AHead
Simulations

Software Documentation

AHEAD SIMULATIONS SOFTWARE

AHEAD SIMULUATIONS INC.

2019

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Software Documentation

Software Installation

1. Visit the AHead resources page – www.aheadsimulations.com/resources
2. Download the most recent AHead software installer (confirm your device meets or exceeds the software requirements stated on the website prior to installing software)
3. Run the AHead software installer – a prompt for administrative permission will appear on windows device, confirm the **Verified Publisher** stated is "**AHead Simulations Inc**"
4. Installation walkthrough for installer:
   a. Review the licensing agreement and select "**I Agree**" to continue
   b. "**Browse**" for a different destination folder for the installation if the default folder is not appropriate. Select "**Install**" to begin installing
   c. Upon completion, "**Close**" the installer
   d. A prompt will appear informing you that a shortcut has been created on your desktop and can be used to launch the software, hit "**Ok**"
   e. Run the "**AHead Simulation Software**" desktop icon to begin

NOTE: An uninstaller is also created in the selected destination folder and can be used to safely remove the software program.

5. After the initial launch of the software, a prompt for administrative permission will appear on windows. Confirm the **Verified Publisher** stated as "**Soraco Technologies Inc**"
6. (Initial) License setup walkthrough:
   a. Select "**Activate your license**"
   b. Select "**Activate Online"** – (to activate offline, a smart device with internet access would be required)
   c. Fill in User Registration form and select **Register** – once completed, **Next** can be selected to continue.
   d. Enter the provided Activation Key and select **Activate license key**
   e. Hit **Finish** – a popup detailing the conditions and status of your license is launch. Close the popup when done

NOTE: The license only needs to be activated once per computer. The software checks for a license each time it is launched and the user is only notified if their license is no longer valid.
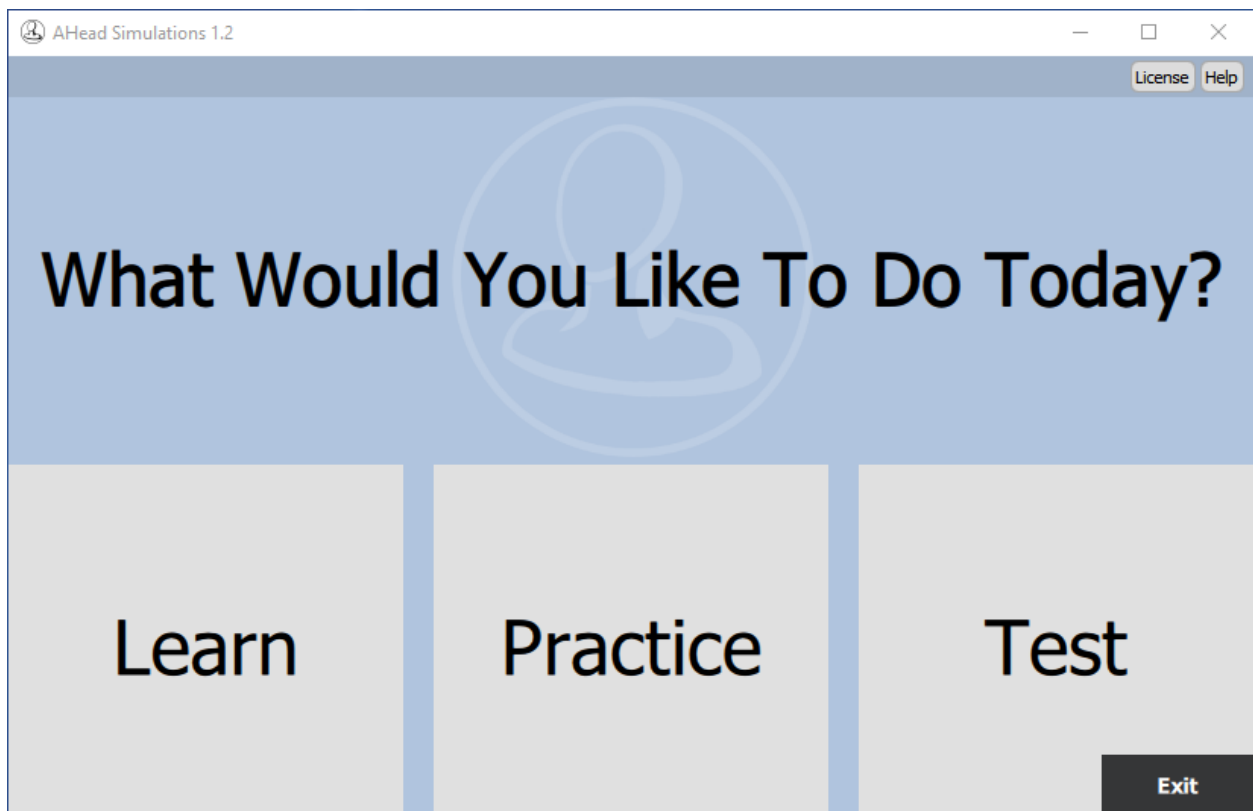
Software Usage:

After launching the software program and a valid license has been activated, the user is taken to the software home page. The home page allows the user to select in which mode they want to use the simulator: such modes are Learn, Practice, and Test.

The user can also use other additional features from the Toolbar:

License: view license status and launch license wizard to either re-activate or deactivate licensed machines
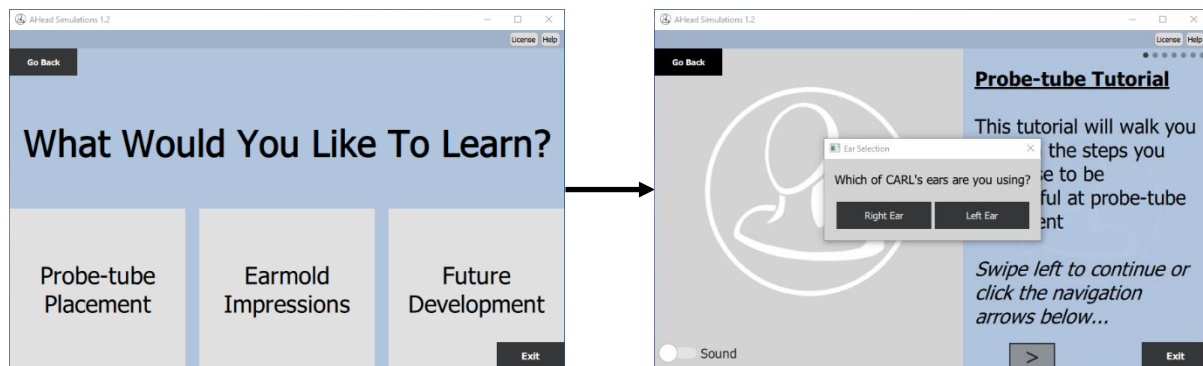**Help:** view software documentation

Home Page

Learning Modules

Version 1.2 currently has one full learning mode available.

