

# System Requirements for Online Testing 2018–2019

## Overview

This document was developed by the American Institutes for Research (AIR) and the Florida Department of Education (FDOE) and contains technology requirements to help Florida districts and schools prepare for online testing using AIR’s Test Delivery System. In the 2018–19 school year, the following Florida Standards Assessments (FSA) will be delivered online using AIR’s systems:

- **ELA Writing:** Grades 7–10 & Retake
- **ELA Reading:** Grades 7–10 & Retake
- **Mathematics:** Grades 7–8, Algebra 1 EOC Retake, Algebra 1 EOC, and Geometry EOC

This document includes the following sections:

- [Supported Operating Systems and Devices](#)
- [Supported Web Browsers for Online Systems](#)
- [Secure Browsers for Online Testing](#)
- [Requirements for Peripheral Equipment](#)

## Supported Operating Systems and Devices

This section lists the system requirements for administering computer-based assessments. Please refer to the [Download Secure Browsers](#) page on the FSA Portal for the most up-to-date supported operating systems and devices.



### **Warning: Support for New Major Versions of Supported Operating Systems and Devices**

New major versions of supported operating systems must be tested by AIR before they can be used for online testing. Do not upgrade to new major versions before support is officially announced. AIR also recommends you disable auto-updates to keep systems from upgrading automatically. Support for operating systems or devices may be added or dropped throughout the year, so be sure to check what is supported before making any changes to your computers or devices.

Only the listed operating systems are supported. Versions not listed in this document are not supported.

## Desktops, Laptops, and Netbooks

Computers used for testing must meet the specifications for each supported operating system as shown in the table below. To ensure optimal student experiences for online testing, any computer that takes a noticeably long time (for example, 10 seconds or more) to start and run applications should be avoided for use with online testing.

Supported Operating Systems	Minimum Requirements for Current Computers**
<b>Windows</b> 7 SP1 (Professional and Enterprise) 8 (Professional and Enterprise) 8.1 (Professional and Enterprise) 10, 10 in S mode (Professional, Educational, and Enterprise) (Versions 1507–1809)	1 GHZ Processor 1 GB RAM (32-bit) 2 GB RAM (64-bit) 16 GB hard drive (32-bit) 20 GB hard drive (64-bit)
<b>Mac OS X (Intel)</b> 10.9–10.14	1 GHZ Processor 1 GB RAM (32-bit) 2 GB RAM (64-bit) 16 GB hard drive (32-bit) 20 GB hard drive (64-bit)
<b>Linux* (64-bit or 32-bit)</b> Fedora 27, 28 Ubuntu 14.04, 16.04 LTS (Gnome)	1 GHZ Processor 1 GB RAM (32-bit) 2 GB RAM (64-bit) 16 GB hard drive (32-bit) 20 GB hard drive (64-bit) Required Libraries/Packages: <ul style="list-style-type: none"> <li>• GTK+ 2.18 or higher</li> <li>• GLib 2.22 or higher</li> <li>• Pango 1.14 or higher</li> <li>• X.Org 1.0 or higher (1.7+ recommended)</li> <li>• libstdc++ 4.3 or higher</li> <li>• libreadline6:i386 (Ubuntu only)</li> <li>• GNOME 2.16 or higher</li> </ul>
<b>Linux* (64-bit only)</b> Ubuntu 18.04 LTS (Gnome)	1 GHZ Processor 2 GB RAM 20 GB hard drive In addition to all libraries and packages listed above, Ubuntu 18.04 LTS (Gnome) also requires the following libraries: <ul style="list-style-type: none"> <li>• Sox</li> <li>• Net-tools</li> </ul>

\* Text-to-speech (TTS) tracking does not function correctly on Linux OS. If students require the use of this accommodation (TTS with tracking), they must use a different operating system.

\*\* ARM-powered devices such as the Raspberry Pi are not supported for online testing.

## Tablets

While the specifications for computers, laptops, and netbooks are more general, only supported tablets running a supported operating system are permitted. These supported tablets have been tested for use with AIR’s Test Delivery System and may be used for student testing.

Supported Operating Systems	Supported Tablets	Related Requirements
<b>iOS (iPads)</b> 10.2, 10.3 11.4 12.0, 12.1, 12.2	4 <sup>th</sup> Generation (Retina Display) 5 <sup>th</sup> Generation (Retina Display) 6 <sup>th</sup> Generation iPad Air iPad Air 2 iPad Pro	With iOS 10.2 and later, the AIRSecureTest app supports Autonomous Single App Mode (ASAM) and Single App Mode (SAM). For more information, refer to the <i>Technical Specifications Manual</i> .
<b>Android<sup>a</sup></b> 7.1, 8.1	Lenovo Yoga Tab 3 10 Samsung Galaxy Tab S3 Asus ZenPad Z10	The secure browser keyboard must be enabled after installation of the mobile secure browser. For more information, refer to the <i>Secure Browser Installation Manual</i> .
<b>Windows</b> 8 (Professional & Enterprise) 8.1 (Professional & Enterprise) 10 (Educational, Professional, & Enterprise)	AIR supports any tablet running these versions of Windows (Educational and Professional) but has done extensive testing only on Surface Pro, Surface Pro 3, Asus Transformer, and Dell Venue.	N/A

<sup>a</sup> Amazon Fire tablets are not supported for online testing.

