

Assistive Technology Manual

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Overview of Testing with Assistive Technology

This manual provides an overview of the embedded and non-embedded assistive technology tools that can be used to help students with special accessibility needs complete online tests in the Test Delivery System (TDS). It includes lists of supported devices and applications for each type of assistive technology that students may need, as well as setup instructions for the assistive technologies that require additional configuration in order to work with TDS.

- Embedded assistive technology tools include the built-in test tools in TDS, such as the Text-to-Speech tool. These tools can be accessed without third-party software or hardware and do not require Permissive Mode to be turned on in TDS.
- Non-embedded assistive technology tools are the third-party hardware and accessibility software that students use to help them complete tests in TDS. These tools require Permissive Mode to be turned on in TDS and may require additional configuration steps prior to testing.

Students who use assistive technologies with a standard web browser should be able to use those same technologies with TDS. The best way to test compatibility with assistive technologies is to take a practice test with those technologies turned on. If they do not work, refer to the additional configuration instructions in this manual as required. If you still have questions about the assistive technology tools covered in this guide, please contact the help desk.

Please note: Students testing with non-embedded third-party assistive technology tools may be able to access prohibited features. Due to these partially lowered security settings, students using permissive mode should be monitored closely during testing.

The guide includes the following sections:

- Testing with Speech-to-Text Technology
- Testing with Predictive Text Technology
- Testing with Alternative Computer Input Technology
- Testing with Assistive Keyboard and Mouse Input Technology
- Testing with Screen Magnifier Technology
- Testing with Text-to-Speech

Using Permissive Mode with Assistive Technology

Permissive Mode is a TDS accommodation that allows students to use non-embedded assistive technology to complete tests in the Secure Browser. It must be turned on for any students testing with third-party assistive technology tools. **When Permissive Mode is turned on, the Secure Browser's security settings will be partially lowered to allow students to use tools that would otherwise be blocked. Due to these partially lowered security settings, students using permissive mode should be monitored closely during testing.** This accommodation should be assigned to students in TIDE before they begin testing.

Permissive Mode is available only for computers running supported desktop Windows and Mac operating systems. When using Windows 8 and above, the task bar remains on-screen throughout the test after enabling accessibility software. However, forbidden applications are still prohibited.

When Permissive Mode is turned on, standard keyboard navigation in the Secure Browser will be disabled in order to accommodate any potential keyboard commands associated with the assistive technology the student may be using. For information about standard keyboard commands in the Secure Browser, see the *Test Administrator User Guide*.

How to Use Assistive Technology with Permissive Mode

Permissive Mode activates when students are approved for testing in TDS. The student's assistive technology should already be set up for use with TDS when they begin testing with Permissive Mode.

1. Open the required accessibility software.
2. Open the Secure Browser. Begin the normal sign-in process up to the proctor approval step.
3. When a student is approved for testing, the Secure Browser allows the operating system's menu and task bar to appear.
 - **Windows:** On Windows, the Secure Browser resizes, and the taskbar remains visible inside the test in its usual position. Students can press **Alt+Tab** to switch between the Secure Browser and accessibility applications that they are permitted to use in their test session.
 - **Mac:** On MacOS, the Secure Browser resizes, and students can view the dock in its usual position inside the test. If the dock is set to autohide, no resizing occurs, and the dock is only visible when the mouse moves toward the bottom of screen. Students can press **Cmd+Tab** to switch between the Secure Browser and permitted accessibility applications.
4. The student must immediately switch to the accessibility software that is already open on the computer so that it appears over the Secure Browser. The student cannot click within the Secure Browser until the accessibility software is configured.
 - **Windows:** Click the accessibility software application in the task bar.
 - **Mac:** Click the accessibility software application in the dock.
5. The student configures the accessibility software settings as needed.

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6. After configuring the accessibility software settings, the student returns to the Secure Browser and continues the sign-in process. At this point, the student can no longer switch back to the accessibility software. If changes need to be made, the student must sign out and then sign in again.

Once Permissive Mode is turned off, the Secure Browser reoccupies the whole screen, and the student's ability to use assistive technologies or switch between any other applications and the Secure Browser is suppressed.

