MASSACHUSETTS DEPARTMENT OF
ELEMENTARY AND SECONDARY
EDUCATION

Infrastructure Trial Readiness Guide for Spring 2019 MCAS Computer-Based Testing

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This document was prepared by the
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Important Contact Information and Resources

Contact:	**MCAS Service Center**

For questions on:	• general test administration support
	• PearsonAccess[next] and TestNav such as
	    ○ user accounts
	    ○ technology support and readiness
	    ○ Infrastructure Trials and ProctorCache
	    ○ viewing student records and organizations
	    ○ the SR/PNP process and loading files
	• logistical support, including filling out the Materials Summary and the PCPA
	• locating resources
	• shipments of materials

Hours:	7:00 a.m.–5:00 p.m., Monday–Friday
Web:	mcas.pearsonsupport.com
Email:	mcas@measuredprogress.org
Telephone:	800-737-5103
Fax:	877-325-4421

Contact:	**ESE Office of Student Assessment Services**
For question on:	• policy, such as assigning accessibility features and accommodations • student participation • testing irregularities, including test security incidents and technology failures • undoing test submissions for CBT • student data and SIMS (See note below regarding SIMS.) Questions regarding SIMS data should be directed to the district's SIMS contact (go to profiles.doe.mass.edu/search/search.aspx?leftNavID=11239, select **SIMS Contact** from the **Function** menu, and click **Get Result**s).
Hours:	8:00 a.m.–5:00 p.m., Monday–Friday during test administration windows Between 7:00 a.m. and 8:00 a.m. during the test administration windows, MCAS Service Center representatives will receive calls to 781-338-3625, answer questions regarding logistics, and take messages for Department staff, which will be returned during our regular business hours.
Web:	www.doe.mass.edu/mcas/admin.html
Email:	mcas@doe.mass.edu
Telephone:	781-338-3625
Fax:	781-338-3630

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I. Infrastructure Trial Overview

A. Purpose and General Overview

An Infrastructure Trial is an opportunity for districts, schools, and students to prepare for MCAS computer-based testing (CBT) by simulating test-day network utilization. This "dress rehearsal" will help to confirm that all testing devices are properly configured, that school and district networks can handle online testing, and that staff members are familiar with their role in administering an online test.

This trial is also an opportunity to introduce students to TestNav and practice using the online tools.

Conducting an Infrastructure Trial provides the school with a scheduled opportunity to practice administering a test in a low-stakes environment that can identify possible problems with technology and communication. This process will help avoid delays or issues during operational testing. Unlike during an operational administration, this trial will not use real student information (sample students will be created in the PearsonAccess^next training site), but many of the other steps for an operational administration will be followed.

The Infrastructure Trial confirms:
- TestNav is configured correctly
- The ProctorCache machine is properly configured to deliver test content to devices
- Devices can successfully run TestNav
- Participating staff know how to monitor and manage a computer-based MCAS assessment
- Students are familiar with the computer-based tools and format

Note that students participating in the Infrastructure Trial practice test will not receive a score at the end of the session; if schools would like for students' practice tests to receive a score, schools should also administer the practice tests outside of the infrastructure trial. Scorable Practice tests are available in the MCAS Resource Center and the TestNav Application login screen as shown below.
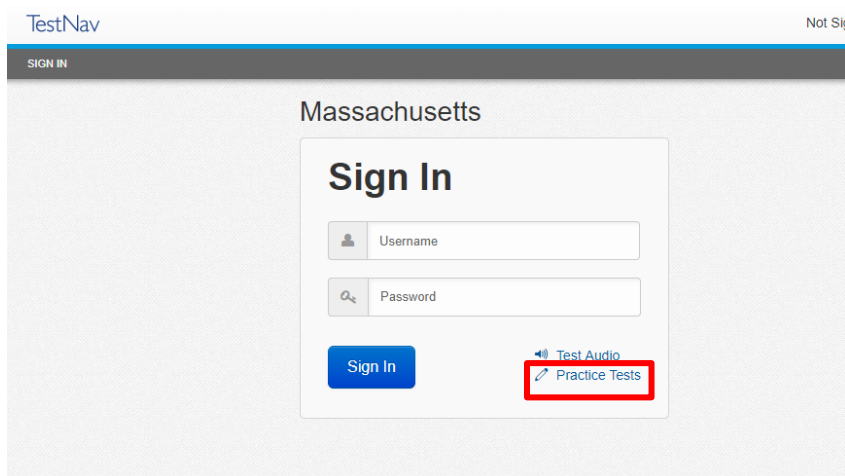
B. Scheduling the Infrastructure Trial

The Department recommends that schools conduct an Infrastructure Trial prior to each grade's CBT administration.

The Infrastructure Trial should take approximately 60 minutes to administer. However, additional time is needed for the following set-up tasks prior to administration: training staff, creating sample student records, creating sessions, and configuring the network. The time involved will vary depending on the size of the school/district and the number of students testing at a given time.

See the testing schedule and administration deadlines for the recommended windows for conducting an Infrastructure Trial.

C. Individuals to Include in the Infrastructure Trial

Everyone who will be involved in operational testing should be involved in the Infrastructure Trial. This may include the following:

- District test coordinator
- Principal or school test coordinator
- Test administrators
- Technology coordinator
- Students

D. Planning an Infrastructure Trial
Steps for the district test coordinator or principal/school test coordinator

1. **Create a communication plan for the Infrastructure Trial.**
   A best practice for a computer-based testing is developing a communication plan for all of the staff members who have a role in administering computer-based tests.

   Principals or test coordinators should establish communication with technology staff before the test schedule is set. The plan should document how to reach technology staff during operational testing as well as which individual (the technology coordinator or designee) will be designated to contact the MCAS Service Center in case of technology issues.

2. **Schedule the Infrastructure Trial.**
   Schedule the following activities as part of the Infrastructure Trial:
   - Consult with the technology coordinator, and confirm that all of the student testing devices meet the technical specifications.
   - Designate appropriate testing locations (see guidance in the *Principal's Administration Manual*).
   - Ensure technology staff have set up, installed, and configured all necessary software.
   - Train all staff involved in the Infrastructure Trial.
   - Identify all students who will participate in the Infrastructure Trial.
     A trial can be conducted with any number of students, but it is recommended that you select the maximum number of students you expect to be testing at the same time so that your trial approximates the actual anticipated load on your network.
   - Have students practice TestNav navigation and tools by using the tutorial found at mcas.pearsonsupport.com/student/.

Once test sessions are created and the technology set-up is completed, plan approximately 60 minutes to administer the Infrastructure Trial.

Districts with a district test coordinator should inform their schools whether there will be a district schedule for administering the Infrastructure Trial.

II. Using the PearsonAccess^next Training Site

Steps for the district test coordinator, principal/school test coordinator, test administrators, and the technology coordinator

The PearsonAccess^next (PAN) training site is used for the Infrastructure Trial (instead of the operational site) to create sample students, create PearsonAccess^next Sessions, set up TestNav configurations, and monitor student test progress.

Schools should create accounts for test administrators, as well as any other necessary staff members, following instructions in the *Guide to Importing Users into PearsonAccess^next*, available online in the MCAS Resource Center under the User Information dropdown.

Confirm that all staff members participating in the Infrastructure Trial have a user account for the training site and have been assigned their appropriate roles. To find a user in PearsonAccess^next, select **Users** from the **Setup** dropdown menu. Here, search by last name or select **Show All** (the button next to the **search** button). To see a user's assigned role, click on the 🛈 icon and select the **Roles** tab. Refer to the *User Role Matrix* and the *Guide to Importing Users into PearsonAccess^next* in the MCAS Resource Center for more information about creating users and assigning roles.

