



AT That's Free

By Andrew Leibs

Before the digital age, assistive technology was hard to miss, and hard to buy. Classmates would see a sight-impaired student's boxy video magnifier or hear her computer talk. These were costly, clunky solutions usually acquired through special education.

Today, we have the inverse: sleek laptops, tablets, and smartphones now have so much processing power, manufacturers can enfold functionality – e.g., screen reading, magnification, audio playback – that once necessitated separate software or machines.

All Windows and iOS devices have more built-in accessibility than most users will ever need or know they have. And what's not built into the operating system is usually available as a free mobile app, web service, or downloadable application.

Here's a quick look at some of the assistive applications you either have or can quickly snag to make reading, writing, online research, and information sharing more accessible or efficient.

Accessibility Built Into Microsoft Windows & Office

The Microsoft Windows operating system provides three main accessibility applications: Narrator, a screen reader; Magnifier, a text and image enlarger; and On-Screen Keyboard, an input option for persons who are unable to type on a standard keyboard.

The programs are located in the system's Ease of Access Center. To get there, click Start, Control Panel, and then Ease of Access Center. The Center lets you

change accessibility settings, activate built-in command tools, and fill out a questionnaire to receive personalized recommendations.

- **Narrator** is a screen reader that lets users operate their PC without a display. Narrator reads all onscreen text aloud, provides verbal cues to navigate programs, and has keyboard shortcuts for choosing what's read, e.g., "Insert + F8" will read the current document.
- **Magnifier** enlarges all or part of the screen to make things easier to see. Lens mode turns the mouse pointer into a magnifying glass you can move over the screen. Docked mode enlarges one static section of the screen.
- **On-Screen Keyboard** enables data entry by using a mouse, by using an electronic pointing device, by cycling using one key, and (on touch-screen monitors only) by touching the screen.

The Ease of Access Center also lets you make the mouse or keyboard easier to use, and replace sounds with visual alerts.

In addition, Windows provides Accessibility Checker, which helps create accessible documents. The tool presents a task pane where users can spot and fix Word, Excel, and PowerPoint content that might present difficulties for some readers or audience members, e.g., insertion of alternative text describing visual content (charts, graphs, and photos) or hyperlink destinations.

Accessibility Built Into Macintosh OS X and iOS Devices

Mac and iOS users can easily enlarge onscreen content and hear commands and content read aloud using Zoom and VoiceOver.

Like all screen readers, VoiceOver uses text-to-speech to read what's onscreen, including typed text and commands, app names, battery level, Wi-Fi signal strength, and time of day. But unlike the linear layout of traditional screen readers, which enable navigation among web page elements (e.g. headings, links), VoiceOver translates keyboard commands into direct interaction with items on a touchscreen, approximating what sighted users experience using a mobile device.

Blind iPhone users, for example, will hear descriptions of any onscreen or web page element their finger touches, and can then gesture (e.g., double tap, drag, or flick) to open an app or navigate to another screen.

VoiceOver also tells whether a mobile device's display is in landscape or portrait mode, whether the screen is locked or unlocked, and lets users of Bluetooth keyboards control their iOS device without touching the screen.

Zoom magnifies everything onscreen – including text, graphics, and video – up to 40 times its original size on Mac machines, and up to five times on iOS devices. You activate Zoom through keyboard commands, moving the mouse wheel, using trackpad gestures, or (on mobile devices) double tapping the screen with three fingers. Enlarging maintains original image clarity and doesn't affect system performance.

To activate Zoom on a Mac machine, click the Apple icon in the upper left corner of the screen, then select System Preferences > Universal Access > Zoom. Click “On” to activate. Use the slider buttons under “Options” to adjust the magnification range.

Zoom provides three options for how the magnified screen shifts as you type or move the cursor with the mouse or trackball. You can also enlarge the cursor by adjusting the slider buttons under Universal Access > Mouse > Cursor Size.

To activate Zoom on an iOS device, press Settings > General > Accessibility > Zoom, then slide the white Off button to the right so it turns blue.

