* T: Today view.
* A: agenda view.
* G: Go to date.
* D: Day view
* W: Week view
* M: Month view
* P or K: Previous period, depending on your current view (for example, if in Day view, previous day, if in Month view, previous month, etc.).
* N or J: Next period, depending on your current view (for example, if in Day view, next day, if in Month view, next month, etc.).
* After opening the Google Calendar and turning off the JAWS Virtual PC cursor or the NVDA Browse mode, press T and then A to place the Calendar in the Agenda view for today. In the Agenda view, Down and Up arrow from event to event, and Right and Left arrow to the next and previous day, respectively. Days without scheduled events will be skipped over.
* You can also press G which opens the Go to date edit combo box. You can manually type in the date you want to navigate to, using the MM/DD/YY format. This edit combo box is pretty smart. If the date is not too far in the future, and is still within the current year, you do not need to type in the year. Nor do you need to type in zeros for single-digit months and days. For example, if today is May 25, and I want to go to July 4 this year, I only need to type in 7/4, and then press Enter and then A for Agenda view. Also, if the date is not too far away, after opening this edit combo box, Down or Up arrow to go to the next or previous day, and press Enter.
* When using the Go to command, one little trick I have discovered is to remember to press A for Agenda view after typing in a date and pressing Enter. If you forget to type A, you will not consistently land on the desired date.

If you are in the Agenda view for today, and Left arrow, you will notice that you can not move back to yesterday. Also, if you Right arrow a bunch of times, after two or three weeks, you will no longer be able to continue Right arrowing to future days. This is where pressing P or K for previous period or N or J for next period comes in handy. You can also press G (the Go to command), type in the date you want to navigate to, and press Enter to move there.

### 12.7.2 Creating, Editing and Deleting Events

Important native keystrokes for creating and editing events are:

* C: Create event.
* Control + S: Save event.
* Delete: Delete event.
* E: Edit event.

Press C to create an event. This opens the Event details dialog which, at first glance, appears cumbersome, with over 35 tabs. But don’t worry. Once you know about the most commonly used fields, there are simple ways to get to them quickly. While I will give more or less a full tour of this dialog, for appointments, the only fields that really matter are the Title, Start date, Start and end times, and perhaps the Recurrence, Add location, and Description fields. And if scheduling meetings, also the Guests field.

Press C to create an appointment or meeting. This opens the Event details dialog. Several of the fields you Tab through are listed below in the order in which they are encountered:

* Title field. Type in the name of your event here.
* Save button: I never use this. Instead, press Control + S from anywhere in this dialog when you are ready to save the event.
* Start date combo box: Either type in the date, or Down arrow day by day.
* Start time edit combo box collapsed: Either type in your time, or Down arrow to expand and Up or Down arrow by 15 minute increments. To manually type in a time instead, you can type 145 for 1:45 PM. Typing in colons is not necessary. The Google Calendar is usually smart enough to guess whether the time is AM or PM. But you can also type in P or A for PM or Am, as in 145p for 1:45 PM. You can also type in just the hour, for example, 3 or 3 P, and the field will auto-populate with 3 o’clock PM.
* End time edit combo box. This is pre-filled with a time one hour after the start time you designated. Changing times here behaves the same as the Start time edit combo box.
* All day checkbox: Check it for all day events (examples: birthdays, vacation days, and holidays).
* Recurrence combo box: The default is does not repeat. Using the example of Monday July 10, recurrence options you can Down arrow through include daily, weekly on Monday, monthly on the second Monday, annually on July 10, every weekday (Monday to Friday), and custom for a few other patterns (more on how the Custom option works below).
* The Guests edit combo box where you can insert email addresses for meeting invitees. The next few tabs include various meeting options including checkboxes for: letting guests modify the event, letting guests invite others to the event, and letting guests see the event guest list.
* Add Google Meet video conferencing button: Press this to organize a remote meeting with Google Meet.
* Add location edit combo box: Type in the location of your appointment or meeting. If a meeting, you should provide a location. If an appointment, this field doesn’t matter unless you think you might forget it.
* Notifications: Here you can find various options for designating time periods in advance of events for sending reminders.
* Description edit field: Type in notes for an appointment. If a meeting, this will become the text body of your message to invitees.

The Description edit field is the last field in the dialog. It does not wrap back around to the first field. If you Tab, you will get lost on a toolbar of some sort. To go back to a previous field, you must Shift + Tab to get there.

To delete an event, Down or Up arrow to the event, and press the Delete key to remove it.

To edit an event, Down or Up arrow to it and press E. You can also press Enter on it, Tab once to the Edit button, and press Enter

To edit any of your entries, rather than Tab through many times, press Insert + F5 with JAWS to bring up the Forms list, or bring up the NVDA Elements list and switch to Forms. It is not necessary to turn the JAWS Virtual PC cursor or NVDA Browse mode back on. You can now first-letter navigate to the field that interests you and press Enter to get into it. Letters such as S for Start date and time, R for Recurrence, A for Add location, and D for Description are especially useful.

Regarding the scheduling of recurring events, use the Custom option for creating events like classes that repeat several times each week over a number of weeks. In such cases, steps are:

1. Press C to create the event and type its name.
2. Tab to the Start date edit combo box and enter the first date in the series.
3. Tab to the Start and End time edit combo boxes, and fill in these times
4. Tab to the Recurrence combo box, press the Spacebar or Alt + Down arrow to expand it, press C for Custom, and press Enter to open the dialog.
5. You first land on the Weeks to repeat edit spin box where the default is 1. If your recurrent event was to repeat every two weeks, you would Down arrow to that instead. But for a class repeating weekly, remain at 1.
6. Tab to the Frequency combo box where the default is Week. Other choices are Day, Month, and Year.
7. Following this are checkboxes for each of the seven days of the week. If your class is every Monday, Wednesday, and Friday, check those check boxes.
8. Tab to the Recurrence where radio buttons are present for designating end dates. Options here are: Never ends, Ends on a specific date which is identified, and Ends after a specific number of occurrences. The terminal date and number of occurrences identified are consistent with each other. To adjust one of these, Down arrow to one of these, press Enter to lock it in, Tab to the edit field for either the terminal date or number of occurrences, and type in either the end date or number of occurrences.
9. Tab to the Done button and press Enter.

This returns you to the Create event dialog where you can fill in any remaining fields and save the recurring event.

If you later decide to delete one session in the series or the entire series, press the Delete key on the event. You first land on an OK button, which is only for a single occurrence in the series. Press Enter if that is your intention. Otherwise, Tab to a set of three radio buttons: This event, This and following events, and All events. Press Enter on your choice.

### 12.7.3 Syncing Calendars Between Devices

Many people like to sync their PC and smartphone calendars. I covered this in Chapter 4.10 where I discussed syncing between Outlook and the iPhone. Take a look at that section to understand the array of issues you may encounter. If you are not interested in syncing with Outlook, but only in syncing your online Google Calendar with your iPhone, just read the subsection (Chapter 4.10.2) on the iPhone. All you need to consider are setting up your iPhone to include your Gmail account, adding it this same account to the native iPhone Calendar app, and setting this account as your default calendar so that when you create events with Siri, they will appear in the correct calendar on all your devices.

## 12.8 Google forms

The Google forms app is a free application for creating different types of forms, including registration forms for upcoming events like workshops or conferences, surveys and questionnaires, and quizzes. The processes of creating and filling out forms are fully accessible, and it is easy to download response data to a spreadsheet to analyze results.

To create Google forms you must have a Gmail account and know your password so you can operate in the Google Workspace environment. You should also be familiar with web browsing keystrokes, especially those for navigating form fields and entering data. To conduct data analysis, you should also be knowledgeable about Excel or Googlesheets. Respondents are not required to have Gmail accounts.

### 12.8.1 Opening Forms You Are Preparing

Before saying anything else about preparing forms, let me first say that I strongly advise that you draft the text of your questions, response choices, and any other text first in Word or Googledocs, whichever you are more comfortable with. Then paste text into the appropriate fields in Google Forms. It is far better to edit, spellcheck and concentrate on the content and ordering of your questions first, and create your Googleform afterwards. In Word or Googledocs, mark the text of each question as a heading so you can navigate quickly, as well as keep a count of how many questions you have created. List the response options on a separate line under each question and do not bullet or number these lists. Don’t worry about heading or text formatting. Google Forms will take care of all this When you paste the text.

Assuming you are signed into Google, the quickest way to open a new Googleform is to open your browser, and in the Address bar, type “forms.new,” minus the quotes, and then press Enter. If you are already in a Google app window (Drive, Sheets, etc.), this is the most reliable way to make this work because it is clear you are signed in.

The quickest and easiest way to open an existing form is from within Google Drive for Desktop (GDFD). Within your My Drive folder, simply navigate to the filename for the form and press Enter.

You can also open an existing form from within Google Forms. Steps are:

1. Open a new tab in your web browser, type in “forms.google.com,” minus the quotes and press Enter.
2. With your JAWS Virtual PC cursor or NVDA Browse mode still on, press B several times to go to the Open file picker button, and press Enter.
3. Press Insert + Z to turn off the JAWS Virtual PC cursor or Insert + Spacebar to switch to the NVDA Focus mode.
4. Down arrow to the form you wish to open and press Enter.

### 12.8.2 Useful Native Google Keystrokes

As is the case with the other apps in the Google Workspace environment, native keystrokes exist for quick navigation and accomplishing tasks in Google Forms. That said, I perform many operations using standard JAWS and NVDA forms commands. Remember that you must switch off the JAWS Virtual PC cursor or NVDA Browse mode to be able to use them. Below is a list of useful keystrokes for use with Googleforms:

* Control + Shift + Enter: Add question.
* Control + Shift P: Preview form.
* Control + E: Settings tab (opens a dialog).
* Control + Enter: Send button opens a dialog).
* Control + Shift + K: Move question up in order.
* Control + Shift J: Move question down in order.

With regard to reordering questions, I have found that this process can be finicky , frustrating, and time-consuming. As much as possible, try to get the order right the first time. Reordering one or two questions here and there is OK, but doing a lot of it will quickly drive you crazy.

### 12.8.3 Adding Questions

When you open a new form, use standard screenreader keystrokes for navigating to and editing form fields. When adding and editing questions, the most helpful and commonly used keystrokes are:

* Insert + F5: JAWS Forms fields list.
* Insert + Spacebar: NVDA Elements list (Shift + Tab once, Up or Down arrow to the Forms radio button, and Tab once to the Forms list).
* E: Edit field.
* Tab and Shift + Tab: Go to next and previous form field.
* Insert + Z: Toggle JAWS Virtual PC cursor on/off.
* Insert + Spacebar: Toggle NVDA Browse and Focus modes.

When you open a new form, the page title is “Untitled form - Google Forms.” The first several things you want to do are to give your form a filename, title, and description. To do this:

1. Press Insert + Z to toggle the JAWS PC cursor back on, or Insert + Spacebar to toggle to NVDA Browse mode.
2. From the top of the web page, press E to go to the Document title edit field. The text here becomes the filename. press Enter to get into it, and type the filename. A.GFORM extension will be added to the file that is auto-saved to your Google Drive.
3. Tab several times to the Add title and description button, and press Enter. This title text becomes the level one heading in your form.
4. Press Enter on this Title edit field. Before typing anything, Left and Right arrow around to see whether the text you put in the Document title field repeated here. Edit it if necessary.
5. Tab several times to the Description edit field. Here you can insert text describing the purpose of the form and any instructions you wish to provide. Although optional, it is generally a good idea to include at least some introductory text here.

Now it is time to add questions. An edit field for the first question is already present. Tab to this edit field, and type in the text (for example, First name).

Let’s now talk about the most common question fields you will use. These include:

* Short answer: one line edit field (examples: first name, last name, street address, city).
* Paragraph: multi line edit field (examples: open-ended questions like “please provide additional comments or details”).
* Multiple choice: radio buttons (only one response possible – true/false, yes/no, single correct answer on a quiz).
* Check boxes (multiple responses possible, respondents allowed to select as many as apply).
* Dropdown: combo box (example: specify the state or country where you live) from the choices in the list).

Now, to continue creating short answer (like First name) and paragraph question types:

1. Tab to Delete item button and press the Spacebar if you want to delete this question.
2. Otherwise, Tab to the Required checkbox which is usually checked by default. Check or uncheck it depending on whether you want it to be a required question.
3. To add your next question, navigate to the Add question button by either using the placemarker already created or using standard keystrokes to get to this button, and press Enter.
4. You will hear Question edit. Press Enter to get into this field and type in your question.
5. Tab to the other fields for this question.

For multiple choice, checkboxes, or dropdown type questions:

1. After writing your question, make sure you have Up or Down arrowed to the correct choice in the Question types list.
2. Tab to the Option value edit field. This is where you insert possible answers. You can type in the first option here, then Tab to the second Option field, and so on. But the most efficient way to insert your choices is to write out your list in Word or Notepad, and then copy and paste all of them into this first Option value field. This is much quicker than tabbing to each new option value field and entering them individually.
3. Tab to the Add other checkbox. If you check this, and respondents then select it, an edit field will be inserted where respondents can type in alternative answers.
4. Tab to Delete item button and press the Spacebar if you want to delete this question.
5. Otherwise, Tab to the Required checkbox which is usually checked by default. Check or uncheck it depending on whether you want it to be a required question. You are finished. There is no final OK or Save button.

To add your next question:

1. Be sure your cursor is located on one of the buttons associated with the question you just completed so the new question is inserted in proper order.
2. Toggle off the JAWS Virtual PC cursor (Insert + Z) or toggle NVDA back to Focus mode (Insert + Spacebar).
3. Press the Google keystroke Control + Shift + Enter.
4. You land in the Question edit field. Type your next question here and proceed as above to specify the question type and answer options.

After inserting several questions, I find using the JAWS Insert + F5 keystroke to bring up the Forms list to be extremely useful for reviewing my questions, navigating through them, and getting to the last question so I can add a new question and be reasonably assured that it will appear as the last question and not somewhere in the middle. I first-letter navigate question by question by pressing the letter Q, and then pressing Enter when I get to the one I want.

### 12.8.4 Previewing a Form

At any point in form preparation, you can preview your work. This is extremely helpful because you can see the form exactly as respondents will see it, and you can even fill it out and submit it to pretest. Pretesting is an absolutely crucial step. Never send out a form to respondents before filling it out yourself, submitting it, and viewing your responses. You can and should do this several times. You can also delete any preliminary test responses before sending out the final version to respondents.

To preview a form at any point during its preparation, first toggle the JAWS Virtual PC cursor mode off or the NVDA Focus mode on, and then press the Google keystroke Control + Shift P.

The form opens in a new tab and appears exactly the way respondents will view it. The form title appears as a level one heading, and all questions appear as level three headings. Navigate to questions by heading and fill out the form using standard screenreader keystrokes for edit fields, radio buttons, checkboxes, and combo boxes. When finished, activate the Submit button which is the last field in the form.

To return to the form preparation page where you can continue editing it, either press Control + Tab to cycle to that tab, or press Control W or Control + F4 to return there and close the Preview tab. From the top of the Preview tab, you can also activate the Edit button. This also closes the Preview tab.

### 12.8.5 Form Settings

Open the Settings tab after you have started creating a new form to access important settings for your individual form. There is lots of stuff in this dialog. Instead of going through it exhaustively, I include subheadings for especially important settings so you can more easily find them in the future. To access the Settings tab with JAWS, press Insert + F5 to open the Forms list, then press S to go to the Settings tab, and press Enter twice to open this dialog. With NVDA, switch to Focus mode and press the Google keystroke Control + E.

#### 12.8.5.1 Making Your Form Into a Quiz

Tab once to the Make this a quiz checkbox: This is a great feature. To help you review, there is even a quiz for you at the end of the Google Forms text. See Chapter 12.8.10 below for more on creating quizzes.

#### 12.8.5.2 Options for Including Email Addresses and Sending Results to Respondents

Tab to the View responses settings button collapsed: This is a toggle with the alternate choice being to hide response settings. Press the Spacebar to expand it, and then:

* Tab to Responder input list: Down arrow through the choices for adding email addresses: Off; Verify (requires signing into Google); and Collect email addresses (Respondents manually enter their email address). Press Enter on your choice. If I want email addresses to be provided, I always choose the third option. If I chose the second one, respondents without Gmail accounts could be excluded.
* Tab to the Send responders a copy of their response list: Down arrow through the choices which include: off, when requested, and always. Press Enter on your choice. I usually choose always.
* Tab to the Allow response editing checkbox: Check this to allow saving partially-completed forms and return to them. This only works for those with Gmail accounts.

#### 12.8.5.3 Limiting to a Single Response

* With the View responses settings button expanded, Tab to the Limit to 1 response checkbox, and check it if you want to limit respondents to a single response. You may wish to do this for registration forms or surveys to prevent people from responding multiple times, or for quizzes where you only want the first score to count.

#### 12.8.5.4 Allowing Respondents From Outside Your Organization to Complete Your Form

* This is an important setting if you are using a Google account created by your organization and you want to send a form to people outside your organization. With the View responses settings button expanded, Tab to the Restrict to users in [name of your organization] and its trusted organizations checkbox: You will only encounter this checkbox if you are creating a form using an account created for you by your organization. You must uncheck this if you want to send the form to external respondents. Otherwise, they will not be allowed to submit their completed form.

#### 12.8.5.5. Making Questions Required

You can make all questions required, or you can do this selectively. To make your choice:

1. Open the Settings Tab.
2. Tab to the View question defaults button collapsed and press the Spacebar to expand it.
3. Tab to the Make questions required by default checkbox and check it if you want all questions to be required.

If you leave this unchecked, you can selectively make some questions required. As you create each question, A checkbox will appear that you can check for those you wish to require. Required questions are indicated by stars/asterisks.

#### 12.8.5.6 Confirmation messages

After respondents submit completed forms, it is important to include a confirmation message for assuring them that they were successful in making their submission. We have all experienced the frustration that occurs when we suspect we have wasted time filling out a form and are unsure whether we need to repeat the process all over again after failing to receive any confirmation. To create or edit a confirmation message respondents will see after submitting a completed form:

1. Open the Settings tab.
2. Tab to the View presentation options collapsed button and press Enter to expand it.
3. Tab to the Edit confirmation message button and press Enter.
4. In the Confirmation message edit field, insert your text. If this form is for registering for a paid event, you could also insert here a link to be redirected to a payment page such as PayPal.
5. Tab to the Save button and press Enter.

### 12.8.6 Publishing a Form Including Sharing with Respondent’s and Collaborators

Publishing a form involves designating collaborators, setting respondent access, and creating a link to be emailed to respondents. Before listing the steps, it is useful to Describe initial default behavior

First, you are the only initial person with Editor access: the ability to create, edit, and delete form questions, and view response data. Other people to whom you choose to grant Editor access are called “collaborators.” Grant such access to very few people, and only those with a strong knowledge of Googleforms. Any changes made are autosaved and cannot be undone. Even if you trust your collaborators, it is a good idea to create a backup copy of your form before designating collaborators. Even experienced Googleform users can screw up.

Second, if you have created the form from your personal Gmail account, , only editors initially have access to the respondent link. Change this so that anyone with the link can fill out the form.

Third, if you have created the form from your Gmail account at work, , only People from your organization initially have access to the respondent link. If you also want people outside your organization to have access to the form, change this too.

Steps for publishing are:

1. Navigate to the Publish button, and activate it.
2. Press Enter on the Manage responders button.
3. You land on the Add people, groups, and calendar events edit combo. If you wish to designate collaborators, type their email addresses here. If you do not want to designate collaborators, skip to step 6.
4. Tab to Share (the Name of the form is inserted here), Responder, change permission button menu.
5. Press the Spacebar, Down arrow to Editor, and press Enter to grant editing rights to collaborators. Below, I show another way to do this via the Share dialog.
6. Tab to Responder view. If you created the form from your personal Gmail account, the default is “restricted,” that is to Editors only (yourself and collaborators). But if you created the form from your work account, the default is anyone in your organization (your organization is identified here). If you only want people in your organization to fill out the form, skip the next step.
7. Press the Spacebar to expand the list, Down arrow to Anyone with the link, and press Enter. You should hear, “Responder view Anyone on the internet with the link can respond.” This step is critical for any form created from a personal account, or if you want people outside your organization to be able to fill out the form.
8. Tab to the Done button and press Enter.
9. Tab to the Copy responder link button and press Enter to copy the link to your Clipboard.
10. Tab to the Save button and press Enter.
11. Tab to the Publish button and press Enter.

With the link copied to your Clipboard, you can now paste it in an email, and send it to respondents. But if you are not ready to send it, you can do it later as follows:

1. Go to the Copy responder link button menu, and activate it.
2. You land on the link and are informed you can press Control + C to copy it to your Clipboard. Do this or:
3. Down arrow once to the Shorten URL checkbox. Press the Spacebar if you want a shorter URL link. Press Control + C to copy this link to your Clipboard.
4. Prepare an email to respondents, paste the URL in the body of the email message, and send it to them.

If you no longer wish respondents to have access to the form because the deadline for submission has passed or you need to edit the form, open the More button, Down arrow to Unpublish form, and press Enter. You are told, “The form will no longer be visible to responders. Responders will see a blank page if they open the form link. Editors of the form can still make changes and publish the form again.” Tab to the Unpublish button and activate it to confirm.

Use the Share dialog to add collaborators. Collaborators will be able to edit the form and download response data. Collaborators must have a Gmail account. They can be added before or after publishing.

To add collaborators:

1. Open the Share dialog where you first land on the Add people, groups, and calendar events edit combo box.
2. Type the email address of a collaborator. If you have emailed these people before, addresses will auto-populate as you type. Press Tab or Enter to add an address. Add email addresses of any other collaborators here too.
3. Tab to the change permission button menu. If permission is not already set as Editor, press the Spacebar to open the menu, Down or Up arrow to Editor and press Enter (note that you must press Enter to lock it in). The two other options are Responder and adding an expiration date for filling out the form.
4. Tab to the Notify people check box which is checked by default.
5. Tab to the optional Message edit field where you can add text to the email to be sent to collaborators.
6. Tab to the Send button and press Enter to send an email to collaborators, assuming you left the Notify checkbox checked.

You can remove collaborators from the Add people, groups, and calendar events edit combo box by pressing the Left arrow. Your screenreader will say “remove” and the collaborator’s email address. Then press the Delete key.

### 12.8.7 Accessing Response Data

#### 12.8.7.1 Viewing Response Data in Spreadsheets

You can open response data in a Googlesheet or download the data as a CSV file. CSV stands for “comma separated values,” and is a spreadsheet with all formatting stripped out of it. You can then open the file in Excel. Use this latter option if you are more comfortable with Excel than with Googlesheets.

Here are the steps for accessing response data in a Googlesheet:

1. Press Insert + F5 to bring up the Forms list.
2. Press R until you get to the Responses tab.
3. Press Enter twice to give focus to this tab.
4. Tab once to the Link to sheets button, and press Enter.
5. This opens the Select destination for responses dialog where you land on the Create button. Pressing Enter here creates a Googlesheet with a default filename containing the original Googleform filename plus the word responses in parentheses, and the Googlesheet file extension.
6. If you want to change the filename, before activating the Create button, Tab to the Spreadsheet title field, and edit it here. Than Tab to the Create button and press Enter.

The Googlesheet now opens where you can view the response data. The file is saved in the same Google Drive folder as its associated Googleform. You can open the Googlesheet directly from within Google Drive to view responses as they arrive. This is a quick and easy way to access response data.

If you prefer accessing response data in Excel, download a CSV file using these steps:

1. Repeat steps one through three above.
2. Tab a couple of times to the More options for responses button menu, and press the Spacebar to open this.
3. Down arrow to Download responses (csv), and press Enter.
4. Navigate to your Downloads folder and open the ZIP file.
5. Press the Spacebar to select the CSV file, and press Control + C to copy the CSV file contained here to the Clipboard.
6. Navigate to somewhere else on your computer and paste it there with Control + V. Do this because files contained in ZIP folders tend to misbehave.
7. Open the CSV file in Excel to access the responses.

Whether using Googlesheets or the CSV file, the Google forms questions will be in the first row, with the first column being the time stamp of responses. Because individual responses are sorted this way, whenever you redownload the spreadsheet, any new responses will appear at the bottom of the sheet.

For quizzes, see the section below on that topic for information on how response data are presented.

#### 12.8.7.2 Other Actions Related to Response Data

Expanding the More options for responses button menu, and then Down arrowing, reveals several other useful actions:

Get email notifications for new responses: Every time a new response arrives, you will get an email message.

* Unlink form: Select this if you no longer want to receive responses for this form.
* Delete previous responses: You may wish to delete previous responses if you have pre-tested and now want to go live. Or you may have other reasons for wanting to start fresh.

The Accepting responses checkbox is found one tab past the More options for responses button menu. Check or uncheck this depending on whether you want to accept new responses.

### 12.8.8 Other Form Editing Actions

#### 12.8.8.1 Reordering Questions

Reordering questions is accomplished with a native Google keystroke. It can be finicky and a bit time-consuming. You can only reorder questions one by one. As much as possible, try to order them correctly the first time you add them. Inevitably you will order them incorrectly from time to time, so need to know how to reorder them. The Google keystrokes for doing this are:

* Control + Shift J: Move a question down in order.

Control + Shift K: Move a question up in order.

My admittedly lame mnemonic for keeping these straight in my head is that K2 is the second highest mountain in the world and I think about going up the mountain. I thought also of Jack and Jill for J, but discarded that one because the pair first go up the hill to fetch a pail of water before tumbling down. Steps for reordering an individual question are:

1. Navigate to the question you wish to reorder. My preferred way of doing this is to open the Forms list with Insert + F5, press Q until I get to the question I want to reorder, and press Enter. This places focus in the edit field for that question.
2. Tab once to the Bold toggle button.
3. Press Insert + Z to toggle the Virtual PC cursor off.
4. Press Control + Shift J to move this question down, or press Control + Shift K to move it up. Your screenreader may say “Moved item down,” or “Moved item up.” Screenreader feedback is not consistent: you may not hear anything.
5. To verify, press Insert + F5 again and go down the list question by question by pressing Q and see if the question has been reordered as intended.

#### 12.8.8.2 Adding Sections

If your form is rather long and questions can be logically grouped in categories, it is a good idea to insert sections. For example, if you were creating a questionnaire to ask respondents about their blindness skills, you might group questions under sections about demography, independent living skills, and technology skills. Sections appear as level two headings and divide forms into multiple screens with previous and next buttons at the bottom of each screen.

To insert a section in your form:

1. Press Insert + F5 to open the Forms list, and press Q to Navigate to the question that you want to be last in your current section.
2. Press Enter to get into the edit field for this question.
3. Press Insert + F5 again to bring up the Forms list. You will be at the top of the list.
4. Press Q once to get to the Questions tab. Press Enter twice to open this dialog.
5. Tab several times to the Add section button and press Enter.

The new section is now inserted as a level two heading with the title “Untitled section.” to give this a meaningful title, as well as to access additional options for this section, do the following:

1. Press Insert + F5 to open the Forms list,
2. press S to go to the new section, and press Enter to get into the Section title edit field.
3. Press Control + A to select the current text, and type your new text over it.
4. Tab to the Description edit field, which is optional. Insert any introductory text here that you want for this section.

One tab before the optional Description edit field is the Overflow menu button. Expand this to find the following four options:

* Duplicate section
* Move section
* Delete section
* Merge with above

Choose Delete section if you want to delete a section and all its questions. If you want to delete the level two heading and the Description field while leaving the questions intact, choose Merge section instead. If you press Enter on Delete section, you will hear the following confirmation message: “Deleting a section also deletes the questions and responses it contains. To preserve the questions, choose Merge section up" from the section options.”

Note that there is theoretically a native Google keystroke for inserting a section, but I have not been able to make it work in a long time.

### 12.8.9 Making a Copy, Deleting a Form, and More with the More Button.

From the top of the form preparation page, and with the JAWS Virtual PC cursor or NVDA Browse mode on, press B several times to get to the More button menu collapsed. Press the Spacebar to expand it, and Down arrow through the options. The most useful ones are:

* Make a copy: Save time in creating a new form based on this pre-existing one. The filename for this new form will be “Copy of” followed by the current filename.” Any settings you made for the original file will be transferred to this new one.
* Move to trash: Delete a form you no longer need. As with other files and folders sent to the Trash folder in Google Drive online, they will be retained there for one month before being permanently deleted.
* Print: Send the blank form to a printer.
* Unpublish form (see Chapter 12.8.6 above).
* Keyboard shortcuts: Open a new tab with native Google Forms keystrokes arrayed in several tables. The native keystroke for doing this is Control + Slash.

### 12.8.10 Quizzes

Making your form into a quiz allows you to assign scores to your questions, designate correct answers, and provide feedback on why answers are correct or incorrect. I create quizzes with multiple choice (radio button) and multiple possible answers (checkboxes) only. While I imagine you could include short answer or paragraph edit field-type questions, these could not be automatically scored, so I will not cover them here.

To make your form a quiz:

1. Press Insert + F5 to open the Forms list,
2. Press S to go to the Settings tab, and press Enter twice to open this dialog.
3. Tab once to the Make this a quiz checkbox, and press the Spacebar to check it.

Related quiz settings you can Tab through here include:

* Radio buttons for releasing scores either immediately after each submission, or later after manual review.
* Configure whether this is a locked quiz (available only for those using Chromebooks managed by a school for each student).
* Missed questions checkbox: Respondents can see which questions were answered incorrectly.
* Correct answers checkbox: Respondents can see correct answers after grades are released.
* Point values checkbox: Respondents can see total points and points received for each question.
* Default question point value edit spin box: Up or Down arrow or type in a default value for correct scores. If desired, these can later be varied for individual questions.
* By default, all questions are required. There is no OK or Save button at the end of this dialog. Any adjustments you make are automatically saved.

When you make your form into a quiz, a new Answer key and points button field is added to each multiple choice and checkbox question. It appears just below the various answer options you have listed. Press the Spacebar to open it, and do the following for each quiz question:

1. Tab to the Points edit spin box: If you have already set a default score, this will appear. If you did not, or you want a different value for this question, Up or Down arrow to it, or type it in.
2. Tab through a series of checkboxes with the answer options you previously listed for the question, and check the correct answers. For multiple choice questions (radio buttons), you can only check one. For checkbox questions, you can check more than one.
3. Tab to the Add feedback button where you can insert text explaining why answers were correct or incorrect. Be careful here because navigating to the edit fields for inserting feedback text takes some getting used to.
4. Tab once to either the Incorrect Answers tab or the Correct answers tab. Up or Down arrow to the tab you want and press Enter to give it focus.
5. Tab once to the edit field where you can type in the feedback. I usually type the information in word and then copy and paste it in here.
6. Shift + Tab back to the tab you were just focused on, Up or Down arrow to the other tab, and press Enter to give it focus.
7. Tab once to the edit field and insert your feedback text. I usually insert the same text for both correct n and incorrect answers, but you can put in different text if you like.
8. Tab to the Save button and press Enter.
9. Tab to the Done button and press Enter.

You can later return here to make changes, including deleting or editing correct and incorrect answer feedback, changing point values, and/or designating different correct answers.

When respondents take the quiz, under each question (which is a level three heading), they will see the point value for a correct response. Before you send out the quiz, you should review these point assignments to verify that they are what you intended to assign.

After submitting the completed quiz, and if the quiz preparer has allowed responses to be viewed immediately, a new window will open. From the top of the screen, Down arrow once or twice to hear “Your response has been recorded.” Down arrow one more time to the View score link and press Enter to see scores and answer feedback, which is organized as follows:

Each question remains a level three heading.

Down arrow once to see your score.

Down arrow through the possible answers to remind yourself of the answer (or answers) you

had checked.

Any correct or incorrect answer feedback prepared by the quiz preparer appears below these as a level three heading.

As the quiz preparer, you can download the results into a Googlesheet or CSV file using the steps listed in Chapter 12.8.6.1 above. Column data appear as follows:

* Column A: Time stamp of when the quiz was submitted.
* Column B: Username (email address of the respondent).
* Column C: Total score.
* Column D: Text of the first question.
* Column E: Score on that question.
* Column F: Feedback on that question which may vary if the answer provided was correct or incorrect.
* The next three columns provide the same information for the second question, the next three columns for the third question, and so on.

As you use quizzes more and more frequently, you may find it useful to create one or more master forms with all your questions. Using the Import feature, you can create new quizzes and import selected questions to adapt quizzes to different audiences. This is much more efficient than continuously creating new quizzes from scratch, or adding/deleting questions from existing quizzes to come up with new ones.

Steps for importing questions into a new quiz are:

1. Open the form with the master list of questions so it shows up in the list of recent files. This will make it easier to find in step 6 below. You do not need to leave it open.
2. Create a new blank quiz and give it a file name, title and optional description text.
3. Activate the Import button which opens the Select file dialog.
4. Tab to the Recent tab and press Enter to select it.
5. Tab to the List view button and press the Spacebar to activate it.
6. Tab to the list of files which should say “extended list,” Down arrow to the master form, and press Enter. If it has been recently opened, it should be near the top of this list.
7. Tab to the Insert one item button and press Enter.
8. Tab through the quiz questions, checking the checkboxes for those questions you wish to add to this new quiz.
9. Tab to the Import questions button where you will hear the number of questions you have checked, and press Enter to import them.

You now have a set of quiz questions adapted to your newest group of quiz takers. Remember to revisit the Settings dialog to be sure they are correct. Settings are not imported from any of the previous quizzes from which you have selected questions.

When you are reasonably confident that you have digested the information presented here about Google Forms, try filling out a ten question quiz which is composed of a combination of multiple choice and checkbox-type questions. Access it by activating the link below.

[Google Forms Short Quiz](https://forms.gle/Knfqj6WZ4KMq6ZQMA)

Feel free to fill it out as many times as you want and be sure to check out the feedback provided. Please note that I am not recording any names or email addresses.

## 12.9 Comparing Google Workspace and Microsoft Applications

This chapter has discussed several Google Workspace applications. Chapters 3 through 6 discussed the four most commonly used Microsoft Office applications: Word, Outlook, Excel, and PowerPoint. After wading through all this content, a few questions you might ask are:

* How do the Workspace and Office Suite equivalents stack up against each other?
* What technical support and reference resources are available for using screenreaders with these applications?
* How might you go forward incorporating these applications into your digital technology toolbox?
* While I will attempt to be objective and balanced, what follows are still my opinions. Broadly speaking, I see several advantages of the Google Workspace relative to the MS Office Suite. First, and most obvious, Google Workspace applications are free while you must pay for Office applications.
* Second, if you have never been a big fan of the Office ribbons, you will like the Docs and Sheets drop down menus. Navigation of the menus for Docs, Sheets, and Slides is certainly more intuitive than is the case with Office ribbons. To acquaint yourself to which commands are where, all you need to do is arrow around in these menus and expand some of the submenus. Also, the existence of the Main toolbar in these three apps centralizes many important commands, making it even easier to format and edit files. In contrast, many people get frustrated navigating and finding commands in the Office ribbons.
* Third, because the Google Workspace environment is entirely online, syncing data across apps (email, calendar, contacts) is more straightforward than with Office. That said, because the Google Workspace is entirely web-based, knowledge of web browsing basics is a prerequisite for using these apps.

Fourth, while simultaneous real-time editing is theoretically possible in the Office Suite if all collaborators are signed in and using OneDrive, this works more seamlessly in Googledocs and Googlesheets. If sharing with full editing rights has been granted to collaborators, just open the file and go to work.

On the negative side, at least for me, Google Workspace files are autosaved as you draft them, a feature that some users consider a big advantage, while others consider it a major shortcoming. I much prefer pressing Control + S when I want to save revisions, rather than having the Google app decide for me. Wherever you stand on this debate, reasonable people can agree that having the option to turn Autosaving on or off with Office 365, versus having no choice at all, counts as a plus for Office. While there might be technical complications of which I am unaware, I would think that adding an easy to find checkbox in the File menu for disabling autosave for individual files would make some people more comfortable using Docs and Sheets. This would disable simultaneous editing for the files in question, but most of the time, people are working on their own files, so keeping autosave enabled matters for just a small fraction of files.

Second, while working entirely online has its advantages, if your Wi-Fi connection is unstable, this can be problematic.

Third, adjustments are required for some of the Google apps to make them work with screenreader programs. How to do this varies from one Google app to the next, and there is no consistent logic to this. That said, most of these adjustments only have to be made once.

How do the Google and Office app equivalents stack up against each other? Here are a few observations.

If you know the basics for editing and formatting documents and spreadsheets, Docs and Sheets are fairly easy to learn and use. Simultaneous editing works well. This may be important if it is something you do at work or school.

On the negative side, headings and links navigation is straightforward in Word, especially with JAWS. It is more complicated in Docs. The JAWS Text Analyzer and Speech and Sound Schemes features for proofreading are only available with Word. If you have come to rely on these features, using Word is your best bet.

With Gmail online, some basic actions like reading and deleting messages, and handling attachments, require additional keystrokes. As somebody who has trained screenreader users to use both Gmail online and Outlook, I can say pretty definitively that, for the novice user, emailing basics are far easier to learn and less frustrating with Outlook than with Gmail.

