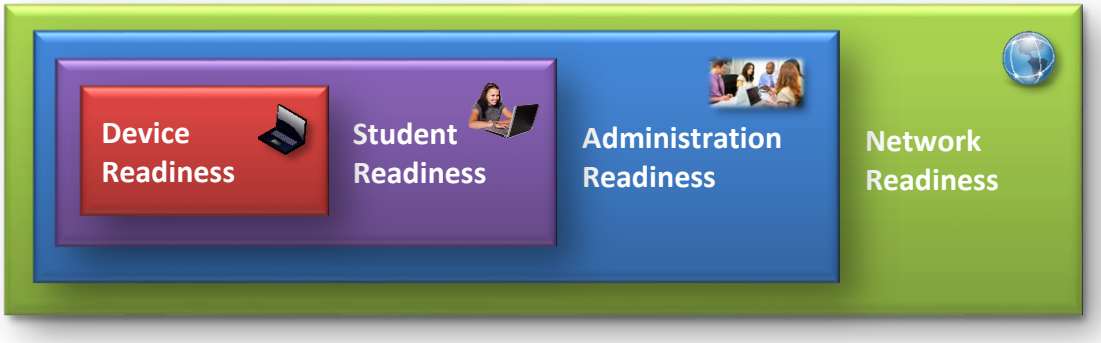
Site Readiness Overview

Overview



When it comes to preparing for online testing, *site readiness* is commonly synonymous with *technology readiness*. However, site readiness goes beyond just technology requirements. Site readiness also addresses the need for *people readiness*—in other words, the training and preparation of the students, educators, and technology support staff who participate in online testing. This comprehensive approach addresses the following areas to help sites determine their overall readiness to deliver online testing.

Device Readiness

Do schools and districts have the software, supported devices, required peripherals, and infrastructure sufficient to administer the assessments within the designated testing windows? Is that technology deployed appropriately for an efficient and effective administration?

Student Readiness

Do students have opportunities to master skills and abilities using technologies similar to those used during testing? Are students comfortable with the technology they will use to take the assessments?

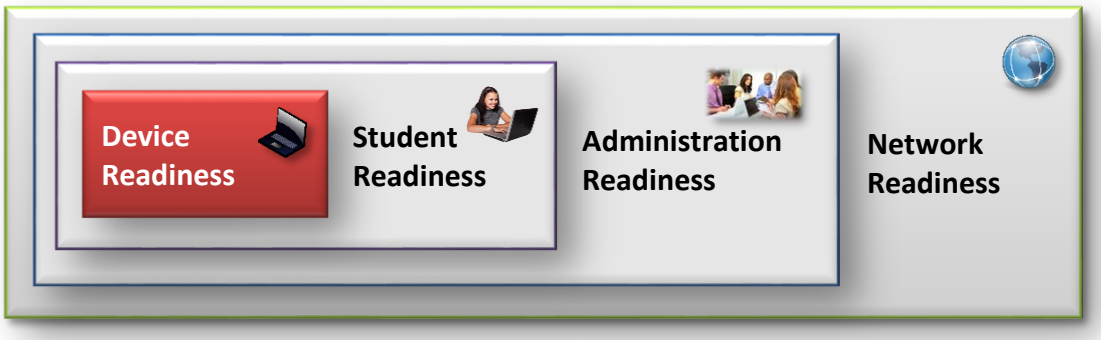
Administration Readiness

Have educators received the instructional support and professional learning necessary to employ technology effectively? Do educators have access to sufficient technology in their classrooms, including responsive technical support, to ensure seamless use of technology for both instruction and assessment? Do technology staff have access to technology specifications and setup requirements?

Network Readiness

Do schools and districts provide adequate network capacity and reliability, including access to Local Area Network (LAN), Wide Area Network (WAN), Internet broadband, and technology support to address all aspects of the education enterprise?

