

CVC-2-017

Educational Body Systems Toolkit: User Manual

1.0 PURPOSE

The purpose of these Project Setup Instructions is to provide direction to the proper use of the Educational Body Systems Toolkit.

NOTE: This user manual provides steps based on VIVE controllers. Refer to action mappings for Valve Index and Oculus Touch controllers by navigating to Project Settings-> Input-> Action Mappings in the Unreal Project after following the Project Setup Instructions

2.0 OPERATING PROCEDURES

Follow Educational Body Systems Toolkit - Project Setup Instructions to set up Unreal Project

NOTE: This user manual provides steps based on VIVE controllers. Refer to action mappings for Valve Index and Oculus Touch controllers by navigating to Project Settings-> Input-> Action Mappings in the Unreal Project after following the Project Setup Instructions

2.1 Summoning and Dismissing Knee using VR Controller Buttons

NOTE: The summonable knee will outline in blue when looked at as a selected knee.

1. Select knee by looking at knee and ensuring knee is outlined in blue.
2. Press DOWN trackpad to summon while looking at selected knee.
3. Look at summonable knee and ensure knee is outlined in blue to dismiss.
4. Press UP trackpad to dismiss while looking at selected knee.

2.2 Summoning and Dismissing and Knee using Gestures

NOTE: The summonable knee will outline in blue when looked at as a selected knee.

1. Select knee by looking at the knee and ensure it is outlined in blue.
2. Gesture controller towards user to summon while looking at selected knee.
3. Look at the summonable knee selected to dismiss.
4. Gesture the controller away from user to dismiss while looking at the selected knee.

2.3 Grabbing and Releasing Knee

1. Locate the knee to manipulate.
2. Position the controller within selected knee.

NOTE: The VR Controller will vibrate on overlap with the knee.

3. Using the controller, press and hold the trigger to grab the selected knee.
4. Move the controller.

NOTE: The selected knee will move with the controller.

5. Release the trigger on the controller to release the knee.

2.4 Laser Pointer Operations: Pressing Clarus Viewer® Buttons using Laser Pointer

1. Point VR controller at the selected 2D Panels in Virtual Environment.
2. Hover laser over the selected button.
3. Press and release the trigger on the VR controller to press button.

2.5 Laser Pointer Operations: Moving Panels using Laser Pointer

1. Point the VR controller at selected 2D Panels in Virtual Environment.
2. Hover the laser over top handle of selected panel.
3. Press and hold the controller trigger on the VR controller to move the panel.

NOTE: The panel will follow the movement of the VR controller.

4. Move the VR controller.
5. Move the panel closer by pressing and holding the VR controller DOWN trackpad until the preferred distance is attained.
6. Release the trackpad button.
7. Press and hold UP trackpad on the VR controller to move panel further away until the preferred distance is attained.
8. Release the trackpad button.
9. Release the trigger on VR controller to place the panel in 3D space.

2.6 Adjusting the Size of Knee

1. Locate the knee to manipulate.
2. Position both controllers within the selected knee.
3. Press both triggers and move the controllers together to decrease the knees size.
4. Press both triggers and move the controllers apart to increase the knees size.
5. Release the trigger on both controllers to release the selected knee.

2.7 Workstation Operations: Changing the Height of the Workstation

NOTE: The Workstation can be moved up and down using the workstation handle.

1. Intersect the workstation handle using VR controller.
2. Press and hold the trigger on VR controller to grab the workstation handle.
3. Move the VR controller up and/or down for the selected height.
4. Release the trigger on VR controller to release the workstation handle.

2.8 Workstation Operations: Resetting the Workstation

1. Locate RESET on the workstation.
2. Intersect the button located at center of workstation reading RESET.
3. Press and release the trigger.

NOTE: The workstation will return to default location when trigger is released.

4. Verify workstation returns to default location.

2.9 Workstation Operations: Show or Hide Object using Workstation User Interface (UI) Belt Buttons

NOTE: The following objects visibilities can be controlled via the workstation UI belt:

- **Model Ref (Knee)**
- **System Control**

1. Intersect the selected button on UI belt using VR controller or hover over button using VR controller's laser.
2. Press and release the trigger on VR controller.

NOTE: The associated object will disappear or appear in the Virtual Environment when trigger is released.

2.10 Select the Reference Model System

1. Point the VR controller at the System Control Panel.

NOTE: The Knee will display in the selected systems.

2. Hover the laser over the system buttons on the System Control Panel.
3. Press and release the trigger on VR controller to toggle the selected system.

