

Avaya Accessible Communication Solutions

Enabling People Who Have Disabilities

Consider for a moment whether you would be able to exchange information with other people, conduct personal or business transactions, or do your job if you did not have access to a modern telecommunication system. For people who are blind, visually impaired, deaf, hard of hearing, or who have mobility impairments, many telecommunication services and devices can be difficult or impossible to use.



Even if there were no laws or regulations that protect the rights of people with disabilities, “equal access” to technology and information makes good business sense — making available a large, loyal, talented labor pool and a large customer base.

Avaya offers a large portfolio of telecommunication solutions designed to provide equal access to communications for people with disabilities. These solutions enable a business or organization to offer a wider range of jobs to people who have disabilities, as well as to

serve the needs of a wider range of customers. Avaya equal access capabilities are widely supported across the Avaya product portfolio.

Messaging That Works for TTY Users

People who are deaf, hard of hearing, or speech-impaired commonly use special Text Telephone terminals known as TTYs to communicate over telephone lines. (*Sometimes TTYs are called Telecommunication Devices for the Deaf or TDDs.*) Keeping in

mind that over half of the telephone calls to a typical organization's employees are forwarded to an automatic messaging system, what happens if the messaging system is unable to prompt callers in a TTY-compatible format? What if the messaging system is unable to record a TTY-format message? Avaya offers the right answer to this issue so that TTY users can do business and communicate effectively.

Avaya TTY Solution

If a messaging system cannot prompt callers in TTY format or record a TTY message, the TTY user is denied equal access to communications. In addition to being a violation of the regulations that exist in many countries, this can also result in the loss of a potential customer. In response to this need, in 1994 Avaya implemented in its messaging systems the ability for callers into any mailbox to switch between voice and TTY prompting. Similarly, any mailbox is able to record a voice or TTY-format message. Thus, unlike messaging systems in which the mailboxes are voice-only or TTY-only, Avaya systems do not require mailbox owners to have separate inbound phone numbers and mailboxes for voice and TTY callers.

Avaya messaging support for TTY users does not end with call - answer capabilities. TTY users have access to nearly all of the same mailbox functions that are provided to voice users via the telephone user interface, such as the ability to generate, receive, and forward messages, do directory look-ups, and return phone calls automatically.

Not all people who use TTYs rely on them for both transmitting and receiving. Many

TTY users are hard of hearing but still able to speak clearly. These individuals often prefer to receive text on their TTYs and then speak in response — a process commonly referred to as Voice Carry Over (VCO). Avaya messaging applications support VCO operations by allowing users to record voice messages even after TTY prompting has been selected. Indeed, should they desire to do so, people may leave messages that contain both voice and TTY.

The TTY messaging capabilities described in this section are embedded within Avaya messaging systems and are provided without additional charge.

TTY on IP

TTY devices were developed decades before the introduction of Voice over Internet Protocol (VoIP) telecommunication systems. Transmission impairments that are common in some VoIP systems, that might not be noticeable in a voice conversation, can nevertheless cause TTY transmission accuracy to drop below acceptable levels. To support optimized performance and reliability, the innovative Avaya TTY-on-VoIP design conserves bandwidth by passing TTY signals as redundant data packets rather than as audio packets. Independent testing¹ has verified this design to provide “virtually error-free TTY transmission even in the presence of IP packet loss.” The Avaya TTY-on-VoIP feature is provided on Avaya gateways without additional charge.

Supporting TTY Users with Avaya Interactive Response

Interactive Voice Response (IVR) systems provide an automated, telephone-based way to conduct a wide variety of transactions. A good example of an IVR application is the banking service that allows customers to access account information and transfer funds by phone. In all cases, IVR systems allow users to make menu selections or enter data by pressing the touch-tone keys on their telephones. Some systems also permit users to make selections or enter data by voice. But what about people who use TTYs?

It is often mistakenly assumed that the only additional capability required by TTY users is that an IVR system must be able to provide information and prompts in TTY format (rather than by voice). It is then assumed that the TTY users will respond with touch-tones. This assumption is not valid because many TTY devices are able to generate touch-tones only when dialing a phone number. After they have finished dialing, these devices switch automatically to TTY mode, leaving users unable to make menu selections or send data to a typical IVR system.

In response to this need, Avaya Interactive Response solutions permit users to make menu selections and enter data with their TTYs. This capability is in addition to the ability to prompt users in TTY format and to accept both touch-tone and voice responses from the user. The feature that allows Avaya Interactive Response systems to accept TTY responses from users is provided without additional charge.

¹ Tolly Report: Testing Report #204102, March 2004: <http://www.tolly.com/DocDetail.aspx?DocNumber=204102>

Enabling Telephones for People Who Are Visually Impaired

Consider for a moment all of the information that sighted users can obtain by looking at a typical business telephone: caller ID (name and number), whether there is a new message waiting, whether the phone is forwarded, which lines are available and which are on hold, whether a party on hold has disconnected, and so on. In fact, on some Avaya telephones the status of more than 200 different functions can be discerned visually.

For people who are visually impaired, the inability to access the same telephony information as sighted people can be a significant inconvenience. More importantly, it can be an insurmountable barrier to communication-centric jobs, like contact center agent, that might otherwise be ideal for people with disabilities.