Device Readiness



Ensure Consistency in Devices Used for Assessment and Devices Used for Instruction

Consistency is important—the devices used in the classroom should be comparable to the devices used for assessment. Headphones, assistive/adaptive devices, and other technologies used during instruction should be the same as those used during assessments. The ultimate goal is having enough devices so that teaching and learning can continue in a school at the same time that assessment is taking place.

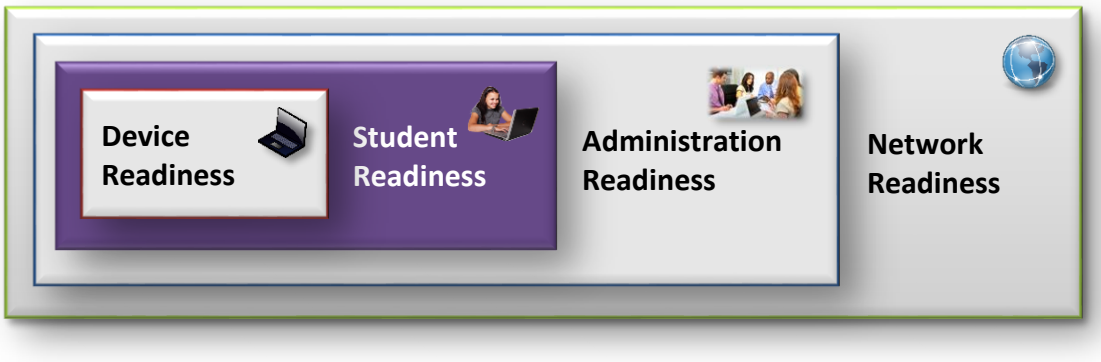
Ensure Enough Supported Devices Are Available

Remember—the older the inventory of computing devices, the more technical support is required to keep the equipment in working order. Old inventory also contributes to a greater risk of disruption and lost productivity due to technology-related problems. The longer these devices are used, the greater the chance that serious problems will occur. Moreover, when a software company or open-source community no longer supports a given operating system, there is increased risk of security difficulties and software incompatibility. Some online assessments only support specific versions of web browsers, and modern browsers may not work on older equipment.

Online testing requirements often include both minimum and recommended specifications. Use the recommended specifications, if possible, to deliver the best student testing experience. The minimum specification represents a low compliance threshold. Applications will run at the minimum specification, but they will not deliver the optimal student testing experience. It is recommended to exceed the minimum specifications because devices operating at these levels could struggle with sufficient memory or processing power, resulting in slower responsiveness and longer wait times during testing.

When determining if there are sufficient devices to support online testing, several factors must be considered. Taking into account potential student movement, use the estimated number of students who will be testing online and the length of the test window to determine how many students need to test each day. Keep in mind other activities occurring at the site that may affect access to testing devices and limit available network bandwidth. Do the sites administering online testing have adequate number of supported devices, as well as rooms or space for testing? Do the sites have adequate peripheral equipment (headsets, mice, iPad stands, keyboards, etc.) to deliver online testing within the test window?

Student Readiness

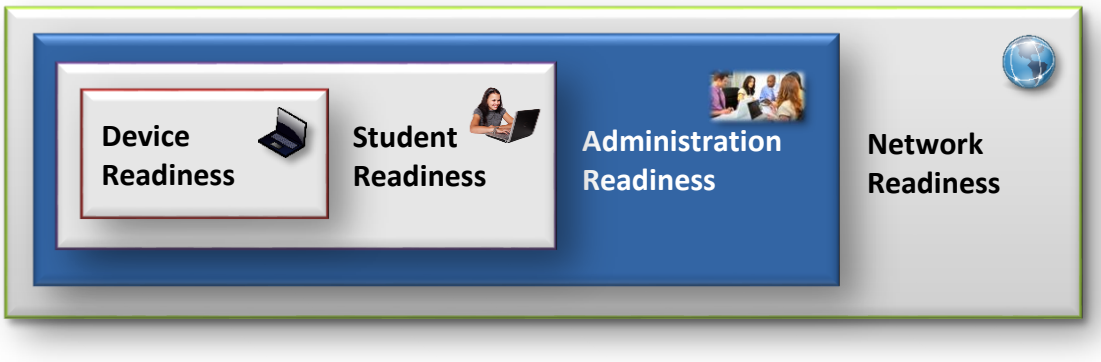


As technology becomes more tightly integrated into the assessment and learning processes, students must be familiar with the equipment and how the test works when they use it.

