SYSTEM AND TECHNOLOGY GUIDE

for the MAP Growth™ and MAP Skills™ assessment

About This Guide

This *System and Technology Guide* is written for anyone who:

- Needs to understand the technology requirements for Web-Based MAP® and Skill Navigator®
- Prepares the network environment
- Prepares computer devices

Main Sections:

- **A: Review System Requirements on page 2**
- **B: Set Up Desktop Computers on page 6**
- **C: iPad Setup for Students on page 10**
- **D: Chromebook Setup for Students on page 12**
- **E: Staff Access to MAP Suite on page 13**

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A: Review System Requirements

Here are the minimum system requirements for the MAP® suite.

Student Testing Requirements

Device	Operating System	Browser for MAP	Browser Choices for MAP Skills™
Windows® PC	Windows 7, 8, 8.1, or 10	MAP lockdown browser for PC, July 2015 release required* Note: Installation includes .NET Framework, which is required.	Firefox# 45 or higher, Chrome 41 or higher
Macintosh®	Mac OS® X v10.8 to 10.12 †	MAP lockdown browser for Mac, Aug 2013 release (3.0.0.2) or later recommended, running on Safari® 6.2 minimum – 10 max ‡	Safari 6.2 minimum – 9 max, Firefox# 45 or higher, Chrome 41 or higher
iPad®	iOS 8, 9, or 10 **	MAP Testing App (see iPad setup) Latest update: July 2016	Safari® 8 minimum – 9 max (no App needed)
	Note: Testing not supported on iPad v.1, and Pro models require the latest MAP Testing App		
Chromebook™	Google Chrome™ OS 41 or higher	MAP Chromebook Testing App (see Chromebook setup) Latest update: July 2016	Chrome 41 or higher

* Check your version—On each PC, you can start the lockdown browser and type: Ctrl+Alt+V. If the pop-up that appears is a version below 5.0.185.0, you must re-install with the latest version, available from the MAP homepage.

† ‡ ** # Support ends on July 2017 for: Mac OS X v10.8; Safari 6 and 7, iOS 8, and Firefox versions below 50. Also, Mac OS X v10.9 support ends July 2018.

Other requirements: Bring headphones for primary grades testing. Recommended: Set up computer user accounts dedicated to testing, and disable assistants like Siri and Cortana.

Teachers and Staff Requirements

Device	Operating System	Internet Explorer	Safari	Firefox	Chrome
Windows® PC	Windows 7, 8, 8.1, or 10	10 or 11	Not supported	45 or higher #	41 or higher
Macintosh®	Mac OS® X v10.8 to 10.12 †	Not supported	Safari® 6.2 minimum – 10 max ‡	45 or higher #	41 or higher
Chromebook™	Google Chrome OS (v41 or higher is best)		— Not supported —		41 or higher
iPad®	Not supported at this time				

Other requirements: PDF viewer, such as Adobe Reader®. Also, follow specific browser settings, such as allowing cookies and pop-ups for the MAP URL; see **Configuring Browser Settings on page 13**.

† ‡ # Support ends on July 2017 for: Mac OS X v10.8; Safari 6 and 7, and Firefox versions below 50. Also, Mac OS X v10.9 support ends July 2018.

Hardware Specifications

Computer hardware must meet the minimum requirements specified by the manufacturers of the operating system and browser in use. Hardware that exceeds the minimum is recommended for an optimal experience. The resources for the MAP suite are similar to other Web-based applications. For computer display, follow these specifications:

- Screen Resolution Minimum: 1024 x 768 for students, and 1280 x 1024 for staff
- Color Depth: 32-bit recommended (minimum 16-bit)

Network Bandwidth

The following bandwidth recommendations are based on best estimate calculations. Test sites that do not meet these recommendations will be able to deliver assessments, but may experience delays.

- Standard testing — **2 Mbps** for every 30 computers concurrently testing
- Grades K-2 testing — **3 Mbps** for every 30 computers concurrently testing. More bandwidth is required because of audio and interactive features
- Look for limitation points in your internal network (such as school-to-district connections when the district has the main Internet connection)
- You may need to calculate the bandwidth requirements separately for each test season, depending on the tests planned. The requirements increase when you test more students, more subjects, or more schools.

