OEI Part Number 10001_B

# TCCS Plus

## Male and Female Trauma Simulators

Operative Experience

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# TCCS Plus

The TCCS (Tactical Casualty Care Simulator) Plus series includes male and female military grade, high-fidelity tactical trauma simulators for both medical provider level prolonged field care training and comprehensive all-combatant TCCC training, conforming to the Joint Trauma System (JTS), Center of Excellence and Deployment Medicine training standards.

The TCCS Plus is a clinically responsive simulator designed to support physiologically-based prolonged field care training as well as TCCC training capability. Wireless and tetherless, the TCCS Plus is ruggedized and water-resistant for indoor and outdoor environments, a realistic weight, a three-liter blood reservoir, and ten-plus hours of battery life.

## Product Components

Each simulator comes with all the components needed to perform the associated trauma scenarios.

| | |
|---|---|
| Case with Casters | **1** |
| Tablet | **2** |
| Tablet Case | **2** |
| Vent Plug Sets (for washing) | **2** |
| Li-ion Polymer Battery Pack 18.5V 6400mAh (118Wh) | **2** |
| Battery Charger | **1** |
| Concentrated Simulated Blood (1 Gallon) | **1** |
| Hand Pump/Canister | **1** |
| Neck Bands | **3** |
| White Tape for Crichotomy | **1** |
| Repair Kits | **2** |
| Sternal Inserts | **2** |
| Humeral Caps | **4** |
| IV Sleeve | **1** |
| Head Set | **1** |
| Head Set Battery Rechargeable Li-polymer 3,7V 800mAh 3.0Wh 852934 | **2** |
| Head Set Battery Charger | **1** |
| Body Bag | **1** |
| Head Set Bag | **1** |
| Gym Shorts | **1** |
| Sports Bra (Female Only) | **1** |

## External Access

The simulators are designed for realism, with only a few seams or external access points:

- A battery pack access compartment in the upper, inner left thigh
- A blood infusion port located on the right side of the chest (male) or left shoulder (female)
- Physiologically appropriate openings for genital cathertization on both the male and female

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# Caring for Your Simulator

**Soldier Strong™ but not indestructible! Treat the simulator as you would a combat casualty.**

**Technical Support**

Simulators must be serviced by qualified OEI technicians only.

To schedule service, contact:

Operative Experience Inc.
500 Principio Parkway West
Suite 900
North East, MD 21901

Phone: 410-287-5748

Email: support@operativeexperience.com

## Lubrication

Glycerin or mineral oil should be used liberally for enabling the oropharyngeal, nasopharyngeal, and the emergency (surgical) airway on all models.

## Use and Treatment

The simulators are durable and Soldier Strong™, but not indestructible. Boots or heel cups and pants/shorts must be worn to protect the skin if the body is dragged during field use. The simulator should be dragged by the shoulders only (and not by the arms or legs). The simulators are water-resistant, but not waterproof. Use the vent plugs to protect the electronics when cleaning the simulators or when using them in the rain or in a wet area. Because the ventilation openings are used to reduce the temperature on the electronics, remove the plugs when working in a dry area.

## Operating Conditions

The simulator may not operate correctly in certain extreme conditions. Only use the simulator in recommended conditions:

- Operating Temperature 32 to 104 ℉ (0 to 40 ℃) unless otherwise specified by the tablet in use. When using their own tablets, customers need to be aware of the conditions specific to that tablet.
- Storage Temperature of the simulator is from -14 to 140℉ (-25 to 60℃).
- Ambient Pressure is 10 to 15 Psi, the equivalent of -10 Mts below sea level to 2000 Mts above sea level at 25℃.
- Humidity should be from 0 to 80%.

## Cleaning

Simulators can be wiped clean with Isopropyl Alcohol in addition to a simple solution of mild soap and water. Insert the vent plugs into the ventilation openings to protect the electronics when washing the unit.

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# Troubleshooting

User-troubleshooting is restricted to the functions described in this manual. Simulator electronics are inaccessible and should only be serviced by qualified OEI technicians. A breathing or bleeding failure is generally resolved by charging or replacing the battery. See *Charging/Replacing the Battery Pack* below. For minor tears in the skin, see *Repairing the Skin* below.

# Storage

Simulators should be dry, fluid free, and without clothes during long-term storage. As stated above, the storage temperature is from -14 to 140℉ (-25 to 60℃) and humidity needs to be less than 80%. See *Storing the Simulators* below. The blood flow system does not need to be flushed for overnight storage, but must be for long-term (one week or more) storage. See *Emptying/Cleaning the Bleeding System* below.

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# Understanding Your Simulator

Each of the six (6) configurations of the military grade, high-fidelity TCCS Plus simulators has specific features and wounds designed for prolonged field care training and comprehensive all-compatant TCCC training.

## Common Features

Though each simulator has unique attributes, all have the following common features:

### Airways

- Endotracheal tube placement
- Tongue-swelling for difficult airway
- Bag-valve-mask ventilation
- Assessment of oral and nasal areas
- Insert nasal and oral pharyngeal airways
- Perform intubation – King LT and i-gel
- Cricothyrotomy

### Circulation

- Remote-controlled heart rate
- Humeral and sternal intraosseous
- ECG
- Blood pressure measurement
- Carotid, brachial, radial, femoral, popliteal, posterior tibial, and dorsalis pedis pulses
- Defibrillation, cardioversion and pacing (with iSimulate monitoring software)

### Hemorrhage Management

- Remote-controlled pulsative arterial hemorrhage
- Remote-controlled venous bleeding
- Bleeding control via pressure, elevation, and pressure points
- Combat Application Tourniquets, and junctional tourniquets
- Wound packing
- Multiple and independent bleeding sites
- Penetrating trauma wounds

### Breathing

- Remote-controlled respiratory rate
- Bilateral and independent chest excursion
- Tension pneumothorax corrected by midclavicular and anterior axillary
- Support to external ventilation
- Bilateral chest tube insertion

### Sounds

- Airway sounds [No Sound, Healthy (Normal), and Stridor]
- Heart sounds (Normal S3, S4, S3 & S4, Early Systolic Murmur, Mid Systolic Murmur, Late Systolic Murmur, Pan Systolic Murmur, and Late Diastolic Murmur)
- Lung sounds [No Sound, Healthy (Normal), Wheeze, Rhonchi, Pleural Rub, and Crackles]

### Medication and Vascular Access

- Intramuscular sites for medication
- IV cannulation (via the IV sleeve)

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## Neurological

Blinking eyes with tri-state pupils (Normal, Blown, and Pinpoint).

## Appearance

Your simulator has been designed to support one of the following ethnicities:

- African-American
- Asian
- Caucasian
- Hispanic

Figure 1: The Male TCCS Plus

## Gender

Both the Female and Male TCCS Plus simulators are designed for gender realism during physiologically-based prolonged field care training.

### Male

Anatomically accurate male simulator is 76 inches high (height), 28 inches wide, and 12 inches in diameter (192cm x 70cm x 30cm). The male simulator weighs 185 pounds (82kg) with a 5% variance.

