In Memory of

Jeff Dunn

A visionary professional who was dedicated to the guide dog movement and who helped our students access the world through technology.
Guiding Eyes for the Blind gratefully acknowledges the support of the PepsiCo Foundation, which made this book’s publication possible. Our shared vision of leveling the playing field in education and the workplace for people with different abilities led to this book’s creation.

As PepsiCo’s philanthropic anchor, PepsiCo Foundation works globally across multiple sectors in partnership with nonprofit organizations to innovate and catalyze programs of lasting impact in health and nutrition, education, and the environment.

This text is intended to inform readers of the many assistive technology options available to those who are blind or visually impaired. Each individual’s needs and capabilities will vary, and users will need to explore which options work best for them. Neither the author nor Guiding Eyes for the Blind endorses or represents any software or hardware providers, nor do they advocate use of any specific product or program.
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About the Author

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Crabb has been a reporter for the *Ogden Standard-Examiner* and the *Deseret Morning News* (Salt Lake City). He is a past editor of *The Braille Forum*, published by the American Council of the Blind in Washington, D.C., and also worked as the assistant editor of *Dialogue Magazine*, published by Blindskills, Inc. of Salem, Oregon.

In the late 1980s, while director of an independent living center, he began providing computer training at the facility. He became a computer instructor to the staff at Rehabilitation Services for the Blind in Jefferson City, Missouri, in 1999, and in June 2007, he was hired by Ohio State University as the school’s director of assistive technology—a position in which he provides training and software to disabled staff members and university faculty.

Crabb is currently president of the American Council of the Blind of Ohio and chairs that organization’s convention programming and awards committees. He is a former member of the Missouri Assistive Technology Advisory Council, Oregon’s Talking Book and Braille Services Advisory Council, and the Oregon State Library Board of Trustees. He also has represented the American Council of the Blind on the National Association of Radio Reading Services Board of Directors.
In early 2008, Crabb created DB-Review, an Internet mailing list dedicated to the writing and distribution of book reviews, with a focus on books from the National Library Service for the Blind and Physically Handicapped. He also is currently involved in Internet broadcasting, creating two three-hour programs per week for www.legend-oldies.com, and he is the author and editor of that site’s weekly newsletter.
Introduction

We live in a time in which library and bookstore shelves sag under the weight of books about technology—many of which go largely unread. So what makes this book different from all of those? First, it makes no pretense of being a vast, multivolume reference on all things technological. Rather, it’s designed to provide information that can serve as a launch pad from which users can more thoroughly explore the rich and diverse world that is assistive technology. Second, one of the things you’ll notice immediately about this book is that you won’t need a geek speak dictionary to understand it. We don’t feel the need to bury you in an avalanche of acronyms, and we won’t intimidate you with lengthy discussions of esoteric topics that won’t be helpful to you. Whether you know little or nothing about assistive technology or immerse yourself in it on a regular basis, we’re confident this book will help you either better understand it or better explain it to others. We hope human resources staff members will find this book useful as well, because as human resources managers better understand assistive technology, they can more effectively integrate it into recruitment and retention plans.

Defining Vision Impairment and Blindness

While the majority of this book’s readers likely understand blindness and vision impairment in a rather personal way, it’s appropriate to provide a plain-English definition of these terms for use here. According to the IRS, someone who is legally blind has a visual acuity of 20/200 or worse in the better eye with corrective lenses. That is, a legally
blind person is someone who, while wearing glasses or contacts, can see information on an eye chart 20 feet away that a fully sighted person who is using no corrective lenses could see at 200 feet away. You are also considered legally blind in the United States if your visual field is restricted to 20 degrees diameter or less in the better eye (WebMD 2010).

At best, this is a difficult definition. The reality is that visual impairment differs from person to person and often even from day to day. Even the type of lighting in a given room can significantly alter someone’s vision, making the same information more difficult to see at various times of the day or night than at others.

**How Does Assistive Technology Fit into an Employee Retention and Recruitment Plan?**

Human resources professionals understandably want to recruit the best people they can. This book won’t provide information on creating an employee recruitment and retention plan, but it will illustrate how assistive technology can fit into such a plan.

Perhaps the most significant aspect to developing a recruitment and retention plan that includes assistive technology is to recognize that technology may solve problems that seem insurmountable. A blind or visually impaired job applicant may be summarily dismissed mentally by an interviewer based on the assumption that sight loss would negatively impact the applicant’s ability to do the job. The interviewer may not be aware that assistive technology could be implemented easily, thereby enabling the applicant to do the job as well as or even better than a fully sighted counterpart. So the first and best
step for including assistive technology in a recruitment plan is to approach the issue positively.

This same positive first step applies when a human resources manager learns that an employee in good standing has developed a visual impairment. The employee may not yet be aware of the existing technologies that would allow him or her to remain employed, and company leaders may decide that despite years of experience and solid work ethic, an employee losing his or her sight can’t continue to do his or her job. This is a case in which more research can add up to a winning resolution for everyone, and it may be up to the human resources manager, using this book, Internet-based information, and other resources, to suggest possible alternatives and solutions, including employment retention through the use of assistive technology.

HR professionals and others who have implemented assistive technology into recruitment and retention plans have learned that assistive technology makes it possible for interviewers to recruit from a larger and potentially more successful pool of job seekers and retain the highly valued and badly needed experience of longtime employees.

**Just What Is Assistive Technology?**

Essentially, assistive technology is equipment or software that enables you to do something that would be much more difficult or impossible to do without it. If you cannot see a computer screen, for example, you might have a piece of software generically known as a screen reader read the contents of the screen aloud to you. In this example, the computer itself isn’t really assistive technology, but the screen reader is. In its broadest form, assistive technology may be something as simple as a pen that can
produce dark, thick writing or a digital voice recorder. It need not be complicated or even all that expensive, as discussed below. A money identifier that can read aloud the denomination of paper currency is available for less than $100, and the ability to talk into a computer’s microphone and have your spoken words converted to text that appears on the screen is a standard component of many of today’s computers at no extra cost.

Now that we’ve defined assistive technology—both from the perspective of a user and a human resources manager—it’s time to explore the various technologies from which you will benefit. It’s going to get more interesting from here, and we promise to provide you with information that both makes sense regardless of what you already do or don’t know about assistive technology and is concise and comprehensive. So prepare yourself for immersion into a variety of topics that will leave you with much to think about and a host of interesting challenges and opportunities.

**Bibliography**


Chapter One

THE ROAD TO ACCESSIBLE INFORMATION

Between 1940 and 1962, Bob Hope and Bing Crosby starred in a series of films whose titles began “The Road to….” One wonders how the two actors would have played their parts in a film called The Road to Accessible Information later in their lives. That particular film was never made, but some variant of its plot gets played out daily in the lives of thousands of people who deal with vision loss, and it generally lacks the comedy of those Hope and Crosby films. Instead, the storyline can be fraught with frustration. The way in which information is obtained is one of the most dramatic changes everyone who faces sight loss experiences. The days of snagging a newspaper from a corner machine or casually grabbing a magazine on your way to a seat in the doctor’s waiting room end pretty quickly, and those casual information grabs are replaced by much more deliberate attempts.

If the vision loss begins while an employee is on the job, both the employee and his or her supervisor will likely have concerns about what this means going forward. The employee may assume that learning Braille will be the only way to regain the ability to access information, while the supervisor may assume that converting all materials to Braille is inevitable and probably costly. The employee may worry that Braille will be too hard to learn—and may even feel there’s a stigma associated with using it—while the
supervisor may assume that building, company, and departmental procedures and policies will have to be dramatically adjusted.

Braille, a system of creating letters and symbols using six dots that can be displayed in as many as 64 patterns, remains the most diverse and useful system of communication for the blind and visually impaired, which is one reason for its longevity. The ability to read and write using Braille is a highly valued skill that can make those who use it more productive both on the job and in life. A blind reader using Braille need never worry about whether the battery is dying in a digital reading device, and if you are proficient at taking Braille notes, you need never worry about whether your digital voice recorder actually completed the recording. Longtime Braille users often feel that technology, for all its benefits, will never entirely replace Braille for them, and most use it in conjunction with the latest technologies to optimize the ways in which they gain access to needed information.

But the reality is that the use of Braille is actually on the decline in the United States (Aviv 2009). In the 1950s and 1960s, more than half of America’s blind and visually impaired children used Braille. Today, the number of people who use Braille is at or below 10 percent, according to a report released in 2008 by the National Federation of the Blind. The decrease in the use of Braille stems in part from a growing reliance on audio technology and a reluctance on the part of some school districts to commit fiscal resources to the teaching of Braille. And there is an ongoing debate among those who use Braille and those who do not as to how effective and useful it is. Those who don’t use Braille often underestimate its value, assuming that digital audio and recording technology can entirely replace it. Technology does continue to evolve, and it will
certainly play an increasingly important role in the lives of blind and visually impaired people. So if Braille isn’t the only road to accessing information, what others are available?

A Little Large Print Can Go a Long Way

One of the most widely used roads to information access is large print. Eight- to 12-point type is most commonly used by fully sighted readers, according to the American Printing House for the Blind, whereas the U.S. Postal Service defines large print as being at least 14 points in size (U.S. Postal Service n.d.). The vast majority of longtime large-print readers, however, will insist that a document set in 14-point type still may be too small to read, despite what the USPS says.

So if you want to produce information in large print, how can you tell if you’re getting it right? The American Printing House for the Blind has authored guidelines for large-print production based on its research with visually impaired individuals. Among other things, these guidelines call for material to be produced using at least 18-point type in a sans serif font. (Serifs are short lines stemming from and at an angle to the upper and lower ends of the strokes of a letter. For example, this document’s typeface is considered serif; this type is sans serif.)

These guidelines also deal with line spacing, margins, headings and subheadings, the creation of graphics, and more (Kitchel 2004). Like anything else, successful production of large-print materials may take some forethought and a bit of effort on the part of the creator if the large-print material is to be truly accessible. You may be able to get away with enlarging a regular print document on a copier, but chances are high that
some important things will be lost. For example, the quality of the print can suffer and margins can become irregular, affecting the readability of the document. Large-print materials are best created through adherence to guidelines such as those of the American Printing House for the Blind to ensure that not only the fonts but also margins, spacing, and even the type of paper used can all work together to craft documents that are easily readable.

**The Electronic Road to Information Access**

There are numerous times when printed materials aren’t as convenient or available as digital information. In the workplace, e-mail has almost entirely eclipsed the use of printed memos, as it is an excellent and today nearly universal way to communicate. Yet even sending e-mail can occasionally be tricky. E-mail users think nothing of including graphics in their messages—a corporate logo, for example. Often these graphics include links to the sender’s web page. Sometimes, messages are so fancy that an e-mail program like Microsoft Outlook can have a difficult time displaying the message properly. Screen reader users can always tell when a message is too fancy for its own good, so to speak. The screen reader will say something like “Entering table: r1 c1.” Then if the user uses the Down-Arrow key to attempt to read the next line, the screen reader might intone “r2 c1” but it would still not read the actual message. When that happens, you probably have to open Internet Explorer to read the message in its entirety. Although we cover the “How To” aspects of many programs in this text, for now, if you run into such a message, you can always use Alt+H, then X, then V to have Microsoft Outlook (2007) open the message using Internet Explorer. If you use Outlook (2010), the key sequence is Alt+H,
then A, then V. Just remember to use Alt+F4 to close Internet Explorer when you’ve read the message. You can then reply to the message or simply tap Escape to return to your IN box.

So does this mean if you’re sending a message to a blind or visually impaired reader you should always choose to send plain-text messages without fancy backgrounds, links, or images? Doing everything in plain text is limiting in terms of the message’s appearance—but if you want to ensure that your message can be read by the broadest audience of e-mail users, using plain text makes a lot of sense. You can probably get away with messages that include some rich formatting—just remember that if you’re going to send messages that include information laid out in a table or graphical information such as a logo, you may hear from some users that they can’t access that information.

Potholes in the Road to Information Access

Those new to assistive technology all too often assume that if a document was produced on a computer, it is accessible to someone using screen magnification or a screen reader. Alas, it isn’t that simple. To illustrate this point, let’s look at PDF documents, which are now widely used in the professional sector. The initials “PDF” stand for Portable Document Format. PDFs got their start when Adobe Systems set out to create a digital document that would look identical to the document created by the author, even if the person receiving the document used a different system to open it. Unlike a Word document, the user cannot change or edit a PDF without special software. This innovation is now taken for granted by many, yet only in recent years has Adobe Systems
given much thought to ensuring that PDF files could be used by those who rely on screen magnification or screen reading software. As a result, PDF documents may look magnificent on the screen but simply not be readable by a screen reader program or screen magnifier.

For PDF files to be accessible, they must be marked in a specific way. This process is called tagging, and while a screen reader can often read untagged or unmarked documents, the chances that the file’s contents will be read aloud out of order are significantly higher when an untagged document is being used. PDF files are usually read by a free PDF reader called Adobe Reader. Don’t confuse Adobe Reader with a screen reader. They are separate pieces of software, and we look at screen readers in greater detail in the next chapter. Screen readers do try to work with Adobe Reader to allow the user to hear the contents of the PDF file spoken aloud. All too often, however, documents are not only untagged, they also are scanned as images, that is, someone created the PDF by running a print document through a scanner. This creates an image of the document. The end result is that the document will look great on the screen to a sighted user, but a screen reader may simply say “The document appears to be empty.”

We revisit PDF files in a future chapter, but it is worth noting here that Ohio State University’s Web Accessibility Center has developed a downloadable tutorial that assists those who create PDF files in designing the most accessible ones possible (Petri n.d.).
Taking the Microsoft Road to Information Access

While any road will have its share of detours and potholes, the Microsoft road to information access—a road that includes three word processors that vary in terms of sophistication and ease of use and a spreadsheet creator and reader—is highly accessible.

Microsoft Word

Most students and business professionals will likely be familiar with Microsoft Word. While a section of a future chapter more fully explores Microsoft Word, it’s sufficient to know for now that nearly everything that Word can do is accessible to those who use screen readers or screen magnification programs. Even somewhat complicated tables created in Word are understood relatively easily if you use your screen reading or magnifying software.

Microsoft WordPad

WordPad is a built-in word processor that works well with screen readers and screen magnifiers. It lacks the sophistication of Microsoft Word, but it is free, and it allows you to create and read a variety of documents. The latest version of WordPad includes the ability to create double-spaced documents—an upgrade from earlier versions.

Microsoft Notepad

Microsoft Notepad isn’t exactly a word processor, but it’s close. It’s billed as a text editor, and as such, it is capable of doing rudimentary edits and document creation. You can create very simple plain-text documents that don’t include any fancy graphics or
charts and tables. It also is free, and it works nicely with all of the screen reading and
screen magnification programs currently on the market.

**Microsoft Excel**

Although we revisit it in greater detail later in this book, Microsoft’s spreadsheet
creator, Excel, is worth a brief mention. It works well with all the screen readers and
magnifiers mentioned in this book. It is not free; like Microsoft Word, it is part of the
Microsoft Office suite.

In the next chapter, we’ll embark on a more in-depth exploration of screen
reading and screen magnification software, which means you’ll be traveling a variety of
roads to information access.

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Chapter Two

TAKING THE MYSTERY OUT OF ASSISTIVE TECHNOLOGY

One of the things you will notice as you embark on your assistive technology journey is that you have lots of choices. Initially, the world of assistive technology can seem confusing, and the facts and figures can blur together. But as you continue to read this book and do additional research, you’ll soon be able to pick out the different roadside attractions along the assistive technology highway, so to speak, and by so doing, you’ll make better choices and get more from the technologies you choose.

In this chapter, we unravel the mysteries associated with screen magnification software, screen reading software, and devices called refreshable Braille displays. We look at programs you can run on a couple of different computer systems so that you can be well informed when deciding what kind of technology to use. We also offer you some “How To” instructions to help you gauge each program’s capacity and ease of use.

Getting Started

Some Basic Concepts for Those New to Computers

Before you can successfully use screen magnification or screen reading software, you should probably understand some basic concepts and terms regarding how to
navigate among the programs and documents on your computer and how to find specific things. An explanation of this sort may seem counterintuitive, since you’ve not yet learned about screen magnification or screen readers—the two things that will enable you to successfully use a computer at all. However, by understanding some basic ideas about how to find programs and documents, you’ll be better able to make optimal use of your screen magnifier or screen reader’s features.

Understanding the Desktop

Chances are, regardless of the type of computer you use, you will hear about its desktop. There are several elements that comprise the desktop. The Start Menu button is located at the bottom left of the screen, and it will get lots of use. With it, depending on the age of your computer, you can type searches into an edit box or you can select from a number of programs and files. You activate the Start Menu by tapping the Windows key. You may also have a Quick Launch bar next to the Start Menu. (If you’re using Windows 7, there is no Quick Launch bar.) This bar can include a number of specific program buttons that, if clicked with a mouse, will start those programs. The Task bar is also at the bottom of your screen, and it shows all of the programs running on your computer at any one time. You can quickly open any program on the Task bar in Windows 7 by holding down the Windows key and tapping the number that corresponds to the position of the program on your Task bar. So, if Internet Explorer is the first program on the far left side of your Task bar, you can hold down the Windows key and tap the number 1, and Internet Explorer will instantly open. (This does not work in Windows XP.)

