

# System Requirements for Online Testing 2016–2017

## 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 2016–17 school year, the following Florida Standards Assessments (FSA) will be delivered online using AIR’s systems:

- **ELA Writing:** Grades 8–10 & Retake
- **ELA Reading:** Grades 4–10 & Retake
- **Mathematics:** Grades 3–8, Algebra 1 Retake, Algebra 1 EOC, Geometry EOC, Algebra 2 EOC

This document includes the following sections:

- [Supported Operating Systems and Devices](#)
- [Supported 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 [Secure Browser page](#) on the FSA Portal for the most up-to-date supported operating systems and devices.



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

Operating systems that become available but do not appear on the portal or 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.

## 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><br>7 (Professional and Enterprise)<br>8.0 (Professional and Enterprise)<br>8.1 (Professional and Enterprise)<br>10 (Professional, Educational, and Enterprise) | Pentium 4 or newer processor that supports SSE2<br>1 GB RAM or greater memory<br>200 MB hard drive space   |
| <b>Mac OS X (Intel)</b><br>10.7–10.12   | Intel x86 processor<br>1 GB RAM or greater memory<br>200 MB hard drive space   |
| <b>Linux*</b><br>Fedora 23, 24, 25<br>openSUSE 13.1, 13.2<br>Red Hat Enterprise Linux 6.5<br>Ubuntu (LTS) 12.04, 14.04, 16.04   | Intel x86 processor<br>512 MB of RAM<br>200 MB hard drive space<br>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> |

\*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.

## 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><br>8.0–8.2<br>9.2, 9.3<br>10.2 | iPad 2<br>iPad 3<br>Fourth generation (Retina Display)<br>iPad Air<br>iPad Air 2  | With iOS 8 and later, the AIRSecureTest app supports Autonomous Single App Mode (ASAM) and Single App Mode (SAM).<br>If ASAM or SAM is not utilized for testing, then Guided Access must be enabled.<br>For more information, refer to the <i>Technical Specifications Manual</i> . |
| <b>Android</b><br>4.4, 5.0, 5.1                   | Google Nexus 10<br>Motorola Xoom<br>Samsung Galaxy Note 2014<br>Samsung Galaxy Tab 3, 4<br>LearnPad Quarto  | The secure browser keyboard must be enabled after installation of the mobile secure browser.<br>For more information, refer to the <i>Secure Browser Installation Manual</i> .  |
| <b>Windows</b><br>8.0, 8.1, 10                    | 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   |

## 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.

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

| Supported Operating Systems | Supported Devices | Related Requirements  |
|-----------------------------|-------------------|---|
| <b>Chrome OS</b><br>51–56*  | All Chromebooks   | Kiosk mode must be enabled.<br>For more information, refer to the <i>Secure Browser Installation Manual</i> . |

\*Text-to-speech (TTS) tracking does not function correctly on Chrome OS versions 54–55. If students require the use of this accommodation (TTS with tracking), please upgrade to the latest version of Chrome OS 56 (at least version 56.0.2924.110).

## 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 8.3         | L300, firmware version 1.11.xx |

## Supported Browsers for Online Systems

This section lists the supported web browsers for 2016–2017. 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. 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 Practice Test | AVA | TIDE | FSA-R |
|--|--|----------------------|----------|-----------------------|-----|------|-------|
| <b>Windows</b>   |  |                      |          |                       |     |      |       |
| 7  | Desktops, laptops  | Chrome 51–56         | ✓        | ✓                     | ✓   | ✓    | ✓     |
|  |  | Firefox 45 & 46      | ✓        | ✓                     | ✓   | ✓    | ✓     |
|  |  | Internet Explorer 11 | ✓        | ✓                     | ✓   | ✓    | ✓     |
| 8.0 RT   | Surface Pro <sup>a</sup><br>Surface Pro 3 <sup>a</sup><br>Asus Transformer <sup>a</sup><br>Dell Venue <sup>a</sup> | Internet Explorer 11 | ✓        | ✓                     | ✓   |      | ✓     |
| 8.0 (Professional and Enterprise)<br>8.1 (Professional and Enterprise) | Desktops, laptops  | Chrome 51–56         | ✓        | ✓                     | ✓   | ✓    | ✓     |
|  |  | Firefox 45 & 46      | ✓        | ✓                     | ✓   | ✓    | ✓     |
|  |  | Internet Explorer 11 | ✓        | ✓                     | ✓   | ✓    | ✓     |

