



Enhancing the accessibility of web conferencing with Adobe® Connect™

Web conferencing and real-time collaboration technology for people with disabilities

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Key points:

- Fifty-four million Americans and 650 million people worldwide have some level of disability.
 - U.S. and international initiatives have set guidelines and regulations to help the disabled to access online content.
- Adobe Connect is a leader in providing accessibility features such as:
- Screen readers
 - Menu navigation
 - Keyboard shortcuts
 - Support for closed captioning
 - Customizable displays

Although web technologies have broken down many traditional barriers to communication, not everyone has been able to participate fully in new communication channels. For millions of individuals with disabilities, accessing digital information is still problematic. Government agencies, advocacy groups, and businesses are working to improve accessibility for all web users, including individuals with visual, auditory, or mobility impairments.

For software developers, accessibility constitutes a design challenge because foundational platforms and technologies are not all inherently accessible. User experience designers must create application interfaces that provide shortcuts and alternate access modes for key functions. Additionally, applications must allow content to be properly formatted so that assistive technologies, such as screen readers and screen magnifiers that serve the visually impaired, can accurately interpret it.

New tools, new challenges

Web conferencing technology is unleashing new possibilities for conducting rich interactions with more people without the cost and hassle of traveling to a meeting location. By its very nature, however, web conferencing poses challenges for accessibility. Real-time collaboration demands immediate interactions between virtual meeting participants. Live streaming of dynamic content makes it difficult to translate multimedia information into text or to provide non-animated alternatives. Additionally, the richness of options and granularity of controls can create navigation complexity.

Adobe Connect is a leading web conferencing solution for meetings, webinars, and eLearning that offers advanced accessibility features to promote a positive and effective experience for all users. It provides shortcuts for many key meeting features, such as attendee management; navigation through pods, menus, and windows; and content sharing. Through these keyboard shortcuts, hosts and attendees with visual, auditory, and mobility disabilities are able to access and use the Adobe Connect solution for real-time collaboration via a combination of voice, video, and data streaming. They can also take advantage of the award-winning solution for on-demand training and learning.

Built on the Adobe Flash® Platform, Adobe Connect offers end users the ability to easily launch the interface and take advantage of accessibility support in Adobe Flash Player—two key benefits that competing web conferencing solutions do not offer. Because Flash Player software is installed on virtually all Internet-enabled computers worldwide, participants can access Adobe Connect meetings from any PC or Mac, without downloading proprietary client software—a cumbersome process for users with disabilities.

By offering several advanced accessibility features—including keyboard navigation, support for screen readers such as JAWS, NVDA, and others that support Flash technology, as well as closed-captioning support—Adobe Connect can help organizations realize their business productivity objectives while also helping to ensure that their electronic communication is accessible to the largest possible community of users.

Accessibility standards and regulations

Today, more and more organizations are seriously considering how to better enable individuals with disabilities and to comply with evolving regulations around accessibility. Accessibility defines a set of standards to make information technology and software applications more usable by everyone, including users who are visually impaired, who have difficulty hearing, or whose mobility is reduced.

According to data released by the U.S. Census Bureau in 2010, approximately 54 million Americans, or 19% of the population, have some level of disability, and 16.1 million Americans, or 7% of the U.S. population, have disabilities that interfere with daily activities.

According to the International Labour Organization (ILO), one out of every ten people in the world has a disability—some 650 million worldwide. Approximately 470 million of these individuals are of working age.

U.S. federal regulations

Accessibility has been widely promoted and mandated by federal agencies in the United States. The Rehabilitation Act is a civil rights law that was passed in 1973 to protect individuals with disabilities. The act barred federal agencies and programs funded with federal money from discriminating against qualified individuals with disabilities in their hiring practices. The law defines "disability" broadly as "a physical or mental impairment that substantially limits a major life activity."

In 2001, Section 508 of the Rehabilitation Act was created to require federal agencies to make electronic information and technology accessible to workers with disabilities. Section 508 leverages the government's buying power to help ensure equitable treatment for disabled workers by requiring that all information technology products purchased by the federal government meet certain accessibility standards.

The World Wide Web Consortium (W3C) Web Accessibility Initiative (WAI) developed a set of guidelines for making web content—information in a web page or application—accessible to those with disabilities. The Web Content Accessibility Guidelines (WCAG) version 1.0 were adopted as the basis for the web accessibility standards in Section 508 but have since been superseded by WCAG version 2.0, which improves testability of the guidelines and is written in a technology-independent manner.