NOTE: The following reference model system visibilities can be controlled via the System Control panel:

- Skin
- Muscles/Tendons
- Bones/Ligaments
- Circulatory/Nervous
- Other Organs

2.11 Clarus Viewer® Tools Operations: Selecting a Tool

1. Point the VR controller at the Tool Selection Panel button in the Virtual Environment.
2. Hover laser over the Tool Selection Panel button.
3. Press and release the trigger on the VR controller to press button to select tool.

NOTE: The selected tool will appear in the opposite hand that selected the tool

2.12 Clarus Viewer® Tools Operations: Deselecting a Tool

1. Select tool.
2. Press None button on Tool Selection Panel to dismiss the selected tool from VR controller.

2.13 3D Ruler Tool Operations: Creating a Measurement

NOTE: The measurements are for reference only.

1. Select 3D Ruler on Tool Selection Panel.
2. Move the VR controller to the initial measurement location.
3. Press and release the trigger on the VR controller to start measuring.
4. Move the VR controller to preferred final endpoint of measurement.
5. Press and release the trigger on the VR controller to place the end measurement point.

2.14 3D Ruler Tool Operations: Moving a Measurement

1. Change the mode of tool to “MOVE” by pressing and releasing the LEFT trackpad on the VR controller until the text underneath measuring tape reads “MOVE”.
2. Hover the 3D Ruler tool over the measurement node that will be moved.

NOTE: The grabbed node will move with the VR controller.

3. Press and hold the trigger on the VR controller to grab the measurement node.
4. Move the VR controller to move the measurement node to the desired position.

NOTE: When the node repositions, it will no longer move with the VR controller when trigger is released.

5. Release the trigger to place the measurement node in Virtual Environment.

2.15 3D Ruler Tool Operations: Hiding a Measurement

1. Change the mode of the tool to “HIDE” by pressing and releasing LEFT trackpad button on VR controller until the text underneath measuring tape reads “HIDE”.
2. Select the HIDE mode.
3. Hover the tool over the measurement.
4. Press and release the trigger on the VR controller to hide measurement details.

NOTE: The measurement details should now be hidden.

5. Hover over the measurement.
6. Press and release the trigger on VR controller to decrease the opacity, measurement line, and size of the connected measurement nodes.
7. Verify the measurement appears less opaque with the smaller connected measurements nodes.
8. Hover the tool over measurement.
9. Press and release the trigger on the VR controller until measurement details appear and the measurement opacity is reset to make measurement visible.

2.16 3D Ruler Tool Operations: Deleting a Measurement

1. Change the mode of the tool to “DELETE” by pressing and releasing LEFT trackpad button on VR controller until text underneath measuring tape reads “DELETE”.
2. Hover the tool over the measurement selected to delete using the 3D Ruler Tool in DELETE mode.
3. Press and release the trigger on VR controller to delete the hovered measurement.

2.17 3D Pencil Tool Operations: Creating an Annotation

1. Select 3D Pencil from the Tool Selection panel button.
2. Press and hold the trigger while moving VR controller to draw or annotate in 3D space.
3. Release the trigger on the VR controller to stop drawing or annotating in 3D space.

2.18 3D Pencil Tool Operations: Hiding an Annotation

1. Change the mode of tool to “HIDE” by pressing and releasing the LEFT trackpad button on the VR controller until the text underneath the measuring tape reads “HIDE”.

2. Hover the tool over the annotation or drawing to hide using the 3D Pencil Tool in HIDE mode.
3. Press and release the trigger on the VR controller using drawing or annotation hovered.
4. Verify the drawing appears grey with decreased opacity.
5. Hover the tool over the drawing or annotation.
6. Press and release the trigger on VR controller to make drawing or annotation visible.

2.19 3D Pencil Tool Operations: Deleting an Annotation

1. Change the mode of the tool to “DELETE” by pressing and releasing LEFT trackpad button on VR controller until text underneath measuring tape reads “DELETE”.
2. Hover the tool over the drawing or annotation to delete using the 3D Pencil Tool in DELETE mode.
3. Press and release the trigger on VR controller using the drawing or annotation hovered.

2.20 3D Pencil Tool Operations: Changing the Annotation Color

NOTE: The second VR controller needs to be a Clarus Hand.

1. Point the second VR controller at the Color Controls Panel displayed under the Tool Selection panel.
2. Position the VR controller’s laser over the desired color button.
3. Press and release the trigger on the VR controller while hovering the button.

2.21 Camera Tool Operations: Taking a Picture

1. Select the Camera Tool from the Tool Selection panel button.
2. Position the Camera Tool until picture selection is in the camera viewport.
3. Press and release the trigger on VR controller to take a picture.
4. A “polaroid” appears in the virtual space.

NOTE: The picture taken will save to the user’s computer in the Unreal project folder under the “Screenshots” folder. Folder will appear in the project directory after the first image is captured.