One Gmail drawback is the obvious one that it only works with Gmail accounts, which is not the case with Outlook.

Gmail online has at least one clear advantage over Outlook. I pointed out in Chapter 4.9.1 that the Outlook Drafts folder for Gmail accounts has been completely broken for a long time. But the Drafts folder works fine with Gmail online.

Because I have not yet learned how to perform more advanced Gmail actions like sorting and filtering messages, creating rules, creating and managing custom folders, etc., I cannot comment on how they stack up against Outlook.

It is not currently possible to deliver a presentation to an audience with Google Slides if using a screenreader. While students are frequently given assignments to prepare presentations and just hand them in, in work situations, the entire rationale for preparing presentations is to deliver them to a live audience. If screenreader users cannot do this in Presentation mode, this pretty much renders the application useless. My understanding is that this was broken in a previous Google update, and hopefully, they will fix it some day soon. Until then, if you need to deliver presentations to an audience, forget about Slides and learn PowerPoint instead.

The Google Calendar has several points in its favor when compared to the Outlook Calendar. It is easier to learn. With just a handful of intuitive keystrokes, you can quickly master the basics of calendar navigation, creating events, and editing them. Navigation is lean and mean with minimal verbosity. In contrast, the Outlook Calendar is annoyingly verbose when navigating day by day and event by event. That said, if you work primarily with Outlook for emailing, integration is more seamless with the Outlook Calendar. If you operate primarily in the Google Workspace, you will undoubtedly prefer sticking with the Google Calendar. For many people, calendar choice ultimately depends on what is used in the school or workplace.

For creating registration forms, questionnaires, quizzes, or other types of forms, Google Forms can’t be beat. While the learning curve is a bit daunting, creating forms is completely accessible with a screenreader. Even better, the forms you create are also completely accessible, easily navigable and fillable with standard screenreader keystrokes. And of course, it is free!

While Microsoft has an app for creating forms, I must admit to ignorance at this point. That said, while you can create forms with Word, whenever I have tried to fill out a form created in Word, the experience was terrible, even when the forms were created by somebody who was supposed to know something about accessibility. This left me with no desire to learn more about them. In contrast, you can’t mess up a Google form unless you try really hard. Accessibility is completely built in.

Regarding technical support and reference resources available to screenreader users, I am of the opinion that Microsoft is currently far ahead of Google for a couple of reasons. First, the MS Office Suite has been accessible with at least one screenreader – JAWS - for over two decades while the Google Workspace has been accessible for less than half that time. Over those two decades, a lot more accessibility-related knowledge has built up in Microsoft, assistive technology companies, and among screenreader users. I always conduct online searches for accessibility-related issues before contacting technical support in companies. There are a lot more helpful text-based and YouTube search results out there for Windows-related products than for Google apps when it comes to guidance on how to do things accessibly.

Second, you usually get what you pay for, and when you pay nothing, you can’t expect a whole lot. With Office, you can call the Microsoft Accessibility Help Desk and get immediate assistance from knowledgeable experts. They can remotely take over your computer and troubleshoot your problem. Many people, including me, think highly of this service. By contrast, with Google you have two options. First, you can fill out an online form and wait until the next day for somebody to respond. Unfortunately, they don’t tend to be very helpful. The last several times I sent them queries on Google Workspace accessibility issues that I considered fairly basic, They had no answers.

Second, with the Be My Eyes smartphone app, you can call them to ask your question. But the last time I did this, they were not able to remotely take control Of my computer. For all but the simplest problems, this is a major limitation. Other people may have had better experiences than me, but my unfortunate impression is that if you run into accessibility problems with Google apps, you are pretty much stuck.

If you are a long time Microsoft Office user, how might you incorporate The Google apps into your technology toolbox? Here are a few ideas.

If you are not interested in investing a lot of time learning Docs or Sheets, familiarizing yourself with just a few basic editing commands, most of which are the same as in Word or Excel, can be sufficient to edit a Doc or Sheet that you are collaborating on.

Many longtime Outlook users have never really become comfortable with the Outlook Calendar. If this sounds like you, take just a few minutes to explore the Google Calendar. You will quickly see how easy it is to use. On your iPhone, link your Gmail account to the native Calendar app in Settings. You will find this to be an easy way to schedule and keep track of your appointments in a synchronized fashion.

Because Gmail automatically saves all your contacts over time, take advantage of this feature to export them to your Outlook Contacts folder so you can use them there. You can also create automated reply messages when you are away from your job with the Vacation responder. Steps for exporting Gmail contacts to Outlook and using the Vacation responder can be found in Chapter 12.6.5.

If you need to create accessible forms, it is hard to beat Google Forms. These online forms will be completely accessible. No matter how hard you try, you can’t screw them up accessibility-wise. By contrast, whenever I have tried to fill out a form created in Word, it was extremely frustrating, leaving me with little desire to learn how to create forms in Word.

What if you are more of a Google Workspace user than an MS Office Suite user? If you are in your early thirties or younger, you may have been initially exposed to the Google apps in school rather than to MS Office. The Google Workspace may be your primary point of reference. From this perspective, here are a few things to consider about integrating Office more fully into your repertoire.

First, like it or not, the Office Suite dominates most workplaces, and that is not going to change any time soon. Familiarity with the Office Suite is a requirement for pretty much all computer-based work. In such circumstances, creating and editing Word documents and Excel spreadsheets are almost always a necessity. In some work environments, the Outlook Calendar is required for scheduling meetings and accepting meeting requests. If you gain familiarity with these applications while retaining your knowledge of the Google apps, this puts you in a stronger position going forward.

Also, with regard to Outlook, it is quicker to read messages, delete them, and handle attachments than is the case with Gmail online. Using Outlook for performing these basic functions will allow you to get through your messages faster.

If you already know how to prepare presentations in Slides and need to make a presentation to an audience, download the file to your computer as a PowerPoint file and present it using the keystrokes listed in Chapter 6.1. If you are not yet familiar with Slides and have access to PowerPoint, learn PowerPoint instead. It is used much more frequently than Slides in professional settings.

In conclusion, one of the guiding principles of this book is to diversify your technology choices and expertise to make you more competitive in the workplace, successful at school, and more adept at managing your personal life. As is the case with screenreader programs, web browsers, and cloud sharing apps, picking and choosing with a goal of taking advantage of comparative strengths while sidestepping weaknesses is a winning strategy. Adopt this approach with the Google Workspace and the MS Office Suite too.

# Chapter 13 Zoom and Microsoft Teams Meetings

The bulk of this chapter is devoted to Zoom. At the end, I briefly present some basic information in how to participate in and schedule Microsoft Teams meetings with a free account. This is by no means a full presentation of Teams and its capabilities.

Since the outbreak of the COVID pandemic in early 2020, Zoom has become an essential tool for communicating in work, school, and social settings. While several other remote meeting platforms exist, Zoom is by far the most popular. It is nearly 100 percent accessible and easy to use.

Topics covered here include account settings, procedures for scheduling meetings, inviting participants, and hosting.

If you simply wish to participate in Zoom meetings, it is not necessary to have a Zoom account. A Zoom account is required for scheduling and hosting your own meetings. Even if you are not interested in hosting, with an account, you will be able to change settings and benefit from access to the iPhone app with its easy-to-use interface. I will start with the basics of participating in meetings, and then go on to discuss Zoom accounts and the things you can do with them.

## 13.1 Keystrokes for Participating in Zoom Meetings

The keystrokes below only work if you are situated in the active Zoom meeting window. If you press Insert + T, your screenreader will either say “meeting controls,” or “Zoom meeting.” If it only says “Zoom,” this means you are in the window for the desktop Zoom app, not the active meeting window. The keystrokes below will not work if you are in the “Zoom” window.

If you are not currently in the active meeting window, press Alt + Tab until you get back to it. To get into that window more quickly, hold down Control + Shift and Alt together.

Once you are in the active meeting window, you can Tab through to find the various controls, but it is more efficient to use the following keystroke combinations instead.

* Alt A - mute/unmute audio: In any Zoom meeting with a reasonably large number of participants, you should always stay muted if you are not speaking or do not plan on speaking soon. Unwanted background noise is disruptive and irritating. It reflects poorly on the person who is unaware that he or she is unmuted. You should frequently double-check your muted/unmuted status to avoid this problem.
* Alt V - toggle video on/off: With your video on, participants will see whatever images your computer camera displays. If using a laptop, be sure you know where the camera is located. It is usually near the top middle of your screen, but not always. Verify with a sighted person that the screen is properly tilted to focus on your face rather than on some other part of your anatomy. Also be vigilant that nothing unsightly is visible in the background. The camera typically displays a wider background image than you might imagine. Horror stories abound on embarrassing images being picked up from people’s cameras.
* Alt Y - raise your hand: In large meetings hosts may ask you to raise your hand to be acknowledged during pauses for discussion. You can press Alt Y again to lower your hand if you no longer wish to be acknowledged. A feature was introduced in June 2023 whereby, if you unmute yourself after raising your hand, a 10 to 15 second countdown will be automatically triggered, after which your hand will be lowered. This is intended to save hosts lots of time having to manually lower hands once participants are unmuted.
* Alt H - Chat: You can submit questions or comments during a meeting in text format. Pressing this key combination opens a dialog where you first land in an edit field, (although your screenreader may not announce it). Type in a message and press Enter to send your chat to all meeting participants. Tab one more time to access a list of chats sent during the meeting. The list is organized chronologically, with the earliest chat message at the top of the list. Press Tab again to the To everyone button drop-down menu. To send a chat to an individual rather than the entire group, press Enter here and Down arrow to the participant to whom you would like to send a chat. Press Enter, type in your text, and press Enter again to send it. To save a list of chats sent during the meeting, continue Tabbing to The More chat options button drop-down, and press Enter. If the host has enabled saving chats, you will land on “Save chat.: Press Enter here and a text file will be saved in a folder entitled “Zoom,” located in your Documents folder. The text file will be placed in a subfolder for this meeting.
* Alt U - Participants list: You first hear the number of participants currently on the Zoom call. You can then Down arrow through the list, hearing the name of each participant, as well as information about their status (muted/unmuted, video on/off, etc.). While in the list, press Home to quickly return to the top of the list where your status information is found. You are always at the top of the list, followed by hosts and participants with raised hands. I frequently go here to check my status and to see who else is on the call. It is not always clear to me whether or not I am muted, so I often come here to double-check.
* Alt S - screen share: After pressing this keystroke, Tab several times to the Share computer sound checkbox. Press the Spacebar to check this if you want to share your computer audio, including your screenreader voice. Tab several more times to the Share screen button and press Enter. To end screen sharing, simply press Alt S again.
* Alt R - Start and end local recording (see more on recording meetings in Chapter 13.4.3 below).
* Alt P - Pause and resume recording: You can pause and resume in mid-recording using this keystroke.
* Alt Windows S (JAWS only): Use this keystroke to silence alerts. Screenreader users often become annoyed with unwanted verbosity, such as announcement of participants entering and leaving meetings, and chat postings.
* Alt Q or Alt + F4 - Leave meeting: If you are a participant, press either of these two keystrokes, Tab to the Leave meeting button and press Enter. If you are a host, continue Tabbing to the End meeting for all button and press Enter to terminate the meeting.

## 13.2 Creating a Zoom Account

There are several types of Zoom accounts. I will just talk about the differences between free and pro accounts. With a free account, you can host meetings for only 40 minutes. With a pro account, you can host meetings with up to 100 persons for up to 24 hours. As of the writing of this book, a pro account costs $15 per month or $150 annually in the United States. While there are other differences between free and pro accounts, the free account time limit is the most important one.

Getting up and running with Zoom involves creating an account and downloading the Zoom app to your computer.

To create an account, go to: [Zoom Sign Up](https://zoom.us/signup), and do the following:

1. On the page that opens, in the Year of birth edit field, type in your four-digit birth year.
2. Tab to the Continue button and press Enter.
3. On the next page, navigate to the Email address edit box and type in the email address you will be using for this account.

Tab to the Continue button and press Enter. This opens the Verification code page.

1. Open your email application. In the email message you receive from Zoom, find the seven-digit verification code
2. Return to the Verification code page and Enter the code in the edit field.
3. Tab to the Verify button and press Enter.
4. On the next page that opens, type in the password twice that you want for this account. Password requirements include a minimum of eight characters, at least one upper and lower case letter, and at least one number.
5. Tab to the Create account button and press Enter.
6. Download the Zoom desktop app at: [Zoom Download Center](https://zoom.us/download).
7. In your Downloads folder, open the installation file entitled “ZoomInstaller.exe,” and install it.
8. A desktop shortcut labeled “Zoom Workplace “ is created as part of the installation process. Open it and type in your account’s email address and password.
9. Tab to the Keep me signed in checkbox and press the Spacebar to check it.
10. Shift + Tab back once to the Sign in button and press Enter.

Note that this process is sometimes finicky, and may involve some hiccups. Be patient. It will eventually work.

## 13.3 Overview of the Zoom Desktop App and Changing Settings

As part of the installation process, a Zoom Workplace shortcut is placed on your desktop. Use this app to adjust settings, schedule and start meetings you are hosting, and switch between multiple accounts if you have access to more than one.

Let me say upfront that I am no fan of this app. Over the last couple of years or so, I have become increasingly frustrated with it. It is constantly changing, lots of useless clutter appears in the menus, annoying popups trying to sell you the latest new feature are always getting in the way, and processes that were previously easy have become needlessly complicated. As soon as one accessibility or usability problem gets fixed, something else breaks. In the early days of the Covid pandemic, Zoom crushed the competition because of its simplicity and dependability. In striving to add new bells and whistles, they seem to have forgotten this basic principle. Consequently, the procedures discussed below are subject to sudden and unpredictable change.

After activating the Zoom desktop shortcut, you land on one of the tabs in the app’s menu structure. Each menu area is called a tab, and there are currently four of them. . Press Control + Tab to move between them. I will only cover the Home and Meetings tabs. The Home tab is where you can perform updates, sign into and switch accounts, and change account settings. The Meetings tab is where you schedule meetings, invite participants, and start the hosting process. After navigating to the desired tab, Tab through its dialog elements.

If you press Insert + T while in the Zoom app, you will hear “Zoom Workplace.” This can be a source of confusion if you are in a meeting because the active meeting appears in a separate window whose title is either meeting Controls or Zoom Meeting.” If you are in the Zoom Workplace window, it is important to remember that the quick keys listed above related to participating in meetings will not work.

### 13.3.1 The Account Dropdown Menu

After Control + Tabbing to the Home tab, Tab several times to the dropdown button with your account name on it and Up or Down arrow through the list. There are quite a few items here. I will just discuss the most useful ones. Up arrowing is quicker for getting to the items that interest us. In the order in which they appear as you Up arrow are:

* Switch accounts: Press Enter if you want to change accounts. I have access to a free personal account, a pro work account, and another pro account for the Bay State Council of the Blind, of which I am president. If you have access to several accounts, come here to switch accounts for setting up meetings associated with other accounts. Press Enter here for a list of those accounts you have already logged into. Up or Down arrow to the account you would like to switch to, and press Enter. An option for adding new accounts also appears at the bottom of the list.
* Check for updates: Come here every few weeks to see if an update is available. The process is quick and easy. Tab to verify that an update is available. If it is, press Enter. The Install button does not immediately appear. Wait a minute or so, and Tab around until it appears. then press Enter. Shortly thereafter, Zoom will announce, “Your client has been successfully updated.” Note that you cannot perform updates while you are in a meeting.
* Help submenu: Open this to access Help information or communicate problems to tech support. With regard to tech support, I have had more success by emailing their accessibility support desk, rather than general tech support. You can reach them at: [access@zoom.us](mailto:access@zoom.us).
* My Profile: This will redirect you to your online account where you need to log in. Here you can change the full array of your account settings.

### 13.3.2 Changing Settings In The Desktop App

Although you cannot change the full array of account settings here, you can change many important ones. To access your account settings in the Zoom app on your PC:

1. Open the Zoom app from your desktop shortcut.
2. Control + Tab to the Home tab.
3. Tab several times to the Setting button[[24]](#footnote-24) (just after the account dropdown button), and press Enter.
4. Tab once to the Categories list. Your screenreader also says “general,” which is the first category.
5. Continue Down arrowing to hear the other categories. When you land on a category you want to explore, press Enter to give focus to its corresponding dialog. If you forget to press Enter, focus will remain on the last dialog you were in when you tab through

#### 13.3.2.1 General Settings

There are a few check boxes here worth considering:

* Integrate Zoom with Outlook: Check this check box if you are an active user of the Outlook Calendar. If you schedule meetings with Outlook, they will appear in your Calendar after you save them.
* Automatically keep Zoom desktop client up to date: Check this if you do not want to perform manual updates.[[25]](#footnote-25) Although updates are usually quick (just one or two minutes), if you choose to update automatically, it is a good idea to join meetings a few minutes early to avoid surprises.

#### 13.3.2.2 Video Settings

The first several tabs in this dialog relate to camera hardware and various ways video appears during meetings. Unless you have well-informed reasons for doing so, don’t change most of the defaults. One point is worth mentioning, with respect to a setting that is present in some Zoom versions and absent in others. You may have the option to enable or disable turning on your video when joining a meeting. If it is present, it is critical that you disable it to avoid potential embarrassments. When you are ready to turn on your video during a meeting, simply press Alt V.

This is different than the Automatically join video by computer when joining a meeting checkbox which simply means that your video hardware will be ready to operate in meetings when you decide to use it. On my computer, checking or unchecking this did not seem to matter one way or another.

#### 13.3.2.3 Audio Settings

The first several tabs in this dialog relate to speaker and microphone settings. If you are a novice user, don’t attempt to change anything here unless you are having audio problems. A few settings near the end of the dialog are important.

* Always check the Automatically join audio by computer when joining a meeting check box. Checking this simply means that your computer audio will automatically begin functioning when you join a meeting. If you do not check this here, you will have to manually do it every time you join a meeting.
* Deciding whether to check or uncheck the Mute my microphone when joining a meeting check box is your personal choice. My preference is to keep it unchecked, unmuting myself when I am ready to speak. If you check it, keep in mind that people will hear your audio as soon as you join a meeting.
* The Press and hold SPACE key to temporarily unmute yourself checkbox is checked on by default. As an alternative to pressing Alt A, you can unmute yourself by holding down the Spacebar. When you release it, this mutes you again.

#### 13.3.2.4 Virtual Backgrounds

If you plan on turning on your video during meetings, you can set a virtual background so that your camera displays this rather than whatever else is visually behind you. You can select an image created by Zoom or one of your own. Once you have set a virtual background in the account settings, it will be displayed each time you join a meeting from your PC using that account. You can also change it later or turn it off.

To add a virtual background already included in your Zoom settings:

1. In Settings, Down arrow to Background and Effects and press Enter.
2. Tab to the Virtual Backgrounds tab. If one of the other tabs is selected instead (Video Filters or Avatars), Up or Down arrow to select the Virtual backgrounds tab.
3. Tab to the Category list: Virtual backgrounds list box. Your screenreader announces the name of the currently selected virtual background, or none if you have not previously selected one. Any images that you added from your computer are identified by their file names. This is a grid, so use all four arrow keys too navigate to a different selection. Simply landing on it selects it. It is not necessary to press Enter or the Spacebar, although that doesn’t hurt. Note that if this is the first time you have attempted to choose a preset virtual background, when you first press Right Arrow, a Download smart virtual background package dialog appears. Tab to the “Download” button and press the Spacebar to perform the download. A set of virtual background options now appear (the San Francisco Golden Gate Bridge, the Northern Lights, the planet Earth, and several more).
4. To turn your virtual background off, Arrow to None.
5. When finished, press Escape to exit Settings.

To add an image saved on your computer to the Virtual backgrounds list:

1. Press Enter on the Add image button, which is one tab past the Virtual backgrounds tab.
2. A context menu appears with the first choice being add image. Press Enter on this.
3. The Choose a background image, a dialog appears. It is similar to any standard Open dialog box. Navigate to the image you would like to add and press Enter on it when you find it. It now becomes your active virtual background until you return to the Virtual backgrounds list to change it.
4. Press Escape to exit Settings.

#### 13.3.2.5 Recording Settings

Tab once to see the default location where meeting recordings are saved on your computer. This is usually a folder in your local Documents folder entitled “Zoom.” However, if you are using OneDrive, the default save location of the Zoom folder will be in the Documents subfolder of OneDrive instead. Continue tabbing to the Local recording change button to change the default save location if you wish to do this.

#### 13.3.2.6 Profile Settings

Tab once to the Edit profile picture button and press Enter to edit an already uploaded photo of yourself. You may require some sighted assistance to properly locate and resize your photo. In the Edit profile picture dialog, you can also Tab to the Change picture button if you want to upload a different photo.

#### 13.3.2.7 Keyboard shortcuts Settings

The keyboard shortcuts listed in Chapter 13.1 above only work when you are in the active meeting window. For example, if you are in the Outlook inbox and press Alt A to mute or unmute yourself, nothing will happen. You must Alt + Tab until you return to the active meeting window, or alternatively, press Control + Shift Alt to quickly return there.

In this dialog, you can assign global shortcuts so that they will work during Zoom meetings, regardless of your current window focus. I find this incredibly useful because I constantly mute and unmute myself during meetings. Not having to return to the active meeting window every time saves me lots of keystrokes. I have also set Alt U as a universal shortcut because I frequently navigate to the Participants panel. Although there is a large number of universal shortcuts, do this for just a few of them.

To set Alt A and Alt U as universal keyboard shortcuts for muting/unmuting and going to the Participants panel, respectively, do the following:

1. Open the Settings categories list, Down arrow to Keyboard shortcuts, and press Enter.
2. Tab to the Keyboard shortcuts list.
3. Down arrow to Mute/unmute my audio.
4. Tab twice to the Global shortcut checkbox, and press the Spacebar to check it.
5. Shift + Tab back to Mute/unmute my audio. Yu will notice that it is now checked
6. Down arrow to Show/Hide Participants Panel.
7. Tab to the Global shortcut checkbox, and press the Spacebar to check it.
8. Press Escape to exit Settings.

In deciding which global shortcuts to enable, keep in mind that this could introduce conflicts if these same keystrokes are used in other applications. For example, Alt S is the Zoom shortcut to open the Screen share dialogue. It is also the shortcut key for sending Outlook messages. If you enable Alt S to be a universal shortcut key, you will not be able to use this keystroke for sending Outlook messages if you are in a Zoom meeting.

In cases like this, you may wish to redefine an existing shortcut key. As an example, I will redefine the Zoom shortcut for screen sharing from Alt S to Alt B. I have chosen Alt B because I am not aware of any conflicts with other applications that I commonly use. Steps are:

1. Open the Settings categories list, Down arrow to Keyboard shortcuts, and press Enter.
2. Tab to the Keyboard shortcuts list.
3. Down arrow to Start/stop screen sharing.
4. Tab to the Alt plus S Shortcut button and press Enter. “Alt plus S” indicates that this is the current shortcut, but only within the Zoom meeting window.
5. Type in the shortcut you want to reassign, in this case, Alt B.
6. Tab to the Global shortcut checkbox, and press the Spacebar to check it.
7. Continue tabbing to hear verification that the global shortcut has been reassigned as Alt B.
8. Press Escape to exit Settings.

In any of the dialogs for individual shortcuts, you can tab to a Restore defaults button. Pressing it will remove all global shortcuts you have set, as well as restore the original Zoom shortcut keys. For example, if I pressed this button after having made the changes I outlined above, Alt A and Alt U would return to only working while in the Zoom meeting window. Alt S would be restored as the Screen sharing shortcut, and it would only work while in the Zoom meeting window.

#### 13.3.2.8 Accessibility Settings

Here you can select among a wide variety of screenreader alerts to silence, thus reducing unwanted verbosity. Most of these settings relate to hosts, and some are only relevant for those who are hosting meetings with pro and webinar accounts. One alert type that many screenreader users prefer to silence is participants entering and leaving meetings. To see the array of choices, after navigating to the Accessibility category and pressing Enter, Tab to the Screenreader alerts list box. Then Down arrow through the choices and check or uncheck as desired. Press Escape when finished.

## 13.4 Scheduling, Hosting, and Recording Zoom Meetings

Managing meetings involves scheduling through the desktop app, inviting participants, and hosting. You will also want to know how to record meetings. Because of the 40 minute time limit on free accounts, if you plan on regularly hosting meetings, you will want to have access to a pro account.

You can initiate instant meetings, as well as schedule meetings for later. I will start with instant meetings.

### 13.4.1 Instant Meetings

Steps for starting an instant meeting are:

1. Open the desktop Zoom app, and press Control + Tab until you get to the Home tab
2. Tab to the Start a new meeting with video off button, and press Enter. This brings you into the active meeting window. For the moment, you are the only participant.
3. To invite others, Tab to the Meeting Information button and press Enter.
4. Tab to the Copy Link button and press Enter.
5. Prepare an email to invitees, paste the link into the message body, and send it.

When invitees activate the link, this will bring them into the meeting. After the meeting is concluded, the link is no longer valid.

### 13.4.2 Scheduled Meetings

In September 2024, Zoom introduced a merged calendar feature that made the process of managing meetings (scheduling, starting, etc.) extremely complicated and frustrating, at least for screenreader users. Disable this feature to make the processes for scheduling and managing meetings more tolerable. Steps are:

1. Sign into your Zoom account at: <https://zoom.us/signin#/login>
2. Activate the Visit Settings link.
3. Open the Mail and Calendar tab. JAWS users can press the apostrophe key to navigate by tab, and then pressing Enter on the one they want to open.
4. Open the Meetings tab.
5. Press H to go to the Merge Meetings and Calendar tabs heading.
6. Down arrow to the Merge Meetings and Calendar tabs toggle button and press Enter to toggle it off. Your screenreader should say, “Your settings have been updated.”

Now that the Merge calendars feature has been disabled, steps for scheduling a meeting are:

1. Open the Zoom app from your desktop, and Control + Tab several times to the Meetings tab.
2. Tab to the Schedule meeting button, and press Enter.
3. You first land on Schedule meeting. You can Down arrow to two other choices: schedule from Outlook and schedule from Google Calendar. We will stick with the first choice: Schedule meeting. Press Enter on this.
4. You land in an edit field prefilled with the text “Topic [your account name] Zoom Meeting.” Type over this with the title of your meeting.
5. Tab to the Start date edit combo box, prefilled with today’s date. To change the date, press the Spacebar which opens a date picker grid. Right arrow to move forward day by day, or Down arrow to move forward one week. Press the Spacebar on your choice.
6. Tab to the Start time edit combo box, prefilled with a time 30 minutes ahead of the current time. Type in the desired start time, being sure to add a colon and AM or PM, as in 1:30PM. AM and PM can be upper or lower case.
7. Tab to the End time edit combo box, prefilled with a time 30 minutes after the start time you just inserted. Fill this in the same way as you did for the start time.
8. The next tab is the Recurring meeting checkbox which is unchecked by default. Leave it unchecked and see below for an easy way to schedule them.
9. The next tab is for the time zone. This is automatically set using your computer’s clock.
10. Tab to the Waiting room checkbox. For Pro accounts this is unchecked by default, but may be checked for free accounts. Unless you have an explicit reason for wanting a waiting room and you are comfortable managing them, uncheck this checkbox.
11. Tab to the Calendar radio button which initially lands on the Outlook calendar. Up or Down arrow to the Other calendars radio button to select this if you do not want to schedule meetings in the Outlook or Google calendar environment. This is my preference. After you do this the first time, it tends to remain there for subsequent meetings that you schedule.
12. Tab to the Advanced meeting options dropdown. Usually you will not change any of these settings, but press the Spacebar to expand. You can tab through the various checkboxes which include: Allow participants to join anytime; Mute participants upon entry; Automatically record meeting on the local computer; and Approve or block entry for users from specific countries/regions.
13. Tab to the Save button and press Enter.

After activating the Save button, your screenreader usually indicates that the meeting has been scheduled, and that you can Tab a few times to copy the invitation to the Clipboard. You are now ready to invite participants to your meeting. You can do this immediately, or wait until later.

For a long time now, gaining proper focus at this point has been inconsistent. Tabbing a few times may only result in silence, or may behave properly. If you Tab and only hear silence, press Escape a few times, or even Alt + F4 which may or may not close the Zoom desktop app. One way or another, you eventually gain proper focus so that you can do the following:

1. Tab several times to the Copy meeting invitation information button and press Enter to place this information on the Clipboard.
2. Open Outlook or whatever other email application you are using and prepare a message, entering the participant email addresses in the To field, and meaningful text in the Subject field.
3. In the message body field, press Control + V to paste the meeting information there. This includes: name of the person or account holder sending out the invitation, start time, topic, URL, meeting ID, and meeting passcode. If you are using a pro account, a list of phone numbers are also listed that can be used by those joining the meeting via telephone.
4. Send the message to your invitees.

If you would prefer to send out invitations closer to the meeting date, steps are:

1. Open the Zoom app from the desktop.
2. Press Control + Tab to get to the Meetings tab.
3. Tab to the Meeting topics list, Down arrow to the meeting and press Enter or the Spacebar to select it.
4. Repeat steps one through four above for preparing and sending an email message to invitees.

It is also possible to integrate the scheduling and invitation processes with the Outlook and Google calendars. These topics will not be covered here.

You can also delete or edit meetings that you have scheduled. To do this, select the meeting using the steps above. Tab to either the Delete or Edit button, and press Enter. If deleting, Tab through the steps to confirm the deletion. I usually don’t bother deleting meetings I have scheduled for specific times, instead just allowing them to expire at midnight of the scheduled day. However, I do take the time to delete recurrent meetings that I no longer need.

To edit a scheduled meeting, Tab through the various fields in the dialog to change the topic, date, time, and/or duration. When finished, Tab to the Save button and press Enter to preserve your changes.

What is the validity of a Zoom link if scheduled for a specific date and time? The link can be used from the moment it is created until midnight of the scheduled day. For example, if it is now May 10 at 1:00 PM and I schedule a meting for May 15 at 3:00 PM, I can use that link any time from now until midnight on May 15, and for as many times as I want until then.

This brings me to the topic of scheduling recurring meetings. I find that checking the Recurring Meeting checkbox mentioned above and carrying out the associated steps is overly complicated for screenreader users. Fortunately there is a much easier way. Given that links associated with start dates are valid until midnight of the specified dates, I simply set start dates that are either the final date of the planned recurrence or a few days past it. To remind invitees and myself that this is what I have done, I include this information in the meeting title. For example, I may set the start date as December 1, 2024 and entitle the meeting as, “Acme Board Meeting (Starts the First Monday of Evry month at 10 AM, Link Valid Thru November 2024).

I understand that Zoom links may be valid for a maximum of 365 days, so to be safe, I don’t schedule recurring meetings beyond this. I instead schedule a new meeting and reinvite participants when the earlier one has expired.

### 13.4.3 Hosting Meetings

Meetings hosted by persons with free accounts have a 40 minute time limit. They then abruptly end. While the meeting link still works, the host is required to restart the meeting and all participants will need to rejoin. Unless you know that an upcoming meeting will be quite short, you will want to schedule and host meetings with a pro account. If you are a meeting participant, time limitations are a function of the host’s account type, not your own account type.

As a participant, you join the meeting by activating the link in the email sent to you by the host. When hosting, you start the meeting through the Zoom app on your PC, either in the Meetings tab or the Home tab. Steps for starting a meeting you are hosting from within the Meetings tab are:

1. Open the Zoom app from your desktop.
2. Press Control + Tab to get to the Meetings tab.
3. Tab to the Meeting topic list (one tab past the Schedule meeting button), and Down arrow to the meeting you want to start. If there is more than one meeting in the list, you must press Enter or Spacebar to select it.
4. Tab to the Start button and press Enter.

This opens the Zoom meeting window. You are now in your meeting. Hopefully, the participants will begin showing up soon.

Steps for starting a meeting you are hosting from within the Home tab are:

1. Open the Zoom app from your desktop.
2. Press Control + Tab to get to the Home tab.
3. Tab to the Join button.
4. You land in a list box where you Down arrow through your scheduled meetings. You will hear the meeting topic and meeting ID.
5. Press Enter on the meeting you want to start.
6. Tab to an edit field where you can type in your name if it is not already there.
7. Tab to the Don’t connect to audio check box and make sure it is not checked.
8. Tab to the Turn off my video and check or uncheck as desired.
9. Tab to the Join Button and press Enter.
10. You should then hear “connecting.” If all goes well, you have now started your meeting.

As a host, you have a wide latitude of options for managing individual participants, as well as for managing the entire group. The Participants panel, accessed with Alt U, is very important for hosting meetings. From here, you can check on participant status, as well as manage individuals or all participants.

When you navigate to the Participants list, you will hear the number of participants in your meeting. However, I have not found that identification of the number of meeting participants is consistent. Sometimes you hear it, sometimes you don’t. This may occur if the number of participants rapidly changes as people join the meeting. Down arrow through the list to hear the name or phone number, and status of each participant. Participant status items include muted/unmuted, video on/off, host or co-host, hand raised, screen sharing, and recording locally or to the cloud.

Meeting participants appear in the following order in this list:

1. You. Press Home from anywhere in the list to quickly return to the top of the list to check your own status.
2. Hosts and co-hosts.
3. Unmuted participants (sorted alphabetically).
4. Muted participants (sorted alphabetically).
5. Phone numbers with no names.

When participants raise their hands, they are moved directly below the host in the list order. Once their hands are lowered, they return to their original position in the list.

To manage an individual participant, first Down arrow in the Participants list to that person. If the person’s hand is raised, Tab once to the Lower hand button and press Enter to lower their hand. If the person’s hand is not raised, the first Tab is Mute/unmute the participant.

Tab again to the More options for (participant name) button dropdown. Press Enter or the Spacebar to expand the dropdown. Down arrow through the options. I have not listed all of them, but among the most important are:

* Chat: Press Enter to open an edit field, type in your chat text, and press Enter to send the chat to this individual.
* Make host: Transfer hosting responsibilities to somebody else. Press Enter once, and Enter again to confirm.
* Make co-host: Same steps as for hosting. Only available for pro accounts.
* Rename: Press Enter, type in a new name, and press Enter. This is often done for participants calling in by phone to give them a recognizable name. You as host might also rename yourself if you are hosting from one of your organization’s pro accounts. For example, my Carroll Center pro account name is “CCBZoom7.” I rename myself so participants know who I am.[[26]](#footnote-26)
* Allow to record local files: Participants must ask for the host’s permission to record. This is where hosts do this.
* Put in waiting room: Temporarily remove a participant from the meeting, and come back here to bring them back into the meeting.
* Remove: Hopefully, you will never be bothered by unruly and abusive “Zoom bombers.” But if you are, this is where you eject them from the meeting. They cannot return to the meeting with the same username.
* Report: You can report abusive participants to Zoom so that the company can block or cancel their accounts.

Continue tabbing to the More options to manage all participants button dropdown, and press Enter or the Spacebar to expand it. Down arrow through the options which are checked or unchecked, depending on current status. Press the Spacebar to enable or disable them. These include:

* Ask all to unmute.
* Mute participants upon entry. This may be done to guard against audio that can disrupt speakers.
* Allow participants to unmute themselves. Hosts may disable this to prevent unintended disturbances from people who are unaware that they are unmuted.
* Allow participants to rename themselves.
* Play sound when someone joins or leaves: Hosts may find this chime disruptive, especially after a meeting is in full swing. I often turn it off a few minutes into the meeting.
* Enable waiting room: Hosts often keep people in the waiting room in the few minutes before a meeting begins to check that audio and video is working properly.
* Lock meeting: You can close the meeting to new entrants. For example, to instill discipline about timeliness, a teacher might require that all students be in the meeting no later than ten minutes after the scheduled start time. Anybody attempting to join after that interval would be blocked from joining.

As host, you can also mute all participants by pressing Alt M.

### 13.4.4 Recording Meetings

With a free account, you can record meetings that are then downloaded to your computer. This is referred to as “recording locally.” With a pro account, you can record locally, as well as upload recordings to the Cloud. I will limit my discussion to local recordings.

When recording, both audio and video files are generated. Hosts and co-hosts can make recordings. Participants must be granted permission. See the previous section on how a host does this.

Making recordings is easy. You only need to know two keystrokes:

* Alt R: Start and end a local recording.
* Alt P: Pause and resume recording.

Zoom will inform participants that the meeting is being recorded, as well as when the recording has been ended. Participants who wish to unmute themselves and speak need to Tab to and press Enter on the Got it button to acknowledge they are aware that the meeting is being recorded.

You can go to the Participants panel to see who is doing the recording.

Recordings are only available after a meeting has ended. If you have initiated a recording, you will be informed that the meeting is being converted when you leave the meeting. Your screenreader will indicate percentages during conversion. This can take a long time. For long meetings (one hour or more), the audio and video files are quite large. Your Wi-Fi speed and amount of screen sharing are also variables. In my experience, file conversion has sometimes taken as long as 30 minutes. However, you can be doing other things on your computer at the same time. Just make sure that you keep your computer powered on long enough for the conversion to finish.