Figure 2: The Female TCCS Plus

### Female

Anatomically accurate female simulator is 65 inches high (height), 23.6 inches wide, and 11 inches in diameter (165cm x 60cm x 28cm). The female simulator weighs 130 pounds (59kg) with a 5% variance.

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# Trauma Configurations

Your simulator has been designed to support one of the following trauma configurations:

## Wound Configuration 1

| | | |
|---|---|---|
| Gun Shot Wound (GSW) | Right Side of the Face | Venous Bleeding |
| Gun Shot Wound (GSW) | Right Side of the Chest | Venous Bleeding |
| Gun Shot Wound (GSW) | Exit Left Side of the Back | |
| Inguinal Wound | Left Side | Arterial Bleeding |
| Open Fracture | Right Leg Tibia/Fibula | Arterial Bleeding |

## Wound Configuration 2

| | | |
|---|---|---|
| Gun Shot Wound (GSW) | Left Side of the Chest | Venous Bleeding |
| Gun Shot Wound (GSW) | Exit Right Side of the Back | |
| Axillary Wound | Left Side | Arterial Bleeding |
| Amputation | Bilateral Below the Knee | Arterial Bleeding |

## Wound Configuration 3

| | | |
|---|---|---|
| Gun Shot Wound (GSW) | Right Side of the Chest | Venous Bleeding |
| Gun Shot Wound (GSW) | Exit Left Side of the Back | |
| Inguinal Wound | Right Side | Arterial Bleeding |
| Amputation | Left Lower Arm | Arterial Bleeding |
| Amputation | Left Below the Knee | Arterial Bleeding |

## Wound Configuration 4

| | |
|---|---|
| 2nd Degree Burn | Chest |
| 3rd Degree Circumferential | Right Thigh |
| Closed Fracture | Right Leg |
| Electrical Exit Wound | Left Bottom of the Left Foot |

## Wound Configuration 5

| | | |
|---|---|---|
| Bruising (Seat Belt Injury) | Across Chest and Abdomen | |
| Bruising/Swelling | Pelvis Region | |
| Closed Fracture | Lower Right Arm | |
| Open Fracture | Right Leg Tibia/Fibula | Arterial Bleeding |

## Wound Configuration 6

Healthy Body – No Visible Wounds

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# Connecting to the Simulator

The Instructor Tablet is used to start and stop the simulation, control the features and provide a log with a record of the simulation. Alternative devices can be used when the OEI Sim application has been installed.

## Installing the OEI Sim Application

Figure 3: Operating the Simulator

Prior to the first use, the Instructor Tablet (or any alternative device) should be configured with the OEI Sim application, which can be downloaded from the iOS or iPadOS App store, Mac OS App store, Google Play store, or Microsoft store.

1. Turn on the Instructor Tablet (or alternative device).
2. In the device's wireless settings select an available WiFi network.
3. Go to the appropriate App store (iPadOS App store or Google Play store).
    a. For all iOS devices, the App Store is a default application on your screen. You'll need an Apple ID to download and install the OEI application using either the App (iOs or iPadOS) Store (or iTunes®).
        i. Activate the tablet and access the Click the App Store icon to go to the store's page. You can also access the application by going directly to http://appstore.com/oeisim.
        ii. Use the Search field (i.e., the field with the magnifying glass) and enter OEI Sim or Operative Experience as your search criteria.
        iii. Select the OEI APP and click Get.
        iv. Click **Install**.
    b. For most Android devices, the Play Store is a default application on your screen.
        i. To download click the Play Store icon (or go to https://play.google.com/store) to go to the store's page and select **Apps**. You can also access the application by going directly to https://play.google.com/store/apps/details?id=com.operativeexperience.oeiapp.
        ii. Use the Search field (i.e., the field with the magnifying glass) and enter OEI Sim or Operative Experience as your search criteria.
        iii. Click the OEI APP icon.
        iv. Click **Install**.
4. Install the OEI Sim application, providing a Shortcut to be placed on your desktop.
5. Return to the wireless settings and disconnect from the WiFi network.

For additional information on how to install the software, visit the Operative Experience Support page (https://operativeexperience.com/support/), which has links to pages with detailed information about downloading and installing applications.

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# Connecting to the Simulator's WiFi Network

Once you've powered on the tablet, you need to adjust your WiFi settings so the device can be connected to the simulator.

1. Make sure the simulator is turned on by holding down the button on the right shoulder for approximately two seconds or until the blue light comes on.
2. On your tablet's Wi-Fi settings, select the simulator's network, indicated by TCCS and the simulator's identification and serial number.
3. Enter the password of *oeiadmin*.

# Opening the OEI Sim Application

After the wireless connection has been established, open the OEI Sim application to access the Instructor Control Interface.

Click the shortcut icon for the simulator to open the OEI Sim application.

The software loads and the Welcome screen appears.

Figure 4: The Shortcut Icon

# Understanding the Welcome Page

The Welcome page displays all **Available Simulators** as well as the **User Guides** for the simulators.

Locate the simulator you want to operate from the list of **Available Simulators**, indicated by the simulator's identification and serial number.

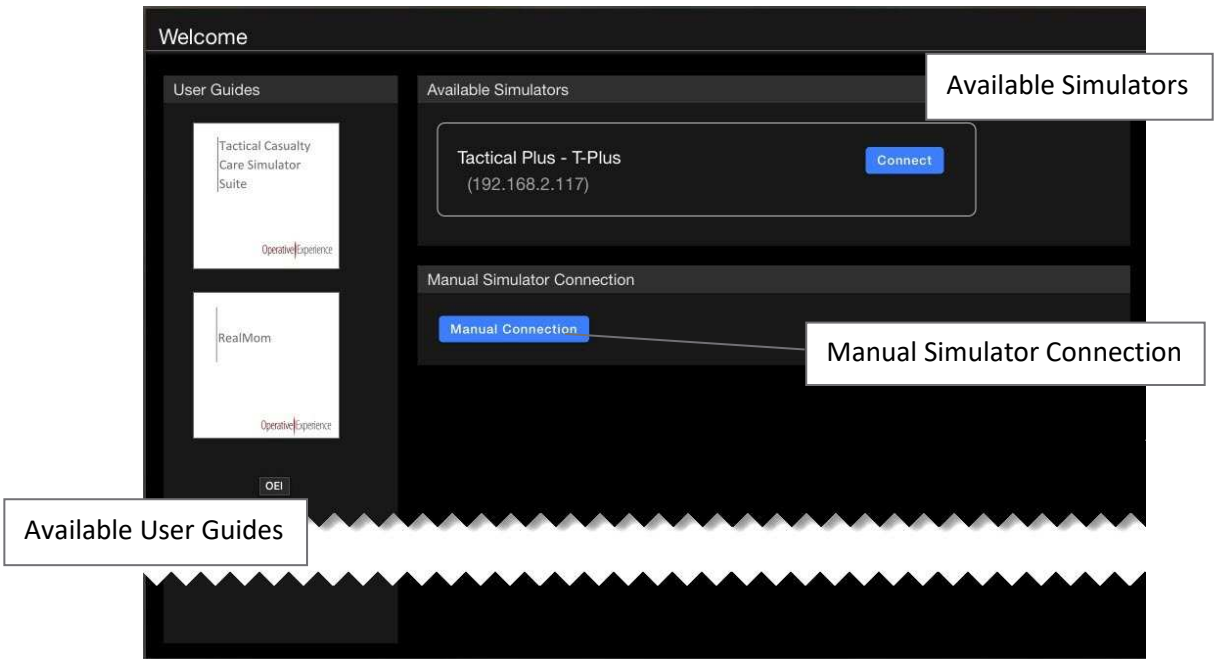


Figure 5: The Welcome Screen

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Click **Connect** in the panel with the desired simulator to automatically establish a wireless connection between the software and the simulator.