The System Tray is a small portion of the bottom right side of your screen. It includes buttons that let you see what programs are automatically running on your
computer when it starts. These buttons could include your antivirus program, a picture
telling you whether your connection to the Internet is working, and more.

Everything above these bars and trays along the bottom of your screen is
considered the desktop. The desktop of a computer isn’t really like a physical desktop. In
reality, the computer’s desktop is made up of rows and columns of small images called
icons. Each of these icons has a text label that lets the user know what the icon does.
Your desktop may include an icon labeled Microsoft Word.

Your computer’s keyboard lets you provide instructions to your computer that are
then carried out. Your keyboard includes a series of four keys that move the cursor—a
blinking pointer—around your desktop. The cursor allows you to select which program
or document you want to use. One way to navigate among the items on your desktop is to
use the arrow keys to move the cursor to a specific item, then tap Enter. You can also
begin typing the name of an icon, and the cursor will jump to that specific icon. If you
have an icon on your desktop called Calculator, you can simply type “calc,” or even “ca”
or “cal,” and the cursor will jump to the first icon that includes those letters in the order
you typed in its name. You can even tap the first letter of the name of the program or
document you want to open, and, eventually, the cursor will move to that document.

The Cursor and the Mouse Pointer

The cursor isn’t the only pointer designed to help you navigate among the icons
and other elements on your screen. Sighted users can also follow the mouse pointer. The
mouse pointer moves more freely about the screen than does the cursor, and it is used to
activate programs by tapping a button on a mouse rather than tapping keys on the
keyboard. This information about the cursor and mouse pointer will be important as you delve more deeply into the use of screen magnifiers and screen readers.

**Screen Magnification Software**

Screen magnification software is relatively self-explanatory. Its purpose is to enlarge the text, images, icons, and buttons on a computer screen to make them easier to see by someone who is visually impaired. It also allows you to adjust screen colors and contrast to enhance your ability to see what’s being displayed. Virtually all of the screen magnifiers on the market have the ability to magnify parts or all of a computer screen. You can magnify and freeze certain sections of the screen, and you can quickly and easily change the rate of magnification. Many of the screen magnification programs available also include the ability to read aloud the information on the screen while simultaneously enlarging it. This is a useful feature for those whose vision is gradually worsening, since it enables them to both see and hear the contents of the screen.

**The Quest for Screen Magnification**

The type of magnification software you decide to use will depend on your computer’s operating system. Most recent operating systems include some form of built-in screen magnification. Whether the built-in magnification will be of value to you depends on your visual capacity. Unfortunately, the magnifier included in Microsoft Windows XP generally isn’t very helpful to most visually impaired users. It might get you by in an emergency in which you absolutely need to enlarge the contents of your screen for a brief period of time and have no other way to do it, but for most visually impaired users, it just
doesn’t have enough flexibility and features to be a long-term viable solution. Nevertheless, if you’ve never tried the magnifier, and if you use a computer running Windows XP as the operating system, you can easily activate the magnifier by:

1. Holding down the Windows Logo key and tapping U.

2. The utility manager will open, displaying three options—magnifier, narrator, and onscreen keyboard. To start the magnifier, simply click on the Start Magnifier button or tap Tab until the Start Magnifier button is selected, then tap the Space key to activate the button. (We discuss narrator in greater detail later in this chapter.)

The magnifier in Windows XP isn’t capable of providing full-screen magnification. Rather, you get a kind of magnifying glass or lens feature that you can move around on the screen and use to magnify whatever is under the lens.

The built-in magnifier associated with the Microsoft Windows 7 operating system still may not have enough of what you need to clearly see the screen, but it is a giant leap forward over earlier versions. Windows 7’s magnifier allows you to magnify the entire screen. Like Windows XP, it includes the lens feature for looking at smaller areas on the screen, but the full-screen magnification is a vast improvement for visually impaired users. You can also change the color and contrast to some degree and alter the size of the mouse pointer, and you can operate the Windows 7 magnifier with the keyboard should you choose (YouTube—Windows 7 Magnifier 2010).
Inexpensive Program-Specific Solutions

Web Eyes

If you spend the bulk of your time visiting web pages, and if you simply want a tool that allows you to enlarge web pages, you might consider Web Eyes, a product of Ion Systems, Inc. (Ion Systems, Inc. 2007). The Web Eyes program magnifies information on web pages, but it only works with Internet Explorer, and there is no version of the program for the Apple Macintosh computer. That said, it’s relatively inexpensive at around $25, and the installation is simple. In addition to enlarging the text on the screen, Web Eyes can reformat the page into a book view that, according to the developers, makes web sites easier to see.

Full-Featured Screen Magnification Software

As you research and even try some of the inexpensive or free screen magnifiers available online, you can also try out demos of the more expensive full-featured magnifiers before you make an investment. It’s crucial that you try before you buy, since the prices for the leading magnifiers are significant enough that they represent a solid personal investment.

ZoomText

If you’re new to computers or to the world of screen magnification, you may want to consider ZoomText, a full-screen magnification program from AI Squared. It can magnify print up to 36 times, so you should have no problem finding a magnification setting that works for you. You can magnify certain areas of the screen while leaving
other areas unchanged, or you can split the screen or even magnify only one line at a time. ZoomText also offers a lens feature that lets you create a magnifying glass you can move anywhere on your screen to focus on a specific part of it.

A venerable piece of software, ZoomText has a large user base that includes schoolchildren and nonagenarians. If you run across a problem you can’t solve while using ZoomText, chances are that someone near you can lend a hand.

*ZoomText Features*

In addition to magnifying text, you can use a color wheel to select colors that improve contrast and enhance the clarity of the text on the screen. You can also invert colors or select monochrome (black and white). You can even create custom settings and colors if the default factory-set ones don’t work for you.

ZoomText offers enhancements that change the shape and size of the mouse pointer, making it easier to keep track of it. You can highlight material by using the crosshairs feature; with it, you can focus more precisely on text or images. In addition, ZoomText lets you alter the size and shape of your cursor. The program boasts a special focus tool that highlights active areas on your screen. If there are a series of onscreen buttons from which you must make a choice, this tool lets you zoom in to more easily figure them out.

But what about reading information in a document? ZoomText includes a reader that can magnify and highlight each word as it reads a document aloud from beginning to end. In addition to highlighting and reading text aloud, the document reader lets you reformat the material you’re reading. The program also includes an application reader that can read aloud information like button labels, edit box labels, and more. If you don’t
want to hear everything read aloud, but you do want to hear pieces of what’s on the screen, you can use the Speak-It tool. Simply move the tool over the section of the screen you want read aloud, and ZoomText automatically speaks it. Any customized settings you’ve created get saved, so you don’t have to redo them every time the program starts.

Getting a Trial Copy

Perhaps the easiest way to get a trial copy of ZoomText on CD is to call AI Squared at (802) 362-3612. You can also download a trial copy from the AI Squared website (AI Squared, Inc. 2009: www.aisquared.com).

Which Version of ZoomText Should You Use?

ZoomText offers a choice of magnification only or magnification and screen reading, which means you can hear the text on your screen spoken aloud as well as have it enlarged. If your vision loss could conceivably worsen over time, you might consider downloading the version that includes both the magnification and the screen reader. You can always turn the screen reader function off if you don’t initially need it or operate it intermittently until you get used to it.

ZoomText’s installation process is straightforward. Even if you’ve never installed software onto a computer before, you should have no problem with this one. You will need to restart the computer once the installation is complete. When you do, ZoomText will start automatically, and you can make the necessary adjustments that will enable you to more easily read your screen.
MAGic, a full-featured screen magnifier produced by Freedom Scientific, is another magnification program that has a large user base. Although it differs a great deal from ZoomText in the way you operate it, there are some similarities.

**MAGic Features**

Like ZoomText, MAGic lets you magnify information on your screen up to 36 times its original size. It offers choices in how you view the screen, allowing you to view magnified and nonmagnified sections simultaneously. There are several speech options that give you the ability to hear only a portion of the screen where you’ve rested the mouse or to read the entire contents of a document or screen. Again, like ZoomText, MAGic not only magnifies words as they are spoken, it highlights each word as it is read aloud.

MAGic offers a series of mouse and cursor enhancements that make keeping track of both easy. You can change the color of these enhancements, apply transparency effects, and more. Color enhancements let you alter the contrast between letters and the background color on your screen. You can apply color tinting, make your screen monochrome, and invert the brightness and colors of your display.

MAGic includes a locator feature that lets you quickly find and move to various areas of the screen. You can move across the screen in multiple directions, and you can regulate the speed of the panning activity and determine when to stop and start it.

Installation is straightforward. You may download a demonstration copy or the full program of MAGic from the Freedom Scientific web site: www.freedomscientific.com/magic (Freedom Scientific, Inc. 2010).
Choosing the Right Magnification Program for You

Although ZoomText and MAGic seem similar, they differ in their appearance and the appearance of the magnification they use. Take a long, hard look at the demo of each product to decide which one operates best for you. Additionally, you have to make sure that whatever magnification program you buy has the ability to change with you. Will it play nicely with a screen reader in the event that things reach a point where a screen reader makes more sense? Are the color and contrast settings such that you can truly fine tune them to meet your needs on days when your remaining vision is less acute than on other days?

Both ZoomText and MAGic include reasonably robust screen reading capabilities. However, if you ultimately need a more complete screen reader, ZoomText works well with GW Micro’s Window-Eyes, whereas MAGic best interfaces with the JAWS screen reader.

Screen Readers

A screen reader is a program that reads aloud the text displayed on a monitor. Screen readers are created in such a way that they have a minimal impact on other programs that may be currently running on a computer. If you have an e-mail message on the screen, your screen reader will read the message aloud to you, but it doesn’t automatically modify the message in any way. Of course, you can modify the message using your e-mail program, but the screen reader essentially has one job—to read aloud the information on your display. Most of the screen readers discussed in this book can inform
you regarding the color of the text on your screen, if that’s important to you. If you’re working with a document that needs careful attention to detail, you may want to know how much of the text is underlined, bolded, italicized, centered, or indented, and a screen reader can tell you that and more. If you’re reading just to enjoy the content, you may not even want to hear most of the punctuation spoken. You have complete control over how much information you get from your screen reader.

**JAWS**

JAWS, a screen reader from Freedom Scientific, commands a large market share of users. That large number of users means you’ll be able to easily get help should you decide to begin using this reader.

*Which Version of JAWS Do You Need?*

Earlier in this chapter, you learned a bit about the importance of your computer’s operating system where screen magnifiers are concerned. The operating system is important when you’re making decisions about screen readers too. JAWS works exclusively on computers running the Windows operating system; it can work on Apple Macintosh computers, but the Mac has to be running software that essentially makes it behave as if it were a computer running Windows. Computers with the Windows operating system can use either a 32-bit or 64-bit operating system. You may wonder why determining the operating system is necessary. If you have a 64-bit operating system, you must use a version of JAWS that will work exclusively with that system. Failure to match the correct version of JAWS with whichever operating system you have will result in a screen reader that simply won’t install or work.
So How Can You Tell which Version of JAWS You Need?

Essentially, if your computer uses Windows XP, you should download the 32-bit JAWS demo or purchase the 32-bit professional version. If your computer runs Windows 7 64 or Windows Vista 64, you’ll want the 64-bit professional demo version of JAWS. There also is a 32-bit version of Windows 7 and Vista that requires the 32-bit professional version of JAWS.

Trying JAWS before You Buy

Freedom Scientific offers a full version of JAWS that you can download from the Freedom Scientific web site and try at no cost. The catch is that the program will run for only 40 minutes, at which time you’ll have to restart your computer. Still, the ability to try the program is probably worth the hassle of restarting your machine every 40 minutes until you’re sure you want to purchase JAWS (Freedom Scientific, Inc. 2010).

Installing JAWS

Whether you download the JAWS installation file from the Internet or obtain the program on a CD, installation is simple and straightforward. You’ll be asked some basic questions, one of which is whether you want a typical or a custom installation. Even longtime JAWS users usually choose the typical installation; doing so makes the rest of the process far easier. Throughout the installation, you’ll hear a series of progress clicks that let you know your computer is still working. During the installation process, you may be required to restart your computer at least once. This is routine request, and there’s no need to panic. When requested to do so, tap Enter and the restart process will begin automatically. Assuming you don’t have to do anything special like type in a user name
or a password to start your computer, the restart should run without further input from you. You’ll be able to tell that the installation is continuing by the sound of the progress clicks. You may also hear spoken confirmation of the ongoing progress of the installation as JAWS announces the percentage of the installation that is complete. Note that if you’re installing a copy of JAWS you’ve purchased, you will have to go through an activation process as part of the installation. The CD includes a special 20-digit authorization code that will be used to activate JAWS. Insert the CD when told to do so by the installation program. It’s best if you have an operating connection to the Internet on your computer, as it will communicate with Freedom Scientific via the Internet to let the company know that you have installed the program and have declared yourself the legally authorized user. That’s important, since you are authorized to install the program only a certain number of times on a limited number of computers, and that authorization takes place when your computer is connected to the Internet.

**JAWS Features**

While there are literally thousands of features built into the latest version of JAWS, it makes sense to look at some of the most frequently used ones. The most successful screen reader users are those who understand that screen readers can be as complex or as simple as the user wants. As with any piece of software, the best way to use JAWS is to start small and learn a few of the most important features. For example, you can quickly change the rate at which JAWS speaks by holding down the Control and Alt keys and tapping the Page Up key to increase the rate of speech and Control+Alt+Page Down to decrease it.
You can read an entire web page from beginning to end in Internet Explorer by following these steps:

1. If you’re using Windows 7, tap the Windows key and type the words “Internet Explorer” (you don’t need to type the quotes), then press Enter. If you’re using Windows XP, tap the Windows key, then P. You should hear JAWS say “programs.”

2. Now tap the letter I; you should hear JAWS say “Internet Explorer.”

3. Press Enter; Internet Explorer should open.

4. Press Control+Home to go to the top of the document.

5. Tap Insert (Ins) Down-Arrow, and JAWS will read the entire contents of the web page to you. To stop the reading at any time, tap the Control key.

*Simulating Mouse Pointer Movements and Mouse Clicks*

JAWS gives you the ability to move the mouse in much the same way you move the cursor—from the keyboard. You may hear other users talk about the JAWS cursor. This is just another term for describing the mouse pointer. To tell JAWS you want to move the mouse pointer rather than the cursor, press the Minus (-) key on the number pad. When you tap the Minus key, you should hear JAWS say “JAWS cursor.” This indicates that the JAWS cursor—that is, the mouse pointer—is active. You can now move it around your screen by tapping the same arrow keys you use to move the cursor.
You can simulate a mouse click by pressing the Slash (/) key on the number pad. Tap it twice quickly to simulate a double mouse click. If you ever need to simulate a right mouse click, tap the Star/Asterisk (*) key (next to Slash) on the number pad. This is an important feature, since you may open a piece of software that won’t yield much information when you’re using only the cursor keys. For example, there may be a number of unlabeled buttons that JAWS will call “button” without giving you a hint as to what the buttons do. Sometimes, by hovering a mouse over such buttons, the labels pop up and become visible. That’s just one example of why the JAWS cursor or mouse pointer activation is an important feature. When you’re ready to revert back to the regular cursor keys, press the Plus (+) key below the Minus key. When you tap it, you should hear JAWS say “PC cursor.”

Reading the Title Bar and Status Bar

Although JAWS has much to offer in terms of features, one of the most important to new JAWS users is the ability to read the Title bar and the Status bar. You can always read the Title bar of any program by holding down the Insert key and tapping T. This is a crucial command to know, since you can always figure out where you are on your screen by asking JAWS to read the Title bar.

Reading the Status bar is also important since it lets you know what’s happening with a program. Let’s say that you’re in Internet Explorer. If you hold down the Insert key and tap the Page Down key, JAWS will tell you whether the web page you want has loaded. You might hear “loading page” or “done Internet 100 percent.” If you are creating a document, you’ll hear what page you’re on and how many words are in your
document. If your e-mail program is running, you may hear how many messages are in your IN box.

We’ve only begun to describe the features in JAWS. If you ultimately decide to use it, you should make use of the training materials that are part of it to familiarize yourself with all the JAWS has to offer.

**Window-Eyes**

Like JAWS, Window-Eyes is a powerful, feature-rich screen reader that installs easily and is relatively easy to learn. Unlike JAWS, there is no differentiation between the 32-bit and 64-bit versions of Window-Eyes. If you’re just getting started with screen readers, not having to worry about which version you need to install can be helpful.

*Trying Window-Eyes before You Buy*

Perhaps the easiest way to try Window-Eyes at no cost is to order a demo CD from GW Micro by calling (260) 489-3671. You also can download the file from the company’s web site: www.gwmicro.com. You’ll be able to use Window-Eyes for 30 minutes before it will require you to restart your computer. You may also try the program for 60 days without the 30-minute operating limit by purchasing a 60-day trial license. Another option is to purchase Window-Eyes on a monthly payment plan. As long as you keep your payments current, you will have a fully functioning copy of the program at your disposal with no time restrictions. Depending on the plan you buy, you will make payments for either 13 or 32 months. Visit the Payment Plan section of the GW Micro web site for additional information (GW Micro, Inc. 2010).
Installing Window-Eyes

When you insert the Window-Eyes CD, you will be asked to determine whether you want to install the program with or without speech. If you tap T, you will play a tutorial that will get you started with the screen reader, even though you haven’t installed it yet. If you go ahead with the installation by pressing Enter, you’ll be given a choice of doing a quick install or a custom install. Most first-time users will want to do a quick install. If you opt for that, you’ll still be asked for some basic information; Window-Eyes needs to know your full name and your company, if appropriate. You’ll have to read and accept the license agreement, and that’s all you need to do for the quick install to be completed. If you opt for a custom installation, you’ll have to answer many additional questions, including questions about which voice synthesizer you want as your default and whether you want to use a refreshable Braille display.