Recently, the Telework Enhancement Act of 2010 was passed to provide a framework for agencies to better leverage technology and to maximize the use of flexible work arrangements. As a result, finding online collaboration solutions that are compliant with Section 508 has become a greater priority.

International directives

Many other international public and private organizations are placing a stronger emphasis on the usability of collaboration technologies by disabled users.

The ILO is promoting employment opportunities for persons with disabilities based on the principles of equal opportunity and equal treatment. Over the past 25 years, it has enacted multiple conventions, including the Vocational Rehabilitation and Employment (Disabled Persons) Convention in 1983. Adopted at the start of the United Nations Decade of Persons with Disabilities, the convention requires member states—in accordance with national conditions, practice, and possibilities—to formulate, implement, and periodically review a national policy on vocational rehabilitation and employment of disabled persons. The convention has been ratified by 82 countries as of February 2011. Supplemental recommendations and a code of practice, "Managing Disability in the Workplace," adopted in 2001, extend the reach of this convention. Although these documents are nonbinding, they reflect recent changes in the understanding of disability. Since 1983, there have been significant shifts in legislation, policies, and services concerning people with disabilities.

Another initiative, the Convention on the Rights of Persons with Disabilities and its Optional Protocol, marks a milestone in viewing persons with disabilities as "subjects" with rights and recognizing them as active members of society. Signatories to it agree to enact legislation addressing accessibility needs, including electronic information and applications. Adopted at the United Nations in December 2006, this convention defines a broad categorization of persons with disabilities and identifies areas where adaptations must be made by the 139 signatories to enable persons with disabilities to effectively exercise their rights and participate in society on an equal basis.

Disabilities and web conferencing

In the context of the web conferencing user experience, three categories of disability call for specific attention: visual, auditory, and mobility.

Visual

There are three major types of visual disabilities: blindness, low vision, and color blindness.

- Blindness is the condition of lacking visual perception due to physiological or neurological factors.
- Low vision is a visual impairment—not corrected by standard glasses, contact lenses, medicine, or surgery—that interferes with the ability to perform everyday activities. A related term is "legally blind," which is defined as visual acuity of 20/200 or less or a visual field of less than 20 degrees (the norm being 180 degrees).
- Color blindness is a color-vision deficiency resulting in the inability to perceive differences between some colors that others can distinguish. It ranges from total color blindness, in which the world is perceived in shades of gray, to partial color blindness, a more common condition in which the difference between red and green or yellow and blue cannot be perceived.

A person who is blind is usually precluded from using a mouse or pointing device because of the hand-eye coordination required for effective operation. A person who is blind is also likely to use a screen reader. People with low vision might use a screen magnifier to enlarge text.

Auditory

There are two major auditory disabilities: deafness and hard of hearing.

- Deafness is the inability to understand speech or recognize environmental sounds. People who are deaf generally communicate using sign language. According to data from the National Health and Nutrition Examination Survey in 2004, an estimated 16.1% of adults (29 million people) in the United States had speech-frequency hearing loss.

Access to interpreting services, closed captioning on television, instant messaging, and text messaging (SMS) has broadened the entertainment and communication options for those who are deaf. Some of these text-based channels, such as chat, are common features in web conferencing applications.

- Hard of hearing or hearing loss is categorized as a continuous spectrum of loss. There are several levels of severity: mild, moderate, severe, and profound. On average, people with mild hearing loss are able to hear sounds of 25 to 40 decibels with their better ear. For those with profound hearing loss, the quietest sound they might hear is 90 decibels. People who suffer from profound hearing loss are very hard of hearing and rely mostly on reading text, lip reading and sign language.

Hearing impairments make it difficult or impossible for individuals to respond to audible cues, such as sound alerts or audible indicators. Visual representations of auditory information and translation of audio information into a visual format are required for people affected by hearing impairments.

Mobility

Impaired mobility can arise from neurological disorders, repetitive stress or other physical injury, or degenerative diseases.

- Neurological disorders, caused either by birth or accident, can result in partial or full paralysis when nerves fail to control the muscles of the body.
- Repetitive stress injuries are a result of repeating motions over a long period of time. Common manifestations include wrist tendonitis and backache.
- Degenerative diseases and conditions such as arthritis may be associated with aging. According to the Centers for Disease Control and Prevention, an estimated 46 million U.S. adults (about 1 in 5) report doctor-diagnosed arthritis.