## Chromebooks and Chromebases

All Chromebooks running a supported Chrome OS may be used for student testing. Information on Google's auto-update policy, including currently supported devices, can be found at <https://support.google.com/chrome/a/answer/6220366>.



**Note:** For Chrome OS and automatic updates, AIR recommends turning off or delaying automatic updates of the Chrome operating system. Doing so will allow AIR to review changes from Google and address any updates that pose a potential risk to student testing.

Automatic update settings are configured in Google’s admin console.

Supported Operating Systems	Supported Devices	Related Requirements
<b>Chrome OS</b> 67–71, 72*, 73	All Chromebooks	Kiosk mode must be enabled. For more information, refer to the <i>Secure Browser Installation Manual</i> .

\*If you are running into login errors running Chrome 72, be sure you have upgraded to at least point version 72.0.3626.117.



**Chromebooks Manufactured in 2017 or later**

Due to changes by Google, users with Chromebooks manufactured in 2017 or later who do not have an Enterprise or Education license **will not** be able to use those machines for assessments. Google no longer allows users without these licenses to set up kiosk mode, which is necessary to run the AIR Secure Browser.

This change restricting kiosk mode does not affect the Chrome operating system. You can still use any version of Chrome OS on hardware manufactured in 2016 or earlier.



**Warning: Chrome OS Tablet Mode**

Chrome OS includes a feature called tablet mode, which offers a touchscreen environment for supported Chromebooks and for Chrome OS tablets. Tablet mode cannot be blocked and AIR does not support tablet mode for use in testing.



**Warning: Chrome OS and TTS**

If students testing on Chromebooks receive a message during the login process stating TTS is not available, the Secure Browser may need to be reinstalled. Please call the FSA Help Desk for further assistance. Before testing begins, we strongly recommend running a practice test with TTS enabled on Chromebooks that will be used to provide the TTS accommodation.

## Thin Clients: NComputing for Windows

The following table lists the supported hardware and software for NComputing solutions.

Supported Server Host	Supported Server Software	Supported Terminals
Windows Server 2008 R2	vSpace Server 8.4	L300, firmware version 1.12.xx
Windows Server 2012 R2 Windows Server 2016 R2 Windows 10	vSpace PRO 10	L300, L350, M300, firmware version 1.13.xx

## Supported Web Browsers for Online Systems

This section lists the supported web browsers for 2018–2019. It also provides information regarding AIR’s secure browsers for student testing. Frequent browser updates occur throughout the year.

### Supported Web Browsers by Operating System

The table below lists the supported operating systems and corresponding web browsers for each AIR application. Each application requires disabling pop-up blocking software and enabling JavaScript. Be sure to use the correct combination of operating system and web browser.

Supported Operating Systems	Supported Devices	Supported Browsers	TA Sites	Student Practice Test	AVA	TIDE	FSA-R
<b>Windows<sup>a</sup></b>							
7 SP1 (Professional and Enterprise)	Desktops, laptops	Chrome 67–73	✓	✓	✓	✓	✓
		Firefox 52–60	✓	✓	✓	✓	✓
		Internet Explorer 11	✓				
<b>Windows<sup>a</sup></b>							
8 (Professional and Enterprise) 8.1 (Professional and Enterprise)	Desktops, laptops	Chrome 67–73	✓	✓	✓	✓	✓
		Firefox 52–60	✓	✓	✓	✓	✓
		Internet Explorer 11	✓				
8 RT	Surface Pro Surface Pro 3 Asus Transformer Dell Venue	Internet Explorer 11	✓				
10 (Professional, Educational, and Enterprise) (Versions 1507-1809)	Desktops, laptops	Chrome 67–73	✓	✓	✓	✓	✓
		Firefox 52–60	✓	✓	✓	✓	✓
		Internet Explorer 11	✓				
		Edge	✓	✓	✓	✓	✓
10 in S mode (Professional, Educational, and Enterprise) (Versions 1507-1809)	Desktops, laptops	Edge	✓	✓	✓	✓	✓

