south dakota
DEPARTMENT OF EDUCATION
Learning. Leadership. Service.

Configurations, Troubleshooting, and Advanced Secure Browser Installation Guide for Linux

For Technology Coordinators

2018–2019

Published November 14, 2018

Prepared by the American Institutes for Research®

Table of Contents

Configurations, Troubleshooting, and Advanced Secure Browser Installation for Linux

This document contains configurations, troubleshooting, and advanced Secure Browser installation instructions for your network and Linux workstations.

Additional Configurations for Networks

This section contains additional configurations for your network.

Whitelisting Resources for Online Testing

This section presents information about the URLs that AIR provides. Ensure your network's firewalls are open for these URLs. If your testing network includes devices that perform traffic shaping, packet prioritization, or Quality of Service, ensure these URLs have high priority.

URLs for Non-Testing Sites

Table 1 lists URLs for non-testing sites, such as Test Information Distribution Engine and Online Reporting System.

Table 1. AIR URLs for Non-Testing Sites

System	URL
Portal and Secure Browser installation files	http://sd.portal.airast.org/
Single Sign-On System	https://sso1.airast.org/auth/realms/maac/account
Test Information Distribution Engine	https://maac.tide.airast.org
Online Reporting System	https://sd.reports.airast.org
AIRWays Reporting System	https://sd.airways.airast.org

URLs for TA and Student Testing Sites

Testing servers and satellites may be added or modified during the school year to ensure an optimal testing experience. As a result, AIR strongly encourages you to whitelist at the root level. This requires using a wildcard.

Table 2. AIR URLs for Testing Sites

System	URL
TA and Student Testing Sites Assessment Viewing Application	*.airast.org *.tds.airast.org *.cloud1.tds.airast.org *.cloud2.tds.airast.org

URLs for Online Dictionary and Thesaurus

Some online assessments contain an embedded dictionary and thesaurus provided by Merriam-Webster. The Merriam-Webster URLs listed in Table 3 should be whitelisted to ensure that students can use them during testing.

Table 3. AIR URLs for Online Dictionaries and Thesauruses

Domain Name	IP Address
media.merriam-webster.com	64.124.231.250
www.dictionaryapi.com	64.124.231.250

Required Ports and Protocols

Table 4 lists the ports and protocols used by the Test Delivery System. Ensure that all content filters, firewalls, and proxy servers are open accordingly.

Table 4. Ports and Protocols for Test Delivery System

Port/Protocol	Purpose
80/TCP	HTTP (initial connection only)
443/TCP	HTTPS (secure connection)

Configuring Filtering Systems

If the school's filtering system has both internal and external filtering, the URLs for the testing sites (see Table 1) must be whitelisted in both filters. Please see your vendor's documentation for specific instructions. Also, be sure to whitelist these URLs in any multilayer filtering system (such as local and global layers).

Configuration for Domain Name Resolution

Table 1 and Table 2 list the domain names for AIR's testing and non-testing applications. Ensure the testing machines have access to a server that can resolve those names.

Configuring for Certificate Revocations

AIR's servers present certificates to the clients. The following sections discuss the methods used to check those certificates for revocation.

Online Certificate Status Protocol

To use the Online Certificate Status Protocol (OCSP), ensure your firewalls allow the domain names listed in Table 5. The values in the Patterned column are preferred because they are more robust.

Table 5. Domain Names for OCSP

Patterned	Fully Qualified
*.thawte.com	oscp.thawte.com
*.geotrust.com	oscp.geotrust.com
*.ws.symantec.com	oscp.ws.symantec.com

If your firewall is configured to check only IP addresses, do the following:

1. Get the current list of OCSP IP addresses from Symantec. The list is available at https://www.symantec.com/content/en/us/enterprise/other_resources/OCSP_Upgrade_-_New_IP_Addresses.txt.
2. Add the retrieved IP addresses to your firewall's whitelist. Do not replace any existing IP addresses.

Configuring Network Settings for Online Testing

Local Area Network (LAN) settings on testing machines should be set to automatically detect network settings.

To set LAN settings to auto-detect on Linux machines:

1. Open **System Settings**.
2. Open **Network**.
3. Select **Network Proxy**.
4. From the **Method** dropdown, select **None**.
5. Click **X** to close **Network** window.

Configuring the Secure Browser for Proxy Servers

By default, the Secure Browser attempts to detect the settings for your network's web proxy server. However, users of web proxies should execute a proxy command once from the command prompt. This command does not need to be added to the Secure Browser shortcut. Table 6 lists the form of the command for different settings and operating systems. To execute these commands from the command line, change to the directory containing the Secure Browser's executable file.