Once the installation is complete, you may be required to restart your computer.

Adjusting the Window-Eyes Voices

Window-Eyes doesn’t include a startup wizard, but it does provide you with the opportunity to personalize the program by setting the speech rate and voice pitch of the various voices. The screen reader offers three voices—a keyboard voice, a mouse voice, and a screen voice. Each voice can be turned on or off, and each can be separately adjusted for rate and pitch. To do this, follow these steps:

1. Hold down the Control key and tap Backslash (\) to bring up the Window-Eyes control panel. If you’re using Window-Eyes 7.5, you should tap the Up- and Down-
Arrow keys until you hear “screen closed.” Tap the Right-Arrow key to expand the screen tree view and press the Down-Arrow until you hear “voice.”

2. Now press Tab and you will hear “make the keyboard and mouse voices match the screen voices, checkbox unchecked.” If you tap the Space bar to check the box, you will adjust the rate of speed for all the voices in Window-Eyes simultaneously. If you prefer different rates of speech for your mouse voice and the keyboard voice, you’ll want this box unchecked. Press Tab again to enter a control that lets you adjust the rate of the voice. Beginners will want to set the rate so that the voice is slow and then increase the speed when they are more accustomed to the sound of synthetic speech. Use the Up- and Down-Arrow keys to set the rate to your satisfaction.

3. Then press Tab to enter the Pitch edit box. You can change the pitch of the voice with the arrow keys in the same way you did the rate. When it’s set properly, tap Tab again to set the tone of the voice. Use the arrow keys to set the voice tone. In Window-Eyes, the voice tone actually means you can change the voice from male to female and somewhat alter the sound of the voices. When you have it set to your liking, press Tab to the Save Settings button and activate it by tapping the Space bar. After you’ve saved the settings, you can press Tab to return to the tree view, then the Down-Arrow key to the keyboard and mouse items. If you want to change anything regarding the keyboard and mouse voices, tap the Right-Arrow key to expand those settings and the Down-Arrow key to voice, and press Tab repeatedly to get to the section you want to adjust.
Window-Eyes Features

Perhaps the most important feature of Window-Eyes is found in the most recent version of the program. This version includes scripting language commonly used by program writers, which means that programmers can create special environments that enhance the accessibility of Window-Eyes without really knowing much about screen readers, and all users can benefit. These scripts, or apps, are included in the initial installation of Window-Eyes 7.5, and you can download additional ones at no cost.

As is the case with JAWS, Window-Eyes allows you to modify the speed at which the various voices speak without going through the menus. Hold down your Control and Alt keys while tapping the Up-Arrow key to increase the rate of speech or the Down-Arrow key to decrease it. If you’re a beginner wishing to change the rate of speech in Window-Eyes, the most reliable approach is to use the menu described above.

The Control+Alt+Down-Arrow or Up-Arrow combination may not work on some computers because of a conflict with another piece of software called a graphic driver. To read the entire contents of a web page, follow these steps:

1. With Window-Eyes running, hold down the Windows key and tap R.

2. In the dialogue box that appears, type www.guidingeyes.org and press Enter.

3. Hold down the Control key and tap the Home key to move to the top of the web page.
4. Now press Control+Shift+R to read the page from beginning to end. You can stop the reading at any time by tapping the Control or Escape key.

A nice feature for beginning users of the program is its flexibility in terms of menu presentations. Window-Eyes installs with a beginner menu selection as its default. Granted, you have limited choices, but they are the choices that make the most sense if you’re just starting out with the program. As you gain experience using the menu, you can change it to reflect an intermediate or advanced level.

There is no product activation procedure for Window-Eyes for residents of the United States, Canada, Great Britain, Australia, and New Zealand. This makes the software inherently easy to install.

*Simulating Mouse Pointer Movements and Mouse Clicks*

Window-Eyes uses the keys on the number pad to move the mouse pointer. So the arrow keys to the left of the number pad are reserved for the cursor, and the numbers 8, 2, 4, and 6 on the number pad on the right side of the keyboard move the mouse pointer around the screen. For those keys to work as mouse pointer movement keys, you must turn off the Num Lock key. You can simulate a left mouse button click by tapping the Slash key on the number pad. Tap it twice quickly to simulate a double click. If you ever need to simulate a right mouse click, tap the Star key on the number pad. Since the number pad keys are reserved exclusively for mouse movements and clicks in Window-Eyes, you don’t have to press any key to activate the mouse keys.
Reading the Title Bar and Status Line

Your ability to check the Title bar and Status bar of whatever program you have open is vital. With Window-Eyes, you can read the title of any program by pressing Control+Shift+T. A significant difference between Window-Eyes and JAWS is that Window-Eyes not only reads the title of whatever is selected, it also will tell you whether the window is maximized, normal, or minimized. Generally, screen readers work best if the window that is selected is maximized. Maximizing a window means you are enlarging its size on your screen so that it nearly fills the entire screen. You can maximize a main window in a program by pressing Alt+Space, then X. To read the Status bar in Window-Eyes, use Control+Insert+S.

System Access

Although Serotek Corporation’s System Access arrived on the screen reader scene more recently than JAWS or Window-Eyes, it has already garnered a significant following. Part of the reason for this has to do with its price and its structure—a structure that differs somewhat from the other screen readers already mentioned.

Trying System Access before You Buy

One of the significant differences between System Access and the other screen readers is there’s no CD to purchase or file to download. You can try the program at no cost if you have an Internet connection. This connection must remain operating during the time you use the free version of System Access. If you lose your connection, you’ll lose the screen reader. No fear, however, it’s easily restarted.
To try System Access at no charge, visit www.satogo.com (Serotek Corporation 2009).

To get started with System Access, follow these steps:

1. Hold down the Windows key and tap R.

2. Type www.satogo.com and tap Enter.

3. Tap Enter again when instructed to do so.

4. As you follow the spoken instructions, you’ll be given an opportunity to create a new account. Do this by tapping Tab until you hear “create new account.”

5. Complete all the information requested, including your e-mail address and phone number. You’ll get an e-mail message asking you to activate your account by clicking the link included in the message. You have three days to activate your account, and activation is free.

As long as you remain connected to the Internet once your account is activated, you can operate System Access with a variety of programs, including Microsoft Word, Excel, and Outlook. Unlike the other demo screen readers, System Access has no time limit, and it’s a fully functioning version of the program. Most of the keystrokes used to operate System Access are similar to those used by JAWS, so if you started with JAWS and made the switch to System Access, there’ll be almost no learning curve.
Paying for a Stand-Alone Copy of System Access

If you want to use System Access at times when you aren’t connected to the Internet, you can purchase a stand-alone copy either by calling (866) 202-0520 or by visiting the Serotek web site: www.serotek.com. You can use the stand-alone version of System Access on up to two computers.

System Access Mobile

What if you tend to use different computers at different times? Perhaps you prefer to use a computer at your local public library, or maybe you’re spending time at the home of a family member or friend who doesn’t normally use a screen reader but has a computer you could use. If so, System Access is also available in a mobile version. That means you can load it on to a thumb drive and then plug that drive into any computer you use and have all your voices and settings at your disposal. When you unplug the drive, System Access is removed from the hosting computer.

Serotek also offers a rent-to-own version of its software for which you agree to a two-year payment plan. At the end of that time, you own the stand-alone copy of System Access. For a slightly higher fee, you can purchase additional voices and you can become a member of the System Access Mobile Network. The mobile network offers a variety of features, including the ability to listen to movies that include audio description, highly accessible games, a chat corner where you can engage in voice chats with other mobile network members, the ability to customize how you get local news, and much more.
**Installing System Access**

Whether you use the free version of System Access or purchase a copy, the installation is almost completely automated. The software makes use of your Internet connection to complete the installation; just follow the cues, and you’ll hear some repetitive music tones that indicate that the installation is progressing.

**Adjusting the System Access Voices**

You can make a variety of adjustments to System Access once it’s up and running on your computer. Hold down the Insert key and tap the letter F. This will bring up the System Access menu. If you tap the Down-Arrow key once, you’ll hear the word “preferences.” Press Enter to select the Preferences menu item.

The first menu under Preferences is General Preferences. Activate it by pressing Enter, and use the check boxes to determine whether you want to hear every character you’ve typed spoken or every word. You can also decide whether System Access will say the word “link” when it encounters a link on a web page or whether it simply sounds a tone as it reads the link aloud. You can decide whether you hear special tutorial type messages in a different voice from the voice you hear when using the program generally. You can also decide whether you want to display an extremely simplified version of System Access, and more. When you click on the OK button and tap Enter to activate it, the Preferences menu disappears and you need to press Insert+F again, then Down-Arrow to Preferences to select it again by tapping Enter.

You can change the rate at which the voice speaks by tapping the Down-Arrow key until you hear “text-to-speech preferences.” Use the Enter key to activate that menu item. Now you can repeatedly tap Tab until you hear “faster.” Clicking on this button by
tapping the Space bar repeatedly will increase the rate of speech. You can navigate to the “slower” button by pressing Tab once, then tapping the Space bar repeatedly to slow the rate of speech. When you’re comfortable with the setting, navigate to the OK button by pressing Tab, then use Enter to activate it.

System Access includes a limited screen magnifier, and you can turn it on or off from the Preferences menu. You can also determine whether you want to invert the colors on your screen to make text easier to see. You should know that while the magnifier isn’t bad, it lacks the more in-depth choices of ZoomText or MAGic.

System Access Features

As with the other screen readers mentioned here, System Access has scores of features, most of which you can discover by reading the Help files and tutorials in the Preferences menu. You should know, however, that System Access’s training materials are not as detailed as those for JAWS or Window-Eyes. Still, many of its features are quite similar. You can read the current line of text by pressing Insert+Up-Arrow, just as you can with JAWS. You can read a document or web page by moving to the top of the page by pressing Control+Home, then tapping Insert+Down-Arrow to hear the page or document in its entirety.

System Access also gives you the opportunity to remotely control another computer. This may not be a valuable tool if you’re just getting acquainted with assistive technology, but it may be helpful to you if you want to control another computer to transfer files. So if you want to use the office computer from your home machine, you can do that with System Access. Granted, there are scores of off-the-shelf programs that remotely control another computer, but they won’t work with screen readers.
Simulating Mouse Pointer Movements and Mouse Clicks

To move the mouse when using System Access, you must turn on the virtual mouse. Do this by holding down the Insert key and tapping the letter M. When you do, you should hear the screen reader say “virtual mouse on.”

To move the pointer around the screen, hold down the Alt+Left-Arrow and Alt+Right-Arrow keys. Use the Tab key to move to the next clickable section of the screen. You can issue a left click by pressing Enter or the Space bar and a right click by pressing Shift+Enter or Shift+Space. You can also move the physical mouse while holding down the Insert key, and System Access will provide you with tones that can give you clues as to where you are in the window in which the mouse pointer is moving.

Reading the Title Bar and Status Bar

To read the Title bar and Status bar in System Access, you follow the same procedures as you would using JAWS. To hear the Title bar, use Insert+T. Like Window-Eyes, System Access will tell you whether a window is maximized when you read the Title bar. To read the Status bar of a program, use Insert+Page Down.

NVDA

The NVDA (Non-Visual Desktop Access) screen reader works on computers running the Windows operating system. It is free, and it was developed by screen reader users. In fact, it gets updated periodically by several contributors. Its development is referred to as open source, which means that rights to it aren’t owned by any specific company or organization. This means there are no demo versions or payment plans; you simply download the screen reader from the Internet, and you are licensed to use it. You
can install it onto as many computers as you like. NVDA has some limitations, but the program works impressively well with a variety of operating systems, including Windows XP and Windows 7 64-bit. You don’t have to worry about which screen reader to download. One screen reader deals with nearly all the versions of Windows widely in use.

*Installing NVDA*

Since the program was developed and is maintained by a variety of programmers, there’s no place to go to get a CD or call to place an order. You have to visit the NVDA download site: www.nvda-project.org.

You have two choices when downloading. The first includes a talking installer that places the files on your computer’s hard drive for you. You’ll have to answer some basic questions, but the install is very similar to installations of other screen readers. The second choice allows you to place the files on a thumb drive so that you can use NVDA on any computer and have access to a screen reader wherever you are. This process is slightly more involved than using the talking installer, so if you’re relatively new to the world of screen readers, you may want to download the first version that includes the installer. Since there is no 30-day or 60-day time limit on the use of NVDA, you can always go back and download the second version for portable use when you’re ready (NVDA, Inc. 2010).

If you use the talking installer, when you tap Enter to open the file you’ve downloaded, you should hear music. That music indicates that the installation is beginning. Thereafter, the synthetic voice will guide you through the rest of the installation. The voice has a British accent, and the voice quality is somewhat poor and
may be difficult to understand if you deal with hearing loss in addition to vision loss. But
the program installs reasonably quickly, and you may not even have to restart your
computer when it finishes. As soon as you tap Enter to activate the Finish button, NVDA
will begin running on your computer. You’ll hear a series of tones that indicate the
software is loading itself into your computer’s memory, and you’ll be greeted with a
Welcome menu the first time you run it. The Welcome menu will want to know if you
wish to use the Caps Lock key as a modifier key. You would use a modifier key in
conjunction with another key to give NVDA specific instructions. For example, if you
want to bring up the NVDA menu, you would use a modifier key plus the letter N. By
default, the modifier key is the Insert key. The Welcome menu gives you the chance to
add the Caps Lock key as a modifier as well so that you could press Caps Lock+N to
bring up the menu. You’ll also be asked to check or uncheck a box if you no longer want
to hear the welcome screen each time NVDA is opened.

*Adjusting the NVDA Voice*

Chances are that you have an operating system that has some built-in voices as
part of it. You don’t have to use the voices that come with NVDA; you can choose the
ones that are built into your operating system, but none of them are as easy to understand
as some of the voices in the screen readers you pay for. Either way, adjusting the rate at
which a voice speaks in NVDA is relatively easy.

1. Open the NVDA menu by pressing Insert+N.

2. Tap the Down-Arrow key until you hear “preferences,” then use the Enter
or Right-Arrow key to activate that menu item.
3. If you decide to use a voice other than the NVDA default, you can tap the Down-Arrow until you hear “synthesizer,” then tap Enter.

4. You’ll likely have at least four choices from which to pick. The default British voice is E-Speak. As you use the Up- and Down-Arrow keys, you’ll hear the other possibilities on your computer, such as SAPI 4 or SAPI 5. These are the speech synthesizers created by Microsoft that are available on most newer computers. Once you’ve chosen a synthesizer, press Tab until you’ve selected the OK button, and tap Enter to activate it.

5. Reopen the NVDA menu using Insert+N and press the Down-Arrow key until you hear “voice settings,” then tap Enter.

6. If you choose to use one of the E-Speak voices, you have several British voices from which to choose. If you selected Microsoft SAPI 5 in the synthesizer menu, you’ll likely only have one voice from which to choose—Microsoft Anna. Use the Up- and Down-Arrow keys to make your selection of voices, then press Tab to go to the Rate setting.

7. In this setting, NVDA announces “rate, slider” followed by the speed of the voice expressed as a percentage. Use the Up- and Down-Arrow keys to speed up or slow down the rate until you’re comfortable. Be aware that the rate setting slider is somewhat counterintuitive. You speed it up by tapping the Down-Arrow key repeatedly; you slow it down by pressing the Up-Arrow key repeatedly. When you’re done, you can press Tab to set the voice pitch and again to set the volume. Tap Tab again to see a check box that lets you determine how much punctuation NVDA will speak.
8. You can continue to use the Tab key to determine how NVDA handles uppercase letters. You could check a box that increases the pitch of the voice when you move the cursor over an uppercase letter. Alternatively, press Tab again to find a check box that lets you determine whether the voice should say the word “cap” when it encounters an uppercase letter. Tab again to hear a check box that lets you determine whether NVDA will beep whenever the cursor finds a capitalized letter.

9. You can adjust the rate of speech quickly at any time by pressing Control+Insert+Up- or Down-Arrow. If you use Control+Insert+Left-Arrow or Control+Insert+Right-Arrow, you can select a different setting. For example, using that key combination once will let you select from the voices available to you; applying it again will let you set the rate of speech or the pitch of the voice.

10. Finally, open the NVDA menu again using Insert+N and Down-Arrow to hear “keyboard settings,” and tap Enter to activate it. Here you can choose between the desktop and laptop keyboard layouts. You can also determine whether NVDA will announce each character as you type it or only each word when you have completed the word and tapped the Space bar. When you’re done, press Tab to select the OK button and activate your settings by tapping Enter.

There’s just one more initial setting of importance. You should read the user documentation that gets installed with NVDA to more fully understand each setting, but in the General Settings under the Preferences menu, you can check a box that tells NVDA to save your configuration changes when you exit your system.

