

User's Guide

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The ARS software has already been installed on your laptop. You will need to do the following steps in order to operate the software.

1 Setting up multiple displays

- 1) Fill sandbox with sand
 - a) Sandbox should be filled half way with sand
- 2) Setting up Multiple displays on your laptop
 - a) Turn on projector using white remote control
 - b) Right click on your desktop and select “display settings”
 - c) Select extend these displays
 - d) Rearrange your display screens to look like below (Figure 1):

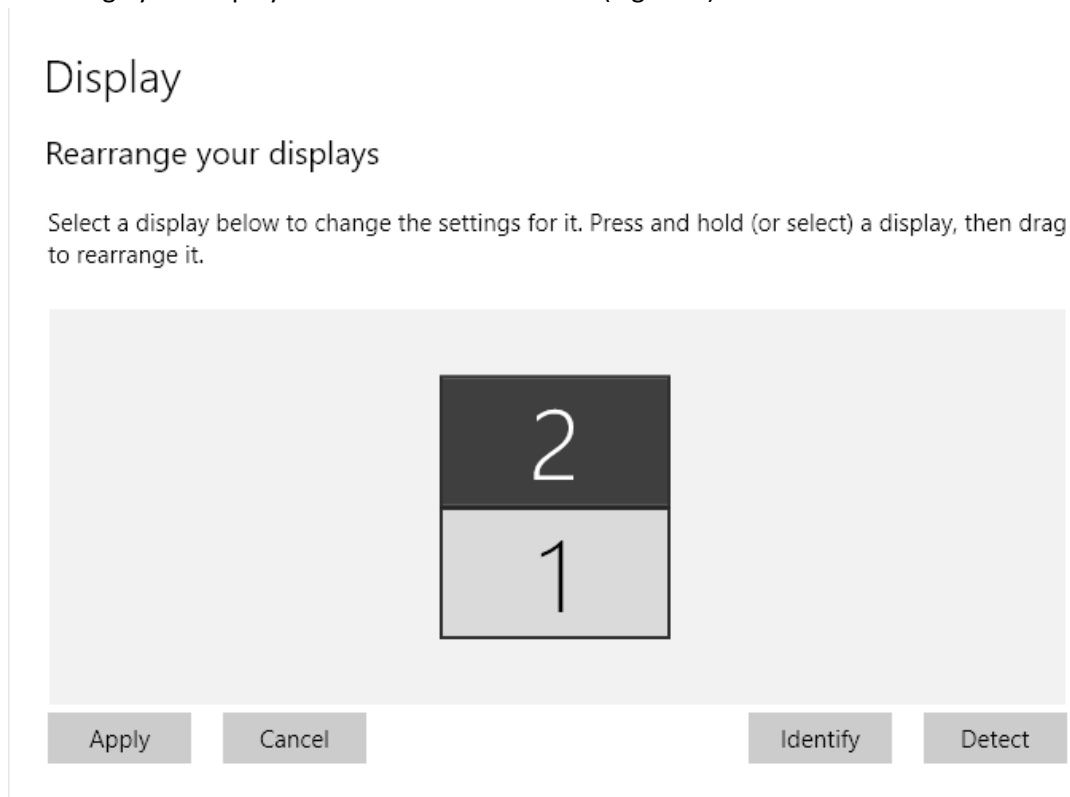


Figure 1

- e) Select identify and apply. While screen 2 is still selected(black background)
- f) Scroll down until you see Display resolution and change it to be 1920 x 1080 (Recommended) and also under Multiple Displays select “extend these displays” from the pull down and also check the box “Make this my main display”. See below (Figure 2).

Display

Windows HD Color settings

Scale and layout

Change the size of text, apps, and other items

100% (Recommended) ▾

Advanced scaling settings

Display resolution

1920 x 1080 (Recommended) ▾

Display orientation

Landscape ▾

Screen 2
resolution



Multiple displays

Multiple displays

Extend these displays ▾

Make this my main display

Advanced display settings

Screen 2
should have
these
properties
selected



Figure 2

- g) Next click on Advanced Display Settings and select Display 2 should say BenQ projector. (See figure 3).

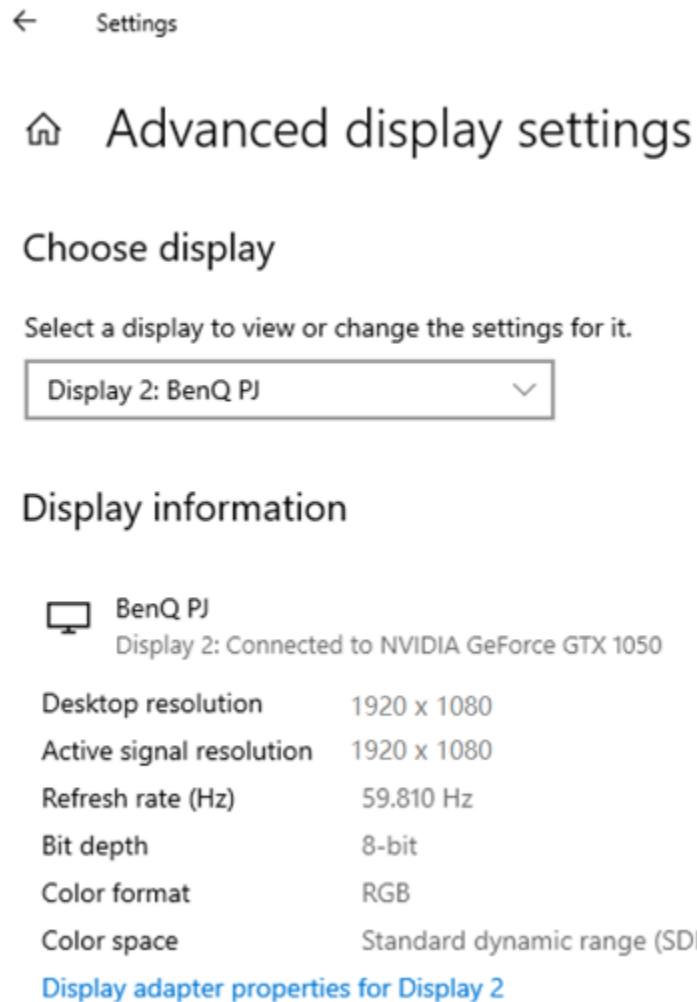


Figure 3

- a) Go back to Display and this time select Screen 1 (click on screen one, background should turn black)
- b) Scroll down until you see Display resolution and change it to be 1280 x 800 (Recommended). See below settings and in this step you do not do anything under the multiple displays section. (See Figure 4).