Mobility or dexterity impairments often limit a person's movement or fine-motor skills. They can affect the ability to type and to use a mouse or pointing device. People suffering from mobility impairments might use alternate input devices for interacting with their computer, such as voice-dictation software.

Adobe Connect usability

Adobe Connect includes many accessibility features to facilitate navigation, enable new key workflows for disabled persons attending meetings or delivering presentations, support closed captioning, and provide flexibility in customization. To understand the benefits of Adobe Connect for accessibility over other offerings in the space, it is important to understand how users access and navigate the Adobe Connect application.

In Adobe Connect, interactions among users occur in the context of meeting rooms. Each room is a virtual space identified by a unique web address. The properties and contents attached to each room can persist across meeting sessions. The same concept applies to eLearning use, although the meeting rooms are referred to as "virtual classrooms," which are rooms enhanced by additional training features.

Hosts, presenters, and participants can join a meeting room by entering the room URL in a browser, such as Internet Explorer, Firefox, or Safari. Rooms are launched from Flash Player. Each room exhibits a variable number of screens, referred to as "pods." Pods are independent, shareable mini applications that fulfill specific functions in the meeting, such as attendee management, text-based messaging, or sharing. Users navigate across these pods during a meeting session. A main toolbar and a set of menus complete the navigation framework.

Facilitated navigation

The Adobe Connect navigation framework provides noteworthy accessibility support. Key accessibility navigation features include screen readers, menu navigation, keyboard shortcuts, and tab navigation.

Screen readers

Users who are blind or visually impaired are able to participate effectively in online meetings thanks to Adobe Connect's support for screen readers, which was developed and tested using JAWS 11 as a benchmark. Other assistive technologies that support Flash technology should be compatible with Adobe Connect as well.

Menu navigation

Users can navigate through the Adobe Connect interface using the on-screen menu. This is important for users with mobility impairments because it can reduce reliance on traditional—and more challenging—input devices such as a mouse.

When using the Adobe Connect meeting client window, users can press Ctrl+space to place the focus in the top-level menu and then use the Arrow keys to browse through the menu options. They can navigate horizontally and vertically and within each menu.

For example, to change bandwidth settings for their meeting room, hosts can go to Meeting and then navigate the pull-down menu. There they can select Room Performance and Appearance and then Optimize Room Bandwidth to change the settings from DSL to LAN. Using the keyboard, the hosts can select LAN and then press the spacebar. The menu is dimmed after their selection.

Keyboard shortcuts

Users with disabilities can use keyboard shortcuts to manage key meeting functions. Those with mobility challenges can use keyboard shortcuts to ease screen navigation by bypassing more physically challenging input devices. Shortcuts allow users to quickly activate program accessibility functions, including navigation among pods. For example, pressing Ctrl+. (period) toggles to full-screen display, expanding the size of an active pod for easier viewing.

Users who rely on the keyboard, including users who are blind, should familiarize themselves with important keystrokes and ensure that a reference list is handy during a meeting.

The following keyboard shortcuts provide improved accessibility so that the Adobe Connect Meeting client can be used as much as possible.

Useful tips for navigation

At meeting start:

- Press Ctrl+space to start menu navigation.

During the meeting session:

- Open the Help menu and select Keyboard Shortcuts to view all current shortcuts.
- For sharing functions, place the input focus in the Share pod by using the Tab key. Sharing shortcuts are active only when the application focus is in the Share pod.
- Use menu navigation to the Pods menu to manage the pods in the meeting room.
- Use a combination of tab navigation and keyboard shortcuts to actively manage key meeting functions.

Shortcuts for navigating pods, menus, and windows		
Result	Windows	Mac OS
Toggle between notification window and meeting room	F8	F8
Display application menu for keyboard navigation	Ctrl+space	Command+F2
Move focus to next/previous pod	Ctrl+F6/Ctrl+Shift+F6	Command+F6/ Command+Shift+F6
Display pod menu for keyboard navigation	Ctrl+F8	Command+F8
Retitle pod	F2	F2

If pods are hidden by overlapping ones in Windows, press Ctrl+F9 to show them.

Shortcuts for attendee management		
Result	Windows	Mac OS
Toggle Raise-Hand status	Ctrl+E	Command+E
Promote to host—requires selected items in Attendees pod	Ctrl+'	Command+'
Demote to participant—requires selected user in Attendees pod	Ctrl+]]	Command+]]
Promote to presenter—requires selected user in Attendees pod	Ctrl+/	Command+/
End meeting	Ctrl+\	Command+\

These shortcuts are available in Adobe Connect from a PC or a Mac. Limitations may apply to certain international keyboards, such as French or German, because the arrangement of keys differs.