System Requirements for Online Testing

| Supported Operating Systems                       | Supported Devices | Supported Browsers         | TA Sites | Student Practice Test | AVA | TIDE | FSA-R |
|---|-------------------|----------------------------|----------|-----------------------|-----|------|-------|
| <b>Windows</b>                                    |                   |                            |          |                       |     |      |       |
| 10<br>(Professional, Educational, and Enterprise) | Desktops, laptops | Chrome 51–56               | ✓        | ✓                     | ✓   | ✓    | ✓     |
|   |                   | Firefox 45 & 46            | ✓        | ✓                     | ✓   | ✓    | ✓     |
|   |                   | Internet Explorer 11, Edge | ✓        | ✓                     | ✓   | ✓    | ✓     |
| <b>Mac OS X</b>                                   |                   |                            |          |                       |     |      |       |
| 10.7  | Desktops, laptops | Chrome 51–56               | ✓        | ✓                     | ✓   | ✓    | ✓     |
|   |                   | Firefox 45 & 46            | ✓        | ✓                     | ✓   | ✓    | ✓     |
| 10.8  | Desktops, laptops | Chrome 51–56               | ✓        | ✓                     | ✓   | ✓    | ✓     |
|   |                   | Firefox 45 & 46            | ✓        | ✓                     | ✓   | ✓    | ✓     |
|   |                   | Safari 6                   | ✓        | ✓                     | ✓   | ✓    | ✓     |
| 10.9  | Desktops, laptops | Chrome 51–56               | ✓        | ✓                     | ✓   | ✓    | ✓     |
|   |                   | Firefox 45 & 46            | ✓        | ✓                     | ✓   | ✓    | ✓     |
|   |                   | Safari 7                   | ✓        | ✓                     | ✓   | ✓    | ✓     |
| 10.10   | Desktops, laptops | Chrome 51–56               | ✓        | ✓                     | ✓   | ✓    | ✓     |
|   |                   | Firefox 45 & 46            | ✓        | ✓                     | ✓   | ✓    | ✓     |
|   |                   | Safari 8                   | ✓        | ✓                     | ✓   | ✓    | ✓     |
| 10.11, 10.12                                      | Desktops, laptops | Chrome 51–56               | ✓        | ✓                     | ✓   | ✓    | ✓     |
|   |                   | Firefox 45 & 46            | ✓        | ✓                     | ✓   | ✓    | ✓     |
|   |                   | Safari 9                   | ✓        | ✓                     | ✓   | ✓    | ✓     |
| <b>Linux</b>                                      |                   |                            |          |                       |     |      |       |
| Fedora 23–25                                      | Desktops, laptops | Chrome 51–56               | ✓        | ✓                     | ✓   | ✓    | ✓     |
|   |                   | Firefox 45 & 46            | ✓        | ✓                     | ✓   | ✓    | ✓     |
| openSUSE 13.1, 13.2                               | Desktops, laptops | Chrome 51–56               | ✓        | ✓                     | ✓   | ✓    | ✓     |
|   |                   | Firefox 45 & 46            | ✓        | ✓                     | ✓   | ✓    | ✓     |

| Supported Operating Systems      | Supported Devices | Supported Browsers | TA Sites | Student Practice Test | AVA | TIDE | FSA-R |
|----------------------------------|-------------------|--------------------|----------|-----------------------|-----|------|-------|
| <b>Linux</b>                     |                   |                    |          |                       |     |      |       |
| Red Hat Enterprise 6.5           | Desktops, laptops | Chrome 51–56       | ✓        | ✓                     | ✓   | ✓    | ✓     |
|                                  |                   | Firefox 45 & 46    | ✓        | ✓                     | ✓   | ✓    | ✓     |
| Ubuntu (LTS) 12.04, 14.04, 16.04 | Desktops, laptops | Chrome 51–56       | ✓        | ✓                     | ✓   | ✓    | ✓     |
|                                  |                   | Firefox 45 & 46    | ✓        | ✓                     | ✓   | ✓    | ✓     |
| <b>iOS</b>                       |                   |                    |          |                       |     |      |       |
| 8.0–8.2                          | Supported iPads   | Safari 8           | ✓        | ✓                     | ✓   |      | ✓     |
| 9.x                              | Supported iPads   | Safari 9           | ✓        | ✓                     | ✓   |      | ✓     |
| 10.2                             | Supported iPads   | Safari 10          | ✓        | ✓                     | ✓   |      | ✓     |
| <b>Android</b>                   |                   |                    |          |                       |     |      |       |
| 4.4, 5.0, 5.1                    | Supported tablets | Chrome 51–56       | ✓        | ✓                     | ✓   |      | ✓     |
| <b>Chrome OS</b>                 |                   |                    |          |                       |     |      |       |
| 51–56                            | Chromebooks       | Chrome 51–56       | ✓        | ✓                     | ✓   |      | ✓     |