Prepare Students

Students should be able to use and become comfortable with the testing technologies such as computers, tablets, keyboards, and headsets. Students should also have exposure to online assessments before operational testing begins, including opportunities to practice with sample items and the testing software. Sample assessment items allow students to work through various types of test questions and gain a basic understanding of what will be expected of them when they are taking the live assessments.

Administration Readiness



As technology becomes more tightly integrated into the assessment and learning processes, educators need to be able to count on equipment and connectivity that works when they need it to.

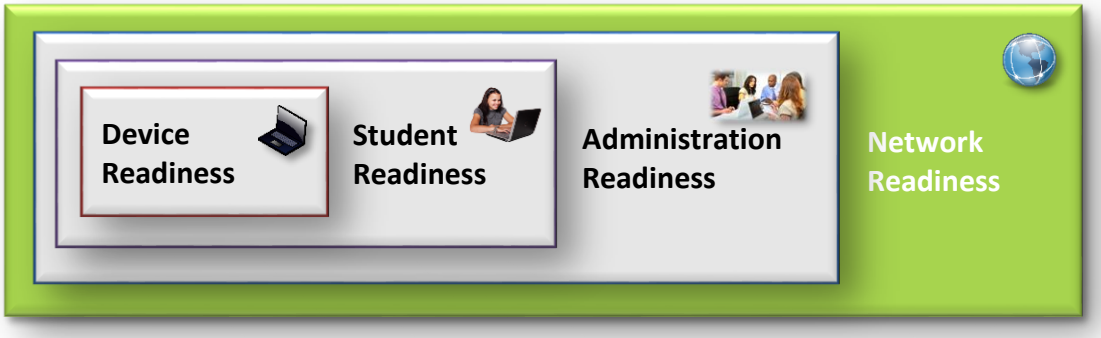
Prepare and Involve Educators

An important factor for successful computer-based testing is preparing educators involved in delivering and administering tests. Educators need the support and knowledge necessary to effectively deploy the technology used during testing. They need access to the training materials and time to become familiar with the online testing technology.

Prepare and Involve IT Staff

Supporting the shift to online assessment and training that integrates computing devices tends to fall on the shoulders of the district technology staff. Technology staff need the support and knowledge to understand the technology infrastructure requirements, how to properly install and configure the testing technology, and the time and resources to create the environment.

Network Readiness



Conduct a Site Survey to Verify Wired and Wireless Networking Coverage

Networking for assessment encompasses both wired and wireless connectivity.

The first consideration should be whether devices can be connected by wire. A wired assessment is more straightforward than a wireless one. Sites using wired connectivity to take online assessments need to ensure a sufficient number of network ports in the locations where testing occurs.

Ensuring adequate wireless connectivity is more complicated because there are so many variables, including the type of wireless access hardware used, the number of users online in an area of the school, the types of applications accessed, the computing devices used, the radio interference in the environment, the room layout, and the building materials used in the school.

Wireless Survey

To use wireless connectivity, conduct a rigorous wireless survey everywhere that assessments will occur. The survey will help uncover forms of interference, identify optimal locations for placement of wireless access points, and indicate the number of clients that can be supported in a given location.

In the wireless survey, be sure to review the following areas:

Device Density

Wireless access points have limits to the number of devices that can connect. Review the number of devices connecting to a single access point to ensure adequate coverage for the devices used during testing. Devices connecting to the access point may not be in the same room where the testing occurs. If the site has an open network or available guest network, account for the devices that students, proctors, and teachers have connected, such as smartphones, laptops, and tablets.

