

# System Requirements for Online Testing 2015–2016

## 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 2015–16 school year, the following Florida Standards Assessments (FSA) will be delivered online using AIR’s systems:

- Grades 8–10 ELA Writing
- Grades 4–10 ELA Reading
- Grades 5–8 Mathematics
- Algebra 1 EOC
- Geometry EOC
- Algebra 2 EOC

This document includes the following sections:

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

## Supported Operating Systems and Devices

This section lists the system requirements for administering computer-based assessments.



### **Warning: Support for New Desktop Operating Systems**

Operating systems that become available but do not appear in the following tables are not supported. Do not upgrade to new operating systems on computers that will be used to administer online assessments without ensuring the updates meet the required specifications.



**Note: About the Minimum Requirements for Current Computers**

AIR’s secure browser for desktops is based on the open-source Mozilla Firefox web browser. The current requirements align with the minimum recommendations for running Mozilla Firefox on supported operating systems ([Mozilla System Requirements](#)).

The recommended specifications are AIR’s guidelines for optimal performance. If your district or school is contemplating purchasing new computers, we suggest that you consider the recommended specifications. These specifications will ensure that your computers work effectively with the online testing system and provide additional functionality and longevity.

## 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	Requirements for Current Computers	Recommended Specifications for Future Purchases
<b>Windows</b> 7, 8.0, 8.1, 10	1 GHz or faster processor 1 GB RAM or greater memory	Pentium 4 GHz processor 2 GB RAM 80 GB hard drive
<b>Mac OS X (Intel)*</b> 10.7, 10.8, 10.9, 10.10	1 GHz or faster processor 1 GB RAM or greater memory	Pentium 4 GHz processor 2 GB RAM 80 GB hard drive
<b>Linux</b> Fedora 20, 21, 22 openSUSE 13.1 Red Hat Enterprise Linux 6.5 Ubuntu 12.04, 14.04 (LTS)	Intel x86 processor 512 MB of RAM 200 MB hard drive space 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>	Pentium 4 or newer processor 2 GB RAM 80 GB hard drive 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>• HAL 0.5.8 or higher</li> </ul>

\*AIR expects to support Mac OS X 10.11 in 2016; however, schools should **not** update operating systems until they have been confirmed as being supported by AIR and FDOE.

## 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> 7.0, 7.1 8.0–8.2	iPad 2 Third generation Fourth generation (Retina Display) iPad Air iPad Air 2	Guided Access must be enabled. For more information, refer to the <i>Technical Specifications Manual</i> .
<b>Android</b> 4.3, 4.4, 5.0, 5.1	Google Nexus 10 Motorola Xoom Samsung Galaxy Note 2014 Samsung Galaxy Tab 3, 4 LearnPad Quarto	The secure browser keyboard must be enabled after installing the mobile secure browser. For more information, refer to the <i>Secure Browser Installation Manual</i> .
<b>Windows</b> 8.0, 8.1, 10	AIR supports any tablet running Windows 8.0, 8.1 Pro, 10 (Educational and Professional) but has done extensive testing only on Surface Pro, Surface Pro 3, Asus Transformer, and Dell Venue.	N/A

\*AIR expects to support iOS 9 in 2016; however, schools should **not** update operating systems until they have been confirmed as being supported by AIR and FDOE.

## Chromebooks

All Chromebooks running a supported Chrome OS may be used for student testing.



### About 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. The recommended period for delaying automatic updates is two weeks.

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

Supported Operating Systems	Supported Devices	Related Requirements
<b>Chrome OS</b> 41–45	All Chromebooks	Kiosk mode must be enabled. For more information, refer to the <i>Secure Browser Installation Manual</i> .

## 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 2008 R2	vSpace Server 8	L300

## Supported Browsers for Online Systems

This section lists the supported web browsers for 2015–2016. It also provides information regarding AIR’s secure browsers for student testing.

### Supported Web Browsers by Operating System

The table below lists the supported operating systems and corresponding web browsers for each AIR application. AIR recommends using recent versions of supported web browsers. Each application requires disabling pop-up blocking software and enabling JavaScript. Be sure to use the correct combination of operating system and web browser. For example, Windows 8.1 requires Internet Explorer 11.

Supported Operating Systems	Supported Devices	Supported Browsers	TA Sites	Student Training Test	TIDE	ORS
<b>Windows</b>						
7	Desktops, laptops	Chrome 41–45	✓	✓	✓	✓
		Firefox 10–41	✓	✓	✓	✓
		Internet Explorer 10–11	✓	✓	✓	✓

8.0	Desktops, laptops	Chrome 41–45	✓	✓	✓	✓
		Firefox 10–41	✓	✓	✓	✓
		Internet Explorer 10–11	✓	✓	✓	✓
8.0 Pro, 8.0 RT	Surface Pro* Surface Pro 3* Asus Transformer* Dell Venue*	Internet Explorer 10–11	✓	✓		