The list of shortcuts is available from the meeting room via the Keyboard Shortcuts option in the Help menu.

For example, presenters or hosts can decide to record the session by pressing Ctrl+, (comma). After this option is selected, the Start Recording dialog box opens. The user can press the Tab key to move from one field to another for editing. When finished, the user presses Enter to start the recording. Recording is indicated by the notifier in the upper right corner of the meeting window. To stop recording, the user can use the same keystrokes or, alternately, press Ctrl+space and navigate to the Meeting menu to select Stop Recording.

Tab navigation

Users can navigate the options of the client interface, particularly the pods by using keystrokes to navigate between pods, and then using the Tab key to move between the focusable items within the pod. A colored line wraps the object currently selected. Administrators can customize the color for optimal contrast. See the "Customizable display, contrast, and color scheme" section of this document.

Tab navigation has proven useful to users with mobility challenges because it reduces the more physically demanding movements required by navigation devices such as the mouse to steer through screen pods during meetings or training sessions.

For example, to easily share an application, hosts and presenters can place the input focus on the Applications option displayed under the label "What do you want to share?" in the Share pod. When users want to share an item on their computer, they press the spacebar to select this option. The list of applications currently running on the computer is displayed, which can be navigated by tabbing. Users can go back to select Desktop if they want to share their complete view. With Desktop selected, a user can tab to the Share button and press Enter to start sharing the desktop with all attendees.

To stop sharing, the user goes back to the Adobe Connect window by pressing Alt+Tab. From there, the user presses Ctrl+[(opening bracket) to stop streaming the desktop view. Other workflows are possible with tabbing and keystrokes, such as navigating the attendee list and promoting and demoting users, muting and unmuting the phone line, or using full-screen mode.

Enabled workflows

Critical workflows of web conferencing, such as managing attendees, sharing a desktop or presentation, and sending or managing chats are easily accessible with Adobe Connect.

Managing attendees

Users with disabilities can quickly and easily manage attendees using sophisticated, yet simple, keyboard shortcuts. Hosts can promote a participant to host by choosing the user in the Attendees pod and selecting Ctrl+'. To promote a participant to presenter, the host can select the desired user in the Attendees pod and press Ctrl+/. To demote a host or presenter to participant, the meeting host can select the user in the Attendees pod and press Ctrl+].

Shortcuts for attendee management		
Result	Windows	Mac OS
Toggle Raise-Hand status	Ctrl+E	Command+E
Promote to host—requires selected items in Attendees pod	Ctrl+'	Command+'
Demote to participant—requires selected user in Attendees pod	Ctrl+]	Command+]
Promote to Presenter—requires selected user in Attendees pod	Ctrl+/'	Command+/'
End meeting	Ctrl+\	Command+\

Sharing a desktop

To share a desktop, a user must place the focus on the Share pod. A colored line frames the pod on which the focus is placed. When the focus is on the Share pod, the user presses Ctrl+[(opening bracket) to start sharing or can tab to and activate the button to initiate sharing. The Share dialog box appears.

Sharing a presentation

Users can access the main menu via keystrokes by pressing Ctrl+space. From there, they can browse to the Pods menu, choose Select From My Computer, and navigate to the folder where their file is stored. When the user selects a target file (such as a PPT file) and clicks Open, the upload and conversion process begins. For instance, a Microsoft PowerPoint presentation can be converted into a richer, Flash technology-based presentation using Adobe Presenter authoring technology.

When the document is open, it is possible to use additional keyboard functions, such as the Left or Right Arrow key to go from slide to slide or, alternately, the Page Up and Page Down keys. The following keyboard shortcuts are also supported in the context of shared presentations that have been created or converted using Adobe Presenter. Screen reader users can access the content of a shared PowerPoint presentation when using a browser-based Adobe Connect meeting room. However, if using the standalone Adobe Connect add-in, the content of PowerPoint presentations is not available. PowerPoint files can also be provided via a Files pod for downloading and viewing locally.

Shortcuts for presenter content in the Share pod	
Result	Windows and Mac OS
Start/stop desktop sharing	Ctrl+[(Windows) or Command+[(Mac OS)
Go to next page/slide	Page Up or Right Arrow
Go to previous page/slide	Page Down or Left Arrow
Play/pause	P
Stop	S
Mute	M
Change view	F

Saving input on a whiteboard

Whiteboarding can be challenging for many disabled users, especially those with visual and mobility impairments. However, keyboard shortcuts enable users to contribute or print the output.