Note: Domain names in commands The commands in Table 6 use the domains foo.com and proxy.com. When configuring for a proxy server, use your actual testing domain names as listed in the section "URLs for Testing Sites" in the *Technical Specifications Manual for Online Testing*.

Table 6. Specifying proxy settings using the command line

Description	System	Command
Use the browser without any proxy	Linux	`./SDSecureBrowser.sh -proxy 0 Encoded Test Site URL`
Set the proxy for HTTP requests only	Linux	`./SDSecureBrowser.sh -proxy 1:http:foo.com:80 Encoded Test Site URL`
Set the proxy for all protocols to mimic the "Use this proxy server for all protocols" of Firefox	Linux	`./SDSecureBrowser.sh -proxy 1:*:foo.com:80 Encoded Test Site URL`
Specify the URL of the PAC file	Linux	`./SDSecureBrowser.sh -proxy 2:proxy.com Encoded Test Site URL`
Auto-detect proxy settings	Linux	`./SDSecureBrowser.sh -proxy 4 Encoded Test Site URL`
Use the system proxy setting (default)	Linux	`./SDSecureBrowser.sh -proxy 5 Encoded Test Site URL`

Additional Configurations for Linux

This section contains additional configurations for Linux.

Required Libraries & Packages

The following libraries and packages are required to be installed on all 32-bit and 64-bit Linux workstations:

- 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

The following libraries and packages are recommended to be installed on all 32-bit and 64-bit Linux workstations:

- NetworkManager 0.7 or higher
- DBus 1.0 or higher
- HAL 0.5.8 or higher

The following libraries and packages are required to be installed on all 64-bit Linux workstations:

- Sox
- Net-tools

Adding Verdana Font

Some tests have content that requires the Verdana TrueType font. Therefore, ensure that Verdana is installed on Linux machines used for testing. The easiest way to do this is to install the Microsoft core fonts package for your distribution.

- Fedora—Follow the steps in the "How to Install" section of the following website: http://corefonts.sourceforge.net/.

- Ubuntu—In a terminal window, enter the following command to install the msttcorefonts package:
  ```
  sudo apt-get install msttcorefonts
  ```

Disabling On-Screen Keyboard

Fedora and Ubuntu feature an on-screen keyboard that should be disabled before online testing. This section describes how to disable the on-screen keyboard.

To disable the on-screen keyboard:

1. Open **System Settings**.
2. Select **Universal Access**.
3. In the *Typing* section, toggle **Screen Keyboard** to **Off**.

Troubleshooting for Linux

This section contains troubleshooting tips for Linux.

Resetting Secure Browser Profiles on Linux

If the Help Desk advises you to reset the Secure Browser profile, use the instructions in this section.

1. Log on as a superuser or as the user who installed the Secure Browser, and close any open Secure Browsers.

2. Open a terminal, and delete the contents of the following directories:

   `/home/username/.air`

   `/home/username/.cache/air`

   where `username` is the user account where the Secure Browser is installed. (Keep the directories, just delete their contents.)

3. Restart the Secure Browser.

Troubleshooting Text-to-Speech

Using text-to-speech requires at least one voice pack to be installed on testing computers.

A number of voice packs are available for desktop computers, and AIR researches and tests voice packs for compatibility with the Secure Browsers. Additionally, not all voice packs that come pre-installed with operating systems are approved for use with online testing. The voice packs listed at the end of this section have been tested and are whitelisted by the Secure Browser.

Using Text-to-Speech

Students using text-to-speech for the practice tests must log in using a supported Secure Browser. Students can also verify that text-to-speech works on their computers by logging in to a practice test session and selecting a test for which text-to-speech is available.

Note: We strongly encourage schools to test the text-to-speech settings before students take operational tests. You can check these settings through the diagnostic page. From the student practice test login screen, click the **Run Diagnostics** link, and then click the **Text-to-Speech Check** button.

Note: Text-to-speech 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.

How the Secure Browser Selects Voice Packs

This section describes how AIR's Secure Browsers select which voice pack to use.

Voice Pack Selection on Desktop Versions of Secure Browsers

When a student who is using text-to-speech starts a test, the Secure Browser looks for voice packs on the student's machine. Upon recognizing an approved voice pack, the Secure Browser uses the one with the highest priority.

If any of the approved voice packs has also been set as the default voice on the computer, then that voice pack will always get the highest priority.