Supported Operating Systems	Supported Devices	Supported Browsers	TA Sites	Student Training Test	TIDE	ORS
<b>Windows</b>						
8.1	Desktops, laptops	Chrome 41–45	✓	✓	✓	✓
		Firefox 10–41	✓	✓	✓	✓
		Internet Explorer 11	✓	✓	✓	✓
10	Desktops, laptops	Chrome 41–45	✓	✓	✓	✓
		Firefox 10–41	✓	✓	✓	✓
		Internet Explorer 11	✓	✓	✓	✓
<b>Mac OS X</b>						
10.7	Desktops, laptops	Chrome 41–45	✓	✓	✓	✓
		Firefox 10–41	✓	✓	✓	✓
		Safari 5–6	✓	✓	✓	✓
10.8	Desktops, laptops	Chrome 41–45	✓	✓	✓	✓
		Firefox 10–41	✓	✓	✓	✓
		Safari 6	✓	✓	✓	✓
10.9	Desktops, laptops	Chrome 41–45	✓	✓	✓	✓
		Firefox 10–41	✓	✓	✓	✓
		Safari 7	✓	✓	✓	✓
10.10	Desktops, laptops	Chrome 41–45	✓	✓	✓	✓
		Firefox 10–41	✓	✓	✓	✓
		Safari 8	✓	✓	✓	✓

Supported Operating Systems	Supported Devices	Supported Browsers	TA Sites	Student Training Test	TIDE	ORS
<b>Linux</b>						
Fedora 20–22	Desktops, laptops	Chrome 41–45	✓	✓	✓	✓
		Firefox 10–41	✓	✓	✓	✓
openSUSE 13.1	Desktops, laptops	Chrome 41–45	✓	✓	✓	✓
		Firefox 10–41	✓	✓	✓	✓
Red Hat Enterprise 6.5	Desktops, laptops	Chrome 41–45	✓	✓	✓	✓
		Firefox 10–41	✓	✓	✓	✓
Ubuntu (LTS) 12.04, 14.04	Desktops, laptops	Chrome 41–45	✓	✓	✓	✓
		Firefox 10–41	✓	✓	✓	✓
<b>iOS</b>						
7.0, 7.1	Supported iPads	Safari 7	✓	✓		
8.0–8.2	Supported iPads	Safari 8	✓	✓		
<b>Android</b>						
4.3, 4.4, 5.0, 5.1	Supported tablets	Chrome 41–45	✓	✓		
<b>Chrome OS</b>						
41–45	Chromebooks	Chrome 41–45	✓	✓		

\* AIR supports any tablet running Windows 8.0 and 8.1 Pro, 10 (Educational and Professional) but has done extensive testing only on Surface Pro, Surface Pro 3, Asus Transformer, and Dell Venue.

## 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, which 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. 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, 8.0, 8.1, 10	Desktops/Laptops/Netbooks	8.0
<b>Mac OS X (Intel)</b> 10.7–10.10	Desktops/Laptops	8.0
<b>Linux</b> Fedora 20–22 openSUSE 13.1 Red Hat Enterprise 6.5 Ubuntu 12.04, 14.04 (LTS)	Desktops/Laptops/Netbooks	8.1
<b>iOS (iPads)</b> 7.0, 7.1 8.0–8.2	iPad 2 Third generation Fourth generation (Retina Display) iPad Air iPad Air 2	AIRSecureTest Mobile Secure Browser
<b>Android</b> 4.3, 4.4, 5.0, 5.1	Google Nexus 10 Motorola Xoom Samsung Galaxy Note (2014) Samsung Galaxy Tab 3, 4	AIRSecureTest Mobile Secure Browser
<b>Chrome OS</b> 41–45	Chromebooks	AIRSecureTest kiosk application

## 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 9.5" 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

Students may need headphones to listen to audio in online assessments.

- Students with the text-to-speech feature can listen to stimuli or test items being read aloud.
- All computer-based ELA Reading assessments require headphones for listening items.

School Assessment Coordinators should determine how many students will need headphones prior to testing to ensure that there is an adequate supply on hand.

The following headphones are supported:

- Wired headphones with a 3.5 mm connector.
- USB headphones with a wired or wireless connection.
- The following Bluetooth headphones: Logitech H800, SoundBot SB270, and ECO Sound ECO-V300.

Wired headphones with a 3.5 mm connector or USB headphones (wired or wireless) are recommended over Bluetooth, as they provide better clarity and accuracy.



## Mice

Mice on mobile devices are not supported. Wireless or wired mice on desktops and laptops that are compatible with the operating system are supported.

## 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

The Android mobile secure browser requires the secure browser keyboard to disable predictive text. Therefore, any external keyboard that has a shortcut button to open the tablet’s default keyboard is not permitted as this 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
Supported Operating Systems and Devices, Desktops, Laptops, and Netbooks, Tablets, Supported Browsers for Online Systems, Secure Browsers for Online Testing	Updated to include Windows 10, Linux Fedora 22, Firefox 41, and Chrome 45	10/21/15