Technology Guidelines
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INTRODUCTION

The ACT QualityCore® system is available year-round and provides online tools for managing and registering students and testing staff. Online tests are administered to students using the ACT QualityCore secure web browser.

The following guidelines will help Technology Coordinators, District Test Coordinators, and School Test Coordinators assess and prepare their current computer systems for administration of ACT QualityCore tests. Several technology requirements must be met to ensure a successful online administration. District Technology Coordinators must be certain that these requirements are met at each school administering the tests.

This document includes these sections:

- Technology Guidelines—Overview on page 3
- Technology Guidelines—Windows on page 9
- Technology Guidelines—Mac on page 17
- Technology Guidelines—Chromebook on page 23
- Technology Preparation Checklist on page 31
TECHNOLOGY GUIDELINES—OVERVIEW

The ACT QualityCore system supports the delivery of online assessments. Prior to testing, several technology requirements must be considered to ensure successful delivery of the online assessments. Districts must make certain that these requirements are met at each school administering the tests.

A checklist is provided at the end of this document to assist you in verifying that each school is ready for ACT QualityCore online testing. See Technology Preparation Checklist on page 31.

Network Evaluation

In order to prepare for ACT QualityCore tests, schools/districts should review the information in this section and address any issues identified in the school/district network infrastructure.

Bandwidth

- Determine whether schools have dedicated T1 lines for Internet access or whether all school T1 lines go through one access point at the district, which can cause slowdowns when multiple schools are attempting to access the Internet.

- Identify each school’s Internet Service Provider (ISP) and establish a point of contact at the company.

  The ACT QualityCore Technology Guidelines (this document) should be provided to the ISP point of contact and, if necessary, the possibility of adding more bandwidth to each school’s Internet connection should be discussed.

- Resolve known issues with network slowdowns during the school day, as it is likely they will also occur during ACT QualityCore testing.

  In this case, upgrades to the school or district network are recommended. This may involve adding bandwidth at the school level or—if all school T1 lines route through the district—adding multiple T1 lines at the district level.

- Ensure that all noncritical network use in the school (or in the district if T1 lines route through the district) are limited to allow as much bandwidth as possible while students are testing.

  School principals and teachers should be notified of ACT QualityCore testing schedules within the district, and should understand the impact of streaming video and accessing other high-data websites such as Google Earth during this time.

Important

If Internet connectivity issues occur that are diagnosed as not being caused by the local network, districts should contact their Internet Service Provider for assistance.
Wireless Local Area Network

A wireless local area network (WLAN) connects devices to the Internet using wireless communication technology. To maximize data transfer speed and minimize the amount of radio traffic required for network coverage, it is recommended that a school using WLAN have:

- High-bandwidth fiber optic cable between buildings
- Suitable network switches
- A reasonable number of physically cabled data points
- Wireless security configurations set within the network
- Well-managed and highly reliable network servers

**Important**

When purchasing wireless hardware, make sure your equipment conforms to the Institute of Electrical and Electronics Engineers (IEEE) WLAN standards. Most products conform to the 802.11a, 802.11b, 802.11g, or 802.11n wireless standards.

Bandwidth Requirements

Whether using a cabled LAN or WLAN, if numerous users are accessing data at the same time—including network traffic not related to ACT QualityCore testing—data transfer speed will decrease. Review the bandwidth guidelines in this section to better understand the overall bandwidth required to support ACT QualityCore testing.

The estimated download and upload speeds are for the bandwidth required by a single computer on which a student is actively engaged in testing. These bandwidth estimates are based on the projected load across all subject areas.

**Table 1—Estimated Bandwidth Projections per Computer**

<table>
<thead>
<tr>
<th>Download</th>
<th>Upload</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.58 kb/s</td>
<td>0.15 kb/s</td>
</tr>
</tbody>
</table>

**Note:** Bandwidth estimates are the same for a wireless or wired local area network.
Figure 1—Example Download Bandwidth Overview

Table 2—Example District Bandwidth Calculations

<table>
<thead>
<tr>
<th>School/District</th>
<th>Bandwidth</th>
<th># Students</th>
<th>Total for School/District</th>
</tr>
</thead>
<tbody>
<tr>
<td>School 1</td>
<td>2.58 kb/s</td>
<td>120</td>
<td>310.0 kb/s</td>
</tr>
<tr>
<td>School 2</td>
<td>2.58 kb/s</td>
<td>250</td>
<td>645.0 kb/s</td>
</tr>
<tr>
<td>School 3</td>
<td>2.58 kb/s</td>
<td>350</td>
<td>903.0 kb/s</td>
</tr>
<tr>
<td>School 4</td>
<td>2.58 kb/s</td>
<td>180</td>
<td>465.0 kb/s</td>
</tr>
<tr>
<td><strong>Total for District</strong></td>
<td>-</td>
<td><strong>900</strong></td>
<td><strong>2,323.0 kb/s</strong></td>
</tr>
</tbody>
</table>

**Note:** This table is for illustration purposes only, and uses data from Figure 1—Example Download Bandwidth Overview.

Firewall and Regulatory Software

Firewalls and Filters

- Ensure that the ACT QualityCore domain, *.act.org, is not restricted.
  
  **Note:** School networks may have it blocked as a security measure.

- Ensure that emails from the ACT QualityCore domain, *.qualitycore.act.org, are not blocked.
Proxy Servers/Caching Servers
Proxy servers or caching servers used at the district or school level to cache web pages, or to restrict access to websites, can interfere with student testing; therefore, District Technology Coordinators must ensure that pages coming from the ACT QualityCore domain, *.act.org, are not cached or restricted during ACT QualityCore testing.