Testing with Speech-to-Text Technology

Speech-to-text (STT) technology transcribes a student’s spoken words into text for item responses in TDS. Students with the appropriate accommodations may use STT assistive technology while taking tests. TDS currently supports several non-embedded STT tools.

Table 1 provides a list of third-party STT applications that can be used in TDS. In addition to the applications listed in this table, students will need to use a headset while testing. Any wired headset with a 3.5 mm or USB connection should work.

Table 1. Third-Party STT Applications

Product	System Requirements	Additional Details
Dragon NaturallySpeaking—Windows <ul style="list-style-type: none"> Supported Versions: 15 Professional 	<ul style="list-style-type: none"> Windows 7 SP1, 8.1, 10; Server 2008 R2, 2012 R2 	<ul style="list-style-type: none"> Requires additional setup before use in TDS (see configuration instructions) TDS cannot confirm appropriate configurations are in use during exam, so students may be able to access prohibited features.
Windows built-in Speech Recognition <ul style="list-style-type: none"> Supported Versions: 8.0 	<ul style="list-style-type: none"> Windows 7 SP1, 8, 8.1, 10; Server 2012 R2, 2016 R2 	<ul style="list-style-type: none"> Requires additional setup before use in TDS (see configuration instructions) TDS cannot confirm appropriate configurations are in use during exam, so students may be able to access prohibited features. Requires state approval to be removed from the forbidden applications list in the Secure Browser.

Configuring Speech-to-Text Applications

Some applications listed in Table 1 require additional configuration to prepare for use during online testing. Necessary configurations are described below. Some applications send data to the cloud for processing by default. Where noted, this should be disabled to ensure the security of test data.

After you configure an application, AIR strongly recommends testing that application on a practice test administered through the Secure Browser prior to using it for operational testing.

Dragon Naturally Speaking 15 Home or Professional Individual for Windows

Necessary configurations for Dragon Naturally Speaking can be made from the **Options** dialog box, which is accessed from the **Tools** drop-down list on the DragonBar.

- From the **Commands** tab, uncheck the following settings:
 - **Enable launching from the Start Menu**
 - **Enable launching from the desktop**
 - **Enable E-Mail and Calendar commands**
 - **Enable Cut shortcut commands**

- From the **Miscellaneous** tab, uncheck **Use Dictation Box for unsupported application.**

Figure 1. Dragon Commands Tab

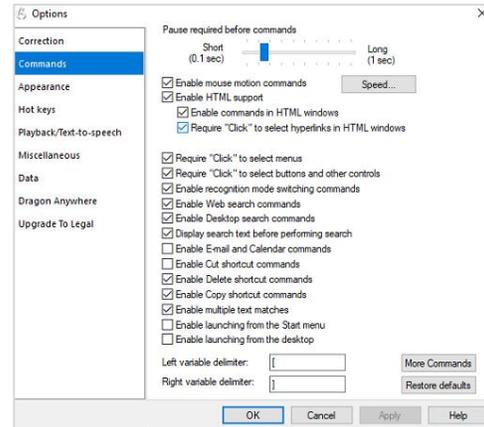
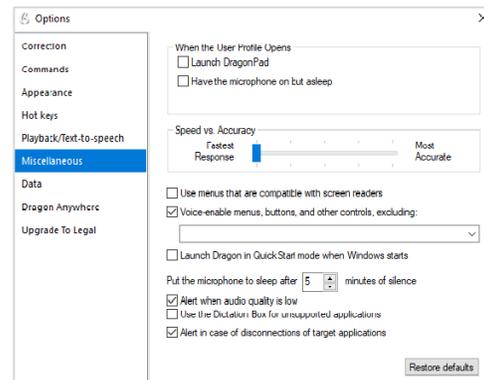
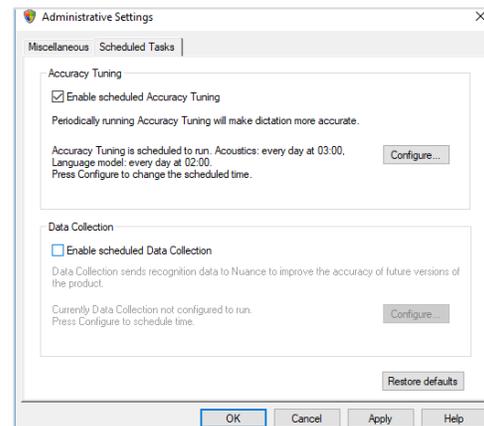