Display

Windows HD Color settings

Scale and layout

Change the size of text, apps, and other items

100% (Recommended) ▾

Advanced scaling settings

Display resolution

1280 x 800 (Recommended) ▾

Screen 1 resolution



Display orientation

Landscape ▾

Multiple displays

Multiple displays

Extend these displays ▾

This time DO
NOT do
anything here



Make this my main display

Advanced display settings

Figure 4

- c) Next click on Advanced Display Settings and Display 1 should be set to Internal Display . (See figure 5).

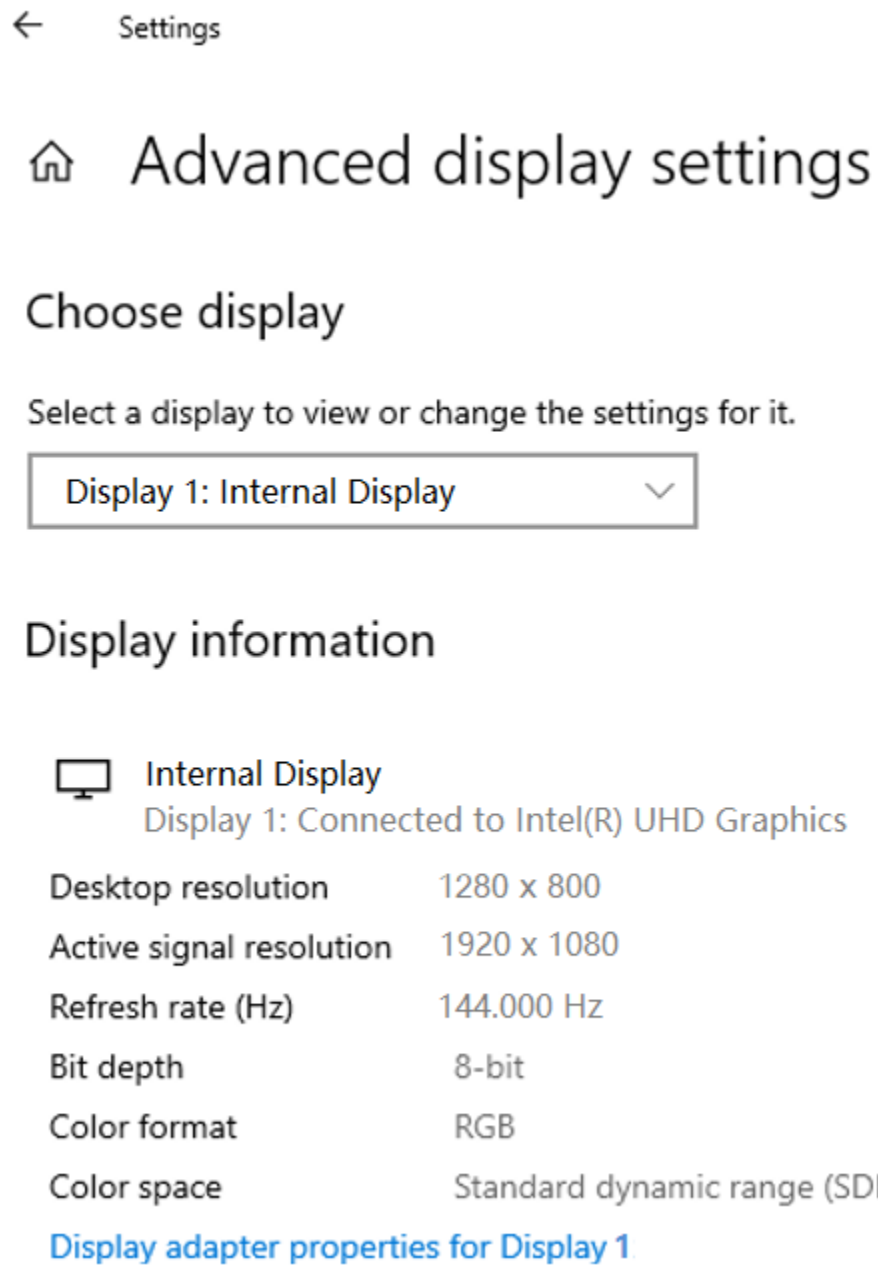


Figure 5

- d) Exit display settings.
- e) Your main screen should now be on the sand and the lap top should show the iSandBOX controller lite screen when opened.
- i) The first time you open the iSandBOX controller lite it may open up on the sand display and you will need to drag it to the laptop screen.

- ii) When you open the sand box application it should be on the screen projecting onto the sand. (short-cut symbols below in figure 6).

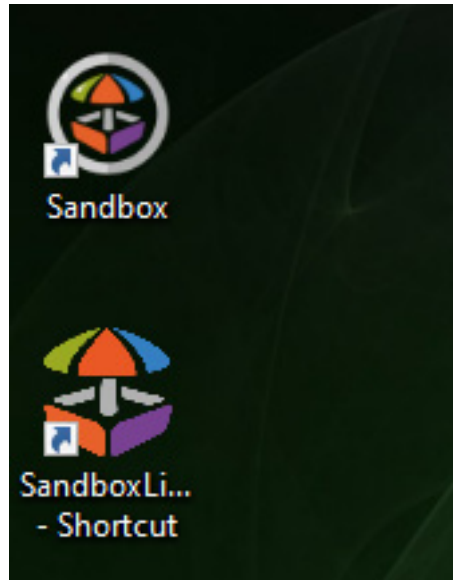


Figure 6

You may now continue to setting up your projector.