Antivirus Software
Antivirus and other security software should be evaluated to ensure they will not block or filter connections to the ACT QualityCore system. Prior to ACT QualityCore testing, Technology Coordinators should evaluate software settings to ensure the ACT QualityCore system can be accessed through the web browser and via the ACT QualityCore secure browser.

Computer Configuration Utilities
If used in your environment, computer configuration utilities (e.g., Faronics Deep Freeze) should be disabled or reconfigured so that the ACT QualityCore secure browser is not uninstalled.

Computer Evaluation and Preparation
This section contains general information on supported hardware, operating systems, and web browsers used for ACT QualityCore testing. Specific configurations for each supported testing environment, i.e., Windows PC, Macintosh, and Chromebook, are included in separate sections in this document.

General Requirements for Computers for ACT QualityCore Testing
To deliver ACT QualityCore tests, the following must be available and configured on each desktop computer or laptop used for student testing:

- Compatible operating system
- Compatible web browser with JavaScript enabled
- Appropriate version of the ACT QualityCore secure browser
- High-speed access to the Internet
- Minimum display resolution of 1024 × 768 pixels, depending on the device. See device-specific sections for more information.

**Note:** Other settings will work; however, resolution below 800 × 600 pixels is not recommended.
**Compatible Environments**

The ACT QualityCore system supports the following operating systems and web browsers for delivery of student tests.

<table>
<thead>
<tr>
<th>Hardware</th>
<th>Operating System</th>
<th>Web Browser</th>
<th>Secure Browser</th>
</tr>
</thead>
<tbody>
<tr>
<td>Windows PC</td>
<td>Windows 8.1</td>
<td>Internet Explorer 11</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Windows 8</td>
<td>Internet Explorer 10</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Windows 7</td>
<td>Internet Explorer 9, 10</td>
<td>3.00.9</td>
</tr>
<tr>
<td>Macintosh</td>
<td>OS X Yosemite 10.10</td>
<td>Safari 8.0 – 8.0.6</td>
<td></td>
</tr>
<tr>
<td></td>
<td>OS X Mavericks 10.9</td>
<td>Safari 7.0 – 7.1.3</td>
<td>1.25.7</td>
</tr>
<tr>
<td></td>
<td>OS X Mountain Lion 10.8</td>
<td>Safari 6.1 – 6.1.4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>OS X Lion 10.7</td>
<td>Safari 6.1 – 6.1.4</td>
<td></td>
</tr>
<tr>
<td>Chromebook</td>
<td>Chrome OS 42 or later</td>
<td>Chrome 42 or later</td>
<td>1.97</td>
</tr>
</tbody>
</table>

**Technology Configuration—Student Computers**

The following configurations must be applied to all student computers prior to ACT QualityCore testing. Specific configurations for each supported testing environment (i.e., Windows PC, Macintosh, and Chromebook) are included in more detail later in this document.

- Verify that a compatible web browser is installed.
- Verify that the brightness/contrast settings are set appropriately.
- Run the ACT QualityCore compatibility script, and address any other issues identified.
- Enable JavaScript in the browser.
- Ensure that antivirus software will not block or filter connections to the ACT QualityCore system.
- Ensure that Internet privacy and antivirus software does not interfere with ACT QualityCore tests.
- Ensure that proxy or caching servers do not cache or restrict pages coming from the ACT QualityCore system.
- Ensure that the appropriate version of the ACT QualityCore secure browser is installed on all computers used for student testing.
Detailed instructions are provided for performing these tasks on PCs, Macs, and Chromebooks:

- For Mac computers, see Technology Guidelines—Mac on page 17.
- For Chromebook computers, see Technology Guidelines—Chromebook on page 23.

Additionally, a checklist is provided to aid in completing the evaluation of your network and computer configuration for testing:

- For all environments, see Technology Preparation Checklist on page 31.

Technology Configuration—Administrative Computers

The following requirements must be met by all administrative computers that will be used for registration tasks and/or accessing reports or CSV data files in the ACT QualityCore system.

- **Internet Explorer**
  
  District Test Coordinators, School Test Coordinators, Test Administrators, and Teachers should access the ACT QualityCore system on computers using Internet Explorer only. Reports cannot be accessed using other web browsers.

  - **AutoComplete**
    
    The AutoComplete option in web browsers can compromise the security of ACT QualityCore user IDs and passwords and should be disabled on administrative computers used to log in to the ACT QualityCore system. This includes computers used by District Test Coordinators, School Test Coordinators, Teachers, and Test Administrators.

  - **Pop-up Blockers**
    
    Student reports in the ACT QualityCore system are generated in PDF. Other information in the ACT QualityCore system is displayed in HTML format. To ensure that District Test Coordinators, School Test Coordinators, and Teachers can access ACT QualityCore reports, pop-up blockers should be turned off on all computers used by District and School Test Coordinators and Teachers.

- **Adobe Reader**

  The ACT QualityCore system generates various documents and reports in PDF (Portable Document Format) format that require Adobe Reader version 9 or later to be installed. To install the most recent version, go to www.adobe.com.
TECHNOLOGY GUIDELINES—WINDOWS

This section provides detailed information on preparing Windows desktops and laptops for ACT QualityCore testing. The information in this section should be verified for each Windows computer used for ACT QualityCore testing.

Requirements for PCs Used for ACT QualityCore Testing

The following must be configured on each Windows PC used for student testing:

- Appropriate operating system and browser versions.