Figure 2. Dragon Miscellaneous Tab



- From the **Scheduled Tasks** tab in Administrative Settings, uncheck **Enable scheduled Data Collection.**

Figure 3. Admin Settings Schedule Tasks Tab



Windows Speech Recognition

Prior to testing day, the Windows built-in Speech Recognition application must be set up on each testing device that will be used by students who require STT. The application can be set up through the Windows Control Panel. Users should set the device to not send data to Microsoft for improvement so that secure test data is not sent to the cloud. During setup, Speech Recognition Voice Training must be completed by the student for optimal performance.

- To prevent Windows from sending data to the cloud, go to **Start > Settings > Privacy > Diagnostics & Feedback** and mark the **Basic** radio button in the Diagnostic Data section. Then select the **Speech** tab and set the **Online Speech Recognition** toggle to **Off**.

Testing with Predictive Text Technology

Predictive text assistive technology suggests words to students as they type responses for test items. TDS does not include any embedded predictive text tools, but it supports several third-party tools that use predictive text technology.

Table 2 provides the technology requirements for students testing with predictive text assistive technology.

Table 2. Third-Party Predictive Text Applications

Product	System Requirements	Additional Details
Co:Writer Universal (Windows & OSX) <ul style="list-style-type: none"> Supported Versions: 1.0.0 	<ul style="list-style-type: none"> Windows 7 SP1, 8, 8.1, 10; Server 2012 R2, 2016 R2 Mac 10.9–10.15 	<ul style="list-style-type: none"> TDS cannot confirm appropriate configurations are in use during exam, so students may be able to access prohibited features. Requires users to enter numbers from an on-screen keypad. The OSX version cannot be opened or minimized with keyboard commands.
WordQ5 <ul style="list-style-type: none"> Supported Versions: 5.0.40 	<ul style="list-style-type: none"> Windows 7 SP1, 8, 8.1, 10; Server 2012 R2, 2016 R2 	<ul style="list-style-type: none"> Requires additional setup before use in TDS (see configuration information) <ul style="list-style-type: none"> Exam Mode must be enabled before students begin testing.
Read&Write for Windows & Mac <ul style="list-style-type: none"> Supported Versions: 7.1 	<ul style="list-style-type: none"> Windows 7 SP1, 8, 8.1, 10; Server 2012 R2, 2016 R2 Mac 10.10–10.14 	<ul style="list-style-type: none"> TDS cannot confirm appropriate configurations are in use during exam, so students may be able to access prohibited features. Requires state approval to be removed from the forbidden applications list in the Secure Browser. Also includes speech-to-text functionality that students may use if they have the proper accommodations.

WordQ5

To minimize security risks, WordQ includes an Exam Mode feature, which can be enabled through the application's settings. Exam mode requires a time limit of 1–12 hours to be set. Please note, this does not eliminate all security risks, and once exam mode has been set, it cannot be disabled until the configured time has run out.

To turn on exam mode, click the **Options** icon, and select **Exam Mode**. In the dialog pop-up window that appears, you can allow and restrict the **Word usage examples** and **Single words added by the user including topic words** features. You can also set the exam time limit at the bottom of the window.

Read & Write (Windows)

Read and Write has an Exam Mode that can be used to turn off features for a single student on their particular testing device. When exam mode is enabled, the student will have access to only the selected features on the toolbar and certain speech settings, including voice selection, speed, pitch and Speak As I Type (the full settings menu will not be accessible).

To use Exam mode, run Read and Write and click on the settings button in the upper-right corner and then click **Show more settings**. in the *Find a Setting* field, type *adminsettings*. You will be asked to enter and confirm a password to grant access on this computer. When logged in to administrator settings, click the **Select your features** tab and select which features you'd like to be enabled on the student's toolbar. Enable the **Use Exam Mode now** toggle to start Exam Mode, then close the Read and Write menu to start the exam.