2 Setting up the Projector

- Remove lens cover and plastic protective film from unit.
- Manually zoom projector by the lens to zoom all the way in and set focus.
- In menu settings adjust the following:
 1. Press the Menu button on the projector's remote.
 2. Select the Keystone setting and set to 0.
 3. In menu setting change the aspect ratio: 4:3 ratio
 4. Change additional setting per user preference.
- Correct location of the projection inside the box (this should be done using the manual zoom as directed in the above steps, See Figure 2).

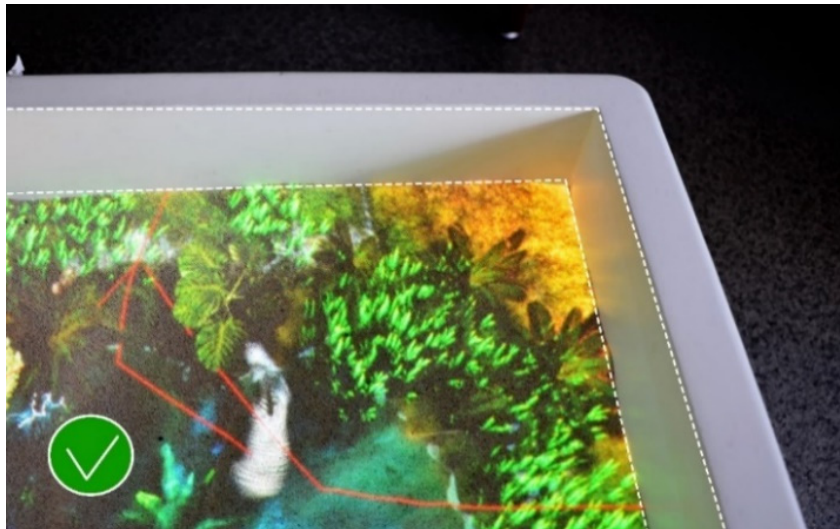


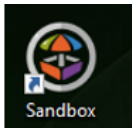
Figure 2

3 Device Calibration

- Make sure your laptop is connected to the Internet.
- A mouse connected to the laptop helps for the calibration process. NOTE**Please be sure to always know where your mouse is positioned on the screen. We have learned the hard way that scrolling up and down will adjust the slide settings changing what you may have had set to work.

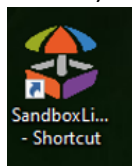
You need the following things to get started:

- ARS Sandbox
- Desktop shortcut for Sandbox application



- iSandBOX Lite Controller application installed on your device. To add the shortcut your desktop please go to the following folder location:

. Right click on SandboxLiteController file and click send to desktop as shortcut or pin to taskbar).



- A tablet or smartphone (not necessary for Diversified Spaces model). Using this additional device is not required or supported by Diversified Woodcrafts. Set up is the responsibility of the end user.

A. Calibration steps:

- 1) Start by clicking on the Sandbox icon first and then the Sandbox Lite Controller icon second on your laptop screen (see above for what the icon images look like). *NOTE* *The black screen that comes up when opening the sandbox icon will take a minute or two to load, this*

is normal.* Also, if you close one screen once the applications are opened, you should close them both and reopen. They need each to be opened to pair.

- 2) Start the Sandbox Lite Controller application on your laptop screen (See Figure 3).
 - For the first time opening the application, it will open on your main screen, which is projected onto the sand. Drag the screen onto the laptop screen. In order to drag the screen, you first have to select hide on the new function screen, or set this function up.

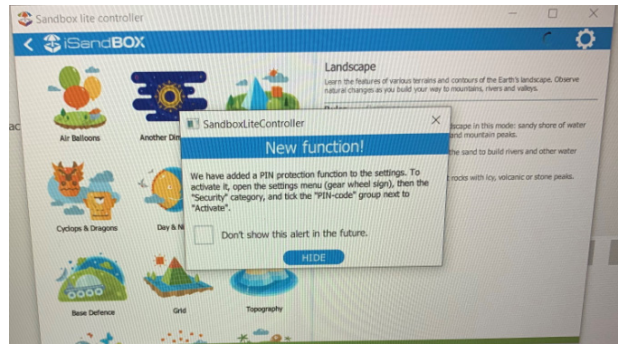


Figure 3

- 3) You can see available interactive modes on the left, and their settings are on the right. Tap the small gear-wheel icon in the upper right corner.
- 4) Choose the **Calibration** tab and open the **Calibration Wizard**. Calibration Wizard (shown below in Figure 3.1) is a special settings mode for calibrating the sandbox. Follow the instructions for a quick and easy calibration.

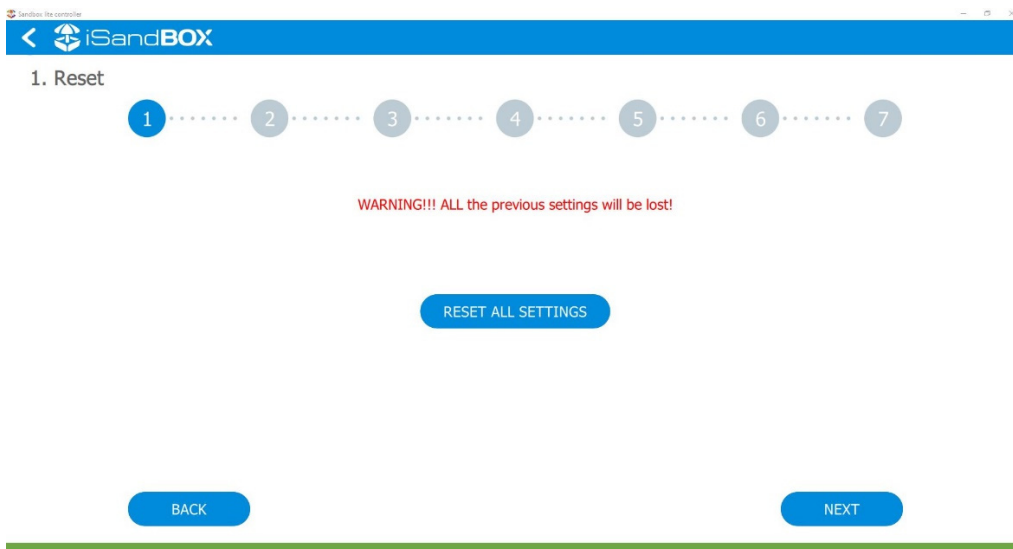


Figure 3.1

- 5) **Calibration Step 1:** is for resetting all settings, and we skip this. You can move to the next step by clicking **NEXT** or tapping the blue circle. You will never want to reset all your settings. Sandbox should already be filled halfway with sand and it should be spread out evenly.
- 6) **Calibration Step 2:** The play field is projected on the sand highlighted in green, and its boundaries are high-lighted in red. Our goal is to match the virtual boundaries of the play space against the real boundaries of the sand reservoir. Tap the arrows to move the play area until the red boundaries are aligned along all four sidewalls. (See Figure 3.2)