<table>
<thead>
<tr>
<th>Operating System</th>
<th>Web Browser</th>
</tr>
</thead>
<tbody>
<tr>
<td>Windows 8.1</td>
<td>Internet Explorer 11</td>
</tr>
<tr>
<td>Windows 8</td>
<td>Internet Explorer 10</td>
</tr>
<tr>
<td>Windows 7</td>
<td>Internet Explorer 9, 10, 11</td>
</tr>
</tbody>
</table>

- JavaScript is enabled in the browser

- Minimum display resolution of 1024 × 768 pixels
  
  *Note:* Other settings will work, but resolution below 800 × 600 pixels is not recommended.

- High-speed access to the Internet

- When using a laptop, ensure that it is plugged in or fully charged for each testing session.
  
  *Note:* For Windows 8 and 8.1 computers, the secure browser must be launched in Desktop mode. For more information, see Verify Desktop Mode for Windows 8 and 8.1 Computers on page 14.

Verify Operating System and Web Browser Versions

**To verify the operating system version:**

1. Select System from the Control Panel.
2. Review the system information to ensure that the operating system is supported for ACT QualityCore testing.

   For more information, see Requirements for PCs Used for ACT QualityCore Testing on page 9.

**To verify the web browser version:**

1. Launch Internet Explorer.
2. On the Menu bar, select Help.
   
   or
   
   Click the Tools button ( ) in the upper-right corner.
3. Select About Internet Explorer.
The Internet Explorer version is displayed on the About Internet Explorer dialog.

4 Ensure that the browser version is supported for ACT QualityCore testing.
For more information, see Requirements for PCs Used for ACT QualityCore Testing on page 9.

Verify Brightness/Contrast Settings for Graphics

ACT QualityCore online tests may contain shaded graphics that students use to answer test questions. Verifying that sample graphics display appropriately will ensure that graphics display appropriately during testing.

**To verify brightness and contrast settings:**

1 Go to the ACT QualityCore homepage, www.qualitycore.act.org, and review the sample graphics.

2 Adjust the brightness and contrast settings while viewing the sample graphics.
When the gray area in the center of each square is clearly visible, the monitor settings are ideal.

Run the Compatibility Script

The ACT QualityCore compatibility script helps to ensure that computers are ready for ACT QualityCore testing. The compatibility script performs these tasks on each computer on which it is run:

- Checks the computer to ensure that JavaScript is enabled in the browser.
- Verifies that the ACT QualityCore server can be reached (i.e., for both the administrative interface and student testing).
- Ensures that graphics files required for student testing are not blocked by a firewall.
- Provides a visual report on the results of the compatibility check.

The script can be run from the Computer-based Testing Setup page of the ACT QualityCore website, www.qualitycore.act.org.

**Important**

Even if the ACT QualityCore compatibility script was run for a previous administration, it should be run on each computer that will be used in testing for this administration.

**To run the script:**

1 Go to the Compatibility Test page on the ACT QualityCore website, www.qualitycore.act.org/compatibility-test.

If JavaScript is not enabled in the browser, a button is displayed with this text:

![JavaScript Not Enabled](javascript-not-enabled)

**Important**

Java scripting must be enabled in your web browser prior to continuing. For information on enabling JavaScript, see Enable JavaScript on page 11.
2 Select the appropriate environment:

- If your school’s ACT QualityCore testing is associated with the Kentucky or Alabama departments of education (i.e., all public schools in Kentucky and Alabama) select your state.
- All other schools, including private schools in Kentucky and Alabama, select National Customers.

3 Click the **Begin Compatibility Test** button, for example:

![BEGIN COMPATIBILITY TEST]

Results for these tests are displayed on the page:

- Supported browser
- Connection to servers
- Displaying images—GIF
- Display images—JPEG

If red is displayed in the results, then the corresponding test failed. Contact your School Test Coordinator for assistance.

**Important**

To run the test again, first refresh the page, then return to Step 3.

**Modify Browser Security Settings**

When downloading and running the compatibility script on Internet Explorer, the **Internet Options** security level should be set at **medium-high**. If you receive a notice that your security setting is too high, complete these steps:

**To modify browser security settings:**

1 Click the **Tools** button ( ) in the upper-right corner.
2 Select **Internet options**.
3 Select the **Security** tab.
4 Click the **Custom level** button.
5 Select the next lower option on the **Reset to** menu.
6 Click the **Reset** button.
7 Click the **OK** button.

**Enable JavaScript**

JavaScript must be enabled in Internet Explorer to ensure proper functioning of ACT QualityCore system features.

**To enable JavaScript in the browser:**

1 Click the **Tools** button ( ) in the upper-right corner.
2 Select **Internet options**.
3 Select the **Security** tab.
4 Click the **Custom level** button.

5 Scroll to **Scripting**, and select the **Enable** option for **Active scripting**.

6 Click the **OK** button until you are out of the Internet Options.

7 Close and restart the Internet Explorer.

### Verify Antivirus Software Settings

Antivirus and other security software should be evaluated to ensure they will not block or filter connections to the ACT QualityCore system. Prior to ACT QualityCore testing, Technology Coordinators should evaluate antivirus and privacy software settings to ensure the ACT QualityCore system can be accessed through Internet Explorer and via the ACT QualityCore secure browser.

#### AVG Antivirus Settings

If the school or district is using AVG Anti-Virus software, Technology Coordinators should consider temporarily disabling the Identity Protection and Resident Shield components on student computers to prevent issues with ACT QualityCore testing. If the Identity Protection and Resident Shield cannot be disabled at the server level and the changes cannot be pushed out to lab and classroom computers, they can be disabled on individual computers.