Testing with Alternative Computer Input Technology

Alternative Computer Input (ACI) assistive tools allow students with physical impairments to interact with a computer without using a traditional mouse and keyboard setup. For instance, ACI technology such as PCEye Mini tracks students' eye movement, while Dwell Clicker 2 allows students to use a mouse without having to click the left or right mouse buttons.

TDS does not include any embedded alternative computer input tools, but it supports several third-party alternative computer input technologies.

Table 3 provides a list of third-party ACI devices that can be used in TDS. Please note that this list includes only the devices that AIR has thoroughly tested against the Secure Browser, but there may be additional supported ACI devices that have not been tested yet. If your students need to use an ACI device not listed here, please test it out in a practice test first to ensure there are no issues with it.

Table 3. Third-Party ACI Devices

Product	System Requirements	Additional Details
PCEye Mini with Windows Control	<ul style="list-style-type: none"> Windows 7 SP1, 8.1, 10 	<ul style="list-style-type: none"> Requires additional setup before use in TDS (see configuration instructions)
Dwell Clicker 2 <ul style="list-style-type: none"> Supported Versions: 2.0.40 	<ul style="list-style-type: none"> Windows 7 SP1, 8, 10; Server 2012 R2, 2016 R2 	<ul style="list-style-type: none"> Requires additional setup before use in TDS (see configuration instructions)
HeadMouse Nano	<ul style="list-style-type: none"> Windows 7 SP1, 8, 8.1, 10; Server 2012 R2, 2016 R2 Mac 10.9–10.15 	<ul style="list-style-type: none"> Requires additional setup before use in TDS (see configuration instructions)
Access Switch	<ul style="list-style-type: none"> Windows 7 SP1, 8, 8.1, 10; Server 2012 R2, 2016 R2 Mac 10.9–10.15 	N/A
Swiftly <ul style="list-style-type: none"> Supported Versions: SW2 	<ul style="list-style-type: none"> Windows 7 SP1, 8, 8.1, 10; Server 2012 R2, 2016 R2 Mac 10.9–10.15 	<ul style="list-style-type: none"> Requires additional setup before use in TDS (see configuration instructions)

Configuring PCEye Mini with Windows Control on Student Devices

To configure the PCEye Mini, it should be plugged in to a computer that uses Windows Control software and should be installed by following the product's installation instructions manually.

For students using PCEye Mini with Windows Control Software, the Word Prediction feature should be disabled by opening the application and navigating to **Settings>Keyboard**.

Configuring Dwell Clicker 2

To configure Dwell Clicker 2 settings, open the application and select the keyboard icon, then click the **Options** key. In the window that pops up, make sure the **Use Text Prediction** checkbox is not checked.

Configuring HeadMouse Nano

To configure HeadMouse Nano when using the SofType keyboard, open the SofType application and select **View>Word Bar** from the menu. Then make sure the **Prediction** radio button is not marked.

Configuring Swifty: SW2

To configure Swifty Switch Access according to the student's needs, the following DIP Switches should be set when using Switch. After you modify DIP Switch settings, unplug and re-plug Swifty to activate the settings.

Switch 1	Switch 2	USB Device	Interface Actions
ON	ON	Mouse	Left, Right, Middle
OFF	ON	Joystick	Btn1, Btn2, Btn3
ON	OFF	Keyboard (For iPad)	Enter, Space, Tab
ON	OFF	Keyboard	1,2,3

Testing with Assistive Keyboard and Mouse Input Technology

Assistive Keyboard and Mouse Input tools provide additional support to students with physical impairments who need to use a keyboard and mouse in order to respond to test items. These include keyboards with larger keys, computer mice with trackballs, and other tools that make it easier for students with limited movement abilities to use a computer.

TDS does not include any embedded assistive keyboard and mouse input tools, as these tools typically involve the use of special hardware, but TDS does support several third-party assistive keyboard and mouse input tools.