Note: Additional bandwidth is needed at the beginning of each test to load the initial test questions and the question display software into cache in each computer's browser. The initial load is approximately 2.2 MB, and the load time varies based on available bandwidth.

To perform an Internet speed test, use a Web site such as www.speedtest.net and select Portland, Oregon (the primary location of NWEA servers). For each building where testing will take place, perform the test at different times during the school day to understand the variations in bandwidth usage. Record the download speeds and use them to approximate your available bandwidth during testing.

Wireless Recommendations

Here are general guidelines for Wireless Access Points (WAPs), based on 802.11 g, n, or ac:

- under 25 devices per WAP = Okay
- between 26 to 50 devices = Check the performance
- over 50 devices = Try to decrease the number of devices
- WAP in the same room as the testing devices

In the WAP configuration, strive to limit connections to just testing devices. Also, limit devices to connect only with the closest WAP (for example, avoid overlapping channels and disable promiscuous mode on devices). During testing, monitor for interference from rogue WAPs, non-testing devices, and non-testing activities, like iOS updates. If errors occur, try disabling automatic load balancing.

Firewall and E-mail Configuration

For the following URLs, you should: add to your white lists, exclude from caching, and prioritize the traffic. Update both hardware (such as firewall, content filter, and proxy server/cache) and software (such as antivirus and anti-malware). Allow the changes to propagate before testing.

- **Sites for test and administration:**

For MAP suite:	`https://teach.mapnwea.org`
	`https://test.mapnwea.org`
	`https://cdn.mapnwea.org`
	`https://sso.mapnwea.org`

Also, if using MAP Skills™:	`https://skillsnav.mapnwea.org` `school.nettrekker.com`

- **Site for test warm-up practice (MAP only):**

  `http://warmup.nwea.org`

- **Sites for training and documentation:**

  `http://destinationpd.nwea.org/`
  `https://community.nwea.org`
  `http://nwea.adobeconnect.com`

- **Allow in e-mail spam filter (both server and clients):**

  `*@nwea.org`

  For example, MAP-AutoResponder@nwea.org is used to send login credentials to staff.

B: Set Up Desktop Computers

To ensure security during MAP Growth testing, students use a lockdown browser or similar technology. Lockdown browsers help secure testing by restricting access to resources other than the MAP test. You can download the lockdown browsers from the MAP system home page, and then install or distribute it to each computer.

To hide the browser controls...

...the lockdown browser displays in full screen and restricts navigation

Update Frequency—If updates are required for the lockdown browser, they typically occur during summer, ahead of the standard school year. However, there may be *optional* upgrades available mid-year to support new versions of operating systems or browsers.

Computer User Accounts for Testing

As a best practice, create a dedicated computer user account for use during MAP Growth testing and apply the following account settings. Actually, you may want two accounts: one with accessibility features disabled and a separate account for those students who need accessibility features enabled. Set up the account (or accounts) in your Windows or Mac group policy.

Alternatively, you could temporarily apply the following settings to your standard student accounts.

User Account Settings for Software and Network

- Disable virus and malware scanners because they can interfere with testing
- Prevent screen savers because they can interfere with testing
- Disable automatic updates to software and the operating system
- Extend the time for power-saving sleep mode to at least 30 minutes
- Disable any pop-up blocker software tools

Installing the Windows Lockdown Browser

For Windows computers, you use the **PC Version** lockdown browser, available from the MAP site home page (teach.mapnwea.org). It includes an installation program.

Note: In addition to extracting the required files, the installation also detects and automatically installs the required .NET Framework (version 3.5 or higher).

To install individually on a PC:

1. Log into the computer with an account that the student would use or with an administrator account.
2. To prevent student confusion, first remove the prior lockdown browser from the computer:
   a. Look on the desktop for a MAP testing icon.
   b. Click once to select it, and then press Delete.
3. In a browser, log into the MAP system.
4. From the MAP home page, download the **PC Version**.
5. Either run the installation at the download prompt, or save the file and then double-click the downloaded file, located here by default:

   `My Documents/Downloads/Setup Lockdown Browser.exe`

6. When prompted, accept the default installation directory or choose another location.

   Note: The installer detects whether this computer meets the .NET Framework requirements. If not, and you do not have administrator rights, then someone with administrator rights should perform the installation so that it can upgrade .NET. Alternatively, the administrator could upgrade .NET directly from the Microsoft Website.