<sup>a</sup> AIR supports any tablet running Windows 8.0 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.

## 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. 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><br>7 (Professional and Enterprise)<br>8.0 (Professional and Enterprise)<br>8.1 (Professional and Enterprise)<br>10 (Professional, Educational, and Enterprise) | Desktops/Laptops/Netbooks   | 9.0                                 |
| <b>Mac OS X (Intel)</b><br>10.7–10.12   | Desktops/Laptops  | 9.0                                 |
| <b>Linux<sup>a</sup></b><br>Fedora 23–25<br>openSUSE 13.1, 13.2<br>Red Hat Enterprise 6.5<br>Ubuntu (LTS) 12.04, 14.04, 16.04   | Desktops/Laptops/Netbooks   | 9.0                                 |
| <b>iOS (iPads)<sup>b</sup></b><br>8.0–8.2<br>9.x<br>10.2  | iPad 2<br>iPad 3<br>Fourth generation (Retina Display)<br>iPad Air<br>iPad Air 2          | AIRSecureTest Mobile Secure Browser |
| <b>Android</b><br>4.4–5.1   | Google Nexus 10<br>Motorola Xoom<br>Samsung Galaxy Note (2014)<br>Samsung Galaxy Tab 3, 4 | AIRSecureTest Mobile Secure Browser |
| <b>Chrome OS<sup>c</sup></b><br>51–56   | Chromebooks   | AIRSecureTest kiosk application     |

<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> Schools testing students requiring TTS for the ELA Reading test on iOS devices should upgrade to MSB 3.4. Schools not using TTS on iOS devices may use 3.2, 3.3, or 3.4

<sup>c</sup> Text-to-speech (TTS) tracking does not function correctly on Chrome OS versions 54–55. If students require the use of this accommodation (TTS with tracking), please upgrade to the latest version of Chrome OS 56 (at least version 56.0.2924.110).

## 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

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

- Students with the text-to-speech feature can listen to audio files of stimuli or test items.
- All computer-based ELA Reading assessments require headphones for listening and or animation 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      |
|---|---|-----------|
| <a href="#">Chromebooks, Supported Web Browsers by Operating System, Secure Browsers for Online Testing</a>                     | Added support for Chrome OS version 52  | 8/29/2016 |
| <a href="#">Chromebooks, Supported Web Browsers by Operating System, Secure Browsers for Online Testing</a>                     | Added support for Chrome OS version 53  | 09/26/16  |
| <a href="#">Desktops, Laptops, and Netbooks, Supported Web Browsers by Operating System, Secure Browsers for Online Testing</a> | Removed support for Linux Fedora 22 and added Fedora 25   | 09/26/16  |
| <a href="#">Chromebooks, Supported Web Browsers by Operating System, Secure Browsers for Online Testing</a>                     | Removed support for Chrome 49   | 09/27/16  |
| <a href="#">Supported Web Browsers by Operating System, Secure Browsers for Online Testing</a>                                  | Added support for iOS 10.2, Mac OS 10.12, Chrome 54 and 55 and removed support for iOS 7 and Chrome 50. | 01/31/17  |
| <a href="#">Chromebooks, Supported Web Browsers by Operating System</a>   | Added text regarding TTS tracking on Chrome OS 54–55.   | 01/31/17  |
| <a href="#">Supported Operating Systems and Devices</a>   | Added footnote for Linux OS   | 02/07/17  |
| <a href="#">Secure Browsers for Online Testing</a>  | Updated the footnotes for iOS and Linux OS.   | 02/07/17  |
| <a href="#">Chromebooks, Supported Web Browsers by Operating System, Secure Browsers for Online Testing</a>                     | Updated to include Chrome 56 and the supported Chrome browser for TTS tracking.                         | 03/22/17  |