Table 4 provides a list of third-party assistive keyboard and mouse input tools that can be used in TDS. Please note, there may be additional supported assistive keyboards and mouse input tools that have not been tested yet. If your students need to use a device not listed here, please test it out in a practice test first to ensure there are no issues with it.

Table 4. Third-Party Assistive Keyboard and Mouse Input Technology

Product	System Requirements	Additional Details
Keys-U-See Keyboard	<ul style="list-style-type: none"> Windows 7 SP1, 8, 10; Server 2012 R2, 2016 R2 	N/A
BigKeys Keyboard <ul style="list-style-type: none"> Supported Versions: Plus, XL 	<ul style="list-style-type: none"> Windows 7 SP1, 8, 8.1, 10; Server 2012 R2, 2016 R2 Mac 10.9–10.15 	N/A
BigTrack2 Trackball	<ul style="list-style-type: none"> Windows 7 SP1, 8, 8.1, 10; Server 2012 R2, 2016 R2 Mac 10.9–10.15 	N/A

Testing with Screen Magnifier Technology

Screen magnifier assistive technology enlarges the content displayed on the computer screen in order to assist students with visual impairments. Although TDS supports some non-embedded screen magnifier tools from third parties, AIR strongly recommends students use the embedded zoom tools in TDS. These embedded tools were designed to magnify test content in the most intuitive and user-friendly manner for students. Embedded zoom tools can also be tracked by NDSA when gathering data about students' tool use.

The embedded zoom tools in the Secure Browser allow students to magnify test content to the following levels (any zoom levels of 5X and greater require the streamlined mode test setting in TDS to be turned on, which will arrange test content vertically):

- 1X
- 1.5X
- 1.75X
- 2.5X
- 3X
- 5X
- 10X
- 15X
- 20X

Table 5 provides a list of third-party screen magnifier tools that can be used in TDS. The non-embedded screen magnifier tools listed below come with an increased risk of interoperability issues, require students to manually pan the magnification tool across the screen, and can include unwanted features that should not be used while testing. These non-embedded tools also cannot be tracked by NDSA when gathering data about students' tool use.

Table 5. Third-Party Screen Magnifier Applications

Product	System Requirements	Additional Details
ZoomText Magnifier (with optional text-to-speech) <ul style="list-style-type: none"> • Supported Versions: 2019.1904.80 	<ul style="list-style-type: none"> • Windows 7 SP1, 8.1, 10; 2012 R2, 2016 R2 	<ul style="list-style-type: none"> • Requires additional setup before use with TDS (see configuration instructions).
Magic Magnifier (with optional text-to-speech) <ul style="list-style-type: none"> • Supported Versions: 14.0.1512 	<ul style="list-style-type: none"> • Windows 7 SP1, 8.1, 10; 2012 R2, 2016 R2 	<ul style="list-style-type: none"> • TDS cannot confirm appropriate configurations are in use during exam, so students may be able to access prohibited features.

Configuring ZoomText and Fusion to Recognize the Secure Browser

In order for ZoomText or Fusion to function properly with the Secure Browser, you must perform the following steps. You must make sure ZoomText or Fusion is closed before performing these steps. You must also make sure hidden files are displayed on your computer.

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1. Navigate to the folder where ZoomText or Fusion is installed on your computer: **Local Disk (C:)>ProgramData>Freedom Scientific>ZoomText>[Your ZoomText version]**
2. Open the ZoomTextConfig file in Notepad.
3. Locate the line that includes the text D2DPatch.
4. On the same line, type **~STATESecureBrowser12.0**, immediately after **~firefox**, (be sure to include the tilde and comma).
5. Save and close the file.

Testing with Text-to-Speech

Text-to-Speech (TTS) tools read aloud text that appears on the screen for students who may have reading impairments. TDS includes embedded TTS tools that can be turned on for students with the appropriate accommodation settings (either in TIDE or from the TA Site). In order for students to test with TTS tools, a supported voice pack will need to be installed on their device before testing begins. Students testing with TTS should also have a supported headset or headphones.

TTS is available on all operating systems supported by TDS (for a full list of supported operating systems, see the *Quick Guide for Setting up Your Online Testing Technology*). However, text-to-speech tracking does not function correctly on Linux OS. If students require the use of this accommodation (TTS with tracking), they must use a different operating system.