7. To start the lockdown browser, choose:

   Start > All Programs > NWEA > Lockdown Browser > NWEA Lockdown Browser

To push installation over the network:

Network vs Local — Although you can push the lockdown browser executable over your network, the executable itself should run on each computer locally. Do not run the executable from a server, because testing will be too slow.

These steps require administrator privileges.

1. In a browser, log into the MAP system.
2. From the MAP home page, download the **PC Version**.
3. At the download prompt, save the file, located here by default:

   `My Documents/Downloads/Setup Lockdown Browser.exe`

4. At a command prompt, change to the download directory.
5. Choose the installer that works best with your software deployment tool, and then continue with the appropriate step:
   a. *Option A* = NWEA installer. Performs both system checks and the installation.
   b. *Option B* = Microsoft Installer Package (MSI). Performs installation only. Assumes your computers have the required .NET Framework.
6. *Option A:* To use the NWEA installer, use this syntax in your software deployment tool:

   ```
   "setup lockdown browser.exe" /v/qn
   ```

   Note: There's no space in the parameter /v/qn. You can also choose to run in silent mode by adding the /s parameter, which prevents the installation prompts:

   ```
   "setup lockdown browser.exe" /v/qn /s
   ```

7. *Option B:* To use the MSI package, first extract it from the download.
   a. At a command prompt, change to the download directory and type the extraction command:

   ```
   "setup lockdown browser.exe"/b"./
   ```

   b. Cancel the InstallShield prompt.
   c. Use this syntax in your software deployment tool:

   ```
   MSIExec /i "Lockdown Browser.msi" /qb ALLUSERS="1"
   ```

   Note: If your are overriding an existing installation, first uninstall the lockdown browser:

   ```
   MSIExec /x "Lockdown Browser.msi" /qb ALLUSERS="1"
   ```

To check the installed version:

If you have previously installed a lockdown browser, you can check the version number. Start the lockdown browser and type: **Ctrl+Alt+V**.

Mac Lockdown Browser Distribution

The Mac version of the lockdown browser does not involve an installation. Instead, you simply download the file to the Mac desktop of each computer before test-taking.

1. In a browser, log into the MAP system.
2. From the MAP home page, download **Mac Version**.
3. When prompted, save the file to your desktop.
4. Copy the downloaded file to other Mac computers or use automated tools to push it across the network.

   Network vs Local — Although you can push the lockdown browser executable over your network, the executable itself should run on each computer locally. Do not run the executable from a server, because testing will be too slow.

Checking Desktop Computer Readiness for Testing

Check each computer to ensure it is ready for MAP Growth testing. Allow time after checking the computers to resolve any issues before the first day of testing.

See also: Lab Readiness Checklist.

To check a student computer for readiness:

1. Start the MAP lockdown browser:

   On Windows, choose: Start > All Programs > NWEA > Lockdown Browser > NWEA Lockdown Browser.

   On Mac, look on the computer desktop for an icon:

2. Observe one of these results:
   - **Success:** The Join Session page appears.
   - **Failure:** The page identifies the computer components that failed. Make a note identifying the computer and its failing components.

     > **Important!** If you can print the errors page using **Ctrl+P** or **Command+P**, you are not using the lockdown browser. Return to step 1 and make sure you open the lockdown browser.

3. Close the lockdown browser by clicking the "X" in the upper right-hand corner.

   Note: If the "X" is not available, press **Ctrl+Shift+Q** to exit.

4. Resolve all failures or report them to the MAP System Administrator.

C: iPad Setup for Students

To prepare iPads for MAP Growth testing, install the **NWEA MAP Testing App**, which automatically opens to the student testing site (test.mapnwea.org) in full-screen mode.