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Supported Operating Systems	Supported Devices	Supported Browsers	TA Sites	Student Practice Test	AVA	TIDE	FSA-R
<b>Mac OS X</b>							
10.9–10.14	Desktops, laptops	Chrome 67–73	✓	✓	✓	✓	✓
		Firefox 52–60	✓	✓	✓	✓	✓
		Safari 9–11	✓	✓		✓	✓
<b>Linux<sup>b</sup></b>							
Fedora 27, 28	Desktops, laptops	Chrome 67–73	✓	✓	✓	✓	✓
		Firefox 52–60	✓	✓	✓	✓	✓
Ubuntu 14.04, 16.04, 18.04 LTS (Gnome)	Desktops, laptops	Chrome 67–73	✓	✓	✓	✓	✓
		Firefox 52–60	✓	✓	✓	✓	✓
<b>iOS</b>							
10.2, 10.3	Supported iPads	Safari 10	✓	✓	✓		✓
11.4	Supported iPads	Safari 11	✓	✓	✓		✓
12.0, 12.1, 12.2	Supported iPads	Safari 12	✓	✓	✓		✓
<b>Android</b>							
7.1, 8.1	Supported tablets	Chrome 67–73	✓	✓	✓		
<b>Chrome OS</b>							
67–71, 72 <sup>c</sup> , 73	Chromebooks	Chrome 67–73	✓	✓	✓		✓

<sup>a</sup> AIR supports any tablet running Windows 8 and 8.1 Pro, and Windows 10 (Educational and Professional) but has done extensive testing only on Surface Pro, Surface Pro 3, Asus Transformer, and Dell Venue.

<sup>b</sup> Text-to-speech (TTS) tracking does not function correctly on Linux OS. If students require the use of this accommodation (TTS with tracking), they must use a different operating system.

<sup>c</sup> If you are running into login errors running Chrome 72, be sure you have upgraded to at least point version 72.0.3626.117.

## Delaying Firefox Updates

AIR conducts quality assurance on the most recent Firefox versions for each system except the student testing site (which requires the secure browser). AIR recommends you delay installation of new versions of Firefox that could impact system performance. Postponing updates allows AIR time to review changes and verify that each system works correctly with the new version.

To learn how to disable automatic updates for Firefox, see <https://support.mozilla.org/en-US/kb/forum-response-turning-auto-update>. You may need to disable automatic updates again after installing a newer version of Firefox.

## Secure Browsers for Online Testing

The secure browser must be downloaded and installed on all computers that will be used for student testing. Districts that installed a secure browser with a version older than the versions listed below must uninstall it before installing the secure browser for the 2018–2019 school year. For instructions on downloading and installing the secure browsers, refer to the *Secure Browser Installation Manual*. All secure browsers can be downloaded from the FSA Portal ([www.FSAssessments.org](http://www.FSAssessments.org)).

Supported Operating Systems	Supported Devices	Supported Secure Browser
<b>Windows</b> 7 SP1 (Professional and Enterprise) 8 (Professional and Enterprise) 8.1 (Professional and Enterprise) 8 RT 10, (Professional, Educational, and Enterprise) (Versions 1507–1809)	Desktops/Laptops/Netbooks	10.5
<b>Windows</b> 10, 10 in S mode (Educational, Professional, & Enterprise) (Versions 1507–1809)	Desktops/Laptops/Netbooks	Take a Test app
<b>Mac OS X</b> 10.9–10.14	Desktops/Laptops	10.6
<b>Linux<sup>a</sup></b> Fedora 27, 28 Ubuntu 14.04, 16.04, 18.04 LTS (Gnome)	Desktops/Laptops/Netbooks	10.5
<b>iOS (iPads)</b> 10.2, 10.3 11.4 12.0, 12.1, 12.2	4 <sup>th</sup> Generation (Retina Display) 5 <sup>th</sup> Generation (Retina Display) 6 <sup>th</sup> Generation iPad Air iPad Air 2 iPad Pro	AIRSecureTest Mobile Secure Browser 5

Supported Operating Systems	Supported Devices	Supported Secure Browser
<b>Android</b> 7.1, 8.1	Lenovo Yoga Tab 3 10 Samsung Galaxy Tab S3 Asus ZenPad Z10	AIRSecureTest Mobile Secure Browser 5
<b>Chrome OS</b> 67–71 & 72 <sup>b</sup> , 73	Chromebooks	AIRSecureTest kiosk application 5

<sup>a</sup> Text-to-speech (TTS) tracking does not function correctly on Linux OS. If students require the use of this accommodation (TTS with tracking), they must use a different operating system.

<sup>b</sup> If you are running into login errors running Chrome 72, be sure you have upgraded to at least point version 72.0.3626.117.

## Requirements for Peripheral Equipment

### Monitors and Screen Display Requirements

All supported computers, laptops, netbooks, and tablets must meet the following requirements.