Once activated, double-tap with three fingers to magnify to 200%, or double tap and drag three fingers up or down to increase to 500%. Once zoomed in, drag or flick with three fingers to move around the screen. Once you start dragging, you can use just one finger. Standard iOS gestures (flick, pinch, tap, and rotor) still work when the screen is magnified. NOTE: You cannot use Zoom and VoiceOver at the same time.

Free Windows Programs

In addition to built-in functions, you can find free accessibility in a host of programs, mobile apps, and web services.

The University of Athens Speech and Accessibility Laboratory maintains an online directory of free software you can download to your PC. The programs are divided into five technology categories:

1. Blindness
2. Motor Disability
3. Low Vision
4. Hearing
5. Speech Disability

Each entry annotation includes a description, information on system requirements, installation, settings, a screenshot, and links (internal and external) for downloading programs. You can search the site by technology category, disability type, or alphabetically. Sample applications include:

- **ooVoo:** an online communications platform that supports text chatting, video calls, and standard public network telephone calls with a prepaid account.
- **MathPlayer:** enhances Internet Explorer to convert Mathematical Markup Language into standard math notations, such as one would find in a book, enabling users to enlarge or listen to equations.
- **Angle Mouse:** a background utility that continually adjusts control-display (C-D) gain. The pointer moves quickly when the mouse moves in a straight line, then slows down to make targets (e.g., app icons) easier to reach for users with mobility issues.

Free Google Extensions

Google Chrome and Chromebook users can enlarge or listen to web text read aloud by downloading free extensions such as ChromeVis and Select & Speak.

Use the search box on the Chrome Store website to find extensions and click “Add to Chrome” to download them. Note: You must have an account and Chrome installed on your system to add extensions.

ChromeVis lets you select text for magnification, either in an enclosed lens at the top of the page or floating atop the section you're currently reading. The lenses

keep the original page layout intact and let users manipulate text without a mouse. To use ChromeVis, select text using the mouse or a keyboard shortcut, then click the ChromeVis icon or press “0” to open a lens.

Select and Speak, a Cloud TTS (text-to-speech) Service, reads user-highlighted web content aloud through a connection to iSpeech servers. To use the extension, select text (using the mouse or keyboard commands) and press the Select & Speak icon. Press “Stop” to pause play.

Free iOS and Android Mobile Apps

You can download many mobile assistive technology apps to your iOS or Android device. There are many ways to find such apps, including installing the Braille Institute’s ViA, which aggregates information on over 1,000 blindness-related apps. Another is through websites such as AppAccessible, which profiles many free apps, including:

- **SayText:** reads aloud alternative text imbedded in images.
- **Jumbo Calculator:** an easy to use, large-buttoned calculator designed for users of all ages.
- **TapTapSee:** designed to help blind and visually impaired users identify objects they encounter throughout the day.
- **Audio Exam Player:** provides students with the means to independently hear test questions read aloud with human speech or synthetic speech.

Other great ways to find free AT include executing Google searches on specific areas of need and checking with your school’s Disability Services or regional vocational rehabilitation office.

Resources

Microsoft Accessibility

<http://www.microsoft.com/enable/>

Apple VoiceOver

<http://assistivetechology.about.com/od/BVISC1/f/Apple-Voiceover-Is-A-Screen-Reader-With-A-Visual-Context.htm>

Apple Zoom

<http://assistivetechology.about.com/od/ATCAT10/p/Zoom-Apples-Built-In-Screen-Magnifier.htm>

Accessibility in Apple iPod touch:

For Blind & Visually Impaired

<http://assistivetechology.about.com/od/AccessibilityintheiPodtouch/a/Ipod-Touch-For-Blind-And-Visually-Impaired-Users.htm>

For Deaf & Hard of Hearing

<http://assistivetechology.about.com/od/AccessibilityintheiPodtouch/a/Ipod-Touch-Accessibility-For-Deaf-And-Hoh-Users.htm>

For Mobility Impaired

<http://assistivetechology.about.com/od/AccessibilityintheiPodtouch/a/Ipod-Touch-Accessibility-Features-For-Mobility-Impaired.htm>

Google Chrome Store

<https://chrome.google.com/webstore/category/apps>

AppAccessible.org

<http://www.appaccessible.org/17-iphone-ipad-android-apps-blind-visually-impaired/>