Note that users with accounts from last school year may have been disabled due to inactivity or created with an "Active End Date." Test coordinators should edit these accounts through the user interface or a file upload to restore access to PAN. Once this is completed, users should update their passwords.

To log in to the training site for the first time (if you received an email notifying you of a new PAN account):
- Click on the link in the email.
- Create a password. You will be prompted to enter it twice; then, click **Set Password**; and then, click **OK**.
- To return to the training site, go to **https://trng-mcas.pearsonaccessnext.com/**.
- Click **Sign In**, and enter your username and password. Read the Privacy Policy and Terms and Conditions of Use, and then click **Accept**.

To log in to the training site for the first time (if you received an email notifying you of updated permissions to your PAN account):
- Go to **https://trng-mcas.pearsonaccessnext.com/**.
  Click **Sign In**, and enter your username and password from the operational site.

To reset your password (if needed):
- Go to **https://trng-mcas.pearsonaccessnext.com/**.
- Click on the **Forgot Password** link.
- Enter your user name (typically one's email address), and then click **Request Password Reset**.

Notes on logging in:
1. If you reset your password to the training site, you will automatically reset your password for the operational site, since usernames and passwords for both sites will always match.
2. Users have five opportunities to log in correctly. After five unsuccessful attempts, the account will be locked, and the user will need to click **Forgot Password** on the home screen to reset the account.

III. Technology Set-Up

Steps for the technology coordinator before, during, and after the Infrastructure Trial

1. Review responsibilities for the Infrastructure Trial.
The technology coordinator and technology staff will need to review roles and responsibilities for preparing schools to conduct the Infrastructure Trial, and inform principals in the district. The technology coordinator and technology staff will need to determine local responsibilities, including configuring devices and how information will be shared across the team for preparing the school to conduct the Infrastructure Trial. Once these roles and responsibilities have been established, they need to be shared with the principal.

2. Configure Internet firewalls, content filters, and spam filters.
- Configure Internet firewalls, content filters, or spam filters to allow access to the Pearson domain. Verify content filter/firewalls and allow the appropriate sites, including:
  - *.testnav.com:80
  - *.testnav.com:443
  - *. pearsontestcontent.com
  - *. usertrust.com
  - *. comodoca.com
  - *. thawte.com
  - *. google-analytics.com (recommended, but not required)

  Allow local file access to home directory.

- Configure the common applications listed below so that they will **not** launch on any student test taking devices during the Infrastructure Trial or during operational testing:
  - Anti-virus software performing automatic updates
  - Power management software on laptops warning of low battery levels
  - Screen savers and sleep mode
  - Email with auto message notification
  - Calendar applications with notifications, such as Google Calendar
  - Pop-up blockers
  - Set automatic updates (iTunes)
  - Windows Accelerator
  - Mac OS three finger tap gesture on Macintosh computers with trackpads
  - Any other application that could have a popup message

3. Download the device-specific TestNav app.
For desktop computers, laptops, iPads, Chromebooks, or Androids, download a device-specific TestNav application from the Apple Store, the Google Chrome Web Store, Google Play, or go to

http://mcas.pearsonsupport.com/technology-setup/. Instructions on setting up and managing these devices are available at https://support.assessment.pearson.com/x/HgACAQ.

4. Test the "lock down" settings.

Student testing devices must be able to operate in a "lock down" state to temporarily disable features and applications that could present a security risk.

Schools can test the security lock down settings following these steps:

- For the TestNav app, open TestNav and navigate to the Massachusetts sign in page, and then click the user icon in the top right and choose "App Check" from the menu.
- A success message should display within a few seconds.
- If there is an error message, review the device setup instructions for the TestNav app or contact the MCAS Service Center.
- If the Configuration Identifier is entered, the App Check will also verify that the device can connect to the ProctorCache computer and has the appropriate permissions to the primary and if specified, the secondary save locations. The identifier can be found in PAN on the **Create/Edit TestNav Configuration** page (Setup > TestNav Configurations > Create/Edit TestNav Configurations).

Note for ChromeOS devices: Peer-to-peer (P2P) networking should be disabled on ChromeOS devices. It if is available, devices can automatically update Chrome from nearby devices of the same model, resulting in an interruption in testing. Turn off this option in the Google Admin Console; it will help reduce errors and/or interruptions during testing. See Appendix B, section 1 (Technology Set-Up) for instructions on how to disable P2P networking on Chromebooks.

5. Download and install ProctorCache software.

The Department recommends installing and using ProctorCache software to locally deliver test content to student testing devices. ProctorCache is loaded by the school or district to a designated desktop computer (that will not be used as a student testing device), which downloads test content prior to testing and delivers the test to student devices.

It is recommended that precaching be done at the **school level** instead of the district level, in order to reduce bandwidth issues and to limit the risk of a student device losing connection with the precaching machine, which could result in a disruption to testing.

Most desktop computers can serve as the precaching device; review the technology specifications for the minimum requirements.

ProctorCache software for Windows operating systems can be downloaded from http://download.testnav.com/, where system requirements are also posted. For more information on installing and using ProctorCache, refer to the TestNav User Guide.

Schools using Mac OS devices for their proctor caching machine 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.

Once installed, ProctorCache provides access to a diagnostic monitoring web page, which allows school technology staff (if caching at the school level) or district technology personnel (if caching at the district level) to verify that test content has been successfully cached prior to testing.

Locate the caching computer's IP address, type **http://<IP address>:4480** in your browser, and then click **Enter** to view the caching interface. You will see three tabs: **Tests**, **Clients,** and **Help**. Select the **Tests** tab for information about test content and caching status. Select the **Clients** tab to monitor client connectivity.

6. Create the TestNav configuration.

The TestNav configuration will notify the student device where to access test content from the precaching machine once content becomes available. You may also change the default save location for encrypted backup files for TestNav in the TestNav configuration.

To create a TestNav configuration for your organization, select **TestNav Configurations** from the **Setup** menu on the PearsonAccess^next homepage, and select **Create/Edit Configurations** from the **Select Tasks** dropdown menu, and complete the following steps.
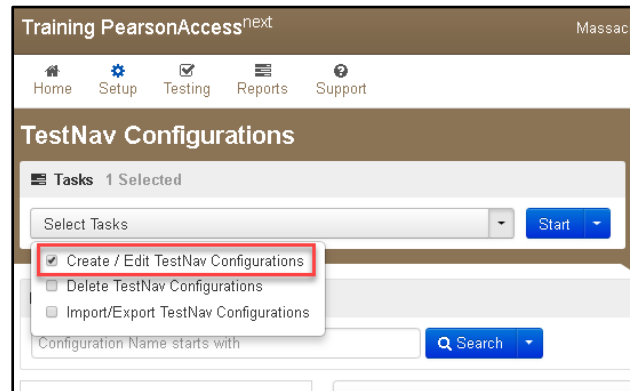
a. **Complete the "Details" fields.**
   - Enter a Configuration Name.
   - Select the Precaching Computer Override option (recommended for most devices/configurations). If selected, this will allow students to continue testing, even if they lose connection to the ProctorCache computer. This may slow the loading time of the tests as the testing devices will no longer be getting content from a local device, but there will be no testing disruption.
   - Select the school/organization that will use this configuration from the **Organizations** dropdown menu.

b. **Complete the "Default Precaching Computer" fields.**
- Enter a **Computer Name** for the precaching machine.
- Enter an internal network **IP Address** of the precaching machine.
- Enter the **Port** number for the precaching machine, which will be 4480 for Pearson supplied ProctorCache software. If you will be using a non-Pearson supplied caching solution, uncheck the box next to "Uses Pearson Precaching Software" and then use the correct port for the non-Pearson software.

c. **Complete the "Response File Backup Locations" fields.**
- Enter the **Primary** and **Secondary** save locations for the students' backup files, which will be encrypted. There are options for Windows, Mac, and Linux devices, and there is an option to use an SFTP file backup location for mobile devices.
- For the primary location, the Pearson default location (i.e., the Pearson folder in the user's home directory) is recommended. The Department recommends that a secondary save location also be designated on an internal network location.

