

# Quick Guide for Setting Up Your Online Testing Technology

AIR's Test Delivery System (TDS) has two components: the **Test Administrator (TA) Interface** and the **Student Interface**.

- Test administrators use the TA Interface to create and manage test sessions from any web browser.
- Students access and complete their tests through the Student Interface via the Secure Browser.

This document explains in 4 steps how to set up technology in your schools and district:

**Step 1.** Setting up the test administrator workstation

**Step 2.** Setting up student workstations

**Step 3.** Configuring your network for online testing

**Step 4.** Configuring assistive technologies

## STEP 1: SETTING UP THE TEST ADMINISTRATOR WORKSTATION

It is unlikely that any setup is required for your TA workstations. Nearly any modern device, including mobile devices like tablets and phones, with any modern browser can be used to access the TA site and administer a testing session. The TA Interface is a website. Any device you already use to check your email, browse Facebook, read news articles, or watch YouTube should be capable of administering tests.

If your school uses a firewall or other networking equipment that blocks access to public websites, you may need to whitelist AIR websites. For a list of websites you should whitelist, see the "Whitelisting Resources for Online Testing" section in the document titled *Configurations, Troubleshooting and Advanced Secure Browser Installation* for your operating system.

TAs can print test session information or test items for students with the print-on-request accommodation. To be able to print, TA workstations must be connected to a printer.

## STEP 2: SETTING UP STUDENT WORKSTATIONS

In order for students to access online tests, each student workstation needs AIR's Secure Browser installed on it. The Secure Browser is AIR's customized web browser designed to keep tests secure by locking down the student desktop and preventing the student from accessing anything except their test. Unlike conventional web browsers, the Secure Browser displays the student application in full-screen mode with no user interface to the browser itself. It has no back button, next button, refresh button, or URL bar. Students open the Secure Browser and are taken exactly where they need to go.

To get started setting up your student workstations, you should first make sure your device is supported.

For a list of supported desktops and laptops and related hardware requirements, see the following table:

Desktops & Laptops		
Supported Operating Systems	Minimum Requirements	Recommended Specifications
<b>Windows</b> 7 SP1 (Professional and Enterprise) 8, 8.1 (Professional and Enterprise) 10, 10 in S Mode (Educational, Professional, and Enterprise) (Versions 1507-1803, 1809 <sup>a</sup> ) Server 2008 R2, 2012 R2, 2016 R2 (thin client)	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)	1.4 GHZ Processor 2 or more GB RAM 20 or more GB hard drive space
<b>Mac OS X</b> 10.9-10.14 <sup>a</sup>	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)	1.4 GHZ Processor 2 or more GB RAM 20 or more GB hard drive space
<b>Linux (64-bit or 32-bit)</b> Fedora 27-28 LTS (Gnome) 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: GTK+ 2.18 or higher GLib 2.22 or higher Pango 1.14 or higher X.Org 1.0 or higher (1.7+ recommended) libstdc++ 4.3 or higher libreadline6:i386 (required for Ubuntu only) GNOME 2.16 or higher	1.4 GHZ 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: NetworkManager 0.7 or higher DBus 1.0 or higher HAL 0.5.8 or higher
<b>Linux (64-bit only)</b> Ubuntu 18.04 LTS (Gnome)	1 GHZ Processor 2 GB RAM 20 GB hard drive space  In addition to all libraries and packages listed above, Ubuntu 18.04 LTS (Gnome) also requires the following libraries: Sox Net-tools	1.4 GHZ Processor 2 or more GB RAM 20 or more GB hard drive space

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

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

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

Tablets and Chromebooks	
Supported Operating Systems	Supported Tablets
<b>iOS (iPads)</b> 10.3, 11.4, 12 <sup>a</sup>	4 <sup>th</sup> Generation (Retina Display) 5 <sup>th</sup> Generation (Retina Display) 6 <sup>th</sup> Generation (Retina Display) iPad Air iPad Air 2 iPad Pro
<b>Android</b> 7.1, 8.1, 9 <sup>a</sup>	Lenovo Yoga Tab 3 10 Samsung Galaxy Tab S3 Asus ZenPad Z10
<b>Windows</b> 8, 8.1 (Professional & Enterprise) 10 (Educational, Professional, & Enterprise)	AIR 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</b> 67+	See <a href="https://support.google.com/chrome/a/answer/6220366">https://support.google.com/chrome/a/answer/6220366</a> for a full list of supported Chromebooks.  Chromebooks manufactured in 2017 or later must have an Enterprise or Education license to run in kiosk mode, which is necessary to run the Secure Browser.  Chromebooks running in Tablet Mode and tablets running Chrome OS are not supported. Touchscreen features can be used on Chromebooks when available.