### Verify the ACT QualityCore Secure Browser

The ACT QualityCore secure browser provides access to ACT QualityCore tests, while preventing students from accessing other software or websites during testing. The Windows version of the ACT QualityCore secure browser must be copied to each computer that will be used for testing. For information, see [Requirements for PCs Used for ACT QualityCore Testing](#) on page 9.

**Note:** The ACT QualityCore system is available year-round and the secure browser and administrator password can be retrieved before registration begins for the upcoming ACT QualityCore administration.

The secure browser is available for download via the District Test Coordinator, School Test Coordinator, and School Technology Coordinator menus on the ACT QualityCore online system, which is accessible from the ACT QualityCore homepage, [www.qualitycore.act.org](http://www.qualitycore.act.org).

### View the Version of the Secure Browser (if already installed)

For each computer on which the secure browser is already installed, you can view its version to ensure that it is supported for ACT QualityCore testing. For information on the secure browser version, see [Compatible Environments](#) on page 7.

The next section provides instructions for installing the secure browser.

**Important**

If the correct version is already installed, you do not need to reinstall it.

**To view the version of the secure browser:**

1 Single click the secure browser icon (QC).

2 Hover the cursor over the icon.

   The version of the secure browser is displayed as the **File version** in the pop-up menu.
   See [Compatible Environments](#) on page 7.
**Download the Secure Browser**

If the appropriate version of the secure browser is not already installed, you must download and copy it to the desktop of each device used for ACT QualityCore testing. See [Compatible Environments on page 7](#).

**Note:** After downloading the secure browser, ensure that the security settings in Internet Explorer are reset to medium-high.

**To download and copy the secure browser:**

**Note:** To download the browser, it may be necessary to change security settings in Internet Explorer. For more information, see [Modify Browser Security Settings on page 11](#).

1. Log into the ACT QualityCore administration website as District Test Coordinator, School Test Coordinator, or School Technology Coordinator.
   - Alabama customers go to: admin-al.qualitycore.act.org
   - Kentucky customers go to: admin-kde.qualitycore.act.org
   - National customers go to: admin-us.qualitycore.act.org

2. On the homepage, click the **Windows** link.

3. When the file download dialog is displayed, click **Save**.

4. Copy the executable file (QCB.exe) to the desktop of each computer that will be used for testing.
   
   **Note:** To make copying the browser on multiple computers easier, copy it to a network drive or flash drive and then copy it to lab or classroom computers.

**Test the Secure Browser**

To verify access to the ACT QualityCore system through the secure browser, the secure browser should be run on each computer prior to student testing. When the browser is executed, the student login page (where the students enter their student registration code, date of birth, and daily access code) is displayed.

**To test the secure browser:**

**Important**

For Windows 8 and 8.1, the secure browser must be run from Desktop mode. For more information, see [Verify Desktop Mode for Windows 8 and 8.1 Computers on page 14](#).

1. Close all open files and programs.

2. Double click the secure browser icon (ACT QC) and select **Run**.

   A message is displayed prompting users to close all open applications.
3 Click the OK button.
A message is displayed requesting consent for the ACT privacy policy.

4 Click the OK button.
When the ACT QualityCore login page is displayed, the secure browser is ready for student testing.

To close the secure browser:
Instructions for closing the secure browser are available from the ACT QualityCore online system.

**Important**
An administrator code is required to close the browser. This code must not be shared.

1 On the student’s computer, press **Alt+F4**.
   **Note:** On some machines (e.g., Lenovo laptops), the key combination is **Alt+Fn+F4**.
   A dialog is displayed, prompting for the administrator password.
2 Enter the administrator password.
3 Click the OK button.

**Verify Desktop Mode for Windows 8 and 8.1 Computers**

**Note:** These instructions assume that you are using a mouse and keyboard with Windows 8/8.1 computers. If using the touchscreen, you can tap buttons rather than clicking them.

To verify that a Windows 8 or 8.1 computer is in Desktop mode:
1 Press **Ctrl+Alt+Delete** to sign in.
2 On the Metro UI initial start screen, click the Desktop icon.
3 From the Desktop screen, open the ACT QualityCore secure browser.
   The ACT QualityCore secure browser will automatically close other applications; however, it does not close Metro UI applications.
4 Use **Alt+F4** to close the Metro UI applications.
   **Note:** On some machines (e.g., Lenovo laptops), the key combination is **Alt+Fn+F4**.

**Known Issues**
This section describes differences with the student testing experience on Windows PCs.
**Display Resolution**

The display resolution on the device can generally be set below the recommended resolution (i.e., 1024 × 768 pixels). At lower resolutions some screen prompts cannot be accessed.

- **Solution:** Set the display resolution 1024 × 768 or higher.

**Highlighter**

The highlighter tool does not function via touchscreen.

- **Solution:** Students can use the touchpad or an attached mouse to access the highlighter tool.

**Hot Keys**

Pressing **Fn+D** turns off the display on some devices.

- **Solution:** Press any key to turn the display back on.

- **Solution:** Press power button to exit sleep mode.
TECHNOLOGY GUIDELINES—MAC

This section provides detailed information on preparing Macintosh desktops and laptops for ACT QualityCore testing. The information in this section should be verified for each Mac used for ACT QualityCore testing.

Requirements for Macs Used for ACT QualityCore Testing

The following must be configured on each Macintosh computer used for student testing:

- Appropriate operating system and browser versions.