Avaya Universal Access Phone Status (UAPS)

Avaya Universal Access Phone Status (UAPS) software is provided at no cost by Avaya, and is usable with standard, unmodified Avaya telephones.² The software itself is loaded onto the user's desktop PC; the status of the telephone is then monitored via a connection to an Avaya Media Server running Avaya Communication Manager. Information typically conveyed to sighted users by button LEDs (Light Emitting Diodes) is presented automatically by voice through a headset or through the PC's speakers — for example “Line three is on hold,” “You have new voicemail,” and “Line three has disconnected.” Depending on the user's preferences, text information on

ACCESSIBILITY COMMUNICATIONS REQUIRED IN THE UNITED STATES

U.S. laws provide that all individuals have a fundamental right to access information and exchange it within lawful boundaries. The Americans with Disabilities Act of 1990, Sections 251 and 255 of the Telecommunication Act of 1996, and Section 508 of the Rehabilitation Act Amendments of 1998 guarantee that right to people with disabilities.

The U.S. Census Bureau has estimated that, among people age 15 and older, 7.8 million have difficulty hearing a normal conversation, including 1 million unable to hear at all. Nearly 7.8 million people age 15 and older have difficulty seeing words or letters in ordinary newspaper print, including 1.8 million completely unable to see. In addition to representing a large workforce, Americans with a disability have an estimated combined annual disposable income of \$175 billion. It is clear that, even if there were no legal or regulatory requirements, accessibility support should be a key imperative for all businesses and organizations.

the telephone's display, such as the caller ID information, may be voiced out automatically when it appears or voiced out only when the user requests it, thereby helping to protect the privacy of the caller and of the user.

Unlike other vendor offerings, Avaya Universal Access Phone Status software:

- Does not interfere with the most commonly used visually impaired screen reader applications.
- Allows reporting status of over 200 functions (not just caller ID / basic telephony).
- Allows control of telephone functions from user-assigned keys on a PC keyboard.
- Does not require extra cost third party

products to accommodate those with disabilities.

In addition to supporting standard telephony functions, Universal Access Phone Status can be used for many specialized applications. For example, when used in a contact center, it can voice-out the special information required by agents, such as the number of calls in queue and the mean waiting time.

Finally, for users who may have trouble hearing their telephone ringing, Universal Access Phone Status can provide a highly animated screen pop on a user's PC to alert them when they have incoming calls. Universal Access Phone Status software is available as a free download from Avaya.

² UAPS software is usable with Avaya telephones in the 1600, 2400, 4600, 6400, and 9600 series. Communication Manager version 3.1 or higher is required. Please consult your Avaya representative for the complete details and currently supported models.



Support for people who are hard of hearing

In addition to the support provided for TTY users, Avaya offers a wide range of solutions for people

who are hard of hearing. For example, all Avaya telephone handsets are hearing aid compatible. All Avaya phones allow users to adjust the volume by a very wide range. Special-purpose amplified Avaya handsets are available for individuals whose amplification needs exceed the maximum volumes of standard sets.

For hearing aid wearers who use headsets instead of handsets, different Avaya headsets are available for people who wear a behind-the-ear aid (BTE), an in-the-ear aid (ITE) or a canal aid. Support is also provided for individuals who have cochlear implants.

Depending on the nature of the hearing loss, there are many other Avaya capabilities that can be very helpful. For example, when compared with a standard telephone, Avaya IP telephones uniquely support wideband audio encoding to provide almost twice the “frequency response,” thereby providing better sound quality and improving the understandability of speech for

many users. Avaya voicemail systems also allow users to slow down the playback of menus and messages with audible clarity, thereby making rapidly spoken information easier to understand.

Increasing Access with Advanced Speech Processing

The capabilities of telephone-access automatic speech recognition systems have improved tremendously in recent years. For some people with disabilities, Avaya speech recognition technology can allow easy access to functions that might otherwise be hard to use or inaccessible. Speech recognition user interfaces are supported on a wide range of Avaya business communication applications, such as Avaya Interactive Response, Avaya Communication Manager, and Avaya Modular Messaging applications.

Unfortunately, some people with disabilities cannot benefit fully from the current generation of speech recognition products – notably, people who cannot speak in a clear, consistent manner. For this reason, the Avaya platforms that support speech recognition also allow non-speech access to the functions, for example via touch-tone responses from the user.

Avaya, Global Leader in Accessibility Solutions

Avaya has a rich history of creating solutions that help individuals with disabilities participate more fully in life. The Avaya corporate heritage and commitment in this area predates by decades the laws that require such products. For example, Avaya delivered its first TTY software for messaging systems more than 15 years ago. The Avaya attendant console that provides many of the capabilities of our Universal Access Phone Status software was developed more than 20 years ago. Many of the engineers who developed these systems are still with Avaya and working on products that demonstrate our continued commitment to the principles of equal access.

With a breadth of experience, tools and technologies to support accessibility solutions, Avaya Global Services delivers planning, design, implementation, integration, maintenance and management support for those with disabilities that you can trust. For more information, please contact your Avaya representative or authorized Avaya BusinessPartner, or visit us at www.avaya.com.

About Avaya

Avaya is a global leader in enterprise communications systems. The company provides unified communications, contact centers, and related services directly and through its channel partners to leading businesses and organizations around the world. Enterprises of all sizes depend on Avaya for state-of-the-art communications that improve efficiency, collaboration, customer service and competitiveness. For more information please visit www.avaya.com.

AVAYA

INTELLIGENT COMMUNICATIONS

© 2009 Avaya Inc. All Rights Reserved.

Avaya and the Avaya Logo are trademarks of Avaya Inc. and may be registered in certain jurisdictions.

All trademarks identified by ®, TM or SM are registered marks, trademarks, and service marks, respectively, of Avaya Inc. All other trademarks are the property of their respective owners.

03/09 • MIS4172

[avaya.com](http://www.avaya.com)