During operation, it is possible to disconnect from one simulator, return to the Welcome page, and connect to a different simulator from the same tablet.The application connects to the simulator and the Instructor Control Interface appears.

If you need to connect manually, click the **Manual Connection** button in the **Manual Simulator Connection** panel and follow the directions provided above.

When running diagnostics or considering updates, you'll want to identify the **Tablet Version**, which is displayed in the panel on the left.

# Establishing the Wireless Connection Manually

If you need to configure the wireless connection (or, if the tablet's Wi-Fi doesn't recognize the simulator network) on the Welcome page, click **Manual Connection**.

A page appears with a field for the Simulator IP.

Figure 6: Configuring the Wi-Fi Connection

Enter the simulator's IP address and click **Go** (or press Enter). To run the simulator using the HotSpot, enter the IP address of 10.42.0.1 for the Simulator IP.

The Instructor Control Interface appears.

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# Setting Up Your Simulator

**Prior to beginning your simulation:**

1. Complete the steps needed to install the OEI Sim application and connect wirelessly to the simulator.
2. Ready the simulator's battery by connecting the AC battery charger and allowing the battery to charge overnight or for a minimum of eight hours. See *Charging/Replacing the Battery Pack* below.
3. Prepare the blood using the directions provided with the one-gallon concentrated blood supply. See also, *Adding Blood to Your Simulator* below.

**Beginning your simulation:**

1. Disconnect the AC charger (for remote operation) by unscrewing and detaching the connector:
    a. Male:
        i. Unzip the flap on the inside of the left leg.
        ii. Remove the white cover revealing the connector.
        iii. Disconnect the AC charger.
    b. Female:
        i. Locate the power connector on the right shoulder.
        ii. Disconnect the AC charger.
2. Power on the simulator:
    a. Male:
        i. Unzip the flap on the inside of the left leg.
        ii. Remove the white cover revealing the power button.
        iii. Click the power button, which turns blue to indicate power is on.
    b. Female:
        i. Locate the power button on the right shoulder.
        ii. Click the power button, which turns blue to indicate power is on.

Figure 7: The Battery Compartment, Power Button and AC Connection(Male)

Figure 8: The Power Button and AC Connection (Female)

Figure 9: The Battery Compartment (Female)

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3. Allow the simulator approximately two minutes to complete the self-diagnostics used to prepare the simulator.
4. Connect the hand-held pump filled with blood to the blood port:
    a. Male: the port is located on the right side of the simulator.
    b. Female: the port is located on the left shoulder.
5. Use the pump's handle to fill the blood reservoir on the simulator. The simulator's reservoir holds the contents from one tank. NOTE: Be careful not to overfill and always remove the simulated blood before storing the simulator for its next use.

Figure 10: The Pump Handle and Blood Port (Male)

6. Disconnect the pump.
7. Connect to (join) the Simulator Network.
8. Start the OEI App on the Instructor's Tablet.
9. Once the simulator shows on the screen, select it.
10. After the application opens, in the Running screen press **Play** to begin the simulation.
11. Start the Patient Monitor.

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# Performing Interventions

Each simulator is designed for training for multiple types of injuries.

## Airways

Multiple airway management procedures can be performed with each TCCS Plus:

- Endotracheal tube placement
- Tongue-swelling for difficult airway
- Bag-valve-mask ventilation
- Assessment of oral and nasal areas
- Insert nasal and oral pharyngeal airways
- Perform intubation – King LT and i-gel
- Cricothyrotomy

Figure 11: Inserted i-gel Airway

Two removable tracheas are included with the simulator. When practicing with the Emergency Airway use the insert with the open trachea rings and then place tape over them to simulate the cricothyroid membrane.

Additionally, a replaceable, multi-use neck band enables the practice of performing surgical emergency airway procedures. Each band should enable six to eight applications. After each use, rotate the band to move the incision site away from the trachea. See *Replacing the Emergency Airway Neckband* below.

When simulating a difficult airway, the Swollen Tongue setting in the OEI software can be used to "harden" the otherwise soft tongue, and the breakaway teeth further establish realism during intubation.

Figure 12: Breakaway Teeth

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# Circulation

The TCCS Plus provides multiple ways to measure, influence, and impact circulation.

- Remote-controlled heart rate
- Humeral and sternal intraosseous
- 4 lead ECG
- Unilateral blood pressure measurement
- Carotid, brachial, radial, femoral, popliteal, posterior tibial, and dorsalis pedis pulses
- Defibrillation, cardioversion and pacing (with iSimulate monitoring software)

Figure 13: Humeral Intraosseous Port

All pulses can be adjusted using the Heart Rate control. Each simulator has a port on the left and right humerus that enables non-infusing practice in humeral intraosseous.

Each simulator enables non-infusing practice in sternal intraosseous with a replaceable sternal insert. The FAST1® Intraossesous Infusion System (FAST 1 Sternal IO) is recommended. When the humeral or sternal inserts become worn through several uses and the needle does not stick firmly due to multiple holes in close proximity, the insert can be replaced. See *Replacing the Humeral Cap* and *Replacing the Sternal Insert* below.

# Hemorrhage Management

The **Bleeding** control on the TCCS Plus can be used to simulate a variety of hemorrhage scenarios.

- Remote-controlled pulsative arterial hemorrhage
- Remote-controlled venous bleeding
- Bleeding control via pressure, elevation, and pressure points
- Combat Application Tourniquets, and junctional tourniquets
- Wound packing
- Multiple and independent bleeding sites
- Penetrating trauma wounds

Figure 14: Tourniquet Applied

CAT (Combat Application Tourniquet) and SAM Junctional Tourniquets can be applied to control hemorrhaging at the appropriate sites on those simulators with amputated limbs.

Gauze and pressure-dressing materials can be applied to the deep bleeding wounds on all simulators to absorb blood and control bleeding.

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# Breathing

Breathing on the TCCS Plus can be modified and managed using the **Respiratory Rate** control and appropriate interventions.

- Remote-controlled respiratory rate
- Bilateral and independent chest excursion
- Tension pneumothorax corrected by midclavicular and anterior axillary
- Support to external ventilation
- Bilateral chest tube insertion

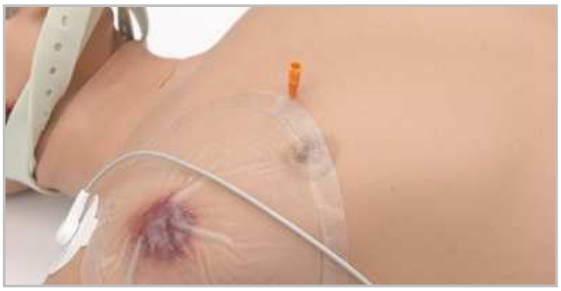

Figure 15: Needle Decompression

Each simulator enables needle decompression using a 14 or 10-gauge needles applied in the mid-clavicular or anterior axillary areas of the chest. With proper needle insertion, pressure is relieved in the chest cavity, the "lung" re-inflates, and normal chest functions begin. Note: there is not a noticeable expulsion of air.