<table>
<thead>
<tr>
<th>Operating System</th>
<th>Web Browser</th>
</tr>
</thead>
<tbody>
<tr>
<td>OS X Yosemite 10.10</td>
<td>Safari 8.0 – 8.0.6</td>
</tr>
<tr>
<td>OS X Mavericks 10.9</td>
<td>Safari 7.0 – 7.1.3</td>
</tr>
<tr>
<td>OS X Mountain Lion 10.8</td>
<td>Safari 6.1 – 6.1.4</td>
</tr>
<tr>
<td>OS X Lion 10.7</td>
<td>Safari 6.1 – 6.1.4</td>
</tr>
</tbody>
</table>

For instructions on updating Safari, see Verify Operating System and Web Browser Versions on page 17.

- JavaScript is enabled in Safari

- Minimum display resolution of $1280 \times 800$ pixels (optimal)
  
  **Note:** Other settings will work, but resolution below $800 \times 600$ pixels is not recommended.

- High-speed access to the Internet

- When using a laptop, ensure that it is plugged in or fully charged for each testing session.

Verify Operating System and Web Browser Versions

**To verify the operating system version:**

1. Click the Apple button ( ) on the upper-left of the screen.
2. Select **About This Mac**.
3. Review the displayed information to make sure that a supported version of the operating system is installed.

   For more information, see Requirements for Macs Used for ACT QualityCore Testing on page 17.

**To verify the web browser version:**

1. Launch Safari.
2. Click **Safari** on the upper-left of the screen.
3. Select **About Safari**.
Review the information to make sure that a supported version of the Safari is installed.

For more information, see Requirements for Macs Used for ACT QualityCore Testing on page 17.

For information on updating the Safari version, see the next section.

**To update Safari:**

1. Click the Apple button ( ) in the upper-left corner of the screen.
2. Select Software Update.
   
   The software update options are displayed.
3. Select the Update button next to the Safari update.

**Important**

Do not select Update All because you may be applying updates that have not been validated in the ACT QualityCore system.

You can monitor the progress of the update from the window.

**Verify Brightness/Contrast Settings for Graphics**

ACT QualityCore online tests may contain shaded graphics that students use to answer test questions. Verifying sample graphics display appropriately now will help to ensure that graphics display appropriately during testing.

**To verify brightness and contrast settings:**

1. Go to the ACT QualityCore homepage, www.qualitycore.act.org, and review the sample graphics.
2. Adjust the brightness and contrast settings while viewing the sample graphics.
   
   When the gray area in the center of each square is clearly visible, the monitor settings are ideal.

**Run the Compatibility Script**

The ACT QualityCore compatibility script helps to ensure that computers are ready for ACT QualityCore testing. The compatibility script performs these tasks on each computer on which it is run:

- Checks the computer to ensure that JavaScript is enabled in the browser.
- Verifies that the ACT QualityCore server can be reached (i.e., for both the administrative interface and student testing).
- Ensures that graphics files required for student testing are not blocked by a firewall.
- Provides a visual report on the results of the compatibility check.

The script can be run from the Computer-based Testing Setup page of the ACT QualityCore website, www.qualitycore.act.org.

**Important**

Even if the ACT QualityCore compatibility script was run for a previous administration, it should be run on each computer that will be used in testing for this administration.
To run the script:

   If JavaScript is not enabled in the browser, a button is displayed with this text:
   **JAVASCRIPT NOT ENABLED**
   
   **Important**
   
   Java scripting must be enabled in your web browser prior to continuing. For information on enabling JavaScript, see Enable JavaScript on page 19.

2. Select the appropriate environment:
   - If your school’s ACT QualityCore testing is associated with the Kentucky or Alabama departments of education (i.e., all public schools in Kentucky and Alabama) select your state.
   - All other schools, including private schools in Kentucky and Alabama, select National Customers.

3. Click the **Begin Compatibility Test** button, for example:
   
   Results for these tests are displayed on the page:
   - Supported browser
   - Connection to servers
   - Displaying images—GIF
   - Display images—JPEG
   
   If red is displayed in the results, then the corresponding test failed. Contact your School Test Coordinator for assistance.

   **Important**
   
   To run the test again, first refresh the page, then return to Step 3.

**Enable JavaScript**

JavaScript must be enabled in Safari to ensure proper functioning of ACT QualityCore system features.

1. Click **Safari** on the Menu bar.
2. Select **Preferences** from the menu.
   The Preferences dialog is displayed.
3. Select the **Security** tab.
4. Select the **Enable Plug-ins** option.
5. Select the **Enable JavaScript** option.
6. Close the **Preferences** dialog.
Verify Antivirus Software Settings

Antivirus and other security software should be evaluated to ensure they will not block or filter connections to the ACT QualityCore system. Prior to ACT QualityCore testing, Technology Coordinators should evaluate antivirus and privacy software settings to ensure the ACT QualityCore system can be accessed through Internet Explorer and via the ACT QualityCore secure browser.

AVG Antivirus Settings

If the school or district is using AVG Anti-Virus software, Technology Coordinators should consider temporarily disabling the Identity Protection and Resident Shield components on student computers to prevent issues with ACT QualityCore testing. If the Identity Protection and Resident Shield cannot be disabled at the server level and the changes cannot be pushed out to lab and classroom computers, they can be disabled at individual computers by completing the following steps.

To disable Identity Protection and Resident Shield in AVG:

1. Open AVG.
2. Double click the Resident Shield or Identity Protection button.
3. Clear the Resident Shield and Identity Protection option.
4. Save the changes.