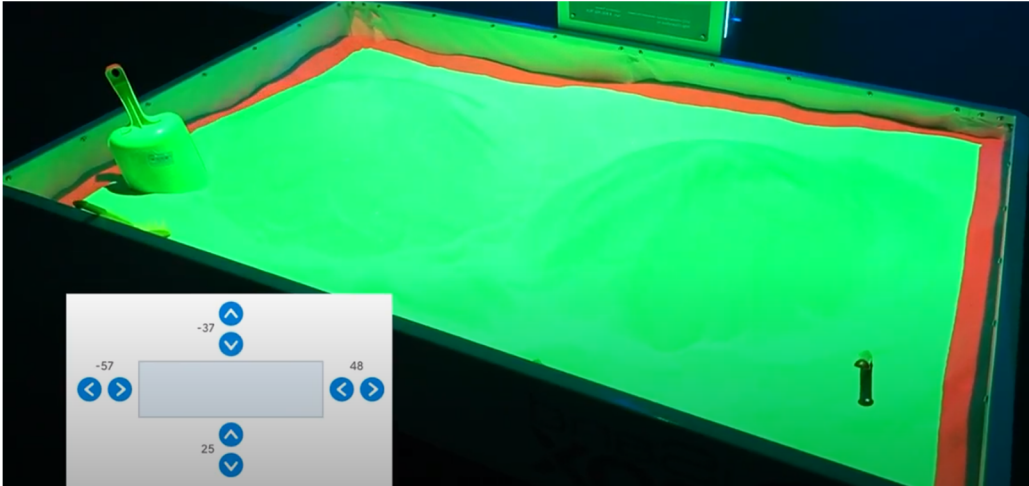


Figure 3.2

- 7) **Calibration Step 3:** Sensor height. To do this, we need to dig a hole to reach the sand bottom. If the settings are okay, the sand bottom will be colored in green. If not, we'll need to move the slider until we see the green color. Please note that the flat sand surface should be highlighted in yellow, and the sand bottom should be in green. There should be no red color. Do not worry if the projection does not match the actual landscape. We will take care of that a bit later. (See Figure 3.3)

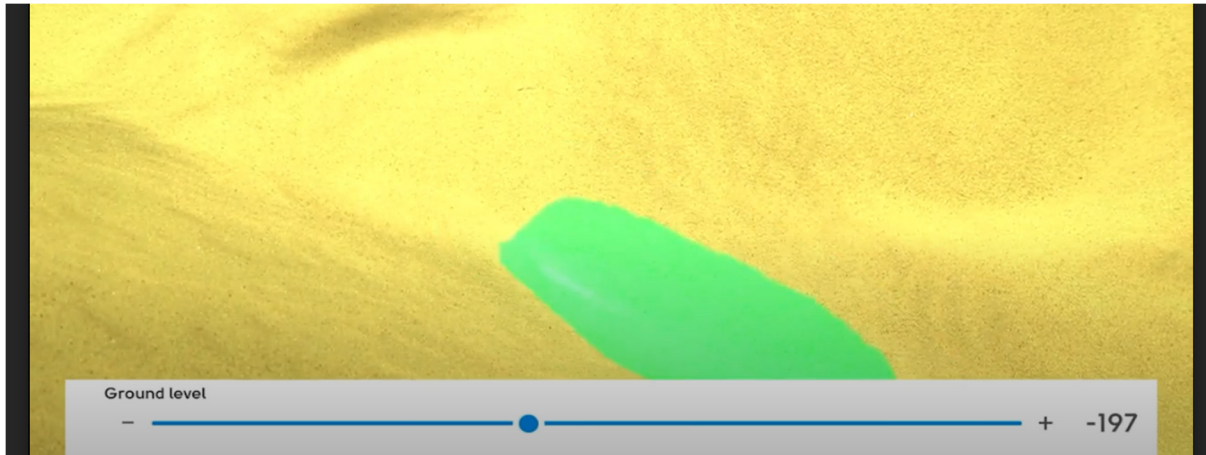


Figure 3.3

- 8) **Calibration Step 4:** the height level. We need to build two mountains in two different areas of the sandbox. You can build it to any height, but we recommend to make it a little bit higher than the sandbox's side wall. The mountains should also be centered front to back in the sandbox. The small hole from the previous step should remain the same. In this step, we'll use two sliders: one for the mountain tops and one for the ocean floor. Drag the second slider to set the supposed ocean floor until the small hole turns red (User tip: then go one more click until the red marker totally disappears). Use the first slider to adjust mountain tops till they become yellow. (Figure 3.4 and Figure 3.5)

