Configurations and Troubleshooting for Linux

For Digital Tests in the SAT® Suite of Assessments

Spring 2021

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Configurations and Troubleshooting for Linux

This document contains configurations and troubleshooting for your network and Linux workstations.

How to Configure Linux Workstations for Digital Testing

This section contains additional configurations for Linux.

Which Libraries & Packages Are Required

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

How to Add 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:
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sudo apt-get install msttcorefonts

How to Disable the On-Screen Keyboard

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

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

How to Uninstall the Secure Browser on Linux

To uninstall a Secure Browser, delete the folder from the installation directory.
How to Troubleshoot Linux Workstations

This section contains troubleshooting tips for Linux.

How to Reset 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/.cai

   /home/username/.cache/cai

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

3. Restart the Secure Browser.
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How to Configure Networks for Digital Testing
This section contains additional configurations for your network.

Which Resources to add to the Allowlist for Digital Testing
This section presents information about the URLs that CAI 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.

Which URLs for Non-Testing Sites to add to the Allowlist
Table 1 lists URLs for non-testing sites, such as the Test Information Distribution Engine.

Table 1. CAI and AIR URLs for Non-Testing Sites

<table>
<thead>
<tr>
<th>System</th>
<th>URL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Portal and Secure Browser installation files</td>
<td><a href="https://digitaltesting.collegeboard.org/">https://digitaltesting.collegeboard.org/</a></td>
</tr>
<tr>
<td>Test Information Distribution Engine</td>
<td><a href="https://cb.tide.cambiumast.com/">https://cb.tide.cambiumast.com/</a></td>
</tr>
<tr>
<td>For 2020-2021, users should add both the Cambium and AIR URLs listed in this table to the Allowlist.</td>
<td><a href="http://sso3.airast.org/auth/realms/collegeboard/account">http://sso3.airast.org/auth/realms/collegeboard/account</a></td>
</tr>
<tr>
<td></td>
<td><a href="https://cb.tide.airast.org">https://cb.tide.airast.org</a></td>
</tr>
</tbody>
</table>

Note: When you are accessing these sites, please use the Cambium URLs. Only use the AIR URLs when adding them to the Allowlist. More information below.

Which URLs for TA and Student Testing Sites to add to the Allowlist
Testing servers and satellites may be added or modified during the school year to ensure an optimal testing experience. As a result, CAI strongly encourages you to add to the Allowlist at the root level. This requires using a wildcard.

Table 2. CAI and AIR URLs for Testing Sites

<table>
<thead>
<tr>
<th>System</th>
<th>URL</th>
</tr>
</thead>
<tbody>
<tr>
<td>TA and Student Testing Sites</td>
<td>*.cambiumast.com</td>
</tr>
<tr>
<td>Assessment Viewing Application</td>
<td>*.tds.cambiumast.com</td>
</tr>
<tr>
<td>For 2020-2021, users should add to the allowlist both Cambium and AIR URLs listed in this table.</td>
<td>*.cloud1.tds.cambiumast.com</td>
</tr>
<tr>
<td></td>
<td>*.cloud2.tds.cambiumast.com</td>
</tr>
<tr>
<td></td>
<td>*.airast.org</td>
</tr>
<tr>
<td></td>
<td>*.tds.airast.org</td>
</tr>
<tr>
<td></td>
<td>*.cloud1.tds.airast.org</td>
</tr>
<tr>
<td></td>
<td>*.cloud2.tds.airast.org</td>
</tr>
</tbody>
</table>
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Which URLs for Online Dictionary and Thesaurus to add to the Allowlist
Some digital assessments contain an embedded dictionary and thesaurus provided by Merriam-Webster. The Merriam-Webster URLs listed in Table 3 should be added to the Allowlist to ensure that students can use them during testing.

Table 3. CAI URLs for Online Dictionaries and Thesauruses

<table>
<thead>
<tr>
<th>Domain Name</th>
<th>IP Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>media.merriam-webster.com</td>
<td>64.124.231.250</td>
</tr>
<tr>
<td><a href="http://www.dictionaryapi.com">www.dictionaryapi.com</a></td>
<td>64.124.231.250</td>
</tr>
</tbody>
</table>

Which Domains for Email Exchange Server and Single Sign-On System
CAI systems send emails for password resets and login codes for the single sign-on system from cambiumast.com and from cambiumassessment.com. Add both domains to your Allowlist to ensure you receive these emails.

