

# Minimum System Requirements for 2021–2022

The following tables provide specifications that apply to all online assessments administered during the 2021–2022 school year for the Texas assessment program.

Desktops & Laptops		
Supported Operating Systems	Minimum Requirements	Recommended Specifications
<b>Windows</b> 8.1 (Professional and Enterprise) 10, 10 in S Mode (Educational, Professional, and Enterprise) (Versions 1909-21H1, 21H2 <sup>a</sup> ) 11 (Version 21H2) <sup>b</sup> Server 2012 R2, 2016 R2 (thin client)	1 GHZ 64-bit Processor <sup>c</sup> 2 GB RAM 20 GB hard drive	1.4 GHZ 64-bit Processor 2 or more GB RAM 20 or more GB hard drive space
<b>macOS<sup>d</sup></b> 10.13-10.15, 11.4-11.6, 12-12.3	1 GHZ 64-bit Processor <sup>e</sup> 2 GB RAM 20 GB hard drive	1.4 GHZ 64-bit Processor 2 or more GB RAM 20 or more GB hard drive space
<b>Linux<sup>f</sup></b> Fedora 32-33 <sup>a</sup> LTS (Gnome) Ubuntu 18.04, 20.04 LTS (Gnome)	1 GHZ 64-bit Processor 2 GB RAM 20 GB hard drive  Required libraries/packages: <ul style="list-style-type: none"> <li>• GTK+ 3.14 or higher</li> <li>• X.Org 1.0 or higher (1.7+ recommended)</li> <li>• libstdc++ 4.8.1 or higher</li> <li>• glibc 2.17 or higher</li> </ul>	1.4 GHZ 64-bit Processor 2 or more GB RAM 20 or more GB hard drive space  Recommended libraries/packages: In addition to the required libraries listed under minimum requirements, the following should be installed: <ul style="list-style-type: none"> <li>• NetworkManager 0.7 or higher</li> <li>• Dbus 1.0 or higher</li> <li>• GNOME 2.16 or higher</li> <li>• PulseAudio</li> </ul>

<sup>a</sup> Support for this version is anticipated upon the completion of testing following its release.

<sup>b</sup> Known Issue in Windows 11: The network diagnostic tool identifies Windows 11 as Windows 10.

<sup>c</sup> 64-bit Intel, AMD, and ARM devices are supported. ARM devices require x64 emulation.

<sup>d</sup> Students who need access to permissive mode tools must use macOS 10.13-10.15.

<sup>e</sup> 64-bit Intel and Apple silicon devices are supported. Apple silicon devices require Rosetta 2.

<sup>f</sup> Raspberry Pi and other similar single-board computers are not supported for testing.

For a list of supported tablets and Chromebooks, see the following table:

Tablets & Chromebooks	
Supported Operating Systems	Supported Devices
<b>iPadOS</b> 13.7, 14.5-14.8, 15.1-15.4	All 9.7” or larger iPads running a supported version of iPadOS.
<b>Windows</b> 8.1 (Professional & Enterprise) 10 (Educational, Professional, & Enterprise)	CAI supports any tablet running these versions of Windows, but has done extensive testing only on Surface Pro, Surface Pro 3, Asus Transformer, and Dell Venue.
<b>Chrome OS<sup>a</sup></b> 91+	For a full list of supported Chromebooks, refer to <a href="https://support.google.com/chrome/a/answer/6220366">https://support.google.com/chrome/a/answer/6220366</a> .  Chromebooks manufactured in 2017 or later must have an Enterprise or Education license and be attached to a management domain. The devices are required to be attached to the management console to run in kiosk mode, which is required to run the Secure Browser for testing.  Chromebooks running in Tablet Mode and tablets running Chrome OS are not supported. Touchscreen features can be used on Chromebooks when available.  CAI only supports versions of Chrome OS released on Google’s stable channel.

<sup>a</sup> Known Issues in Supported Versions of Chrome OS:

- Sometimes, text-to-speech (TTS) does not work properly the first time it is invoked. Users who encounter this issue should reinvoke TTS. This issue exists in Chrome OS 91 and 92.
- Students testing on the Secure Browser on Chromebooks can restore or minimize the Secure Browser while the Chromebook is in kiosk mode. Because kiosk mode blocks access to all other applications on the device, this issue is noncritical and poses no security concerns. When the user returns to the Secure Browser, they are taken back to the login page. This issue exists in Chrome OS 91 and 92.
- Students testing on Chromebooks with touchscreens can access the Chrome OS context menu while taking a test. This presents no security concerns with the test being taken. This issue exists in Chrome OS 91, 92, and 93.
- A lag or delay in text-to-speech causes audio to lose sync with text the student is focused on. This issue exists in Chrome OS 94- 99.
- Sometimes, when automatic text-to-speech is invoked, it does not begin reading again when a student navigates to a new item. This issue exists in Chrome OS 94-99.

For a list of supported NComputing solutions for Windows, see the following table.

NComputing		
Supported Server Host	Supported Server Software	Supported Terminal
Windows Server 2012 R2 Windows Server 2016 R2 Windows 10 <sup>a</sup>	vSpace PRO 10	L300, L350, firmware version 1.13.xx
Windows 11 <sup>a</sup>	vSpace PRO 12	L350, firmware version 1.13.xx





a. USB redirect does not work in Windows 10 or Windows 11.


For a list of supported terminal servers for Windows, see the following table.