By default, recordings are saved in a folder called “Zoom” located in your Documents folder. If you are signed into OneDrive, the default download folder will appear in the Document subfolder of your OneDrive folder. If you are not sure where it is located, find it as follows:

1. Open the Zoom app from your desktop.
2. Control + Tab to the Home tab.
3. Tab several times to the Setting button (just after the account dropdown button), and press Enter.
4. Tab once to the list of Categories.
5. Down arrow to Recording and press Enter.
6. Tab once to hear the file path. It will say something like, “Local Recording, Store my recordings at: C:\Users\your user account name\ Documents\Zoom.
7. In the Zoom folder, recordings are saved in subfolders for each meeting. The subfolder name is composed of: a time stamp for the meeting (date and time); the meeting name given by the host; and the meeting ID number. The following files are found in each meeting subfolder:

* An audio file formatted as M4A, with a title beginning with the word “audio” and followed by a bunch of numbers.
* Chat.txt: If there were any chats during the meeting, this plain text file with the list of chats appears.
* playback.m3u: a playlist file for playing all individual MP4 files of the meeting. You will rarely, if ever, use this file.
* A video file formatted as MP4, with a title beginning with the word “video” and followed by a bunch of numbers.

As mentioned above, for long meetings, these will be large files, especially the video files. When I want to share them with other people, I first rename them and then share them via Dropbox without granting editing rights (see Chapter11.1.2.1).

Even when using a pro account, I prefer to save recordings locally. For recordings saved online with pro accounts, the host receives an email with a link to the web page from where recordings can be downloaded. However, you might not have that email address loaded into your email client. For example, the email for my work account is [CCBZoom7@carroll.org](mailto:CCBZoom7@carroll.org). I have no interest in adding this account to my Outlook only for this purpose, so I only do local recordings.

## 13.5 Important Settings That Can Only Be Changed Online

As mentioned above, not all settings can be changed in the desktop Zoom app. The full array of settings can only be changed online, and several of these may be important to you. You can access your online settings by activating the following link and logging in with your Zoom email and password:

[Sign In - Zoom](https://us04web.zoom.us/signin)

You can get to this same login page through the PC desktop app as follows:

1. Open the Zoom app from your desktop, and Control + Tab to the Home tab.
2. Tab several times to the dropdown button with your account name on it, Down arrow to My Profile, and press Enter.
3. Log into your Zoom account.

To access your account settings, use the Find command (Control + F with JAWS, or Control + Insert + F with NVDA or Narrator), type in “settings,” and press Enter. You land on Settings menu. Press Enter. The most important settings that can only be enabled and disabled online are Chat, Screen share, and certain types of sounds heard when participants join and leave meetings. Press H a number of times to get to these headings (some are level 3 headings, others are level fours). Under each of these is a brief description of the setting, and a toggle for enabling and disabling it.

### 13.5.1 Chat

Here you can allow meeting and webinar participants to send chat messages (note that if you disable this, the following two options will no longer appear).

* Private chat: Allow meeting participants to send direct messages to other participants and allow webinar panelists to send direct messages to other panelists.
* Auto saving chats: Automatically save all in-meeting chats so that hosts do not need to manually save the text of the chat after the meeting starts.

### 13.5.2 Screen sharing

Here you can allow host and participants to share their screen or content during meetings. If this is disabled, participants will need to be switched to host or co-host status before they can share their screens.

### 13.5.3 Sound Notifications

Two types of sound notifications exist for announcing when a person enters or leaves a meeting: a chime for those entering via their Zoom account on a computer or smartphone, and an audio recording announcing names of people entering or leaving who are calling in by landline phone. Both can be disruptive. The announcement for landline callers is especially distracting, and can become intolerable in large meetings. The chime can be turned off in the Other Participants dropdown during meetings. The landline announcement can only be turned off in online settings. To adjust online sound settings:

1. Navigate to the level 4 heading: Sound notification when someone joins or leaves.
2. Down arrow once to the toggle button. If you leave it unpressed, no sound notifications will be made.
3. If you press the toggle on, Down arrow to Play sound for, and press the Spacebar on either of the following two radio buttons:
   1. Everyone: The chime sound can be heard by the host and all meeting participants. Note that the host and participants will hear a chime and telephone recording regardless of what audio device they are using.
   2. Host and co-hosts: The chime sound can only be heard by the meeting host or co-hosts.
4. Continue Down arrowing to the level 4 heading entitled “When someone joins by phone.” Under this, I strongly recommend that you uncheck the Ask to record their voice to use as the notification checkbox. It can be extremely disruptive during meetings.
5. If you have made any modifications, also press the Save button just below this checkbox to update your settings.

Other settings that you may prefer to make the default here, but can also change in the desktop app settings, are:

* Participants video: Start meetings with participant video on. Participants can change this during the meeting.
* Allow participants to join before host: Allow participants to join the meeting before the host arrives
* Mute all participants when they join a meeting: Automatically mute all participants when they join the meeting. The host controls whether participants can unmute themselves.
* Email Notification: When attendees join meeting before host

## 13.6 Additional Considerations

### 13.6.1 Generating AI Summaries

For those with Pro accounts, Zoom introduced a feature for creating written meeting summaries in 2023. These are emailed to the host after the meeting is over, and consist of a short meeting summary, detailed notes, and a listing of decisions taken. Who said what is also noted.

At least for now, these summaries contain lots of inaccuracies and should never be considered definitive. Nor are they intended to substitute for transcripts. Nevertheless, they can be a valuable aid for creating minutes and refreshing memories on what was discussed.

Only hosts can initiate AI summaries. Steps are:

1. With focus in the Meeting Controls or Zoom Meeting window, Tab a number of times to the More meeting controls button menu and press Enter.
2. Down arrow to Start Summary and press Enter. You will hear “Meeting Summary with AI Companion is on,” which is misleading, because it has not yet been activated.
3. Tab once to hear the following explanation of the feature: “Meeting Summary uses AI technology, which may include third-party models. Zoom does not use any audio, video, chat, screen sharing, attachments or other communications-like content (such as poll results, whiteboard and reactions) to train Zoom’s or third-party AI models. We’ll send the meeting summary to invitees after the meeting ends (based on the settings configured for this meeting). Anyone who receives the meeting summary may save and share it with apps and others. The account owner can access the meeting summary. AI-generated content may be inaccurate or misleading. Always check for accuracy.”
4. Tab to the Got it button and press Enter to truly start the summary.
5. Several minutes after the meeting has been ended, go to the email inbox associated with the Zoom account where you should be able to find the message with the meeting summary. Note that if this has been a long meeting, it may take as much as 15 or 20 minutes for the email to arrive.

At any time during the meeting, you can go back to the same place to stop the summary . After stopping it, you will hear “Meeting Summary is off.”

### 13.6.2 Keeping Track of Your Zoom Meetings in the Outlook and Google Calendars

If you are receiving lots of Zoom invitations, keeping track of them can be a big challenge. You may have had the unsettling experience of frantically plowing through your inbox to find a Zoom invitation for a meeting that is starting in just one or two minutes. In Outlook, you can do a couple of things to avoid such unpleasantness. Either create a custom folder called “Zoom Meetings” and move all your meeting notification messages there, or better yet, put them in your Outlook or Google Calendar. If you are comfortable using either of these calendars, it is preferable to transfer them there because you will receive a notification shortly before the meeting. And if one of these calendars is synced with your smartphone, you will receive the notification there too. If you simply put the message in a custom folder, you will need to figure out some way to remember when it starts.

To create a custom folder in Outlook and copy or move messages there, see Chapter 4.4.1.

The Outlook and Google calendars are covered in Chapter 4.8 and Chapter 12.6, respectively. Step-by-step instructions will not be repeated here. Instead, discussion here is limited to ways to access links for joining meetings when you have saved them in one of these Calendars.

If Zoom meeting notifications are sent to you as calendar invitations, all you need to do to transfer the invitation to your calendar is to focus on the message in your inbox, press the Applications key, Down arrow to Accept, and press Enter.

Meeting organizers often place the URL for the Zoom link in the Location field in the Calendar’s meeting dialog. These are not active links. To retrieve them:

1. Navigate to the meeting in your Outlook Calendar folder (remember to Tab to it, not Down arrow), and press Enter.
2. Tab or Shift + Tab to the Location edit combo box.
3. Press the Home key to be sure you are at the start of the edit combo box, press Control + A to select the URL, and then press Control + C to copy it to the Clipboard.
4. Open your browser. Assuming you land in a new tab, paste in the URL by pressing Control + V, and then press Enter to join the meeting.

If instead the meeting organizer places the link in the body of the email message inviting you, the URL can be activated directly from the text field in the Meeting dialog in your Calendar folder. The URL will open in your default web browser.

If you receive a Zoom invitation, but it is not sent as a Calendar invitation, you will need to manually copy and paste the URL in your Calendar folder. Create an appointment using the steps in Chapter 4.8.2. You can then paste the URL in the Location edit combo box or in the body of the edit field in this dialog. When it is time to join the meeting, follow the steps listed above to access the URL.

### 13.6.3 Visual Considerations, Including Tools for Centering your Face With the Video Camera

For sighted people, Zoom is primarily a visual medium. Blind folks, myself included, sometimes forget this. Keep the following in mind:

* Add a picture to your profile. Everybody is expected to have an image of themselves on-file. You can do this from the Settings menu.
* In meetings where the majority of participants are sighted, video will usually be turned on. To verify, Down arrow through the Participants list and you will see that most people have their video turned on.
* Before turning on your own video, be sure that the background in your room is not cluttered and that nothing embarrassing is within camera range. Dress appropriately from at least the waist up. You might also opt to use a virtual background. These can be added in your Zoom desktop app settings.
* For evening meetings, remember to turn the lights on in your room.
* Be sure you know where your computer’s built-in camera is located. For most laptops, it is in the top center above your screen, but don’t just assume this. Also be sure that the camera is angled correctly to capture your face.

A couple of tools exist to aid you in centering your face in the camera lens.

First, Vispero introduced a great feature called Face in View with JAWS 2024. You can use it to check your video appearance during remote meetings. It is quickly activated and easy to use, thus addressing the vexing problem of wondering whether or not you are properly positioned in front of your camera.

To open Face in View, use the layered keystroke Insert and Spacebar together, followed by F and then O. You will hear if your face is centered and what your brightness level is. Use this same keystroke combination to close it. Do this before you get into meetings, or when you are in meetings, but with your video turned off. It will not function while video is on because it needs access to the camera to get its bearings. For a full discussion of Face In View, see Chapter 1.2.4.3.

Second, you can download a free app called “Can You See Me” at:

[Can You See Me: because sometimes it's just easier to ask a robot!](https://canyouseeme.app/)

It is very easy to use. Just open it, attempt to center your face relative to your computer’s camera and press Enter. You will hear your face’s position relative to the left, right, top and bottom of the webcam. “Towards the top and in the middle" is a good result. If lighting is insufficient, this will also be indicated. When satisfied, exit the app by pressing the Escape key.

### 13.6.4 Participating in Zoom Webinars

As mentioned earlier in this chapter, free and pro accounts are the two most common Zoom account types. User interfaces are pretty much the same for participants in meetings hosted by people with these types of accounts. However, you will notice several important differences if you join a Zoom webinar meeting.

In Zoom webinars, there are two categories of meeting invitees - panelists and participants. Prior to the webinar, hosts send separate invitations with different links to those they have grouped in these two categories. If the host categorizes you as a participant, you will not be allowed to unmute yourself before first being asked to do so by the host. Nor will you be able to access the Participants list. Panelists can mute and unmute themselves whenever they wish. They are also able to view lists of panelists and participants.

The iPhone app interface is also different for participants. The More button does not appear, and the Raise hand button is found on the main screen of the meeting.

### 13.6.5 Zoom on the iPhone

Many people prefer participating in meetings using their smartphones rather than their computers. However, you should probably avoid hosting meetings on your iPhone. Experienced hosts counsel not to do this because it is difficult to manage participants using this interface.

Download the Zoom app from the App Store and log into it with your email address and password. To join a meeting:

1. Double tap on the link in the email sent by the host to your email app on your iPhone.
2. You may first land on a screen with the prompt “To hear others, please join audio.” Double tap on the Wi-Fi or cellular data button to join the meeting.
3. If the meeting is being recorded, you will be informed of this. Double tap on the Got it button to be able to unmute yourself during the meeting.

For participating in meetings, the iPhone app has an easy-to-use interface. From the top of the screen, the most important elements of the iPhone meeting screen are as follows”

* The active speaker’s video or avatar. An avatar is a graphical representation of a participant, such as their profile picture. An avatar is displayed when the currently speaking participant (or host) has their video turned off.
* Leave button: Double tap to leave the meeting.
* Mute/unmute my audio button: Double tap to toggle your microphone on/off. Keep it toggled off if you are not speaking. Also keep in mind that if you are unmuted and move the phone around in your hand, other participants could hear this and it would be disruptive.
* Start/stop my video button: Double tap to toggle your video on and off.
* Participants button: Double tap to bring up the Participants screen. Flick right or left to see who else is in the meeting and their current status (muted/unmuted, hand raised, etc.). Double tap on the Close button at the top left to return to the main meeting screen.
* More button: Double tap to see additional options such as Chat and Raise hand.[[27]](#footnote-27)

## 13.7 Tips for Conducting Successful Zoom Meetings

Since the advent of the pandemic, numerous lessons have been learned about how to conduct Zoom meetings. Here are a few of the most important ones for participants and hosts.

As a meeting participant, commit to memory the keystrokes listed in Chapter 13.1 above. The most important of these being Alt A for muting/unmuting, Alt U for navigating to the Participants list, and Alt Y for raising and lowering your hand. To save yourself lots of Alt + Tabbing to get back to the active meeting window, adjust your settings to make the Alt A and Alt U keystrokes into universal shortcuts. To save yourself additional Alt + Tabbing, the Shift + Control + Alt + Keystroke quickly returns you to the active meeting window.

Develop a healthy paranoia about whether you are muted or not, frequently double-checking your status in the Participants list. When not speaking or anticipating doing so soon, keep yourself muted.

To safeguard against others hearing your screenreader when you are typing or when notifications arrive, use headphones. If you are unmuted, sometimes others will hear your screenreader, sometimes they won’t. This varies. But if waring headphones, they will never hear your screenreader, unless you are sharing your computer audio.

Also regarding headphones, to ensure good audio, use headsets with a good microphone. Ask some of those meeting participants whose audio sounds especially good to recommend hardware to you.

Here’s a tip it might be better for me not to mention. I like to have Audio ducking switched on, particularly during long and sometimes boring meetings. When the topic being discussed doesn’t interest me, I mute myself and tidy up my inbox or take care of other chores. Audio ducking enables me to hear my screenreader at full volume while the Zoom speakers temporarily recede into the background. Although Audio ducking works on your iPhone, you can multitask in this way more easily on your computer.

Sighted people love to chat during Zoom meetings. Many blind people can’t stand this because the constant screenreader verbiage drives them crazy. While the bulk of chat is, well, just that, fairly meaningless “chit-chat,” some of it conveys useful information. URL’s to relevant web pages are often posted. I have attended the occasional meeting where hosts did a good job of integrating chat comments and questions into the general discussion.

Check through the chat listings periodically during meetings. Use either the Save chat command or JAWS Speech History (see Chapter 13.5.1) to capture chats that you want to retain. The JAWS Alt Windows S keystroke is also a good friend for disabling alerts and silencing chat whenever it gets too distracting.

When hosting larger meetings involving lowering participant hands and/or managing chats, assign responsibility for meeting facilitation to a different person than the Zoom host. If the meeting chairperson or facilitator also attempts to host the Zoom meting, he or she will soon be overwhelmed juggling these tasks.

Also for large meetings, and especially for meetings of relatively long duration, consider adding co-hosts. Sometimes the combined responsibilities of monitoring raised hands, chat, and keeping people muted can be too much. Dividing up these chores can result in smoother meetings and reduce stress.

Start any important meeting you are hosting at least ten to fifteen minutes early to check that there are no audio, video, or connectivity glitches. For similar reasons, arrive early if you plan on being a presenter.

At the start of meetings, inform participants of the “rules of engagement.” Remind them to mute themselves when they are not speaking so that extraneous noise is minimized. Let them know if they can intervene simply by speaking up, or whether you prefer that they raise their hands or put questions and comments in the Chat. Throughout the meeting, periodically remind participants to remain muted when they are not speaking.

Develop a script in your head on the mechanics of your rules of engagement, including on how to mute/unmute and raise hands with the various devices participants may be using. Such a script could be as follows: “To mute and unmute yourself on a PC, press Alt A, Star 6 on a landline phone, double tap the Mute/unmute button on an iPhone, and Command Shift A on a Mac. To raise your hand on a PC, press Alt Y, Star 9 on a landline phone, double tap on the More button on an iPhone and flick right to get to the Raise hand button. Press Command Shift Y on a Mac.” Periodically remind participants about these keystrokes during the meeting.

If you are using a shared pro account with other members of your organization, be sure to enter the expected meeting duration when scheduling meetings. This will help prevent scheduling conflicts. If you have ever tried to join a meeting when such a scheduling conflict has occurred, you may have witnessed the resulting chaos. Such conflicts can wreck two meetings at once and get people very angry with each other. If scheduling a recurring meeting, enter the day and time of the meeting in the Topic edit field (for example, “Staff Meeting Every Monday from 9:00 to 10:00 AM”).

With a Pro account owned by your organization, your meeting name will be the name the organization has assigned to it. For example, my Carroll Center Pro account username is “CCBZOOM7.” In such circumstances, remember to Rename yourself at the beginning of meetings so everybody knows who you are.

Prior to meetings, consider disabling the Chat function, especially for meetings predominantly composed of blind and visually-impaired people. Blind folks often consider Chat to be an annoying distraction. However, as mentioned above, sighted folks tend to love it, and if properly managed, some chat messages can enrich meetings. Remember that Chat can only be disabled online. It is not possible to do this through the desktop app.

If you anticipate sharing your screen during a meeting, first close all sensitive and extraneous windows. Consider creating desktop shortcuts for files or web pages you plan on opening during your presentation. This will make you appear organized and reduce the possibility of mid-presentation glitches.

Finally, think about whether you want to enable security-related features like the waiting room, the ability to join before the host, and locking the meeting once everyone has arrived. The waiting room feature gives you more Control + Over who you admit, but increases the hosting workload. Locking meetings prevents additional, potentially uninvited guests from joining. However, any late invitees will be unable to enter the meeting. also, if participants are forced to leave because their wi-fi gets temporarily disconnected, they will not be able to reenter the locked meeting.

## 13.8 Participating in and Creating Microsoft Teams Meetings

Microsoft Teams is a communications platform that combines chat, meetings, video calls, file sharing, and more into a single app. You may be asked some day to participate in a Microsoft Teams meeting. Anybody with a PC can participate in a Teams meeting. However, scheduling and hosting meetings can only be done by those with Microsoft 365 accounts. There are several different types of Teams accounts, including free, Home Essentials, Business, and enterprise accounts. The range of things you can do varies by account type.

I will only cover participating in and scheduling meetings with free accounts. “Free account” here means a Microsoft 365 home account for which you have paid nothing beyond $69 for an individual account or $99 for a family account. Important free account meeting limitations are:

* 60 minute limit on meetings for more than two people (one on one limitation is 30 hours).
* Meetings cannot be recorded
* Meetings can not be scheduled through the Outlook Calendar.
* I should also note that, if you search for help by Googling questions, I have found this to be frustrating and misleading. The general assumption seems to be that people are using paid accounts, As a result, some recommended processes do not work with free accounts. These thing said, you should have no problem participating in Teams meetings, regardless of account type, but there are limitations on the actions you can perform when scheduling and hosting meetings.

### 13.8.1 Participating in Meetings

Here are the most important Teams keystrokes for participating in meetings:

* Control + Shift + M: Mute/unmute
* Control + Shift + O: Video on/off
* Control + Shift K: Raise/lower hand
* Control + Shift + L: List of participants with hands raised.
* Control + Shift + E: Share content (same as screen share in Zoom).
* Control + Shift H or Alt + F4: Leave meeting.

When you enter a meeting, you land on the Meetings Control + Toolbar, where you can find pretty much everything you need. Left arrow through the items, and if a shortcut key exists for the action, it is identified. They are listed below in the order encountered, that is, from right to left:

* Share content (Control + Shift + E) Button: Press Enter to open a dialog. You first land on the Include computer sound checkbox. Spacebar to share screenreader sound and other audio. Shift + Tab once to the Active Windows list, Spacebar to expand, and Down arrow to the window you want to share. First in the list is the name of the active meeting. Press Enter on your choice. To end screen sharing, Spacebar on the Stop screen sharing button on the Meetings Control + Toolbar.
* Mute (Control + Shift + M) Button: Toggle audio on and off.
* Turn camera off (Control + Shift + O) Button: Toggle video on and off.
* More button menu, more actions: Spacebar to expand. Among the options are Devices (change microphone and camera), and a few others. For paid accounts, recording meetings is found here.
* Change your view button menu: Nothing much of importance here for screenreader users.
* React Button Has Popup dialog: React to messages with emojis.
* Raise Button, raise your hand (Toggle hand up and down.
* People Button, show participants: Tab to the Attendees tree view, Down arrow through participants and see their status (audio, video, etc.) Hosts can open a context menu for muting individuals and a few other options.
* Chat Button, show conversation: Last item on the Meetings Control + Toolbar. Press Home to get there quickly. Press Enter on the Chat button, which lands you in an edit field. Type in your chat, and press Enter to send it. To access meeting chats, Shift + Tab to the list of chats and Up and Down arrow through them. They are listed chronologically, with the first meeting chat text at the top of the list, including the author and time of the chat. Unlike Zoom, you can use standard Windows keystrokes for selecting and copying individual chats to the Clipboard, and then pasting them into a text editor.
* Note that if a participant shares his or her screen, this opens a new window whose title is “Shared content Meeting now Microsoft Teams.” To return to the Meetings Control + Toolbar, press Alt Tad, whose title is just “Meeting Now Microsoft Teams.”

### 13.8.2 Creating Meetings

There are two types of meetings: instant meetings and scheduled meetings.

#### 13.8.2.1 Instant Meetings

These can be set up very quickly. Steps are:

1. Open Teams and press Control 4 for the Calendar tab (if unresponsive, press Insert + Z to turn on Quick keys).
2. Tab to the Meet now button and press Enter (but Shift + Tabbing is quicker).
3. This opens a dialog where you first land in the Meeting name edit field. Edit as appropriate.
4. Tab to the Get a link to share button and press Enter.
5. Prepare an email to attendees, paste the link into the message, and send.
6. Back in the dialog, Tab to the Start meeting button and press Enter to get into your instant meeting.

#### 13.8.2.2 Scheduled Meetings

Scheduled meetings are more common. Steps for scheduling a meeting are:

1. In Teams, press Control 4 to go to the Calendar tab.
2. Tab to the New meeting button and press Enter (shortcut key: Shift Alt N).
3. Type in the meeting title.
4. Tab to the Start date field and type in the date in MM/DD/YY format.
5. Tab to the Start time field and type in the time (you can also Up or Down arrow in 30 minute increments).
6. Tab to Repeat and check this if it is a recurring meeting. Otherwise leave it unchecked.
7. Tab to the Save button and press Enter.
8. You will be prompted about how to share. Choices are copy link and through the Google calendar. Choose the Share link option.
9. Prepare an email to invitees and paste the link into the body of the message. Note that only a link is generated, so include meeting details (date and time) in the body of the email.
10. Send the message to invitees.

I suggest not choosing the Google Calendar option because it can easily confuse invitees. It will generate a Google Meet link, which is different than the MS Teams meeting link. Invitees may have difficulty figuring out which link to use to join the meeting.

### 13.8.3 Navigating the Calendar to Find Your Scheduled Meetings

After you have scheduled a meeting, you need to know how to find it so you can join your own meeting when it is time. Steps are:

1. Press Insert + Z with JAWS or Insert + Spacebar with NVDA to toggle Browse mode on, and then press Control 4 to open the Calendar.
2. Right and Left arrow to move forward and back a day.
3. Tab or Shift + Tab to select a meeting.
4. Press the Applications key and Down arrow through the options:
   1. Edit
   2. Open meeting chat
   3. Join online: Use this to join a meeting you are hosting.
   4. Copy link
   5. Share
   6. Delete

Unfortunately, with a free account, there really isn’t much you can do to manage a meeting you are hosting such as muting or lowering hands. Similar to Zoom, anybody serious about hosting should get access to a paid account in the workplace or at school.

Finally, you can access Teams meetings on your iPhone. Here is a link to an informative article on this topic from Vision Ireland:

[Navigating Teams on iPhone and iPad with VoiceOver](https://vi.ie/navigating-teams-on-iphone-and-ipad-with-voiceover/)

# Chapter 14 Exploring Artificial Intelligence

Ever since the general release of Chat GPT in late 2022 by the Open AI company, the world has been abuzz about all things AI. Its significance has been compared to the electric lightbulb, the atomic bomb, and other technologies with the capacity to make our lives dramatically better or worse. AI works through large language models to generate results. Rather than attempt to provide an overview in my own words, below is an excerpt from a response using Google’s AI platform called Gemini:

Prompt: Please provide a general introduction of AI and LLMs.

Response: Artificial intelligence (AI) is a wide-ranging branch of computer science concerned with building smart machines capable of performing tasks that typically require human intelligence. AI research has been highly successful in developing effective techniques for solving a wide range of problems, from game playing to medical diagnosis.

Large language models (LLMs) are a type of AI that are trained on a massive amount of text data. They can be used to generate text, translate languages, write different kinds of creative content, and answer your questions in an informative way.

LLMs are a powerful tool that can be used for a variety of purposes. However, it is important to be aware of the potential risks associated with these technologies and to use them responsibly. End of response.

There are now a multitude of AI-related apps out there in the world and new ones are popping up all the time. Some have both free and subscription-based paid versions. Many are available on both computers and smartphones. I will only focus on the free versions of Chat GPT, Microsoft Copilot, Google Gemini, Notebook LM (also a Google product), and Be My Eyes. For each of these, I will discuss:

* How to create an account (if required), and how to access each of these apps.
* How to prepare a prompt and access responses.
* How to access recent activity or history, if available.
* Getting detailed descriptions of images with apps which currently have this feature.
* Uploading files from your PC so you can summarize and/or ask questions about them. And again, only for the free app versions that allow you to do this.

Before discussing the various AI apps, I must mention the important caveat that at least some of what I describe below may soon become outdated due to the continuing rapid pace of AI development. Great new apps may emerge that work better or provide useful features not offered by the current set of apps.

And here’s a totally unedited summary of this chapter created by Notebook LM:

“This document provides a guide to using several free artificial intelligence (AI) applications, including Chat GPT, Microsoft Copilot, Google Gemini, Notebook LM, and Be My Eyes. The guide details how to create accounts, prepare prompts, access responses and history, describe images, and upload files for analysis within each app. Specific instructions are given for both PC and iPhone versions where applicable, highlighting features and addressing accessibility for screen reader users. The author also notes the rapid pace of AI development and the potential for future updates to alter the functionality described. Finally, limitations of the free versions of these apps are discussed.”

I couldn’t have summarized it any better! Let’s start with

Chat GPT.

## 14.1 Chat GPT

To open Chat GPT, go to:

<https://chatgpt.com/>

Create an account with your email and a 12-character password, or log in with your Google or Microsoft account. While you can create chats without an account, logging in allows you to access several useful features including chat history, file uploading, and syncing across devices.

### 14.1.1 Chat GPT on the PC

Chat GPt on the PC is web-based, so after logging in, create a desktop shortcut or favorite/bookmark so you can access it quickly in the future. Standard screenreader quick navigation keystrokes like those for headings, heading levels, edit fields, and buttons work here.

To initiate a chat, in the edit field, type in your prompt and press Enter. You will hear “ChatGPT is generating a response.” When finished, you should hear “Chat GPT says,” followed by the response in Say All mode.

To ease navigation, chats are marked up with headings. Press H to wrap to the top of the page where a level 5 heading entitled, “You said” appears, Below this is the text of your prompt. Under that is a level 6 heading “ChatGPT said,” below which appears the response. The response may also have a series of headings. For example I prompted for an overview of tarantulas. The response was organized under a series of level 3 headings: physical characteristics, habitat, behavior, and so on. Although the heading level hierarchy may seem illogical, it still aids page navigation.

Navigate to the edit box to ask follow-up questions. Responses with the same set of heading levels appear. They are arranged chronologically on the page with the initial question at the top of the page and follow-up responses below.

There is a Copy button below each response that you can use to place it on the Clipboard for pasting into a text editor like Word. To copy all responses of a chat thread, select the entire page (Control + A), copy with Control + C, and paste it into a text editor with Control + V. Edit the text to remove unwanted clutter.

If logged into your account, buttons for several options appear on the page. The most useful ones are discussed below.

With the Attach files button, you can upload files to Chat GPT and ask questions about them, such as summarizing them. Note that Chat GPT is one of a select very few free AI tools which will do this. Google Gemini and Microsoft CoPilot require you to use the paid version at the lofty price of $20 per month. Google’s Notebook LM is the only other free AI tool that I know of with this capability.

When you activate the Attach file button, Down arrow through the choices which include:

* Connect to Google Drive: You will need to sign into your account here before accessing files.
* Connect to Microsoft OneDrive submenu collapsed: Expand it to access personal or school/work accounts.
* Upload from computer

I have only tried out the third “Upload from computer” option. Activate this and the standard Open file dialog appears. Shift tab back through the dialog to locate your file, and press Enter on it to upload it.

A number of common file types are supported such as Word, PowerPoint and PDFs. I noticed that the free version will not support Excel files with the standard.XLSX extension, but when I converted a spreadsheet file to.CSV, it worked. However, I only attempted this with files containing a single sheet.

It also appears that the free version limits you to three file uploads per day, while the limit is much higher for the paid version. I consider this file upload capability to be a significant strength of this free app. To the best of my knowledge, Notebook LM is currently the only other free AI app with this capability.

If you are signed into your account, you will be able to access your chat history. If you have the Chat GPT smartphone app, chat history is synced across devices so you can access Chat history on both your PC and smartphone.

From the top of the page, Chat History appears as a level 2 heading, below which appear level 3 headings for Today, yesterday, the previous 7 days, 30 days, and further back. Under each of the chronological headings appear links for individual chats. Press Enter on one of the chat history links to open it. Just after opening it, Down arrow once or twice to an unlabeled button. Press Enter to expand it. Here you can Down arrow through the four options which include share, rename, archive, and delete if you want to perform one of these actions.

Below that appears the level 5 and 6 headings mentioned above, the Copy button, and so on.

A Voice mode button also appears if you would like to dictate your prompts and hear responses with a high quality synthesized voice. This is a great feature which makes chats truly conversational and allows you to avoid lots of finger flicking. However, on the PC version, I have so far noticed that you can not access the text there. This is possible with the smartphone app, so I recommend you do Voice mode chats there instead if you would like to be able to copy the chat text to your Clipboard. If you perform Voice mode chats on your smartphone, text will be available across devices in the Chat History.

### 14.1.2 Chat GPT on the iPhone

To initiate a chat, navigate to the New message text field and dictate or type in your prompt. Flick right once to the Send button and activate it. You will receive haptic feedback while the response is being generated. VoiceOver then speaks the response in Say all mode.

To manage the chat, activate the Chat GPT 3.5 popup button near the top of the screen. Flick right to the Manage chat button which is collapsed. Double tap to expand it and find the following options: Share, Rename, Archive, and Delete.

Access Chat history by activating the Menu button at the top left of the screen. Chat history is organized chronologically with headings for past dates and buttons naming the chat threads. Activate any of these to read and manage them as described above.

In addition to standard chat text creation, you can use Voice Mode

a great feature called Voice mode can be used with the iPhone app. It enables you to have a conversation with a natural-sounding voice rather than by typing prompts and having VoiceOver read responses back to you. Among other things, it is quicker for generating a chat thread because you don’t have to be continually searching for the New message button, dictating prompts, and then finding the Submit button. The process feels natural and seamless.

Voice mode supports multiple languages. One amazing thing is that you can switch languages in mid-conversation. Just speak your prompt in French or Spanish, and the response will come back in that language.

You can find the Switch to Voice mode button just below the New message text field. The first time you activate it, a screen listing several synthesizer voices opens. Double tap on any of these to hear a sample, select the one you want, and activate the Confirm button at the bottom of the screen. You can return here later to switch to a different voice.

When you activate the Switch to Voice mode button, you will be prompted to start speaking. When finished, double tap on the Close button. This switches you back to VoiceOver. You are also informed of the duration of your conversation in minutes and seconds. It is not immediately obvious how you exit the screen displaying the last response. There is no Close or Back button. Double tap somewhere on the text of this response and you will be returned to a screen where the full conversation string is displayed in the lower part of the screen. The other standard buttons now reappear in the top part of the screen.

Like other text-based chats, the transcript of the conversation is saved in your Chat history.

## 14.2 Microsoft Copilot

Microsoft is a major investor in the Open AI company which developed Chat GPT. Copilot uses Chat GPT 4. There are several ways to access Copilot, both paid and free. There are also personal and enterprise-level accounts. I will only cover the personal version that is bundled into 365 accounts and the free web-based version accessed through Edge.

For best results, you should sign into your Microsoft account to use Copilot. To create a Microsoft account, activate the following link:

[Create or Sign Into Your Microsoft Account](https://account.microsoft.com/account/manage-my-account)

### 14.2.1 Copilot with Personal 365 Accounts

Effective on January 16, 2025, Microsoft integrated Copilot into all existing 365 personal accounts. Key elements of these accounts include:

* The cost for new individual and family accounts will increase by $30 per year, going from $70 to $100 for individual accounts, and from $100 to $130 for family plans.
* For existing accounts, the $30 increase will be applied upon annual license renewal. Account holders will have the option to waive Copilot if they do not wish to pay the higher annual license cost.
* For family 365 accounts, only the principal account holder will have access to this plan.
* Account holders will be subject to a credit of 60 prompts per month. These will renew on the first calendar day of each month. Unused credits will not carry over to the following month.

What are things you can do with Copilot? Here is what Copilot said when I asked for some examples:

Word:

* Automated Formatting: Quickly format documents with consistent styles and layouts.
* Content Suggestions: Receive intelligent suggestions for improving your writing and enhancing clarity.
* Document Summarization: Generate concise summaries of lengthy documents for quick review.

Excel:

* Data Analysis: Perform complex data analysis with easy-to-understand results and visualizations.
* Automated Formulas: Generate accurate formulas based on natural language inputs.
* Data Cleaning: Identify and correct errors or inconsistencies in datasets automatically.

PowerPoint:

* Slide Design: Create visually appealing slides with automated design suggestions.
* Content Generation: Generate slide content based on brief descriptions or bullet points.
* Presentation Insights: Receive real-time feedback on presentation flow and impact.

Outlook:

* Email Drafting: Compose emails using prompts and context-aware suggestions.
* Meeting Summaries: Automatically generate summaries of meetings with key points and action items.
* Task Management: Organize and prioritize tasks directly from email content and calendar events.

To invoke Copilot so you can create prompts:

* In Word, press Alt + I
* In Excel and PowerPoint, press the ribbon shortcut Alt H F X.
* In Outlook, while in the body of an email you are preparing, and only in a Microsoft account email (outlook.com, Hotmail.com, live.com), press the ribbon shortcut Alt H F X.

With Excel, you are first required to have Autosave enabled. If you have disabled it, you will hear “AutoSave is turned off. I only work with files that have AutoSave turned on. Turn it on to continue.”

If you have not removed Autosave from the Quick Access toolbar, the quickest way to turn it on is to press Alt followed by 1 on the number row. If you have removed it, you may wish to add it back. See Chapter ?? on how to manage the Quick Access toolbar.

To reenable it permanently in Word, Excel, or PowerPoint:

1. Press Alt F T to open the Options categories in the application.
2. Press S to first-letter navigate to the Save category.
3. Tab once to the AutoSave files stored in the cloud by default checkbox, check it, and press Enter.
4. Alt F4 out of all open windows in the application and reopen for Autosave to take effect.

Note that if you want to create prompts related to existing Word, Excel, or PowerPoint files, they must first have been saved in OneDrive.

Using Word as an example, steps are:

1. Open Word and press Alt + I. You will hear, ”“Draft with Copilot: Create prompt, 0/2000,” indicating that there is a 2,000 character limit to prompts.
2. Type your prompt, Tab to the Generate button, and press Enter. Copilot says “working on it” while it is being processed, and also indicates when it is ready.
3. When ready, press F6 several times until you hear “edit,” indicating that you are in the pane with the draft results.
4. In Word, headings are usually added, sometimes limited to just level 1 headings, other times with additional heading levels. After reviewing the draft, press F6 one more time to the pane where follow-up actions appear, including prompting for refinements or modifications, like, dislike, keep, and discard.

To refer to a file for purposes of generating prompts related to that file:

1. Navigate to the file in OneDrive. As mentioned above, this only works with files stored in OneDrive.
2. Press the Applications key, Up arrow to Copy as path and press Enter. Thus placing the file path on your Clipboard.
3. In the application, open Copilot, and after composing your prompt and indicating what you would like Copilot to do with the file, paste the file path.
4. Tab to the Generate button and activate it.
5. When Copilot indicates it is ready, press F6 several times to go to the pane with draft results.