A typical access point supports 15-20 wireless devices. A room with 20-30 students would therefore require two access points. While more modern access points may be able to sustain a greater number of devices, not all computing devices are equal in terms of their effect on wireless access point capacity.

Connection Consistency

Wireless networks are radio signals, which means they are susceptible to obstructions that may lead to a low signal. Often, the signal is reflected, refracted, or absorbed by the obstruction. Determine if objects obstruct the line of sight between testing devices and the access point and could interrupt the connection. Common obstructions include:

- Cabinets or drawers
- Mirrors or glass
- Metal objects
- Brick/thick walls and ceilings
- Aquariums

Another consideration is that multiple access points can lead to interruptions as testing devices move from one access point to another.

Radio Frequency Interference

802.11 wireless networks use the same frequency as many other technologies and any of these devices operating at the same frequency as an access point can cause interference. For example, radio frequency from Bluetooth, video surveillance cameras, cordless phones, and microwave ovens can lead to interference. In addition, wireless access points sharing the same channel may interfere with each other.

The effect of interference depends on the strength of the transmission and the distance from the interferer. This slowdown may not be immediately obvious with lower-capacity data transmission. If interference is intermittent, packets eventually get through. Issues increase when more users log on, which increases data capacity until the network experiences slowdown and increased potential for data loss.

Radio Frequency (RF) Jamming

RF jamming is a form of interference where a deliberate use of radio noise or signals is used to attempt to disrupt communications. It is also a type of Denial of Service (DoS) attack. The goal of RF jamming is to take down a wireless network by overwhelming the radio environment with high-power noise. A symptom of an RF jamming attack is excessive interference. Saturating the channel or band with noise makes it difficult or impossible for an access point to detect a real transmission. Jamming can be thought of as trying to hear someone talking as a siren goes off. The increased noise results in a poor signal-to-noise ratio (SNR), usually detected by the clients as poor signal quality.

2.4 GHz vs. 5 GHz Bands

Wireless networks operate in either a 2.4 GHz or 5 GHz band. There are substantial differences between these bands and how they should be used. Assess whether the site's wireless network is using the 2.4 GHz or 5 GHz band appropriately. The 5 GHz connection can transmit higher amounts of data with better speeds. The 2.4 GHz connection is better for transmitting data over longer ranges and through walls and other solid objects.

If the signal needs to cover a larger area and go through many walls between the devices and the access point, connecting to the 2.4 GHz band may be the best option. However, the 2.4 GHz wireless band is a very crowded spectrum because it's used by many other devices like cordless phones, remote controls, monitors, and much more, which can result in dropped connections and slow data throughput.

By contrast, the 5 GHz band is more ideally suited for data devices such as your laptop, phone, or tablet because it can transmit higher amounts of data over a less congested band. 5 GHz is ideal for connecting smaller, open spaces and provides better data transmission rates, but as devices start to spread out and move away from the access point, results may begin to diminish. It is also less able to penetrate solid walls and objects, so if the access point is not in the same room as the testing device the connection may not be consistent. It is best to put devices close to the access point with a clear line-of-sight or just a thin wall or two between them.

Wireless Summary

The ultimate test of the wireless environment is to place the same number of students into a room where instruction and assessment will occur and have them work on their devices doing comparable activities (streaming video, going to websites, etc.) to determine how well the network functions.

Ensure Robust Broadband Connectivity To and Throughout All Sites

Districts need to consider a variety of aspects related to Internet connectivity, reliability, and capacity. Connectivity starts with the broadband coming into the district through the Internet Service Provider (ISP), moves through connections between buildings via the Wide Area Network (WAN), then to classrooms within the building and to each student and educator via the Local Area Network (LAN). Each step in the chain needs to be sufficient for both individual users and for large numbers of concurrent users across sites and districts (depending on network design).

The ultimate goal is to have a sufficient amount of bandwidth and number of devices to ensure that teaching and learning can continue without interruption in a school at the same time that assessment is taking place.