To do this:
1. Open the NVDA menu using Insert+N.

2. Down-Arrow to Preferences and tap Enter to activate that item.

3. The first new menu item you encounter is General Settings. Press Enter to activate it.

4. Now use the Tab key to hear the options you can set. The one you need is Save Configuration on Exit. If this box is unchecked, tap the Space bar to check it.

5. Now Tab to the OK button and activate your change by tapping Enter. There are other boxes you can check in the General Settings menu that determine whether NVDA will start automatically when you start your computer and whether the screen reader should warn you before it exits or closes.

**NVDA Features**

One important feature for someone who is just beginning to use NVDA is its keyboard Help function. If you press Insert+1, you’ll turn on the Help feature, which then allows you to press any key you want and hear its name and function without actually changing the program’s behavior. Press Insert+1 again to turn off keyboard Help. This same keystroke will activate the keyboard Help feature in Window-Eyes as well.

As with the other screen readers discussed above, NVDA allows you to read an entire document or web page. In fact, it uses the same keystrokes to do this as JAWS and System Access. If you have a web page open, you can press Control+Home to go to the
top of a page, then tap Insert+Down-Arrow to hear the entire content read to you. If you only wish to read the current line, tap Insert+Up-Arrow.

*Simulating Mouse Pointer Movements and Mouse Clicks*

Instead of using a series of keys to move the mouse around the screen, NVDA relies on the user moving the physical mouse. You can tell the program to emit a series of tones that let you know where the pointer is on the screen to a great degree. If the pointer is in the upper left section of the screen, a high-pitched tone will come from the left speaker. As you move the mouse down the screen, the tone lowers in pitch, and as you move right, the tone moves to the right speaker. Mouse clicks are executed using the number pad Slash key for a left click and the number pad multiplication symbol (*) for the right click.

*A Look at VoiceOver for the Mac*

Until recently, most blind and visually impaired computer users gravitated toward the Windows operating system as their preferred choice. But Apple is changing that with the introduction of VoiceOver, its built-in screen reader for the Macintosh line of computers and for the iPhone and iPad. If you buy a Macintosh computer running the latest version of its operating system, you will automatically have access to the built-in VoiceOver screen reader. You don’t have to run a CD, download a program from the Internet, or worry about demo copies or payment plans. Because VoiceOver is part of the operating system, many of the programs you will use, such as Mac Mail to read your e-mail, already work with it.
Starting VoiceOver

To start VoiceOver, press Command+F5. You’ll hear a welcome message, and you’ll be given the opportunity to use a brief tutorial that will acquaint you with the basics of VoiceOver and how it works in conjunction with other applications. You issue commands to VoiceOver by holding down the Control and Option keys while pressing another key. If you want to restart the tutorial whenever VoiceOver first opens, you can do that by using Control+Option+F8. The Control and Option key combination is referred to by Apple as the VO command. So if you’re new to Macs and to VoiceOver, and if you want to see the Help menu, type the VO command plus H. Now you can navigate the menus and submenus within the Help system by using the Up- or Down-Arrow keys.

VoiceOver Features

VoiceOver includes the ability to read documents and web pages in sections or as a whole. To read an entire document:

1. Place the cursor at the top of the document.

2. Hold down the Control and Option keys and press A, then release the other keys. VoiceOver will begin reading the document. You can stop the speech by tapping Control.
Simulating Mouse Pointer Movements and Mouse Clicks

You can move the mouse pointer to the same place your cursor is located by pressing Control+Option+Command+F5. To simulate a mouse click, use Control+Option+Shift+Space bar once for a single click and twice for a double click.

Magnifying the Macintosh Screen—A Brief Look at Zoom

Zoom is a built-in magnification program that is part of the Mac operating system. It can magnify the screen up to 40 times, and it’s a full-screen magnifier as opposed to merely a lens. It can magnify text, images, and even motion video. You have three options for moving the magnified image as you type or as you move the mouse pointer: it can move continuously as you move the mouse pointer; it can move only when the pointer reaches the edge of the screen; or it can move so that the pointer remains in the middle of the screen. According to Apple, this feature was designed for those who have a narrow field of vision.

You can also set minimum and maximum magnification amounts for instant zooming and to prevent the magnification from accidentally ballooning beyond what you can read. You can magnify the cursor and mouse pointers separately, and you can create high-contrast settings or reversed color and monochrome settings that are preserved regardless of the application you’re using.
A Brief Look at Braille Displays

Since every screen reader referenced in this chapter is capable of supporting a Braille display, it makes sense to take a look at Braille displays in general and learn what they are, how they work, and why you need a screen reader to operate them.

Understanding Braille Displays

Monitors used by sighted persons enable them to see the information they’re writing or reading. A Braille display, sometimes referred to as a paperless Braille display, allows a Braille reader to read information in Braille that is displayed on the monitor. Unlike a monitor, Braille displays can produce only one line of text at a time. The Braille is produced by the movement of tiny pins that pop up in the shape of the letters and symbols being read. Braille displays are known as refreshable Braille displays because the same set of pins can be instantaneously rearranged to show new information as it changes on the monitor. Braille displays range in size from as few as five or six cells to as many as 84 cells. The smaller displays are commonly used in association with mobile devices such as wireless phones or portable note-taking devices (Even Grounds Accessibility, Inc. 2010).

So Why a Screen Reader with a Braille Display?

Screen readers rearrange material so that it is easier to understand or visualize. The screen reader can do much the same thing for a Braille display. It can translate the information coming into the computer into contracted Braille. With a screen reader running in conjunction with a Braille display, you can turn the speech from the screen reader off and still get nicely formatted Braille—a helpful thing if you’re trying to
assimilate information in a noisy environment. Without a program like JAWS or Window-Eyes running, the Braille display wouldn’t be able to present information to you in a manner that makes sense or is easily readable.

**Enlarging Information, Voicing It, and Displaying It in Braille—What’s Next?**

Now that we’ve explored all the ways you can get information out of your computer, it’s time to take a look at some of the ways you can get information into it. The next chapter looks at low-tech and high-tech ways you can modify your keyboard and mouse to more easily get information into your computer. We also look at ways to go hands free and get your computer to do all kinds of things simply by talking to it.

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Chapter Three

FROM YOU TO YOUR COMPUTER: HOW TO GET INFORMATION INTO YOUR PC

Computers are tools, and every computer works on three elements—input, processing, and output—each of which you likely encounter on a daily basis without even thinking about it. In the last chapter, we looked at output, in terms of screen magnifiers and readers. In this chapter, we deal with various ways of getting information from your brain into a computer. In addition to the traditional keyboard, we explore adaptive keyboards and ways of making your current keyboard easier to see. We help you learn how to more easily use a mouse if you have some vision, and we briefly review information from the last chapter that deals with screen readers and simulated mouse movements and commands. Finally, we look at ways of talking to your computer and having the information you speak become an e-mail or a document.

Making Keyboards Easier to See

If you have some usable vision, chances are you want to see the letters and numbers on your keyboard more clearly. There are a couple of ways you can do this. You can
purchase a new keyboard that includes high-contrast large letters or you can create your own easier-to-see keyboard with high-contrast large-letter stickers.

**The U-Can-See Keyboard**

The U-Can-See series of keyboards includes a variety of models, even one that is wireless that communicates with your computer via radio waves. Other models include a black keyboard with large yellow letters or an ivory keyboard with large black letters. In addition to the standard keys, most U-Can-See keyboards include buttons that activate your e-mail program and your Internet web browser or regulate the audio and video controls of your computer. These units are 19 inches long and six inches wide. They cost approximately $45, and you can learn more about them by visiting www.independentliving.com/prodinfo.asp?number=870150.

**Big Keys Keyboards**

If you need not only large print on your keys but large keys as well, you might consider Big Keys keyboards—each key is one inch square. Because of the size of the keys, the keyboard doesn’t include a number pad—something that could pose problems for you, especially if you use Window-Eyes as a screen reader, since this software program relies heavily on the number pad to simulate mouse movements and clicks. JAWS users could also have some difficulty simulating mouse clicks. However, both screen readers can be modified so that they use a laptop keyboard layout rather than a standard desktop one. If you purchase a large keyboard without a number pad, instructing your screen reader that you want it to use the laptop layout makes sense. For additional
information about Big Keys keyboards, contact Greystone Digital, Inc., P.O. Box 1888, Huntersville, NC 28078; call (800) 249-5397; or e-mail: sales@bigkeys.com.

**Vision Board Keyboard**

The Vision Board keyboard also has large keys—about ¾ of an inch square. The keys are spaced farther apart than you’ll find on a traditional keyboard, and the letters are all large print and high contrast. This keyboard uses an older style of connector to interface with your computer; check to ensure that your computer includes something called a PS2 connector or that you can purchase a special USB-to-PS2 converter (LS&S, LLC. 2010).

**The ZoomText Keyboard**

In the previous chapter we discussed the ZoomText screen magnifier. AI Squared, the manufacturer of ZoomText, also produces the ZoomText keyboard. Keys include 36-point letters, and the keyboard comes in either high-contrast black on yellow or white on black. In addition to the standard keys, the ZoomText keyboard includes 18 keys dedicated specifically to the use of ZoomText version 9.04 or later. Using these 18 additional buttons, you can start ZoomText, change magnification levels, toggle various screen enhancements, and more (AI Squared, Inc. 2009).

**Low-Tech Keyboard Enhancements**

Purchasing keyboards with large keys or enlarged high-contrast letters means you’ll have a durable solution to keyboard use that should last for years. However, it’s also possible to spend less and, depending on your amount of vision loss, be able to use low-tech solutions that will create an easy-to-see-the-keys environment.
Many assistive technology and blindness products stores sell stickers that can be placed over keys on your existing keyboard. These stickers enhance the contrast of the letters and even enlarge them in some cases. You can also purchase stickers that offer tactile cues as well as visual ones. High-contrast stickers come in black on white and yellow on black, and they may include a pack of two identical sets of stickers for multiple keyboards or replacement of worn stickers.

**Using the Mouse to Get Information into the Computer**

If you are considering changing the shape and size of the mouse pointer, something you can do easily, you should first check that such changes won’t have a negative impact on the screen magnifier or screen reader you’re using. Remember also that if you’re using a screen magnifier like ZoomText or MAGic, you may already have the ability to alter the shape and size of the mouse pointer more easily than you can using the built-in features offered by the Windows operating system.

**Changing the Size and Shape of the Mouse Pointer Using Windows XP**

If your computer is using Windows XP, do the following to make changes to the size and shape of the mouse pointer:

1. Click on the Start button or tap the Windows key to open the Start menu.

2. Depending on how your computer is configured, you may have to locate the Settings menu and click on it to open it. When you do, you will see the Control Panel option. Click on that to activate it. Keyboard users, you can tap S until your screen reader
says “settings submenu” or until the word “Settings” is highlighted. Then tap either Enter or the Right-Arrow key to open the menu. The first item you see is labeled Control Panel. Tap Enter here to open the control panel.

3. Locate the Mouse menu item and click on it to open it. Keyboard users will have to tap the Down-Arrow key repeatedly until the Mouse item is selected, then tap Enter to activate it.

4. The Mouse Property Dialogue box is now open. You have several options here. If you wish to change the way your mouse’s buttons are configured, repeatedly press Control+Tab until the Mouse tab is selected. You can then press Tab to hear the options within this group if you’re using a screen reader. If you’re able to use the mouse without a screen reader, you need only click on the Mouse tab once to access the various configurations for your buttons. For example, if you’re left-handed, you may want to alter which mouse button is the primary one. Normally, the left side is the primary one; with it, you can single click to highlight something and double click that item to actually activate or open it. The right side of the mouse normally opens a separate menu known as the Context, or Applications, menu, which gives you additional choices as to what to do with a specific program or area of your screen. Tap the Space bar to check the box that allows you to switch the left and right functions of your mouse so that the right one is now the primary button. Other options allow you to change the sensitivity of the mouse so that it responds more quickly. Additionally, you can change a setting that determines how long you need hold down the mouse for the computer to recognize that you’ve clicked it.
If you tap Control+Tab again or click the Pointers tab, you’ll be able to choose from a variety of pointers and dictate their behavior. The first thing you get to do is pick a scheme. A scheme helps you select a pointer and dictate its size. There are 20 schemes in Windows XP, including one that makes your pointer look like a dinosaur. Windows 7 has 13 schemes. Both Windows 7 and XP include such schemes as Magnified, Windows Black Extra Large, Black Large, Windows Inverted, Inverted Large, and Inverted Extra Large, which are favorites among low-vision users. “Inverted” in this context means that the mouse pointer changes color depending on the background color. So if the background is black, the pointer will be white. If the background is white, the pointer changes to black (Salmon 2005). You can tap the Down- and Up-Arrow keys to select one of the schemes, and you can instantly see the results by clicking Apply or tapping Tab repeatedly until you get to the Apply button, then tapping Enter. Once you’ve selected a scheme that you can easily see, you can activate the Customize Pointers List Box. This option allows you to change the appearance of the pointer that displays while your computer is busy doing other tasks. The default shape is an hourglass. You can use the Arrow keys to select from a variety of shapes, including crosshairs, hourglasses, and more. Once you’ve made your selection, you can always navigate to the Apply button and activate it to see how your selection works.

If you determine that the selections you made aren’t right for you after all, you can always navigate to the Select Default button and activate it. Doing this will restore the pointer shapes to their default appearance. Note that if you changed several pointer shapes, you may have to select each one, and then press the Select Default button to return each one to its original shape. If you like the pointer sizes and shapes you chose,
you can always save them as a scheme. Navigate to the Save-As button and activate it. Personalize your scheme by giving it a name.

**Changing the Speed and Precision of Your Mouse Pointer**

Once you've selected your scheme, you may want to tap Control+Tab or click the Pointer Options tab to navigate to the Pointer Options section of the menu.

The first menu item on the Pointer Options page is labeled Motion. The Motion category allows you to change the speed and precision of your mouse pointer. The first option in this menu group allows you to set the speed of your pointer. Most low-vision users are OK with the standard speed, but you can increase or decrease the speed by using the Up-Arrow or Down-Arrow key. Since this is a track bar, you also may increase the pointer’s speed by clicking on the bar and moving it to the right or up, or decrease its speed by clicking and moving the bar to the left or down.

Next, you’ll find the Enhanced Pointer Precision checkbox. Check this box to force your operating system to more accurately place the pointer on an item you want to select. If you tap Tab, you’ll next move to the Snap To option. This feature, if activated, automatically places the pointer on the default button of a dialogue box. So if one of your options is an OK button, the pointer would be automatically placed there if this feature is turned on.

Tap Tab to move on to the Visibility options. These may be particularly helpful to a low-vision user. The first checkbox allows for the automatic creation of trails that follow the pointer’s movements. Tiny dots appear around the pointer and track its movement. Some visually impaired users find this helpful in tracking the pointer; others are distracted by it. The next option in this section is the Hide Pointer While Typing
option. If this box is checked, the pointer will be hidden while you’re typing in an e-mail or Word document, for example. The final option in this section lets you tap the Control key to show the position of the pointer. If this is checked, tapping the Control key at any time will place a large red circle around your pointer. As before, you click the Apply button to implement the changes you’ve made to the pointer settings.

**Changing the Behavior of the Mouse Wheel**

The first category of options under the Wheel menu determines how much the wheel scrolls as you roll it. These options are presented as radio buttons, so you must choose one or the other. The first choice is “The Following Number of Lines.” If you select this one, you now have access to an Edit box that lets you type in the number of lines the wheel will scroll as you move it from notch to notch. The default is three lines at a time, but you can select the option to move one screen at a time by choosing that particular radio button.

The final group of options available is called Hardware, and, unless you’re using multiple mice on your computer simultaneously, it really is best that you accept the defaults in this section. When you’re done, click OK or tap Tab until the OK button is selected, then press Enter to activate it.

**Changing the Mouse in Windows 7**

The descriptions above for changing mouse options in Windows XP also will work for Windows 7 users. The easiest way to get to the mouse options in Windows 7 is to:

1. Tap the Windows key to view the Search Edit box.
2. Type the word “mouse” in the Edit box. The first result that appears is the one that will open all the mouse customization options described above.

Can You Use the Mouse without Being Able to See the Pointer?

If you use a screen reader, you’ll be able to interact with the mouse pointer a great deal even though you can’t see it. All of the screen readers mentioned in the previous chapter allow you to move the pointer around the screen, determine where the pointer is, and click either of the two mouse buttons by pressing keys. This is important in the event that you try out a program that doesn’t seem to work using the conventional keys, such as Up-Arrow, Down-Arrow, or Tab.

If you’re using JAWS, you can activate the mouse pointer by tapping the Minus key on the number pad. JAWS will announce “JAWS cursor.” Now when you tap any of the arrow keys, you’ll move the mouse pointer around the screen rather than the regular cursor. To deactivate the mouse pointer, press the Plus key on the number pad and wait for JAWS to say “PC cursor.”