> d. Click "Create" to complete the configuration.

7. Precache test content by using the "Precache by Test" function.

> a. Select "Precache by Test" from the "Setup" dropdown menu.
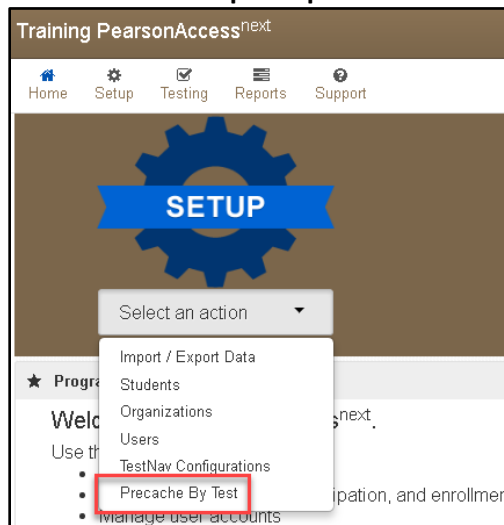
> b. Select the test(s) to cache and the "Precache Server," and then click "Precache."

c. **Click "Precache" in the pop-up message confirming the precaching computer.**

The designated precaching computer (HS Library at 192.168.100.14:4480) is running Pearson-supplied precaching software, so this is being used to cache the test content.

Number of forms: 99
Total number of content elements: 16958
Size: 348,832 KB

Click below to start the caching process

[Precache]

Note: This window will automatically close 30 seconds after the caching process begins.

d. **A new window will open the ProctorCache diagnostic screen showing the precaching status.**
You may need to enable pop-ups in your browser for PearsonAccess[next] to see this screen.

8. Perform a "Preliminary System Test" (recommended).

Prior to students taking part in the Infrastructure Trial, the technology coordinator should perform a Preliminary System Test. The Preliminary System Test is an informal, small-scale Infrastructure Trial to help ensure systems are set up and in place before students participate. Technology coordinators should work with the principal or school test coordinator to follow the steps to create sample student records and a PAN Session. Then, technology staff will log into several student devices and access a practice test to confirm that they are able to connect to the precache computer.

9. Perform the following steps during the Infrastructure Trial.

a. **Ensure ProctorCache software is running.**
Locate the caching computer's IP address and, then in your browser, type **http://<IP address>:4480** and then press **Enter** to view the ProctorCache interface. View three tabs: Tests, Clients, and Help. Select the **Tests** tab for information about test content and caching status. Select the **Clients** tab to monitor client connectivity.

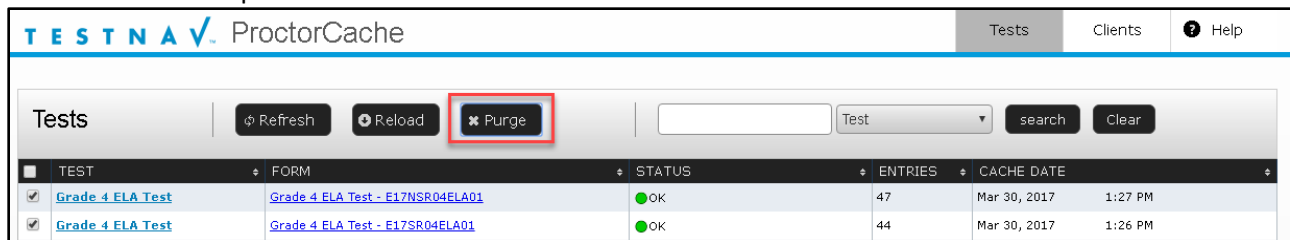b. **Monitor network performance for slowdowns or ISP bandwidth usage.**
  - If testing devices are using a wireless connection, monitor the connections and verify that access point placement is sufficient for online testing
  - Provide technology support as needed to the principal or school test coordinator and to test administrators.

10. Perform the following steps after the Infrastructure Trial.

a. **Purge cached test content (recommended).**
Note that if content is not purged, it will show in the caching interface in the next CBT administration.

In your browser, type **http://<IP address>:4480** and press **Enter** to view the ProctorCache interface. Choose the **Tests** tab to select the content to purge. A password is required to purge; the default password is **t35t1n6**.

b. **Follow up on any issues that were identified.**
Following the Infrastructure Trial, there may be a need for technical follow-up and resolution prior to the operational test administration. Feedback from staff and students regarding TestNav performance, device connectivity, network performance, and access point placement, should be used to conduct follow-up activities with the Infrastructure Trial team.

IV. Generating Sample Student Records

Steps for the district test coordinator or principal/school test coordinator

The Department recommends using sample student records instead of actual student data. Schools should determine the maximum number of expected concurrent testers during operational testing (i.e., 300 students testing on one day at 10 a.m.) in order to conduct their Infrastructure Trial with the same number of concurrent testers. The principal or test coordinator will then need to create sample student records in the training site, creating as many sample records as the number of students expected to participate in the Infrastructure Trial, as well as a 10 percent overage in case of login complications.

Note: The ability to generate sample student records exists only on the PearsonAccess[next] training site (this cannot be done in the operational site).
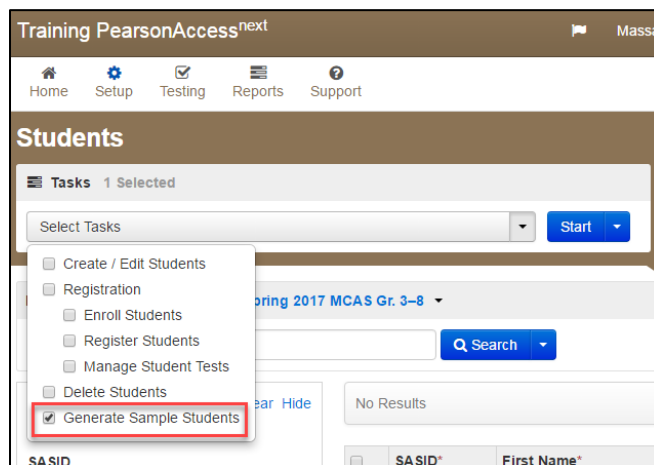
To create sample student records:
1. **Log in to the MCAS training site.**
Confirm that the correct administration is selected in the top right hand corner of PearsonAccess[next].

2. **Click "Setup," and then select "Students" from the dropdown menu.**
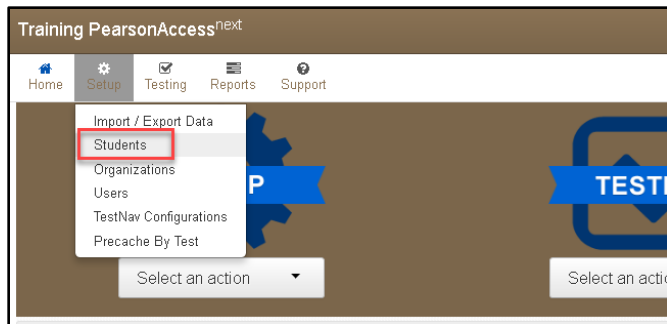
3. **Select "Generate Sample Students" from the "Select Tasks" dropdown menu, and then click "Start."**

4. **Populate the following fields in the "Generate Sample Students" screen, and then click "Generate."**
   - **Organization**: Select your school/organization.
   - **Group**: Select **Create New Group,** and enter a group name that is easy to find (e.g., grade, subject, and location). This will be used later to add students to a PearsonAccess^next^ Session.
   - **Student Grade**: Select the grade for which the students are reported in SIMS.
   - **Test**: Select the appropriate subject area test from the dropdown menu.
   - **Test Format**: Select **Online.**
   - **Number of Students**: Enter the number of students. It is recommended that you create at least 10 percent more students than needed, in case additional student testing tickets are needed.