### 14.2.2 Copilot on the Web with Edge

#### 14.2.2.1 Generating Chats

To create a prompt and generate responses with Copilot, open Edge and press Control + Shift + period. Your screenreader should say, “Side pane is now showing Copilot.” You should also land in an edit field where you can type your prompt and then press Enter.

It takes several seconds for the answer to be generated during which the screen is silent. When the response is generated, your screenreader will read it in Say All mode.

The web page has a series of level two headings with your chat history. You will first hear “You said,” below which appears your prompt. Under this appears another level two heading which says, “Copilot said,” below which is the response.

The oldest chat is at the top of the page, and the newest one is at the bottom. The quickest way to hear your most recent chat again is to go to the bottom of the web page (Control + End) and press Shift + H or Shift + to go back a heading, and then put it in Say All mode.

Some chats may have level three headings. For example, if you ask for a recipe, level three headings may also appear for ingredients and instructions.

At the bottom of the response, you may find buttons or links where you can go to learn more about the topic, or find source citations.

* There is also a Copy message button you can use to copy the individual prompt and response text to your Clipboard. You can then paste it into a text editor such as Word or Notepad.

There are also Good and bad response buttons you can activate to give feedback.

To ask follow up questions, from anywhere on the screen, press E to quickly return to the edit field, press Enter to get into it, and repeat the above steps. Unlike traditional browser search engines such as Google or Bing where you can only prompt one thing at a time, AI apps such as Copilot remember the context of your prompts, so you don’t need to restate anything.

### 14.2.3 Copilot on the iPhone

In December 2023, a new AI Copilot app was introduced to the iPhone. It is easy to use with VoiceOver. Prior to that, a Bing AI app was available, but VoiceOver navigation was clunky and confusing, so I avoided using it.

When you install the Copilot app, you will be asked to sign into your Microsoft account. Chat history is synced across your devices.

The Copilot app fields and options are similar to those of the PC version. One difference is that a button is present for using GPT 4, the default being version 3.5. You are notified that generating answers may take a few seconds more, but keep in mind that Chat GPT 4 results are more detailed and reliable than those generated by the 3.5 version. Use your judgment about this choice depending on how important the question is. Is accuracy critical when asking for a description of hippos? Probably not. But if asking Chat GPT to write HTML code for a web page you are designing, you want the response to be as accurate as possible.

The Ask me anything field is near the bottom of the screen. Plunk your finger down there and you will quickly find it. Dictate or type your prompt, flick right a couple of times to the Submit button and double tap to activate it. Also notice that the Add an image to search button is just after the Ask me anything field. As on the PC, you can paste image files here and get them described.

After submitting a prompt, VoiceOver will say “generating results.” Once generated, VoiceOver will automatically read the response to you in Say all mode. As on the PC, the message prompt appears as a level two heading, so you can use the Rotor to quickly navigate to it.

Activate the Copy button found just below the response if you want to capture the text and use Edit on the Rotor to paste it into a notetaking app or the body of an email.

A More button is found near the top of the screen. Double tap this to find buttons for New topic, Chat history, Rename, Feeback, and Delete.

## 14.3 Google Gemini

Gemini is Google’s AI engine. To access it the first time, type gemini.google.com in your Address bar, and log in with your Google account.

### 14.3.1 Generating Chats.

To start a chat:

1. Open Gemini, press E to get to the Enter a prompt here edit field, and press Enter.
2. Type in a prompt, such as “please provide a detailed description of an African elephant,” and press Enter. You will hear “Gemini is typing,” and then Gemini replied.”
3. Press Shift H once to get to your message prompt which is tagged as a level two heading. A Listen button is directly underneath. If you wish, activate this to hear the response in a synthetic voice from Gemini (rather than your screenreader voice).
4. Below that is the text of the response.

To ask follow up questions, repeat the steps above.

After the response has been generated, each prompt you prepared becomes a level 2 heading, below which the response text appears.

There are additional buttons under each response. These are:

Good and bad response toggles.

Regenerate to generate a new response.

* Share & export: Press the Spacebar to expand this where choices include exporting the text to a Googledoc and a Gmail message.
* Show more options: Expand this for more choices, including double-checking the response, copy the text, text to speech, and report legal issues related to copyright infringement.

You can also get detailed descriptions of image files saved on your PC. I will not cover this topic because JAWS PictureSmart and Be My Eyes for Windows do this more efficiently.

### 14.3.2 Recent Activity

Near the top of the page, and just below the New chat button appear buttons for each of your recent chat threads, with the most recent one at the top. Press the Spacebar on one of these to open a new tab. The page is organized the same way as described above.

## 14.4 Notebook LM from Google

Notebook LM is a great tool for summarizing and extracting information from documents, audio and video recordings, and web pages. This is one of the few free AI apps you can use for synthesizing information from your own files. And it is the only free one I know of that can be used for extracting information from audio and video files, making it potentially very useful for generating a first draft of minutes from Zoom or MS Teams meeting recordings.

When first exposed to Notebook LM, the audio “deep dives,” as they are referred to. invariably grab everybody’s attention. These sound like fake podcasts. A guy and woman that I refer to as California surfer dudes” carry on banter on the uploaded source. Reactions run the spectrum from fascination, amazement, hilarity, feeling creeped out, or some mix of these. While some might see the deep dives as just a gimmick, I have sometimes found that they offer a perspective I had not considered. And they can also be customized to be a bit less over-the top, or asked to emphasize certain key points.

Regarding the text-based documentation that Notebook LM can also generate, it has significant potential practical value for helping with everyday tasks. Text-based products that can be generated include:

* Briefing documents for summarizing documents and meeting recordings.
* A set of frequently asked questions (FAQ).
* Study guides consisting of a set of short questions and answers to formulate quizzes and aid in absorbing instructional material.

Notebook LM has both free and paid versions. The paid version is referred to as Notebook LM Plus. With the free Notebook LM, you can store up to 100 notebooks (think of a “notebook” as an individual project). Each notebook can contain up to 50 sources. Each of those sources can be up to 500,000 words long. All users start with up to 50 chat queries and 3 audio generations per day. When you approach your maximum number of notebooks, you can delete those you no longer need to free up space.

If you upgrade to Notebook LM Plus, you get at least five times more usage, with up to 500 notebooks and 300 sources per notebook. The daily query limits also increase, providing you with up to 500 chat queries and 20 audio generations per day. Unless you use it obsessively, the free version should easily suffice.

### 14.4.1 Creating a Notebook

The first step in creating a notebook is to upload the files or files you wish to work with. Among the supported file types are: PDF, Googledocs, Sheets and Slides, audio (MP3, M4A, WAV, and others), and MP4 video files. Note that the standard Word (DOCX)and PowerPoint (PPTX) formats are not supported, but these are easily converted into PDFs in the Word and PowerPoint Save as dialogs in their File type combo boxes. Image files such as JPg’s can also be converted into PDF’s and then uploaded to Notebook LM.

Steps for creating a new notebook are:

1. Open Notebook LM, press B to go to the Create new notebook button, and press Enter.
2. Press B to go to the Upload sources from your computer button, and press Enter.
3. The standard Open file dialog appears. Shift Tab back to find your file, and press Enter on it.

Or instead Down arrow to the Choose file button and press Enter to access other options, including Google Docs, Google Slides, Website, YouTube, and Copied text.

Once you have uploaded the file, a number of other buttons appear. Activate the Copy summary button to place a one-paragraph summary of the file on your clipboard. A Notebook LM summary of this chapter appeared earlier and it was pretty good.

Once you have uploaded your source file (or multiple files because this capability also exists), a number of additional buttons appear. I will cover what I consider to be the most useful ones below.

#### 14.4.1.1 Audio Overview

Under a level2 heading appear the controls for generating what I have referred to above as a fake podcast by two surfer dudes who act as hosts. Notebook LM refers to it as a “deep Dive conversation.” There is also a Customize button where you can open an edit box and perhaps ask it to be less chatty and a bit more formal. And below that is the Generate button. Activate this to process the podcast.

Unfortunately, there is no verbal notification to indicate when processing is completed. Pressing H to wrap to the top heading on the page and then Down arrowing brings you to the text: “Down arrow to the text, “Generating conversation… This may take a few minutes. No need to stick around.” And it definitely does take some time, depending on the size of the uploaded source files. I have experienced waits of ten to fifteen minutes.

When processing is completed, the above-quoted text disappears, and is replaced with the name of the audio presentation and a set of player controls, including a Play button and a slider for navigation.

There is also a See more options for audio player button menu which is collapsed. Spacebar on it to expand and Down arrow through the options which include a Change playback speed submenu, Download, and Delete.

If you choose Download, a WAV file will be sent to your Downloads folder. I often then convert it to MP3 format. This reduces file size by as much as 80 percent.

To get a feel for what deep dives sound like, I have generated a deep dive that gives an overview of the fourth edition of my book. You can find the audio file, “WSCP4 Overview by Notebook.LM.MP3,” in the Practice Files folder accompanying the book.

I converted the six-page introduction of my book to a PDF and then uploaded it to Notebook LM. The original audio recording was about seventeen minutes long, and has been edited it down to about seven minutes.

#### 14.4.1.2 Briefing Doc

Activate the Briefing doc button to create an approximately two page overview of the file. This can be done with all the file types mentioned above, but it needs to be emphasized that, as far as I know, this is the only free AI app that is available for interacting with audio and video files. Consequently, it can be used to summarize meeting recordings. I have started doing this with Zoom meeting recordings which Zoom generates in both audio (M4A) and video (MP4) format. While there are some inaccuracies, I have so far found that Notebook LM does an excellent job of getting most things correct. As such, it can be a great aid in drafting meeting minutes.

Once the draft briefing doc is generated, and you have copied and pasted the text into an editor like Word, you will need to do substantial editing because the generated text appears as a single run-on paragraph. I have discovered a trick with Word’s Find and replace command for starting this cleanup process. The briefing doc designates logical sections with a colon after several words as a section title. So, I do the following in Word:

1. Press Control + H to open the Find and replace dialog.
2. In the Find field, type the colon sign.
3. Tab once to the Replace field and type ^p. (The caret symbol is Shift + 6 on the Number row), the special character for a paragraph return. Note that the letter p must be in lower case.
4. Tab several times to the Replace all button and press Enter. You will hear how many replacements were made.
5. Press Escape to exit the dialog.

This creates new paragraphs starting on the line below where the colon appears, making any further editing a bit easier. I hope that in future iterations of Notebook LM Google generates text broken up into paragraphs so users will not have to edit quite so much.

#### 14.4.1.3 Frequently Asked Questions

Activate the FAQ button to generate a set of questions and answers for the source file. As with briefing docs, a single run-on paragraph is generated After copying and pasting the text into Word, use the Find and replace command to break the text up into paragraphs by typing the question mark in the Find field and typing the question mark followed by caret P. This will conserve the existing question marks and follow them with new paragraphs on the next line. Then do additional editing cleanup.

#### 14.4.1.4 Study Guides

Activate the Study guide button to generate a set of questions and answers that can be used to create tests and quizzes about the source file content. This is a great tool for teachers and students. As with FAQ above, use Find and replace to breakup the initial run-on single paragraph into multiple paragraphs, separated out where the question marks appear.

### 14.4.2 Accessing Existing Projects

Once created and saved, notebooks are referred to as projects. On the Notebook LM landing page, previously-created notebook titles appear and they are all labeled as buttons. Navigating to where you can interact with them is a bit tricky. Steps are:

1. Open Notebook LM and navigate to the button with the project name.
2. Press the Spacebar and then tab once. Note that pressing the tab key at this point is absolutely crucial.

The window title should now include the project name. Down arrow to hear any summary you previously created.

Three tabs appear at the top of the page. Press Enter on one of them to select it,[[28]](#footnote-28) and then Escape to exit what sounds like forms mode. Note that pressing Enter is more dependable than the Spacebar for selecting a tab. Actions you can do in each of the tabs include:

* Sources tab: add additional sources to the project. Select all sources or just the ones you want for carrying out additional tasks.
* Chat tab: copying a previously-created summary to the Clipboard, Generating an audio overview, typing in a follow-up query
* Studio tab: loading a previously-created audio overview, generating new study guides, briefing docs, and FAQ.

### 14.4.3 Deleting Projects

You can delete projects you no longer want in your history. Steps are:

1. From the top of the page, navigate to the Select project filter type button menu which is collapsed. Press the Spacebar to expand it.
2. Filter or sort options are most recent, title, and shared with me. Press Enter on your choice.
3. Press Escape to exit forms mode, and then T to go to the top left cell in a table where your projects are listed according to the sort option you chose..
4. Press Control + Alt + Down arrow to move down the first column to the project you wish to delete.
5. Press Control + Alt + Right arrow to move along the row to the Project Actions Menu button menu collapsed
6. Press the Spacebar to expand it.
7. Your first choice is Delete (the other option here is rename).
8. Press Enter and confirm the deletion.

Even though the table is still present after deleting a project, you cannot navigate to additional projects you wish to delete. You must restart the process above and delete them one by one.

## 14.5 Be My Eyes

Be My Eyes has been around a long time on the iPhone for calling sighted volunteers to answer prompts about camera shots. in the Fall of 2023, the company introduced a revolutionary feature called Be My AI which used Chat GPT to generate detailed descriptions of photos taken on the iPhone. In early 2024, Be My Eyes for Windows was introduced for generating image descriptions on the PC. I will first discuss Be My Eyes for Windows, and then Be My AI on the iPhone.

### 14.5.1 Be My Eyes for Windows

In Chapter 1.2.4.1, I discussed JAWS PictureSmart, an AI tool that does an amazing job generating detailed image descriptions. If you are an NVDA user or do not have access to JAWS for other reasons, consider using Be My Eyes for Windows for accomplishing similar tasks. This is the PC version of the fantastic smartphone app whose Be My AI feature describes photos. You will first need to download the app.

#### 14.5.1.1 Download and Installation

Download Be My Eyes for Windows at:

<https://www.bemyeyes.com/be-my-eyes-for-windows>

On that page:

1. Activate the Download for Windows link. This may open a popup for downloading it in Danish. If this happens, tab to the Go to English button, and press Enter.
2. Activate the Install Be My Eyes button.
3. go to your Downloads folder, open the file entitled Be My Eyes Installer.exe, and complete the installation.

To open the app, press the Windows key, type the first few letters of Be My Eyes until you hear Be My Eyes app, and press Enter. You will first hear, “Describe my screen (Keyboard shortcut Alt + Ctrl + H) button. Tab to hear a list of other keyboard shortcuts, including:

* Take picture using built in camera (Keyboard shortcut Alt + Control + J.
* Describe picture from File Explorer (Keyboard shortcut Alt + Control + K.
* Describe clipboard (Keyboard shortcut Alt + Control + L.

After opening the app, go to a window or screen you want described and use the shortcut Alt + Ctrl + H to generate a description of that screen or window. Or press Alt + Control + K to open a dialog where you can Select an image file such as a.JPG or.PNG file, and have it described.

* When you invoke one of these shortcuts, you will hear, “Please wait, Be My AI is writing a message…” while results are generated.
* The description will be read to you in Say All mode by your screenreader. You can then type follow up questions without navigating to an edit field. Unfortunately,
* Question to ask the AI Edit
* Below this are two tabs: the Be My Eyes tab and the Settings tab. Press the Right and Left arrow to move between them

#### 14.5.1.2 Reassigning Keystrokes

If you are a JAWS user, you will want to assign a different keystroke combination for taking pictures using the built in camera because the assigned keystroke conflicts with the keystroke for opening JAWS. Do this in the Settings tab as follows:

1. Tab to the Customize keyboard shortcuts link and press Enter.
2. Tab to the Take picture button and press the Spacebar.
3. Type in a new Control Alt letter combination.
4. Tab to the Finish button and press Enter.

Use the same steps to reassign any of the other keystrokes. For example, you might want to change one to make it easier to remember, such as changing the keystroke for describing an image file to Alt + Control + F, rather than K.

### 14.5.2 Be My AI on the iPhone

After downloading Be My Eyes from the App Store, you will first need to create an account and log in. You can use your Google account for this.

While in the app, you can take pictures and get them described. You can also get descriptions of existing pictures in the native Photos app and image files saved to cloud sharing apps on your iPhone.

photos and screenshots can be described with Be My AI. You can also copy the text of the description and paste it into a text editor app on your phone like Notes or Drafts, as well as download a JPG file to your computer.

### 14.5.2.1 Taking Photos, Generating Descriptions, Sharing and Saving

The Be My Eyes app has been around for a number of years, its main use being to give sighted volunteers access to your camera so they can help you with simple tasks that require visual assistance. To access volunteer assistance, you place focus on the Get Support tab, located at the bottom left of your screen. The second tab, the Be My AI tab, is the one that interests us here. Double tap on it to open this screen,

To take a picture and get it described, find the Take picture button, point your camera at what you want described, and double tap. You will hear the camera shutter click. VoiceOver will say “Analyzing, please wait,” and a chime-type noise will play while processing. When finished, VoiceOver will read the description in Say all mode.

An Ask more button now appears. You can Double tap on this and dictate follow-up questions in the edit field.

Also, if you place focus on the response text, and flick up or down, options for copying the text and sharing appear. To copy the text, double tap on this option, open a text editing app such as Notes or Drafts, and navigate to Edit on your Rotor to paste the description.

Although a slightly convoluted process, you can use the Share option to save the photo, something that was not possible with the first release of Be My AI. I did this by sending myself an email and accessing the photo on my PC with Google Chrome. Other ways may also work, but at least this one consistently works for me. Steps are:

1. Place focus on the photo description, flick up or down to Share, and activate this.
2. This opens a screen entitled “Share link to picture and description.” Activate the Share link button.
3. Activate the Mail button.
4. Place some text in the Subject field if you like, but this step is not required.
5. Address the email to yourself and send it.
6. Open the message in your PC’s email client and activate the link which opens a web page in your default browser. Regardless of default browser, the steps below work.
7. Just before the text is a graphic link entitled “User message, picture. Open image in a new tab.” Activate this link.
8. The title of this new tab is the filename which is a jumble of numbers followed with a.JPG file extension.
9. Press Control + S to open the standard Save as dialog, rename the file to something more meaningful if you like, press Enter, and the file will download to your PC’s Downloads folder in JPG format.

### 14.5.2.2 Generating Descriptions for Images Already Saved on Your iPhone

If you have taken photos and screenshots on your iPhone, you can locate them in the native Photos app and get them described with Be My AI. You can also do this for images saved in cloud sharing apps like Dropbox, OneDrive, and Google Drive.

Steps for doing this for images saved in the Photos app are:

1. Open the Photos app. Photos, screenshots, and videos are listed chronologically, with the most recent one at the bottom of the list.
2. Double tap on the photo or screenshot to be described.
3. Activate the Share button.
4. Scroll down to the Describe with Be My Eyes button, and activate it.
5. VoiceOver will say “please wait, Be My AI is writing a message.” After about five or ten seconds, the description will be read to you in Say All mode.

In the Message field below the description, you can ask follow up questions. With focus on the description, you can also flick up or down once to the Copy button and then paste this text into a text editor app. The Share option does not appear here. But keep in mind that the photo is already saved on your device.

Steps for getting a description of an image file saved in a cloud sharing app are slightly different than for the Photos app. Do the following:

1. Open the cloud sharing app where the image file has been saved (Dropbox, Google Drive, OneDrive, etc.).
2. Navigate to the photo you want described. When you land on it, VoiceOver should say “actions available.”
3. Flick down a couple of times to Send copy of file, and activate.
4. Scroll down to the Describe with Be My Eyes button, and activate.
5. VoiceOver says “exporting,” and then “please wait, Be My AI is writing a message.” After about five or ten seconds, the description will be read to you in Say All mode.

As with the Photos app, you can also copy the message description to your Clipboard.

# Chapter 15 Audio and Video Editing

This chapter discusses simple editing of audio and video files. Audacity is a free audio editor. REAPER is primarily an audio editor, but also the only one I currently know that can accessibly edit video. A personal license costs $60. In the third edition of this book, I covered a free option for video editing with a free app called Machete. Unfortunately, it no longer works. Some file conversion may be required for editing audio with Audacity and is definitely required to render REAPER video projects into usable formats once editing is completed. A free and easy-to-use app called File Converter is also covered in this chapter.

Many blind and visually-impaired people record and edit audio, and some are real experts. Far fewer record and edit video. But both have their practical uses.

All blind and visually-impaired people should have strategies for making simple audio recordings. This comes in handy for recording short snippets of information on the fly like contact information, appointment dates and times, and instructions for performing daily tasks. For work and school, editing meeting and class recordings can be useful so you can delete unwanted segments and shorten recordings to just the content that you need. As for me, while first a trainee and later as an instructor at the Carroll Center, I have created countless audio files to serve as reference material while learning how to use JAWS and other assistive technologies, later editing out the “um’s and ah’s” and other unwanted noise.

Reasons for recording and editing video may be less obvious to blind folks. From my own experience, I can identify at least two reasons. At work, I am sometimes asked to prepare videos demonstrating technology at conferences and workshops where most of the participants are sighted. Second, several years ago, my workplace launched a program to train screenreader users to conduct web accessibility testing. Testers usually need to communicate their findings to sighted clients. Being able to do this through videos can be very powerful. Most web developers are sighted. For them to see what is going on while a web tester is navigating a page can be a very effective tool for building awareness about how screenreader users navigate web pages, and for communicating the impacts of accessibility problems. Audio can also be effective, but sighted people rely on their eyes much more than their ears, so video in combination with audio may be more powerful for demonstrating problems and solutions. Video can also be a powerful communication tool for advocacy work on accessibility issues.

I will first cover Downloading and using File Converter. Then I will talk about audio recording and editing, and then follow with video.

## 15.1 File Converter

Download this app[[29]](#footnote-29)at [File Converter - Convert & compress everything in 2 clicks](https://file-converter.io/download.html).

File Converter works with a wide variety of audio, video, text, and image file formats. Here, I will only talk about converting audio formats, but you can also convert image (JPG, PNG, etc.) or text-based files (Word or PowerPoint) to PDF.

Steps for converting an audio file with File Converter are:

1. Navigate to the audio file to be converted on your PC.
2. Press the Applications key, and if using Windows 11, Up arrow to Show more options and press Enter.
3. Down arrow to the File Converter submenu and press Enter or Right arrow to open it.
4. Down arrow to the desired audio format (presumably MP3 or WAV for audio or MP4 for video) and press Enter to convert it To the new format.

The converted file is save in the same folder and with the same file name prefix as the original file, but of course with the new audio or video file format extension. That’s all there is to it. It is quick and easy. I will reference back to this section at the appropriate places in the following sections on audio and video.

## 15.2 Audio Editing with Audacity

Audacity is a popular application that is fully accessible for all basic editing and playback tasks. It is free and easy to use, but only works with MP3 and WAV audio formats.

* I should mention that at least two other accessible applications are popular among blind audio editors. First, there is REAPER which will be discussed later in this chapter, but only in the context of video editing.
* Second, GoldWave can be purchased for a one-time price of $59 or an annual license of $19, and is available for a two-week trial period. It can be used to edit a wide array of audio file formats. Video files can also be converted to audio and then edited. I have used it for many years. Learn more at [GoldWave - Audio & Video Editing Software](https://www.goldwave.com/).

Before discussing editing with Audacity, I will first talk about options for recording audio.

### 15.2.1 Recording Audio and tips for Good Results

Here I present an overview of recording possibilities. I do not provide step-by-step directions for making recordings, nor transferring recordings to your PC.

There are many accessible ways to record audio, including:

* Apps on your PC such as the Sound Recording app which comes with Windows, the Zoom app for meetings, and Audacity.
* Apps on the iPhone such as the native Voice Memo app and third party apps like RecUp for use with Dropbox (see Chapter 11.3.1).
* Specialized devices for blind people such as the Victor Reader Stream and Braille notetakers.
* Mainstream digital audio recorders manufactured by companies like Sony and Zenith. Some of these are accessible because they include audio feedback like speech or beeps to indicate recording status and folder locations for saved recordings.

Many audio file formats exist. To be able to edit them, be sure your recording device can produce at least one of the following common file types: Mp3, WAV, or M4A. The iPhone RecUp app and the Victor Reader Stream Second and Third Generations produce MP3 files. The MS Sound Recording app, the Zoom desktop app, and the iPhone native Voice Memo app produce M4A files. Audacity can produce MP3 and WAV files.

Also be sure you know how to access saved recordings on your computer if you want to eventually edit them. If you use a mainstream digital recorder, make sure you choose a model where it is possible to transfer recordings to your computer.

A limitation of using Audacity is that it can only edit MP3 and WAV files. If you anticipate that you will be frequently working with M4A files, you will need to convert them to either the MP3 or WAV format. Use File Converter to do this.

If recording audio that you later intend to edit, here are a few hints to make the editing process easier and more efficient:

* Speak slowly and clearly, as well as slow down your screenreader speech. Remember that sighted people are not used to synthesized speech, so set it at a rate they can understand. Other blind folks may also be more comfortable at slowere speech rates.
* If you are preparing a demo on how to do something with your screenreader, do not talk over the screenreader. Let your JAWS or NVDA finish before you resume speaking. If you fail to do this, that segment of the recording will be useless. You will need to record it again.
* Leave a few seconds of silence just after a segment you know you will be wanting to delete when it is time to edit. If you are like me, and mumble lots of “ums and ahs,” leave gaps of silence after these to make them easier to remove later on.
* Put your phone in Airplane mode so unwanted background noise does not pop in while recording. If recording on or near a computer, close all programs you do not need, and especially ones that make their own noises (example: Outlook chimes whenever new messages arrive).
* Before doing long recordings, do some short test recordings to verify that your volume levels are correct. It can be frustrating to discover that your volume levels are out of whack only after you have wasted a lot of time on an otherwise perfect recording.

### 15.2.2 Installing Audacity

Audacity does not come built-in on your computer. Download the installation file from:

[Windows Audacity](https://www.audacityteam.org/download/windows/)

In your downloads folder, find the installation file and activate it. During installation, a shortcut for Audacity will be added to your Desktop.

### 15.2.3 Useful Keystrokes for Navigation, Playback, and Editing

Here is a list of useful Audacity keystrokes:

* Control + O: Open file.
* Spacebar: Play audio, but do not move cursor, also plays currently selected clip.
* X: Play audio and move cursor
* Home: Go to beginning of recording.
* End: Go to end of recording.
* Left arrow: Go back short amounts during playback.
* Right arrow: Go forward short amounts during playback.
* Shift Comma: hold down together to go back longer amounts during playback.
* Shift Period: hold down together to go forward longer amounts during playback.
* Shift Home: Select from cursor position to beginning of recording.
* Shift End: Select from cursor position to end of recording.
* Alt S I:Store beginning cursor position (my memory jog for I is initiate).
* Alt S C: Store end cursor position (my memory jog for C is conclude).
* Spacebar: Play selected snippet.
* C: Play small snippets just before and after selection.
* Delete: Delete current selection.
* Control + 2: Slow playback by about 50 percent. (useful for repositioning cursor by very small amounts of time while micro-editing)
* U: Go back a small amount and hear it.
* I: Go forward a small amount and hear it.
* Insert + Spacebar and then S or Insert + S: Mute JAWS or NVDA speech (useful when editing for avoiding hearing conflicting synthesized speech and audio at the same time).

### 15.2.4 Editing Audio

During initial installation, an Audacity folder was created in your local Documents folder if you were not signed into OneDrive. If signed in, the Audacity folder is a subfolder of your OneDrive Documents folder, that is, within your user folder, it is found at: OneDrive/Documents/Audacity. Also by default, any files you save after editing are located in this folder.

To open a file for editing press Control + O. Frankly, I find navigating between folders in the Audacity Open dialog very confusing. The tree view that you typically find in such dialogs is not present here. To avoid frustration, first move files you want to edit into the Audacity folder. Then it will be easier to Shift + Tab back to the list view and find your file.

Audacity has a classic menu bar with dropdowns for accessing commands. Press Alt to open the menu bar where you first land on the File menu. As with all such menus, you can Right and Left arrow to move to the various menus (File, Edit, Select, etc.). You can then Down or Up arrow to access commands.

The Audacity window is divided into three parts which you move through by pressing Control + F6. From the top of the window to the bottom, these are the Upper toolbar, the Track view, and the Lower toolbar. The timeline of your audio file is visible in the Track view, and various navigation, editing, and audio file settings appear on the Upper and Lower toolbars. On the toolbars, move through them with Tab and Shift + Tab.

Several of the keystrokes listed above are especially useful for navigating the audio file timeline while in the Track view. Both the Spacebar and X will play and pause audio. However, there is one important difference. Pressing the Spacebar plays and pauses the audio but does not move the cursor. So, if you press the Spacebar once to start playback at the beginning of the recording, press it again to pause, and then press it a third time to resume, it will restart playback at the beginning, and not where you paused. Pressing X starts playback and moves the cursor. So, if you pause with X, and then restart with X again, playback resumes where you paused. As we will soon see, X is used to mark selection start and end points, while the Spacebar is not used for this purpose, but is still useful while editing.

* Press Home and End to go to the beginning and end of the recording, respectively. Press the comma or Left arrow to go back short amounts during playback. Press the period or Right arrow to go forward short amounts during playback.
* Hold down Shift and Comma together to go back longer amounts during playback. Hold down Shift and period together to go forward longer amounts during playback.

The simplest form of editing involves marking start and endpoints of a selection and then deleting the selection. I will first outline the steps for removing selections at the start and end of a recording, and then removing selections in the middle.

Steps for removing a selection at the beginning of a recording are:

1. Press Home to be sure focus is at the start of the recording.
2. Press X to begin playback.
3. Press X again at the end of the snippet you wish to remove.
4. Press Shift Home to select from that marker back to the beginning.
5. Press the Delete key to remove the selection.

After pressing Shift Home to select the snippet, you could have pressed the Spacebar to hear the selection before deleting it. If you do not like your result, you can press Control + Z to undo your last keystroke for deleting the selection.

Steps for removing a selection at the end of a recording are:

1. Navigate to the start position where you want to start the deletion and press X to mark it.
2. Press Shift End to select from that start marker to the end of the recording.
3. Press the Delete key to remove the selection.

Editing out selections in the middle of a recording involves pressing X to mark start and end points, as well as “storing” those two positions before deleting the selection. Steps are:

1. Navigate to and press X to mark the start of your selection.
2. Press Alt S I to store the start marker position (mnemonic: I for initiate). This can be found in the Selection menu on the menu bar.
3. Navigate to and press X to mark the end of your selection.
4. Press Alt S C to store the end marker position (also found in the Selection menu on the menu bar, mnemonic: C for conclude).
5. Press the Delete key to remove the selected clip.

Before deleting a selection, you can first press the Spacebar to hear it. You can also press the letter C to hear about one second before and after the selection to preview what that range of the recording will sound like if you delete it.

Editing is this simple if there is a reasonable amount of silence at the boundaries where you want to edit out a clip. But there will be times when you need to be more granular in setting start or end markers. Perhaps there is only a few milliseconds between two spoken words and you want to delete the first word while keeping the second one. Or words have run together and you just want to do your best to find the boundary between Where one word ends and the next one begins.

In such cases several other keystrokes will help you zoom in on precise positions for setting start and end markers. When you are slightly past the position you would like to mark, press U to go back about one-half second. Or if you are slightly before press I. You can now be extremely precise in positioning your cursor by pressing Control + 1 or Control + 2 which increases the zoom level, thus enabling you to move by much smaller increments. Now each time you press U or I, you will hear the audio dramatically slowed down. Listening closely, you may be able to find the precise separation point between words or whatever other type of audio you are editing.

While you are performing these zoom operations, you should mute your screenreader (Insert and Spacebar together, followed by S with JAWS, or Insert S with NVDA) to avoid conflict between the synthesized speech (when pressing U or I) and the recorded audio.

For example, let’s say I have a segment of audio, “Um, Good morning” that runs closely together, and I want to edit out the “um.” Using these zooming keystrokes, I can hopefully get the cursor to just the point where the M fades out , and just before the hard G in good morning begins.

When you are ready to save your edited audio file, you need to export it. As mentioned at the start of this section, the default save location is the Audacity folder. Steps for exporting a file are:

1. Press Alt to open the File menu, Down arrow to the Export submenu and press Enter. The shortcut key to open this submenu is Control + Shift + E.
2. This opens the Export Audio dialog in the Filename edit field, already populated with the existing filename.
3. To save the updated file with the same filename, press Enter. You will be informed that there is already a file in the same location with this filename.
4. Press Enter again to replace it,
5. or if you want to save a second file with a new name, just preserving the original unedited file, type in a new filename and press Enter.

To know your position within a recording, press Control + F6 until you hear “Snap checkbox.” On the Lower toolbar. ” Tab once to Audio Position, where you hear time expressed in two-digit hours, two-digit minutes, and two-digit seconds format. An example where the position is at six seconds is “00 h 00 m 06 s.” Press F6 again a couple of times to get back to the recording. To check your position again during the same session, a single Control + F6 will bring you right to the Audio Position setting.

For longer recordings, it is useful to know how to change times and quickly get to them. This is done in the Start edit field, which is two tabs past the Audio position setting in the Lower menu bar. When you navigate there, you will find that it is prepopulated with your current position. Left and Right arrow until you land on the hour, minute, or second you want to change, and type over the current position with your desired new position. Now press Control + F6 a couple of times to get back to the Track view. When you resume playback by pressing X, the recording should start up at the new position.

To discover other potentially useful keystrokes, explore the drop down menus (especially the Edit and Play menus) and see what the shortcut keys are.

Also check out the Getting Started web page. You can access it in the Help menu or activate the following link: [Getting Started - Audacity Manual](https://manual.audacityteam.org/quick_help.html).

Becoming a proficient audio editor requires lots of trial and error. But given the inherently repetitive nature of editing, with some practice, you should get the hang of it pretty quickly.

It is not easy to get a feel for audio editing solely by reading the text presented here. To get a better grasp, listen to the MP3 file entitled “Editing with Audacity Demo.MP3” in the Practice Files folder which accompanies this book.

## 15.3 Video Editing with REAPER

This section outlines an accessible approach for editing video files with REAPER which is primarily an audio editing application. The approach is restricted to very simple editing: that is, video clip selection, deletion, copying, cutting, and pasting. If your objective is to become an Oscar-winning cinematographer, please look elsewhere.

When asked to prepare video presentations at work, I quickly found I was severely limited by my inability to edit them. Without being able to edit, I was compelled to record over and over again. Yet I could never get my video recordings to even a barely acceptable level of quality. Any final product was just too embarrassing, with lots of “um’s and ah’s,” word mispronunciations, and technical glitches.

It is very difficult to find an accessible video file editor that can be used to delete unwanted selections in the middle of a video file. Accessible software for trimming is common enough, but trimming only relates to removing unwanted segments at the beginning and end of a video, not deleting clips in the middle. In the third edition of this book, I covered a free option for video editing with a free app called Machete. Unfortunately, it no longer works. REAPER is the only accessible app I know of that can be used for simple video editing. But before delving into REAPER, below is a discussion of video recording options.

### 15.3.1 .2 Recording Videos on Your PC and iPhone

I use the Zoom desktop app for recording videos of my computer screen. If you have a Zoom account and the desktop application installed on your computer, you can record video in MP4 format using the Screen share feature. Simply start an instant Zoom meeting (see Chapter 13.4.1) with yourself as the host and sole participant. Unmute yourself, and share the screen, including the computer sound if you want the recording to pick up your screenreader synthesized speech. Press Alt + R to start the recording, and Alt + R again to finish it. End the meeting to start the download. See Chapter 13.4.4 for a full discussion on recording meetings and accessing the resulting MP4 video files.

Here are some practical tips for making video recordings on your computer.

* The tips listed above in Chapter 15.2.1 on making easy-to-edit audio recordings apply equally to video recordings. Speak slowly and clearly, slow down your screenreader voice rate to a speed comprehensible to all listeners, and leave pauses at boundary points where you anticipate deleting selections in order to make editing easier.
* If you are using video to demonstrate something on your computer, every time you switch between windows, be sure the window is maximized. Otherwise, sighted observers will not be able to see the full screen. Do this by pressing Alt and the Spacebar together, followed by X. Do not press Windows + Up arrow which most people think is another way to maximize a window. It is actually a toggle. If you use this keystroke and cannot see the screen, you will often minimize windows that were already maximized. I once wasted a couple of hours before I figured this out.
* If sharing the screen with a word document or Excel spreadsheet, hide the Navigation pane with the ribbon shortcut Alt W K. Otherwise, it will take up a big chunk of the screen.
* If you plan on including headshots of yourself in your video, use one of the tools discussed in Chapter 13.6.2 on centering your face with the computer’s camera.

With your iPhone, you can record what is appearing on the screen, your own voice, and synthesized VoiceOver speech. Do the following before starting:

* Toggle off the Screen Curtain. Otherwise, viewers will only see a black screen. The VoiceOver gesture is a three finger triple tap.
* Turn on Do not disturb to prevent being interrupted by phone calls and notifications while you are recording.
* As is the case with synthesized speech on the computer, slow down your VoiceOver speech rate so all listeners can understand it.
* Wear a headset so VoiceOver and speech volume are roughly equivalent. If you do not wear a headset, your speech volume will be normal while VoiceOver volume will be barely audible. Make a few short practice videos and listen to them to verify that volume levels are acceptable.