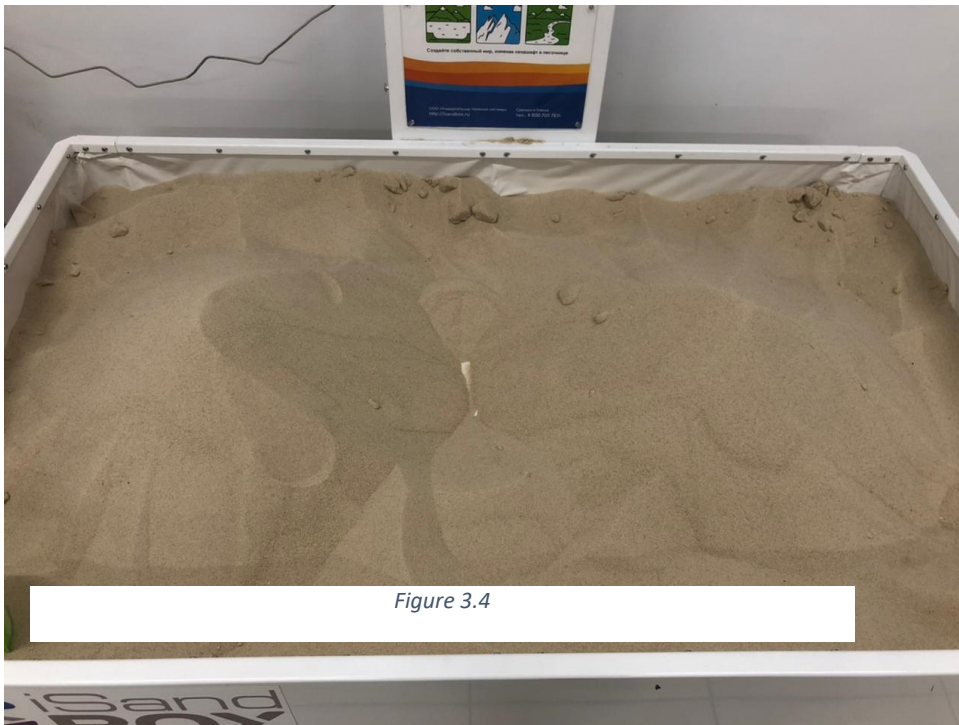




Figure 3.5

Next, place a small object approximately 1" x 2" on top of each of the mounds. (See Figure 3.6)



Figure 3.6

- 9) **Calibration Step 5:** Adjusting the water level. Move the slider to fill the holes in the sand with water half over (User tip: lower the water just until you can no longer see blue representing the water). You can check if you've done it right: smooth out the sand surface and see if the water disappears. Be sure to ignore the dashed lines. (See Figure 3.7)

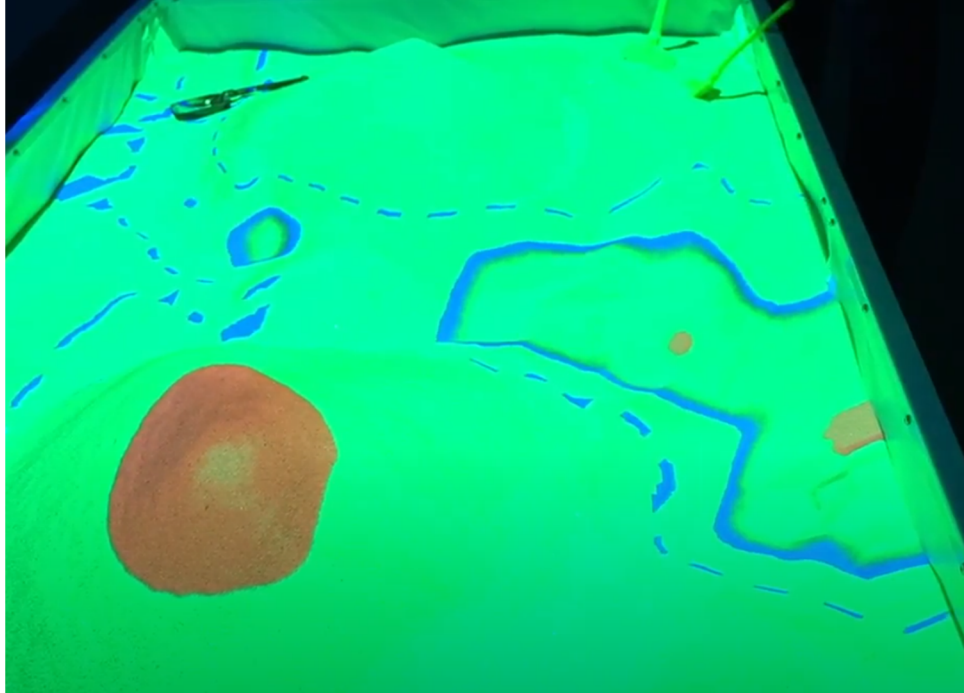


Figure 3.7

10) **Calibration Step 6:** *it is best to use mouse for this step*

The projection position stage. A brief explanation of the 5 tabs is below:

- a) **Eye tab:** this adjusts & centers the red sphere
- b) **FOV (field of view):** Centers all and adjusts eye up/down and increases and decreases size.
- c) **Look At:** Tweaks the tops of mountain tops.
- d) **Aspect Ratio:** Moves the mountain tops up & down and side to side directions.
- e) **Up direction:** Rotates the view.

First start with the eye tab. Center the water and make sure it is level with elevation. Then go through the rest of the tabs in order, trying to center the mountain tops. Only adjust if it does not impact the water in the middle. Keep repeating each tab tweaking the settings. Eventually the mountain tops and the water will be centered. Going back to step 2 to readjust the sandbox perimeter might be needed as you are toggling between the step 6 tabs.

For example, the projection of mountains or lakes is slightly offset. To fix this, we will need to move the sliders and the spots simultaneously, while watching the sand surface. On the **FOV** tab we can set the angle of our projection. We can change it by moving the slider. It is ok if you see the red grid during calibration. If your problem has not been resolved and the mountain top projections are still not in the correct location, navigate to the **Look At** tab, then adjust the projection direction by moving the white circle inside the grey area. Toggle between these tabs to reach the desired calibration settings. (See Figure 3.8)

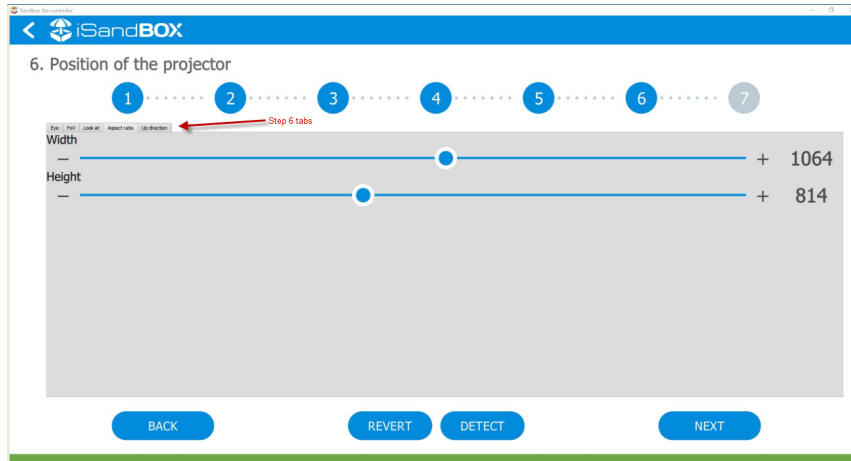


Figure 3.8

11) **Calibration step 7:** Tap “Done”. Exit the calibration wizard.