Window-Eyes users can move the mouse pointer by using the 2, 8, 4, or 6 keys on the number pad. You can move the pointer by units known to Window-Eyes as “clips” by holding down the 0 key while tapping 4 or 6 on the number pad. The mouse keys are always on in Window-Eyes. Both JAWS and Window-Eyes allow you to make a left mouse click by tapping the Slash key on the number pad. You can issue a right mouse click by tapping the multiplication/asterisk symbol (*) on the number pad.
Can We Talk? Getting Information into Your Computer with a Microphone

For decades, one of the most common elements of science fiction included the ability to talk to a computer and get either visual or verbal results. Until recently, however, accurate speech recognition by a computer remained far from a reality. Granted, software manufacturers have been working with speech recognition since the late 1980s, but for a long time, whenever someone spoke into a microphone to a computer about “how to recognize speech,” all too often, the words on the screen would read “how to wreck a nice beach.”

Today, increased computing power and better software are allowing computers to recognize far more speech and wreck far fewer nice beaches. In fact, speech recognition is becoming so commonplace that it is now part of the Windows 7 operating system. Nuance Communications, Inc. has developed Dragon Naturally Speaking, a speech recognition product that is well known and widely used in a variety of places—from newer automobiles to your doctor’s office.

A Look at Dragon
Dragon Naturally Speaking can be purchased in several versions. The Standard version is relatively inexpensive and is widely available from office supply stores, computer stores, and even some discount stores. Dragon Professional is considerably more expensive, and it is often found in businesses and on college campuses. The Professional version includes the ability to create macros, programs which automate routine tasks. Additionally, Dragon Professional allows you to connect a small digital recorder to your computer and have any information on the recorder transcribed into your document or e-mail message. It’s important to note that Dragon won’t run well on a computer made before 2007, as it requires a reasonably powerful processor to accurately recognize speech.

How Dragon Works

Dragon’s installation process is pretty straightforward. Included with the DVD for the Preferred version is a headset microphone. You’ll want to plug that into your computer’s microphone and headphone jacks prior to installing Dragon. Once the software is on your computer, you’ll be required to read some text aloud. This process enables Dragon to learn the sound of your voice and how you pronounce a variety of words. During the training portion of the installation, you can choose from a variety of things to read, from Dave Berry to a Charlie and the Chocolate Factory excerpt.

Additionally, Dragon examines the files already on your computer in an attempt to better understand your writing style. Do you capitalize prepositions in headings or keep them lowercase? Do you use serial commas? Dragon will notice such things, and insert those style elements for you as you type. During the installation process, you can choose the type of accent you have. Most people do well with the general accent, but
Dragon makes provisions for regional dialects in the United States and even for nonnative English speakers.

*Training Dragon If You Can’t See the Screen*

It is possible to train Dragon even if you can’t see the text you’re supposed to read aloud. The best way to do this is to use the headphone microphone and make heavy use of the mouse keys in your screen reader. As the text appears on your screen, use the JAWS cursor to read and repeat the text. You can use the Window-Eyes mouse keys to access the text and repeat it as it is read aloud to you. Of course, if you have a Braille display attached to your computer, you could use that as well to read the text. Sighted users will be able to tell whether Dragon is appropriately recognizing their words because the text changes colors. Unfortunately, without the assistance of a third-party program, you won’t be able to tell for sure with JAWS or Window-Eyes whether the text you’re reading aloud is being appropriately recognized. You can tell Dragon to “play that back” or “read that,” and it will either play your recorded voice or read the onscreen text back to you using its built-in synthetic speech, which will confirm to you that your words are being correctly recognized.

Third-party programs such as J-Say Pro from T and T Consultancy build a bridge between JAWS and Dragon Professional 11 or later. As you dictate into your microphone, J-Say Pro takes control of JAWS so that it reads back specifically what you’ve dictated. You can even control the rate of the JAWS voices and verbally tell JAWS when it’s time to be quiet. J-Say Pro works in conjunction with Dragon and JAWS to allow you to compose e-mail using Microsoft Outlook, and it gives you full control of the Internet using Internet Explorer. You can create lengthy text passages, save them, and
have J-Say Pro reproduce them with a single voice command. You can also control a
Braille display with your voice using JAWS, J-Say Pro, and Dragon.

J-Say Pro is particularly helpful when training Dragon, since it directs JAWS to
speak the text you need to narrate. It will tell you how much of the text is properly
recognized—information that is much more difficult to get without its help if you are
visually impaired (Heartgen 2010). There is no third-party program that works in
combination with Dragon and Window-Eyes, but much of Dragon’s interface is
accessible with Window-Eyes, System Access, and, to a lesser degree, NVDA.

So, What Can You Do with Dragon?

Dragon allows you to verbally do with your computer what you normally would
do with the keyboard and mouse. You can open programs simply by saying “open Word”
or “open Outlook.” You can tell the microphone to stop listening to you simply by saying
“go to sleep,” and when you’re ready to dictate again, just say “wake up.” You can select
text by saying “select” and then issue a range of things to select—words, sentences,
paragraphs, etc. If you dictated the word “farther” but Dragon understood you to say
“father,” you can say “correct father,” and you’ll be given a series of possible corrections
to make. Since Dragon learns from its corrections, you’ll be able to increase your
accuracy as you go. Your accuracy right out of the box could be as high as 99 percent,
depending on how clearly you enunciate when you speak and the environment in which
you’re doing the dictation. If you often use the same text in various documents, you can
create macros that let you drop that text into various documents with a single voice
command. If you are a blind computer user who is more familiar with keystrokes than
with mouse clicks, you can instruct Dragon to press specific keys. For example, if you
have Microsoft Word open, and if you want to activate the spell checker, you can say “press F7,” and Dragon will carry out the control as if you had physically tapped F7.

**Using the Built-In Speech Recognition in Windows 7**

If Microsoft Windows 7 is your computer’s operating system, and if you have the Home Premium edition or greater, you have a program built into your operating system called Windows Speech Recognition. While it’s not as powerful as Dragon Professional, it will meet the needs of a significant number of users. You will need to connect a microphone to your computer. Once that’s done, tap the Windows key and type the word “speech” into the Search Edit box. The first result you will see is Windows Speech Recognition. Tap Enter to activate the program.

One of the first things you need to do when you’re running Windows Speech Recognition for the first time is use the microphone wizard to test the volume of your microphone. You’ll want to position the microphone no more than about three inches from your mouth. You’ll be asked to narrate some text to set the microphone volume. Once that’s done to the program’s satisfaction, you’ll hear a ding, which indicates that the process was successful.

As with Dragon, you have to train Windows Speech Recognition to understand your voice, and you can do this without having to see the screen. The System Access screen reader has been specially scripted to work with Windows Speech Recognition, so you’ll hear text read back to you that you’ve dictated, and during the training period, you’ll be able to tell what percentage of text remains to be read. System Access also automatically reads back the choices that become available when you ask Windows Speech Recognition to correct a recognition mistake. If the word is one you’re certain
Windows Speech Recognition just won’t recognize easily, you can simply say “spell it,” and a dialogue box opens to allow you to spell the word. When the word is correct on the screen, say “OK,” and the word you spelled is inserted into your document. Overall, System Access does a better job than the other screen readers at giving you feedback while you’re in the Spell It dialogue box.

Like Dragon, Windows Speech Recognition also allows you to select words, sentences, or paragraphs and move them, delete them, or change them in a variety of ways, and you never have to touch a mouse or a keyboard. And if you’re a blind computer user who has learned keystrokes to help you successfully use a program, you can say “press F7” or “press Alt F,” and Windows Speech Recognition will simulate those keystrokes.

**Why Type when You Can Scan?**

Yet another way of getting information into a computer is by scanning it. Scanners have actually been around for decades, and most readers of this text are probably familiar with them. Creating accessible documents with a scanner involves two basic steps, the first of which is scanning the material, often to create a PDF. Then the computer relies on software to examine that image and attempt to recognize actual letters and numbers. Once the recognition is done, the document is displayed on the computer screen and read aloud if you wish to hear it. After that scanned image or PDF has been processed, you can save it onto your computer’s hard drive. While scanners and optical character recognition software rarely scan and recognize every page with perfect accuracy, they do a better job now than they ever did in the past. And as digital cameras have become ever more
powerful and smaller, the ability to take your scanner with you has become easier than ever.

Just remember that getting information from the printed page into your computer is a two-step process. Oftentimes, people merely scan the image without processing the image through optical character recognition software. When they skip this step, the file looks very nice on the screen, but because it is only an image, and because none of its characters are recognized, screen readers can’t read the information aloud. For you to hear what is on those printed pages, the material must be both scanned and recognized. Fortunately, most programs created with blind and visually impaired users in mind can scan and recognize printed material almost simultaneously.

**What Equipment Do You Need to Scan?**

There’s nothing particularly exotic about the equipment you’ll need to scan information from a book or magazine into a computer—most copiers today, even personal desktop models, have built-in scanner capabilities. Of course, you’ll need a computer, but you won’t need to go out and buy a special computer to scan. Newer computers can easily handle the intensive processing involved in optical character recognition. If you have an older computer, however, you may notice a slowdown when you attempt to scan material. The slowdown won’t be reflected in the amount of time it takes for the scanner’s camera to move across the page, since the scanner’s camera is independent of your computer, but you may notice that the computer takes a long time to recognize a scanned page.
Next, you’ll need a scanner. If you have an older scanner, you may encounter a situation in which the recognized document includes numerous errors, but newer, more precise scanners likely will not have this difficulty.

When selecting a scanner, perhaps the best way to choose one that meets your needs is to ask yourself:

1. What am I going to be scanning—books or single-page documents?

2. Will I ever need to scan legal-sized documents?

3. How fast will I need to access the information?

4. Do I need a scanner that can travel quickly and well?

5. Will I be using software designed specifically with blind users in mind? Or will I be using off-the-shelf technology?

If you plan to mostly scan books or magazines, you’ll want a scanner designed to scan facing pages at the same time while compensating for the distortion that can occur when a scanner attempts to scan material close to a book’s binding. There are several scanners that can do this, including the Plustek OpticBook series. The OpticBook 3600 and 4600 models scan two pages of a book at once, and they do it fast, depending somewhat on the material being scanned. The OpticBook scanners are great for books or magazines, but they cannot do legal-size documents (Plustek, Inc. 2009).

If you’re going to scan legal-sized documents, you will pay more for a scanner that is able to accommodate these. It is well worth the expense, however, if you’ll be
scanning numerous such documents, as it’s just too difficult to line those pages up on a regular-sized scanner and attempt to get a decent scan and character recognition.

If cost is a major issue for you, you may decide that a slower, but less expensive scanner makes the most sense. For example, if you only want to read the occasional piece of mail or store flyer or if you want a small, lightweight scanner, you’ll likely be able to find one that is slower but meets your needs.

If portability is an issue for you, you’ll want to look closely at thin, lightweight scanners. Some models don’t even require that you plug them into an electrical outlet; they take their power from the computer to which they’re connected. These small, portable scanners are good for quick connections and scanning of a few pages, but they may not be rugged enough to withstand a heavy scanning schedule of hundreds or thousands of pages a year.

Finally, if you plan to use software with your scanner designed specifically for blind users, you’ll want to visit the web site of the software manufacturer to determine whether its software has been tested with a specific brand and model of scanner. If you’re planning to use off-the-shelf technology such as scanning software available from Amazon or an office supply store, you should also check the software manufacturer’s web site to determine whether your scanner of choice is compatible with the software. Many scanners include optical character recognition software, but it may not be the latest version offered by the software producer, and it may not be entirely accessible to your screen reader or screen magnifier. We look at several off-the-shelf options below.
Scanning on the Go

The KNFB Reader

What if all you wanted was to scan a restaurant menu and hear the information read aloud immediately? Until recently, that scenario was not possible, but the advent of cell phones with powerful cameras has changed that. One device that allows you to take a picture of a print document and have it read back to you under a variety of situations is the KNFB Reader, which works with Nokia cell phone technology. The user holds the phone above the page—a restaurant menu, for example—pushes a button that takes a picture, and the phone does all the rest. Within seconds, you get to hear the information read aloud by the same phone you used to take the picture.

The Eye-Pal

The Eye-Pal scanner from ABiSee is portable, but it does require that you connect it to a laptop. Its camera is small and compact and can easily be carried with a laptop, and it does not require adjustment when scanning. You can use the synthetic voices to hear what you’ve scanned or send the information to a Braille display (ABiSee, Inc 2009).

The PEARL

Freedom Scientific, the producer of the JAWS screen reader, has entered the portable scanner market with a folding camera it calls the PEARL. When its stand is unfolded, the camera is at the exact height necessary to obtain a clear scan. The PEARL can scan single pages or facing book pages, and it uses Freedom Scientific’s OpenBook
optical character recognition software to recognize and read the scanned image aloud. It can also magnify the scanned material for easier viewing (Freedom Scientific, Inc. 2010).

**DocuScan Plus**

Serotek sells a portable document camera that works in conjunction with the company’s scanning program for Windows or the Mac. Known as DocuScan Plus, this camera can scan information and save it to an Internet-connected computer, which means that you can access information you’ve scanned from any computer that has an Internet connection. DocuScan Plus converts material from printed pages into a variety of file formats, including Braille and audio, and it can also enlarge text it has converted for use by low-vision users. Learn more by calling Serotek at (612) 246-4818.

**Software Choices**

If you decide on a conventional flatbed scanner that connects to your computer, you have two choices when buying software. You can purchase off-the-shelf technology, or you can buy software customized for blind and visually impaired users.

*Kurzweil Educational Systems*

Kurzweil scanning and reading software has been available for many years, but the product continues to be updated and maintained by Cambium Learning Systems. In addition to being able to recognize printed material and read it aloud, the Kurzweil 1000 software package can save the files it scans in a variety of ways, including as MP3 audio files that can be transferred to an iPod. The software can also recognize scanned currency and includes the ability to search various Internet-based sources for books and other
information. You may request a trial copy of the software by calling (800) 547-6747 (Cambium Learning Group 2010).

OpenBook

Freedom Scientific offers OpenBook, a software package that scans and reads text aloud. Like the Kurzweil software, it can record text to audio files for transfer to an iPod or other portable reading device; however, the two products have very different approaches to scanning and reading. In addition, OpenBook uses RealSpeak Solo voices, whereas Kurzweil uses voices from Neospeech. All of these voices are highly understandable, but you’ll probably want to listen to them prior to making a final decision. You may learn more about OpenBook by calling Freedom Scientific at (800) 444-4443.

Off-the-Shelf Technology

A variety of optical character recognition software manufacturers make products that range from the very general to the very specific, such as Nuance Communication’s OmniForm, a program specifically designed to scan paper-based forms into your computer. Nuance also produces OmniPage, a scanning program that enables you to scan material and save it directly into such programs as Microsoft Word. The upside to OmniPage products is that they are slightly cheaper than the blindness-specific optical character recognition programs. The downside is, if you’re just beginning to use computers or are new to scanning, this product may be somewhat less intuitive and accessible. Visit www.nuance.com to learn more about its various scanning and optical character recognition programs.
Conclusion

As you can see, there are numerous ways of getting information into your computer besides typing it in on the keyboard. There are even ways to customize your keyboard to make it easier to use, including the purchase of special keyboards or tactile stickers. And you can customize your mouse and its pointer. If none of those options appeals to you, you can speak to your computer and have the information you’ve dictated appear on your screen. Finally, you can scan documents into your computer and hear them read aloud.

In the next chapter, we look at several ways of obtaining a variety of reading materials from several sources and creating Braille materials from your computer.

Bibliography


Chapter Four

THE NEED TO READ: GETTING INFORMATION FROM SOURCES OTHER THAN YOUR COMPUTER

While it’s important to understand what computers can do for you, there are times when you want to receive information from sources other than a computer. In the previous chapter, you learned about scanners and software that can turn the printed word into the spoken word so you can read while seated at your computer. But what about those times when you’d like to read and you don’t want to be tethered to your computer? If you have recently lost some vision, you may not be aware that the Library of Congress has a division specifically dedicated to providing books and magazines in digital audio and Braille formats. Known as the National Library Service for the Blind and Physically Handicapped of the Library of Congress, or NLS, the organization provides books via a lending library in your state, or you may download them. The books are free, and if you order them through the mail, postage is free. The special talking book player you’ll need to play audiobooks is also free from the library in your state. If you opt to have books mailed to you, they will arrive on small cartridges with no moving parts. To play a book, you simply slide the cartridge into the player, turn it on, and press the Play button to begin listening.
Determining Whether You’re Eligible to Receive Library Services

You are eligible to receive materials from an NLS network library if your visual acuity is 20/200 or less in the better eye with corrective lenses or if the widest diameter of visual field of the better eye subtends an angular distance no greater than 20 degrees.

Per the NLS, other physically handicapped individuals are eligible as follows:

“Persons whose visual disability, with correction and regardless of optical measurement, is certified by competent authority as preventing the reading of standard printed material.

“Persons certified by competent authority as unable to read or unable to use standard printed material as a result of physical limitations.

“Persons certified by competent authority as having a reading disability resulting from organic dysfunction and of sufficient severity to prevent their reading printed material in a normal manner.”