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

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

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

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

Terminal Servers	
Supported Terminal Server	Supported Thin Client
Windows Server 2008 R2, 2012 R2, 2016 R2	Any thin client that supports a Windows server.

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



#### Screen Dimensions

Screen dimensions must be 10" or larger (iPads with a 9.7" display are included).



#### Screen Resolution

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

Desktops, laptops, and tablets:

**1024 x 768**



#### Keyboards

The use of external keyboards is highly recommended for tablets that will be used for testing.



#### Mice

Wired two- or three-button mice can be used on desktops or laptops. Mice with "browser back" buttons should not be used.



#### Headphones

Wired headphones with a 3.5 mm connector or USB headphones

## Installing the Secure Browser

Once you have made sure your device is supported, you are ready to download and install the Secure Browser. This section explains where you can go to download the Secure Browser and how to install it.

The Secure Browser is available for all major operating systems listed above. You can download the Secure Browser from your portal. Your portal also contains basic installation instructions.

If you are a Technology Coordinator and it is your responsibility to manage a large number of machines across your school or district, you can likely use the same tools you are already familiar with to push the Secure Browser out to all of your machines at scale. For example, the Secure Browser ships as a MSI package which enables use of MSIEXEC.

If you are from a small school, you can follow the basic installation instructions on your portal to install the Secure Browser. The Secure Browser is installed the same way as most other software. You will be asked to download a file, open that file, and follow prompts along the way to install the Secure Browser. If you are familiar with installing software, install the Secure Browser the same way.

For iPads, Android tablets, and Chromebooks, the AIRSecureTest app is AIR's mobile version of the Secure Browser. It is available in each app store to download and install. The first time you open this app, it will ask you to choose your state and assessment program. Your choice is saved and from then on, the Mobile Secure Browser works just like the desktop version, allowing you to access operational tests, practice tests, and the network diagnostic tool. You can also use any mobile device management utility to install the Secure Browser on multiple managed devices and configure those devices.

Windows 10 and Windows 10 in S Mode come with Microsoft's Take a Test app, which enforces a locked-down, secure testing environment identical to AIR's Secure Browser. Users of the Take a Test app do not need to install the AIR Secure Browser on the testing machine. Instructions for configuring the Take a Test app can be found on your portal.

For schools and districts seeking advanced installation instructions for Windows, Mac, or Chrome OS, including instructions on how to install the Secure Browser on multiple devices, see the following document for your operating system:

- *Configurations, Troubleshooting, and Advanced Secure Browser Installation for Windows*
- *Configurations, Troubleshooting, and Advanced Secure Browser Installation for Mac*
- *Configurations, Troubleshooting, and Advanced Secure Browser Installation for Chrome OS*

## Other Configurations

For devices running Windows, Mac, Linux, Android, or Chrome OS, there are a few additional configurations before secure testing can begin.

No further configuration is necessary for devices running iOS. A feature in iOS called Automatic Assessment Configuration works with AIR's Secure Browser to prepare an iPad for online testing.

## Disabling Fast User Switching for Windows

Fast User Switching is a feature in Windows 7, 8, 8.1, and 10 that allows for more than one user to be logged in at the same time. If Fast User Switching is not disabled and students try to access it during a test, the Secure Browser will pause the test.

Fast User Switching can be disabled using the Local Group Policy Editor or Registry Editor. For instructions on how to disable Fast User Switching, see the “Disabling Fast User Switching” section in the document titled *Configurations, Troubleshooting, and Advanced Secure Browser Installation for Windows*.

## Disabling App Pre-launching for Windows

Application Pre-launch is a feature in Windows 10 that allows Universal Windows Platform apps, such as the Photos app or Edge web browser, to pre-launch and run in the background even if a user didn't open the apps themselves. Users will be unable to start the Secure Browser or Take a Test

with these apps running in the background and will be kicked out of a test if the apps launch while the user is running the Secure Browser or Take a Test app.