As is the case for the PC, when you make mistakes while recording, and while switching screens and hearing noise you do not want in the final recording, pause a few seconds before continuing to speak.

### 15.3.2 Purchasing REAPER and Initial Setup

* REAPER is a powerful application used by many blind audio enthusiasts, including podcasters. It enables multi-track editing and mixing. If you load a video file into REAPER, in editing the audio, you are simultaneously editing the video too. Therefore, if audio editing is accessible to screenreaders, which it is after a adding a couple of extensions (see below), this makes video editing accessible too.
* REAPER has a generous 60-day free trial period, after which it can be purchased for a one-time charge of $60 for personal non-commercial use. Download the free trial version at:
* [REAPER Audio Production Without Limits](https://www.reaper.fm/).

If you own multiple computers, you may install the same license key on all of them, as long as you only use REAPER on one computer at a time.

After completing the trial period and purchasing REAPER, you will be sent a product license key by email which you copy and paste to authorize your permanent version. All of this is clearly explained during the authorization process.

As part of the installation process, a shortcut is added to your Desktop for opening REAPER. A folder entitled “REAPER Media” is also added to either your local Documents folder or to the Documents subfolder of OneDrive, this latter if you are signed into your Microsoft account.

To make REAPER screenreader-accessible, you will need to also download and install two extensions at:

* [SWS / S&M Extension](https://www.sws-extension.org/)
* [OSARA: Open Source Accessibility for the REAPER Application](https://osara.reaperaccessibility.com/)

Adding these two extensions helps to verbalize useful editing information such as cursor position and how this feedback is conveyed. Be sure to install reper first.

To make Osara work correctly:

1. Open REAPER and press Alt to open the menu bar. REAPER has a classic dropdown menu structure.
2. , Right arrow to Extensions, Down arrow to the Osara submenu, and press Enter to open it.
3. Down arrow to Configure REAPER for optimal screen reader accessibility, press the Spacebar, and choose Yes.
4. Close REAPER and reopen it for changes to take effect.

There is nothing you need to do with the other extension other than install it.

### 15.3.3 Starting a Project

Audio and video tracks are edited in projects which you need to save if you are going to continue working on them beyond just a single session. You then insert the file or files that make up the tracks for that project. Saving the project involves creating a REAPER project file with an RPP extension. By default, the RPP file is saved to the REAPER Media folder mentioned above. When you have finished your preliminary or final editing and wish to listen to it with a standard media player app like Windows Media Player, you will render it to an audio or video file. That’s the overall process,

To create a new project and insert media files into it:

1. REAPER has standard dropdown menus. Press Alt to land on the File menu, Down arrow to New project and press Enter. Or use the standard Control + N keystroke.
2. Press Alt to open the menu bar again, Right arrow to the Insert menu, Down arrow once to Media file, and press Enter to open the Import file dialog. Make your life easier by putting any files you will be importing in the REAPER Media folder created during installation. Having all you’re project and media files in the same location speeds things up.
3. This opens a standard Open file dialog. Shift tab a couple of times to the list view of the default REAPER Media folder. If you have placed your audio or video file here, Down arrow or first-letter navigate to it and press Enter to add it to your project.
4. Press Control + Home to place the cursor at the start of the recording.
5. Press the Spacebar to start playback.
6. Now do your editing (see the next section).

As you edit, you will want to save your project file. And when finished editing, you will want to render the file in MP4 video format. Saving and rendering will be covered in the section after editing.

### 15.3.4 Basic Editing

The simplest type of editing involves selecting snippets, and then deleting, copying, or cutting them. Selecting snippets involves setting start and end markers, and for this, it is important to understand cursor behavior with REAPER. Pressing the Spacebar plays and pauses your video track. However, cursor position does not move with playback. If you press the Spacebar a second time, playback will snap back to the start of the recording (if you have not yet designated any markers), or back to a marker if you have already inserted one. To fix a cursor point so that you can then mark it, press Control + Spacebar when you pause so that the cursor remains focused at that point in the track.

In reality, when editing, you are editing the audio track, but I will just say “video” for the sake of simplicity here. These things said, here are the steps for selecting and then deleting a snippet:

1. Press the left bracket to set a start marker for your selection
2. Press the Spacebar to play the video, and press Control + Spacebar at the point where you would like to set an end marker.
3. Press the right bracket to set the end marker.
4. Press the Delete key to remove the snippet.

Often you do not know where to set an end marker until you have played just a bit past it. Rewinding by small segments is useful in these situations. To do this:

1. After having set a start marker and having played just a bit past your intended end marker, press Control + Spacebar to pause the recording there.
2. Press Control + Dash (the key one to the right of 0 on the Number row). to rewind a little bit just before where you want to set the end marker, and then press Control + Spacebar to reposition your cursor here. You can also press Control + Dash without pausing audio. Because you are hearing the audio as you move backwards, this can give you a better idea of where you are in the recording than pausing first.
3. Press the Spacebar to play to the point where you want to set the end marker, and Control + Spacebar again.
4. Press the Right bracket to set the end marker.
5. Press the Delete key to remove the snippet.

You can also delete beginning and ending snippets of a recording with Shift + Home and Shift + End respectively.

You can easily combine files of a similar format together, one after each other, so long as any initial settings are identical. . The fancy word for this is “concatenate.” To insert one file at the end of a file already in a project:

1. Press Control + End to go to the end of the first file in the project, and press the Left bracket to set a start marker.
2. Press Alt to open the menu bar, Right arrow to the Insert menu, Down arrow once to Media file, and press Enter to open the Import file dialog.
3. Shift tab a couple of times to the list view of the default REAPER Media folder, and select the file if this is where you placed it.

The second file is now pasted at the end of the first file.

Some other useful keystrokes include:

* Control + Shift + J: Location of cursor (Go into View menu with Alt V, Up arrow to the Time unit for ruler sub menu, and select Minutes Seconds to change how cursor position is expressed ).
* Control +J: Go to or jump command to navigate to a time position in the recording. Use MM:SS.XXX format for delineating minutes, seconds, and hundredths of seconds.
* Alt + Spacebar: After getting just a bit before a selection, Play a bit before and after the selection to preview what it will sound like after deleting the selection.
* Shift + Dash: Decrease Play rate by 0.6%.
* Shift + Equal: Increase Play rate by 0.6%.

To hear a selection after having set start and end markers, while still in the selection, press Home to go to the start of the selection, and then Spacebar to play just the selection. But to make this work, you first need to make two adjustments In preferences which is organized in a tree view. Steps are:

1. Press Control + P to open Preferences.
2. If you do not first land there, press P until you get to the Playback section of the tree view.
3. Tab to the Stop playback at end of loop if repeat is disabled check box and check it.
4. Tab many times until you get back to Playback in the tree view.
5. Press E until you land on the Editing Behavior section of the tree view.
6. Tab to the Link loop points to time selection checkbox and check it.
7. Tab to the OK button and press Enter to save preferences.

Sometimes, you may need to set a start or end marker at a very precise point in the recording. This is the case when there is little or no silence at the point where you want to set a marker. Zooming allows you to move by extremely small time increments to precisely position start and end markers.

I strongly suggest you use headphones while zooming. Otherwise, it can be difficult to hear what you need to hear. As mentioned above, it is also preferable to leave a second or two of silence at areas where you think you will want to edit later. Pinpointing the exact cursor location while zooming can be tricky and time-consuming, so try to minimize how many times you need to do this to make your editing more efficient and less tedious.

The keystrokes you need for zooming are:

* Zoom In: Equal.
* Zoom out: Dash.
* Left/right arrow: Move bac/forward by very small increments.
* How does this work and what do you hear? When zooming out by pressing the Dash key several times, you will hear the number of pixels decline, for example, “57.9 pixels/second, 48.2 pixels/second.” This indicates that you are zooming out because fewer pixels per second means that when you now press the Left or Right arrow, you will be jumping by larger increments.

When zooming in by pressing the Equal sign several times, the opposite happens. You hear the number of pixels increase, and then pressing the Left or Right arrow moves the cursor by smaller increments. Note that, the more you zoom in, the harder it may be to understand the audio. You may not hear understandable words, but will hear something like “Bwup bwup bwup.” You are trying to locate the playback position with either a momentary silence or the least amount of volume so you can correctly situate a start or end marker. Like much else in audio and video editing, this takes repetition and practice, and using the Control + Z keystroke liberally to undo your edit when you don’t get it quite right.

* Assuming you are attempting to set an end marker for purposes of deleting an unwanted snippet, steps for using zooming to edit are:

1. Set your start marker using the steps detailed above.
2. Press the Spacebar to play to just past the approximate position where you want to set an end marker.
3. Press Control + Spacebar to stop playback and preserve the cursor position.
4. Press = or – and then Left and Right arrow to test out zoom levels until you have one that seems understandable.
5. Press Left or Right arrow to locate the precise point where you want to set the end marker, and press the Right bracket there.
6. Press the Delete key to delete the snippet.
7. Press Control + -: to rewind by small increments, and then press the Spacebar to hear your edit.
8. If you are not satisfied with your edit, press Control + Z to undo the edit and repeat the above steps until you are happy with the result.

* As mentioned above, this can be tedious and it might not be possible to get satisfactory results. So, whenever possible when recording, leave gaps of silence where you know you will want to edit stuff out.

### 15.3.5 Saving a Project and Rendering Output Files

To save the project file at any point while editing, press Control + S to open the standard Save as dialog and give it a filename. Press Control + S again to save any subsequent revisions. It is saved with a .RPP extension. By default, it is saved to a REAPER Media folder in either your local Documents folder or your OneDrive Documents folder.

The RPP file is a small file that, when reopened, gathers up any initial files inserted into the project. It does not contain the initial media files. Consequently, do not delete any initial media files you have included until you have completed the project, and no longer need them. Otherwise, the next time you open the RPP file, you will receive an error message that the files cannot be located.

After editing, to save a media file in a playable format (such as WAV for audio or MP4 for video), you will need to render it. WAV audio is the default rendered format.

Steps for rendering are:

1. Press Alt to land on the File menu, Down arrow to Render and press Enter, or use the shortcut Control + Alt + R.
2. Type an Output file name, minus any file extension.
3. The default rendered format is WAV. If this is what you want, press Enter to save it to the REAPER Media folder. For video, continue on.
4. Tab many times to Output Render to, to hear the file path, including the default file extension which is .WAV.
5. Tab to the Format: Combo box for a list of file formats.
6. Down arrow to MPEG-4/Windows Media, which is the twelfth file format in the list, and press Enter. The MP4 file will begin rendering (that is, being saved) to the REAPER Media folder. If the rendered file is large, this may take several minutes.

When you close REAPER and reopen it, you will notice that the last project you were working on is still there. To start working on a new project, press Control + N.

### 15.3.6 Recap of Useful Keystrokes

Just so you have them all in one place, below is a list of useful keystrokes that were mentioned above:

* Control + Home/End: Go to beginning/end of recording.
* Spacebar: Plays/pause, but second Spacebar snaps back to start of selection.
* Spacebar to start playing and then Control Spacebar: Play and then pause, but retaining pause cursor point (necessary to set start and end markers).
* Left and Right bracket: Mark start and end of selection.
* Home/End: Go to beginning/end of selection.
* Home + Spacebar: Play selection.
* Escape: Unselect (removes start and end markers)
* Delete: Delete selection.
* Control + C: Copy selection
* Control + X: Cut selection
* Control + V: Paste selection
* Control + Z: Undo
* Control + Shift + J: Location of cursor (Go into View menu with Alt V, Up arrow to the Time unit for ruler sub menu, and select Minutes Seconds to change how cursor position is expressed ).
* Control + J: Go to or Jump.
* Left/Right arrow: Scrub short distances to pinpoint start and end marker positions.
* Shift + Dash: Decrease Play rate by 0.6%.
* Shift + Equal: Increase Play rate by 0.6%.
* Shift + Home/End: Select from cursor to beginning/end of recording.
* Control + Shift + Spacebar: Reports start and end time position and amount of time of a selection.
* Control + -: Rewind a little bit
* Zoom in : Equals
* Zoom Out: Dash.
* Control + Shift + J: Location of cursor
* Alt + Spacebar: Play a bit before and after a selection to preview it.
* Home + Spacebar: Go to the start of a selection and play it.
* Shift + Dash: Decrease Play rate by 0.6%.
* Shift + Equal: Increase Play rate by 0.6%.

### 15.3.7 Resources for Learning More About REAPER

Because I only focussed on simple video editing, the above discussion has only scratched the surface of all that you can do with REAPER when it comes to audio editing. Many resources exist for learning more about how to use REAPER with screenreaders. The best place to start is probably:

[REAPER Made Easy: Free Training from The Global Voice](https://www.theglobalvoice.info/reaper/)

Also check out this [REAPER Shortcut Key List](https://www.reaperaccessibility.com/wiki/Reaper_shortcut_key_list_by_headings).

The [REAPER Accessibility Wiki](https://reaperaccessibility.com/wiki/Useful_Links_and_Resources)  provides a list of useful links and Resources.

Hartgen Consultancy offers a set of tutorials for 80 pounds ($112 US equivalent) called

[Reaping the Benefits! Using REAPER Audio Workstation, OSARA and JAWS for Windows](https://www.hartgen.org/reaper)

Finally, there is a Groups.IO discussion list for screenreader users humorously called [REAPERS Without Peepers](https://groups.io/g/rwp). It has over 900 subscribers and has been around since 2010. Many of the list members are extremely knowledgeable.

# Chapter 16 Other Useful Topics

This final chapter discusses several other useful topics, including alternative ways to access this book beyond reading it in Word, including with Bookshare (for those of you with Bookshare accounts) and on two portable devices (the Victor Reader Stream and the iPhone using the Voice Dream Reader app), accessing assistance with the Remote Incident Manager application from the Pneuma Solutions company, Groups.IO assistive technology discussion lists, and what to do when things go wrong with your technology.

## 16.1 Alternative Ways to Access This Book

In addition to reading this book in Word on your PC, this section covers several other ways you can access the book, including:

* With a Bookshare account, read it online or download it to your PC and read it with FS Reader if you are a JAWS user.
* Also with Bookshare, open it with your iPhone with the Bookshare Reader or Voice Dream Reader app.
* With a Victor Reader Stream, add the chapter files in Word format to the Text folder of your flash drive.
* The following subsections cover downloading the book to your PC from Bookshare to read it with FS Reader, and importing it into the Voice Dream Reader iPhone app from Bookshare and cloud sharing apps such as Dropbox, Google Drive, or OneDrive.

### 16.1.1 On Your PC With Bookshare and FS Reader

If you have a Bookshare account and are a JAWS user, one great way to read The Windows Screenreader Primer on your PC is with FS Reader, Vispero’s utility for reading DAISY-formatted books with JAWS and Magic. Many thanks to Robert Resnick for making me aware of this possibility.

DAISY stands for “Digital Accessible Information System,” a widely-used format for making books accessible and easily navigable with assistive technology. Accessing the book involves downloading it from Bookshare in DAISY text only format, extracting it, and then opening it with FS Reader. Once opened, you will be able to efficiently navigate the book using standard JAWS web browsing navigation and reading keystrokes, plus a few other useful keystrokes specific to FS Reader.

Note that Bookshare currently has two Windows Screenreader Primer books, the second and third editions, and the only way to know which is the third edition is to open it and check on the title page. Be sure to download the third edition.

Steps for downloading DAISY books from Bookshare and accessing them on your PC with FS Reader are:

1. After logging into your Bookshare account and searching for the book, press T to navigate to the table with your search results. Press Control + Alt + Down arrow to move down the first column to the book title.
2. Press Control + Alt + Right arrow to move across to the Actions column, and press Alt + Down arrow to expand the list of actions.
3. Down arrow to the combo box for download format options, and press the Spacebar to open it.
4. Down arrow to DAISY text only, and press Enter to select it. Some other options are Word and ePub, but you want DASY text only for use with FS Reader.
5. Tab to the Download button and press Enter. The download should take just a few seconds.
6. Open your Downloads folder where a ZIP folder with the book title should appear at the top of the folder.
7. Select it, press the Applications key, Down arrow to Extract all, and press Enter.
8. Press Enter again and a new folder with the same name (minus the ZIP extension) will be created in your Downloads folder.
9. Move that folder to either your local Documents folder or, if you are signed into your Microsoft account, to the Documents subfolder of your OneDrive folder. Moving it will make it easier to find when you open it for the first time in FS Reader.
10. Open FS Reader and press Control + O for the Open file dialog.
11. Shift + Tab twice to the list of folders, which will either be your local Documents or OneDrive Documents folder.
12. Down arrow or first-letter navigate to the folder name (T for The Windows Screenreader Primer), and press Enter to open that folder.
13. Press Enter on the first file in that list which should have a .OPF extension, the DAISY 3.0 format used by Bookshare.

The entire book is now loaded and you are ready to navigate through it.

A few things to note:

* To open the book in future sessions, press Alt to land on the File menu, Up arrow to the book title, and press Enter. FS Reader remembers recently opened books.
* Also when you open a previously-opened book, Bookshare remembers where you last were, and first lands you in that place.
* Bookshare has formatted this DAISY book with a single level 1 heading for the title. Chapters are all level 2 headings, with sections as level 3 headings, and so on down to level 5, the lowest heading level in this book.
* Press Control + F to find the text of a topic you want, and then F3 to go to the next occurrence of that text, These are the same keystrokes used with JAWS when searching for text on the web.
* Press Control + B to set a bookmark for a place you would like to return to in the future. Press Control K for a list of your bookmarks, Down arrow and press Enter on the one you wish to navigate to. Or to delete a bookmark you no longer need, press Control K, Down arrow to it, Tab to the Delete button and press Enter. Bookmarks are automatically saved, so will still be there the next time you open the book.
* Links in the table of contents do not work. However, navigating by heading is generally more efficient.
* Links to external websites work, but oddly, they open in Internet Explorer rather than in your default browser.
* Go to the [FS Reader Getting Started Guide](https://daisy.org/guidance/info-help/guidance-training/reading-systems/fsreader-quick-start-guide/) to learn more about how to use this utility.

### 16.1.2 Voice Dream Reader App on the iPhone

If you have the Voice Dream Reader app on your iPhone, and you subscribe to Bookshare, you can easily import the book in DAISY format and read it there. If not a Bookshare subscriber, you can import the book in ePub format. Text navigation by heading and heading level is possible with both of these methods.

Steps for importing a book from Bookshare into Voice Dream Reader are:

1. Open the Voice Dream Reader app on your iPhone and make sure you are on the Library screen.
2. Double tap on the Add document button at the top right of the screen.
3. Flick right to Bookshare and double tap. If this is your first time doing this, you will need to sign into your Bookshare account.
4. If the book is already in your reading list or your Download history, double tap on one of those buttons to access the list. Otherwise, search for it.
5. Flick right to the book title, and then Right flick just past its name to Download and double tap to initiate the import process.
6. When finished, double tap on the Close button found near the top right of the screen. This will return you to the Library screen of the Voice Dream Reader app.

For ePub files, first add them to a cloud storage app such as Dropbox, Google Drive, or OneDrive so you can import them into Voice Dream Reader. As mentioned above, use individual chapter files, rather than the entire book in a single file. Although you can read Word files with the Voice Dream Reader app, heading navigation is only supported for files in EPUB format. EPUB is a digital book file format for use with e-readers, and compatible software is available for most smartphones, tablets, and computers. Its file extension is .ePub. Use the chapter files contained in the EPUB folder that you downloaded from the Carroll Center website.

In outlining the steps below, I will use Dropbox as my cloud sharing app, but these steps will also work with OneDrive and Google Drive for Desktop.

Steps for copying files from your computer to the Voice Dream Reader app are:

1. Copy the chapter files from the EPUB folder on your PC to a folder of your choosing in Dropbox.
2. Open the Voice Dream Reader app on your iPhone where you land on the Library screen.
3. Double tap on the Add document button at the top right of your screen.
4. Flick right to Dropbox and double tap.
5. Navigate to the folder containing the EPUB files and double tap.
6. Flick right to the name of the EPUB file you wish to transfer, and then Right flick just past its name to the Download button and double tap to initiate the transfer process. Repeat this for any other files you wisht to transfer. Multiple transfers are possible at the same time.
7. When all files are downloaded, double tap on the Close button found near the top right of the screen. This will return you to the Library screen of the Voice Dream Reader app.

Now that the book is in Voice Dream Reader, either imported in DAISY format from Bookshare, or in ePub format from one of the cloud sharing apps, you can navigate through it by heading in two ways. Steps for the first way are:

1. Double tap on the file in the list of files in your library.
2. From the top of the screen, flick right to the Headings, bookmarks, and highlights button and double tap.
3. Flick right or left to the Headings button and double tap to select it.
4. Flick right to the Heading level picker and flick up or down to adjust it to the level you would like to navigate by, for example, level two.
5. Flick right to see the list of level two headings.
6. Double tap on the level two heading to which you would like to navigate, and you will get into the document at that point.

Steps for navigating by heading in the second way are:

1. Repeat steps one through three above.
2. Flick right to the Heading level picker and flick up or down to adjust it to one past the level you would like to navigate by. For example, if you want to navigate by level two headings, select three.
3. Flick left to the Close button and double tap. This returns to the screen for reading the document.
4. Flick right to the Navigation unit picker, and flick up or down to Heading.
5. Double tap on the Play button to start reading the document. When you navigate to this button, you also hear “adjustable,” indicating you can do what happens in the next step.
6. With focus still on the Play button, Flick Down vertically to go to the next heading at the designated level (in this example, level two) or flick up to go back one heading at this level.

The discrepancy of this second approach (that is, having to select one number past the actual heading level you wish to navigate by) is a bit strange and will hopefully be rectified in future updates of the app.

### 16.1.3 Victor Stream

You can copy this book in Word format to the Text Files folder of the Victor Stream, and navigate through it by heading. Use the files in the folder containing all the chapter files in Word format.

To copy Word files from your computer to a Stream, first select and copy the Word files located on your computer that you wish to read on the Stream. Then do either of the following:

* Remove your SD card from the Stream and place it in the SD slot on your computer, if it has one. Many computers have these slots, but not all of them. Your computer should make a noise acknowledging that the device is connected.
* or power off your Stream, and then connect your Stream to your computer, using the cable that came from the manufacturer. Now turn on your Stream again. Your computer should make a noise acknowledging that the device is connected.

To navigate to the Text Files folder on your Stream and paste the selected files that you have copied to the Clipboard

1. On your PC, press the Windows key and, if using Windows 10, type “This PC” in the search box. Usually, typing just the first one or two letters suffices. If using Windows 11, access This PC using one of the options covered in Chapter 2.5.9.
2. Depending on how your folder view is set up here, either Right arrow or Down arrow to Devices and drives. With Windows 11 22/H2, you first land on Devices and Drives. If it says “collapsed” here, press the Spacebar to expand it.
3. Down arrow or Right arrow to the name of your SD card, and press Enter.
4. Down arrow to the $VR Text Files folder, and press Enter.
5. Press Control + V to paste the Word files in the $VR Text Files folder.
6. Remove your SD card or USB cable from the computer.

To now read Word documents on your Stream and navigate by heading:

1. Power on the Stream and press one on the Number pad to cycle through the folders until you get to the Text Files folder. If you do not hear this, press the top middle button to turn on Airplane mode, and then try again. This disconnects Wi-Fi, enabling you to access this folder.
2. Press the Play button to listen to the first file in the folder. Alternatively, press the six or four button to move to the next or previous file, respectively.
3. Press the Play button when you land on the file you would like to listen to.
4. Press the same button to pause the recording.
5. Press two on the Number pad to cycle through the options for navigating within the document. Among these are levels one, two, three, etc. for each of these heading levels.
6. After choosing a heading level, press the Play button to resume the recording, and now press the six or four button to move to the next or previous heading at this level, respectively.
7. When done, press one on the Number pad to exit this file, and then use your arrow keys (four and six) to navigate to another file. Repeat steps three through six above to listen to this file.
8. If you want to leave this folder and access a different folder on the Stream, press one another time to exit the Text Files folder, and continue pressing one until you arrive at the folder you want.

I find it most useful to navigate by level two headings in the chapter files of my book, preferring to move by chapter sections rather than sub-sections. See what works best for you.

## 16.2 remote Incident Manager

Remote Incident Manager (RIM), from Pneuma Solutions, allows you to provide or receive remote computer assistance on both Windows PCs and Apple computers. You can use it with or without assistive technology. This tool is not just for technicians. You could of course use it to get assistance from an I T expert, but you could also use it to get help from a sighted friend or family member if you were having trouble with an inaccessible website.

The person providing assistance is called the “controller,” and the person receiving assistance is called the “target.”

The first step is for both the controller and target to download RIM and install it on their computers. Visit [Get RIM](https://pneumasolutions.com/products/rim/) to download the installation file, navigate to the Download for Windows link, and press Enter to download the installation file to your Downloads folder. From there, activate the installation file and follow the instructions. A shortcut will be added to your Desktop during installation.

The controller is required to create an account while the target does not need to do this. With a free account, Controllers can use RIM for up to 30 minutes over a 24 hour period. Pneuma Solutions also has several paid account options for larger amounts of time, described on the web page above.

Once downloaded and installed, steps for initiating a remote session are simple:

1. Both the controller and target open Remote Incident Manager using the desktop shortcut.
2. For the controller, navigate to the Keyword edit field, type in something short which will serve as the code that the target person eventually types in on their end. The beauty of this is that the keyword can be extremely simple. This is especially useful when assisting people who are not strong typists. I have used something as easy to type as triple A, all in lower case. The only keyword restriction is that it is not being used by somebody else up in the cloud at the same time.
3. Tab to the Start button and press Enter.
4. For the target, type the keyword in the Keyword edit field and press Enter.

The session now begins. The controller can see the target screen, as well as hear any audio if using a screenreader. The controller can use both keystrokes and a mouse.

Here’s the next great thing about RIM. The controller can bring up a context menu by pressing Shift Windows + Backspace. In my opinion, the two most useful options in this context menu are:

* Flip the session: This allows the Controller to switch Control + Back and forth between the two computers.
* close the session.
* The ability to easily flip the session is a great feature. As a controller, you might want to give Control + Back to the target so that he/she can type in a password. And if I do this as a controller, I am now back on my own computer. Perhaps I want to look something up in a file on my computer. Better yet, I can copy files and folders from my computer, flip the session back so I Control + It, and then paste the files or folders to the target computer. Because I often share files with trainees, this is an incredibly valuable feature.

## 16.3 Groups.IO Discussion Lists, Including How to Receive Daily Digests

Subscribing to Groups.IO lists has become a central part of my ongoing assistive technology learning process. I check it out on pretty much a daily basis. I have learned many useful things from the various lists to which I subscribe.

Find out how to create an account at:

[Creating a Groups.io account](https://groups.io/helpcenter/membersmanual/1/understanding-groups-io-accounts/creating-a-groups-io-account)

Links to the home pages of some of the lists that I have found informative include:

* For JAWS: [main@jfw.groups.io](https://jfw.groups.io/g/main) and [jfw-users@groups.io](https://groups.io/g/jfw-users).
* For NVDA: [nvda@nvda.groups.io](https://nvda.groups.io/g/nvda).
* For Microsoft Office: [M365@groups.io](mailto:M365@groups.io).
* For news about assistive technology for the blind: [tech-vi@groups.io](https://groups.io/g/tech-vi). This is an announce-only list rather than a discussion list.

The list home pages provide information on the subject matter of the lists, numbers of members, previous discussion threads, and links for subscribing and unsubscribing.

If you are concerned about getting inundated with email messages, you can set parameters on how you receive messages. For those lists with lots of traffic, I much prefer receiving a daily digest from each list with links to the various message threads. That way, I only get one message per discussion list each day, and I can quickly see if a particular discussion thread interests me.

Daily Digest Insert

To specify your mode of email delivery:

1. Open groups.io in your web browser. If you are not already logged in, do so with your email and password for your Groups.io account.
2. You land on a page with your Groups.io lists arrayed in a table. Press T to navigate to the table, press Control + Alt + Right arrow to move to the second column, and press Control + Alt + Down arrow to the name of the discussion list for which you want to change your delivery mode.
3. Control + Alt + Right arrow to the Delivery column where the current mode is identified (the default is individual).
4. This is a link. Press Enter to activate it.
5. The options on this page are radio buttons. Press A with JAWS or R with NVDA to go to the first radio button. Down arrow to the Daily summary radio button and press the Spacebar to check it.
6. Press B several times to the Save button and press Enter to save your new choice.

Once you have saved this, you will receive a single email for this list at about 9:00 AM Eastern Standard Time every day.

Steps for quickly and efficiently navigating the Daily Digest email message in Outlook and message threads include:

1. Open the Daily Digest message and press Insert + F7 to open the Links list or Elements list in JAWS or NVDA, respectively.
2. Down arrow through the links. The third or fourth link will be the title of the message thread.
3. Press Enter on a thread that interests you.
4. This opens a web page in your default browser. Press H to get to the only heading on the page, below which the initial message in the thread appears.
5. Each message begins with a separator. The key to go to the next separator is the minus sign with JAWS and the letter S with NVDA.
6. To move through a thread quickly and efficiently, put your screenreader in Say All mode, listen to a thread, and press the separator key to go to the next individual thread.
7. When finished with the thread, press Alt + F4 to close the web page, and return to the email message to find another thread you would like to read.

At the bottom of each individual thread, you can find a Reply button. Activate this if you would like to draft a reply. You will land in an edit field. Type in your text, tab to the Send button, and press Enter. This will go to all list members and appear as the last message in the thread.

When you post a question, state the issue clearly in the subject line of your email message. Avoid overly vague wording like “Outlook Problem,” saying instead, “Contacts no longer pre-populating in the To and CC fields.” Also identify near the beginning of the message what software and versions you are using (example: Windows 11 23/H2, JAWS 2024, and Outlook 365).

## 16.4 When Things Go Wrong

Technology is quirky. Things inevitably go wrong. I will conclude this book by identifying some commonly encountered issues and possible ways to address them. Here goes!

### 16.4.1 JAWS or NVDA stops talking.

JAWS is a powerful software program that takes a lot of juice to run. Consequently, it goes silent from time to time. To get some speech back, first try turning on Narrator by pressing Control + Windows + Enter. I like to say that JAWS is very jealous and territorial, not wanting an upstart competitor to butt in on its turf. Turning on Narrator often wakes up JAWS. If that doesn’t immediately get JAWS talking, navigate to the Desktop and click on the JAWS icon. Hopefully, JAWS will start talking again. If this works, then press Control + Windows + Enter again to exit Narrator.

Although not yet as versatile as JAWS and NVDA, I consider Narrator an indispensable tool when things go wrong with the other screenreaders. I switch it on and off several times every day.

If attempting to activate Narrator fails to get speech back, it’s probably time to power off the computer by holding down the Power button until the computer is turned off. Then boot it up again to restore speech.

### 16.4.2 You open a window that you know has content, but when you Down arrow, you hear nothing.

If this happens in a Word document, first press Alt R W to get a word count, just to doublecheck that text is present and that you have not accidentally deleted it. There are several things you can try for fixing this. Proceeding from the least time-consuming to slightly more time-consuming measures, do the following:

* Maximize the window by pressing either Windows Up arrow or Alt and the Spacebar together and then Down arrow to Maximize. If your screenreader indicates that maximize is unavailable, it is not the problem. If it only says, “maximize,” press Enter and that hopefully fixes the problem.
* If using JAWS, press Insert escape to refresh JAWS.
* If this is a web page, press F5 to refresh the page.
* Alt + Tab away from the window, and then Alt + Tab back to it.
* Close the application that is misbehaving and reopen it.
* Close your screenreader program and reopen it.

If none of these work, power off your computer and reboot.

### 16.4.3 You receive the message “program not responding.”

This most frequently happens to me with Outlook. I naturally first try pressing Alt + F4 to exit the program. I try other things too, like pressing Escape. But invariably, the program does not close and I cannot resume working in that application. Short of rebooting the computer, open the Task Manager and close the program there. Steps are slightly different between Windows 10 and 11:

* With Windows 10, press Control + Shift + Escape together, Down arrow to the offending program, Tab to the End task button, and press Enter.
* With Windows 11, also press Control + Shift + Escape together, Down arrow to the program, press the Applications key, Down arrow to End task, and press Enter.

Now reopen the program, and it should work correctly. If the problem persists, reboot your computer.

### 16.4.4 You accidentally delete text.

In any application where you are in edit mode, immediately press Control + Z to undo your last keystroke. If you are working in Excel, and press a wrong key in a particular cell, immediately press the Escape key. Whatever you just typed will not replace previous cell content.

The above said, your best defense against losing substantial amounts of work is to save files early and often. If you do this and then make a serious editing mistake, just close your document without saving it, and reopen it. If you save frequently, the amount of work you lose in such situations will be minimal.

### 16.4.5 A file does not open in the program you want it to open in.

If you want to permanently change the default program for opening this file type, see Chapter 2.5.10.

If you want to open the file in an application other than the default one, place your focus on the filename. Then press the Applications key, Down arrow to the Open with submenu, and press Enter. Now Up or Down arrow to the desired application and press Enter.

### 16.4.6 I am unsure whether my issue has to do with my screenreader, the application I am in, or my own computer.

First try to narrow down the possibilities to isolate the problem. This will help you to better articulate your problem if you need to call tech support or post a question to a discussion list.

Let’s say you experience a problem while using JAWS. Try switching to NVDA or Narrator. If performance improves, chances are good that the problem is with your initial screenreader. If nothing changes, the problem is unrelated to your choice of screenreader.

If you encounter a problem on a website, try switching browsers. Here too, this might help you isolate it. If the problem first arises using Google Chrome, try Firefox rather than Edge. Chrome and Edge are both Chromium-based while Firefox is not, so there is a greater likelihood that performance will be different. Also try switching screenreaders. If the problem persists regardless of which screenreader and/or browser you switch to, then the problem almost certainly lies with the application itself or the specific website. At this point, you may wish to contact tech support for that application or website. You might also query a technology discussion list to which you subscribe, asking if others have had similar problems, and if so, what they did to resolve it.

### 16.4.7 I open a web page and my screenreader remains silent.

First try refreshing the web page by pressing F5, and wait a reasonable time for your screenreader to start telling you the number of headings, links, and so on, that are present on the page. Also try maximizing the page by pressing either Windows Up arrow or Alt and the Spacebar together and then X.

### 16.4.8 Quick key navigation fails to work on a web page.

Let’s say you open a web page, and then press H to navigate to the first heading, or you press E to get to the first edit box, but your screenreader only says H or E. Try any of the following:

* Press F5 to refresh the page to see if it correctly loads this time.
* You may have landed on the Address bar instead of the main body of the web page. Press F6 or Shift + F6 several times to see if you can get to the body of the page that way. You can also try Shift + Tabbing to return to page content.
* Toggle screenreader focus modes off and on. With JAWS, press Insert + Z to toggle Virtual PC cursor mode on and off. Try Down arrowing to see if you can now activate links. Press H to see if you can navigate by heading. In some cases where accessibility problems exist, Down arrowing and pressing Enter on a word or set of words that are not expressed as links or buttons may activate them. If using NVDA or Narrator, press Insert + Spacebar to toggle Browse mode or Scan mode on and off, their respective equivalents to the JAWS Virtual PC cursor mode.
* Close the web page and reopen it and see if it behaves properly this time.
* Change web browsers and/or screenreaders to see if performance improves.

### 16.4.9 More Radical Solutions: Uninstalling, Reinstalling Applications, and JAWS Repair

Sometimes an application is seriously malfunctioning and the only practical remedy is to uninstall and reinstall it. Keep in mind that you will probably lose whatever customizations and settings changes you have made to the program.

Steps for uninstalling an application are:

1. Press the Windows key to open the search box, and type in the first few letters of the app until you hear its name in full.
2. Press the Applications key, Up arrow once to Uninstall, and press Enter.
3. You land in a list of installed applications. Down arrow or first-letter navigate to the app you wish to uninstall.
4. Press the Applications key and then press Enter on Uninstall.
5. The User account control dialog opens, and you are asked, “Do you want to allow this app to make changes to your device?” Tab twice to the Yes button and press Enter.
6. Follow any additional prompts until you receive an announcement that the app has been uninstalled.

Now go to the website for the app, find and download the installation file to your Downloads folder, and reinstall it from there.

On rare occasions when there are serious problems with your JAWS program, you may need to perform a JAWS repair. Before doing this, consult the JAWS Tech Support desk to determine that that is the best option. Performing a JAWS repair involves downloading the installation file for the most recent update of the JAWS version you are using and running that installation file. This will replace the existing installed JAWS program files with new ones. It is quicker than carrying out the above steps, as well as going through the steps to reactivate your JAWS license.

To do this, go to [Downloads: JAWS](https://support.freedomscientific.com/Downloads/JAWS). Under the first “JAWS Downloads” heading, Down arrow to either the link for the most recent version or the one for previous versions, depending on which one you are running. After finding the relevant download link and activating it, the installation file will be downloaded to your Downloads folder, from where you can reinstall the program.

If you need to uninstall and reinstall Microsoft Office, consult the Microsoft Disability Desk and have them assist you with this process. Set aside some time to do this. Unlike with other programs, this can take an hour or so.