Shortcuts for the whiteboard		
Result	Windows	Mac OS
Clear	Ctrl+D	Command+D
Print	Ctrl+P	Command+P
Undo	Ctrl+Z	Command+Z
Redo	Ctrl+Y	Command+Y
Delete selected items	Del	Delete
Move selected items in a specific direction	Arrow keys	Arrow keys

Sending and managing chats

Chatting can be difficult for some users with disabilities; however, some quick keyboard shortcuts can make chatting easier.

To place focus on the Chat pod, a user activates the cursor in the new message field and presses Ctrl+;. When the cursor is in the new message field, pressing Enter sends the message. Screen reader users will find that when viewing chat messages in a browser-based Adobe Connect meeting room it is possible to use the arrow keys to read previous chat messages. Users of the standalone Adobe Connect add-in will need to tab or shift-tab to the chat message area, enabling the screen reader to read all messages.

Shortcuts for the Chat pod		
Result	Windows	Mac OS
Place focus on Chat pod, activate cursor in new message field	Ctrl+;	Command+;
When cursor is in new message field, send message	Enter	Return

Support for closed captioning

Aimed at promoting full participation in online Adobe Connect meetings, the real-time closed captioning pod helps ensure that users who are deaf or hard of hearing can follow the progress of a session.

Closed captioning is a Section 508 accessibility requirement designed to accommodate hearing-impaired users. It allows connection to professional captioning providers such as Caption Colorado, the Media Access Group at WGBH, and CaptionFirst.

The pod is provided as an SWF file that can be uploaded directly to the Adobe Connect meeting room environment for use. Hosts can configure it to connect to their captioning server and start displaying the caption feeds. The pod provides individual control over caption font size and contrast, the ability for participants to rewind and fast-forward, and options for subscribing to captioning systems.

The closed captioning pod is available free of charge, and can be downloaded at http://www.adobe.com/go/adobeconnect_accessibility_ccpod, along with instructions on how to use it.

Customizable display, contrast, and color scheme

In the Adobe Connect meeting room, hosts can manage the display and appearance of pods through keystrokes. By using the on-menu navigation and browsing to the Pods option, they can select pods to open or close at their discretion.

For example, if hosts want to hide the Chat pod during a meeting session, they can navigate to Pods and deselect the Chat pod using the spacebar. To restore it, they can go back to the Pods menu and reselect the Chat pod, still using the spacebar.

Administrators can further customize these functionalities, such as changing a pod's border to a higher contrast color. Administrators can change this color by logging on to the Adobe Connect Central web-based management interface and going to the Administration tab. Under Customization > Meeting Customization, select Button Rollover, and then set the preferred color. The new setting applies to new meeting sessions.

From the palette of colors, Adobe recommends using blue (RGB 0,0,192/#0000CC) for better contrast (5.6:1 ratio) when using default meeting templates.

Other features and considerations

Customizable text-based messaging

Adobe Connect offers a chat tool with functionality comparable to a text telephone for the deaf or for users with speech impairment. With the chat tool, deaf and speech-impaired users can communicate with their colleagues in real time at live meetings. The size of the font is customizable in the chat tool.

Audio

Audio capabilities in Adobe Connect are compatible with hearing aids, cochlear implants, and other listening devices so that hearing-impaired users can listen in real time at live meetings without any further assistance.

Video

For clear and readable screen images, all bitmap images are displayed in a consistent fashion throughout Adobe Connect. Screen elements are designed to avoid flicker in the 2 to 55 hertz frequency range. Additionally, the flexibility of the Adobe Connect pods allows hosts to expand the size of video pods to fit the needs of all users.

Tooltips

Adobe Connect supports tooltips for each function or option represented in the meeting user interface. Tooltips appear as boxes of text, rendered on a yellow background for contrast, and appear when the cursor hovers over an item.

Access to help and documentation

Accessible documentation is available for all Adobe products.

Coexistence with other assistive technologies

Adobe Connect is compatible with accessibility features in Microsoft® Windows, such as filter keys, toggle keys, and sticky keys, which are used by blind and visually impaired users as well as those with mobility challenges to locate active screen elements and navigate between pods. Adobe Connect works seamlessly with Windows without any disruption to the operating system's accessibility features.