1. **Probe-tube Placement:** Users can follow an interactive walkthrough tutorial on the Probe-tube placement procedure (Feedback is currently a new optional feature)
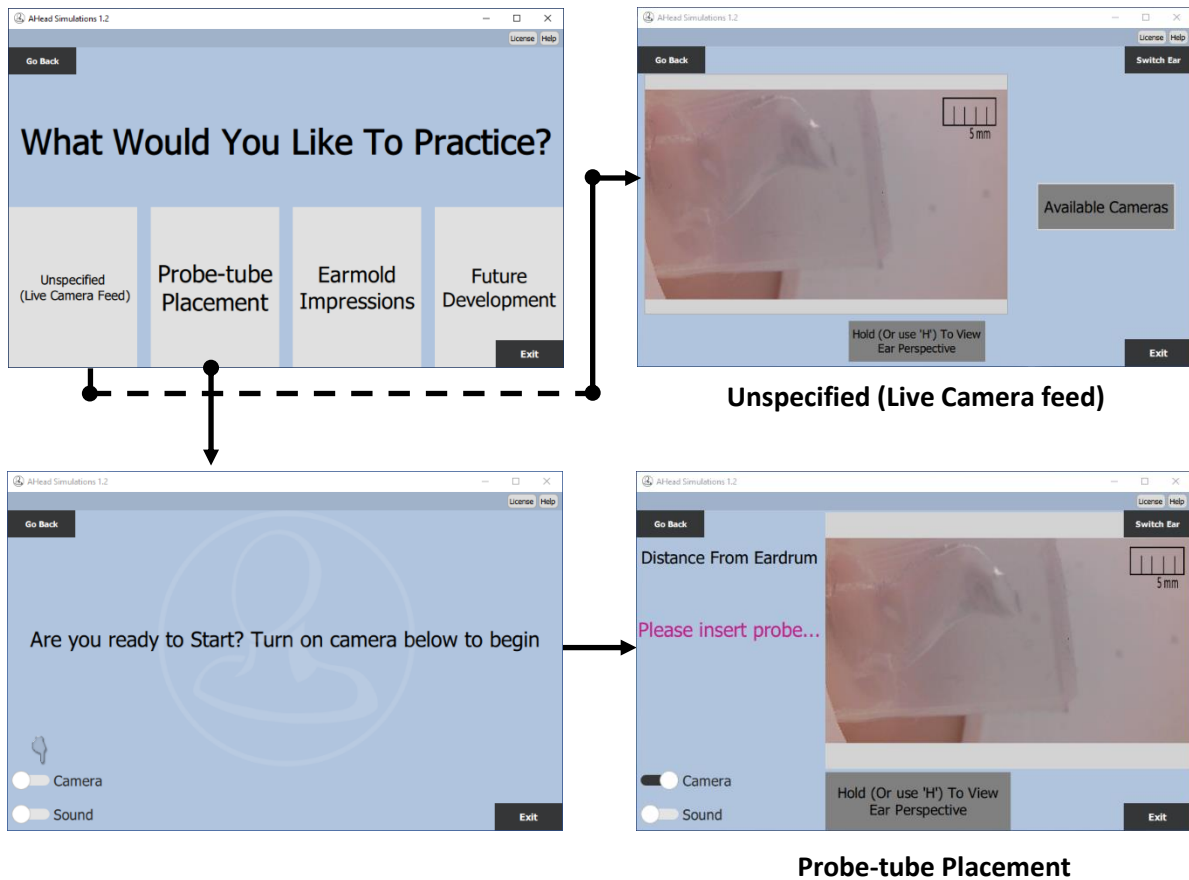
Future Development: AHead Simulations Inc. is actively in collaboration with audiology instructors at academic institutions in order to provide more learning modules for students

Practice Modules
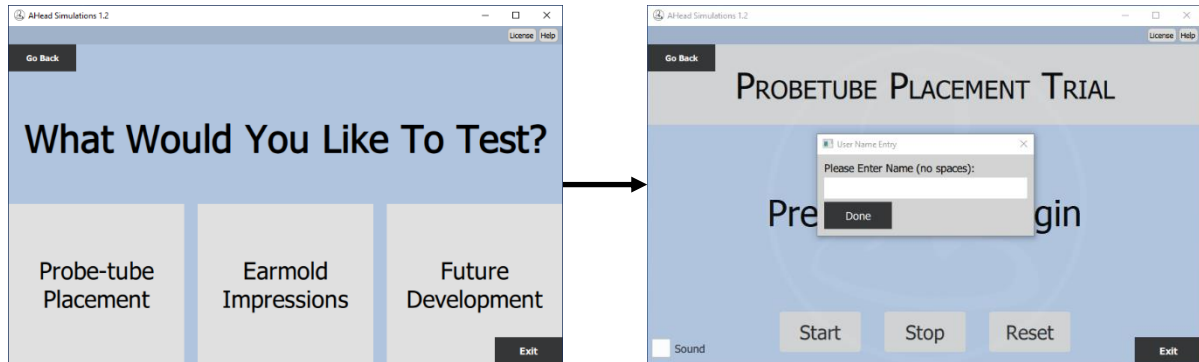
Version 1.2 currently has two practice modes available.

1. **Unspecified (Live Camera Feed):** Users can freely practice with a live camera feed of the ear canal and eardrum while receiving no quantitative feedback.