B. Let’s make sure iSandBOX is properly calibrated.

12) Switch to the **Safari** mode and see whether the mountains and lakes are in their right places. Then go back to calibration mode and instead of starting the calibration wizard, just adjust the water level manually. (See Figure 3.9)

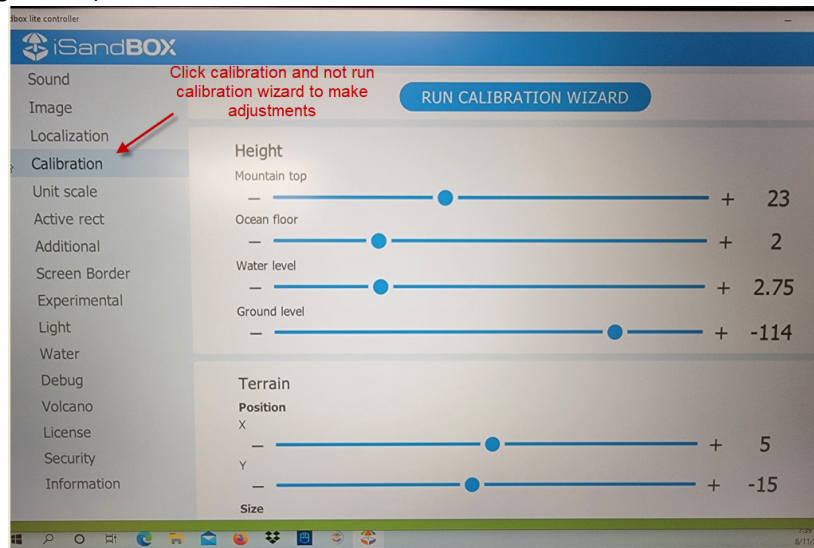


Figure 3.9

NOTE: You can continue to go into calibration wizard if needed to adjust your calibration steps, remember not to select reset all settings. (See Figure 3.10)

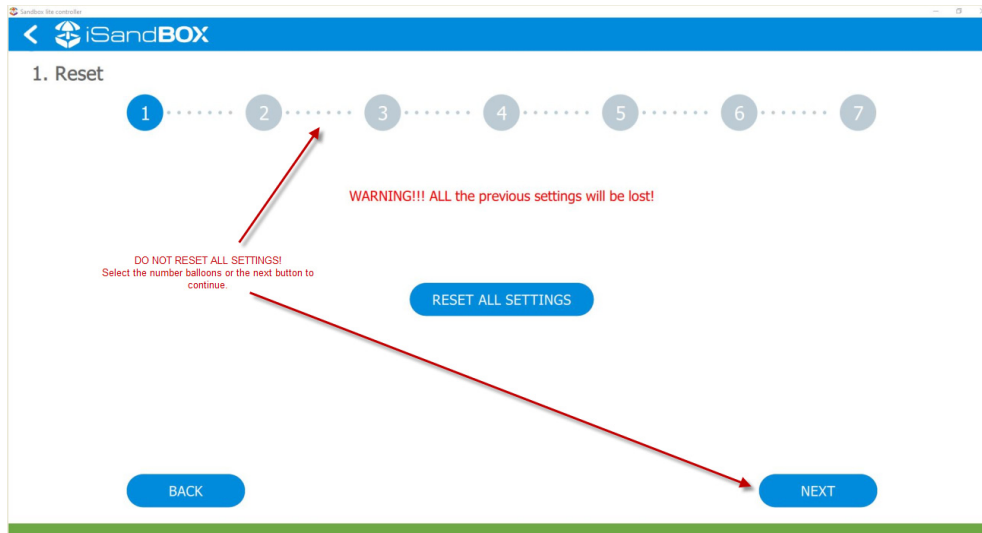


Figure 3.10

13) **Volcano mode:** Check calibration in the Volcano mode. (See Figure 3.11)

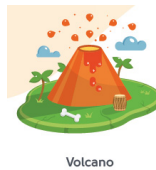


Figure 3.11

Start the **Volcano** mode, build a mountain with a round mountain bottom and dig a small hole in its top. If calibration has been successful, eruption should begin. If eruption does not occur, then make sure the following criteria is met:

- The base of the volcano should be round.
- The volcano opening depth should be concave and located in the center (use fingers to hollow out the top).
- The volcano should not be made at an angle. (See Figure 3.12)
- The Volcano mode is calibrated to a certain height of volcanoes (near the height level of the sandbox depending on the settings/calibration). In order for two or more volcanoes to work, they must be of the same height.
- Move to the volcano setting under calibration mode (not in the calibration wizard though) if the volcano does not erupt, then create the volcano so it is twice as high

as the bottom. Bottom setting about 9-10 and top setting about 18-21. This is a good ratio depending on the calibration. (See Figure 3.13)