Verify the ACT QualityCore Secure Browser

The ACT QualityCore secure browser provides access to ACT QualityCore tests, while preventing students from accessing other software or websites during testing. The Mac version of the ACT QualityCore secure browser must be copied to each computer that will be used for testing. For information, see Requirements for Macs Used for ACT QualityCore Testing on page 17.

Note: The ACT QualityCore system is available year-round and the secure browser and administrator password can be retrieved before registration begins for the upcoming ACT QualityCore administration.

The secure browser is available for download via the District Test Coordinator, School Test Coordinator, and Technology Coordinator menus on the ACT QualityCore online system, which is accessible from the ACT QualityCore homepage, www.qualitycore.act.org.

View the Version of the Secure Browser (if already installed)

For each computer on which the secure browser is installed, you can view its version to ensure that it is supported for ACT QualityCore testing. For information on the secure browser version, see Compatible Environments on page 7.

The next section provides instructions for installing the secure browser.

Important

If the correct version is already installed, you do not need to reinstall it.

To view the version of the secure browser:

1. Right click on the secure browser icon.
2 Select Get Info.

The version of the secure browser is displayed as the **File version** in the pop-up menu.

See [Compatible Environments](#) on page 7.

**Download the Secure Browser**

If the appropriate version of the secure browser is not already installed, you must download and copy it to the desktop of each device used for ACT QualityCore testing. See [Compatible Environments](#) on page 7.

**To download and copy the secure browser:**

1. Log in as District Test Coordinator, School Test Coordinator, or School Technology Coordinator on the ACT QualityCore online system.
   - Alabama customers go to: [admin-al.qualitycore.act.org](http://admin-al.qualitycore.act.org)
   - Kentucky customers go to: [admin-kde.qualitycore.act.org](http://admin-kde.qualitycore.act.org)
   - National customers go to: [admin-us.qualitycore.act.org](http://admin-us.qualitycore.act.org)

2. On the homepage, click the **Mac** link.

3. When the file download dialog is displayed, click **Save**.

4. Copy the secure browser to the desktop of each computer that will be used for testing.

   **Note:** To make copying the browser on multiple computers easier, copy it to a network drive or flash drive and then copy it to lab or classroom computers.

**Test the Secure Browser**

To verify access to the ACT QualityCore system through the secure browser, the secure browser should be run on each computer prior to student testing. When the browser is executed, it will take you to the student login page (where the student registration code, date of birth, and daily access code are entered).

**To test the secure browser:**

1. Close all open files and programs.

2. Double-click the **.dmg** file.

   The application is displayed in a separate window.

   ![QualityCore Browser](image)

3. Double-click the **.app** file to launch the secure browser.

   A message is displayed requesting consent for the ACT privacy policy.
4 Click the **OK** button.

When the ACT QualityCore login page is displayed, the secure browser is ready for student testing.

**To close the secure browser:**

Instructions for closing the secure browser are available to authenticated users from the ACT QualityCore online system, which is accessible from the ACT QualityCore homepage, [www.qualitycore.act.org](http://www.qualitycore.act.org).

**Important**

An administrator code is required to close the browser. This code must not be shared.

1 On the student’s computer, press **Cmd+Q**.

A dialog is displayed, prompting for the administrator password.

2 Enter the administrator password.

3 Click the **OK** button.

**Known Issues**

This section describes differences with the student testing experience on Macintosh computers.

**Display Resolution**

The display resolution on the device can generally be set below the recommended resolution (i.e., 1280 × 800 pixels). At lower resolutions some screen prompts cannot be accessed.

- **Solution:** Set the display resolution 1280 × 800 pixels or higher.

**Hot Keys**

Pressing **Fn+D** turns off the display on some devices.

- **Solution:** Press any key to turn the display back on.
TECHNOLOGY GUIDELINES—CHROMEBOOK

This section provides detailed information on preparing Google Chromebooks for ACT QualityCore testing. The information in this section should be verified for each Chromebook used for ACT QualityCore testing.

Requirements for Chromebooks Used for ACT QualityCore Testing

The following **minimum** specifications must be met on each Chromebook used for student testing:

- Chrome OS 42 or later stable version with:
  - Chrome web browser
  - JavaScript enabled
- 1 GHz processor
- 2 GB RAM (4 GB recommended)
- 11.6” screen
- 1366 × 768 display resolution
  **Note:** Other settings will work, but resolution below 800 × 600 pixels is not recommended.
- High-speed access to the Internet
- Ensure that the device is plugged in or fully charged prior to each testing session.

**Important:**
ACT QualityCore testing is not supported on Dev or Beta versions of Chrome OS.

Verify Operating System and Web Browser Versions

**To verify the operating system version:**

1. Log in as administrator.
2. Open Chrome.
3. Click the **Settings** button (☰) in the upper-right corner.
4. Select **Settings** in the menu.
5. Select **About Chrome OS** at the top of the window.
6. Review the displayed information to make sure you have a compatible version of the operating system.

**Note:** It is not necessary to verify the version of the Google Chrome web browser. The browser auto-updates when new versions are made available.

Test Day Questions? Call 866-764-7228

Technology Guidelines – 23
Verify Brightness/Contrast Settings for Graphics

ACT QualityCore online tests may contain shaded graphics that students use to answer test questions. Verifying that sample graphics display appropriately will ensure that graphics display appropriately during testing.