Table 6 lists the voice packs supported for students testing with TTS. If students need to use a voice pack not listed in this table, you should test it out in a practice test to ensure there are no issues. Students using text-to-speech for the practice tests must log in using a supported Secure Browser. Students can also verify that text-to-speech works on their computers by logging in to a practice test session and selecting a test for which text-to-speech is available.

Table 6. Technology Requirements for Students Testing with TTS

Technology Type	Product
Supported Voice Packs	<ul style="list-style-type: none"> • Windows built-in voice packs • Mac built-in voice packs • iOS built-in voice packs • Android built-in voice packs • Chromebook built-in voice packs • NeoSpeech™ Julie voice pack (available for download in TIDE)



Note: AIR strongly encourages schools to test the text-to-speech settings before students take operational tests. You can check these settings through the diagnostic page. From the student practice test login screen, click the **Run Diagnostics** link, and then click the **Text-to-Speech Check** button.

Installing the NeoSpeech™ Voice Pack

If students do not wish to use the built-in voice packs on their devices, you can download the NeoSpeech™ voice packs to their testing device. Due to licensing restrictions, students must not use these voice packs outside of TDS.

1. In the TIDE banner, click **General Resources** and then click **Download Voice Pack**.
2. Download the Julie voice pack. Save it to your computer, but don't open or run it.
3. Navigate to the file you downloaded, which has a name similar to the following:

- Julie: 20120224_VT-SAPI5_Julie_M16_570_win_v3.11.3.1.zip
4. Extract the zip file into a temporary folder. Open this folder, locate the file `setup.exe`, and run it. If you don't see a file `setup.exe`, look for a file with a blue icon . (The file may be in a subfolder.)
 5. Follow the steps in the installation wizard that appears. If you change the default installation directory, make a note of it.
 6. Returning to the folder you created in step 4, locate the file `verification.txt`. (The file may be in a subfolder.)
 7. Referring to [Table 7](#), copy the file `verification.txt` to the folder appropriate for your version of Windows. If you used a folder in step 5 different from the default, use that path instead.

Table 7. Folders for Copying the File Verification.txt

Windows Version	Folder
Julie	
32-bit Windows	C:\Program Files\VW\VT\Julie\M16-SAPI5\data-common\verify\
64-bit Windows	C:\Program Files (x86)\VW\VT\Julie\M16-SAPI5\data-common\verify\

Setting a NeoSpeech™ Voice Pack as the Default Voice

This procedure sets the NeoSpeech™ voice pack as the default. The steps in this procedure may be different for your version of Windows.

1. If you are running the 64-bit version of Windows, do the following (otherwise skip to step 2):
 - a. In the Windows Explorer, navigate to C:\Windows\SysWOW64\Speech\SpeechUX
 - b. Double-click the file `sapi.cpl`
 - c. Skip to step 3.
2. If you are running the 32-bit version of Windows, do the following:
 - a. Open the Control Panel
 - b. From the **View by** drop-down list, select **Small icons**.
 - c. Open **Speech Recognition** and click **Text to Speech**.
3. From the **Voice selection** drop-down list, select VW Julie. Then click **Apply**.
4. Click **Preview Voice** to listen to the audio sample.

5. Make adjustments to the Voice speed or other options as desired and click **OK**.
6. Test the voice pack by opening a practice or training test in the Secure Browser.

How the Secure Browser Selects Voice Packs

This section describes how AIR's Secure Browsers select which voice pack to use.

Voice Pack Selection on Mobile Versions of Secure Browsers

The Mobile Secure Browser uses either the device's native voice pack or a voice pack embedded in the Secure Browser. Additional voice packs downloaded to a mobile device are not recognized by the Mobile Secure Browser.

Text-to-Speech and Mobile Devices

Text-to-speech (TTS) in Windows, Mac, and iPads includes a feature that allows students to pause and then resume TTS in the middle of a passage. On Chromebooks, however, students should highlight the desired text to be read as the pause feature does not allow students to pause and resume the reading again.