2. **Probe-tube Placement:** Users can practice probe-tube placement with real-time feedback of the probe-tube's distance from the eardrum.
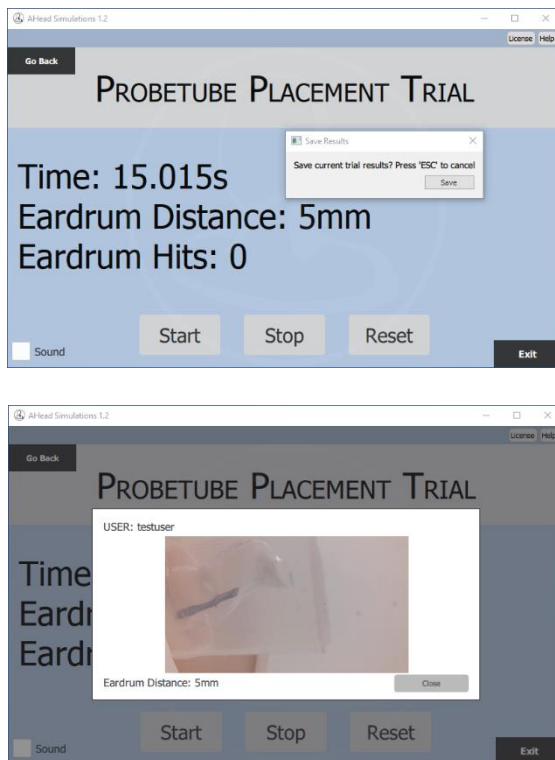

Unspecified (Live Camera feed)

Probe-tube Placement

Test Modules

Version 1.2 currently has one test mode available.

1. **Probe-tube Placement:** Users are tested on probe-tube placement without a live camera feed. A summary of their performance, with an option to save their results, is provided at the end of each test case. Test mode is used for competency-based evaluations, or for CARL to better simulate a patient with only post-procedure feedback.
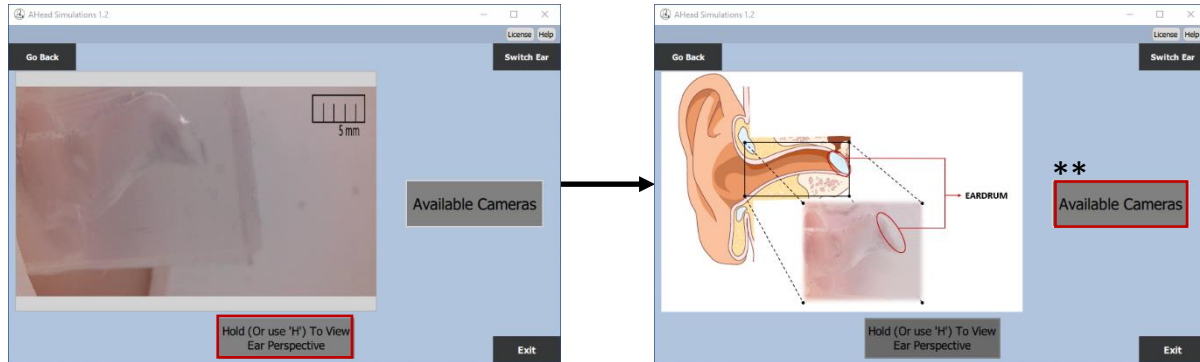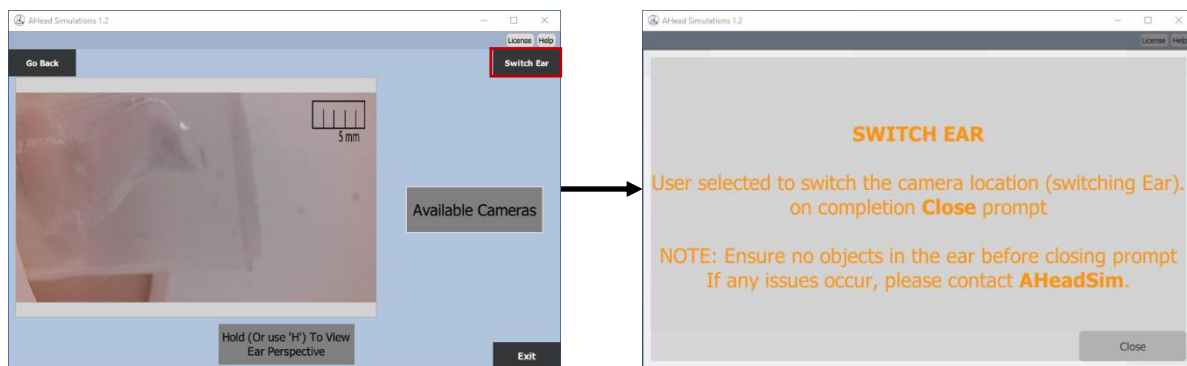