### 16.4.10 You simply don’t know how to do something.

Before posting a message to a technology discussion list enlisting a friend or family member via RIM (see Chapter 16.2 above), or contacting tech support, try conducting an online search with your preferred search engine. You will be amazed at how many things you can figure out independently. The more precise you can be in the wording of your search, the more likely you will be to find an answer.

Keep in mind that many of the step-by-step instructions you encounter will be written for sighted people. You will be told to drag this from here to there, click on the red or green button, and various other things of little or no help to screenreader users. YouTube demo presenters will fail to describe what they are clicking on.

If keystroke combinations are identified, these are what you want. If you are instructed to “right click” on something, this is the equivalent of pressing the Applications key. If you are told to click on a particular command in one of the Office applications, try to figure out how to get there via the ribbon menus, or use the Tell Me feature of Office (see Chapter 2.4.1.2).

If you still don’t have your answer, send a message to one of the Groups.IO discussion lists identified in Chapter 16.3 above.

Finally, contact one of the various accessibility support desks out there in the world, including those for Microsoft, Freedom Scientific, and Google. Or if you can find a friend or family member to help you out, get going with RIM!

# Appendix I Keystrokes

In this appendix, programs are alphabetically listed below and all are marked as level two headings. Subsections of each program are marked as level three headings.

## Excel

### Navigation

Control + Home: Go to cell A1

Control + End: Go to intersection of last column and row with data

Control + And four arrow keys: Navigate to last and first cells in regions

Control + G or F5: Go to a specific cell

Insert + Shift + 1, 2, 3, etc.: Create monitor cell 1, 2, 3, etc. with JAWS

Alt + Shift + 1, 2, 3, etc.: Read monitor cell 1, 2, 3, etc. with JAWS

Control + Shift + M: List monitor cells with JAWS

### Editing, Formulas and Data Manipulation

Addition: =A1 + A2

Subtraction: =A1-A2

Multiplication: =A1\*A2

Division: =A1/A2

Sum of the data range A1 through A10: =SUM(A1:A10)

Average of the data range A1 through A10: =AVERAGE(A1:A10)

Minimum value in the data range A1 through A10: =MIN(A1:A10)

Maximum value in the data range A1 through A10: =MAX(A1:A10)

Alt + =: Auto sum (selects a default data range to speed up summing a column or row)

Shift + Spacebar: Select row

Control + Spacebar: Select column

Alt H I R: Insert row

Alt H I C: Insert column

Alt H D R: Delete row

Alt H D C: Delete column

Alt H O W: Manually adjust column width

Alt H O I: Autofit column width

Control + 1: Format cells dialogue box

Control + Shift + 4: Format dollars with two decimals

Control + Shift + 5: Format percentages with no decimals

Control + semi-colon: Insert today’s date

Alt H M: Merge Cells

Insert + F1: Find information about a spreadsheet with JAWS

Control + Shift + L: Toggle filtering on/off

Alt N V: Create pivot table

### Multiple Worksheets

Control + Page up/down: Move to previous/next worksheet

Control + Shift + S: List worksheets with JAWS

Insert + Shift + S: Context menu with JAWS for worksheet actions (delete, move, copy, rename, etc.)

Alt H V S and Shift + Tab once: Paste links (copy formulas or values from one sheet to another)

Shift + F11: Add new worksheet in workbook with focus in new worksheet

Alt H O R: Rename worksheet

Alt H O M: Move or copy worksheet

Alt H D S: Delete worksheet

### Printing Worksheets

Control + P: Open print dialog

Control + Shift + B: Location of row and column breaks with JAWS

Insert + F1: Number of printable pages with JAWS

Alt P M: Margins submenu

## Google Workspace

### Drive Online

Insert + Z: Toggle JAWS Virtual PC cursor on/off

Insert + Spacebar: Toggle between NVDA Browse and Focus modes

Alt + G and then F: Folder view.

Control + Alt + R: Add shortcut to Drive dialog.

Alt + G and then L: Toggle between Grid and List view.

Alt + A: Context menu with actions such as new folder, open, download, share, information, rename, and move to trash.

Delete: Remove a file or folder.

Alt + N: Create menu (folder, Doc, Sheet, Slide or Form).

### Docs and Sheets

Control + Alt + Z: Enable screenreader support

Control + Alt + H: Enable Braille support

Alt + F: File menu

Alt + F and then Tab three times: Main toolbar

### Mail

C: Create new message

X: Select message

Enter: Open message

N: Go to message body in an open message

Shift + 3: Delete selected messages

### Control + Shift + C: Add CC field

### Control + Shift + B: Add BCC field

Control + Enter: Send message

G I: Go to Inbox

G T: Go to sent items

G D: Go to drafts

G C: Go to contacts

G N: Go to next page of Inbox messages

G P: Go to previous page of Inbox messages

### Calendar

T: Today view

A: agenda view

G: Go to date

C: Create event

Control + S: Save event

Delete: Delete event

E: Edit event

D: Day view

W: Week view

M: Month view

P or K: Previous period

N or J: Next period

## Outlook

Control + N: Create new message if in one of the mail folders, create new appointment if in calendar folder, create new contact if in contacts folder.

Shift + Tab and Tab: Move up and down through fields in an open message

Alt + S or Control + Enter: Send message

Control + R: Reply to sender

Control + Shift R: Reply to all

Control + F: Forward message

Control + Y: Open folder tree view

Control + Shift + E: Create new folder

Alt P B: Add/remove BCC field (only while in message preparation window)

Control + Shift I: Go to inbox

Control + 1: Go to last message folder

Control + 2: Go to calendar folder

Control + 3: Go to contacts folder

Control + Shift + C: Create new contact

Control + E: Search

Control + Alt + K: Search current folder only

Insert + Control + F: Find text within an email

F3: Find next with JAWS

Insert + F3: Find next with NVDA and Narrator

### Outlook Calendar

Control + 2: Go to calendar

Control + Alt + 1: Day view

Control + Alt + 2: Work week view

Control + Alt + 3: Full week view

Control + Alt + 4: Month view

Tab + Enter: Navigate to an existing appointment to edit

Control + N: Create new appointment from inside the calendar folder

Control + Shift A: Create new appointment from anywhere in Outlook

Control + Shift Q: Create new meeting from anywhere in Outlook

## PDF’s Using Acrobat Reader

Ctrl + Home: Go to beginning of document

Ctrl + End: Go to end of document

Control + Page up/down: Go to previous/next page

Control + Shift + N: Go to page

Shift + F4 and then Insert + Page down: Status bar for indicating page number and total number of pages in document

Control + Insert + F: Find command for searching text

Insert + F3: Find next occurrence of text

Control + Shift + 5: Change reading order

Control + Windows + K: Create temporary placemarker with JAWS

Control + Shift K: List placemarkers with JAWS

K: Navigate to next placemarker with JAWS

## PowerPoint

F5: Open Slide show view and read first slide

Shift + F5: Open Slide show view and read current slide

Spacebar or Page down: In Slide show view, go to next slide and read it

Backspace or Page up : In Slide show view, go to previous slide and read it

Ctrl + Shift + N: Read notes in Slide show view

Escape: Exit Slide show view

F6 and Shift + F6: Switch between panes (the most useful being slide area, thumbnail and Notes panes)

Tab: Move between objects on slide

Tab and then Enter: Move to and get into object to edit

Escape: Exit object after editing

Control + M: Create new slide (same type as current slide)

Alt H I: Create new slide (different type than current slide)

Insert + Tab: Speak selected object

Ctrl + Shift + S: Speak information about current slide with JAWS

Ctrl + Shift + D: Speak dimensions of object with JAWS

## Screenreader Basics

### JAWS

Insert + T: Title of window

Insert + 1: Keyboard help

Control + Alt + J: Open JAWS (needs to be set up by user)

Insert + F4: Exit JAWS

Control + F: Find text

F3: Find next occurrence on web pages and in PDF’s

Spacebar: Find next occurrence in Word documents

Control + Windows + Alt + Page up/Page down: Increase/decrease default voice rate

Control + Windows + K: Temporary placemarker for Extended text selection

Insert + Spacebar and then M: Select between temporary placemarker and cursor position

K: Move to next placemarker

Insert + Spacebar and then T: Toggle Table layer

Insert + Spacebar and then S: Toggle speech off/on

Insert + Z: Toggle quick keys on/off

### NVDA

Insert + T: Title of window

Control + Alt + N: Open NVDA

Insert + Q: Quit NVDA

Insert + N: Open NVDA menu

Insert + A: Say all text (continuous read in laptop mode)

Insert + Down arrow: Say all text (continuous reading desktop mode)

Insert 4: Toggle command keys speak on/off

Control + Insert + F: Find text

Insert + F3: Find next

Control + Insert + Up/Down arrow: Increase/decrease default voice rate

Insert + S: Speech on/off

Insert + Spacebar: Browse mode on/off

Insert + F9: Extended text selection - mark start of text

Insert + F10: Extended text selection - mark end of text

### Narrator

Control + Windows + Enter: Open/exit Narrator

Control + Windows + N: Open Narrator menu

Insert + Spacebar: Scan mode on/off

Insert + Down arrow: Say all or continuous reading

Insert + Equal: Increase default voice rate

Insert + Dash: Decrease default voice rate

## Web Browsing

### Opening and Closing Web pages

Alt + D or F6: move to address bar (URL is selected)

Control + T: Open new tab

Control + Tab: Move between open tabs

Control + W or Control + F4: Close current tab

Alt + F4: Close all tabs and exit browser

### Web Navigation

Control + Home: Go to top of page

Control + End: Go to bottom of page

Insert + F1 at top of page: JAWS context help tells number of regions, links and headings

Alt + Left arrow or Backspace: Move back one page

Alt + Right arrow: Move forward one page

H: Go to next heading (Shift H to go back one heading)

1, 2, 3, etc.: Move to next level 1, 2, 3, etc. heading

Insert + F6: Headings list (JAWS and Narrator)

Insert + F7: Links list (JAWS and Narrator)

Insert + F7: NVDA Elements list

Tab and Shift + Tab: Go to next/previous link

N: Move to next block of non-linked text

P Go to next paragraph (JAWS and Narrator)

G Go to next graphic

R: Go to next region or landmark (JAWS)

D: Go to next region or landmark (NVDA and Narrator)

Control + F: Find text, F3 Go to next occurrence (JAWS)

Control + Insert + F: Find text, Insert + F3 Go to next occurrence (NVDA and Narrator)

### Web Forms and Tables

Insert + F5: List of form fields (JAWS only)

B: Next button

C: Next combo box

E: Next edit box

X: Next checkbox

F: Next form field.

A: Next radio button (JAWS)

R: Next radio button (NVDA and Narrator)

T: Next table

Control + Alt + Up, Down, Left and Right arrow keys: Move up, down, left, and right in a table

Up and Down arrow: Move right and left along a row in a table

Right/Left arrow: Move right/left by character in a cell

### Other Universal Web Keystrokes

Control D: Create favorite or bookmark

Control H: Open History

Ctrl J: Open downloads manager

Control + Shift + Delete: Open Clear browsing history

### Accessing Google Chrome and Microsoft Edge Menus

Alt and F together: Open context menu

Alt and F together and then S: Open Settings

Alt and F together and then L: Open More tools submenu

## Windows

### Windows Navigation

Windows + M or Windows + D: Go to desktop

Windows key: Open Start menu with focus in search box

Insert + F11: Open System Tray with JAWS

Windows + B: Open Notification Area with NVDA and Narrator

Alt + Tab: Move between open windows

Alt + F4: Close window/program

### File and Folder Management

Control + Shift + N: Create new file

Down arrow or first-letter navigate: Select individual file or folder

Spacebar: Select first file or folder in a list

Shift + Down arrow: Select files or folders continuously

Control + Spacebar: Select files or folders discontinuously (Down arrow past ones you don’t want to select)

Control + A: Select all files or subfolders in a folder

Control + Shift + Home: Select from cursor to first file or folder in a list

Control + Sshift + End: Select from cursor to last file or folder in a list

Control + C: Copy selected files

Control + X: Cut selected files

Control + V: Paste selected files

### Text Reading and Navigation

Right/Left arrow: Read by character

Control + And right/Left arrow: Read by word

Down/Up arrow: Read by line

Insert + N: Read next sentence (JAWS)

Insert + Y: Read previous sentence (JAWS)

Alt + Down and Up arrow: Read next and previous sentence (NVDA and Narrator)

Control + Down/Up arrow: Read by paragraph

Insert + Down arrow: Reads continuously (Say all) in JAWS, narrator, and NVDA if NVDA is set in desktop mode

Insert A: Read continuously (Say all) in NVDA (in laptop mode)

Control + Home: Go to top of document

Control + End: Go to bottom of document

Home: Go to beginning of line

End: Go to end of line

### Text Selection and Basic Editing

Shift Right arrow: Select character

Shift Control + Right arrow: Select word

Shift + Down arrow: Select line

Shift Home: Select from cursor to start of line

Shift End: Select from cursor to end of line

Shift Control + Down arrow: Select paragraph

Shift Control + Home: Select from cursor to top of document

Shift Control + End: Select from cursor to end of document

Control + A: Select all

Control + C: Copy text to Clipboard

Control + X: Cut text to Clipboard

Control + V: Paste text from Clipboard

Control + Z: Undo

## Word

Alt: Open Upper ribbon

Tab/Shift + Tab: Move between commands in Lower ribbon

Control + Right/Left arrow: Move between groups in Lower ribbon

F12: Save As dialog box

Control + S: Save revised document

Insert + Page down: Status bar (JAWS only)

Insert + Shift + End or Insert + End: Status bar in Laptop or Desktop mode (NVDA only

### Text Formatting

Insert + F: Check formatting of character or selected text

Control + B: Bold on/off

Control + I: Italics on/off

Control + U: Underline on/off

Control + L: Left align text

Control + E: Center align text

Control + J: Justify align text

Control + R: Right align text

Alt H E: Clear formatting (returns font and paragraph settings to default)

Insert + F1: JAWS Screen-Sensitive Help (good for checking margin dimensions and header/footer content)

Alt R W: Number of pages and word count

Alt H U: Bullet split button

Alt H N: Numbering split button

### Headers and Footers

Alt N H: Header submenu

Alt N O: Footer submenu

Alt N H R: Remove header

Alt N O R: Remove footer

Alt N U: Page number submenu

Alt + Shift + P: Insert page numbers in header/footer fields

### Headings, Styles, and Table of Contents

Control + Alt + 1: Apply level one heading

Control + Alt + 2: Apply level two heading

Control + Alt + 3: Apply level three heading

Control + Shift + N: Apply normal style (or remove heading format)

Insert + F6: List of headings (JAWS and Narrator)

Insert + Z and H: Quick keys mode in JAWS, navigate by heading with H,

Insert + Spacebar: Browse mode with NVDA and Scan mode with Narrator, navigate by heading with H,

Alt H L: Styles submenu

Alt S T: Table of contents submenu

Alt S U: Update table of contents

### Proofreading and Review

Insert + F: Check formatting (font and paragraph settings)

Alt + Windows + I: JAWS Text Analyzer, jump to next inconsistency

Alt + Insert + S: JAWS Speech and Sound Schemes

Alt + Delete: Vertical and horizontal cursor location on page with JAWS

F7: Spellcheck

Control + Shift + E: Track changes on/off

Windows + Semi-Colon: List comments, revisions, footnotes, or endnotes in JAWS Virtual Viewer

Alt R C: Add new comment

Insert + Z N: Quick Nav key to jump by comment. With JAWS

Alt R N: Go to next comment

Alt R V: Go to previous comment

Windows + Semi-Colon: List comments, revisions, footnotes, and endnotes in JAWS Virtual Viewer

Applications key: Open context menu on comment (can edit, delete and reply)

Alt R D O: Delete all comments

Alt S P: Insert caption (or title) in a table

Insert + F1: Table information with JAWS (when cursor is inside table)

Control + Alt and the four arrow keys: Move vertically and horizontally within a table

Tab and Shift + Tab: Move between cells in a table (cell content is highlighted)

Control + Alt + Home: Go to top left cell

Control + Alt End: Go to bottom right cell

Control + Insert + T: List tables in document. JAWS only

## Zoom

Alt + A: Mute/unmute audio

Alt + V: Video on/off

Alt + S: Screen share

Alt + Y: raise/lower hand

Alt + H: Chat

Alt + U: Participants list

Shift + Control + Alt: Moves to meeting controls window

Alt + R: Start and end local recording

Alt + P: Pause and resume recording

# Appendix II Glossary of Computer Terms

This glossary is arranged alphabetically with each entry marked as a level four heading. Press Insert + F6 for a list of Headings. Use first-letter navigation to quickly navigate to an entry, and press Enter to access the text. Many of these entries were drawn from an excellent website that provides definitions of technology terms, [Tech Terms.com](https://techterms.com/). Another good source for definitions of computer terms is [Techopedia.com Dictionary](https://www.techopedia.com/dictionary).

#### Add-On

When referring to the web, this is the same as extensions (see below) which are small software programs that customize the browsing experience, enabling users to tailor functionality to individual needs or preferences. This term is also used by NVDA for small open source programs that can be downloaded to perform additional functions with that screenreader.

#### Address Bar

A text field near the top of a browser window that displays the URL of the current webpage. The URL, or web address, is the address of the current page and automatically changes whenever you visit a new webpage.

#### Alt Text (or Alternative Text)

Descriptive text of a graphic image used to make it accessible to screenreader users.

#### Application Key

A key that might be to the right of the Spacebar, depending on computer model. On any keyboard, it can also be activated by pressing Shift + F10. Used to bring up a context menu, it is nearly equivalent to right clicking with a mouse.

#### Application Programming Interface (API)

A set of functions and procedures that define how two applications interact with each other, even if not originally designed to work together. Developers use them to build new applications, and businesses use them to integrate their systems with other systems. Among the most common types of APIs are: Web APIs, used by web applications to access data from websites or other web services; Mobile APIs, used on mobile devices to access the internet; and Service APIs, used by businesses to access payment processing and shipping services.

#### Autocomplete

also known as autosuggest or search suggest, is a feature that provides predictions when typing in a text box. They are most frequently encountered in search engine address bars and address fields for email applications.

#### Banner Ad

A long, rectangular image placed on a web page to generate revenue from advertising. After clicking the advertisement, the user is redirected to the advertiser's website.

#### Basic Input/Output System (BIOS)

A program pre-installed on Windows-based computers that the computer uses to start up. The BIOS checks all your hardware connections and locates all your devices. It then loads the operating system into the computer's memory and finishes the boot-up process. It is inaccessible because it starts up before programs resident on the computer start up, including screenreaders.

#### Bit, Byte, Kilobyte, Megabyte, Terabyte

A bit is a computer's smallest unit of data. A byte is 8 bits, usually holding one character. A kilobyte (KB) is 1,024 bytes. A megabyte (MB) equals 1,024 kilobytes, enough storage to contain a 600-page book. A terabyte is 1,024 gigabytes.

#### Blog

Short for "web log," this term refers to a list of journal entries posted on a web page.

#### Browser or Web Browser

A program used to view World Wide Web pages, such as Google Chrome, Mozilla Firefox, and Microsoft Edge.

#### Buffer

Contains data that is stored for a short amount of time, typically in the computer's memory. Its purpose is to hold data right before it is used. If you download an audio or video file from the Internet, it may load the first 20% of it into a buffer and then begin to play. While the clip plays back, the computer continues to download the rest of the clip and stores it in the buffer. Because the clip is being played from the buffer, not directly from the Internet, this reduces the possibility that the audio or video will stall or skip when there is network congestion.

#### Button

Appears visually as a rectangular shape, and is a Control + For launching some action (typically has a label like OK, continue, next, submit, save). To activate a button, press Enter or the Spacebar.

#### Cache

Stores recently used information so that it can be quickly accessed at a later time. Computers incorporate several different types of caching in order to run more efficiently, thereby improving performance. These include browser, disk, and memory caches.

#### CAPTCHA

This term comes from the word "capture," since it captures human responses. The acronym stands for "Completely Automated Public Turing test to tell Computers and Humans Apart.” These are programs used to verify that a human, rather than a computer, is entering data. They are commonly seen at the end of online forms and most frequently ask users to enter text from a distorted image or short audio recording.

#### Cell Reference

Also referred to as a cell address, is an alphanumeric value used to identify a specific cell in a spreadsheet. Each cell reference contains one or more letters followed by a number. The letter or letters identify the column and the number identifies the row.

#### Central Processing Unit (CPU)

The primary component or “brain” of a computer. It **processes** instructions and runs the operating system and applications, constantly receiving input from users and active software programs.

#### Checkbox

A form field for choosing whether a particular option or property is turned on or off. A screenreader program says “checked”, or “unchecked.” Pressing the Spacebar toggles it on and off.

#### Chromium

An open-source project that forms the basis for the Google Chrome and Microsoft Edge browsers, both of which also have proprietary features.

#### Clipboard

A section of memory where your computer stores copied data. This can be a selection of text, an image, a file, or other type of data. It is placed here whenever you use the Copy or Move commands. Data can then be pasted into a document or program using the Paste command.

#### Cloud

This term is now synonymous with the Internet. It may also be used to describe specific online services, which are collectively labeled "cloud computing." Examples of popular cloud-based services include web applications, online backup, and other types of online storage.

#### Combo Box

A dropdown from which you choose among a set of standard choices. Up or Down arrow to move through the choices or press the first letter of the choice you want. You may need to first press Alt + Down arrow to display the full list of choices before moving through them.

#### Context Menu

A menu that appears if you press the Applications key on a Control + Or while in a window. Choices depend on which program they are activated from, And more specifically, where focus is located within the program. Up and Down arrow to move through the items, and press ENTER to activate a menu choice.

#### Control + Panel

A feature of Windows that allows the user to modify system settings and controls. It includes several small applications that can be used to view and change hardware or software settings.

#### Cookie

A small amount of data generated by a website and saved by your web browser. Its purpose is to remember information about you, such as login information for a specific site.

#### Cursor

Visually, the cursor on your screen can indicate two things: where your mouse pointer is, or where the next character typed will be entered when editing text. Screenreader programs also incorporate specialized cursors to facilitate efficient screen navigation.

#### Desktop

The primary user interface of a computer. When you boot up your computer, the Desktop is displayed once the startup process is complete. It includes the background (or wallpaper) and icons of shortcuts to files, folders, applications and web pages, as well as files or folders you have saved directly to it. It includes a Taskbar, which is located at the bottom of the screen by default.

#### Desktop Shortcut

Usually represented by an icon, is a small file that points to a program, folder, document, or Internet location. Clicking on a shortcut icon takes you directly to the object to which the shortcut points. Shortcut icons contain a small arrow in their lower left corner.

#### Dialog Box

Serves to initiate a “dialogue” with the user. It is a window that pops up on the screen with options that the user can select. After the selections have been made, the user can typically tab to an OK button to enter the changes or a Cancel button to discard them.

#### Disk Drive

A device that reads and/or writes data to a disk. The most common type of disk drive is a hard drive.

#### Dongle

A small device, typically about the size of a flash drive, that plugs in to a computer, usually via a USB port. Some dongles act as security keys while others serve as adapters for external devices.

#### Download

This term can be used as either a verb or a noun. As a verb, it refers to the process of receiving data over the Internet. Downloading is the opposite of uploading, or sending data to another system over the Internet. As a noun, download refers to a file that is retrieved from the Internet.

#### Driver

A software program that enables a hardware device to work with a computer's operating system. Drivers may be required for internal components, such as video cards, microphones and speakers, as well as external peripherals, such as printers and monitors.

#### Drop-Down Menu

A horizontal list of options that each contain a vertical menu. When you Down arrow to one of the primary options in a drop-down menu, a list of choices will cascade below the main menu.

#### Edit Box

A form field used for entering or editing text, also known as a text box.

#### Edit Combo Box

A combination of two types of controls found in a dialog box, the edit box and the combo box.

#### Edit Spin Box

A field that contains an editable area where you can type information. Also you can Up or Down arrow through a set of fixed numerical values.

#### Ethernet

A common way to connect computers on a network over a wired connection. It provides a simple interface for connecting multiple devices, such as computers, routers, and switches. A standard Ethernet cable is slightly thicker than a phone cable and has a connector on each end. Ethernet ports look similar to telephone jacks, but are slightly wider.

#### Executable File

A type of computer file that runs a program when it is opened. It executes code or a series of instructions contained in the file.

#### Extended Select List Box or Multi-Select List Box

Similar to a combo box, but differing in that you can select multiple items.

#### Extension or Add-On

Small software programs that customize the browsing experience, enabling users to tailor functionality to individual needs or preferences.

#### Favorites or Bookmarks

These can be created for frequently-visited web pages, speeding up the process for accessing them. They are referred to as favorites by Microsoft Edge, and bookmarks by Google Chrome and Mozilla Firefox.

#### File Extension

The suffix at the end of a filename that indicates what type of file it is.

#### Flash Drive

Also known as jump drives, thumb drives, pen drives, and USB keychain drives, they are small data storage devices that use flash memory and have built-in USB connections. They are typically no more than two to three inches in length and less than an inch in width.

#### Focus

A Windows term used to describe the state when a window, dialog, menu, or Control + Can receive keyboard input. For example, if a Control + Can receive input from the keyboard, it is said to have focus.

#### Font

A specific typeface for printed and onscreen characters of a certain size and style. This may include attributes such as bold, italics and underlining, different sizes and colors.

#### Footer

Text and/or images appearing below the bottom margin of each page in a Word document or Excel sheet when displayed on a screen or printed. Footers also typically appear on webpages, most often containing links to other important pages on the site, as well as copyright information.

#### Forms

The collective term encompassing the following elements that enable user interaction on web pages: edit boxes, combo boxes, buttons, checkboxes, and radio buttons. They may also be present on PDF’s.

#### Frame

A rectangular area meant for inserting graphics, videos, and text. A frequently-encountered type of frame is an inline frame. It is a component of an HTML element that allows you to embed documents, videos, and interactive media within a page. They are often used for inserting advertisements. In such cases, they are rarely accessible to screenreader users.

#### Graphic

Term used to denote a picture, image, or decorative element appearing in a document or on a web page.

#### Hard Drive

A device (usually within the computer case) that reads and writes information, including the operating system, program files, and data files

#### Header

Text and/or images that are inserted above the top margin of each page in a Word document or Excel worksheet when displayed or printed. In email messages, the header is the part of a message that describes the originator, recipients, and message priority level.

#### Heading

Used to organize and format Word and PDF documents. On webpages, headings are HTML elements that should be used to create organization, structure, and semantic meaning. They can be defined at different levels to aid in logically outlining a document or organizing web page content.

#### Home Page

Also referred to as a landing page, a page that serves as the starting point of a website. It is the default webpage that loads when you visit a web address that only contains a domain name.

#### Hot Key

An assigned key or sequence of keys programmed to execute a command or perform a specific task in a software application. For example, in many programs the hotkey Control + S can be used to quickly save a file.

#### HTML (Hyper Text Markup Language)

The computer coding language used to create webpages. "Hypertext" refers to the hyperlinks that HTML pages contain. "Markup language" refers to the way tags are used to define the page layout and elements on the page.

#### HTTP and HTTPS

These acronyms stand for “Hyper Text Transfer Protocol” and "Hyper Text Transport Protocol Secure." This is the protocol used to transfer data over the web. HTTPS is similar to HTTP, but uses a secure socket layer for security purposes. Banking and investment websites, e-commerce websites, and most websites that require you to log in use the HTTPS protocol.

#### Icon

A graphic representation of an item that can be selected and opened, such as a document or program.

#### IMAP (Internet Message Access Protocol)

A method of accessing email messages on a server without having to download them to your local hard drive. This is the main difference between IMAP and POP3, which requires you to download messages to your hard drive before reading them. The advantage of using IMAP is that users can check their mail from multiple devices (computers and smartphones) and always see the same messages. In essence, this synchronizes your messages on all your devices.

#### Insertion Point

The point within a document at which text can be inserted or deleted. It is visually represented by a blinking vertical line within the document.

#### Internet

A network that connects computer systems across the world. It includes several high-bandwidth data lines that comprise the Internet "backbone." These lines are connected to major Internet hubs that distribute data to other locations, such as web servers and Internet Service Providers (see definition below). The Internet provides different online services, such as: the web – a collection of billions of webpages that you can view with a web browser; email – the most common method of sending and receiving messages online; social media – websites and apps that allow people to share comments, photos, and videos; online gaming – games that allow people to play with and against each other; and software updates – operating system and application updates that can be downloaded.

#### ISP (Internet Service Provider)

Refers to a company that provides access to the Internet to both personal and business customers, making it possible for them to surf the web, shop online, and conduct business. They may also provide other services including email services, domain registration, web hosting, and browser packages.

#### JAWS Cursor

Activated by pressing Num pad minus in desktop keyboard layout, it corresponds directly to the mouse pointer.

#### Label

Term used to describe what a screenreader speaks when encountering actionable elements such as form fields, buttons, etc.

#### Link or Hyperlink

A word, phrase, or image that you can click on to jump to a new web page, document, or a new section within the current document or webpage. Hyperlinks are found in nearly all web pages, allowing users to click their way from page to page. Text hyperlinks are often blue and underlined.

#### List View

A view containing multiple items such as files or folders, allowing users to select or open them.

#### Margin

The area of a page in a document between its edge and the main body of printed content. This includes the left, right, top and bottom margin.

#### Maximize/Minimize

When maximized, the state of a window when it is enlarged to fill the entire screen. When minimized, it is reduced to an item on the Taskbar.

#### Menu Bar

The bar located along the top of many application windows, which contains command and settings groupings that sometimes expand vertically to list commands.

#### Modal

A dynamically generated area of content created when additional information is presented upon activating an element on a web page. This generally appears as an overlay or pop-up on top of the original page.

#### Modifier Key

Refers to a special key that modifies the normal action of another key when pressed. For screenreader programs, and for computers that have these keys, these are the Insert key and the Zero key on the Number pad. The Caps lock key can also be programmed as a modifier key for screenreader programs. Other keys may be assigned as modifier keys for other types of applications.

#### Mouseover

Mouseovers or On Mouseovers are used by web developers to display text or images when a sighted person moves the mouse pointer over a part of a page. This is also called “hovering” as in “the mouse hovers over.” These may be graphic links with product information, word definitions, tool tips, or other supplementary information. They are often inaccessible although JAWS has a feature to access them.

#### Multi-Page Dialog Box

A dialog box with multiple pages (or tabs) allowing related settings to be grouped on each page. Press Control + Tab or Control + Shift + Tab to switch between the pages.

#### Navigation Bar

A user interface element within a webpage that contains links to other sections of the website. In most cases, the navigation bar is part of the main website template, which means it is displayed on most, if not all, pages on the website. Regardless of what page you are viewing, you can use it to visit other pages on the site.

#### Network

A collection of computers that are connected

#### Notifications

Alerts that suddenly appear on the screen, commonly used to inform a computer user about updates, queries for changing settings, and possible technical problems. They may be generated by websites via browsers or applications installed on the computer.

#### PC Cursor

A JAWS term, the main focus of the active program. It can be seen visually, usually represented by a caret, arrow, or other symbol, and is limited by the window currently in focus. The PC Cursor is used when navigating menus and dialogue boxes, editing or reading documents, and most functions that do not directly involve the use of a screenreader program.

#### PDF (Portable Document Format)

A file format developed by Adobe Systems to present documents consistently across multiple devices and platforms. Now an open standard, it is one of the most widely used formats for saving and exchanging documents.

#### Pop-Up

A window that automatically opens without the user selecting a new window from a program's menu. They are often generated by websites that include advertisements.

#### Processor

Also referred to as a microprocessor, it is a small chip residing in computers and other electronic devices. It receives input and provides the appropriate output. Modern processors can handle trillions of calculations per second.

#### Radio Button

Found both on web pages and in dialog boxes, these are used for choosing a single option from a small number of choices.

#### Random Access Memory (RAM)

Hardware in a computing device where the operating system, applications, and data in current use are kept so they can be quickly reached by the device's processor. RAM is the main memory in a computer. The amount of RAM in a device determines how much memory the operating system and open applications can use. When a device has sufficient RAM, several programs can run simultaneously without any slowdown. When a device uses close to 100% of the available RAM, memory must be swapped between applications, which may cause a noticeable slowdown.

#### Recycle Bin

A Windows folder that stores deleted files until you permanently delete them. Files and folders can be retrieved from here before permanently deleting them, providing an additional layer of protection against accidental removal from your computer.

#### Refresh (or Page Refresh)

Occurs when new content is downloaded and causes a change to a webpage. Sometimes the user can Control + It by pressing F5, but sometimes the site owner controls refreshing frequency.

#### Rich Text Format (RTF)

A file type that supports text formatting such as bold, italics, and underlining, as well as different fonts, font sizes, and colored text. Most word processors, including Microsoft Word, can create rich text documents. If you save a document in a program's native format, it may only open with the program that created it. However, if you save a document in the generic Rich Text Format, it keeps most, if not all the text formatting. It can then be opened by other word processing programs such as WordPad and Pages on a Mac.

#### Router

A hardware device that “routes” data from a local area network (LAN) to another network connection. A router allows only authorized machines to connect to other computer systems. Most routers also keep log files about local network activity.

#### Search Engine

A tool that indexes millions of websites so that computer users can find the site they are searching for after typing in a few keywords. Google, Bing, and Duck Go are some of the most popular search engines.

#### Solid State

At its most basic level, this means there are no moving parts. Solid state hard drives are made up of solid components that do not move, while many other computers have disk drives that spin and require a fan to prevent overheating.

#### Sound Card

A component inside a computer that provides audio input and output capabilities. Most sound cards have at least one analog line input and one stereo line output connection. The connectors are typically 3.5 mm minijacks, the size most headphones use.

#### Spreadsheet

A document that stores data in a grid of horizontal rows and vertical columns. Rows are typically labeled using numbers, while columns are labeled with letters. Individual row/column locations, such as C3 or B12, are referred to as cells. Each cell can store a unique instance of data. The row/column structure allows data to be analyzed using formulas and calculations.

#### Start Page

The first page you land on when opening a web browser. Within individual browser programs, users can set this as a new tab or a specific page.

#### Status Bar

A small area at the bottom of a window used by some applications to display helpful information. For example, in your Documents folder, the Status bar displays the number of items in the folder and how many items are selected. In a Word document, it indicates the current page location and the total number of pages in the document.

#### Streaming

Commonly used with audio and video, streaming refers to web-based multimedia files that can be played back without being completely downloaded to your device first.

#### System Tray (also referred to as the Notification Area)

Located in the Windows + Desktop user interface in the lower right area, it displays a series of icons for certain programs, as well as some important computer settings, including speaker volume, network connectivity status and battery level for laptop computers.

#### Tabbed Browsing

A web browser feature in which several websites may be opened in one window, versus opening each of them in an individual window. It allows a user to cycle through web pages opened during a session. Visually, tabs display in a row at the top of a browser window and include short titles for identifying them.

#### Tab Order

The order in which items on a web page are brought into focus when using the Tab Key for navigation.

#### Taskbar

The bar that spans the bottom of the screen in Windows. It contains the Start button on the left side and the System Tray on the right. It also includes the current time on the far right side and can hold labels to programs directly to the right of the Start button. Most of the Taskbar, however, contains titles for open windows. Whenever you open a program or window, it shows up in the Taskbar. When you click on a window title in the Taskbar, that window will become active and appear in front of other open windows. You can also cycle through the Taskbar items by holding the Alt key and pressing Tab a few times.

#### Title Bar

A small strip that extends across the top of a window. It displays the title of the window and typically includes the close, minimize, and maximize buttons. In Windows, these buttons are on the right side of the screen.

#### Toolbar

A set of icons or buttons that are part of a software program's interface or an open window. When part of a program's interface, toolbars typically sit directly under menu bars. Toolbars can also reside within open windows. For example, web browsers include a toolbar in each open window with items such as back, forward, and home buttons, and address fields.

#### Touchpad

Also known as a trackpad, it is a flat Control + Surface used to move the cursor and perform other functions on a laptop computer. They replace the functionality of a mouse and are designed to be controlled with your fingers. By sliding a fingertip along the surface, you can move the cursor on the screen. Some touchpads have two physical buttons below them, which correspond to the left-click and right-click mouse buttons.

#### Tree View

A graphical Control + Element that presents a hierarchical view of information. Each item, or level, can have a number of subitems, or lower levels (expressed as level one, two, three, etc.). An item can be expanded to reveal subitems, if any exist, and collapsed to hide subitems. These are most commonly encountered in file manager and email applications, where they allow the user to navigate the folder and file system directories.

#### Two-Factor Authentication

A security measure requiring two forms of authentication to access an account. It often works in combination with a username and password to add an extra level of security. Common types of two-factor authentication include: a four to six-digit code sent via text message to the user's mobile phone; a one-time code sent via email to the user's email address; an additional PIN or passcode required in addition to a username and password; or a secret question and answer created by the user.

#### Uploading

Transferring data from a computer to the Internet. It is the opposite of downloading.

#### URL (Uniform Resource Locator)

The address of a page or file on the Internet, consisting of three elements. For the Carroll Center Store’s URL, which is https://carroll.org/store/, these are: https:// – the URL prefix, which specifies the protocol used to access the location; carroll.org– the domain name or IP address of the server; and /store/ – the path to the page or file on the site.