App pre-launching can be disabled by using a PowerShell command and editing the registry. For instructions on how to disable app pre-launching, see this [page](#) from Microsoft's Online Windows Support.

## Disabling App Launches from Function Keys

Mac computers running OS X 10.9 and later are configured to launch apps by pressing the function keys on the keyboard. Launching these apps will cause the Secure Browser to pause the test.

Launching apps from function keys can be disabled through System Preferences. For instructions on how to disable launching apps from function keys, see the “Disabling Application Launches from Function Keys” section in the document titled *Configurations, Troubleshooting, and Advanced Secure Browser Installation for Mac*.

## Disabling Third-party App Updates for Mac

Updates to third-party apps may include components that compromise the testing environment. These updates can be disabled through System Preferences. For instructions on how to disable updates to third-party apps, see the “Disabling Updates to Third-Party Apps” section in the document titled *Configurations, Troubleshooting, and Advanced Secure*

### *Browser Installation for Mac.*

#### Disabling Notification Center for Mac

The Notification Center is a feature in Mac OS X 10.10 and later that displays system information when swiping to the left with two fingers from the right edge of the trackpad. Depending on its contents, Notification Center can compromise testing security.

The Notification Center can be disabled through System Preferences. For instructions on how to disable the Notification Center, see the “Disabling Display of Notification Center” section in the document titled *Configurations, Troubleshooting, and Advanced Secure Browser Installation for Mac.*

#### Disabling iTunes Updates for Mac

Updates to iTunes may pop up during a test. If updates to iTunes are not disabled and they pop up during a test, the Secure Browser will pause the test.

Updates to iTunes can be disabled through System Preferences. For instructions on how to disable updates to iTunes, see the “Disabling Updates to iTunes” section in the document titled *Configurations, Troubleshooting, and Advanced Secure Browser Installation for Mac.*

#### Disabling Look-Up Gesture for Mac

Look-up Gesture allows Mac users to look up the definition of a word by highlighting that word and tapping the trackpad with three fingers.

Look-up Gesture can be disabled through System Preferences. For instructions on how to disable Look-up Gesture, see the “Disabling Look-up Gesture” section in the document titled *Configurations, Troubleshooting, and Advanced Secure Browser Installation for Mac.*

**Disabling Mission Control for Mac**  
Mission Control is a feature in Mac OS X 10.9 and later that allows users to switch to open applications running in the background. If Mission Control is not disabled and students try to access it during a test, the Secure Browser will pause the test.

Mission Control can be disabled through the terminal. For instructions on how to disable Mission Control, see the “Disabling Mission Control” section in the document titled *Configurations, Troubleshooting, and Advanced Secure Browser Installation for Mac.*

#### Disabling Dictation for Mac

Dictation is a feature in Mac OS X 10.9 and later that converts spoken words into text. The dictation feature also suggests words or spellings. If dictation is not disabled, students could potentially use it to compromise test security.

Dictation can be disabled through System Preferences. For instructions on how to disable dictation, see the “Disabling Dictation” section in the document titled *Configurations, Troubleshooting, and Advanced Secure Browser Installation for Mac.*

#### Disabling Siri for Mac

Siri is a virtual assistant that uses voice commands to answer questions and perform actions on Mac desktops and laptops running macOS 10.12 or later. If Siri is not disabled, students could potentially have access to features and information that they should not have access to while taking a secure assessment.

Siri can be disabled through System Preferences. For instructions on how to disable Siri, see the “Disabling Siri” section in the document titled *Configurations, Troubleshooting, and Advanced Secure Browser Installation for Mac.*

## Disabling On-Screen Keyboard for Linux

Ubuntu and Fedora feature an on-screen keyboard that should be disabled before you administer online tests. If the on-screen keyboard is not disabled, the keyboard might pop up on a touchscreen device and, if it does, it may provoke the Secure Browser to pause the test.

The on-screen keyboard can be disabled through System Settings. For instructions on how to disable the on-screen keyboard, see the “Disabling On-Screen Keyboard” section in the document titled *Configurations and Troubleshooting for Linux*.