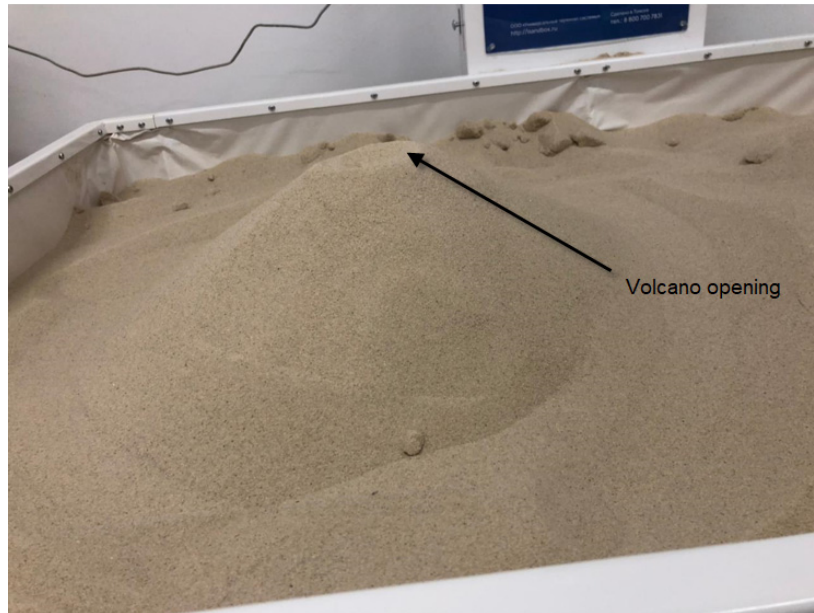


Figure 3.12

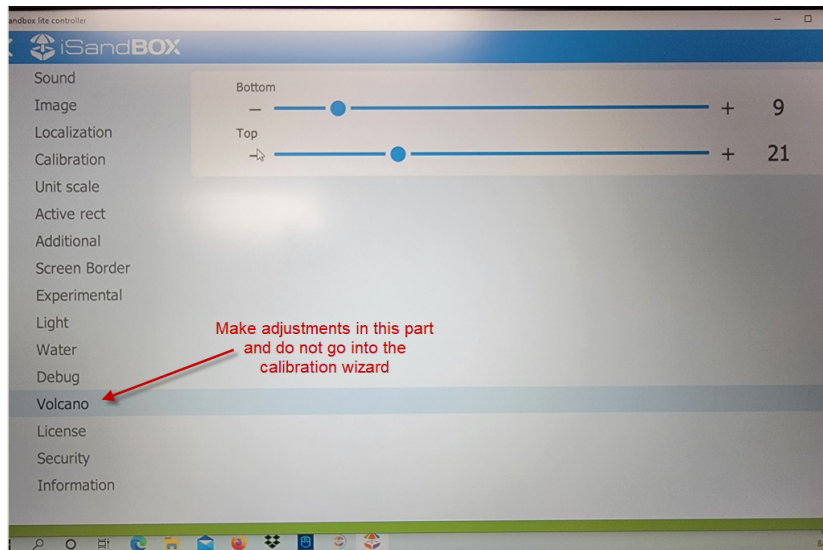


Figure 3.13

Sandbox calibration is performed correctly if:

- The tops of virtual mountains coincide with the tops of real mountains
- The water is located exactly within the recesses

- When switching to the Volcanoes mode, the made volcano will start to erupt
- Lava does not erupt in water

*if at any time you see a white line towards the bottom edge (edge closest to you), then you should go into full screen on your sand box lite controller (See Figure 3.14).

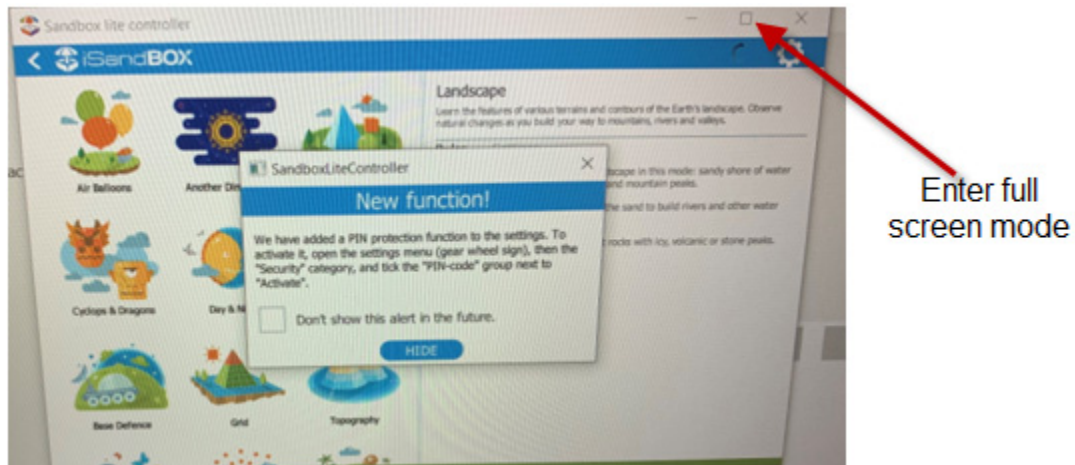


Figure 3.14

IMPORTANT NOTE *ONCE FULLY CALIBRATED, SET UP THE SECURITY PIN CODE TO LOCK IN YOUR SETTINGS*

You are now ready to use your sandbox!

4 Exiting the Protective Shell

The shell is a full-screen application. The main function is to protect against unauthorized user access to the device's operating system and launch the main floor software. Also, the shell provides functions for configuring the software and restarts it in case of incorrect shutdown. Technical support service configure the shell yourself. In order to log out to the Windows desktop:

- A. Plug the keyboard and mouse into the available USB ports and press the "Escape" key. After that, a blue window will appear with the clock and date on top (See Figure 4.1)