Your NLS eligibility must be determined in part by a competent authority, such as an ophthalmologist, optometrist, registered nurse, rehabilitation counselor, or teacher. In some cases, a librarian can serve as a competent authority if the other choices are unavailable. Finally, you must be a U.S. citizen or a U.S. citizen living abroad to qualify for library services. To start the process of signing up, call (800) 424-8567. You may be referred to a lending library near you to complete the process, but it is relatively quick and painless, and the rewards are rich indeed.
After You’ve Signed Up

Once you’re a library patron in good standing, you’ll be eligible to receive a free digital talking book player from the lending library. There are two versions of the player available—a standard unit and an advanced one. The standard unit measures six by nine by two inches and weighs just over two pounds. The player’s body is dark charcoal gray, chosen to create the maximum contrast between the player and its buttons. The buttons allow you to navigate through a book by a specific time period or by chapters and other headings, depending on how the book was marked up when it was recorded. Navigation is instantaneous, and, unlike reading books on tape, you can jump from the beginning to the end of the book instantly without waiting for the tape to wind to the end. If you have hearing difficulties, you can adjust the machine’s audio settings for optimal performance.

The sound quality of the digital audio is excellent and extremely clear. The small cartridges on which the books are stored include both a print and Braille label, and they can only be inserted into the machine in one direction, so you need never worry about whether you’ve inserted it incorrectly.

Downloading Books from the National Library Service

Once you have been determined eligible for library services, you may also download books directly from the National Library Service to your computer. You can then transfer them from your computer to your digital player. Because of copyright protection issues, books from the National Library Service cannot be read on your computer, but must be transferred to a digital talking book player.
You can start the process of being eligible to download books by visiting https://nlsbard.loc.gov. This link connects you to BARD, the Braille Audio Reading Download site. When the page opens, locate the BARD application instructions link and tap Enter to activate it. Next, you will want to activate the “link to BARD application” link. When you do, you will be presented with a form to complete. The form is clearly labeled and accessible to any screen reader. Once the form is completed, you will receive an e-mail from your local library that will advise you that you have been determined eligible to download books. If there is a problem with your application, the library will notify you of that as well. Your local library can also provide detailed instructions on how to download books to your computer and how to transfer them to a blank cartridge or other media for reading in your new digital talking book player.

Registering a Third-Party Digital Talking Book Player

You may choose to purchase a digital talking book player made by someone other than the National Library Service. The advantage to these so-called third-party players is that they are often smaller and lighter, and if you travel a great deal or if you simply want a player that has features in addition to those offered by the NLS player, a third-party player such as the Victor Reader Stream available from HumanWare may be what you need.

Regardless of which of the several players you choose, you will need to register that player with the Library of Congress. This simply involves filling out an online form in which you give the National Library Service the serial number of your digital talking book player. You’ll receive a piece of software called a key, which you must transfer to your third-party digital talking book player—the instructions on how to do this are very
detailed and will be sent with the key. You only have to do this once. After the registration process is complete, you can then download books and transfer them to your digital player.

For a thorough and detailed examination of ways to get started using both the digital talking book player provided by the National Library Service and a third-party unit such as the Victor Reader Stream, visit www.bardtalk.com and read the Frequently Asked Questions section of the page. Incidentally, should you decide to become eligible to download books and transfer them to the NLS player, you will need to purchase a blank cartridge and cable. The cartridges may be ordered from the American Printing House for the Blind by calling (800) 223-1839. A cartridge with a two-gigabyte memory capacity costs $11.99 plus shipping. When calling, you should ask about the availability of a USB connecting cable. These cables may also be purchased at most computer stores; they have a standard USB male connector at one end and a USB female connector at the other. A two-gigabyte cartridge can hold approximately 15 to 20 books.

**Getting Books from Learning Ally**

For decades now, Learning Ally, formerly Recording for the Blind and Dyslexic, a recorded textbook producer headquartered in Princeton, New Jersey, has been providing recorded textbooks to readers who are blind or who have learning disabilities that make it difficult to read regular print. Although the organization no longer provides books on cassette tapes, it offers digital audio books either on CD or via download. The organization concentrates on textbook production, but its book selection includes current and classic literature and much more. Learning Ally volunteer narrators are trained to describe photos and diagrams that appear in a book as well. Books can be played on
several different types of audio book players, including the Victor Reader Stream as well as a conventional iPod. The free talking book player from NLS can also play Learning Ally books. For information on how to register, call (800) 221-4792. Visit www.learningally.org for additional information on registration and eligibility. You need not be a college student to register to receive books.

**Purchasing Audio Books from Audible**

As your familiarity with audio books grows, you may want to investigate purchasing them at audible.com. Boasting more than 75,000 books, magazines, newspapers, speeches, podcasts, and radio programs, Audible offers a variety of membership plans starting at approximately $15 per month for a single audio book each month. Unlike NLS books, you can listen to books from Audible on your computer. You can also transfer the books you buy to an iPod or to a portable player like the Victor Reader Stream. Audible books will not play on the free NLS digital talking book player. For additional information, contact Audible at (888) 283-5051 in the United States and Canada; international callers (973) 820-0400. You also may visit www.audible.com.

**Reading Books from Bookshare**

Bookshare is a large repository of classic and current books in accessible form. Volunteers scan books into their computers and upload the finished products to Bookshare, where they are carefully proofread and then made available for Bookshare subscribers to download. Additionally, many publishers are providing digital files to Bookshare for distribution to its members. Whether you want the latest *New York Times* bestsellers or a hard-to-find textbook, it’s likely that Bookshare has it.
You may read Bookshare books on your computer, but most users transfer them to a book player such as the Victor Reader Stream for greater portability. Books from Bookshare will not play on the free digital talking book players from NLS. There is an initial setup fee for first-time users, and there is a subsequent annual fee. You can download up to 100 books per month, and if you really need more than that, you can ask for an expansion of your download limit in a given month. If you already are signed up with the National Library Service for the Blind, you will be eligible to download books from Bookshare upon the organization’s receipt of your setup fee and first year’s subscription.

For additional information, visit www.bookshare.org.

Additional Ways to Make Existing Information Accessible

If listening to a book isn’t easy or pleasant for you, you might still be able to read a book or any other document either by enlarging its print using a magnification program such as ZoomText or MAGic, or by creating a Braille copy of the information.

If you plan to create a Braille copy on paper, you’ll need a Braille embosser and some translation software.

More about Braille Embossers

Braille embossers serve a similar purpose to printers used to create copies of documents stored on your computer. Rather than producing the document in ink, a Braille embosser creates Braille dots by embossing dots on the page in the shape of Braille letters and symbols. To successfully use such a device, you will need translation software.
that can take a document crafted using a word processor and translate it into contracted English Braille. The most commonly used Braille translation programs include the Duxbury Braille Translator, available from Duxbury Systems, Inc. (www.duxburysystems.com), and NFBtrans (www.nfb.org/nfb/nfbtrans.asp). The Duxbury Braille Translator is highly automated and can be used by individuals who know little about the production and use of Braille to create highly readable Braille. There is a purchasing cost associated with the Duxbury program. NFBtrans, on the other hand, is free, but it may require additional human intervention and document formatting from time to time. You don’t need both of these programs, but you will need one or the other if you plan to produce Braille on paper using an embosser.

**Reading from a Paperless Braille Display**

In the chapter on screen readers, we briefly mentioned paperless Braille displays. These consist of tiny pins that move up and down to create Braille dots and spaces based on the document you have on your screen. They generally work in conjunction with a screen reader, which provides behind-the-scenes support for the display. Depending on the display you use, you can even do some document editing by using the buttons on the display.

**Conclusion**

In this chapter, you’ve learned that vision loss doesn’t have to translate into irrevocable information loss. By patronizing a library for blind and disabled people, you become
eligible to receive a free digital talking book player and books by mail at no cost to you. That same eligibility will allow you to download books directly.

In addition to the NLS players, you may buy third-party digital talking book players that may offer features not available on the NLS players, including somewhat greater portability.

We looked at other resources for books as well, including Learning Ally, Audible, and Bookshare. Finally, we talked about the value of Braille embossers for those who prefer to read information rather than listen to it. We also explained the value of paperless Braille displays and why they continue to be an important part of your reading habits.

In the next chapter, we’ll learn about how to magnify information both at home on your desktop and in such on-the-go places as the grocery store.
Chapter Five

GETTING INFORMATION ON THE GO

Regardless of how much or how little vision you have, you, too, can be part of the portable information exchange. One of the outgrowths of the digital revolution is a huge advance in technologies that capture and manipulate text and images. When the first devices that could enlarge text and images came on the market in the ’60s, they were imposingly large and anything but portable. Referred to as Closed Circuit TV systems, or CCTVs, they were composed of a large camera that remained in one position above a small platform or table on rollers and swivels. By placing a book or paper on the moving platform and adjusting its position, you could successfully enlarge the image onto a monitor attached to the unit. Today, there are literally scores of models of small portable electronic magnifiers and CCTVs that not only enlarge print but also digitally enhance its contrast and other properties, thereby making it even easier to read. Many of these new magnifiers are small enough to carry in a pocket or purse, and the battery life is good enough to give you clear, enlarged text and images for several hours between charges.

Freedom Scientific, known for its screen reader and magnification software, is also in the business of selling portable magnifiers. Other companies, such as Clarity, have product lines exclusively dedicated to magnification. Portable magnifiers come in a variety of sizes and shapes and are capable of doing a variety of things. For example, the
Clarity Flexmate gives you the opportunity to position the unit so that you can do hobbies and crafts and have your work surface magnified (Clarity USA, Inc. 2009).

HumanWare’s Smartview Graduate magnifier lets you see papers close up and also allows you to magnify the contents of a chalkboard or some other surface you want to enlarge from a distance. Freedom Scientific’s Ruby magnifier offers both high-color contrast and monochrome text and image magnification. It also offers a freeze-frame feature that lets you take a shot of an image, then bring the unit closer to you to examine the freeze frame. This is an excellent way to browse library bookshelves and grocery store product labels or even signs and bus and rail schedules posted on a distant wall.

**Check Out Desktop Magnifiers for Those Times when You Don’t Need Portability**

There are times when a full-featured desktop magnifier with a large monitor that allows you to truly enlarge text and images remains the best solution. This may be especially true in situations in which your vision isn’t entirely stable or changes rapidly from day to day. Desktop magnifiers offer greater flexibility in terms of what they can magnify, and they can offer greater enlargement.

**Buying a Desktop or Portable Magnifier**

Depending on what you need in a portable or desktop magnifier or CCTV, these units can cost between $150 for low-end models to well over $3,000. So these devices are costly enough that you can’t afford to make a mistake when buying them. As tempting as it may
be to do so, you should probably avoid buying a magnifier from an auction site or used equipment clearinghouse, especially the first time you make such a purchase. Most manufacturers can arrange for a free in-home trial so you can actually experiment with the units in that manufacturer’s product line before you make a final purchase. You should try to use these devices in lighting conditions that best resemble those in which you most frequently work, whether it’s at home, school, or on the job. If a manufacturer can’t do an in-home demo, try to visit organizations using these devices.

**Staying Portable with Netbook Computers**

In the late 1980s, blind and visually impaired people who wanted a portable way to take notes with a word processor were wowed by a small dedicated word processor called a Braille ’n Speak. The device was so named because it used the six-key keyboard found on manual Braille writers. The manufacturer soon followed that up with a Type ’n Speak, which used the standard QWERTY keyboard. This unit didn’t include a monitor, but it could be connected to one. The synthetic voice was understandable but somewhat primitive by today’s screen reader standards. For years, these devices, known as notetakers, have been in use in schools and on the job—wherever a blind person needed to quickly take notes or draft a document.

But with the birth of netbooks and such smart devices as the iPad, more and more blind and visually impaired people are leaving the notetaker world and opting for a mainstream device onto which they can install a screen reader or screen magnification software or use the device’s built-in options such as those found on the iPad and iPhone.

Installing a screen reader or screen magnifier on a netbook isn’t difficult. The hardest part may be getting used to the somewhat smaller keyboard on whatever netbook
you purchase. Both the size of the keys and the actual layout of the keyboard can differ from a standard desktop keyboard, but those differences aren’t so great as to make them insurmountable. Netbooks may not come fully equipped with all the software you’ll need to use them successfully. If you want to use a word processor such as Microsoft Word, you’ll probably have to install a copy on whatever netbook you buy. These machines don’t come with CD or DVD drives connected to them, so if you have assistive technology you want installed from a CD, you may have to purchase or borrow a portable CD drive.

**It’s a Cell Phone . . . It’s a Computer . . . It’s a Little of Both**

There is no standard definition for a smartphone. You can, however, think of it as a handheld computer integrated within a mobile telephone. In recent years, as cellular telephone networks have become more robust and the ability to connect to the Internet wirelessly has increased, the availability of such cell phones that can do many of the same things a computer can has ballooned. There is a veritable jungle of manufacturers and connection plans available, and if you’re among those who like a phone that has many features and does many things, including retrieve e-mail or go online, the good news is that many of these devices are highly accessible to blind and visually impaired users.

**A Quick Look at Apple’s iPhone**

In June 2009, Apple made history when it released the first cellular phone with a built-in screen reader and screen magnifier. Adopting the same philosophy the company
has for its Macintosh line of computers, Apple included its VoiceOver screen reader as part of the operating system for the iPhone 3GS and, more recently, the iPhone 4.

If you have ever seen or held an iPhone or an iPod Touch, you know that none of its keys are definable by touch in any way. Yet as soon as the built-in screen reader is activated, that flat screen begins to make more sense.

The secret to operating the iPhone or iPod Touch with limited or no vision is to use gestures. For example, if you want to hear the names of all of the programs on your iPhone, you simply flick a finger quickly from left to right. As you do, VoiceOver will announce the name of the app that has focus. If you continue to flick from left to right with a single finger, VoiceOver will continue to announce the names of the apps on your phone. These include such programs as a fully accessible compass—accessible because it announces your line of direction as you move via VoiceOver—a weather app that lets you determine cities around the globe for which you want a forecast, a calculator, a world clock, a calendar program, and much more. To open one of these apps, you can double tap anywhere on the screen with a single finger once the app’s name has been announced.

If you need a specific phone number, you first swipe the screen from left to right until you hear VoiceOver say “phone,” then double tap anywhere on the screen to open the phone program. Touching near the bottom of the phone will reveal a series of choices. You can check voicemail, call someone from within your contacts list, or just activate your keypad so you can manually dial the number you want to call. Once you find the keypad button, hold it down with one finger and tap anywhere on the screen with another. This is known as split tapping (referred to by Apple as Standard Typing Mode), and it
opens a program just as double tapping does. So there’s more than one way to activate something on the phone.

The newest software for the iPhone 3GS and the iPhone 4 allows you to make a gesture similar to turning a knob and pick from several options. One of these is called Touch Typing. With this feature enabled, you can keep your fingers on the iPhone until you’ve found the key you want to activate. Simply lifting your finger away from that key will activate it. Most iPhone users find touch typing much faster than split tapping.

If you really want to take the easy way out when calling someone, you can hold in the home button until you hear two short tones, then let it up, and say “call” followed by the phone number you want to dial or the name of someone in your contacts list. The phone will emit two short tones after you have spoken, and VoiceOver will repeat back to you the number just before it dials. To end a call, simply double tap the End button with one finger.

All of the programs that Apple installs on the iPhone, such as the calculator, calendar, e-mail client, and weather program, are completely accessible to the blind and visually impaired through VoiceOver. Apps made by companies other than Apple, however, may offer only limited access or no access at all to VoiceOver. A little online research on such sites as Maccessibility.net will help you find information about third-party apps that are mostly or entirely accessible.

Once you’ve gotten the hang of your new iPhone, typing on it will become easier and faster. Apple does sell an accessory that enables you to connect a keyboard with regular keys to your iPhone for fast, easy typing. There also is a third-party application from Nuance that allows you to speak into the phone as if you were dictating and have
your words appear as text. Nuance has updated the app such that it is now fully accessible to VoiceOver users.

*Editing and Reading Information on the iPhone*

By using a series of different gestures, an iPhone user can select blocks of text that can be cut and moved to a different part of an e-mail or note. By flicking a finger from the top to the bottom of the phone, you can spell words one character at a time. Swiping down from top to bottom with two fingers lets you hear the entire contents of the currently visible screen. If you’re looking at a web page using the iPhone, you can imitate a gesture you might use when turning a knob to determine how your phone will navigate through a page. You can advance, for example, by character, by word, by headings, or by paragraph, depending on the setting you choose by turning the invisible knob.

When your phone rings, the screen reader automatically announces the phone number of the caller when that information is available. You can then slide your finger left to right to select the answer button or the decline button and double tap anywhere on the screen once you hear the announcement to activate your selection.

Sending e-mail on your phone is relatively easy as well, once you’ve set up the phone to receive mail from your e-mail provider. Open the mail program by double tapping on it, then double tap the Compose button. You’ll instantly be able to type in the address of the person to whom you’re writing. Flick one finger to the right after you’ve typed in the address, and you’ll hear VoiceOver say “subject.” Flick once more to be in the actual editing area, where you can enter a subject for your e-mail. Double tap with a single finger anywhere on the screen to begin typing in a subject. You will hear VoiceOver say “insertion point at start.” This is the iPhone’s way of informing you that it
is ready to receive your subject line. When you’ve typed that in, flick one finger to the right again, and you’ll be in the message body. Again, double tap anywhere on the screen to hear “insertion point at start.” If the VoiceOver says “insertion point at end,” simply double tap again anywhere on the screen to move the insertion point or the cursor to the beginning of the message. When you’re ready to send your e-mail, move your finger to the left side of the phone near the top and begin flicking left until you hear VoiceOver announce “send.” Double tap anywhere on the screen at that point and your message is sent.