## Adding Verdana Font for Linux

Some test content requires the Verdana TrueType font, which is not included in builds of Fedora or Ubuntu. For instructions to add the Verdana font, see the “Adding Verdana Font” section in the document titled *Configurations and Troubleshooting for Linux*.

## Enabling Secure Browser Keyboard for Android

The default keyboard for Android allows predictive text, which may provide students with hints for answers to tests. For this reason, the Secure Browser for Android requires a mobile keyboard be configured for the Secure Browser itself. The Secure Browser keyboard is a basic keyboard with

no row for predictive text functionality.

You can enable the Secure Browser keyboard through Settings. For instructions on how to enable the Secure Browser keyboard, see the “Enabling the Secure Browser Keyboard” section in the document titled *Configurations and Troubleshooting for Android*.

## Managing Chrome OS Auto-Updates

New versions of Chrome OS are released regularly and tested by AIR to ensure no new features pose a risk for online testing. However, bugs or unintentional features do sometimes show up in the latest release. Because of this, AIR recommends disabling Chrome OS auto-updates or limiting auto-updates to a version used successfully before summative testing begins to ensure Chromebooks remain stable during testing season.

You can disable or limit Chrome OS updates through the Device Settings page on your Chromebook. From this page, you can stop auto-updates or allow auto-updates but only to a specific version. For more detailed instructions on how to disable or limit Chrome OS auto-updates, see the “Managing Chrome OS Auto-Updates” section in the document titled *Configurations, Troubleshooting, and Advanced Secure Browser Installation for Chrome OS*.

## STEP 3: CONFIGURING YOUR NETWORK FOR ONLINE TESTING

In this section, we provide some tools and recommendations to help configure your network for online testing. To ensure a smooth administration, AIR recommends network bandwidth of at least 20 kilobits per second for each student being concurrently tested.

### The Network Diagnostic Tool

AIR provides a network diagnostic tool to test your network's bandwidth to ensure it can handle administering online tests. The network diagnostic tool can be accessed through the Secure Browser or from your portal or practice test site through a conventional browser.

### Diagnostic Screen

This page allows you to check the **current** bandwidth of your network. Select a test from the drop-down list and enter the maximum number of students likely to test at one time, then click [Run Network Diagnostics Tests].

<b>Your Operating System:</b> Windows 10	<b>Your Browser Version:</b> Chrome v68
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<b>Secure Browser:</b> false
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#### Network Diagnostics:

Select Test:

Enter the total number of students you would like to test at one time:

<b>Download Results:</b> 724.034 Mbps download.	<b>Upload Results:</b> 79.208 Mbps upload.
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**Bandwidth Summary:**

Given the current load on your system, you should be able to test the requested number of students at this location. (Please note: The throughput estimates include the encryption/decryption overhead for data transfer. Throughput estimates change as the network conditions change and can vary from run to run.)

Once you are in the network diagnostic tool, enter the number of students you will test at peak volume and the tool will indicate if your network can handle testing. The goal of the network diagnostic tool is to determine if your network bandwidth can handle the number of students you hope to test at peak volume. If the tool indicates you should test with fewer students, try running a third-party network speed test like speedtest.net. If a third-party tool also indicates you lack proper bandwidth, determine if other activity on your network is drawing bandwidth away from machine attempting to take the test. If it is, try to prioritize bandwidth for AIR's

websites during online testing.

### Proxy Servers

If your technology coordinator has set up a proxy server at your school, you may need to configure the Secure Browser's proxy settings. For instructions on how to configure the Secure Browser's proxy settings, see the "Configuring the Secure Browser for Proxy Servers" section in *Configurations, Troubleshooting, and Advanced Secure Browser Installation* for your operating system.

Proxy servers must be configured to not cache data received from servers.

Session timeouts on proxy servers and other devices should be set to values greater than the typically scheduled testing

time. For example, if test sessions are scheduled for 60 minutes, consider session timeouts of 65–70 minutes.

### Traffic Shaping, Packet Prioritization, & Quality of Service

If your testing network includes devices that perform traffic shaping, packet prioritization, or Quality of Service, ensure AIR URLs have high priority. For a list of websites you should give high priority, see the "Whitelisting Resources" section in the document titled *Configurations, Troubleshooting, and Advanced Secure Browser Installation* for your operating system.