Terminal Servers	
Supported Terminal Server	Supported Thin Client
Windows Server 2012 R2, 2016 R2	<p>Any thin client that supports a Windows server can be used. Thin clients allow access only to the program running on the host machine. Zero clients, which allow access to other programs on the client machine, are not supported.</p> <p>Using a terminal services or remote desktop connection to access a Windows Server or workstation that has the secure browser application installed is typically not a secure test environment.</p>

Devices running CloudReady NeverWare are also supported. For information on these supported devices and installation instructions, please visit <https://www.neverware.com>.

All supported computers, laptops, tablets, and approved testing devices must meet the following requirements.

Testing Device	Requirement
<p><b>Screen Dimensions</b></p> 	Screen dimensions must be 10” or larger (iPads with a 9.7” display are included).
<p><b>Monitors and Displays</b></p> 	<p>All devices must meet the minimum resolution of <b>1024 x 768</b>. Larger resolutions can be applied as appropriate for the monitor or screen being used.</p> <p>Your device’s display scale should be set to 100% to keep the amount of usable screen real estate within the 1024 x 768 minimum resolution for the Test Delivery System.</p> <p>A secure testing environment can only be guaranteed when using a single display. A multi-monitor configuration is not supported.</p>
<p><b>Keyboards</b></p> 	<p>The use of external keyboards is required for tablets that will be used for testing. On-screen keyboards take screen real estate away from the test and may make typing responses more difficult.</p> <p>For iPads, the following are examples of external keyboards:</p> <ul style="list-style-type: none"> <li>• iPad 8<sup>th</sup> Generation: Logitech Rugged Combo or Logitech Combo Touch</li> <li>• iPad Air 3<sup>rd</sup> Generation: Apple Magic Keyboard or Apple Smart Folio Keyboard</li> <li>• iPad Pro: Air Keyboard</li> </ul>
<p><b>Mice</b></p> 	Wired two- or three-button mice can be used on desktops or laptops. Mice with “browser back” buttons should not be used.

Testing Device	Requirement
<p><b>Headphones, Microphones, and Headsets</b></p>  <p>Required for:</p> <ul style="list-style-type: none"> <li>• STAAR Speech-to-Text</li> <li>• TELPAS Listening and Speaking</li> </ul>	<p>Wired headphones, microphones, handheld devices, and headsets with a 3.5 mm connector, or USB headphones or headsets, must be compatible with the requirements below:</p> <ul style="list-style-type: none"> <li>• Headphone Features                             <ul style="list-style-type: none"> <li>○ Sound Mode: Stereo</li> <li>○ Earpiece: Double</li> <li>○ Driver Unit Size: 32 mm</li> <li>○ Frequency Response: 20–20000 Hz</li> <li>○ Impedance: 32 ohms</li> </ul> </li> <li>• Microphone Features                             <ul style="list-style-type: none"> <li>○ Frequency Response: 100–12000 Hz</li> <li>○ Impedance: 3320 ohms</li> </ul> </li> <li>• Handheld Device Headphones and Microphones:                             <ul style="list-style-type: none"> <li>○ 3.5 mm single jack</li> <li>○ Over-the-ear style (non-earbud)</li> </ul> </li> </ul> <p>While Bluetooth devices are supported, their use is discouraged due to issues with pairing multiple devices in the same lab.</p>

**Change Log**

Location	Change	Date
Throughout	Cutover from 2020-2021 version	6/23/21
Desktops & Laptops Support Table	Added Windows 11 with footnote stating support is anticipated upon completion of testing following release.	7/14/21
Testing Devices Table	Updated requirement for Headphones & Headsets to include note about Bluetooth devices.	8/3/21
Tablets & Chromebooks Support Table	Added iPadOS 14.6	8/18/21
Tablets & Chromebooks Support Table	Added iPadOS 14.7 and updated footnote explaining known issues in supported versions of Chrome OS.	9/2/21
Tablets & Chromebooks Support Table	Updated footnote explaining known issues in supported versions of Chrome OS.	9/24/21
Desktops & Laptops Support Table	Added macOS 11.5 and 11.6	10/18/21
Tablets & Chromebooks Support Table	Updated and reformatted footnote explaining known issues in supported versions of Chrome OS.	10/28/21
Tablets & Chromebooks Support Table	Added iPadOS 14.8	11/8/21
Tablets & Chromebooks Support Table	Added iPadOS 15.1	12/13/21
Tablets & Chromebooks Support Table	Updated footnote explaining known issues in Chrome OS 96.	1/4/21
Tablets & Chromebooks Support Table	Added iPadOS 15.2	2/2/22
Tablets & Chromebooks Support Table	Updated note about Chromebooks manufactured in 2017 or later.	2/2/22
Desktops & Laptops Support Table	Added macOS 12-12.2. Added footnote about permissive mode access to macOS. Reordered footnotes throughout table.	2/23/22
Desktops & Laptops Support Table	Added Windows 10 21H1 with 21H2 support anticipated pending the completion of internal testing.	3/3/22
Tablets & Chromebooks Support Table	Added iPadOS 15.3	3/3/22

Location	Change	Date
Tablets & Chromebooks Support Table	Added Chrome OS 97 & 98 to last two bullets in footnote explaining known issues in Chrome OS.	3/17/22
Desktops & Laptops Support Table	Added macOS 12.3	3/30/22
Tablets & Chromebooks Support Table	Added Chrome OS 99 to last two bullets in footnote explaining known issues in Chrome OS.	3/30/22
Tablets & Chromebooks Support Table	Added iPadOS 15.4	4/8/22
Desktops & Laptops Support Table	Added Windows 11 with footnote. Reordered footnotes.	4/18/22
NComputing Support Table	Added Windows 11 with footnote. Added same footnote to Windows 10.	4/18/22