#### USB (Universal Serial Bus)

The most common type of computer port used in today's computers. They are used for connecting keyboards, mice, game controllers, printers, scanners, digital cameras, removable media drives, and other external devices.

#### User Interface (UI)

Also simply called an interface, is the means in which a person controls a software application or hardware device. A good user interface provides a "user-friendly" experience, allowing the user to interact with the software or hardware in a natural and intuitive way. Scree reader users should be able to easily navigate using standard keystrokes.

#### Virtual Cursor

A JAWS term, this is a special cursor used only in specific programs, the most common being web browsers and PDF viewers like Adobe Acrobat Reader. When the Virtual Cursor is active, text cannot be edited. However, text can be selected and copied to the clipboard, and links can be activated by pressing Enter.

#### Virus

A deliberately harmful computer program designed to create annoying glitches or destroy data.

#### Virtual Viewer

In JAWS, a message window providing helpful information. Help messages can be accessed for lists of JAWS and Windows keystrokes, Screen-Sensitive Help, and several types of informational messages In Microsoft Office applications

#### Web Content Accessibility Guidelines (WCAG)

Part of a series of guidelines published by the Web Accessibility Initiative of the World Wide Web Consortium (W3C), the main international standards organization for the Internet. They are a set of recommendations for making Web content more accessible, primarily for people with disabilities.

#### Web Server

A computer system that hosts websites. It runs software that provides access to hosted webpages over the Internet. Most web servers are connected to the Internet via a high-speed connection.

#### Wiki

A type of website that allows users to collaboratively edit its content and structure from within a web browser. Most wiki sites are a collection of hyperlinked pages that serve as a knowledge base for an organization or online community.

#### Window

An area on the screen that displays information for a specific program. This often includes the user interface as well as the program content. They are used by most applications as well as the operating system itself. A typical window includes a title bar along the top that describes the contents of the window, followed by a toolbar that contains user interface buttons. Most of the remaining area is used to display content.

#### Windows Settings

The Windows Settings app is a part of the operating system first introduced in Windows 8, and included in later versions of the operating system. It is the central location for customizing, configuring, and updating the operating system.

#### World Wide Web

Or “web” for short, is an interconnected system of public webpages accessible through the Internet. It is not the same as the Internet, but is one of many applications built on top of the Internet. First proposed by Tim Berners-Lee in 1991, it consists of several components: the HTTP protocol governing data transfer between a server and a client; a unique universal identifier, called a URL (uniform resource locator); use of the HTML (hypertext markup language) format for publishing web documents; and linking, or connecting documents and resources through hyperlinks.

# Appendix III Academic Style Guide Requirements

The text in this appendix has been updated and revised, based on content from my 2019 book, “Format Your Word Documents with JAWS and NVDA: A Guide for Students and Professionals.”

If you are a high school or college student in the United States, you will almost certainly be required to format papers and reports using a style guide. Authors submitting articles to professional journals are also usually required to follow style guides. Choice of style guide depends largely on the academic field in which you work. The three most widely used style guides in the United States (and their acronyms) are:

* the Publication Manual of the American Psychological Association (APA). APA is used primarily in the behavioral and social sciences.
* The Modern Language Association Handbook for Writers of Research Papers (MLA). MLA is used in the liberal arts and humanities.
* The Chicago Manual of Style (CMOS). CMOS is used in literature, history, and the arts.

If it sounds like there is some overlap here, you are correct. If you are unsure which style guide to use, ask your instructor or academic advisor. Professional journal websites usually have a submission guidelines page that identifies formatting requirements.

The academic style guides address many issues, document formatting being just one aspect. They also lay out punctuation and grammar guidelines, usage norms, ethical considerations, guidance on avoiding plagiarism, and requirements for citing and referencing source materials. Unlike 30 or 40 years ago, referencing sources no longer involves just books, magazines, and professional journals. Rapidly evolving communications technology has resulted in a host of new reference sources. These include websites, blogs, podcasts, webinars, and more. Undoubtedly, new reference sources will emerge in the future, and style guides will need to develop new guidance on how to properly cite them too.

Each of these style guides has existed for many years. They are updated with varying degrees of frequency. APA and MLA have been updated since my previous book while, CMOS has not. It is important that you use the most recent version of the style guide your instructor requires. Current versions are:

* APA – Seventh edition (last updated in 2019).
* MLA - Ninth edition (last updated in 2021).
* CMOS - Seventeenth edition (last updated in 2017).

All three can be accessed electronically via several avenues (see later in this appendix for details).

A great place to start familiarizing yourself with academic style guide formatting basics is the [Purdue Online Writing Lab (OWL)](https://owl.purdue.edu/). On this site, one can find links to additional pages with APA, MLA, and CMOS guidelines for formatting academic papers and professional journal articles. If you simply want to learn about the basics of document formatting requirements (fonts, margins, headers, etc.), this is a great “one-stop shop” resource. Below are links to the pages on this site containing basic formatting information for each of these style guides:

* [APA Overview - Purdue OWL](https://owl.purdue.edu/owl/research_and_citation/apa_style/apa_formatting_and_style_guide/general_format.html)
* [CMOS Overview - Purdue OWL](https://owl.purdue.edu/owl/research_and_citation/chicago_manual_17th_edition/cmos_formatting_and_style_guide/general_format.html)
* [MLA Overview - Purdue OWL](https://owl.purdue.edu/owl/research_and_citation/mla_style/mla_formatting_and_style_guide/mla_general_format.html)

In the next section, I will lay out formatting basics for each of the three style guides as identified on the OWL website, and supplemented by guidelines from the individual style guide websites.

## A3.1 Document Formatting Requirements

The three style guides deal with a multiplicity of topics related to preparing academic and professional reports and papers. This appendix limits itself to formatting requirements for documents using Word. Some of these are common across styles; others vary. Below is a list of formatting requirements that are identical or only slightly different across the three style guides:

* Paper size: 8.5 inches wide by 11 inches high
* Margins: One inch top, bottom, left, and right
* Font: quite rigid with earlier versions of APA, but more flexible with the Seventh edition. Traditionally, a bit more flexible with CMOS and MLA (see below for details).
* Text justification or alignment: Left
* Indentation of the first line of every paragraph: One half inch
* Before and After paragraph spacing: 0 point
* Line spacing of the body of the text: Double

Formatting areas where requirements vary include:

* Title page
* Abstract (only required by APA for professional journal articles)
* Page headers
* Heading styles
* Table formatting
* Footnotes/endnotes
* Citations and bibliography

### A3.1.1 Fonts

Font formatting requirements have been relaxed in the APA Seventh edition relative to earlier editions. Previous guidelines rigidly restricted font choice to Times New Roman 12- point size only. More options are permitted in the Seventh edition. Quoting from OWL, “While the APA Manual does not specify a single font or set of fonts for professional writing, it does recommend a few fonts that are widely available and deemed accessible.[[30]](#footnote-30) These include sans serif fonts such as 11-point Calibri, 11-point Arial, and 10-point Lucida Sans Unicode as well as serif fonts such as 12-point Times New Roman, 11-point Georgia, 10-point Computer Modern.”

With regard to font choice, as well as many other formatting issues, APA states that, when unsure, ask your instructor or consult professional journal style guidelines.

CMOS and MLA have historically been more flexible than was the case with earlier versions of APA, typically advising to incorporate commonly used fonts with either 11 or 12-point size. Although the quote above on APA says that 10-point size may be permissible, you should avoid such a small point size, with the possible exception of text in the body of tables.

As with so much else, ask instructors if they have a preference, and go with their guidance.

### A3.1.2 Page Headers

Chapter 3.5 discusses how to insert headers into Word documents, including different headers for the first page of your document. Here too, APA Seventh edition guidance has changed from that of earlier versions.

* APA: For all pages of professional papers, include a left-aligned shortened paper title in all caps, not exceeding 50 characters (punctuation and spaces included), as well as right-aligned page numbers. For student papers, only right-aligned page numbering is required, and on all pages.
* CMOS: As with APA student papers, insert right-aligned page numbering on all pages, unless your instructor requests that you omit it from the first page.
* MLA: On the right margin of the header field, insert your last name, followed by one space, and then the page number. Do this for all pages unless your instructor requests that you omit the header from the first page.

### A3.1.3 Heading Styles

APA requirements are very precise. CMOS and MLA guidelines are more flexible.

You can have up to five headings in APA. Whichever font and point size you select should remain the same for all the heading levels. Font color should be black text on a white background. Line spacing should be double. There should be no before or after paragraph spacing. Heading text should be in title case (that is, the first letter of all major words are capitalized). Note also that introductory sections do not get headings.

Formatting requirements for each level of an APA paper are:

* Heading 1: Bold, centered, title case
* Heading 2: Bold, left aligned, title case
* Heading 3: Bold, italicized, left aligned, title case
* Heading 4:Bold, indented, title case, end text with a period
* Heading 5: Bold, italicized, indented, title case, end text with a period

CMOS has some general heading style guidelines, as well as the option of following some more specific guidelines specified in the supplemental Turabian guide for student papers.[[31]](#footnote-31) General guidelines include:

* Maintain consistency and parallel structure in headings and sub-headings, and Ensure that each level of hierarchy is clear.
* Subheadings can be distinguished by varying font sizes.
* Levels of sub-headings can be differentiated by type style, use of bold or italics, and placement on the page, usually either centered or left-aligned.
* Use title case for all heading text.
* Use no more than three levels of hierarchy.
* Avoid ending any heading levels with periods.

Curiously, the more detailed Turabian guidance slightly contradicts the general guidelines. Here they are for each of the five heading levels:

* Heading 1: Bold, centered, title case
* Heading 2: Regular text, centered,, title case
* Heading 3: Bold or italicized, left aligned, title case
* Heading 4:Regular text, sentence case, end with a period
* Heading 5: Indent, bold or italicized, sentence case, end text with a period

Beyond suggesting consistency, MLA has no specific guidelines for formatting headings.

While there are no clearly specified font point size requirements for any of the style guides, keep two things in mind. First, if you vary point sizes, they must descend in size (or at least stay equal), with level 1 headings larger than level 2 headings, and so on. Under no circumstances can lower-level headings be larger in point size than higher-level headings. Second, because Normal size is either 11 or 12 point, heading point sizes cannot be smaller than this. You should probably not make level 1 headings larger than 16 point, so your room to vary point size between 16 and 12 point is obviously constricted.

If you are unsure how to proceed, ask your instructor. However, don’t be surprised if your instructor has no idea. Most computer users are unfamiliar with headings and styles. In such cases, find somebody at your school who is knowledgeable about such matters, and just be sure that your choice does not violate the requirements for the relevant academic style guide.

### A3.1.4 Title Page

Title page requirements differ between the three style guides. APA requirements are very precise, while MLA and CMOS guidelines are more flexible. First, ask your instructor if he or she wants you to insert a title page. For short essays of three to five pages, title pages will probably not be needed. Instructors may require them for longer papers. Please also note that title page requirements outlined below are for generic papers. For masters theses or dissertations, your school and department will have very specific title page requirements.

APA title page requirements differ between professional and school papers, the most important difference being that professional papers require an author’s note. To get a sense of formatting requirements, take a look at the two Word files included in the Practice Files folder entitled “APA 7th Edition Sample Paper for Students.docx” and “APA 7th Edition Sample Paper for professionals.docx.”

APA stipulates that you position the title somewhere in the top half of the page. Because these guidelines are written by sighted people for other sighted people, they are casual about describing vertical positioning. They can just eyeball positioning. You need to be more precise. If you are using JAWS, you can know exactly where the cursor is positioned by hitting Alt and Delete together. JAWS will indicate your cursor position relative to the left of the page and from the top of the page, saying, for example, “PC cursor active, one inch from left, 4.78 inches from top.” For a page that is 11 inches high, keep in mind that 5.5 inches is the exact vertical midpoint.

NVDA does not have a similar keystroke for revealing cursor position on the page. However, you can adjust Document Formatting settings to reveal line numbering, thus enabling you to know the vertical position of the cursor on a page. To turn Line numbering on, do the following:

1. Press Insert + N to open the NVDA menus.
2. Down arrow to the Preferences submenu and press Enter
3. Press Enter on Settings
4. Down arrow to Document Formatting.
5. Tab to the Line numbering checkbox and press the Spacebar to check it. You can also press Alt K when you arrive at Document Formatting because this is the shortcut key within this dialog.
6. Tab to the OK button and press Enter.

If there are 30 lines on your page, the midpoint should be around line 15. When you are done, repeat the above steps to turn off Line numbering announcement.

The title should be bolded and in title case (first letters of major words capitalized), and be contained on no more than two lines. There should be a blank line between the title and the information that follows. Remaining title page text should be in regular style (no bold, italics, etc.).

On the line below the blank line, the name of the author (or authors) should appear. No titles or degrees should be included. Institutional affiliation should appear on the next line. For professional papers, institutional affiliation is where the research was conducted. A student paper should include the following information on separate lines:

* Name of department and school.
* Course number and name.
* Instructor name.
* Assignment due date.

All these lines should be centered, double-spaced, and situated in the top half of the page. Font formatting should be consistent with the rest of the paper.

The author note (professional papers only) should be positioned in the bottom half of the title page, with it ending at more or less the bottom of the page. Thus, depending on its length, precisely where it starts in the bottom half of the page will vary.

The author note should be divided up into several paragraphs, with any paragraphs that are not relevant omitted. Paragraph formatting should be the same as elsewhere in the document (that is, left-aligned, first line indented by one-half inch. Double-spaced, and no before and after paragraph spacing).

The first paragraph should include the author’s name, the symbol for the Open Researcher and Contributor ID (ORCID),[[32]](#footnote-32) and the URL for the ORCID. Omit any authors who do not have an ORCID ID. The second paragraph should show any change in affiliation or any deaths of the authors. The third paragraph should include any disclosures or acknowledgements (study registration, data sharing, conflicts of interest, acknowledgement of financial support and other assistance, etc.). The fourth paragraph should include author contact information.

At the bottom of the title page, insert a hard page break by hitting Control + And Enter together. This will immediately place your cursor at the top of the second page.

For MLA, you can either forego a title page, instead placing some specific information at the top of the page. Or you can create a separate title page.

For the first option, ask your instructor if he or she wants you to insert a header at the top of the first page. Often, instructors want headers to only start on the second page.

To begin your MLA paper without a title page, and with all lines double-spaced, do the following:

1. At the top left of the first page, type in your full name.
2. On the second line, type the name of your instructor.
3. On the third line, type the course name, class, or section number.
4. On the fourth line, type the assignment’s due date.
5. On the fifth line, type the title of the paper in title case, and center it (all lines above should be left aligned). The title should appear in Regular text (no bolds, italics, underlines, or quotation marks).
6. On the next line, begin the text of your paper.

If your instructor asks for a title page, ask him or her for specifications. MLA has no specific title page formatting or content requirements.

As with MLA, the decision to include or not include a title page is up to the instructor. If the instructor requests a title page, follow the guidelines below:

* Center all title page text.
* Place your title about one third from the top of the page. Using the JAWS Alt + Delete keystroke, this translates to about 3.6 or 3.7 inches from the top of the page.
* All letters in your title should be capitalized and in regular text style. If there is a subtitle, end the title line with a colon, and place the subtitle on the line below.
* In the middle of the page (about 5.5 inches from the top) type your full name.
* About one third from the bottom of the page, on separate lines, type the course title and the assignment date.

Finally, Press Control + Enter to insert a page break.

As mentioned above, be sure to ask your instructor for guidance. He or she may prefer you adjust the above spacing, or include the instructor’s name, course number, or section.

### A3.1.5 Abstract (APA professional papers Only)

Only APA requires an abstract, and only for professional papers. It appears at the top of the second page (after the title page). The word “Abstract” (minus the quotes) should be centered and bolded at the top of the page, with only the first letter capitalized.

The abstract is a summary of the key points of your paper. It introduces readers to your research topic, the questions that will be answered, your analysis approach, and any findings or conclusions you drew. It should be a single paragraph containing between 150 and 250 words (press the ribbon shortcut Alt R W to get a word count). All text should be double spaced and left aligned. Unlike other paragraphs in the document, neither the first line nor any other line should be indented.

Under this summary, you may list keywords to aid other researchers in finding your paper when performing searches. As with the abstract, do not indent the first line. Italicize the word “keywords,” but do not italicize the actual keywords, Note that I am following the formatting in the APA professional sample paper found in the Practice Files folder. I would not be surprised if this is not consistently followed, especially because it is different from the APA Sixth edition guidelines. The best strategy is probably to ask a sighted colleague to check the formatting of a paper previously prepared for the same professional journal.

### A3.1.6 Table Formatting

APA and MLA have specific table formatting requirements, while CMOS does not. Instead, CMOS refers writers to APA. The one thing that all style guides stress is the importance of consistent table formatting throughout your document. If you are a student and not sure, ask your instructor for guidance. If you are an author submitting a manuscript to a professional journal, consult the submission guidelines. This is especially important because the style guides are unclear on some aspects of table formatting, as well as for the most part, completely inaccessible to people with visual impairments.

For MLA, font formatting should be consistent with the rest of the document. MLA requires that captions be left aligned and double spaced above the table. Make After paragraph spacing 0 point so the caption appears close to the top of the table, with the label “Table 1, 2, 3, etc.,” on a separate line above the title. Do not place punctuation (like colons) after the table number. Text should be in title case and Regular text—no boldface, italics, or underlining.

The body of the table:

* Should be left aligned.
* Should have gridlines above and below the top row of the table where the column titles appear, and just below the last row of the table body, separating it from any notes at the bottom. There should be no other gridlines.
* Should not have any row or column shading.

Source notes:

* Should be double spaced.
* Should have author names in first name, last name order.
* Should have each segment of the citation followed by commas, with a period at the end of the citation.
* Should have publication information for books (publisher name and year) appearing in parentheses.
* Should have relevant page numbers placed after the publication information.
* For any explanatory notes, you should use lowercase letters formatted in superscript to enumerate each of them. To create a superscript, type the letter, select it, and Press Control + Shift + Equal Sign. This is found in the Home tab in the Font group.

To adjust the gridlines, use the Table Tools Layout tab Select submenu and the Design tab Borders and Shading dialog box discussed in Chapter 4.6.3. Do the following:

1. Select the table in the Select submenu.
2. Press the None radio button in the Borders and Shading dialog box to clear all preexisting gridlines.
3. Place your cursor somewhere in the top row of the table where the column titles are and select that row.
4. In the dialog box associated with the Custom radio button in Borders and Shading, check Top and Bottom, leaving all others unchecked.
5. Place your cursor in the last row of the table body, just above any notes, and select that row.
6. In Borders and Shading, in the dialog box associated with the Custom radio button, check Bottom only.

Table 1 below is an example table formatted according to MLA guidelines.

Table

Official Birds, Flowers, and Trees of Three New England States

|  |  |  |  |
| --- | --- | --- | --- |
| State | Flower | Tree | Bird |
| Connecticut | Mountain Laurel | White Oak | American Robin |
| Massachusetts | Mayflower | Elm | Chickadee |
| Vermont | Red Clover | Sugar Maple | Hermit Thrush |
| Source: Wikipedia, 2019. | | | |

With regard to APA tables, as with MLA, APA requires that captions be left aligned and double spaced above the table, with the label “Table 1, 2, 3, etc.,” on a separate line above the table title. Set After paragraph spacing as 0 point to make the caption appear closer to the top of the table. Do not place punctuation (like colons) after the table number. Text should be in title case. However, unlike MLA, the table title should be italicized, with “Table 1, Table 2, etc.,” remaining in Regular text. Use the same font in tables as elsewhere in the text.

As with MLA, the body of the table is left aligned. But unlike MLA, all four borders of the table (top, bottom, left, right) have border lines. There are no lines under the first row with column titles. The bottom border line is placed just above notes on sources and below the last data row.

To adjust the gridlines, use the Table Tools Layout tab Select submenu and the Design tab Borders and Shading dialog box discussed in Chapter 3.6.3. Do the following:

1. Select the table in the Select submenu.
2. Assuming the default with all gridlines appearing is currently in place, in the dialog box associated with the Custom radio button in Borders and Shading, leave Top, Bottom, Left, and Right checked, and uncheck Inside Horizontal and Inside Vertical.
3. If you have no notes in the last row, you are done.
4. If you have notes, place your cursor in the row with notes and select it.
5. In the dialog box associated with the Custom radio button in Borders and Shading, check Top only, unchecking all the others.

Table 2 below is an example table formatted according to APA guidelines.

Official Birds, Flowers, and Trees of Three New England States

|  |  |  |  |
| --- | --- | --- | --- |
| State | Flower | Tree | Bird |
| Connecticut | Mountain Laurel | White Oak | American Robin |
| Massachusetts | Mayflower | Elm | Chickadee |
| Vermont | Red Clover | Sugar Maple | Hermit Thrush |
| Source: Wikipedia, 2019. | | | |

## A3.2 Additional Style Guide Resources

The information above, gleaned from the Purdue OWL, may suffice for addressing your own writing needs. But there is a wealth of resources also available on the websites of each of the individual style guides. For additional guidance on citing source materials, punctuation, grammar,

capitalization, and the like, consult one of the style guides directly (see below).

### A3.2.1 Publication Manual of the American Psychological Association (APA)

The first edition of the APA style guide came out in 1952, a principal objective being to standardize formatting and organization of professional journal articles. The most recent edition, the Seventh edition, was published in 2019. Among other things, the Seventh edition provides a set of accessibility guidelines in the areas of simplified references, in-text citations, heading formats, and additional font options.

Of the three style guides discussed in this book, APA is the most exacting when it comes to format and layout requirements. An APA paper includes four major sections: the title page, abstract, main body, and references. Formatting requirements for all sections are quite precise. An electronic textbook version of the manual is available for $31.99. I did not purchase it, so cannot say anything about its accessibility. If you are a student, you may be able to access it from your Disability Services office for free.

[Academic Writer](https://my.apa.org/sso/idm/login.seam?ERIGHTS_TARGET=https://academicwriter.apa.org/)  is APA’s online resource. It used to be called APA Style Central. To APA’s credit, the site is much improved since my last visit there in 2018 when it was completely inaccessible.

You can download numerous sample Word files to your computer. This is very useful because it allows you to directly examine formatting requirements for title pages, abstracts, heading styles, and headers. Sample files include full papers, tables, references and bibliographies, and figures. Sample professional and student papers are available in the Practice Files folder accompanying this book.

By contrast, MLA and CMOS sample papers are only available for download as PDF’s. These are of no value to a screenreader user wishing to independently look over document formatting requirements. MLA and CMOS should also make sample papers available in Word.

Academic Writer provides lessons and tutorials. It includes templates for preparing papers, a database of over four million references, and a feature for creating your own lists of references and bibliographies.

The [APA Style Blog](https://apastyle.apa.org/blog) posts articles on APA-related topics. On the site, you can sign up to receive a free monthly newsletter.

### A3.2.2 MLA Handbook for Writers of Research Papers

The most recent edition of the MLA Handbook is the ninth edition, which was published in 2021. Electronic versions are available from Kindle and Nook for $16.99. I did not purchase either of these, so can not speak about their accessibility and usability.

The MLA Handbook’s primary focus is on creating citations for source materials, rather than serving as a comprehensive style and usage guide. That said, the basics of grammar and usage are covered to some extent.

In addition to the manual, The [Ask the MLA](https://style.mla.org/sections/ask-the-mla/)  page of the MLA Style Center is a useful electronic resource. Here you can browse frequently asked questions on various formatting and reference-related topics, as well as ask your own questions. The search function is easy to use and quickly navigated with headings. When I searched capitalization, endnotes, and quotes, I received several results related to these topics.

### A3.2.3 Chicago Manual of Style (CMOS)

The University of Chicago first systematized guidelines for formatting academic papers in 1906 with its publication of a 203-page book entitled Manual of Style: Being a Compilation of the Typographical Rules in Force at the University of Chicago Press. Now known as The Chicago Manual of Style, the seventeenth edition came out in 2017. It exceeds 1,100 pages. The CMOS is a comprehensive style guide, and a leading authority on grammar and punctuation. [CMOS Online](https://www.chicagomanualofstyle.org/home.html) is fully accessible for screenreader users. A 30-day free trial is available (I should note that I needed sighted assistance to register because of accessibility problems filling out the online form). Annual subscriptions cost $41 as of the writing of this book.[[33]](#footnote-33) Even if your instructors require you to use APA or MLA, if you plan on being a serious writer, you may wish to consider subscribing to CMOS Online due to its status as a leading resource on grammar, punctuation, and usage. Online accessibility for screenreader users is very good.

Because of its voluminous nature, it is not possible to access the entire CMOS on a single screen. Instead, you can navigate to individual sections or search for specific topics.

After you have logged in, a good way to begin orienting yourself to the depth and breadth of CMOS is by activating the CMOS 17 contents link and exploring the list of links to the parts, chapters and sections of the table of contents. There are fifteen chapters divided up within three parts. Parts include the publishing process, style and usage, and source citations and indexes. You can activate links to individual chapters and sections.

To search for a specific topic, navigate to the Search edit field, type in your search term and press Enter to generate your search. Down arrow below the Search results heading to find the results. Each result will have a short description and a link to the relevant section. Within relevant sections, explanations are concise, and examples are consistently given to illustrate each topic. Links to related CMOS sections also appear.

Activating the Citation quick guide link brings you to a page which lays out formatting requirements for different source types, as well as for inserting them in

footnotes, endnotes, and bibliographies.

I do have one criticism of CMOS Online pertaining to usability. CMOS does a poor job of marking up pages by headings and heading levels. Most pages only have one or two headings. Navigation efficiency could be greatly enhanced by marking up pages with headings and heading levels. CMOS chapters are already logically organized in a three-level hierarchy, so level one, two, and three headings could easily be added to improve screenreader user navigation. And as mentioned earlier, the absence of downloadable sample Word files makes it impossible to directly explore document formatting requirements.

## A3.3. Managing References

Creating citations and bibliographies with Word is discussed in Chapter 3.8. Below I identify formatting considerations when using this tool in conjunction with the academic style guides. I also discuss EasyBib, a free online resource for finding citations.

### A3.3.1 Style Guide Considerations When Using the Citations and Bibliography Tool

As mentioned in Chapter 3.8, the first step is to select the academic style you will be using. APA, CMOC, and MLA are among the options. When you make your choice, citation formatting appearing in the text body will adhere to style guidelines, as well as most aspects of bibliography formatting.

When you generate a bibliography, be sure to select the type corresponding to your style guide. In the submenu, Press the Down arrow to move through the three choices and Press Enter on the appropriate choice, depending on the style you are using: References for APA; Works Cited for MLA; or Bibliography for CMOS.

A number of font and paragraph format settings may need to be changed to make the bibliography adhere to APA, MLA, and CMOS requirements. These changes are pretty much the same for all three style guides. You can do this as a one-off, which may make sense if you do not think you are going to generate or update many bibliographies in the future. You can also create a custom bibliography style so that you do not have to make repeated manual adjustments for future bibliographies (see Chapter 3.8.5 On bibliography styles).

When you generate a bibliography, there will be a level 1 heading at the top, saying either Bibliography, References, or Works Cited, depending on the choice you made above. The first letters of these words will be capitalized. Do not change this.

The heading will have the default heading 1 formatting for Word. Unless you have already changed it, the heading will have the factory settings. Font format settings are Cambria or Calibri 16 point bolded, with a blue color. Go into the Font dialog box (Control D) and change this to the font name of your overall document, 12 point, Regular, and black.

You will also need to go into the Paragraph dialog box and make sure that the heading 1 paragraph settings are as follows: Center aligned, 0 point Before and After paragraph spacing, and double spaced.

After changing the heading 1 formatting, select the entire text of the bibliography that you generated (minus the heading). Usually, font settings do not need to be changed because the ones from the overall document are adopted. If for some reason, this does not happen, open the Font dialog box with Control D and change font settings as needed.

With regard to paragraph formatting, the following should already be in place:

* Left alignment
* Hanging indent of 0.5 inches (found in the Special combo box)
* Above paragraph spacing of 0 point

If, for some reason, they are set differently, change them to the above settings.

To adhere to the style guides, you will also need to make the following changes because they are not the defaults:

* Set After paragraph spacing at 0 point.
* Set line spacing at double.
* Check the check box for “don’t add space for paragraphs of the same style.”

When finished, Tab to the OK button and Press Enter.

### A3.3.2 EasyBib

The home page for this useful online resource is: <https://www.easybib.com/>.

If you use the free version of EasyBib, you will only be able to download references formatted in MLA citations style. For APA and CMOS, you will need to pay a subscription fee. However, you may still find the free version useful because it will allow you to download all the information (title, author, publisher, date, etc.) that you can then manually load into the Word bibliography feature so that references are properly formatted according to your academic style choice. If you have ever tried to keep track of reference information, you know that collecting all the elements can be very laborious and frustrating. Automating any part of the data collection process can save you considerable time and effort. You can easily sign up for a free EasyBib account, one advantage being that it stores all your cumulative references for quick and easy downloading.

After signing into your account, steps for adding citations are:

1. Open the Links list and navigate to the Dashboard page (the Dashboard link is the second or third link from the top).
2. Navigate to the Create a new citation heading.
3. Down arrow to select a source type. For free accounts, options include web sites, books and journal articles. For paid accounts, additional options exist. Press Enter on the link of your choice.
4. Navigate to the search box and type in either the title of the reference, or if a book, its ISBN number, and press Enter.
5. Search results are contained in the main region/landmark of the page. With JAWS, press Q to get to the main region. With NVDA and Narrator, press D to move landmark by landmark until you get there.
6. Down arrow to read each result.
7. A Cite button is found under each search result. Press Enter or Spacebar on the associated button for the citation you wish to choose.
8. On the Citation evaluation page, you can examine the individual elements of the citation. If EasyBib detects that there is missing information, this will be indicated. Press Enter or Spacebar on the Continue button
9. On the Citation form page, you can manually fill in any empty fields which you feel are required, and for which you have the additional information. When done, activate the Complete citation button.
10. On the My citation list page, press the Copy all button to place all your citations on the Clipboard, after which you can paste them elsewhere, such as in a Word document.

Among the additional actions you can take on this page include exporting the citations list, editing and deleting individual citations, and creating several different lists of citations.

Alternatively press the Export all button to download to your default Downloads folder Alternatively or Export all button.

# Appendix IV Visual Layout of Frequently Encountered Computer Screens

In this appendix, I have queried Google Gemini about the visual layout and organization of some frequently encountered computer screens including the Windows Desktop and file folders, Word documents, web pages, and Zoom meetings. Included also is the design and layout of a typical iPhone home screen.

These results were reviewed for accuracy by my sighted Carroll Center colleague, Izzy Bermudez. Where he felt there were inaccuracies, I have added them as Word comments. This way, readers can get a sense of how reliable these results were. See Chapter 9.4.1 on how to access comments in Word. While there were a few inaccuracies, they were relatively minor, usually just a question of location on the screen rather than something truly major.

## Windows

### Appearance of Elements of the Windows 11 Desktop

The Windows 11 desktop screen is designed with a clean and modern aesthetic, featuring a centered taskbar, rounded corners, and a simplified Start menu. The default desktop background is a soft, pastel blue gradient that fades to white at the edges. Here is a breakdown of the visual elements on the Windows 11 desktop screen:

* The taskbar is located at the bottom of the screen and provides quick access to pinned apps, open windows, and system notifications. It is typically black or white, depending on the user's preference.
* The Start menu is a redesigned version of the classic Start menu, featuring a simplified layout with pinned apps, a search bar, and a power button. It can be accessed by clicking the Start button in the lower-left corner of the screen or by pressing the Windows key.
* Desktops: Windows 11 supports multiple desktops, which allow users to organize their workspaces by task. Desktops can be accessed by clicking the Task View button on the taskbar or by pressing Windows key + Tab.
* Icons are small images that represent applications, files, and folders. They are typically displayed on the desktop and in File Explorer.
* Widgets are small, interactive applets that can be placed on the desktop. They provide quick access to information and tasks, such as weather, news, and music playback.
* Notifications are pop-up messages that appear in the lower-right corner of the screen. They alert users to new events, such as incoming emails, calendar reminders, and system updates.

### Desktop Icon Design

The icons in Windows 11 have been redesigned with a new visual style called Fluent Design. This style is characterized by its use of simple geometry, clean lines, and muted colors. The icons are also designed to be more scalable, meaning they look good on both large and small screens. Here are some of the key characteristics of Windows 11 icons:

* Monoline style: The icons are drawn with a single stroke of 1px thickness, giving them a clean and modern look.
* Geometric shapes: The icons are based on simple geometric shapes, such as squares, circles, and triangles. This makes them easy to understand and recognize.
* Minimal details: The icons contain only the details that are necessary to communicate the concept. This helps to keep them clutter-free and easy to identify.
* Muted colors: The icons use a muted color palette that is consistent with the overall design of Windows 11. This helps to create a cohesive and visually appealing experience.

Here are some examples of specific icons and their design elements:

* The File Explorer icon is a simplified representation of a folder. It is made up of two squares, one slightly larger than the other, with a single line connecting them.
* The Edge icon is a stylized representation of a web browser. It is made up of a curved line with a small circle at the end, representing a wave and a point of focus.
* The Outlook icon contains an envelope with a bird flying out of it. The envelope represents communication and the bird represents speed and efficiency.
* The Word icon contains a document with a quill pen next to it. The document represents writing and the quill pen represents creativity.
* The Excel icon contains a spreadsheet with a graph next to it. The spreadsheet represents data and the graph represents analysis.
* The PowerPoint icon contains a slide deck with a presenter's pointer next to it. The slide deck represents presentations and the presenter's pointer represents communication and guidance.
* Default folder and file icons: The default design for a folder shortcut icon is a yellow folder with a downward-pointing arrow in the lower-left corner. For a file shortcut, the icon is a blue document with a downward-pointing arrow in the lower-left corner. These are customizable in the Properties dialog.

### Folder Window

Here is a general overview of the common elements of a folder window such as that for the Documents folder:

* The File Explorer title bar is located at the top of the folder window and displays the name of the current folder. It also includes buttons for minimizing, maximizing, and closing the window.
* The address bar is located below the title bar and displays the full path to the current folder. Users can type a path into the address bar to navigate to a specific folder.
* The navigation pane is located on the left side of the folder window and provides a hierarchical view of the folder structure. Users can click on folders in the navigation pane to navigate to them.
* The search bar is located at the top of the folder window and allows users to search for files and folders within the current folder.
* The details pane is located at the bottom of the folder window and displays information about the selected file or folder. This information typically includes the file name, file size, file type, and date modified.
* The list of files and folders is the main part of the folder window and displays the contents of the current folder. The files and folders are displayed in a grid format, with each file or folder having its own icon, name, and other relevant information.
* The view buttons are located in the top-right corner of the folder window and allow users to change the view of the folder contents. The available views include Details, Large Icons, Medium Icons, Small Icons, List, and Tiles.
* The sort button is located next to the view buttons and allows users to sort the folder contents by name, date modified, type, or size.

The status bar is located at the bottom of the folder window and displays information about the current folder, such as the number of files and folders in the folder and the total size of the files in the folder.

## Word

### Elements in a typical Microsoft word computer screen and Their Positions

These include:

* The title bar is located at the top of the Word window. It displays the name of the current document and the program name ("Microsoft Word"). You can use the title bar to minimize, maximize, or close the Word window by clicking on the respective buttons on the right-hand side.
* The menu bar is positioned directly below the title bar and provides access to a variety of commands and functions organized into various menus. To access a menu, click on its name, and a drop-down list of options will appear. Common menus include File, Home, Insert, Page Layout, References, Mailings, Review, View, and Help.
* Toolbars are customizable panels that contain buttons and icons for frequently used commands. They are typically located below the menu bar and can be docked or floated (moved freely within the window). The most common toolbars are the Standard and Formatting toolbars.
* The document area is the central part of the Word window, where you enter and edit text. It occupies the majority of the screen and displays the current document content.
* Rulers are horizontal and vertical measurement guides that help you set margins, indents, and tab stops. The horizontal ruler is located at the top of the document area, while the vertical ruler is on the left side.
* Scroll bars are used to navigate through a document that extends beyond the visible area of the document area. The vertical scroll bar is located on the right side of the window, while the horizontal scroll bar appears at the bottom if the document is wider than the window.
* The status bar is positioned at the bottom of the window and provides information about the current document, such as page number, zoom level, and document language. It also displays prompts and messages related to specific tasks.
* The task pane is a sidebar that can be hidden or displayed on the right side of the window. It provides contextual tools and options related to the current task or document. For instance, when working with tables, the task pane offers table-specific formatting and editing tools.
* View buttons are located on the bottom right corner of the window and allow you to switch between different document views, such as Print Layout, Full Screen, and Web Layout. These views affect how the document is displayed and printed.

In addition to these elements, the Word window may also contain other contextual elements, such as ribbon tabs, mini toolbars, and dialog boxes, depending on the specific task or feature being used.