Sending SMS (short message service) or text messages involves a very similar process. Instead of opening your e-mail, you double tap a program called Messages to open the text message writer. You’ll first be asked for the name or phone number of the person whom you wish to contact. Then you can flick right into the body of the text message, and the onscreen keyboard appears so you can create the message. Buttons will not automatically pop up to signify the existence of the onscreen keyboard, but VoiceOver will announce every letter or number as you move over it.

Smartphones That Work with Other Screen Readers

Since 1998, Code Factory, headquartered in Barcelona, Spain, has been making mobile technology such as wireless phones and PDAs that are accessible to blind users. Aside from the iPhone, smartphones don’t include built-in screen readers or magnification software. That’s where Code Factory comes in with its Mobile Speak program. Once Mobile Speak is installed on a smartphone, the phone will essentially speak to you. On phones that feature touch screens, Mobile Speak responds to gestures that make the touch screen considerably more accessible. For example, if you have or are
planning to buy a Blackberry, you may want to learn more about Horatio, a screen reader for the Blackberry available from Code Factory. Visit the company’s web site for a complete list of phones supported by Mobile Speak (Code Factory, S.L. 2010).

For those who have some vision, Code Factory also makes Mobile Magnifier, a program designed to enhance and increase the size of text appearing on your smartphone, and Mobile Geo turns your phone into a talking GPS unit. CodeFactory also makes software that enhances the accessibility of phones running the Android operating system.

**TALKS—Another Cell Phone Alternative**

Nuance Communications, Inc. offers TALKS, a program designed to work with a variety of Symbian’s Series 60 wireless phones. TALKS is capable of reading information from your contact directory, the phone’s caller ID, text messages, web browser, calendar options, and more. If you purchase the premium edition, you also get ZOOMS, a magnification program for Series 60 Symbian phones. Additionally, this software allows you to read and edit any Microsoft Word documents e-mailed to you.

In the fall of 2010, Verizon introduced the Samsung Haven, a highly accessible cell phone with the screen reader built in (Samsung, Inc. 2010).

**Conclusion**

In this chapter, you’ve learned that blindness and visual impairment don’t have to mean you can’t get information on the go. CCTVs and magnifiers are becoming more portable, accessible, and convenient all the time. Additionally, you learned about smartphones,
including Apple’s iPhone 3 GS and 4 and the iPod Touch, and the programs that make them more accessible.

In the next chapter, we take an introductory tour of some of the programs that help you create information. We look briefly at word processors that run on the Windows operating system and the Macintosh. We also look at spreadsheet creators and e-mail programs that work on either Windows or Mac computers.

**Bibliography**


Chapter Six

INFORMATION CREATION: WHAT’S THE EASIEST WAY TO DO IT?

Up to now, we’ve focused on ways you can successfully use a computer and other devices to gather information both at your desk and on the go. In this chapter, we look at computer programs that help you create and disseminate information. In the next chapter of the book, we discuss conducting online research.

The Microsoft Office Suite of Programs

Most office environments use some version of the Microsoft Office Suite, so we will only touch very briefly on the different programs. Microsoft Word lets you create different types of documents with elements such as tables and images. Outlook includes the ability to read and write e-mail, a sophisticated calendar, a to-do list generator, an address book, and much more. Excel lets you create spreadsheets. PowerPoint allows you to create graphical and text-based presentations, and Access creates databases. This chapter touches on all of these programs except Access.
Microsoft Word Advantages and Disadvantages

In recent years, Microsoft has worked closely with developers of screen reader and screen magnification software to ensure that its products work with those technologies. The latest version of Word, part of the Microsoft Office 2010 Office Suite, works well with the latest versions of JAWS, System Access, and Window-Eyes. It also is fully compatible with the ZoomText and MAGic screen magnification programs. In addition, if you ever plan to translate Word documents into Braille, it will be relatively easy to accomplish. Most Braille translators currently available can integrate closely with Word; if you use Word’s built-in styles when you create the document, your Brailled product will be nicely formatted, and the Braille will look a good deal better than a mere quick-and-dirty translation.

Ironically, one of Microsoft Word’s great advantages—its numerous features—can be a disadvantage if you don’t plan to use them. In fact, if you plan to create documents that use very few visual elements such as graphs, clip art, or complex tables, you might do well to simply use WordPad. Be aware that while WordPad is highly accessible, there are many things it simply can’t do. The version of WordPad that runs on computers equipped with the Windows XP operating system can’t double space documents, for example. (A newer version of WordPad that works with Windows 7 is capable of double spacing and a few additional formatting tasks, but it is still extremely basic.)
Microsoft Excel Advantages and Disadvantages

Many of the same advantages listed above for Word also apply to Excel. Both JAWS and Window-Eyes include extensive material about using Excel in either the user manual for the screen readers or in separate training files.

One of the most significant disadvantages of Excel is its nonlinear nature. Where spreadsheets are concerned, data can be placed anywhere that makes sense to a sighted user. If you have spent a significant part of your life as a Braille user, you’re probably used to information being presented to you in a linear fashion—top left to bottom right. With a spreadsheet, that data can appear anywhere, and the end result is that you ultimately have to explore a spreadsheet to best understand how it’s laid out so that the information will make sense. Additionally, it can be difficult to produce a Braille document directly from something created in Excel, and a great deal of human intervention may be required to create tables in a Braille document that make sense in that medium. Still, the disadvantages to using Excel are relatively minor, and they shouldn’t stop you from putting the program to good use.

Microsoft Outlook Advantages and Disadvantages

One of the great advantages of Microsoft Outlook is its ability to keep you organized and on task. Its e-mail client is faster and easier to use for most blind and visually impaired users than capturing e-mail directly from web pages. It can communicate with many smartphones, depending on the software the phones use. Its notes feature is an excellent way to very quickly capture a phone number or phone message, and its journaling
capability even lets you keep track of the amount of time you expended on a given task or assignment—important if you have to bill for your time.

Among its disadvantages is the fact that Outlook can be somewhat cumbersome to set up if you’re relatively new to the world of computers. This is particularly true when you’re trying to set up an e-mail account for the first time. There are certain bits of information Outlook needs in order to collect your e-mail, and some of that information can seem pretty esoteric. For example, you’ll need to know the name of your outgoing mail server so that Outlook can send whatever messages you’ve written to others. An outgoing mail server is essentially a computer somewhere in a location different from where you are. It stores your outgoing messages and sends them at specific times. If Outlook doesn’t know the name of that computer, it can’t talk to it to share your messages with it. Fortunately, you’ll only need information like that to initially establish your e-mail accounts with Outlook; it isn’t something you’ll have to look up every day. As with Word and Excel, the fact that Outlook is awash in features and tweaks that let you personalize it can be a proverbial double-edged sword. Once you’ve familiarized yourself with it enough to make those personalizations, you may find yourself frequently immersed in Outlook even to the point where you depend on it to help you keep track of everything from e-mails to appointments.

**Microsoft PowerPoint Advantages and Disadvantages**

Microsoft PowerPoint is predominantly used in the academic and business worlds. One advantage to the program is that you don’t need to be able to see well to create a viable PowerPoint presentation. All of the program’s features are achievable with keystrokes.
One disadvantage of PowerPoint is that it isn’t equally accessible to all screen readers. JAWS and Window-Eyes work well with it, but System Access users will have some difficulty with many of the program’s aspects. While it’s true that you can create a perfectly usable PowerPoint presentation without being able to see, some might consider it a disadvantage, and those individuals may want to get the presentation looked at by a colleague just to ensure that the fonts, colors, and images chosen work well together.

Creating Information on a Mac

In the chapter that dealt with screen readers and screen magnification software, we focused briefly on VoiceOver and Zoom, a built-in screen reader and magnifier, respectively, for the Mac. Creating information on a Mac is easy, especially if you use some of the operating system’s built-in tools.

The Advantages and Disadvantages of Text Edit

Text Edit is a built-in word processor available on every Mac running Apple’s OS X operating system. It’s a sophisticated word processor that can handle rich formatting tasks and incorporate text and images into a final document. Additionally, it can save the file to be readable by the latest versions of Microsoft Word.

Another advantage of the program is that it is highly accessible, and while many of the keystrokes differ from those used in Microsoft Word, many of the principles are unchanged. For example, you can easily select text to bold or underline it.

The disadvantages of Text Editor depend on your exposure to Macintosh systems and word processors. If you’ve had little or no prior experience with any kind of word
processor, you’ll likely be able to learn Text Editor without much difficulty. If you’re used to using Microsoft Word, however, the transition may be a little tougher, just because some aspects differ between Mac and Microsoft systems.

The Advantages and Disadvantages of Apple Mail

Macs running the latest operating system include Apple Mail, which works nicely with VoiceOver and Zoom. Additionally, it’s really quite intuitive and easy to use. Once your account is established, sending and receiving e-mail is a piece of cake.

Conclusion

We’ve taken a brief look in this chapter at the ways in which you can create and disseminate information. In Chapter 8, we look at these programs in greater detail. What’s important for now is that you’re at least familiar with the names of the programs and have a working knowledge of how they work with assistive technology. The next chapter walks you through the world of the Internet.
Chapter Seven

SURFING THE WEB AND WEB-BASED COMPUTING

For more than a decade now, it has been impossible to listen to a commercial without hearing a web address. The Internet has become such a pervasive part of our lives that even those who elect not to use computers can’t escape references to web sites and e-mail addresses.

Choosing a Web Browser

A web browser allows you to read information stored on computers that are set up to share that information. At present, there are many web browsers available, nearly all of which are free. The most widely used of these are Internet Explorer, FireFox, and Google Chrome. The Chrome browser isn’t accessible to screen readers at this point, but the other two work well.

Installing the FireFox Web Browser

Although we explore both FireFox and Internet Explorer in greater detail in the next chapter, it makes sense here to briefly walk you through a sample of an information search using both browsers on a machine running the Windows operating system. In the
case of FireFox, you may have to install it on your computer, since it doesn’t generally come factory-installed on the machine. To begin the process, visit www.getfirefox.com and follow the instructions for downloading and installing the program. Once it’s installed, you can activate it by:

1. Get back to the desktop by holding down the Alt key and pressing M. You should hear the screen reader say “desktop.”

2. Type in the first few letters of Mozilla, since the program’s full name is Mozilla FireFox. FireFox will be selected. Press Enter to open it.

**Home Sweet Home Page**

When any web browser opens, you are taken to its home page. You can always change your home page to one that will be more useful to you.

1. With FireFox open, press Alt+T to activate the Tools menu. Mouse users can click the Tools menu near the top of the screen.

2. Tap O to activate the Options menu item.

3. A list of possible options you can change appears. The very first item on that list is Main. Tap Tab to enter a combo box. A combo box offers several options, and you expand those items by pressing Alt+Down-Arrow. In this case, however, we don’t want to make a different selection in this combo box. The first item that appears is “When FireFox starts, show my home page.”
4. Press Tab to enter an edit box to type in a new home page. If you want to see the Guiding Eyes home page each time you open FireFox, type www.guidingeyes.org; or if you want Google to be your home page, type www.google.com.

5. Since we aren’t interested in altering any of the other startup options at this point, the easiest thing to do is to repeatedly press Shift+Tab until the OK button is selected, then tap the Space bar to activate the button. The next time you start FireFox, it will open to the Guiding Eyes home page or Google or whatever page you chose.

**Choosing a Home Page in Internet Explorer**

The process for selecting a home page in Internet Explorer is similar to that used for FireFox.

1. Open Internet Explorer by holding down the Windows key and tapping R for the Run dialogue box.

2. Type in iexplore.exe and press Enter.

Internet Explorer will open, and if this is the first time the program has been used on your computer, it will open to its own page. To change your home page to Google:

1. Hold down Alt and tap T to open the Tools menu.

2. Tap O to select the Options menu item.
3. The first item under Options that opens is a general page. You are automatically placed in an edit area, where you can type in the name of whatever home page you want to use. For instance, you could type www.google.com here. Press Enter.

4. Since we aren’t interested in altering any of the other options at this point, tap Shift+Tab until the OK button is selected, then tap the Space bar to activate it.

The next time you start Internet Explorer, it will open to whatever home page you chose.

Understanding and Optimizing Access to Web Pages

If you use a screen reader and tap the Down-Arrow key repeatedly, you’ll read a web page a line at a time. This isn’t the most optimal way of spending your time with a web page, but in the beginning, it makes sense to do it this way as you learn about the layout of the page in detail, which sometimes that can be extremely helpful. Learning how a page is laid out can ultimately help you navigate it much more quickly when you’ve gained a greater familiarity with it.

The most prevalent characteristics of web pages are links. When a page opens, the screen reader will announce that it is the home page of the site you’re visiting. As you move down the page with the Down-Arrow key, you’ll hear lots of different page elements, such as “heading level 1,” “heading level 2,” etc. You’ll also hear many lines that begin with the word “link.” If you tap Enter on any link, it will open to the page.
associated with that link, just as turning to the correct page listed in a book’s table of contents will let you find specific information.

Use the Down-Arrow key until you hear the screen reader say “link search the catalogue.” You can also navigate among links on a web page by using the Tab key to move forward through the page or Shift+Tab to move backward. Once you’ve found the link labeled search the catalogue, tap Enter to activate it.

**Google and Yahoo: Surfing the Internet**

Two of the most popular sites for researching information on the Internet are Google and Yahoo. The general principles for researching information are similar for both of these search engines. For the purpose of explanation, here is a step-by-step search for a book in the National Library Service for the Blind catalog. This catalog was chosen because the page is highly accessible and easy to use if you’re just beginning to use the Internet.

**Step-by-Step Search Using Assistive Technology**

Our search begins with a visit to the National Library Service home page. Hold down the Windows key and tap R to open the Run dialogue box. Then type www.loc.gov/nls and press Enter. Then navigate to the Search the Catalog link with Tab and press Enter to activate the link.

If you’re using screen magnification software, you need only look for the Title edit box and click once in it to select it.
**JAWS and System Access Users:** Tap the letter E and wait for the screen reader to say “Author: Last name first, edit.” Tap E again to hear “title edit.” This is the edit box into which you type your title.

**Window-Eyes Users:** Type the letter N followed by the letter E to jump to the first edit box—the one labeled Author. Type N then E again to select the Title edit box. You’ll need to tap Enter if you’re using Window-Eyes before you begin typing into the edit box.

Once you’ve entered your search keyword(s) and pressed Enter, your results page will appear. You can type in the title of a book without quotes and press Enter. When your results page appears, you can read through the page until you find the title you want. Associated with the title is a link labeled More on This Record. If you tap Enter there, you will be taken to a more detailed page. The commands described above for giving the Title edit box focus are identical whether you’re using Internet Explorer or Mozilla FireFox.

**Conducting a Google Search Using Assistive Technology**

As was the case with the NLS search, the first step to conducting a Google search involves opening a browser such as Internet Explorer. Use the Run command. Hold down the Windows key and tap R; when the dialogue box appears, type www.google.com and tap Enter. Your default web browser will open to the Google main page. If you prefer to use FireFox, you should make it your default browser so that when you use the Run command described above, FireFox will automatically open.
**JAWS or System Access Users:** To begin searching, tap E until the search edit box has focus. Normally, you should only have to tap E once. If you’re using screen magnification, simply click in the edit box and type your search.

**Window-Eyes Users:** Window-Eyes users will have to tap the letter N followed by an E to get into the edit box. Then press the Enter key to begin typing.

After you’ve typed in your search text and pressed the Enter key, the results page will appear. You can read the results page a line at a time or you can, if you’re using a screen reader, take a shortcut to the beginning of your results. Google uses headings to separate results from other elements on the page. These headings have great value for screen reader users. You can move to the top of the results page by holding down Control and tapping the Home key on your keyboard. Next, tap the letter H. Your screen reader will likely say “Google, heading level 1.” If you tap H again, you will likely hear “search results, heading level 2.” This is exactly where you want to be. Next tap the Down-Arrow key to begin reading through the list of search results.

Google has structured its search results page so that each new result is a heading level 3. You can, therefore, simply tap H repeatedly to move from one search result entry to another. To move backward through the entries, use Shift+H. Remember, when you hear a search result that sounds interesting to you, tap Enter on that link to move from the Google page to the new page.

If you want to get back to the Google page, hold down the Alt key and press the Left-Arrow key. These commands work identically whether you’re using Internet Explorer or Mozilla FireFox. To completely close either program use Alt+F4.
Cloud Computing

The concept of cloud computing means that much of the information you use is stored online as opposed to on your desktop or in networked storage. A perfect example of this is the free screen reader System Access to Go.

Let’s assume you’re visiting a family member who doesn’t use or need a screen reader but who has a computer with working speakers that’s connected to the Internet. To get a screen reader to work on that machine, you would:

1. Hold down the Windows key and tap R to open the Run dialogue box.
2. Type www.satogo.com and press Enter.
3. You’ll soon hear a voice and some tones. The voice will instruct you as to which keys to press to activate the screen reader. Simply carry out these vocal prompts exactly as provided to you.

Once System Access to Go is running on the computer, press Alt+M to minimize the Internet browser window and open Microsoft Word to write your document. The screen reader will behave exactly as if it were installed on the computer’s hard drive. As long as you remain connected to the Internet and as long as Internet Explorer remains open in the background, you can use that screen reader without noticing any degradation in performance.