Repeat steps 2–4 for each grade/subject group of sample students to be created.

V. Administering Accommodated Practice Tests

Steps for the district test coordinator or principal/school test coordinator

Most, but not all accommodations and accessibility features are available for the practice tests administered as part of the Infrastructure Trial. All accommodated tests can be taken on the TestNav app for the spring 2019 CBT administrations, although it is recommended to test third party software and hardware prior to live testing to ensure compatibility with the app.

The following PNP-enabled accessibility features are available for practice tests in the Infrastructure Trial:

- **Alternative Background and Font Color**: The Alternative Background and Font Color is available for the all of the grades 3–8 and 10 practice tests, and the practice tests for the high school Biology and Introductory Physics field tests.
- **Answer Masking**: Answer Masking is available for all of the practice tests (listed above).

The following accommodations are available for practice tests in the Infrastructure Trial. Where noted by an asterisk, practice test editions are only accessed in the Infrastructure Trial and not via the app or in the MCAS Resource Center.

- **Text-to-Speech**: Text-to-Speech is available for all of the practice tests.
- ***Assistive Technology**: The Assistive Technology (AT) accommodation is available only for the grade 3 ELA practice test; it is meant to be a sample for school staff to ensure that students' external AT software/hardware function as expected with TestNav prior to operational testing.
- ***Screen Reader**: The Screen Reader accommodation is available only for the grade 3 Mathematics practice test; it is meant to be a sample for school staff to ensure that students' external Screen Readers (e.g., JAWS) function as expected with TestNav prior to operational testing.
- **Human Reader/Human Signer**: These accommodations involve assigning a proctor ticket, so the students ***must*** be placed in a separate PearsonAccess^next Session marked as a Human Reader/Human Signer session. More information on this can be found in the *[Guide to the Student Registration/Personal Needs Profile (SR/PNP) Process](#)*. These accommodations are available for all of the practice tests (listed above).
- **Spell-Checker**: The Spell-Checker accommodation is available for all grades 3–8 and 10 ELA practice tests.

For more information about accessibility features and accommodations, refer to the *[Guide to the SR/PNP Process](#)*. For information about assistive technology, refer to the [Guidelines for Using Assistive Technology as an MCAS Test Accommodation](#).

These accessibility features and accommodations, including accommodated test forms, **must be assigned prior to preparing and starting a PearsonAccess^next Session**. Use the following steps to assign accessibility features and accommodations.
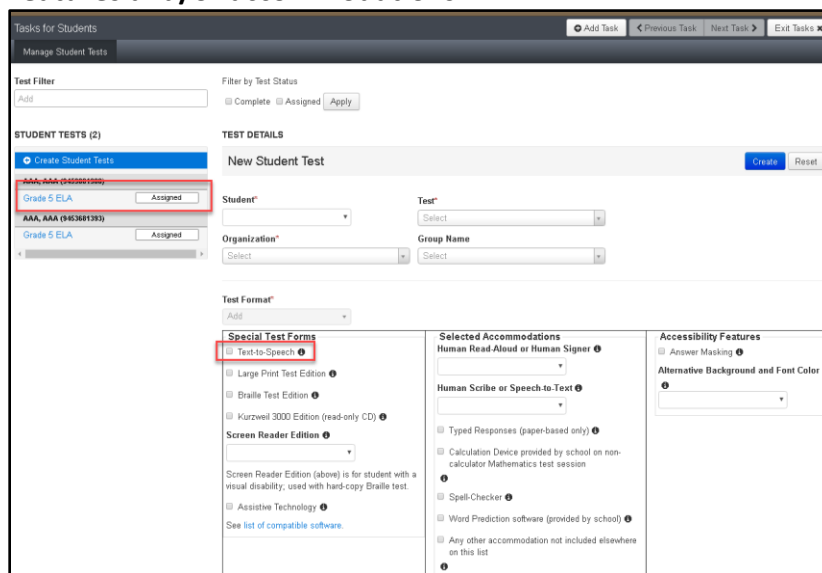
1. Click "Setup," and then select "Students" from the dropdown menu.
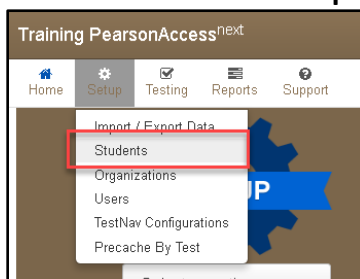
2. Select the student whose test will be assigned an accommodation, and select "Manage Student Tests" from the "Select Tasks" dropdown menu.
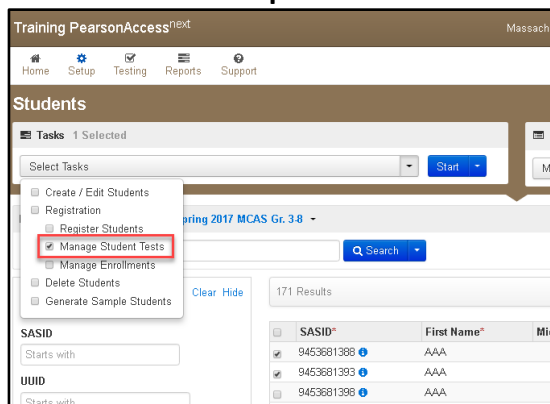
3. Select the subject area test on the left-hand side of the screen, and select the appropriate accessibility features and/or accommodations.

4. **Recommended: Rename the student so that the accommodated test is easier to find. Select the "Add Task" button on the top black bar, and then select "Create/Edit Student" and select the student record on the left to update the name and click "Save."**

VI. Creating PearsonAccess^next Sessions

Steps for the district test coordinator, or principal/school test coordinator

After sample student records have been created, the district test coordinator, principal or school test coordinator will need to create online PearsonAccess^next Sessions for the sample student practice tests, which are grade- and subject-specific. A PearsonAccess^next Session is a group of students in PearsonAccess^next who will be testing at the same time and place. (This is different from the actual test session, a term used for administration.)

Recommendations for creating PearsonAccess^next Sessions:
- Create a unique PearsonAccess^next Session for each group that will be testing.
- Include the testing location and the name of the test administrator in the name of the PearsonAccess^next Session.

1. **Create PearsonAccess^next Sessions.**
   a. **Click "Testing," and then select "Sessions" from the dropdown menu.**
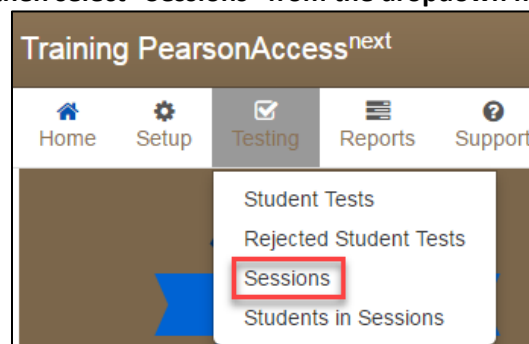
b. Click "Select Tasks," select "Create/Edit Sessions," and then click the blue "Start" button.

c. Complete the "Details" screen.