Results

- **File Location:** The user selects what folder results are saved in. The saved files are named as follows:
  - user_specified_folder/"username".txt
  - user_specified_folder/"date"_Images /"time_username_distance".jpg

- **NOTE:** Results are best viewed on Notepad++ (https://notepad-plus-plus.org/download/v7.6.2.html)

Miscellaneous

Hold To View Ear Perspective: Provides the user with a reference point on how the camera view lines up with CARL's ear anatomy
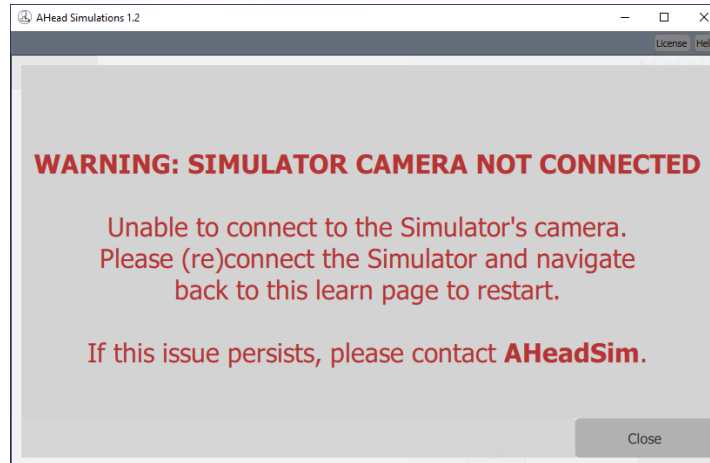

Switch Ear: This button is to be used to switch the physical location of the ear in the simulator from left-right or right-left. The camera feed and tracking is suspended until the prompt is closed. It is important to only close the prompt once the switch is complete and the head cap is closed to allow the camera & tracking to re-boot and re-configure for the new ear location.

** Unspecified (Live Camera Feed) ➔ Available Camera: Users can view all available cameras connected to their machine and switch the live camera feed to a camera of their choice.
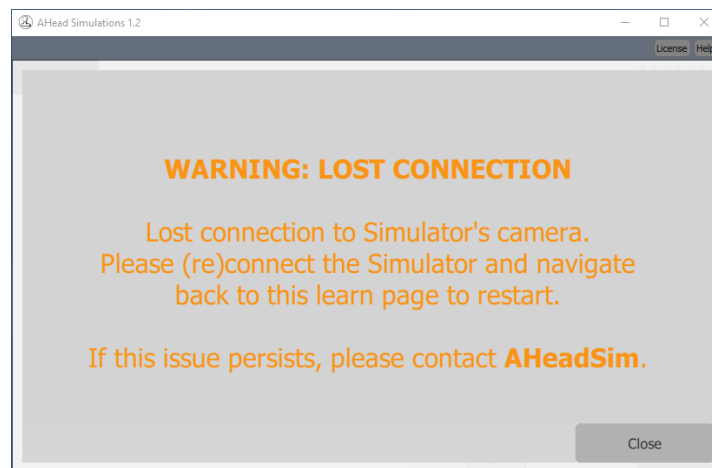
Troubleshooting and FAQ

- **"SIMULATOR CAMERA NOT CONNECTED":** This warning occurs when either the simulator is not connected to your computer or there was an issue with the camera setup (device should automatically setup camera).

