

Technology Guidance Approach

The Smarter Balanced Assessment Consortium has developed a two-part strategy for providing guidance to school districts regarding bandwidth, hardware and operating system requirements for computers eligible to administer Smarter Balanced assessments beginning in the 2014-15 school year.

The “Current Guidance” detailed below—representing Part 1 of the system requirements strategy—is the beginning of an ongoing collaboration between Smarter Balanced member states and technology providers that will be formulated into a long-range plan for technology deployment to support next-generation learning and assessment.

Part 2 of the system requirements strategy will be a Governing-State endorsed plan for Smarter Balanced minimum technology requirements for the 2014-15 school year, as well as an end-of-support schedule for subsequent years. We anticipate the endorsed plan, targeted for release in August 2012, will be a compromise between the pragmatic budget constraints for districts and states and our common desire to use the newest available technology to assess the true depth and breadth of the Common Core Content Standards.

Current Guidance on Hardware/Operating System Requirements

This guidance outlines the Smarter Balanced approach for determining hardware and operating system requirements for legacy systems—equipment already in-place in schools/districts—and the network connectivity requirements necessary for the Smarter Balanced assessment system.

Additionally, guidelines are provided for new purchases. Although final decisions about legacy systems and Local Area Network (LAN)/Wide Area Network (WAN)¹ bandwidth requirements will not be finalized until August 2012, Smarter Balanced can assure at this time that new hardware and operating systems described in “New Purchases” section below will support administration of the Smarter Balanced assessments. Please note that for the purposes of these guidelines, new purchases are generally those pieces of hardware that are still actively in production by the manufacturer.

Smarter Balanced will support touch-based devices, such as tablets, as *optional* assessment administration devices beginning in 2014-15. Additionally, we anticipate that by the 2016-17 school year, up to 25 percent of the mathematics assessment will comprise items/tasks requiring student-produced illustrations or calculations. As such, in 2016-17, students will need access to a tablet (or other device) that employs a stylus for user input. The final implementation timeline for future *required* use of tablets will be described in the minimum specifications guidelines due to be released in August 2012.

1. **Legacy Systems and Network Requirements:** The Consortium will use data from the Technology Readiness Tool (due from Smarter Balanced school districts in mid-June 2012) and information from member states to help determine the oldest operating systems supported by Smarter Balanced assessment applications in 2014-15. Bandwidth requirements will be determined in collaboration with the contractor selected for RFP #11 (“Test Engine Development”), slated to begin in July 2012. We anticipate providing minimum legacy specifications by August 2012.

¹ Local Area Network (LAN)—Wiring and appliances (routers/switches) to connect computers within a building or school. Wide Area Network (WAN)—Collection of LANs within a district and provides the ability to connect to the Internet.

2. **New Purchases (as of April 2012²):** Hardware that runs the latest Macintosh, Windows, and the most common versions of Linux operating systems will be eligible to work on the Smarter Balanced assessments in 2014-15³. As a guideline, districts may consider the following as minimum guidelines for new purchases:
- **Hardware⁴**—1 GHz processor, 1 GB RAM, 9.5 inch screen size (10 inch class)⁵, screen resolution of 1024 x 768;
 - **Operating Systems⁶**—Windows 7, Mac 10.7, Linux (Ubuntu 11.10, Fedora 16), Chrome, iOS 6⁷, Android 4.0;
 - **Network**—Must be able to connect to the Internet⁸;
 - **Form Factors**—Desktops, laptops, netbook, virtual desktops⁹ and thin client¹⁰, tablets (iPad, Windows, and Android) and hybrid laptop/tablets that meet the above specifications; and
 - **Additional Accessories**—
 - Headphones may be required for audio support, and
 - Physical keyboards (as opposed to virtual) and/or mice may be required for use with tablets.¹¹

² April 2012 is the first date of release for this guidance. Subsequent versions of the operating systems described in this document will be supported as well. New purchasing guidelines will be updated on a semi-annual basis. The most recent version of the document can be found at <http://www.smarterbalanced.org/smarter-balanced-assessments/technology/>.

³ In 2014-15, the Smarter Balanced assessment system will be delivered with the Smarter Balanced Test Delivery Platform. States that elect to procure alternative platforms to deliver the Smarter Balanced assessments may have different minimum requirements than those of the Smarter Balanced Test Delivery Platform.

⁴ These guidelines do not supersede the minimum requirements of the operating systems. Eligible devices of any form factor or operating system must have the administrative tools and capabilities to temporarily disable features, functionalities, and applications that could present a security risk during test administration. These include, but are not limited to, Web browser access, cameras (still and video), screen capture (live and recorded), email, text messaging, Bluetooth connections, application switching, and printing.

⁵ All hardware choices should consider the individual needs of students. Some students may need hardware that exceeds these minimum guidelines, and some students may require qualitatively different hardware. As an example, some students with limited visual acuity and other special visual needs may require larger screens. Some visually impaired students may require the use of a Braille Embosser that would need to have a character display capacity sufficient to deliver the assessments. Technical specifications for Braille Embossers will be released if and when the decision is made to use the technology. Districts should rely on local expert judgments and discussions with appropriate authorities to determine the hardware that is most appropriate for individual students.

⁶ Older versions of Windows and Apple operating systems—as well as additional versions of Linux—will be considered after districts submit the Technology Readiness Survey and Smarter Balanced conducts a review of core differences among the Linux distributions.

⁷ After discussions with Apple, we are confident that the iPad will be an eligible device for use in the Smarter Balanced assessment system in 2014-15.

⁸ Internet connectivity will be required for some portion of the assessment. The specific speed and bandwidth requirements will be determined once a testing platform has been selected through the open procurement.

⁹ The resources (e.g., memory and processors) available to each client need to be equivalent or greater to the requirements for standalone hardware.

¹⁰ The resources (e.g., memory and processors) available to each client need to be equivalent or greater to the requirements for standalone hardware.

¹¹ This will be determined based on the results of the cognitive lab studies and discussions with experts.

Change History

June 2012

- Clarified that iOS 6 meets our test security guidelines. iOS 6 will operate on second and third generation iPads.
- Clarified that these requirements do not supersede the minimum requirements of the operating systems.
- Clarified that laptops that have touchscreens (e.g., hybrid laptops/tablets) are an eligible form factor.
- Clarified that the resources (e.g., memory and processors) available to each client in a thin client and virtual desktop environment need to be equivalent or greater to the requirements for standalone hardware.
- Clarified that for the purposes of these guidelines, new purchases are generally those pieces of hardware that are still actively in production by the manufacturer.