- Enter the **Session Name**, and then select the **Organization** from the dropdown menu.
- Complete the **Test & Form** section by selecting the **Test Assigned** dropdown menu and choosing the appropriate practice test from the dropdown.
- Set **Form Group Type** to **Standard** from the **Form Group Type** dropdown.
- Select the **Precaching Computer** from the dropdown menu (if there are no options in the dropdown, see page 6 ["Create the TestNav configuration"] to create the precaching computer configuration).
- Enter the **Scheduled Start Date** and the **Scheduled Start Time**. (These are meant to be used for planning purposes only; entering incorrect information will not have an effect on when the practice tests can actually be administered.)
- Click in the box underneath "Students" to add individual students or click on the dropdown arrow next to the school code to instead find by group name (as shown in the following step).

d. When selecting the option to find groups, the screen changes as shown below:

e. Click "Create."

2. **How to add additional sample student records to a PearsonAccess[next] Session that has already been created (if necessary).**

Follow the steps below to add student records to PearsonAccess[next] Sessions, if the students were not included in the Session when it was created.

a. **Click "Testing," and then select "Students in Sessions" from the dropdown menu.**
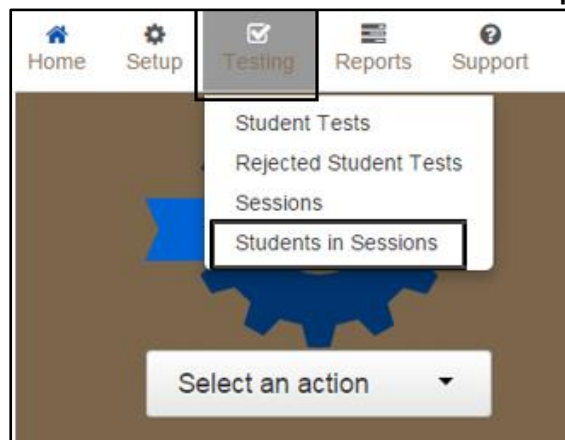
b. **Select "Add a Session," and search for the name of the Session to which you will add students.**
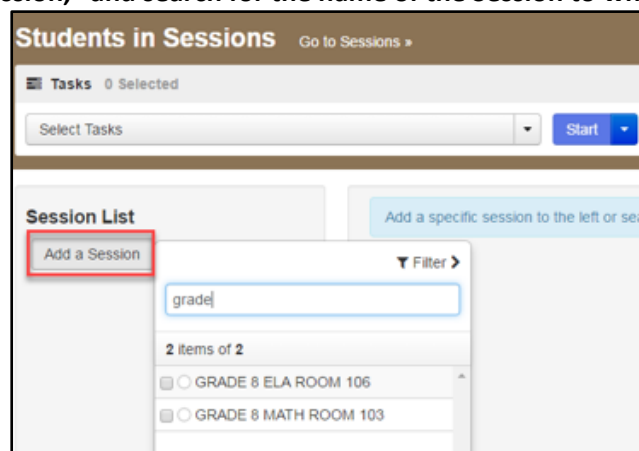
c. **Select the checkbox next to the name of the Session, and then click "Add Selected."**

d. **Click on the "Tasks" menu, and select "Add Students to Sessions." Then click "Start."**

e. **In the "Find Available Students" box, find students to add to the Session.**
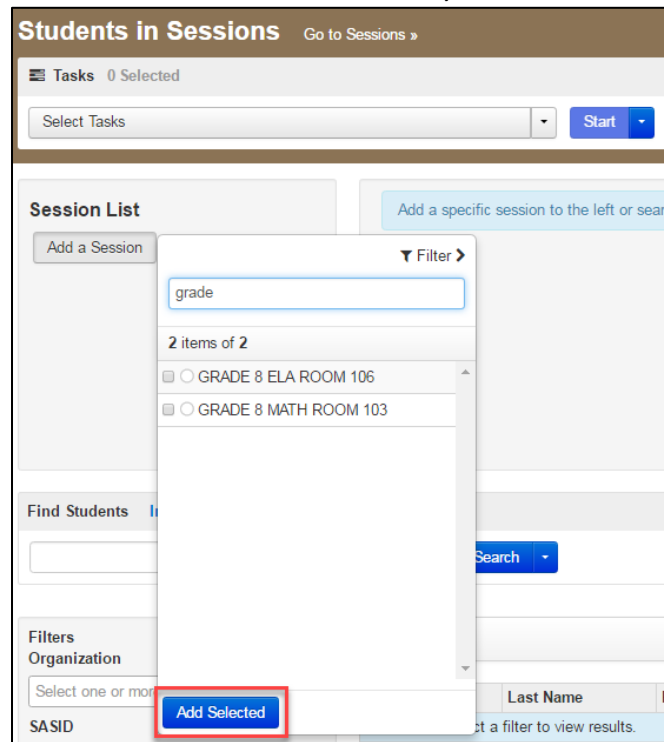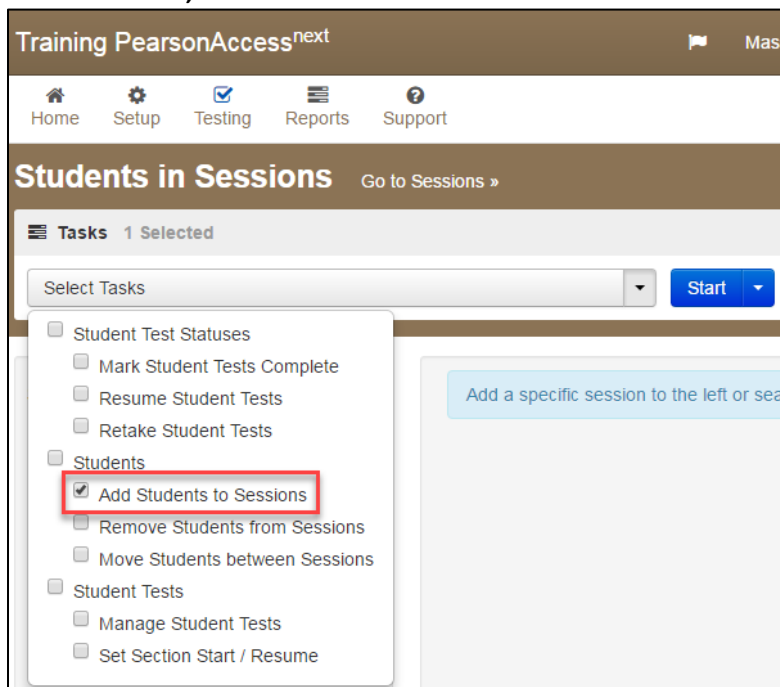Search for students by last name or select the "Show all Results" checkbox to see all available students. To add students from a previously created group, select the blue dropdown and select the "by Group" option.

f. **Select the student(s) to be added and click the "Add" button.**

VII. Preparing and Administering the Infrastructure Trial

Steps for the district test coordinator or principal/school test coordinator

1. **Prepare each PAN Session.**
PAN Sessions must be prepared by the principal or school test coordinator before they can be started. Preparing a test session assigns the test form for the students, so it is important to make sure PNP information has been updated so sample students can be assigned an accommodated form, as necessary. Preparing a test session may take a few minutes depending on the number of students in the session, preparing multiple sessions may take a longer time. It is recommended to prepare sessions the day before planned testing to ensure that all forms are assigned correctly.

   a. **Go to the "Testing" tab and click "Students in Sessions".**
   b. **Locate and click the session name from the Session List.**
      The **Sessions Details** screen will appear for the session selected. If multiple sessions are selected, the option to **Combine View** and **Prepare all Sessions** appears.
   c. **Click the blue "Prepare Session" or "Prepare All Sessions" button**.