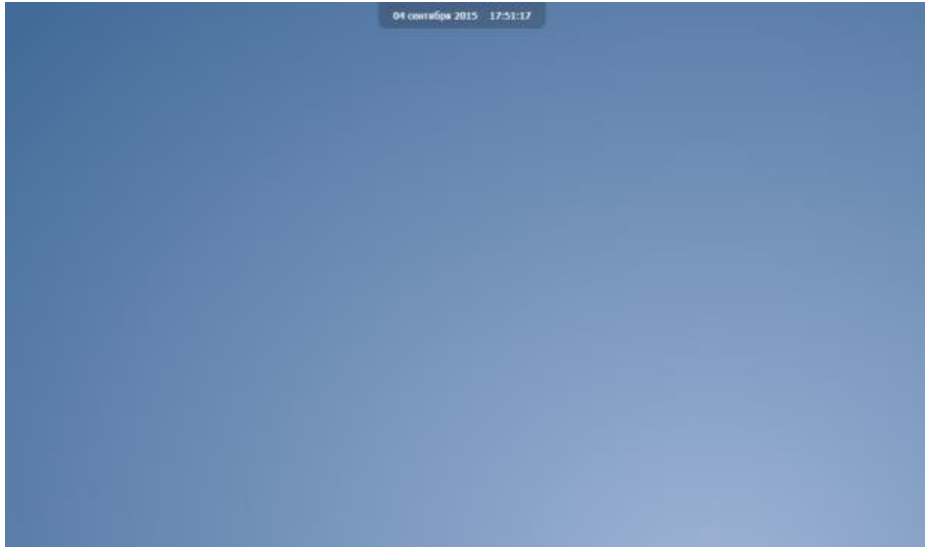


Figure 4.1

- B. Click in the center of the screen with the mouse to open the Shell password entry window. Enter the character "1" in the password entry line, click OK (See Figure 4.2)

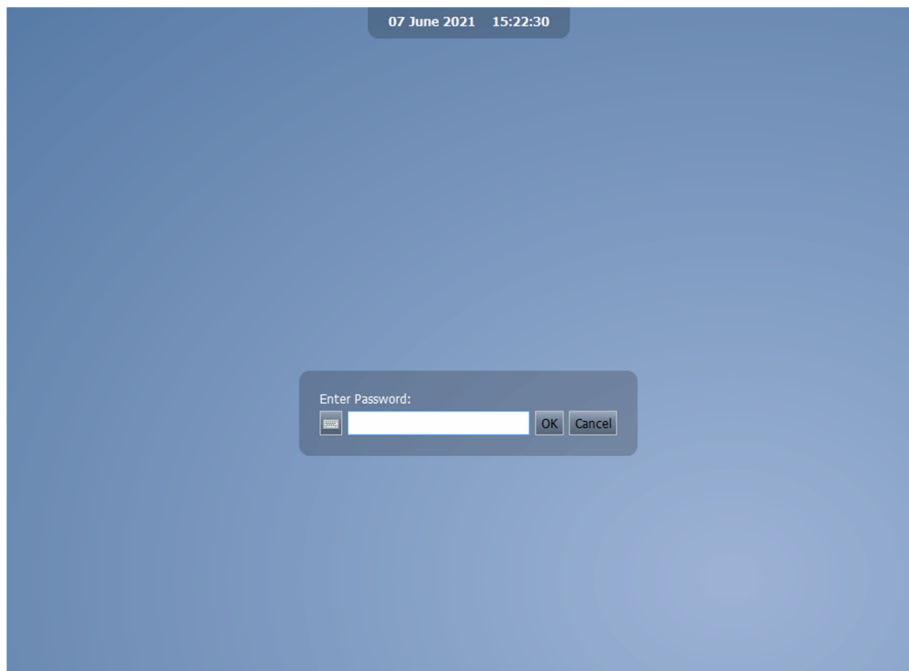


Figure 4.2

C. Select the menu item - "Close Shell" (See Figure 4.3)



Figure 4.3

5 Additional Helpful Information

- You may want to turn off the sleep mode on your laptop, this way the screen will not go to sleep if not in use.
- Below is an added feature to lock the settings. In order to install the software DWI had to check the box to not show the alert in the future. You may want to consider setting this up in your Sandbox Lite Controller application once the unit is completely calibrated. Please put your pin-code in a safe place. (See figure 5.1)

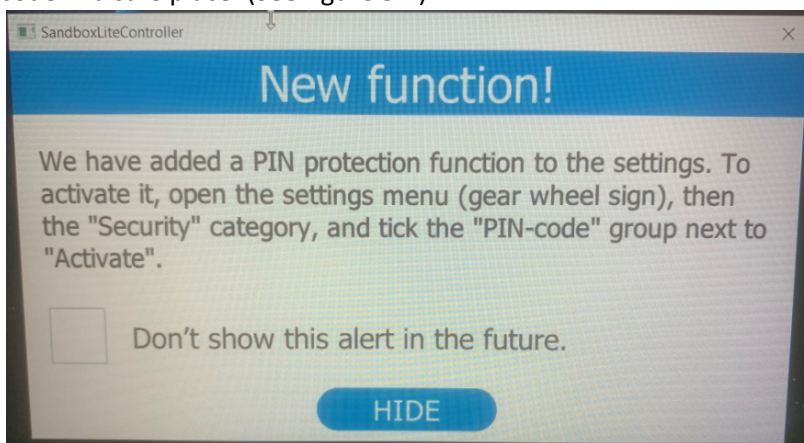


Figure 5.1

- This software is not yet compatible with Windows 11, so please do not install that version of windows on this laptop.

6 Daily ARS-4030 Operating Instructions

Powering on and starting software:

- Turn laptop power button on
- White remote control:
 - Turn power button on
 - Select menu button and use the arrow button to go to the “keystone” option and push to select.
 - Change keystone using the up and down arrow buttons until you are at 0.
 - Select exit and set the remote aside
- On the laptop enter the password if you have one set up
 - To enter the password look on the main projected screen which is the projection onto the sand.
- On the laptop or desktop locate the two sandbox icons.
 - Double click on each icon to open the application. (See Figure 6 below for images of the icons).
 - The sandbox software will open. This may take a minute to load.
 - The main screen will show the sandbox modes
 - The laptop screen will show the sandbox lite controller, this will be where you will change modes to display in the sand.

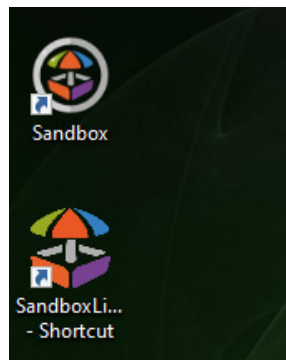


Figure 6

Closing software and powering off laptop:

- Use the X to close the sandbox lite controller on your laptop screen
- Move your mouse to the sandbox projection and press the esc. button on your laptop keyboard
- Shut down the laptop and close the top to protect the screen
- On the white remote control, press the power off button two times.