**To verify brightness and contrast settings:**

1. Go to the ACT QualityCore homepage, [www.qualitycore.act.org](http://www.qualitycore.act.org), and review the sample graphics.
2. Adjust the brightness on the student’s computer using the Decrease Screen Brightness (▼) and Increase Screen Brightness (▲) keys while viewing the sample graphics.
   - When the gray area in the center of each square is clearly visible, the monitor settings are ideal.

Run the Compatibility Script

The ACT QualityCore compatibility script helps to ensure that computers are ready for ACT QualityCore testing. The compatibility script performs these tasks on each computer on which it is run:

- Checks the computer to ensure that JavaScript is enabled in the browser.
- Verifies that the ACT QualityCore server can be reached (i.e., for both the administrative interface and student testing).
- Ensures that graphics files required for student testing are not blocked by a firewall.
- Provides a visual report on the results of the compatibility check.

The script can be run from the Computer-based Testing Setup page of the ACT QualityCore website, [www.qualitycore.act.org](http://www.qualitycore.act.org).

**Important**

Even if the ACT QualityCore compatibility script was run for a previous administration, it should be run on each computer that will be used in testing for this administration.

**To run the script:**

1. Go to the Compatibility Test page on the ACT QualityCore website, [www.qualitycore.act.org/compatibility-test](http://www.qualitycore.act.org/compatibility-test).
   - If JavaScript is not enabled in the browser, a button is displayed with this text: **JavaScript Not Enabled**

**Important**

Java scripting must be enabled in your web browser prior to continuing. For information on enabling JavaScript, see [Enable JavaScript](#) on page 25.

2. Select the appropriate environment:
   - If your school’s ACT QualityCore testing is associated with the Kentucky or Alabama departments of education (i.e., all public schools in Kentucky and Alabama) select your state.
   - All other schools, including private schools in Kentucky and Alabama, select **National Customers**.
3 Click the **Begin Compatibility Test** button, for example:

![BEGIN COMPATIBILITY TEST](image)

Results for these tests are displayed on the page:
- Supported browser
- Connection to servers
- Displaying images—GIF
- Display images—JPEG

If red is displayed in the results, then the corresponding test failed. Contact your School Test Coordinator for assistance.

**Important**

To run the test again, first refresh the page, then return to Step 3.

**Enable JavaScript**

JavaScript must be enabled in Chrome to ensure proper functioning of ACT QualityCore system features.

**To enable JavaScript:**

1. Open the Google Chrome web browser.
2. Click the Settings button ( {}) in the upper-right corner.
3. Select **More tools**, and then select **JavaScript console**.
4. Optionally, expand the right side of the dual window pane.
5. Click the **Settings** button ( ).
6. Ensure that the **Disable JavaScript** option is NOT selected.

**Verify Antivirus Software**

It is not necessary (nor recommended) to install additional antivirus software on a Chromebook.

**Disable Accessibility Settings**

It is important to turn off all accessibility settings on the **Settings** menu to prevent students from accessing the Internet or receiving help while testing.

1. Click the Battery button ( , i.e., battery icon) in the system tray in the lower-right corner of the screen.
2. Select **Settings**.
3. Select **Show advanced settings**.
4. Scroll down to the **Accessibility features**.
5. Ensure that none of the options in this section are selected.
Important:

It is not possible to completely disable hot keys, which can be used to turn on accessibility features on a Chromebook (e.g., Ctrl+Alt+Z—which controls spoken feedback, and Ctrl+Shift+Refresh—which controls screen rotation).

Teachers and Test Administrators should monitor students testing on Chromebooks to ensure that they do not intentionally or unintentionally turn on the accessibility features using hot keys.

Note: To disable ChromeVox during a test, press Ctrl+Alt+Z.

Disable Power Management/Sleep Mode

By default, Chromebooks automatically go to sleep if inactive for six minutes (when unplugged) or eight minutes (when plugged in). In order to extend this time, a Chrome app, such as Keep Awake, must be installed on the device. You can download apps from the Chrome Web Store.

Prepare the ACT QualityCore Secure Browser

The ACT QualityCore secure browser provides access to ACT QualityCore tests, while preventing students from accessing other software or websites during testing. In order to preserve the security of ACT QualityCore tests, the secure web browser must be run in kiosk mode on Chromebooks.

Important

Each Chromebook used for ACT QualityCore testing must be set up to run the secure browser in kiosk mode.

Turn on Single App Kiosk Mode

Running a Chromebook in single app kiosk mode enables students to access the secure browser from the tray under Apps, while restricting access to other functions. Once in single app kiosk mode, the device will remain in kiosk mode—even upon rebooting—until you turn off single app kiosk mode. For more information, see Turn off Single App Kiosk Mode on page 27.

Important

Because the ID of the ACT QualityCore secure browser on the Chrome Web Store is sensitive, you must log in to the ACT QualityCore online system to view it.

To copy the secure browser ID:

A Log into the ACT QualityCore administration website as District Test Coordinator, School Test Coordinator, or School Technology Coordinator and click Log in to ACT QualityCore.
   - Alabama customers go to: admin-al.qualitycore.act.org
   - Kentucky customers go to: admin-kde.qualitycore.act.org
   - National customers go to: admin-us.qualitycore.act.org

B On the page, click the Chromebooks link.
   A page providing information on the Chromebooks secure web browser is displayed.

C Copy the ID (i.e., URL) of the secure web browser from the page.
To turn on Single App Kiosk mode and run kiosk apps, follow the appropriate instructions below, depending on whether the device is managed or non-managed.

Non-Managed Devices
If you are using a non-managed device, complete these steps.