2. Print student testing tickets.

Student testing tickets include a login ID and password to log in to the practice tests, and are generated for each student added to a PAN Session.

a. **Once logged in to the training site, click "Testing," and then select "Students in Sessions" from the dropdown menu.**
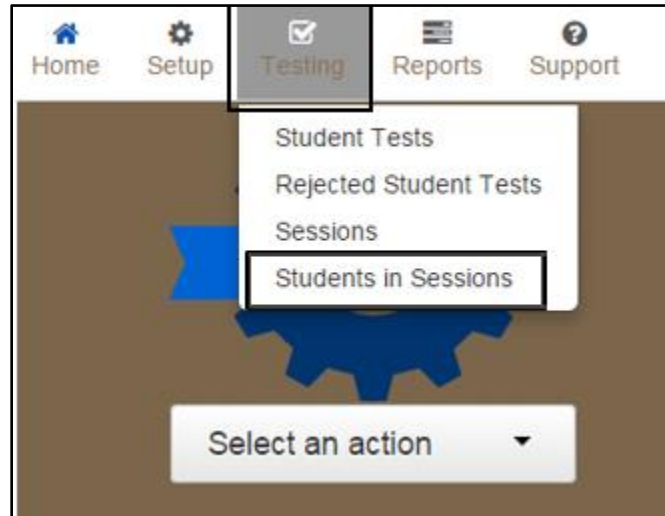
b. **Select "Add a Session," and then search for the PearsonAccess^{next} Session.**
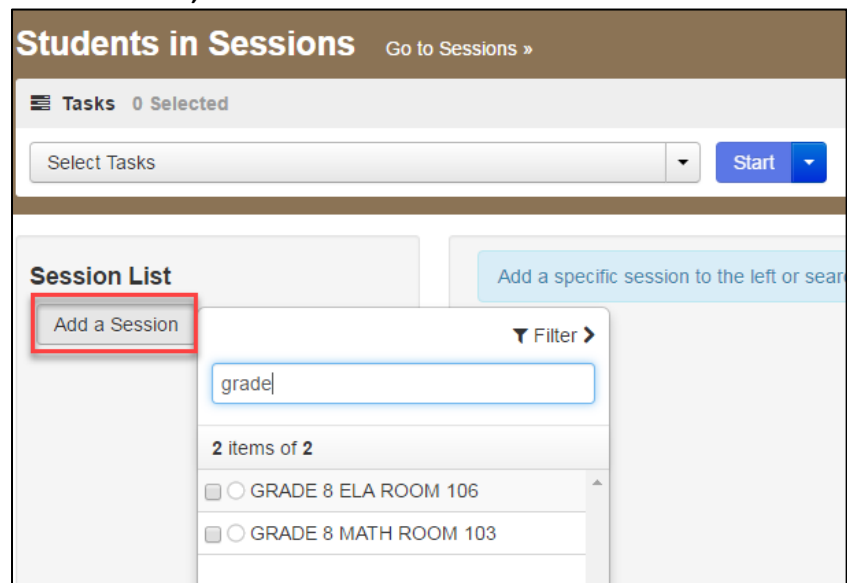
c. **Select the checkbox next to the Session name, and click "Add Selected."**

d. To print student testing tickets, click on the "Resources" dropdown. There will be options to print tickets for all students or selected students.
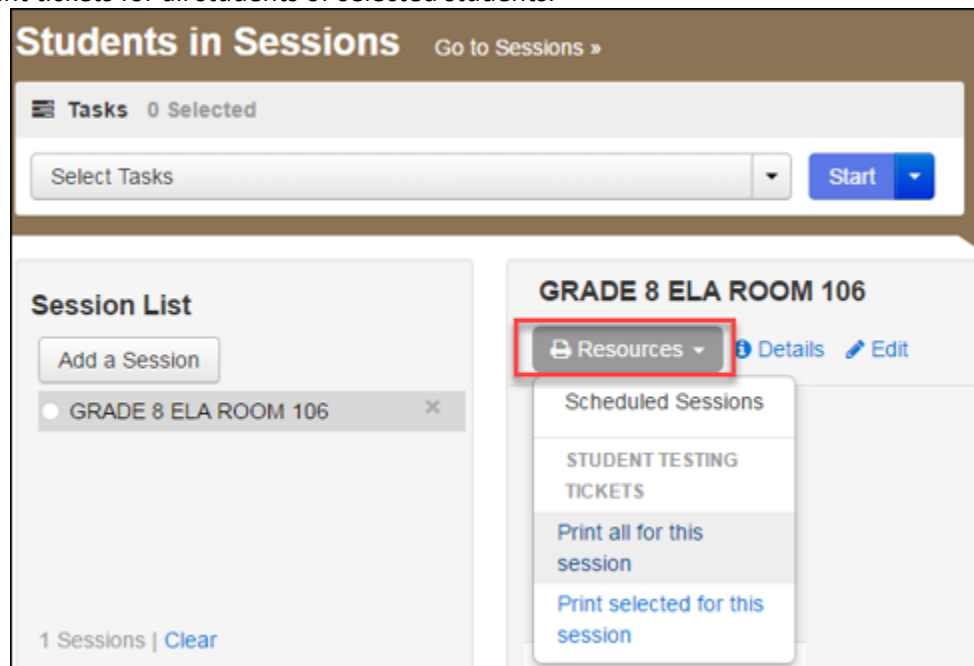
3. **The principal/school test coordinator or test administrators should verify the following with technology staff:**
   - all devices to be used for testing are charged.
   - sufficient power cords and power strips are available.
   - accessories, such as external keyboards for tables and headphones for students using the text-to-speech edition, are available and in working order prior to testing.

VIII. The Day of the Infrastructure Trial

Steps for the district test coordinator or principal/school test coordinator

1. Start the PAN Session.

a. **Click "Testing", and then select "Students in Sessions" from the dropdown menu.** (See a screen shot on page 16.)

b. **In the "Session List", click on the names of the Sessions to start**. The **Session Details** screen will then appear for the selected Session(s). (If two or more Sessions were selected, options to **Combine View** and **Start All Sessions** will appear.)

   c. **On the "Session Details" screen, click on the green "Start Session" (or "Start All Sessions" button).** After clicking this button, it will change to a **Stop Session** button.
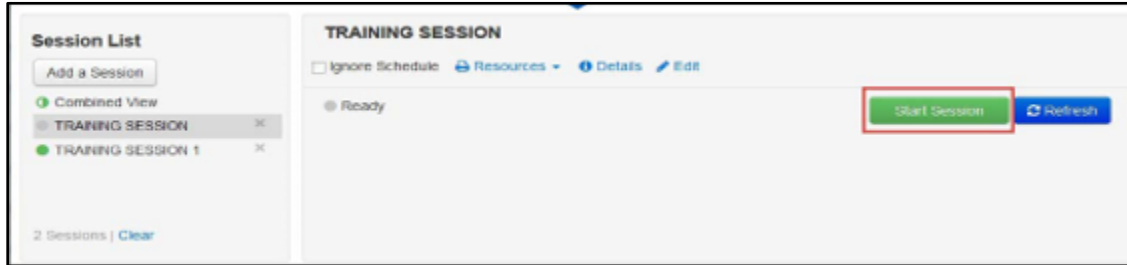
2. **Prepare testing devices:** Launch the TestNav app on all testing devices.

