

# National Center on Accessible Information Technology in Education

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**National Center on  
Accessible Information  
Technology in Education  
(AccessIT)**

**Regional Disability  
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**AccessIT**

## Providing Accessible IT in Your Computer Lab



Students visit computer labs to access course materials, conduct research, complete assignments, use email, and participate in online classes and meetings. In some cases, mobile computer labs are used in classrooms where instructors teach computing skills, deliver in-class content or facilitate interactions.

Some students in these environments face barriers to full participation. For example, a student

who is blind and using text-to-speech software to access the Internet encounters barriers when the instructor assigns the use of web resources that do not have text-based descriptions of visual content. A student who is deaf cannot access audio or multimedia content unless a transcript or caption is provided.

All students who use the resources of a computer lab, including students with disabilities, should be able to participate in these activities side-by-side with their peers. This publication is designed for technology managers and computer lab technical support staff. It discusses issues that should be addressed in order to assure that the information technology (IT) in computer labs is accessible to all students.

### Access Challenges

Many students with disabilities use assistive technology (AT) that helps them access computer hardware and software, including information resources. However, assistive technology alone does not address all technology access issues. Even if lab visitors are equipped with appropriate AT, they can encounter barriers because the IT (e.g., websites, computer software and entire network



configurations including security protocols) are not compatible with their AT.

Not all IT accessibility issues are related to whether individuals use AT. For example, IT devices that deliver content that requires the use of a mouse or touch-operated control may create barriers for people who have mobility impairments, are blind, have limited eye-hand coordination, or otherwise cannot use these input methods. The audible content of IT cannot be heard by individuals who are deaf. IT that communicates important information using only color is not accessible to users who are unable to differentiate colors.

## Accessible IT

Individuals vary a great deal in their abilities to perform specific IT-related tasks (e.g., see a computer screen, operate a mouse, make selections on a touch screen, hear a multimedia presentation). Steps should be taken to assure that the IT in a computer lab is accessible to students with a wide range of abilities and disabilities. Considering accessibility of IT at all levels of planning (including procurement and upgrades) produces the best results for both students with disabilities and the educational institutions they attend. Architects design buildings so that everyone, including individuals who use wheelchairs, can access them. Similarly, computer lab managers should create learning environments that allow all students to access information resources and participate in lab activities.

Products designed with accessibility in mind typically offer multiple modes of operation and information retrieval so that as many users as possible can operate them and access the



information they deliver. For example, software products should be fully operable using a mouse or keyboard alone. Similarly, devices that

utilize touch-sensitive screens or controls should support input via a keyboard as well. Today, some accessibility features, such as the ability to control font size, are included in operating systems and applications software.

Computer lab managers can address the tremendous variety of possible IT accessibility scenarios by adopting accessibility standards that all IT products in their labs must

meet. One prominent example is the Electronic and Information Technology Accessibility Standards (<http://www.access-board.gov/sec508/508standards.htm>),



which were developed as a mandate of the 1998 amendments to Section 508 of the Rehabilitation Act. Section 508 requires that federal agencies develop, procure, maintain, and use IT that meets standards across six categories of electronic and information technology—desktop and portable computers, software applications and operating systems, web-based intranet and Internet information and applications, telecommunications products, video and multimedia products, and self contained closed products (such as copiers, scanners, printers and information kiosks). The Section 508 standards have been used as a model for educational institutions who are not covered entities under Section 508.

## Networking and Security

The accessibility of a computer lab is dependent not only on the accessibility of individual IT components, but on how those components are networked and how the network is secured. It is important that accessibility be considered both at the level of individual components and at the level of the network.

Computer networks in school labs should be secured against both well-intended and malicious tampering, including Internet worms and viruses, hackers, and other threats from cyberspace. Providing adequate network security as well as accessibility to individuals with disabilities who use assistive technology can be a challenge. Competing needs of users, usability concerns, support requirements, and accessibility to users with disabilities require careful balancing.

There are several approaches to addressing security concerns. Some labs completely prohibit user access to control panels and any controls that have to do with system configurations. In this environment security is tightly controlled, but users with disabilities can lose access to accessibility features built into operating systems as well as the ability to effectively use assistive technology in the lab. For instance, a user with low vision would not be able to increase the size of the font displayed on the screen and/or change the color of the background and foreground using the tools built into the Windows operating system.

## Action Steps

You can take the following steps to begin the process of making the information technology in your computer lab accessible.

1. Identify individuals, units, and/or expertise that will be necessary for planning accessible computer labs. Include people with disabilities in planning and evaluating lab services.
2. Develop accessibility policies that assure access to information technology for students with disabilities. The goal should be to provide a technological environment in which all students and instructors, including those with disabilities, can access all lab activities and resources.
3. When purchasing information technology for the lab, assure that accessibility is a consideration in the process. Adopt an accessibility standard to apply at the procurement level.
4. Apply accessible design strategies to lab web pages.
5. In cases where current technology does not provide accessible solutions, develop a plan for how students and instructors will be supported in order to participate in their classes.
6. Consider the impact of system security on accessibility. Employ security solutions that do not prevent users from being able to use accessibility features built into the operating system or from effectively using third-party assistive technology.
7. Conceptualize and test the accessibility of the whole network with assistive technology installed under the constraints posed by security and other factors. Problem-solve accessibility issues. Test to see if issues are resolved by using different IT products, different assistive technology products, and/or different security settings.
8. Make all documentation related to IT and its accessibility features available in alternate formats.
9. Train staff on accessible features of IT in the lab.

Some labs allow users more flexibility in altering their desktops but use lab management software to reset individual workstations back to a preconfigured standard whenever a user logs out. This setup allows a user, for a limited period of time, to save files, change display settings, customize look and feel of assistive technology settings, download applications, and otherwise alter an individual station. However, when the user logs out the lab management software resets the system to its default settings, deleting any changes and files saved by the user. As a result, lab visitors who do not use the default settings have to change system settings every time they use the lab. This approach may be acceptable to students who make occasional use of a lab, but is tedious for those who use a lab more regularly.



Some labs address this problem by configuring their lab management software to restore all but a few select directories to their default settings. The exempt directories can be used specifically to store user preference files.

Some labs use roaming profiles, in which user profiles (e.g., desktop settings, font size, icon size, application shortcuts) follow them around a network, providing consistent desktop environments regardless of which workstation they log on to. Roaming profiles are criticized for consuming excessive storage space and slowing down networks. However, some labs have successfully implemented roaming profiles by controlling the size of the roaming files and assuring their server and network are fast enough to serve the profiles quickly to all machines.

As an alternative, some labs provide specially configured workstations that allow users with disabilities the flexibility they need for equal access to lab resources. In some labs, these systems are restricted to users with disabilities; in others, they are available to all lab users, but users with disabilities who need to use assistive technology have priority-use privileges.



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## Conclusion

Information technology can play an important role as people with disabilities pursue education and careers. In the school computer lab, access to hardware, software, and documentation is critical. Procuring, developing, and using accessible information technology generally increases system compatibility with commonly used assistive hardware and software. Ultimately, making all educational and employment opportunities accessible to people with disabilities will strengthen our economy and create a level playing field for everyone.



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