### Color coding

Some of the areas in a typical MS Word computer screen are color-coded, while others are not. The use of color-coding in MS Word helps users to quickly and easily identify different elements and functions within the program. This can make it easier for users to learn and use the program effectively. Here is a breakdown of which areas are color-coded and which are not:

Color-coded areas:

Toolbars: The buttons and icons on toolbars are often color-coded to indicate their function. For example, formatting tools are often blue, while editing tools are often green.

Rulers: The tick marks on the rulers are often color-coded to indicate margins, indents, and tab stops. For example, margins are often red, while indents are often green.

Scroll bars: The scroll bars are often color-coded to indicate the current position of the document. For example, the visible part of the scroll bar is often blue, while the hidden parts are often gray.

Status bar: The status bar is often color-coded to indicate the current status of the document. For example, the zoom level is often displayed in blue, while the page number is often displayed in green.

Areas which are typically not color-coded include the Title bar, Menu bar, Document area, and View buttons. The task pane is typically not color-coded, although some elements within it may be color-coded.

### Ribbon Menu Appearance

The MS Word ribbons generally follow a consistent color scheme that aligns with the overall visual identity of Microsoft Office. The primary colors used are:

* Blue: Indicates the active tab, selected elements, and hyperlinks.
* Gray: Represents inactive tabs, default backgrounds, and disabled elements.
* Black: Used for text labels, borders, and icons, providing clear visual contrast.

The tabs at the top of the ribbon are distinguished by their shape, color, and labeling:

* Shape: Tabs have a slightly rounded rectangular shape with gently tapered corners.
* Color: Inactive tabs are gray, while the active tab is highlighted with a darker shade of blue.
* Labeling: Each tab has a clear and concise label that indicates its function, such as "Home," "Insert," or "Review."

Group Organization

Within each tab, commands are organized into groups, each represented by a label and a row of buttons or drop-down menus:

* Label: Each group label is displayed in bold black text to clearly identify the group's function.
* Buttons: Buttons are rectangular shapes with varying sizes depending on the specific command. They may have icons or text labels, or a combination of both.

### Visual appearance of other MS Office program windows

The visual appearance of other MS Office program windows, such as Outlook, Excel, and PowerPoint, is similar to that of MS Word in several ways. They all share a common design language that emphasizes simplicity, clarity, and consistency across the suite of applications. Common Visual Elements include:

* Ribbons: All MS Office applications utilize the ribbon interface, which provides a consistent and intuitive way to access commands and features. The ribbons are divided into tabs, each containing groups of related commands.
* Color Scheme: The overall color palette of MS Office applications shares a common theme, using blue for active elements, gray for inactive elements, and black for text labels, borders, and icons.
* Typography: The fonts and font sizes used in MS Office applications are consistent across the suite, ensuring a unified visual experience and readability.
* Layout and Structure: The overall layout and structure of MS Office applications share similarities, with the main document area occupying the central portion of the window, toolbars or ribbon tabs located at the top, and status bars at the bottom.

While there are many visual similarities between MS Office applications, there are also some specific differences that reflect their unique functionalities:

* Outlook: The Outlook ribbon features tabs specifically designed for managing emails, calendars, contacts, and tasks, reflecting its role as a personal information manager.
* Excel: The Excel ribbon includes tabs for working with spreadsheets, charts, and data analysis tools, catering to its role as a data analysis and visualization tool.
* PowerPoint: The PowerPoint ribbon features tabs for creating and designing presentations, including options for slide layouts, transitions, and animations.

## Visual layout and organization of a Typical Google Chrome Web Page

The browser window is the main frame in which the web page is displayed. It typically includes the following elements:

* The title bar is located at the top of the browser window and displays the title of the current web page.
* The address bar is located below the title bar and displays the URL of the current web page. Users can type a URL into the address bar to navigate to a specific website.
* The tab bar is located below the address bar and displays a list of open tabs. Users can switch between tabs by clicking on the tab that they want to view.
* The bookmarks bar is located below the tab bar and displays a list of bookmarked websites. Users can click on a bookmark to navigate to the bookmarked website.
* The toolbar is located below the bookmarks bar and contains buttons for common actions, such as reloading the page, navigating back and forward, and opening a new tab.
* The search bar is located below the toolbar and allows users to search for information on the web.
* The web page is the main content of the browser window and displays the website that the user is currently viewing.

The layout of a web page is typically divided into the following sections:

* The header is located at the top of the web page and typically contains the website's logo, navigation menu, and search bar.
* The content is the main body of the web page and typically contains the website's main content, such as articles, videos, or images.
* The sidebar is located to the side of the content and typically contains additional information, such as advertisements, related articles, or social media feeds.
* The footer is located at the bottom of the web page and typically contains copyright information, contact information, and links to other pages on the website.

The color scheme of a web page is typically chosen to reflect the website's brand and to create a visually appealing and user-friendly experience. The use of white space, typography, and images can also contribute to the overall visual appeal of a web page.

Many websites are designed to be responsive, meaning that they will automatically adjust their layout to fit the screen size of the device that they are being viewed on. This ensures that users can have a positive experience viewing the website on a variety of devices, including desktops, laptops, tablets, and smartphones.

## Zoom Meetings

There are five main elements that make up the visual layout and organization of a Zoom meeting window: the Control Bar, the video panel, the chat window, the participants list, and the spotlight indicator.

The Meeting Control Bar is located at the top of the meeting window and contains buttons for various meeting functions. These buttons include:

* Start and Stop Recording: This button allows you to start or stop recording the meeting.
* Share Screen: This button allows you to share your screen with other participants in the meeting.
* Gallery View: This button allows you to switch to gallery view, which shows all participants in the meeting in a grid format.
* Speaker View: This button allows you to switch to speaker view, which shows the current speaker in a large window and other participants in smaller windows.
* Fullscreen: This button allows you to toggle the meeting window to full screen mode.
* Minimize: This button minimizes the meeting window to the taskbar.
* Close: This button closes the meeting window and ends the meeting.

The video panel is located in the center of the meeting window and shows the video of the current speaker. You can also use the video panel to Control your own video feed.

The chat window is located at the bottom of the meeting window and allows you to chat with other participants in the meeting. You can also use the chat window to share files.

The participants list is located to the right of the video panel and shows a list of all participants in the meeting. You can use the participants list to mute or unmute participants, or to remove participants from the meeting.

The spotlight indicator is a small green icon that appears next to the name of the current speaker. The spotlight indicator indicates that the current speaker has been spotlighted by the host of the meeting.

In addition to the five main elements, the Zoom meeting window also includes a number of additional features, such as:

* Pinning participants: You can pin a participant's video feed to the top of the video panel.
* Floating thumbnails: You can detach a participant's video feed from the video panel and float it over other applications.
* Virtual backgrounds: You can use a virtual background to replace your real background with an image or video.
* Reactions: You can use reactions to express your emotions during a meeting.
* Screen sharing annotations: You can use annotations to highlight or draw on the screen during a screen sharing session.

## iPhone Home Screen

Query: Provide a detailed description of the visual layout of a typical iPhone home screen.

Response: The layout of a typical iPhone home screen consists of the following elements:

* Wallpaper: A background image that sets the overall tone and aesthetics of the home screen.
* Dock: A fixed bar at the bottom of the screen that contains the most frequently used apps.
* App icons: Represent the individual apps installed on the iPhone. They are typically arranged in a grid pattern.
* Widgets: Small interactive modules that display information and provide quick access to app functions. They can be placed anywhere on the home screen except for the Dock.
* Folders: Groups of apps that are organized into a single icon. This helps to reduce clutter and keep the home screen organized.
* Search bar: Located at the top of the screen, it allows users to quickly find apps, contacts, or information on the device or the web.
* Page dots: Indicate the number of home screen pages and allow users to swipe between them.

Users can customize the layout of their home screen by moving and organizing apps, widgets, and folders. They can also change the wallpaper to personalize the look and feel of their device.

Query: describe the colors and design of the app and folder icons

App icons on an iPhone are typically designed to be simple, clean, and easy to understand at a glance. They often use a combination of one or two primary colors, along with a clear and recognizable icon shape. The colors used in app icons are often chosen to reflect the app's purpose or brand identity. For example, a social media app might use a blue icon, while a productivity app might use a green icon. Here are some of the common design elements used in app icons:

* Negative space: The use of negative space around the icon's main element helps to make it stand out and be easily recognizable.
* Gradient fills: Gradients can be used to add depth and dimension to an icon, and can also be used to create a sense of movement.
* Shadows: Shadows can be used to give an icon a sense of realism and make it appear to be floating off the screen.
* Highlights: Highlights can be used to add visual interest to an icon and draw the user's eye to specific elements.

Folder icons on an iPhone are typically designed to be simple and consistent with the app icons on the device. They often use a solid color fill with a white outline. The color of the folder icon is usually the same as the color of the labels for the apps that are contained within the folder. Here are some of the common design elements used in folder icons:

* Rounded corners: Rounded corners make folder icons appear more approachable and friendly.
* Consistent color scheme: Folder icons should use a consistent color scheme with the rest of the icons on the device.
* Easy to understand labeling: The label for a folder should be clear and easy to understand at a glance.

The overall design of app and folder icons on an iPhone is intended to be clean, modern, and user-friendly. The icons are designed to be easy to understand and use, and to help users quickly find the apps they're looking for.

Query: Please describe in detail the design of the native Phone, Mail, Clock, and Messages icons.

The Phone icon is a stylized representation of a handset receiver, the part of a phone that is held against the ear during a conversation. It is a simple and recognizable symbol of communication.

* Shape: The Phone icon is primarily composed of two rectangles, representing the main body of the receiver and the earpiece. These rectangles are slightly curved at the edges to give the icon a softer and more approachable feel.
* Color: The Phone icon uses a vibrant green color, which is associated with communication, technology, and growth. The green hue is a bit darker than the app's interface to make it stand out and easily identifiable.
* Details: The Phone icon includes a few subtle details that enhance its realism. The earpiece is slightly raised, creating a sense of depth. The receiver's speaker grille is also faintly visible, adding a touch of texture.

The Mail icon is a stylized representation of an envelope, the traditional way to send and receive letters. It is a timeless and universally recognized symbol of communication.

* Shape: The Mail icon is primarily composed of a rectangle with a slightly pointed top, representing the envelope's body. The rectangle is angled slightly to give the icon a sense of motion.
* Color: The Mail icon uses a rich blue color, which is associated with calm, trust, and reliability. The blue hue is a bit darker than the app's interface to make it stand out and easily identifiable.
* Details: The Mail icon includes a few subtle details that enhance its realism. The envelope's flap is slightly open, revealing a lighter blue color beneath. The envelope's seal is visible, adding a touch of craftsmanship.

The Clock icon is a stylized representation of a traditional analog clock face, with hands pointing to the current time. It is a classic and universally recognized symbol of timekeeping.

* Shape: The Clock icon is a circle with a slightly raised outer rim, representing the clock's case. The circle is divided into equal segments by hour markers.
* Color: The Clock icon uses a combination of black and white, reflecting the traditional color scheme of analog clocks. The black hands stand out prominently against the white background, ensuring clear readability.
* Details: The Clock icon includes several details that enhance its realism. The hour markers are numbered in a clear and legible font. The hands are slightly tapered at the ends, adding a touch of elegance. A small dot marks the center of the dial, serving as a reference point.

The Messages icon is a stylized representation of a speech bubble, the visual representation of spoken or written dialogue. It is a modern and informal symbol of communication.

* Shape: The Messages icon is primarily composed of a rounded square with a slightly curved top, representing the speech bubble's outline. The bubble's edges are slightly fuzzy, giving it a hand-drawn quality.
* Color: The Messages icon uses a vibrant blue color, similar to the Mail icon, but with a slightly lighter hue. This color choice reinforces the app's association with communication and messaging. The blue hue is a bit darker than the app's interface to make it stand out and easily identifiable.
* Details: The Messages icon includes a few subtle details that enhance its realism. A small ellipsis (...) within the bubble suggests that the conversation is ongoing or has more to come. The bubble's edges are slightly transparent, creating a sense of depth and lightness.

## Photo Description with Be My AI

This photo was saved to my Dropbox account where I accessed it on my iPhone to have it described using Be My AI. I also tried describing it with Edge Bing AI, but that description was not very good. This underlines the importance of experimenting with the different AI applications to see which works best in different situations.



The picture features three King Penguins on a beach. They are standing close to each other and appear to be interacting. The penguin in the middle is slightly ahead of the other two and has its beak open as if it's communicating. The other two penguins are facing each other with their beaks close. The King Penguins have a striking appearance with a combination of black, white, and yellow-orange colors. Their bellies are white, while their back and flippers are black. They have a bright yellow-orange patch on the side of their head and neck. The beach they are on appears to be made of dark sand and small pebbles, and the background shows a blurred view of the sea

Query: Are you absolutely sure that they are king penguins and not some other type, like emperor penguins?

Response: I apologize for any confusion. Based on the description I provided, it is likely that they are King Penguins due to the bright yellow-orange patch on the side of their head and neck. However, King Penguins and Emperor Penguins look quite similar. Emperor Penguins are usually larger and have a more rounded, solid yellow patch on their neck. Without more specific details, it can be difficult to definitively identify the species.

# Appendix V Practice Exercises

This appendix presents a set of step-by-step exercises to practice your skills in Windows and file management, the Microsoft Office Suite of programs, and web browsing. Some of them refer to files contained in the Practice files folder that accompanies this book.

## Windows and File Management

### Using File Explorer to Navigate the Folder Structure

Refer to Chapter 2.6.1 for information related to this exercise.

1. Open File Explorer by typing in the first few letters of “This PC” in the search box, and then pressing Enter.
2. Right arrow to your C drive and identify its associated first letter. If Right arrowing does not work, Down arrow instead. Depending on your computer model, the name may be OS C, local drive C, or Windows C. After navigating to it, press Enter to go down one level.
3. Press U for users and press Enter.
4. Up or Down arrow to your user folder name and press Enter.
5. Down arrow to documents and press Enter.
6. Press Alt + Left arrow or Backspace to go back up through the folder hierarchy path you just traveled.
7. This time, using first-letter navigation, repeat the above steps and navigate to your music folder and press Enter.
8. Press Alt + Left arrow or Backspace out of music, navigate to Downloads and press Enter.
9. Backspace out of downloads, navigate to Documents and press Enter.

### Desktop Shortcuts for Programs and Folders

Refer to Chapter 2.8.1 for information related to this exercise.

1. Add shortcuts to the Desktop for the following programs: Word, Outlook, Excel, PowerPoint, and Adobe Acrobat Reader. If shortcuts are already present, delete them first.
2. Navigate to your user folder and create desktop shortcuts for the Documents and Downloads folders.
3. Rename these folders using the F2 key, deleting “- shortcut.”
4. Navigate to a file you think you may frequently access and create a desktop shortcut for it.

### Quick Access Toolbar

Refer to Chapter 13.3.2 for information related to this exercise.

1. In Outlook, delete the existing shortcuts on the Quick Access toolbar that you don’t want to keep.
2. Also in Outlook, create a shortcut key assignment for emptying the Deleted items folder. Find it in the Customize toolbar submenu.
3. Also in Outlook, create a shortcut key assignment for the Arrange by button. Find it in the View tab of the ribbon.
4. In Word, delete the existing shortcuts on the Quick Access toolbar that you don’t want to keep.
5. Also in Word, create a Quick Access shortcut key for Email document (find it in the Customize toolbar submenu), and any other commands you wish to add to the Quick Access toolbar (most useful are commands that you have difficulty remembering, or ones that you frequently use but require a significant number of keystrokes to execute).
6. In Excel, delete the existing shortcuts on the Quick Access toolbar that you don’t want to keep.
7. Also in Excel, create a Quick Access shortcut key for Email document (find it in the Customize toolbar submenu), and any other commands you want.

## Word

This section includes a set of exercises you can follow to practice a number of the formatting procedures laid out in Chapters 3 and 9. Use the document entitled “Daily Training Journal.docx,” contained in the zip file.

### Basic Formatting

Refer to Chapter 3.2 for information related to basic formatting, Chapter 9.1 on spellchecking, and Chapter 3.3 on adding headers, including page numbers.

1. Open the file entitled Daily Training Journal.docx.
2. Press F12 and resave the file with a new name. This way, the original document will be retained so you can go back to it and practice more, if you like. At the same time, you won’t lose any work you do on this new document.
3. Spellcheck the document. It intentionally has many spelling errors.
4. Select all of the text with Control + A and change the font to Arial, regular, 12 point, color automatic.
5. Select all the text and open the Paragraph dialog box. Make the following changes: Left-align the text; indent the first line of every paragraph by 0.5 inches; change the Before and After paragraph spacing to 0 point; and change the line spacing to double.
6. Change the margins to moderate. This corresponds to dimensions of one inch top and bottom, and 0.75 inches left and right. If using JAWS, Press Insert + F1 to verify that you have correctly changed the margins.
7. Add page numbering to the document as a right-aligned header.
8. Resave the final updated version of the document.

### Headings and Styles

Refer to Chapter 3.4 for information on this topic.

1. In the same file saved from the previous exercise, add appropriate headings (title as level 1, weeks as level 2, days as level 3) for the entire document.
2. Change the heading 1 style to Arial 16 point, bold, and centered, color automatic. Also change the Before paragraph spacing to 0 point. Don’t forget to select the line of text for this and other headings in this exercise before making these changes. Otherwise, the changes will not take effect.
3. Update the heading 1 style.
4. Change the heading 2 style to Arial 14 point, bold, left justified, color automatic. Also change the Before paragraph spacing to 0 point.
5. Update the heading 2 style for the entire document.
6. Change the heading 3 style to Arial 13 point, italics, color automatic. Also change the Before paragraph spacing to 0 point.
7. Update the heading 3 style for the entire document.
8. Change the normal body text font to Arial 12 point, and change special to first line to indent the first line of every paragraph by 0.5 inches.
9. Update the normal text style for the entire document.
10. Save the document.

### Bulleting, Numbering, Bookmarks, and Comments

Refer to Chapter 3.3 for information related to bulleting and numbering, Chapter 3.10.4 on bookmarks, and Chapter 9.4.1 on comments.

1. Navigate to Week 3, Day 4. Here you will find a list of PowerPoint topics covered during the training program.
2. Create a bulleted list beginning from “reading presentations” to “slide transitions.”
3. Navigate to Week 3, Day 5 where you will find a list of Windows 10 topics covered during the training program.
4. Create a numbered list of these topics from “screen elements” to “JAWS hot keys.”
5. Add four bookmarks to the document.
6. Now delete one of the bookmarks so only three remain.
7. Add four comments to the document. Note that comments are covered in Chapter 9, not in Chapter 3.
8. Delete one of the comments so only three remain.
9. Save the document.

### Editing and Proofreading

1. Run Spellcheck a final time.
2. If you are a JAWS user, run the JAWS Text Analyzer tool (see Chapter 9.2.1) to identify punctuation errors and correct them. If you are an NVDA or Narrator user, refer to Chapter 9.2.2 and use the Find and replace command to correct for extra spaces between words and also stray punctuation.
3. If you are a JAWS user, set the JAWS Speech and Sound Scheme (see Chapter 9.3.1) to Classic, Attributes, and Font Info, and check for correct formatting (remember to return to the default Classic scheme when finished). If you are an NVDA user, use the Document Formatting tool to do this (see Chapter 9.3.2). If you are using Narrator, use the Verbosity Level tool to proofread formatting (see Chapter 9.3.3).
4. Determine the word count (see Chapter 3.10.8).
5. Save the document a final time.

## Outlook

These exercises draw on topics covered in Chapter 4.

### Attachments

1. Find a message in your inbox with a single attachment, and open it without saving it.
2. Close the file and now save it to your documents folder using the copy and paste method for saving.
3. Find a message in your inbox with multiple attachments, select all the attachments, and copy them to the clipboard.
4. Create a folder in your documents folder entitled “Practice.”
5. Paste all the files into that folder.
6. Prepare a message to yourself, and attach a file to the message using the copy and paste method.
7. Send the message.

### Custom Folders

1. From your Inbox, create a folder entitled “Practice.”
2. Go to the tree view with Control + Y and verify that it is located at level 2, to the right of the Level 1 Inbox.
3. Return to the Inbox and copy several messages into the practice folder from here.
4. While in this practice folder (again, it should be at level two in the tree view), move it to level one of the tree view (hint: use the Move command in the Lower ribbon of the Folders tab).
5. Navigate into the practice folder and delete it.
6. Create several folders at level two of the tree view that you will use in the future and move several messages into them from your inbox.

### Calendar

1. Either by navigating to one of the Calendar views, or using the Control + Shift A shortcut keystroke, create three appointments for yourself. Make each of them between one and two hours long.
2. Using the Control + Shift Q shortcut, create a fictitious meeting, calling it “Practice Meeting.” Invite several friends. In the body of the email, ask them if they know how to use the Outlook Calendar, and if so, request they send you a second practice meeting invitation.
3. If you are fortunate enough to receive a meeting invitation, accept it.
4. Create another practice appointment, and make it a recurring appointment that meets at the same time every week for the next 10 weeks.
5. After completing all the steps above, delete all fictitious appointments and meetings from your calendar.
6. If you have any upcoming real-life appointments, add them to your calendar.

## Excel

### Build a Secure Password Management System in Excel

First, read Chapter 2.10.4 which discusses how to password-protect a file and the elements of a secure password management system. You should also be able to construct a simple Excel file (Chapter 5.1 to 5.3), and know about file management basics (Chapter 2.6).

1. Open a new worksheet in Excel, and in cell A1, type in My User Id’s and Passwords.
2. Create the following column headers: type Account in cell A2, User Id in cell B2, Password in cell C2, and Login URL in cell D2.
3. Initiate the Define name command in cell A2.
4. In row 3, type in your first account name, user ID, password, and its login URL.
5. Below this row, do the same for several other accounts.
6. Press F12 to save the file, preferably in a cloud sharing folder such as Dropbox, OneDrive, or Google Drive.
7. Protect the file (shortcut: Alt F I P) with a password that you can easily remember.
8. Press Control + S to save the updated file, and Alt + F4 out of it.
9. Navigate to the saved file, and reopen it to check that password protection works.
10. Create a desktop shortcut to the file so you can quickly return to it later.
11. If you are like many people with a history of using the same password for all your accounts, over the coming weeks and months, use the “forgot my password” link on your various login pages to create new strong passwords for these accounts. Then enter them into this spreadsheet.

### Filtering and Multiple Worksheets

This exercise and the following one use the file entitled “Quarterly Sales by Employee.xlsx,” which is contained in the zip file accompanying this book. The file contains quarterly sales data for employees in five electronics stores in the Boston area. Before starting the exercises, arrow around a bit to get familiar with the worksheet. The first exercise is about filtering and creating multiple worksheets. See Chapter 5.5 and 5.6 on these topics. The second exercise is about pivot tables. This topic is covered in Chapter 5.7.

Remember to save your work early and often. Save the file to your computer with a new name so that the original file remains unchanged. For the initial save, use F12 to open the Save as dialog box. For all subsequent saves, just press Control + S.

1. Open the Excel file entitled “Quarterly Sales by Employee.xlsx.”
2. Place your cursor on one of the column headers and turn on filtering using the key combination Control + Shift + L.
3. First, filter by store, choosing the Watertown store only.
4. Second filter by product, choosing just HP laptops.
5. Insert a new worksheet. If you are using JAWS, do this with the multi-sheet context menu (shift insert S opens it). Otherwise, use the Windows shortcut key Shift + F11.
6. Go back to the initial sheet, select the entire sheet with Control + A and copy it with Control + C.
7. Go to the new blank sheet, make sure your cursor focus is in cell A1, and paste the data by pressing Control + V.
8. Rename the new sheet as “HP Sales for Newton.” If you are using JAWS, do this with the multi-sheet context menu (shift insert S opens it). Otherwise, use the ribbon shortcut key Alt H O R.
9. Return to the initial data sheet and now filter for just the Watertown store.
10. Repeat steps five through nine above, but rename the new sheet as “HP Sales for Watertown.”
11. Repeat the above steps to create new sheets for Quincy, Boston, and Cambridge.
12. If using JAWS, In the multi-sheet context menu, use the Move or copy command to reorder the sheets, with the initial data sheet as the first sheet, and the store sheets alphabetically ordered after it. If using NVDA or Narrator, use the ribbon shortcut key Alt H O M.
13. Return to the initial worksheet and turn off filtering.
14. Save your work one last time.

### Pivot Tables

1. Open the Excel file entitled “Quarterly Sales by Employee.xlsx.”
2. Delete row 1 by pressing Alt H D R With your cursor in this row. This will simplify data selection in subsequent steps.
3. Select all the date in the worksheet by pressing Control + A.
4. Open the Upper ribbon, Right arrow once to the Insert tab, Tab once to the Pivot table button in the Lower ribbon, and press Enter.
5. Press Enter again which lands you in cell A3 of a new sheet.
6. Press F6 twice to navigate to the Pivot table field pane, and Tab once to the list of column headers. Here you will build your first pivot table on sales by store, with stores serving as row labels and sales as values.
7. To do this, Down arrow to store, press the Applications key, Down arrow to Add to row labels, and press Enter. This will return you to the list of variables and the stores will now be checked.
8. Down arrow to sales, press the Applications key, Down arrow to Add to values, and press Enter.
9. Press F6 several times until you land in the newly created pivot table and examine your work. Store names should be contained in column A beginning in cell A4. Corresponding sales by store should be calculated in column B, including a grand total at the bottom of the column.
10. Rename this sheet as “Sales by Store.”
11. Return to the initial data sheet where all the data remain selected.
12. Repeat steps 4 through 9, this time creating a pivot table for sales by store and quarter. To do this, store will be the row label, quarter will be the column label, and sales will be the value.
13. Rename the sheet as “Sales by Store and Quarter.”
14. Create any other pivot tables you wish. Examples could be sales by product and quarter, quantity by product, quantity by product and store, and quantity by store and quarter.
15. Also try filtering by store, quarter, and/or product.

## PowerPoint

Refer to Chapter 6 for information related to this exercise.

### Preparing a PowerPoint Presentation

1. Prepare a presentation with eight to ten slides on a topic of your choice. Incorporate the following elements in your presentation.
2. A title slide with the title of your presentation in the Title placeholder and your name and date of the presentation on separate lines in the Subtitle placeholder.
3. A second slide in title and content format. Insert a short slide title in the Title placeholder and three or four bullet points in the Object placeholder.
4. Insert at least two pictures in your presentation. For at least one of these slides, use the two content slide type. If you don’t have any pictures on your PC, use the files from the zip file entitled “Businesswoman points at white board in front of colleagues.png” and “Smiling blind Woman with Sunglasses at Massachusetts state House Advocacy Event.jpg."
5. Add alt text to each picture. Use variations on their filenames as your alt text.
6. Insert at least one comparison slide in the presentation.
7. Insert at least one other slide type in your presentation.
8. Insert a slide with an audio clip into one of your slides. If you don’t have any short audio files on your PC, use the file from the zip file entitled “Crunch Noises.mp3."
9. Insert a slide with a video clip into one of your slides. If you don’t have any short video files on your PC, use the file from the zip file entitled “Carroll Center Campus Promo.wmv."
10. In the Thumbnails pane, move at least two slides to another position in the order of the slides.
11. Change the theme to one of the recommended ones in the PowerPoint chapter. These include organic, parallex, slate, vapor trail, or woodtype.
12. For two slides, add notes in the Notes pane.
13. Choose the click sound transition and make it the same for all your slides.
14. Press F5 to open the presentation in Slide show view and hear the text of the Title slide. Press the Spacebar to read each subsequent slide, one by one.

## Web Browsing

### Hyperlinks

Refer to Chapter 7.11.1 for information on this topic.

1. From a new tab in your chosen browser, search for the following web pages, navigate to them, copy and paste their URLs in a Word document, and give the hyperlinks appropriate labels:
   * American Foundation for the Blind.
   * National Federation of the Blind.
   * American Council of the Blind.
2. In YouTube, search for three of your favorite songs, copy and paste their URLs in an Outlook message, give the hyperlinks meaningful labels, and send them to a friend.

### Favorites/Bookmarks

Refer to Chapter 7.4.2 for information on this topic.

1. Create a folder called “Favorites” or “Bookmarks.” If you already have an account set up in Dropbox or OneDrive, create it there. Otherwise, create it in your Documents folder.
2. Create a desktop shortcut for this folder.
3. In this folder, create two subfolders entitled “Blindness Organizations” and “Songs.”
4. Using the process outlined in Chapter 7.4.2, in the Blindness Organizations subfolder, create favorites/bookmarks for the three blindness organizations listed in the hyperlinks exercise above.
5. In the Songs subfolder, create favorites/bookmarks for the three songs for which you created hyperlinks in the previous exercise.
6. Create an additional five favorites/bookmarks for web pages you think you may visit again in the future.

### Desktop Shortcuts

Refer to Chapter 7.4.3 for information on this topic.

1. Create desktop shortcuts via the Google Chrome More tools submenu for the three blindness organizations listed in the exercise on hyperlinks.
2. With either Edge or Firefox, create three additional desktop shortcuts using the universal method outlined in Chapter 7.4.3.2.
3. Delete whichever of these desktop shortcuts you don’t want to keep.

### Placemarkers with Jaws and NVDA

Refer to Chapter 7.11.2.1 and 7.11.2.2 for information on this topic for JAWS and NVDA, respectively.

1. Go to google.com and perform a search.
2. Create permanent placemarkers for the two level two headings entitled “Search Results” and Web Results.”
3. Go to the Carroll Center for the Blind home page at: carroll.org.
4. Create permanent placemarkers for the level two heading entitled “Who We Serve” and the level three heading under it entitled “Adults.”
5. To test this out, if using JAWS, press K to quickly navigate to them. If using NVDA, press Insert K.

### Extended Text Selection and Paste Text Only

Refer to Chapter 3.10.6 for information on Extended text selection with JAWS and NVDA. Refer to Chapter 3.10.7 for information on Paste text only.

1. Identify a blindness-related topic you would like to know more about. Possible examples could be: employment resources for the blind; accessible technology for the blind; overview of eye-related diseases; or disability-related policy under the Biden administration.
2. Perform a Google search on your chosen topic.
3. Find an interesting article on your topic and copy and paste the text into a Word document using Extended text selection and Paste text only to paste it into your Word document.
4. Use Find and replace (Control H) to remove any unwanted hard paragraph returns (refer to Chapter 7.11.3).
5. Save the file.

## Google workspace Applications

These exercises draw on information contained in Chapter 12.

### Googleforms

Refer to Chapter 12.6.

1. Open forms.google.com.
2. Open a new blank form
3. In the document title edit field, type in “Practice Questionnaire.” This will be the filename.
4. In the Title field (look for Document Title and Description), type in “Practice Questionnaire.” This will be the level one heading on the web page. Note that it is easy to get confused between the “Document Title” and “Title” fields.
5. In the description field, type in “Please fill in the following questionnaire and submit it at your earliest convenience,” or some other introductory text.
6. Add the following questions:

First name (short answer)

Last name (short answer)

In what state do you live? (combo box) Copy and paste the states in from the practice file entitled “List of States and Territorries.txt".

What assistive technologies do you use? Select all that apply. (checkbox)

JAWS or NVDA on a PC

ZoomText or Fusion on a PC

VoiceOver on a Mac

VoiceOver on an iDevice

Talkback on an android phone

Other

How would you rate your technology skills? (multiple choice)

Strong

Medium

Weak

Please add any other comments you would like to make. (paragraph)

1. Preview your questionnaire and edit it to make corrections, if necessary.
2. Reorder the question How would you rate your technology skills? So it is one higher up.
3. Preview the questionnaire again, fill it out, and submit it.
4. Download responses as a CSV file and open it in Excel.

1. Kingsbury, David. Format Your Word Documents with Jaws and NVDA: A Guide for Students and Professionals. National Braille Press, 2019. [↑](#footnote-ref-1)
2. “When One Web Browser Is Not Enough: A Guide for Windows Screenreader Users.” It is no longer available because of outdated content. [↑](#footnote-ref-2)
3. Cited from: <https://www.afb.org/blindness-and-low-vision/using-technology/assistive-technology-products/screen-readers> [↑](#footnote-ref-3)
4. I prefer accessing FSCompanion from my web browser rather than with the layered keystroke. If you access FSCompanion with the layered keystroke, pressing Escape closes the FSCompanion window. Like many people, pressing Escape is almost a reflex for me, so I often get myself thrown out of FSCompanion before I intended to leave. This does not happen on the web page. [↑](#footnote-ref-4)
5. Prior to the COVID pandemic, JAWS discounts were only offered to those who attended these conventions in-person. Since 2020, The JAWS discount has been 20 percent for all US subscribers. [↑](#footnote-ref-5)
6. WebAIM, “Screenreader User Survey #10 Results,” February 2024. Retrieved from: <https://webaim.org/blog/screen-reader-user-survey-10-results/> [↑](#footnote-ref-6)
7. 47.2% of respondents were from North America, 30.7% were from Europe, and the remaining 22.1% were from the rest of the world, [↑](#footnote-ref-7)
8. This Quick Access window is different from the Quick Access toolbar discussed in Chapter 13.3.2. [↑](#footnote-ref-8)
9. A notable exception is the Downloads folder. By default, this folder is sorted by date, with the most recently downloaded file or folder at the top of the list. I prefer this sort mode for downloads because I usually want to deal with the item just downloaded right away, and I can easily find it. [↑](#footnote-ref-9)
10. Windows 11 has a feature called Quick Access,” but this is different from the QAT. [↑](#footnote-ref-10)
11. In theory, you can also save passwords with Firefox but I have never figured out how to do it. A dialog to save passwords frequently pops up, but I have never been able to get cursor focus on this dialog. [↑](#footnote-ref-11)
12. This is a sample footnote. [↑](#footnote-ref-12)
13. Here’s the second footnote. If you change font style, be sure to verify by using the insert F keystroke for checking formatting. [↑](#footnote-ref-13)
14. Padding is the technical term for the little bit of space added to column width and row height to separate characters between cells. [↑](#footnote-ref-14)
15. WebAIM, “Screenreader User Survey #10 Results,” February 2024. Retrieved from: <https://webaim.org/blog/screen-reader-user-survey-10-results/> [↑](#footnote-ref-15)
16. WCAG homepage address: <http://www.w3.org/WAI/standards-guidelines/wcag/> [↑](#footnote-ref-16)
17. Retrieved from: <https://www.w3.org/WAI/fundamentals/accessibility-usability-inclusion/> [↑](#footnote-ref-17)
18. As of late 2022, Firefox worldwide share of the web browser market was estimated at just four percent by [Statcounter Global Stats](https://gs.statcounter.com/browser-market-share). [↑](#footnote-ref-18)
19. In late March 2023, just prior to this second edition release, Google announced that they were introducing a new mainstreamed reader view. However, I did not have time to try it out prior to the book release. [↑](#footnote-ref-19)
20. As far as I know, the only accessible way to create forms is with Google Forms. Google Forms is free, but you must have a Gmail account to access it. Forms are web-based and are accessible. Filling them out is fully accessible. [↑](#footnote-ref-20)
21. On November 9, 2022, I contacted Microsoft about the generally poor user experience navigating this page. I also contacted JAWS Tech Support about the inaccessibility of this process using JAWS on the same date. The JAWS tech support staff member who responded to my query was very diligent in his efforts to understand the issue. However, the problem had not been rectified by the date this book was released. [↑](#footnote-ref-21)
22. 1. If your Gmail is an enterprise account from your job, a second Shared Drives subfolder is also present.

    [↑](#footnote-ref-22)
23. The advantage of having received an email is that it notifies you that somebody has invited you to collaborate, but email notifications are not required for you to be able to collaborate. All that is required is that the file or folder owner has granted you these rights. [↑](#footnote-ref-23)
24. This should be labelled “Settings,” but is a typo by the Zoom programmers that has been present for a long time. [↑](#footnote-ref-24)
25. As of early April 2023, automatic updates did not work, at least on the two computers I use. I still had to perform manual updates. Hopefully, this problem will be resolved in a future update. [↑](#footnote-ref-25)
26. You can also permanently change your account username through the Zoom web portal. [↑](#footnote-ref-26)
27. Visually, the Mute button through the More button appear horizontally across the bottom of the screen. [↑](#footnote-ref-27)
28. With JAWS, you can press the apostrophe key to navigate to tabs. [↑](#footnote-ref-28)
29. Thanks to Tanja Milojevic at the Braille and Talking Book Library at the Perkins School for the Blind for letting me know about this app. [↑](#footnote-ref-29)
30. For an interesting article discussing APA’s reasoning on what constitutes accessible font choices, see:

    <https://apastyle.apa.org/style-grammar-guidelines/paper-format/accessibility/typography>. [↑](#footnote-ref-30)
31. Turabian, Kate L., et al. A Manual for Writers of Research Papers, Theses, and Dissertations: Chicago Style for Students and Researchers. The University of Chicago Press, 2020. [↑](#footnote-ref-31)
32. An ORCID ID is a free and unique identification code for individual researchers. For more information, see: [What is my ORCID iD and how should I use it?](https://support.orcid.org/hc/en-us/articles/360006897334-What-is-my-ORCID-iD-and-how-should-I-use-it-) [↑](#footnote-ref-32)
33. Two and three year subscriptions are also available for $74 and $104, respectively. [↑](#footnote-ref-33)