 **Best Practices for MCAS Computer-Based Testing Set-Up, Administration, and Troubleshooting**

The tables below describe some best practices for a successful computer-based test administration:

1. Technology set-up
2. Steps for test coordinators and test administrators during test administration
3. Troubleshooting common computer-based testing issues

Further details will be provided in the spring 2019 MCAS *Principal’s Administration Manual*, which will be available in winter 2019. Direct technology questions to the MCAS Service Center at mcas@measuredprogress.org or 800-737-5103 and policy questions to the Department at mcas@doe.mass.edu or 781-338-3625, and contact the MCAS Service Center to report any technology issues that cannot be solved quickly at the local level. During testing, if there is a situation in which a student is waiting for more than 15 minutes, then schedule the student to complete the session at a later time.

**1. Technology Set-Up**

| **Best Practice** | **Steps to Take** | **Description** |
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| Verify that devices and operating systems meet system requirements prior to testing. | * Visit the [system requirements](https://support.assessment.pearson.com/display/TN/TestNav%2BSystem%2BRequirements) page for the most updated information.
* Turn off auto-update on Chromebooks whenever possible to avoid auto-updating to an unsupported OS. See instructions under “Set up all Chromebooks” below.
 | Operating systems, particularly iOS and ChromeOS, update frequently. Students may not be able to test or may experience interruptions if the testing device/operating system is not supported. |
| Use ProctorCache software. | Download ProctorCache from [download.testnav.com](http://download.testnav.com/). | Schools using ProctorCache require less bandwidth for testing. ProctorCache is important to use in case of connectivity issues so that responses are saved locally. It is recommended that schools use a ProctorCache machine at the school level (not at the district level).ProctorCache provides access to a diagnostic monitoring web page which allows school technology staff to verify whether test content has been successfully cached prior to testing. Schools using Mac OS devices should note they need to use the previous version of ProctorCache software, since ProctorCache software for Mac OS is not being updated for 2019. Contact the MCAS Service Center for instructions. |
| Set Chromebooks to not wipe data when they restart or are powered off. | Sign in to the Google Admin console, go to **Device Management**, click **Chrome Management**, click **Device Settings**. Choose the organization you want to update these settings for. Click **Sign-In Settings,** click **User Data,** choose “Do not erase all local user data” and click **Save**.  | If the Chromebooks are set to wipe data upon reboot, students who experience connectivity, power, or device issues during testing may lose their responses.Schools that use public Chromebook profiles and need to have the data wiped between usage should set up a secondary save location in order to have a backup student response file in case of emergency.  |
| Configure ProctorCache at the school level (not the district level). | * Each school should have its own ProctorCache configuration.
* Download ProctorCache on a local machine in each school and set up the configuration in PearsonAccess Next (PAN).
 | Using ProctorCache at the school level instead of the district level allows for continued connectivity during an Internet outage (if students have already logged in). **Students configured to connect to a district ProctorCache machine may lose connection during an outage.** Schools with district configurations have also reported connectivity issues, as well as log-in issues with larger numbers of students connecting to a single ProctorCache, which can overload the machine. It is also recommended that the device selected to act as a ProctorCache during testing is reserved for only this purpose. A device performing other functions in the school can result in delays when students navigate from one question to the next during testing. |
| Set up all Chromebooks to suspend OS updates, including peer-to-peer, during testing. | Sign into the Google Admin console, go to **Device Management,** click **Chrome management,** click **Device Settings**. Choose the organization you want to update these settings for. Go to **Device Update Settings,** click **Auto Update Settings,** select **Stop Auto-Updates,** click **Save.** | If the ChromeOS is set to automatically update, this could take place during testing, which could cause student connectivity or device issues. This ChromeOS feature can be managed by a Chrome administrator. Chrome releases a full OS update about every 6 weeks, and releases minor updates approximately every 2–3 weeks.  |

| **Best Practice** | **Steps to Take** | **Description** |
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| Set up a Secondary Save Location in the TestNav configuration in PAN. | When in PAN, click **Setup > TestNav Configurations > Create/Edit Configurations**. On the right-hand side, there are fields to set up a secondary save location on a local server. | Setting up a secondary save location will allow TestNav to write a student response file to both the device as well as the secondary location. It provides a backup in case of a lost response due to a connectivity, power, or device issue, when the primary response on the student device cannot be located. In the case of Chromebooks set to wipe data, this step is necessary to create a backup file of each student response. Chromebooks, iPads, and Android Tablets can **only** use an SFTP server for secondary save locations. These mobile devices cannot use UNC paths or mapped network drives. An example of the required SFTP path format is provided in the TestNav Configurations Menu. |