- Access—Under the iTunes App Store, search for "NWEA MAP."
- Distribution—Use a mobile device management tool, such as Apple's Profile Manager. If needed, use the following IDs:
  - Bundle ID—org.nwea.maptesting
  - App ID—1087546325
- Security—The app does not stop students from exiting the test, so use the Single App Mode solution within your mobile device management tool. Alternatively, use the Guided Access feature on each device, as explained below.

  Note: Although Single App Mode is recommended, the MAP Testing app currently does not support *Autonomous* Single App Mode, which can launch the app as soon as the iPad is started.

Optional: Guided Access Setup

If your mobile device management does not include a Single App Mode solution, you can secure each iPad, one at a time, using the Guided Access feature:

1. **Before testing:**
   a. Open the iPad settings.
   b. Choose **General > Accessibility > Guided Access**.
   c. Turn it **On**.
   d. Press **Passcode Settings** and type a code that students will not know.
2. **Start of testing:**
   a. Start the NWEA MAP Testing App.
   b. Turn the iPad to landscape display.
   c. Triple-click the iPad Home button to open Guided Access:

   d. Under the **Hardware Options**, turn off **Motion** to prevent the test from switching to portrait display.
   e. Press **Start**.
   f. Student can now join the test session.

3. **During testing —** Keep in mind that you cannot interrupt the test at the student's iPad. Use controls on the proctor computer instead.
4. **After testing —** Triple-click the Home button again, and use the passcode to turn off Guided Access.

If the iPad app freezes...

The app could freeze if there is a break in the wireless connection. You need to exit the app and restart.

> **Tip:** If pressing the Home button fails to exit, then try pressing both Home and Power buttons at the same time until the iPad restarts.

Next, on your proctor computer, select an action depending on the Status:

- *Confirmed*—Choose **Select Action > Do Not Confirm** (you will confirm later)
- *Testing*—Choose **Select Action > Suspend**
    - Once suspended, chose **Select Action > Test Again**

Ask the student to sign in again, and then confirm as usual.

If you need to interrupt testing at the iPad...

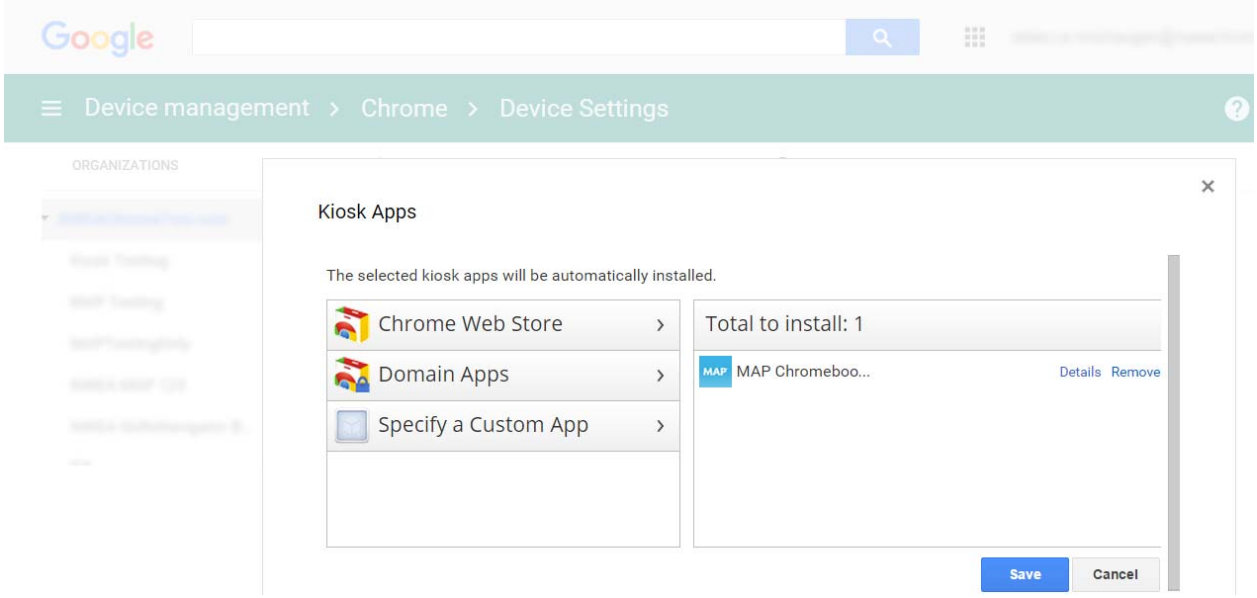
The easiest way to interrupt iPad testing is through the controls on your proctor computer. However, if you are unable to use a proctor computer, it is possible to interrupt directly at the iPad:

- Connect a keyboard directly into the iPad (you will need an adapter and a simple, low-power keyboard).
- Type the interrupt shortcut: Ctrl + Shift + P.
- Not available if using iOS 8.

D: Chromebook Setup for Students

To prepare Chromebooks for MAP Growth testing, install the **MAP Chromebook Testing App**, which allows students to test in a secure, full-screen kiosk mode. It automatically opens to the student testing site (test.mapnwea.org). The app is available from the Chrome App Store, but do not install it directly from the store.

Install the app through the **Chrome Management console** using the Google recommended settings for student assessments (use Scenario 1).



E: Staff Access to MAP Suite

For staff to access the MAP Suite, they use this site address:

```
https://teach.mapnwea.org
```

To enable and maintain access, follow the set-up instructions in this section.

Configuring Browser Settings

In order to use the MAP Suite, teachers and staff require the following browser settings:

- **Enable JavaScript.**
- **Enable cookies.** This setting can be applied globally or directly to the staff site teach.mapnwea.org.
- **Allow pop-ups.** Add the site teach.mapnwea.org to the list of allowed sites in the pop-up blocker settings, including pop-up blocker add-ons.

  All PDF reports are considered pop-ups by the browser. The user usually sees a message saying "Your report will display in a moment. If this does not happen, click here to try again." If pop-ups are blocked, the report does not display until the user clicks the provided link.
- **RECOMMENDED:** For security purposes, disable password-saving (or instruct staff to avoid saving it).

  > **Your organization is responsible for password security policies.**
  >
  > Saving passwords on a shared computer can cause a security breach, making student data available to anyone who can access the computer. Saving passwords could lead to a violation of a federal law, the Family Educational Rights and Privacy Act (FERPA).

Distributing Log-in Information

As a best practice, take advantage of the feature that automatically e-mails staff their log-in information. The requirements for this feature are:

- The sender address, MAP-AutoResponder@nwea.org, must be permitted in your e-mail system. Add the following to e-mail spam filter (both server and clients):

  ```
  *@nwea.org
  ```
- A valid e-mail address must be included in the E-mail Address of each user profile. Coordinate with the Data Administrator.

An e-mail message is also triggered for a password reset or for changes to the User Name.

Note: As an alternative to the automatic e-mail, it's possible to copy the temporary password that appears on screen when creating a single user (**Manage Users** feature). The temporary password appears only once. If you do not copy it, you will need to reset the password.

Linking to MAP

Try these suggestions to make it easy for staff to open the MAP site (teach.mapnwea.org):

- Push a shortcut to the computer desktops.
- Place a shortcut in a network folder where users can access it, and ask them to copy the shortcut to the desktop (one time per computer).
- Add a favorite or bookmark for MAP when you configure the browsers.

Notifying Users of Their Roles

Users are not notified of their roles in the system automatically. Make sure you notify:

- Newly created users of their assigned roles
- Existing users when you add roles to, or remove roles from, their profiles

If you create several users at one time, you can e-mail each group of users assigned the same role in the system to inform them of their assigned roles.

> **Tip:** Use the User Roles operational report to identify users by role. (An Assessment Coordinator or Data Administrator has access to the report.)

Availability of MAP Suite

The MAP Suite is unavailable several weekends per year for scheduled maintenance. NWEA communicates the maintenance schedule by e-mail to a contact person for your district. Most of the scheduled maintenance involves minor changes. Major changes to the software or tests normally occur outside of the typical testing windows. See the list of upcoming maintenance dates.

In addition to the weekend maintenance, there is a short, weekly maintenance during off-hours.

In all cases, warning messages appear 30 minutes before system shutdown.