Which Ports and Protocols Required for Digital Testing
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

<table>
<thead>
<tr>
<th>Port/Protocol</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>80/TCP</td>
<td>HTTP (initial connection only)</td>
</tr>
<tr>
<td>443/TCP</td>
<td>HTTPS (secure connection)</td>
</tr>
</tbody>
</table>

How to Configure 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 added to the Allowlist in both filters. Ensure your filtering system is not configured to perform packet inspection on traffic to CAI servers. Please see your vendor’s documentation for specific instructions. Also, be sure to add these URLs to the Allowlist in any multilayer filtering system (such as local and global layers). Ensure all items that handle traffic to *.tds.cambiumast.com and *.tds.airast.org have the entire certificate chain and are using the latest TLS 1.2 protocol.

How to Configure for Domain Name Resolution
Table 1 and Table 2 list the domain names for CAI’s testing and non-testing applications. Ensure the testing machines have access to a server that can resolve those names.

How to Configure Network Settings for Digital 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:
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1. Open **System Settings**.
2. Open **Network**.
3. Select **Network Proxy**.
4. From the **Method** dropdown, select **None**.
5. Close the **Network** window.

**How to Configure 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 5** 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 5** use the domain proxy.com. When configuring for a proxy server, use your actual proxy server hostname.

<table>
<thead>
<tr>
<th>Description</th>
<th>System</th>
<th>Command</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use the browser without any proxy</td>
<td>Linux</td>
<td>./XXSecureBrowser.sh -proxy 0 aHR0cHM6Ly9jYi50ZHMuY2FtYml1bWFzdC5jb20vc3R1ZGVudA==</td>
</tr>
<tr>
<td>Set the proxy for HTTP requests only</td>
<td>Linux</td>
<td>./XXSecureBrowser.sh -proxy 1:<a href="http://proxy.com:8080">http://proxy.com:8080</a> aHR0cHM6Ly9jYi50ZHMuY2FtYml1bWFzdC5jb20vc3R1ZGVudA==</td>
</tr>
<tr>
<td>Set the proxy for all protocols to mimic the “Use this proxy server for all protocols” of Firefox</td>
<td>Linux</td>
<td>./XXSecureBrowser.sh -proxy 1:*:proxy.com:8080 aHR0cHM6Ly9jYi50ZHMuY2FtYml1bWFzdC5jb20vc3R1ZGVudA==</td>
</tr>
<tr>
<td>Specify the URL of the PAC file</td>
<td>Linux</td>
<td>./XXSecureBrowser.sh -proxy 2:proxy.com aHR0cHM6Ly9jYi50ZHMuY2FtYml1bWFzdC5jb20vc3R1ZGVudA==</td>
</tr>
<tr>
<td>Auto-detect proxy settings</td>
<td>Linux</td>
<td>./XXSecureBrowser.sh -proxy 4 aHR0cHM6Ly9jYi50ZHMuY2FtYml1bWFzdC5jb20vc3R1ZGVudA==</td>
</tr>
<tr>
<td>Use the system proxy setting (default)</td>
<td>Linux</td>
<td>./XXSecureBrowser.sh -proxy 5 aHR0cHM6Ly9jYi50ZHMuY2FtYml1bWFzdC5jb20vc3R1ZGVudA==</td>
</tr>
</tbody>
</table>
Customer Service and Support

If this document does not answer your questions, please contact the College Board.

<table>
<thead>
<tr>
<th>College Board School Day Customer Service</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phone: 855-373-6387</td>
</tr>
</tbody>
</table>

Follow the prompts for digital testing and listen to the options for your area of concern. Support options include the following:

- General College Board assessments questions and policies
- Technical support with CAIs digital testing systems, such as TIDE or TA Interface

Email: schooldayassessments@collegeboard.org

If you are calling for technical support, you will be asked to provide as much detail as possible about the issues you encountered.

Include the following information:

- Test coordinator name and IT/network contact person and contact information
- Registration numbers of affected students. Do not provide any other student information as doing so may violate FERPA policies.
- Test Session ID for the affected student tests
- Operating system and browser version information
- Any error messages and codes that appeared, if applicable
- Information about your network configuration:
  - Secure browser installation (to individual machines or network)
  - Wired or wireless Internet network setup
About College Board

College Board is a mission-driven not-for-profit organization that connects students to college success and opportunity. Founded in 1900, College Board was created to expand access to higher education. Today, the membership association is made up of over 6,000 of the world’s leading educational institutions and is dedicated to promoting excellence and equity in education. Each year, College Board helps more than seven million students prepare for a successful transition to college through programs and services in college readiness and college success — including the SAT® and the Advanced Placement® Program. The organization also serves the education community through research and advocacy on behalf of students, educators, and schools.

For further information, visit [www.collegeboard.org](http://www.collegeboard.org).