1. Type `chrome://extensions` in the address bar of Chrome.
2. Press the Enter key.
3. Select Developer Mode.
4. Click Add kiosk application, and enter the ID of the ACT QualityCore secure browser.
5. Press the Enter key.

The secure browser will now display in the tray under Apps.

**Important**
If you encounter difficulties identifying the ID of the secure web browser, contact ACT QualityCore Support.

Managed Devices
You can use a managed Chromebook by modifying Kiosk Settings in the admin panel. For information on managed devices, see: [https://support.google.com/chromebook/topic/3418731?hl=en&ref_topic=3399710](https://support.google.com/chromebook/topic/3418731?hl=en&ref_topic=3399710).

**Turn off Single App Kiosk Mode**

**Important**
Because the secure web browser must be run in kiosk mode to preserve the security of ACT QualityCore tests, kiosk mode must be turned off only after students have completed ACT QualityCore testing.

1. Reboot the Chromebook.
2. While the device is starting up, press Ctrl+Alt+S to display to the login screen.

**Note:** For a managed Chromebook, you can turn off Single App Kiosk mode by modifying Kiosk Settings in the admin panel.

**Test the Secure Browser**

**To test the secure browser:**

1. Close all open files and programs.
2. Click on the ACT QualityCore secure browser icon from the Apps menu in the lower-left corner of the screen.
A message is displayed requesting consent for the ACT privacy policy.

```
3 Click the OK button.
   When the ACT QualityCore login page is displayed, the secure browser is ready for student testing.

To close the secure browser:

- Press and hold the Power key until the screen goes black and the computer turns off.

Known Issues
This section describes differences with the student testing experience on Chromebooks.

Display Resolution
The display resolution on the device can generally be set below the recommended resolution (e.g., 1366 × 768 pixels). At lower resolutions, some screen prompts cannot be accessed.

- **Solution:** To optimize viewing, set the display resolution to 1366 × 768.

Hot Keys
It is **not** possible to completely disable hot keys, which can be used to access accessibility features on a Chromebook (e.g., Ctrl+Alt+Z—which controls spoken feedback (i.e., ChromeVox) and Ctrl+Shift+Refresh—which controls screen rotation). Because these features “toggle” on and off, they can be turned on and off during a test.

- **Solution:** Teachers and Test Administrators should monitor students testing on Chromebooks to ensure that they do not intentionally or unintentionally turn on the accessibility features using hot keys.

  **Note:** To disable ChromeVox during a test, press Ctrl+Alt+Z.

Touchscreen
The Chromebook touchscreen can register inadvertent touch events.

- **Solution:** To prevent this issue from occurring, students can use the touchpad or an attached mouse to navigate the test.

Highlighter
The highlighter tool does not function via touchscreen.

- **Solution:** Students can use the touchpad or an attached mouse to access the highlighter tool.
Tooltip

If the touchpad or mouse has been idle for a few minutes, a tooltip appears over certain parts of the screen.

- **Solution:** Moving the mouse or touchpad closes the tooltip.
**Technology Preparation Checklist**

This checklist was designed to assist Technology Coordinators in preparing their district and schools.

<table>
<thead>
<tr>
<th>Network Evaluation</th>
<th>Because ACT QualityCore testing requires connections to off-site database servers, verify your network infrastructure for the following:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>BANDWIDTH</strong> capability of the network meets the requirements of the ACT QualityCore system at student, school, and district levels.</td>
</tr>
<tr>
<td></td>
<td><strong>FIREWALL SETTINGS AND REGULATORY SOFTWARE</strong> do not restrict the IP addresses or domains needed for the ACT QualityCore Tests administration or block incoming connections.</td>
</tr>
<tr>
<td></td>
<td><strong>ANTIVIRUS SOFTWARE</strong> will not block or filter incoming or outgoing connections.</td>
</tr>
<tr>
<td></td>
<td><strong>COMPUTER CONFIGURATION UTILITIES</strong>, such as Faronics Deep Freeze, have been disabled or reconfigured so they will not uninstall the ACT QualityCore secure browser.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Computer Evaluation and Preparation</th>
<th>For each computer that will be used by test coordinators, teachers, and test administrators, ensure that:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Supported version of Internet Explorer is installed.</td>
</tr>
<tr>
<td></td>
<td>AutoComplete is disabled in Internet Explorer.</td>
</tr>
<tr>
<td></td>
<td>Pop-up blockers are disabled in Internet Explorer.</td>
</tr>
<tr>
<td></td>
<td>Adobe Reader version 9 or later is installed.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Computer Evaluation and Preparation</th>
<th>For each computer that will be used for student testing, ensure that:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Supported operating system and browser are installed. See <a href="#">Compatible Environments</a> on page 7.</td>
</tr>
<tr>
<td></td>
<td>Brightness and contrast settings have been adjusted for viewing shading in graphics.</td>
</tr>
<tr>
<td></td>
<td>ACT QualityCore compatibility script has been run and any issues identified by the script have been resolved.</td>
</tr>
<tr>
<td></td>
<td>JavaScript is enabled in the web browser.</td>
</tr>
<tr>
<td></td>
<td>Antivirus software and other security software have been evaluated to ensure that they will not block or filter connections to the ACT QualityCore system.</td>
</tr>
<tr>
<td></td>
<td>Current version of the ACT QualityCore secure browser has been downloaded and copied to the desktop.</td>
</tr>
<tr>
<td></td>
<td>Secure browser has been tested on each computer used for testing.</td>
</tr>
</tbody>
</table>