When the skin becomes dimpled from multiple punctures, the skin can be repaired. See *Repairing the Skin* below.

# Sounds

Multiple sounds on the TCCS Plus can be adjusted using the Sound controls and accurately auscultated.

- Airway sounds [No Sound, Healthy (Normal), and Stridor]
- Heart sounds (Normal S3, S4, S3 & S4, Early Systolic Murmur, Mid Systolic Murmur, Late Systolic Murmur, Pan Systolic Murmur, and Late Diastolic Murmur)
- Lung sounds [No Sound, Healthy (Normal), Wheeze, Rhonchi, Pleural Rub, and Crackles]

# Medication and Vascular Access

Medication can be administered at multiple sites and via Intravenous Infusion.

- Intramuscular sites for medication
- IV cannulation (with IV sleeve)

Figure 16: IV Sleeve

# Neurological

Eyes can be set to blink and the tri-state pupils can be independently rotated to be Normal, Blown, or Pinpoint.

Figure 17: Tri-State Pupils

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# The Main Simulation Screen

When you activate the application, the main screen appears, displaying the seven panels of OEI Sim application.

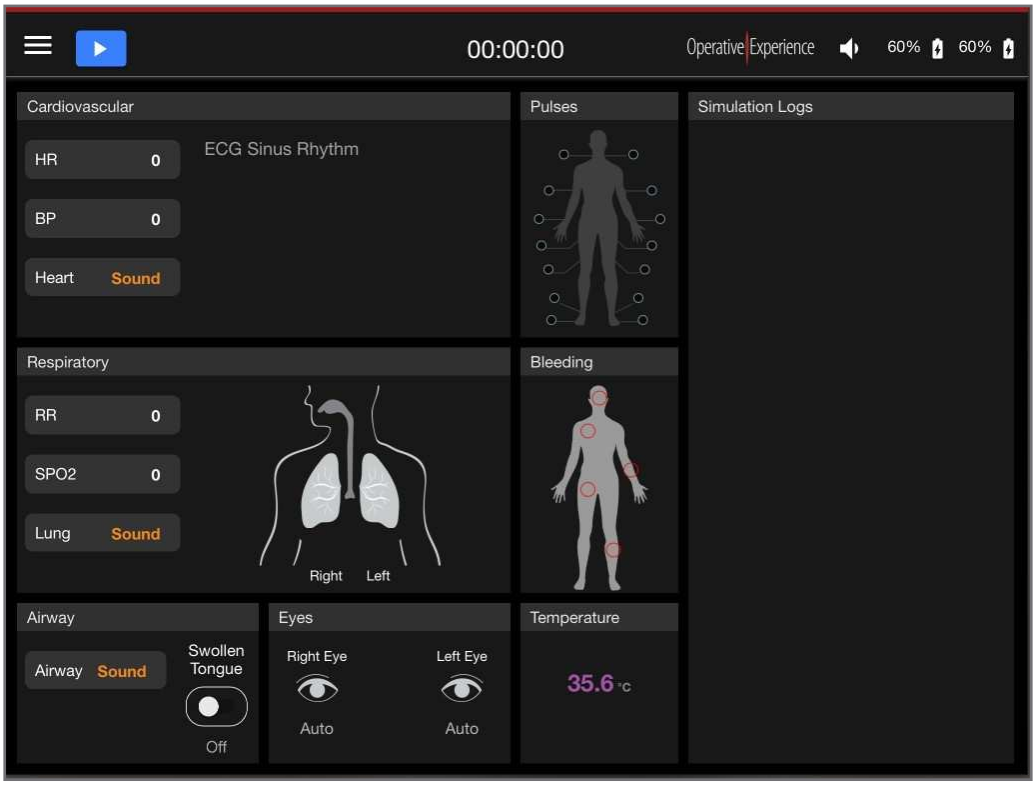


Figure 18: The Main Screen

The panel at the top contains the primary operating controls, the seven panels below on the left and center allow you to set the various physiological features, and the panel on the right displays an active log of the simulation.

## The Operational Panel

At the top of the main screen the uppermost panel displays the **Menu** button, the **Play/Stop** button, a clock recording the time of the simulation, as well as icons displaying the Audio status, and the simulator's Battery and Charging status.

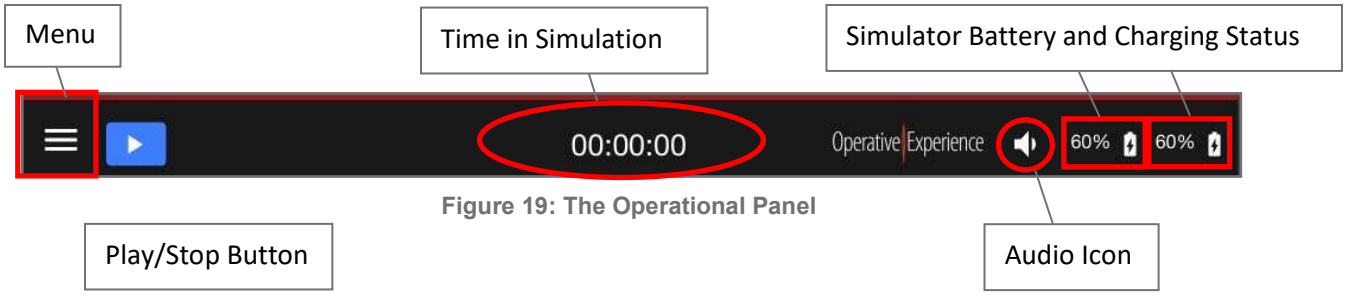


Figure 19: The Operational Panel

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Selecting the **Menu** button opens the application menu with seven options related to system operation.

- The **Simulation** option is activated by default, giving the tablet operator control of the simulator and displaying the Main Screen.
- Selecting the **Sim Logs** option opens a page with a history of the simulation logs and the messages logged for each of these simulations.
- Choosing the **Settings** option displays a page with controls to set the **App Color** (Dark Mode or Non-Dark), the Interface Type (Instructor of Medical Monitor), **Bleeding Location**, and the **Language** (**English** is selected by default). The **Simulator Network Settings** can be confured, and **System Update** files are also uploaded and installed from this page.
- Clicking the **Diagnostics** option opens a page with the basic **Product Information** as well as all **System Diagnostics**. If necessary, the **Shutdown Simulator** or **Reboot Simulator** functions can be initiated from this page.