Adobe Connect vs. other web conferencing providers

While it is highly unlikely for any vendor to claim 100% Section 508 compliance due to the graphical nature of web conferencing, Adobe Connect offers nearly complete compliance, called "compliant with exceptions." Adobe Connect rises above other web conferencing solutions on the market today, providing advanced accessibility features such as:

- Robust keyboard shortcuts (for both Windows and Mac users)
- Room customization features, including font size and color enhancement
- Extensive closed captioning, including a real-time closed captioning pod and integrated video created with Flash technology.

Recommendation for optimal use

Adobe recommends the Adobe Connect Meeting Add-in for users wishing to take advantage of accessibility enhancements. The Meeting Add-in is based on Flash technology and is used for sharing functions by presenters and hosts. Disabled participants are advised to use it for all their meetings because it provides a more consistent experience and avoids disparate rendition due to browser discrepancies.

In addition to the Adobe Connect Meeting application, which is based on Flash technology and is used to attend or deliver a live meeting, Adobe Connect also supports a web-based application—Adobe Connect Central. This interface offers a more limited level of compliance with accessibility standards.

Adobe's commitment to democratize access

Adobe is committed to providing tools that help organizations optimize their digital content and collaboration environments for accessibility. The company is dedicating resources to help ensure its technologies and commercial software are usable by those with special needs, so all users can access digital files with ease and participate fully in the digital age. An industry leader in network publishing, electronic document creation, and real-time digital experience, Adobe has taken an active role in developing accessibility standards for digital content.

Adobe participates in various Web Accessibility Initiative (WAI) working groups. WAI, which has a mission to promote accessible web content, is part of the World Wide Web Consortium (W3C). It also participates in the W3C's Web Content Accessibility Guidelines (WCAG) working group and was involved with the Section 508 Telecommunications and Electronic and Information Technology Advisory Committee to review current Section 508 standards. Adobe has been offering accessibility solutions since 1997, when it introduced the *Access.adobe.com* website offering free services that convert Adobe PDF files into HTML or plain text for easy interpretation by assistive technologies. Increased accessibility support has also been incorporated into Adobe's foundational technologies, such as Flash and Flex.

Summary

For Adobe, accessibility is not just a requirement mandated by national and international organizations. It is a process of making software more available to all the communities that want to use it. Adobe has its own in-house accessibility team, composed of world-class experts in the design and implementation of enterprise software. The accessibility team provides a continuous liaison between customers and product development teams.

While existing accessibility features in Adobe Connect take this web conferencing solution a step ahead of competing offerings, Adobe is committed to working on further improvements and implementing best practices for accessibility in future versions. The goal is not only to make Adobe Connect the best training and meeting platform for absolutely all users, but also to remain true to Adobe's mission to revolutionize how the world engages with ideas and information.

Accessibility partners

Caption Colorado

Caption Colorado was founded in 1991 and is now America's largest provider of real-time closed-captioning services. From traditional news and television captioning to real-time streaming media captioning services, Caption Colorado is the nation's premier provider of captioning services. Caption Colorado develops the technology to empower the deaf and hard of hearing and provides ADA and Section 508 compliant solutions.

NCAM (National Center for Accessible Media)

The Carl and Ruth Shapiro Family National Center for Accessible Media at WGBH (NCAM) is a research and development facility dedicated to expanding access to media and information technology for people with disabilities in their homes, schools, workplaces, and communities.

NCAM is involved in technology and policy and program development to ensure that the nation's media and technologies are fully accessible to people with disabilities. For more details about NCAM, visit <http://ncam.wgbh.org>.

NCAM acts as the research and development arm of WGBH's Media Access Group. WGBH is America's preeminent public broadcaster, producing such celebrated national PBS series as *Masterpiece Theatre*, *Antiques Roadshow*, *Frontline*, *Nova*, *American Experience*, and more than a dozen other award-winning primetime, lifestyle, and children's series. Boston's last remaining independent TV station, WGBH produces local TV productions (among them, *Greater Boston*, *Basic Black*, and *María Hinojosa: One-on-One*) that focus on the region's diverse community, while WGBH 89.7 FM is Boston's NPR Arts & Culture station, offering a rich menu of classical, jazz, blues, news programming, and more. WGBH is the leading producer of online content for *Pbs.org*—one of the most visited dot org sites on the Internet—a major producer for public radio and a pioneer in developing educational multimedia and new technologies that make media accessible for people with disabilities. For its efforts, WGBH has been recognized with numerous honors, including an Academy Award nomination, Emmy Awards, Peabody Awards, and a duPont-Columbia Award. Visit WGBH at www.wgbh.org.

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