3. **Distribute student testing tickets and proctor testing tickets if applicable:** Ensure that test administrators have the student testing tickets for all students assigned to them, and proctor testing tickets for the Human Reader or Human Signer accommodations.

4. **Direct test administrators and students to testing locations:** Direct test administrators and students to their assigned computer lab or other testing location.

5. **Conduct the test sessions:** Test administrators will unlock the sessions and have the students log into TestNav. This marks the beginning of the test session. The following section contains steps for test administrators during the infrastructure trial session.)

6. **Oversee test administration**: During each test session, principals or school test coordinators should monitor the administration to ensure that testing is being completed as expected.

7. **Complete testing**: Students will complete two sessions for Mathematics, one for ELA and one for STE.

IX. Steps for the Test Administrator to Administer the Infrastructure Trial Practice Tests

A. Materials Needed for Infrastructure Trial

1. **You will need the following materials available in your testing space prior to the Infrastructure Trial:**
   - testing devices for students
   - a computer with which to monitor testing sessions

2. **Prior to the Infrastructure Trial, you will receive the following materials for students assigned to you by the principal or school test coordinator:**
   - student testing tickets
   - proctor testing tickets for Human Reader or Human Signer accommodations, if applicable
   - scratch paper

3. **Additional Preparations for Computer-Based Testing**
   - Ensure all devices to be used for testing are charged.
   - Make sure sufficient power cords and power strips are available.
   - Confirm that accessories, such as external keyboards for tables and headphones for students using the text-to-speech edition, are available and in working order prior to testing.

B. Before Students Arrive

1. **On the test administrator device, log into the PearsonAccess^next training site (https://trng-mcas.pearsonaccessnext.com) and view your PAN Session on the Students in Sessions page.**

2. **Start your session.**

3. **Unlock students' tests.**

Students' tests will be locked, by default, in the **Students in Sessions** screen when a PearsonAccess^next Session is started. Students will not be able to log in until the first test session has been unlocked by the test administrator. The test administrator can unlock a test session for the entire class by selected the unlock bar at the top of the **Students in Sessions** page.
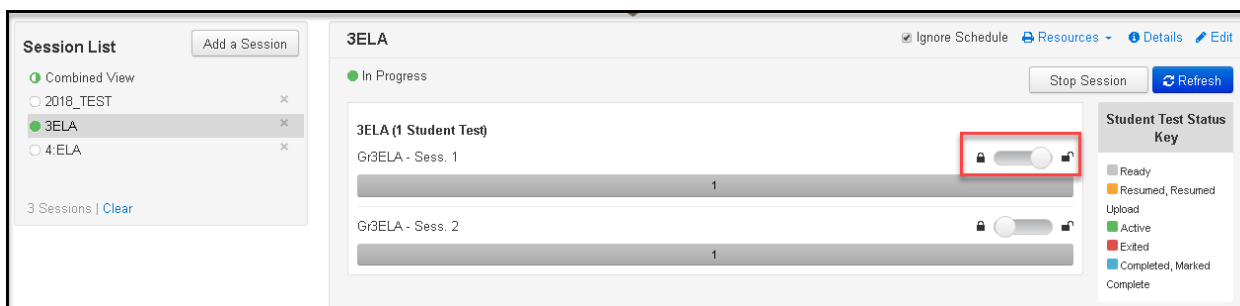
Individual students' tests can also be unlocked one at a time by selecting the lock dropdown for a test session found to the right of the student's name on the **Students in Sessions** page.
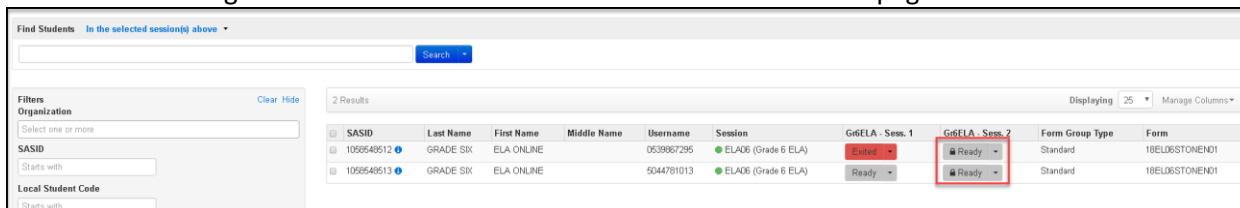
C. Administer Infrastructure Trial (use of the script is optional)

The following script is provided in order to assist test administrators with the administration of the Infrastructure Trial practice test. Unlike the scripts in the *Test Administrator's Manuals* for use during testing, test administrators are not required to read the script verbatim.

1. Say to students:

   "**Our school is about to begin a practice session for the computer-based MCAS test. This is an opportunity for you to practice MCAS questions in an**

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environment similar to that of the real test. You should use this practice test to become more familiar with the computer-based testing system, and with MCAS questions. Your responses on this practice test will not affect your actual MCAS scores in any way."

2. Then say to the students:

    "I will now distribute scratch paper for you to use during the session. If at any point you need more, raise your hand and I will give you an additional sheet. You may have up to three pages of scratch paper at one time."

3. For students using the text-to-speech or screen reader accommodation, which requires headphones, say:

    "Put on your headphones and make sure they are plugged in. On your screen next to the 'Sign In' button, click the link that says 'Test Audio.' Ensure you can hear through your headphones and adjust the volume as needed."

4. Then say:

    "I will now distribute the student testing tickets. Do not sign in until I instruct you to do so."

5. Distribute the student testing tickets. Testing tickets may or may not have student names on them depending on how the tests were set up for Infrastructure Trial. Make sure you do not hand out proctor testing tickets since responses are not saved in a test accessed with a proctor testing ticket.

6. Say to students:

    "Now, on the computer, enter the username that is shown on your student testing ticket. Your username is a number that is 10 digits long."

    Assist any student who needs help entering his or her username. Then say:

    "Now, on the computer, enter the password that is shown on your student testing ticket."
    Assist any student who needs help entering his or her password.
    Then say:

    "Now, click the button that says 'Sign In.'"

    Walk around the room and make sure that all students have successfully signed in. Assist any students who did not successfully sign in. You may retype usernames and passwords for students, if necessary.

7. Once students are properly signed in, say:

    "Your computer screen should now be at the 'Available Tests' screen."

8. Say to the students:

> **"Please keep your testing ticket with you and do not use it for scratch paper. I will need to collect it at the end of this test session.**
> **Click the blue button on the screen that says 'Start.' You should now see a screen that says 'Welcome.'**
> **Click the box in the middle of the screen that says 'Start.' You should now see a screen that says 'Session 1' at the top and states the number of questions below. If your screen does not say 'Session 1,' please raise your hand."**

Assist any students who are not at the correct screen.

9. Then say to all students:

> **"Please read the directions that are on your screen."**
> Pause to allow students to read the directions.

10. Then say to all students:

> **"Click the 'Start' button. You may now begin your test."**

11. At the **end of the session,** say to any students still working:

> **"This is the end of the time scheduled for this session. At the top of the screen, click 'Review' and then click 'End of Section.' Click the 'Submit Final Answers' button to submit your answers. On the popup screen, confirm you'd like to 'Submit Final Answers.' When you've submitted your answers, exit the test by going to the User Dropdown Menu at the top, right hand corner of the screen and click 'Sign out of TestNav.'"**

X. Monitoring the Infrastructure Trial

Steps for the Test Administrator to Monitor a Practice Test Session as Part of the Infrastructure Trial

A. How to Monitor PAN Sessions

Once an online test session has started, there are several tasks the test administrator may be responsible for, including resuming students, locking/unlocking sessions, and marking tests complete. The test administrator must have his or her own device to monitor the session and perform these actions.