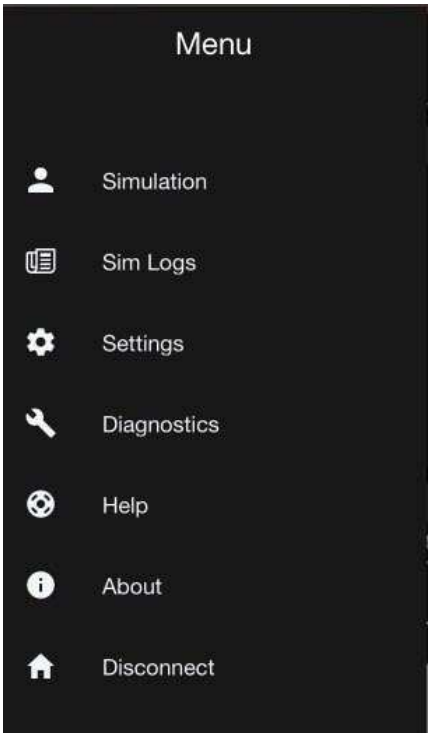


Figure 20: The Menu

- The **Help** option provides access to all the available user guides.
- The **About** option opens a page with the basic details of the system.
- The **Disconnect** option disconnects the application from control of the simulator.

Navigation between these pages is available from the menu. For example, you can return to the Main Screen from the **Settings** page by selecting the **Simulation** option.

To the right of the menu is the **Play/Stop** button. When you first activate the Tablet, the **Play** button is visible. Once you click **Play**, the **Stop** button appears during the simulation.

Figure 21: The Play and Stop Buttons

Clicking the **Stop** button stops the simulation. A warning box appears to verify that you wish the simulation to end.

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The clock in the center of the uppermost panel displays the runtime for the simulation numerically in hour, minutes, and seconds (i.e., 00:00:00). The clock begins when **Play** is clicked and is stopped when the simulation ends by clicking the **Stop** button.

Figure 22: Clock Displaying Time in Simulation

The simulator's available battery status and the charging status appear as percentages on the right hand side of the Operational Panel. Both are indicated by the icon of a charging battery. The simulator's battery status is to the left and charging status is on the right.

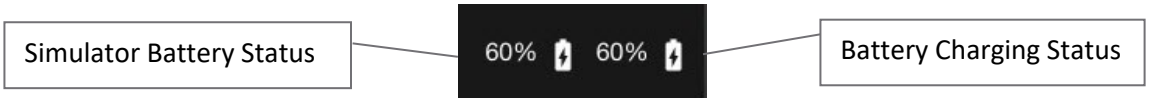


Figure 23: Battery and Charging Status Icons and Percentages

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## Viewing the Simulation Logs

Selecting the **Sim Logs** option from the **Menu** opens a page with a history of the simulation logs and the messages logged for each of these simulations.

During the simulation, the panel on the right of the Main Screen displays a list of the setting changes along with a timestamp recorded for each change. As the Physiological Controls are used in the simulation, a scrollable list actively updates, displaying the new setting. In addition, the intervention of Needle Decompression is recorded in the log as it is applied and registered by the sensors. These logs are archived for future reference.

Selecting the **Sim Logs** option displays two columns with the archived logs appearing in the Simulation Sessions column. Selecting a simulation session displays all the messages recorded for that session under **Simulation Log Messages** in the right column.

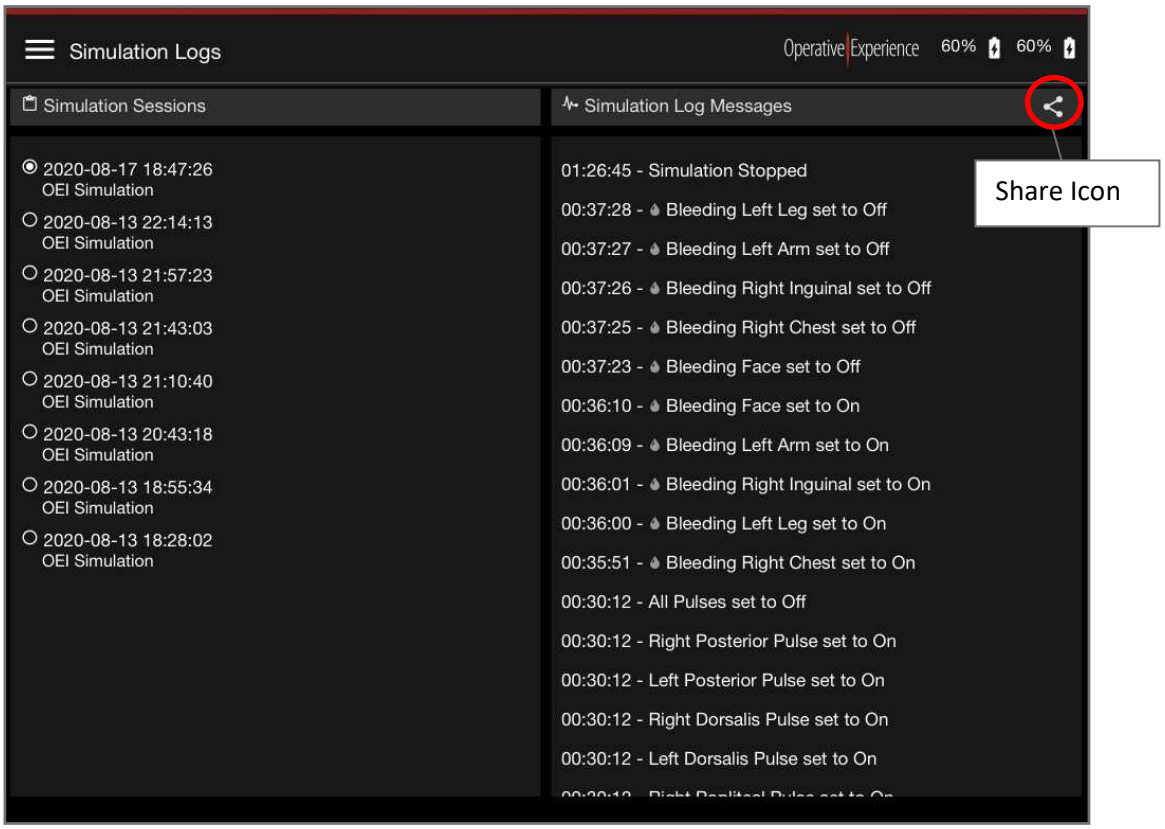


Figure 24: The Simulation Logs Page

The most recent simulation session appears at the top of the left column.

The **Simulation Log Messages** column begins at the top with the initial opening of the simulation at 00:00:00.

When either of the lists is too long to be shown on the page, you're able to scroll to view additional entries.

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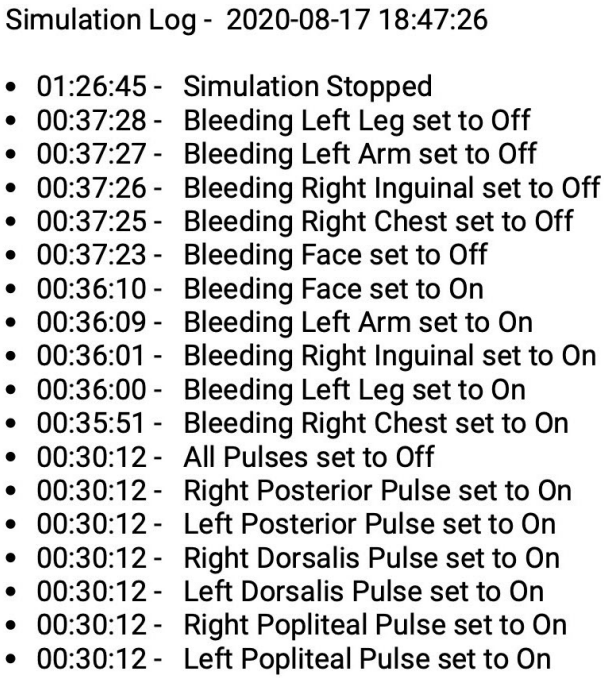
Clicking the **Share** icon to the right of the Simulation Log Messages header displays the messages in a format that can then be printed or saved as a PDF.