## STEP 4: CONFIGURING ASSISTIVE TECHNOLOGIES

AIR's Test Delivery System is a website visible through a customized web browser.

Students who use assistive technologies with a standard web browser should be able to use those same technologies with the Test Delivery System. The best way to test compatibility with assistive technologies is by taking a practice test with those technologies turned on. If they do not work, contact the help desk or see the "Troubleshooting Text-to-Speech" section in the document titled *Configurations, Troubleshooting, and Advanced Secure Browser Installation* for your operating system for more information.

### Supported Embedded Features

Embedded features work directly within the Test Delivery System. They can be accessed without additional third-party software.

### Text-to-Speech

Text-to-speech (TTS) reads text on the screen aloud. Using TTS requires at least one voice pack to be installed on the student workstation. Several voice packs for Windows and Mac are compatible with the Secure Browser and ship with the operating system out of the box. The Mobile Secure Browser for iOS, Android, and Chrome OS recognizes the voice packs native to those operating systems, but the

pause feature does not work correctly on mobile devices. Consider testing students who need TTS on desktops or laptops running Windows or Mac.

For a full list of voice packs that have been tested and are whitelisted by the Secure Browser and for instructions about configuring TTS settings for Windows or Mac, see the "Troubleshooting Text-to-Speech" section in the document titled *Configurations, Troubleshooting, and Advanced Secure Browser Installation* for your operating system.

### Supported Non-Embedded Features

Non-embedded features require the use of

other hardware and/or software to make certain functionality available to students within the Test Delivery System. Non-embedded features require devices be set to permissive mode. This mode, found in TIDE as a student test setting, temporarily lowers the security settings of the Secure Browser so that the student can interoperate with other software on the device like JAWS or ZoomText while they're taking the test. Permissive mode is supported on Windows or Mac.

### Screen Readers

Screen readers allow students to read text displayed on a screen with a speech synthesizer or braille display. Screen reading requires software to be installed on the student workstation. Currently, AIR supports JAWS, NVDA, and Windows Eyes for student workstations and Duxbury Braille Translation for TA workstations. TAs need this software to emboss braille test content. Other screen readers may also work and should be tested in a practice test. For instructions on how to configure screen readers, see the document titled *Braille Requirements and Testing Manual*.

### Speech-to-Text

Speech-to-text (STT) allows a student to speak into a headset and have their speech converted into text that becomes the response that is entered into the Test Delivery System. Currently, AIR does not offer an embedded STT feature. STT is available for Windows and Mac through Dragon Naturally Speaking or other similar software. Users should verify the security and privacy policies of any third-party software before deciding to use that software. Many STT providers send a student's audio recording to the cloud for processing. Users should have a clear understanding of what third-party providers do and do not do with student information. STT is not available for Linux, iOS, Android, or Chrome OS.

### Word Prediction

Word prediction software predicts words as a student types. Currently, AIR does not offer an embedded word prediction feature. Word prediction is available for Windows through Co:Writer 7 software. Word prediction is currently not available for Mac, Linux, iOS, Android, or Chrome OS

## ADMINISTER ONLINE TESTS

Before administering an operational test, get comfortable with the system by administering a practice test. Practice tests can be administered on supported devices via the Secure Browser or through modern conventional browsers like Chrome or Firefox.

### ADMINISTERING PRACTICE TESTS

To administer a practice test, complete the following steps:

1. TAs should open a web browser, go to the TA Site, and choose a practice test to administer.
2. Students should launch the Secure Browser and click the link for practice tests.
3. TAs should give the students the Session ID.
4. Students should click through the login pages. Students can log in anonymously as a guest or with their real account. In either case, they should use a Session ID from the TA.

For more information about administering practice tests, see the *TA User Guide*.

When TAs and students are comfortable using the system, you are ready to administer an operational test.

### ADMINISTERING OPERATIONAL TESTS

The steps for administering an operational test are nearly identical to administering a practice test.

1. TAs should open a web browser and go to the TA Site.
2. Students should launch the Secure Browser.
3. TAs should give students the Session ID.
4. Students should enter the SessionID, their first name, and their Student ID.

For more information about administering operational tests, see the *TA User Guide*.