Another example of cloud computing is a program called Dropbox. This program allows you to access files in a Dropbox folder wherever you are regardless of what
computer you’re using. When you move files into a Dropbox folder that gets created when you install the program, those files also get stored in the cloud. You can move to another computer at the home of a friend, for example, and if you install the Dropbox program there, you can—by typing in your user name and password—have access to the files that are in the Dropbox folder on your home computer. Even if your computer at home is turned off, you can still see and use those files. If you delete or change them, those deletions and changes will show up when you return home and you bring up the files again on your home computer. You also can choose not to install the program at all; simply access your files by opening the Dropbox web page and typing in your user name and password. If the more than two gigabytes of storage you get free from Dropbox isn’t enough, you can purchase a larger amount.

Other examples of cloud-based computing are programs that back up the entire contents of your computer. For a monthly fee, these companies store your information. That way, if your computer breaks or is no longer able to find information you need, you can restore it. This is all done over the Internet; no one will visit your home or work on your computer.

Microsoft also offers some free storage as part of its Windows Live system—a system that allows you to collaborate with others and share your documents with them, among other things.

Conclusion

In this chapter, we looked at the Internet and how to navigate it using assistive technology. We also briefly examined the concept of cloud computing and why it is
important and valuable to those who use assistive technology. In the next chapter, we put it all together and show you how to do specific tasks with specific programs.
Chapter Eight

PUTTING IT ALL TOGETHER: HERE’S HOW

In this chapter, we discuss Microsoft Word, Excel, and Outlook. We touch upon how to access these programs through assistive technology as well as several resources available to those using the Microsoft Office suite. Later in the chapter, we discuss PDFs, antispyware programs, and assistive technology, as well as being part of the social network as a visually impaired individual.

Working in Microsoft Word

Regardless of which version of Microsoft Word you’re using:

1. Hold down the Windows key and tap R to see the Run dialogue box.

2. Type “winword” and tap Enter.

If you’re using a screen reader, you should hear it say something like “Microsoft Word: document one.” The key is to listen for “document one.” This means that you have entered a writing area where you can create a document.
You can, after you’ve written some sentences, activate the spell checker feature by tapping F7. When spell checking, you can hear a misspelled word in its sentence as you wrote it. This can be useful if you aren’t sure what the synthesizer said when the misspelled word was read to you.

**JAWS and System Access Users:** Press Insert+C to hear a misspelled word spoken to you. To have a word in the list of suggested words spelled, JAWS, NVDA, and System Access users can tap Insert+Up-Arrow twice quickly.

**Window-Eyes Users:** To hear a misspelled word, tap Alt+S. To hear a list of suggested words spelled, tap Control+Number Pad 5 twice quickly.

**Helpful Resources for Visually Impaired Users of Microsoft Word**

Among the most detailed tutorials or textbooks on Word for the visually impaired or blind are those available from the Accessible Technology Institute. This organization offers comprehensive training textbooks that are well organized, concisely written, and extremely thorough and available for purchase on the organization’s web site (Murtha 2010).

The American Printing House for the Blind offers tutorials in a variety of Word formats at basic and advanced levels that are available in text and audio formats (American Printing House for the Blind 2010). National Braille Press has released a reference book that lists all Word commands for Word 2010; the company also publishes a similar book for users of Word 2007.
Using Microsoft Excel with Assistive Technology

Spreadsheets were never designed to be rigidly linear in nature. If you’re a longtime Braille user who isn’t used to reading material in columns or dealing with lots of blank space, you may need to explore an Excel spreadsheet to determine how it is laid out. If you use a screen reader, it’s likely that the screen reader has been optimized to work with Excel, and as you become more familiar with Excel, you’ll find that there are a host of screen reader commands designed to chain read cells in different orders.

Using Microsoft Outlook with Assistive Technology

Outlook is more than an e-mail reader. If Outlook is already open and running on your computer, there are at least two ways to get into the calendar, and both work equally well.

For those who use screen magnification software or screen readers such as JAWS, System Access, or NVDA: To open the calendar, press Control+Y then use the Up- and Down-Arrow keys to navigate among your Outlook folders until you hear “calendar.” When it has focus, tap Enter. There is a quicker way to enter the calendar, but some older versions of JAWS have some difficulty with it. This quicker method involves holding down Control while tapping 2. Your screen reader should say “calendar,” and you’ll be presented with a grid of days and times. If you have no particular appointments on a given day, the screen reader should say “no appointments.” If you already have appointments during the current week, you can use Tab to move among them, and you can use Enter to open them and see their full details. If you continue to tap Tab, you will again return to the name of the day of the week.
You can navigate from day to day by using the Right-Arrow or Left-Arrow key to move back a day at a time. If you need to set an appointment several days or weeks in the future, use the Go-To dialogue box. Hold down Control and tap G and the screen reader will say “go to date.” You can now type in a specific date to create an appointment.

For Window-Eyes Users: Window-Eyes has developed its own calendar interface that you can instantly enable from anywhere within Outlook. To open the calendar interface, press Insert+C. By default, the calendar interface prepares a list of appointments for the current day. You can alter the amount of data in that list by telling the calendar interface to prepare an appointment list based on a week, a month, a year, or a custom time frame.

Outlook Contacts

In addition to the features already mentioned, Outlook can help you keep track of important names and addresses. These are referred to by Outlook as contacts. To begin creating a contact, press Control+Shift+C from anywhere in Outlook and fill in the edit boxes as prompted.

Taking Notes in Outlook

One of Outlook’s most helpful features is the ability to take super-quick notes, save them with just one keystroke, and then be able to find them later for re-reading or augmenting.

The most important thing to remember about taking notes in Outlook is that the note will be saved with the file name identical to the first line in the note. You can begin creating a note almost instantly from anywhere in Outlook by pressing Control+Shift+N.
Window-Eyes users also may have to tap Insert+B first. (Insert+B tells Window-Eyes to pass the next keystroke directly to the program you’re using rather than capture the key combination for its own use.)

**Reading Files Others Have Generated**

It is inevitable that someone somewhere will send you a picture or a PDF. As noted earlier in this text, creators of PDFs will scan in an image that looks perfectly clear as a document, but that image has never been processed using optical character recognition. As a result, when your screen reader sees the file, it may say “the file appears to be empty” even though it isn’t. Most of the time, you’ll be able to read PDFs without too much difficulty using Adobe Reader. You can read either a single page or the entire document by using the same keys you would use to read a document in Microsoft Word. In other words, you can tap Insert+Down-Arrow if you’re using JAWS or System Access or Control+Shift+R if you’re using Window-Eyes. ZoomText users may find the doc reader helpful when reading PDF files (Adobe, Inc. 2010).

**Surfing the Internet Using Assistive Technology**

Excellent web page design includes the use of headings to help those using screen readers and screen magnification software move easily through web pages. Whether you use Internet Explorer or FireFox, you can tap H on any web page to move from heading to heading. The same keystroke works in Safari for the Mac as well.

**JAWS or System Access Users:** If you want to skip all the links and heading information and go straight to the first lines of text on a web page, tap N. You can then
read the text a line at a time by pressing the Down-Arrow key repeatedly, or you can read as much of the page as you like at one time by applying the read-to-end feature of the screen reader by pressing Insert+Down-Arrow. Tap Control by itself to stop reading the page and have the cursor stop at the point at which the reading ends. Once you’ve familiarized yourself with pages you visit often, you can tap E to move directly to the first edit box on the page. You can begin typing immediately into the edit box.

JAWS and System Access users can navigate through tables by holding down Control+Alt while pressing the Right-Arrow key to move forward by a column, the Left-Arrow key to move backward by a column, the Up-Arrow key to move up the table backward from bottom to top, and the Down-Arrow key to move down through the table from top to bottom.

**Window-Eyes Users:** If you want to skip all the links and heading information and go straight to the first lines of text on a web page, tap X. You can then read the text a line at a time by pressing the Down-Arrow key repeatedly, or you can read as much of the page as you like at one time by applying the read-to-end feature of the screen reader by pressing Control+Shift+R. Tap Control by itself to stop reading the page and have the cursor stop at the point at which the reading ends. Once you’ve familiarized yourself with pages you visit often, press N then E to move to the first edit box. Tap Enter first before entering information.

If you visit a web page that includes lots of tables, tap T to navigate from table to table. Once you’re in a table, Window-Eyes users should press Insert (Ins) and Plus (+) on the number pad to turn Tables mode on. While inside the table, Window-Eyes users can hold down the Insert key on the number pad while pressing the Left-Arrow key (the 4
key) on the number pad to move backward by one column or hold down the number pad
Insert key and press the Right-Arrow key (the 6 key) on the number pad to move forward
by a column. Insert+Down-Arrow (the 2 key) on the number pad will move you down the
table one line at a time, and Insert+Up-Arrow (the 8 key) on the number pad will move
you up one line within the table. When you’re finished with the table, use Insert+Minus (-)
on the number pad to turn Tables mode off.

While there are literally scores of additional screen reader–related features you
can implement when using either Internet Explorer or FireFox, this abbreviated list—
combined with information from the previous chapter—should get you started and give
you the foundation you need to keep learning.

Protecting Your Computer while Utilizing Assistive Technology

Navigating the Maze of Antivirus Programs

As with every circumstance in which you are given many options from which to
choose, picking just the right antivirus program can be a bit confusing. Do you pay big
bucks and buy something that has a well-known name? Or do you opt for a free program?
If you go with the free program, are you sacrificing some level of security because you
didn’t buy? All of these questions are important ones; additionally, you have to determine
whether the antivirus program you’re about to use will work well with your screen
magnification software or your screen reader. Norton Antivirus, a well-known antivirus
program, is also among the most difficult to operate if you’re a screen reader user, and it
doesn’t really matter which screen reader you use. Regardless of whether you decide to
buy an antivirus program or download a free one, you want to pick one that uses as little of your computer’s memory as possible, since your screen magnification software or screen reader uses somewhat more memory than the norm.

One of the best antivirus and antispyware programs you can buy is NOD32 from ESET. You may be able to purchase this program on a CD from office supply stores, but it is most commonly downloaded and purchased from the company’s web site. It works well with screen reader technology, and it provides excellent protection without degrading the performance of the computer on which it is installed (ESET, LLC. 2010).

**Free Antivirus Programs**

One of the most widely used free antivirus programs is Microsoft Security Essentials. It works well with screen readers and screen magnifiers, and it doesn’t degrade a computer’s performance. There are different versions of the software, depending on the Windows operating system you use; the program works with both Windows XP and Windows 7. Installation of the program is straightforward and accessible, and once installed, you can dictate when the program scans your computer’s memory and hard drive for viruses and other malicious software (Microsoft, Inc. 2010).

AVG is another free antivirus program that has been available for a number of years. There is a premium version you can purchase, but the free version provides solid protection. Its scheduling of scans by the user is somewhat limited, but if you want a program you can basically install and leave alone to work in the background, this is one option (AVG Technologies 2010).
Getting Connected Using Social Networks

One of the most significant things to happen on the Internet in recent years is the concept of social networking. Simply explained, social networking is a way of connecting to others via the Internet. FaceBook is the most commonly used of these sites. When you set up an account by visiting www.facebook.com, you can create a profile that includes various types of information about you. Once the account is created, you can search for people or even groups. Did you graduate from a specific high school in a particular year? Perform a search based on that criteria and see whether anyone you know is also connected to FaceBook. Chances are extremely high you’ll find people with whom you’ve not connected in some time. You can post short messages to your FaceBook friends to update them on your status. Planning an event? Post an invitation to your FaceBook friends quickly and easily. Or upload photos for your friends to see. You can comment on the status of your friends by writing on their “wall,” a scenario in which you simply write in an edit box and have your message posted so that not only your friend can see it but also your friend’s friends. In short, FaceBook is a way of creating a variety of connections to others in a variety of ways.

Unfortunately, many of the features FaceBook offers currently are not totally accessible to screen reader users. Screen reader users might have better luck using the mobile FaceBook site—http://m.facebook.com—as it’s somewhat easier to navigate.

Do You Tweet? Using Twitter

Twitter is a social networking site that lets you frequently update notices of your activities and share them to people who follow you. These micro-messages can be no
more than 140 characters per message. Like FaceBook, Twitter includes its cadre of celebrities and businesses, all vying for your attention. Twitter can be highly useful if you’re receiving concise, up-to-the-minute reports on a meeting that someone is attending that you just couldn’t get to. Most messages are fluff, however—written by people to alert others as to what they’re doing at a specific point in time.

The Twitter web site is quite accessible to screen reader users, and there are third-party programs that allow you to use Twitter without using the Web. One such third-party program is Qwitter, available from www.qwitter-client.net. Before you can use any of these third-party programs, just know that you must already have an active Twitter account.

**Conclusion**

In this chapter, we began to put together some of the information you’ve read in previous chapters. We discussed the use of Microsoft Word, and we took a brief tour of Microsoft Excel. Using Microsoft Outlook, we guided you on how to successfully create an e-mail account, and you learned to add appointments to the calendar, names to the address list or contacts, and how to create quick notes.

We learned more about Portable Document Format files, or PDFs, and how to read them with a program called Adobe Reader. We revisited ways of connecting to the Internet using Internet Explorer or FireFox and focused on some of the special screen reader–specific keys that make navigating a web page easier.
We also focused on the value of protecting your computer from viruses and other malicious software, briefly exploring the free and premium antivirus programs on the market. Finally, we focused on social networking sites like FaceBook and Twitter.

In the next chapter, we’ll look at low-tech solutions for organizing your life, including ways of taking notes and creating audio labels for things and much more.

Bibliography


Chapter Nine

LOW-TECH SOLUTIONS FOR ORGANIZING YOUR LIFE

You don’t need to carry a computer with you or be tethered to one to organize your life. You can use portable technology to do everything from keeping track of information at meetings to taking the mystery out of what’s in that frozen food package or can.

Using Digital Voice Recorders

One form of assistive technology is a digital voice recorder, and while inexpensive technologies like this aren’t likely to be fully accessible, you should at least be able to use a voice recorder for basic recording and playback. Keep in mind that all recorders are not created equal; some may lack the capabilities you want. In addition, if the menu screen of a recorder is small, it can be difficult to read by those with impaired vision. You might be frustrated if the buttons to record, play, fast forward, rewind, or skip messages work closely with content displayed on the screens (for instance, if you can’t move among messages without pressing the Fast Forward button and tapping “Skip” on the display screen).

It pays to do a little research online and visit an electronics store or two to comparison shop and take some test runs, because the best deal may not be the recorder with the lowest price. For example, some will allow you to schedule a recording session
and often include alarms and appointment reminder capability, and if these are capabilities you need, it may be worth it to you to pay more. But if you want a device that behaves like a pen—something you can use to quickly take a note and return it to a pocket or purse—any small digital recorder should suffice.

**Using Voice Recording Technology You Already Own**

If you own an iPhone or an iPod Touch with the built-in VoiceOver screen reader, you already have an excellent way of taking quick notes using the phone’s Voice Memo feature. Additionally, using the iPhone for note taking means you can e-mail any notes you create.

**Using Audio Book Readers as Note Takers**

In addition to being able to read digital audio books, digital audio book readers such as the Victor Reader Stream, the BookSense, and the BookPort are capable of recording notes. The BookSense and BookPort readers allow you to insert special electronic markers within your notes so that you can more easily move among them. The Victor Reader Stream allows for easy pausing of the recording, and you can easily tell whether the recording is paused or completely stopped. Each of these was originally created with recording technology, so any model will have it.
High-Contrast Pens

If you have sufficient vision to write and read your own writing, something as simple as a high-contrast pen may be just what you need. Known as 20/20 pens, they have a point that creates bold, easy-to-read writing. You can purchase these pens and a small metal writing guide, which insures that you stay on the line, from Independent Living Aids, LLC.

Creating Audio Labels

Since the 1980s, various products for creating and affixing audio labels to products have come and gone. Early generations had considerable flaws; for example, the machine necessary to play the audio label was large or clunky, or the audio label didn’t remain in place on the surface. But the ability to create and play back labels is important to those trying to keep their possessions organized, so manufacturers continue to develop this technology to make it more practical and user friendly. At least one product is now available that meets these criteria.

The Pen Friend

The Pen Friend is a small cylindrical unit that serves as a recorder and player. You also get an assortment of labels that can be affixed to anything from CDs to frozen pizza. Best of all, the process of recording a label is as easy as touching the tip of the pen to the label, then moving it close enough to your mouth to make the recording. From that point on, whenever you touch the pen to the label, it will replay the information you recorded. The labels have a significant recording capacity—enough to record not only
box labels but also directions and recipes from the box as necessary. The only real prohibition to using Pen Friend labels is that they won’t survive being run through a washing machine.

**Don’t Fight It, Label It**

There are nearly as many strategies for labeling personal items as there are people who create labels. Those who have some vision may find the high-color stickers available at office supply outlets helpful not only in labeling things but also in finding objects in a work space. Still others use puff paints and even tiny dots of fingernail polish to mark knob positions and other items. Among the very best resources for developing a strategy for labeling and organizing your life is *Label It! Braille and Audio Strategies for Identifying Items at Home and Work* by Judith M. Dixon (2008). This book offers tips on methods, tools, and materials for creating labels for apparel, medications, food containers, appliances, and miscellaneous items. It may be borrowed from your regional talking book library, and its order number is RC 67704 for the cassette title or DB 67704 for the digital audio book.