Simulation Log - 2020-08-17 18:47:26

- 01:26:45 - Simulation Stopped
- 00:37:28 - Bleeding Left Leg set to Off
- 00:37:27 - Bleeding Left Arm set to Off
- 00:37:26 - Bleeding Right Inguinal set to Off
- 00:37:25 - Bleeding Right Chest set to Off
- 00:37:23 - Bleeding Face set to Off
- 00:36:10 - Bleeding Face set to On
- 00:36:09 - Bleeding Left Arm set to On
- 00:36:01 - Bleeding Right Inguinal set to On
- 00:36:00 - Bleeding Left Leg set to On
- 00:35:51 - Bleeding Right Chest set to On
- 00:30:12 - All Pulses set to Off
- 00:30:12 - Right Posterior Pulse set to On
- 00:30:12 - Left Posterior Pulse set to On
- 00:30:12 - Right Dorsalis Pulse set to On
- 00:30:12 - Left Dorsalis Pulse set to On
- 00:30:12 - Right Popliteal Pulse set to On
- 00:30:12 - Left Popliteal Pulse set to On

**Figure 25: Sample Simulation Log Shared File**

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## Modifying Settings

Select the **Settings** option from the **Menu** to open the Settings page.

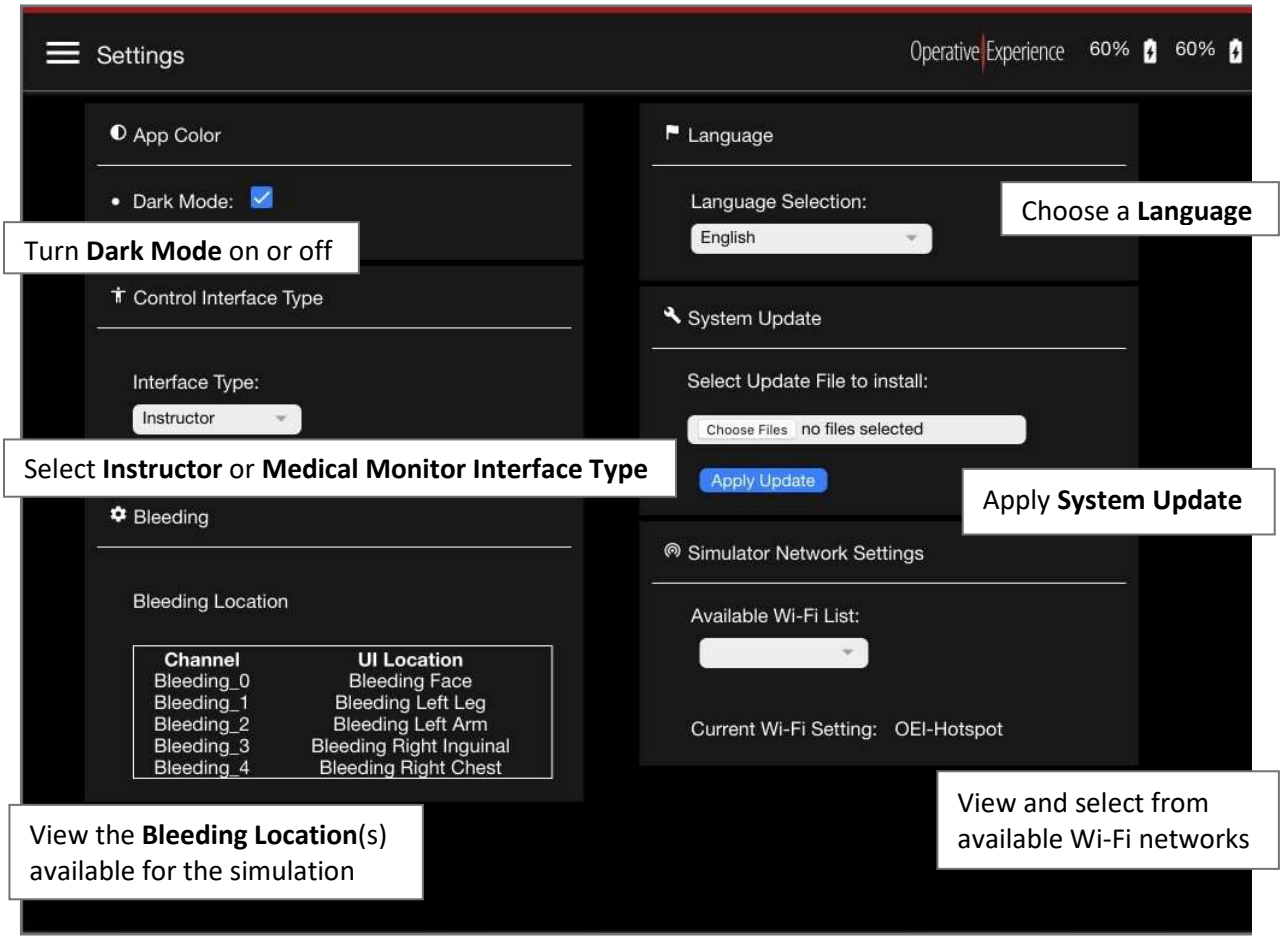


Figure 26: The Settings Page

The Settings page is comprised of six panels, **App Color**, **Control Interface Type**, **Bleeding**, **Language**, **System Update**, and **Simulator Network Settings**.

- **App Color** – Turn the **Dark Mode** on (the default) or off by clicking the box.
- **Control Interface Type** – Using the drop-down menu, select whether you wish to display the software on the **Instructor** tablet (the default) or on a **Medical Monitor**.
- **Bleeding** – View the configured **Bleeding Locations** on the list of **Channels/UI Locations**. These locations are available on the Bleeding panel for selection during the simulation.
- **Language** – Choose a **Language Selection** from the drop-down menu. **English** is selected by default. Currently, Spanish, Chinese, and Dutch are also available, and more languages are to be added in future updates.
- **System Update –** locate and upload files to update the system.
- **Simulator Network Settings** – select an alternative Wi-Fi network from the **Available Wi-Fi List** drop-down menu.

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## Setting the App Color

By default the box appearing next to **Dark Mode** is checked and the screen appears with a black and dark grey background. Unchecking this box changes the background to a "non-dark" light-colored and white background.