The test administrator can use the **Students in Sessions** page to monitor students as they progress through each test session. The top of the **Students in Sessions** page contains a status bar for each test session. Underneath the status bar, each student will be listed, and the test administrator will be able to see the status of any particular student, as shown on the following page.

B. Test administrator Tasks in PAN

The following table lists the statuses that may appear for a student in the **Session Details** and a description of what each status indicates.

Student Status Key	
Status	**Description**
Ready	The student has not logged in to the session yet, but is ready to log in.
Active	The student is currently logged into the test.
Exited	The student has exited the test session, but has not submitted his or her responses yet (after a test session, after logging out to take a break, or if an error occurs). Students in Exited status will need to be resumed by a test administrator when they are ready to reenter the test. If a student logs out of a test session or if the testing device loses connectivity before the test is completed (or marked complete), the test will appear in Exited status. The test administrator will then need to resume the student's test (and the student will then appear as Resumed).
Completed	The student has completed the test session and has successfully submitted his or her responses.
Marked Complete	The student's test session has been marked complete by the principal/ designee (the student did not submit his or her test in TestNav him- or herself).

Resumed	The student is ready to log back into the test session. This status appears after a student has completed one test session for a subject area but not both, if a student returns from a break and is ready to continue testing in that session, or when attempting to continue after an error occurs.
Resumed-Upload	The student is ready to log back into the test session, and some responses were not sent to the testing subcontractor's (Pearson's) servers before the student exited the test. When the student logs into a test with a Resumed–Upload status, a staff member must be present. TestNav will prompt the user to locate the saved responses from the designated save location and upload them to TestNav before the student's test can be resumed.

C. How to Resume Students' Tests

If students exit the test for a break, or due to technical error, they will need to be resumed prior to reentering the test. Students can be resumed one at a time, or many at a time.

To resume one student at a time, go to **Testing > Students in Sessions** and select **Resume** from the dropdown next to the student's name.

To resume more than one student's test, go to **Testing > Students in Sessions**. Be sure the PAN Session is selected in the **Session List**. Check the box next to the student names whose tests are to be resumed, and select **Resume Student Tests** from the **Select Tasks** menu. Click **Start**.

Select the students whose tests you would like to resume, and click **Resume**.

After clicking Resume, a message will display stating **Success, changes saved.** Click **Exit Tasks** to return to the **Students in Session** screen. The resumed student(s) will now be able to reenter the test.

D. How to Stop a PAN Session

Before a PAN Session can be stopped, all students in the PAN Session must be either in Completed or Marked Complete status. You may also need to remove any Ready students who received testing tickets but did not log into the test.

To remove "Ready" students from a PAN Session:
- Go to **Students in Sessions** and check the box next to the student record(s) to be removed.
- Select **Remove Students from Sessions** from the **Select Tasks** dropdown and click **Start**.

Check the box besides the student record(s) and click **Remove**. Click **Exit Tasks** to return to the **Students in Session** screen.

To mark a student's test complete for a student who logged on, but did not complete the test:
Go to the **Student in Sessions** page and check the box next to the student record(s) that need to be marked complete.

Select **Mark Student Tests Complete** from the **Select Tasks** dropdown. Click **Start**.

Enter the reason for marking the test complete. Click the **Mark Complete** button.

Once all students in a Ready status have been removed, or are in a Completed or Marked Complete status, select the **Stop Session** button on the **Students in Sessions** page.
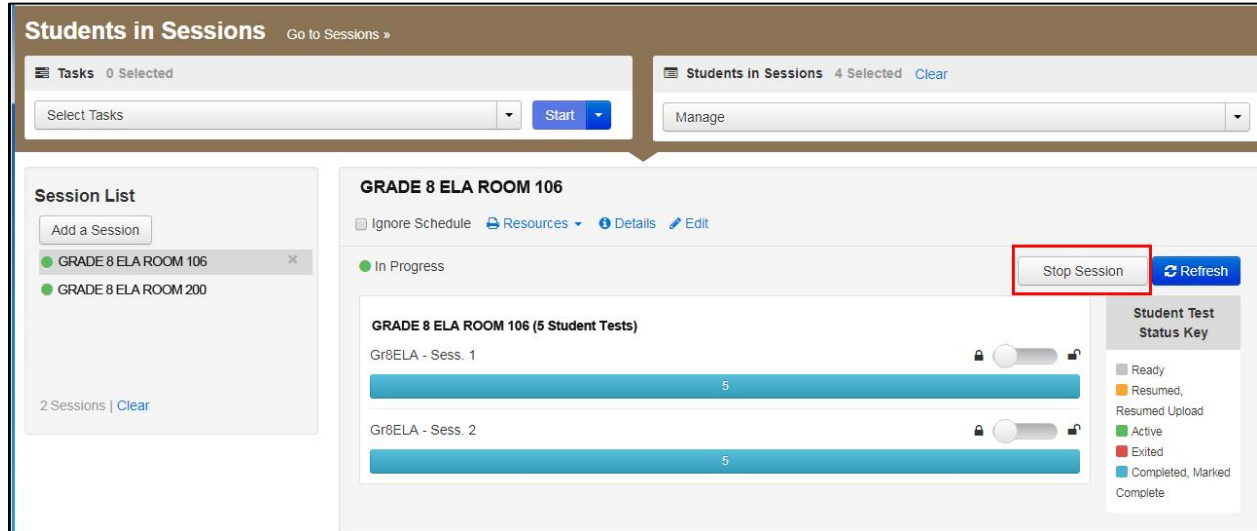
XI. Follow-up

Steps for the district test coordinator, principal/school test coordinator, test administrators, and the technology coordinator

Once the school's Infrastructure Trial has been completed, staff participating in it should review their notes. Follow-up steps include the following:
- Share any notes regarding the need for support with the principal or test coordinator.
- Report to the principal or test coordinator any issues that could not be resolved with assistance from the MCAS Service Center.

Appendix A: Terms Related to Computer-Based Testing

PearsonAccess[next] (PAN): The online test management system for principals/test coordinators, technology coordinators, and test administrators to manage user accounts, register students, and upload selected accessibility features and accommodations via the Student Registration/Personal Needs Profile (SR/PNP), assign student tests, and set up Sessions. The PAN operational site is available at mcas.pearsonaccessnext.com/.

PearsonAccess[next] Training site: The online practice site to run the Infrastructure Trial. Usernames and passwords for the training site will match those for the live site. The training site is available at trng-mcas.pearsonaccessnext.com/.

PearsonAccess[next] Session: An assigned group of students in PearsonAccess[next] who will be testing at the same time and place. (This is different from the actual "test session.")

ProctorCache: This software will be available to all schools as part of the TestNav delivery platform. Precaching is the process of loading (i.e., "caching") test content locally to a desktop computer at a school that will be designated as the precaching computer. Precaching reduces test delays from network congestion and provides students with a more seamless testing experience in the event of disruptions to Internet connectivity. The Department recommends that schools use ProctorCache. Minimum requirements and a link to download ProctorCache can be found at mcas.pearsonsupport.com/technology-setup/.

TestNav: This is the online test delivery platform for students. Technology requirements and set-up instructions can be found at mcas.pearsonsupport.com/technology-setup/.

Appendix B: 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
Verify that devices and operating systems meet system requirements prior to testing.	• Visit the system requirements 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.	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.

Best Practice	Steps to Take	Description
		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

Best Practice	Steps to Take	Description
		weeks, and releases minor updates approximately every 2–3 weeks.
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

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* for details.) Ensure that devices will be charged prior to each test session.	• Use this device planner 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

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).
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.
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.
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/.