1. Ensure the simulator unit is connected via USB to the device and exit the module. Then. re-enter OR restart the program.
2. Check that the camera is recognized by your Windows machine and is assigned a device name beginning with "USB 2.0 Camera".
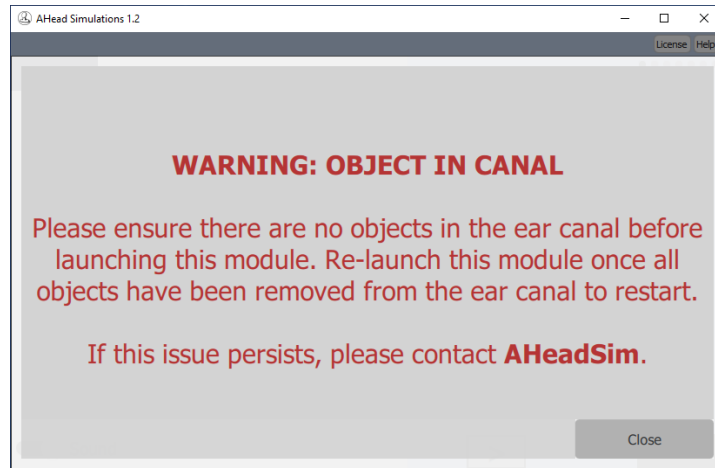   *NOTE: The Simulator unit may not be compatible with Windows XP*

- **"LOST CONNECTION":** This warning occurs when the simulator connection to windows device is lost during operation.

1. Check that the USB connection to your device is secured then exit the module and return to refresh camera feed.
2. Check that the device is still recognized by your computer. (You may need to restart your computer and re-connect the simulator prior to launching the software).

- **"WARNING: OBJECT IN CANAL":** This warning occurs when an object is either in the camera view or an object is in the camera ear on initial startup of the camera feed.

  1. Check that no cables are in the view of the camera feed. (Might need to open the camera cap to check).
  2. Ensure nothing is placed in the ear canal during the initial startup of a module.

- **The probe-tube distance-to-eardrum measurement looks grossly inaccurate:**
  1. Check to make sure the probe is painted black. If it looks faded, re-apply black with a marker.
  2. Reconfigure the camera by hitting "Go Back" then returning. (There is a configuration that is required each time the camera is launched).
  3. If options 1 & 2 do not address your issue, contact us at support@aheadsimulations.com and provide the following:
     i. Organization name
     ii. A report of your specific issue

- **The camera displays a black screen:**
  1. Ensure the lens cap has been removed
  2. Restart the program (generally the display should never be black, however if the problem persists, please contact AHead at support@aheadsimulations.com).

- **The distance-to-eardrum measurement is fine on one ear, but not on the other:**
  1. Ensure you select the correct ear (right or left) when prompted.
  2. Make sure while the camera position is being switched, the "switch ear" button prompted dialog is present. Close the dialog only when the ear has been switched.
  3. If the distance measurements are still grossly off after switching the ear, exit the module and re-enter, or restart the program.

For any issues other than the ones discussed here, see our up-to-date FAQs at aheadsimulations.com. For direct support, please contact support@aheadsimulations.com.

For any feedback, suggestions, or requests for these instructions or for the software itself, please contact feedback@aheadsimulations.com.

Software Release Notes:

AHead Simulations Software v1.2

What's New?
- Users can switch between connected cameras in unspecified practice mode (compatible with video otoscopes)
- Test module logs contact with CARL's eardrum
- Test module displays final image of test results with the option to save images

Improvements?
- Security improvement for software download
- Added ruler legend to the video display

Fixes?
- Distance to CARL's eardrum sporadically reporting zero issue addressed

AHead Simulations Software v1.1

What's New?
- Software functionality to switch ears. Separate tracking for each ear to optimize object-tracking within CARL's ear canal
- Users can now select folder location for saving test data and results
- Optional audible feedback provided for contact with CARL's eardrum

Improvements?
- Further optimized object-tracking for more accurate measurements
- Added a more representative "Ear Perspective" image
- Added "check for object in ear canal" warning prior to beginning procedures

Fixes?
- Discrepancy between learn and practice probe-tube modules in probe-tube tracking addressed