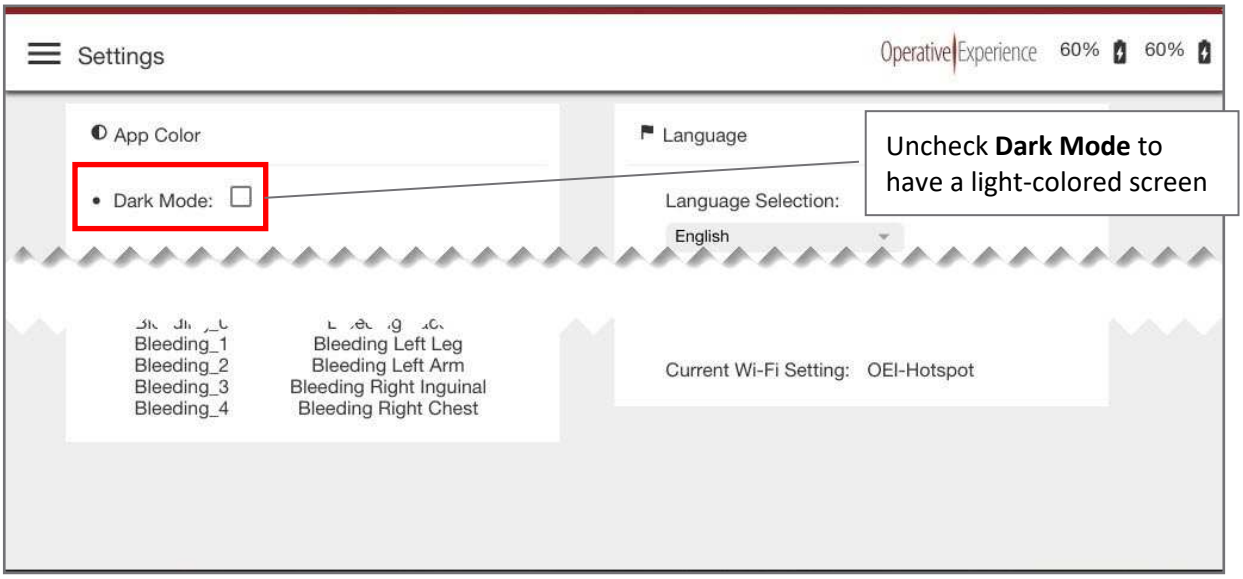


Figure 27: Dark Mode Unchecked

Correspondingly, text for **Dark Mode** and "Non-Dark" mode change to allow for contrast and readability.

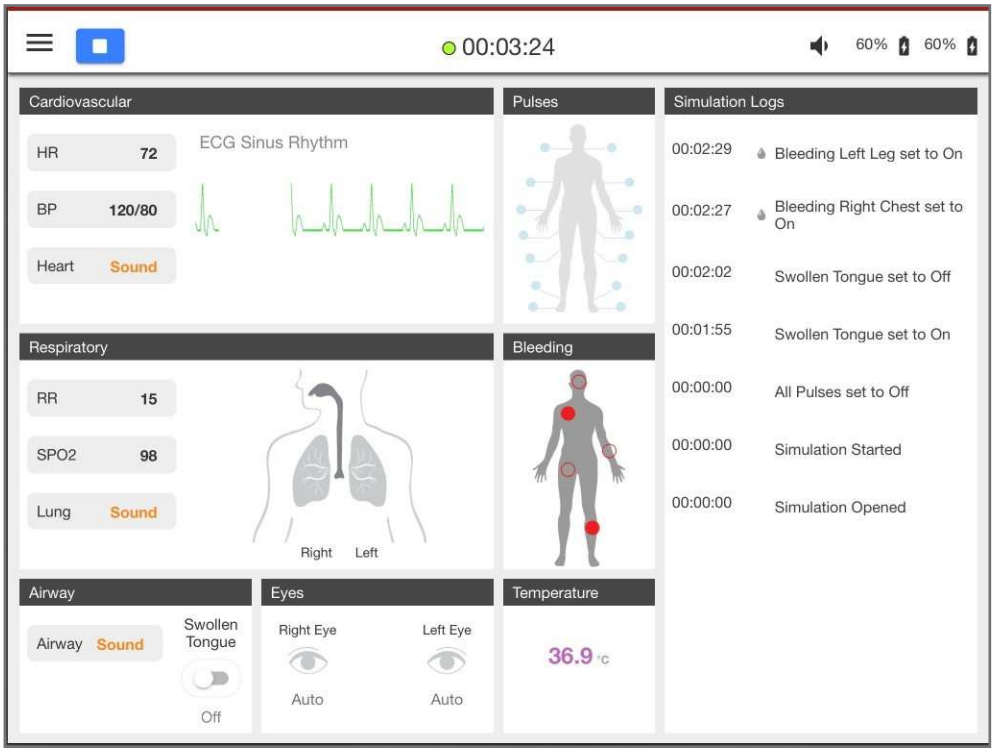


Figure 28: A Sample Page in "Non-Dark" Mode

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## Selecting the Control Interface Type

Using the drop-down menu, you can select whether you wish to display the software on the **Instructor** tablet (the default) or on a **Medical Monitor**.

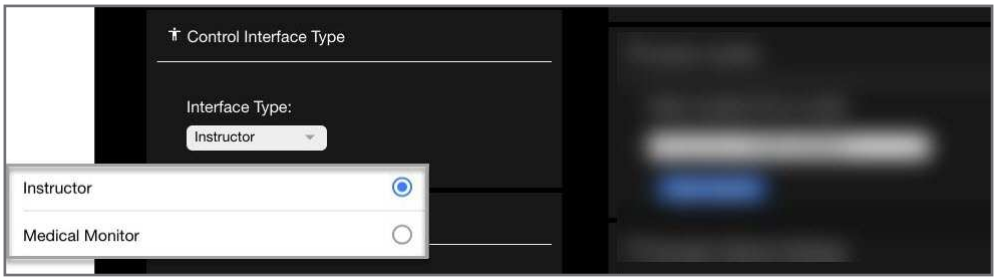


Figure 29: The Control Interface Type Options

The Instructor interface is used to view and control the simulation.

When the Medical Monitor is selectedas the **Interface Type**, only the patient's vital signs appear.

Figure 30: The Medical Monitor Display

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## Viewing the Bleeding Location(s)

Beneath **Bleeding** is displayed the bleeding locations configured for the selected simulator.

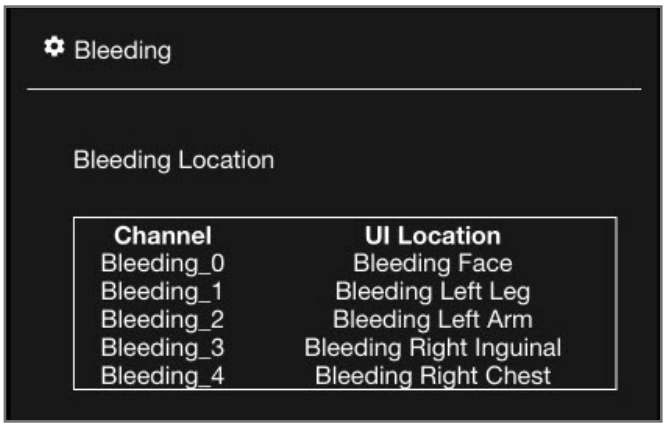


Figure 31: Bleeding Locations

These locations are available on the Bleeding panel for selection during the simulation.