**2. Test Coordinator and Test Administrator Information**

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| **Best Practice** | **Steps to Take** | **Description** |
| Have the following materials available, and confirm if they are in working order:* power cords, power strips, extra batteries, extra computers to serve as back-up devices that can be used if needed
* computer mice and wired external keyboards (strongly recommended for students using tablets)
* headphones for students with disabilities using the text-to-speech accommodation (See the [*Accessibility and Accommodations Manual*](http://www.doe.mass.edu/mcas/accessibility/)for details.)

Ensure that devices will be charged prior to each test session.  | * Use [this device planner](http://www.doe.mass.edu/mcas/testadmin/DeviceCalculator.xlsx) to determine the number of devices needed at a given time.
* Students who will be using a touchpad (only) should complete practice tests with the touchpad to familiarize themselves with answering the different question types prior to testing.
* External keyboards are strongly recommended due to the smaller screen size on a tablet when using the internal keyboard.
 | Schools have reported that some students had a challenging experience with some of the technology-enhanced test questions when they used a touchpad (only). Schools have reported that students cannot see all the parts in a test question or all the writing space available due to the reduced screen size when the keyboard pops up.  |
| Keep a log of the devices that students will use during testing. | Mark the local device ID number on each student’s testing ticket or an internal tracking form, or maintain a spreadsheet. | If a student’s device experiences an interruption in testing, responses are saved on that device. If it appears that the student is “missing answers,” resume the student’s test in PAN and have the student sign back into TestNav on the **same device** to transmit responses. If the device cannot be located, and there is no secondary save location, there is no way to find a student response file.  |
| If the student is in Resumed Upload status, **do not** skip upload when prompted by TestNav. | Contact the technology coordinator to upload the student response file for the student. | “Skipping upload” tells TestNav that there is no student response file to be found, and the system will then auto-delete any previous student response files and create a new one. If the student had missing responses, there will be no file to locate. |

**3. Troubleshooting Common Computer-Based Testing Issues**

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| **Issue** | **Solution** |
| Loss of Internet connection | * If the school has a school-based ProctorCache setup, students who are already logged into the test should be able to continue testing. If the Internet connection does not restore before students are finished, have the students exit TestNav, write down the device IDs, and have them sign back in when the Internet connection is restored, so that the students can submit their final answers. If the student is testing on a Chromebook, do **not** power off the device, unless there is a secondary save location already set up.
* If the school has a district ProctorCache configuration, students who are mid-testing will no longer be able to connect to the ProctorCache machine and will receive connectivity error codes. Therefore, the test administrator should instruct students to log out of TestNav after determining the issue cannot be resolved immediately. Testing can resume when Internet connectivity is restored that day (or the next day if connectivity is not immediately restored).
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| Loss of power | * When power is restored, the test administrator should instruct students to log back in on the same testing devices; this will confirm that all saved responses are transmitted properly.
* If a school uses Chromebooks that are set to wipe data on reboot, the technology coordinator will need to find students’ response files in the secondary save location and upload them to TestNav before the students’ tests can be resumed.
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| A student runs out of space on the ELA test, or the character counter shows 0. | * Check the character counter to see if the student used all of the available characters. If the student has reached the maximum number of characters, instruct the student to edit his or her work so that it will fit in the space provided.
* Students whose computer shows fewer characters than what appears on-screen may have hidden spaces or other characters in the text box taking up space. To restore the full character count, highlight the entire box, scrolling all the way down to catch any hidden characters, and click delete.
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| A student started testing with the wrong accommodation (e.g., a student needs text-to-speech but does not have TTS enabled). | * Follow the steps in the “Resolving Incorrect Accommodations During Testing” module, which is available at <http://mcas.pearsonsupport.com/training/>.
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