#### Screen Dimensions

Screen dimensions must be 10" or larger (with the exception of iPads with a 9.7" display, which are included). This means the following devices are **not** supported:

- Apple iPad Mini
- Google Nexus 7 and similar-sized Android tablets
- Netbooks with screen dimensions smaller than 10"

#### Screen Resolution

All devices must meet the following minimum resolution. Larger resolutions can be applied as appropriate for the monitor or screen being used.

- Desktops, laptops, and tablets: 1024 × 768
- Netbooks: 1024 × 600

Depending on the screen size, students may need to use vertical or horizontal scroll bars to view all test-related information. Students may also use the Zoom tool in the online test to enlarge the content on the screen.



## Headphones/Earbuds

Students may need headphones/earbuds to listen to audio during the test.

- Students with the text-to-speech accommodation on computer based assessments require headphones/earbuds.
- Grades 7–10 and Retake ELA Reading assessments (both computer-based and paper-based) require headphones for listening and/or animation items.

School assessment coordinators should determine how many students will need headphones/earbuds prior to testing to ensure that there is an adequate supply on hand.

The following headphones/earbuds are supported:

- Wired headphones/earbuds with a 3.5 mm connector.
- USB headphones/earbuds with a wired or wireless connection.

Each NComputing terminal must have a USB headphone or headset when used for tests that require students to listen to audio.

## Mice

Mice on mobile devices are not supported. Wireless or wired two- or three-buttoned mice that are compatible with the operating system on desktops and laptops are supported. No other mice should be used, especially mice equipped with a “browser back” button that could potentially log students out of a test.

## Keyboards

External keyboards are strongly recommended for tablets used for testing. Students may use mechanical, manual, or Bluetooth-based keyboards. Some external keyboards have additional “shortcut” buttons that can create security issues. These buttons may allow students to open another application or the tablet’s default on-screen keyboard. AIR strongly cautions against using keyboards that have these shortcut buttons.

### Keyboards with the Android Operating System

Testing on an Android mobile device requires installation of the secure browser keyboard to disable predictive text. Any external keyboard that has a shortcut button to open the tablet’s default keyboard is not permitted as the default keyboard will override the mobile secure browser keyboard.

AIR has determined that the EZOWare Slim Full Size Keyboard contains a shortcut button that opens the default keyboard and should NOT be used with Android tablets.

## Change Log

Location	Change	Date
<a href="#">Overview</a>	Updated information	8/1/18
<a href="#">Desktops, Laptops, and Netbooks, Tablets, Chromebooks and Chromebases, Supported Web Browsers for Online Systems, Secure Browsers for Online Testing</a>	Updated information on system and device support	8/1/18
<a href="#">Headphones/Earbuds</a>	Updated information	8/1/18
<a href="#">Secure Browsers for Online Testing</a>	Updated Linux Secure Browser version	8/23/18
<a href="#">Chromebooks and Chromebases, Supported Web Browsers for Online Systems, Secure Browsers for Online Testing</a>	Updated Chrome support	8/24/18
<a href="#">Chromebooks and Chromebases, Supported Web Browsers for Online Systems, Secure Browsers for Online Testing</a>	Updated Chrome support	10/5/18
<a href="#">Tablets, Supported Web Browsers for Online Systems, Secure Browsers for Online Testing</a>	Updated iOS support	11/1/18
<a href="#">Secure Browsers for Online Testing</a>	Updated Secure Browser Version	11/1/18
<a href="#">Secure Browsers for Online Testing</a>	Updated Mac OS X Secure Browser Version	11/13/18
<a href="#">Tablets, Supported Web Browsers for Online Systems, Secure Browsers for Online Testing</a>	Updated iOS support	11/13/18
<a href="#">Desktops, Laptops, and Netbooks, Tablets, Chromebooks and Chromebases, Supported Web Browsers for Online Systems, Secure Browsers for Online Testing</a>	Updated Mac OS X support	1/17/19
<a href="#">Desktops, Laptops, and Netbooks, Tablets, Chromebooks and Chromebases, Supported Web Browsers for Online Systems, Secure Browsers for Online Testing</a>	Updated Chrome support	1/18/19

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<a href="#">Desktops, Laptops, and Netbooks, Tablets, Chromebooks and Chromebases, Supported Web Browsers for Online Systems, Secure Browsers for Online Testing</a>	Updated Chrome and Winver support	2/22/19
<a href="#">Desktops, Laptops, and Netbooks, Tablets, Chromebooks and Chromebases, Supported Web Browsers for Online Systems, Secure Browsers for Online Testing</a>	Updated Chrome and iOS support	4/16/19
<a href="#">Chromebooks and Chromebases</a>	Updated with TTS warning	4/16/19