## Selecting the Language

In the **Language** panel, use the drop-down menu to select the language you want displayed on the screen by clicking the appropriate option button. **English** is selected by default.

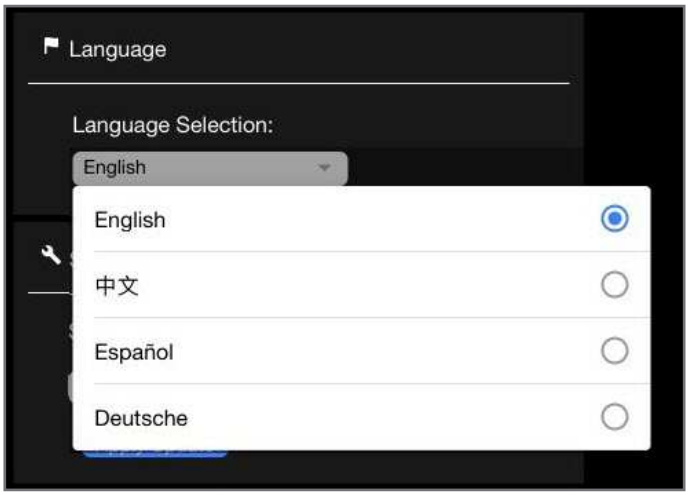


Figure 32: Selecting a Language

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## Updating the System

The **System Update** panel is used to locate and apply update (.oei) files downloaded from the Operative Experience Support webpage. Full instructions are provided below in the *Maintaining Your Simulator* chapter's *Upgrading the Simulator's Firmware* section.

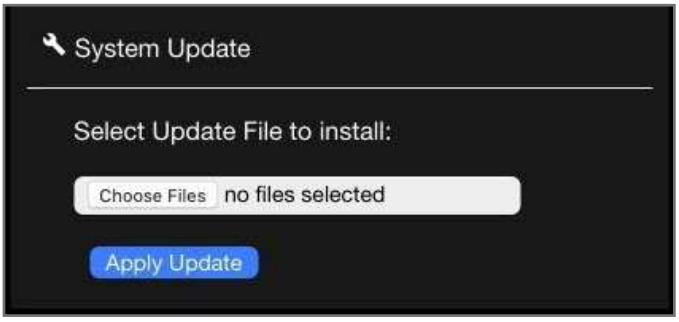


Figure 33: Updating the System

## Managing the Wi-Fi Network

The **Simulator Network Settings** panel displays the **Current Wi-Fi Setting** and provides a list of the available Wi-Fi networks from which you can select an alternative network.

Figure 34: Simulator Network Settings

To choose the different Wi-Fi network, use the **Available Wi-Fi List** drop-down menu to locate and select the new network by clicking the appropriate option button.

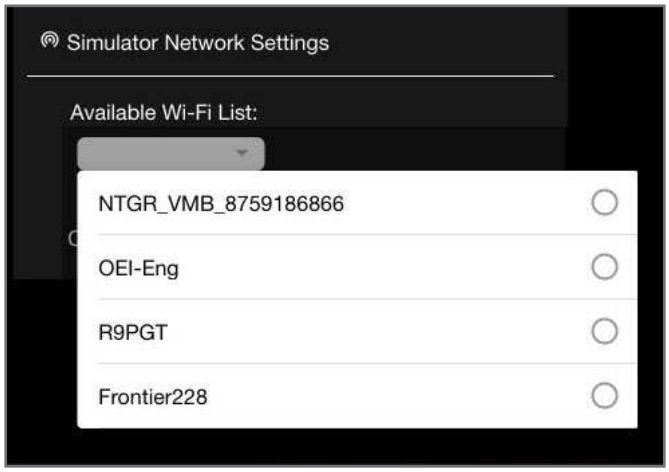


Figure 35: Selecting a Wi-Fi Network

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# Examining Diagnostics

Select **Diagnostics** from the **Menu** to open the Diagnostics page, which is comprised of two panels.

The upper panel contains Product Information and shows your simulator's **Product Type**, the firmware version used in running the system**,** and the version of the software on the tablet.

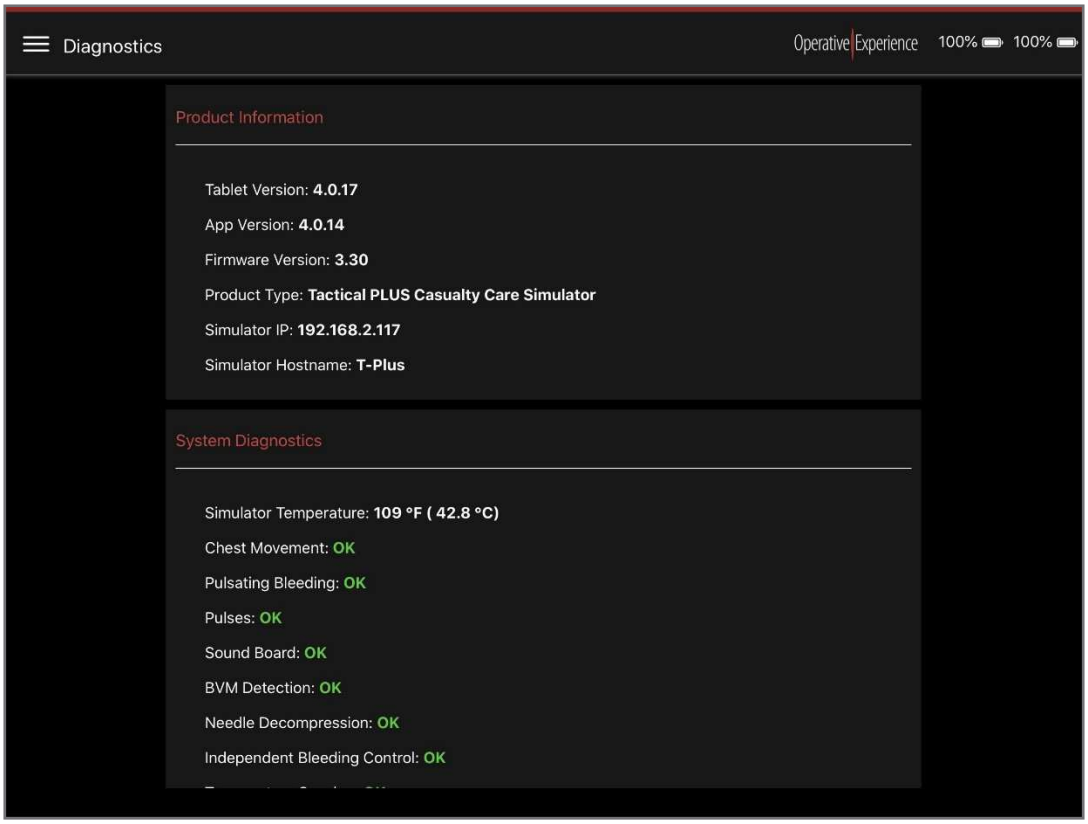


Figure 36: The Diagnostics Page

The lower panel displays the **System Diagnostics**. In addition to displaying the **Simulator Temperature**, additional systems are shown with their operational status in a scrollable window. Properly functioning systems display an **OK** status.

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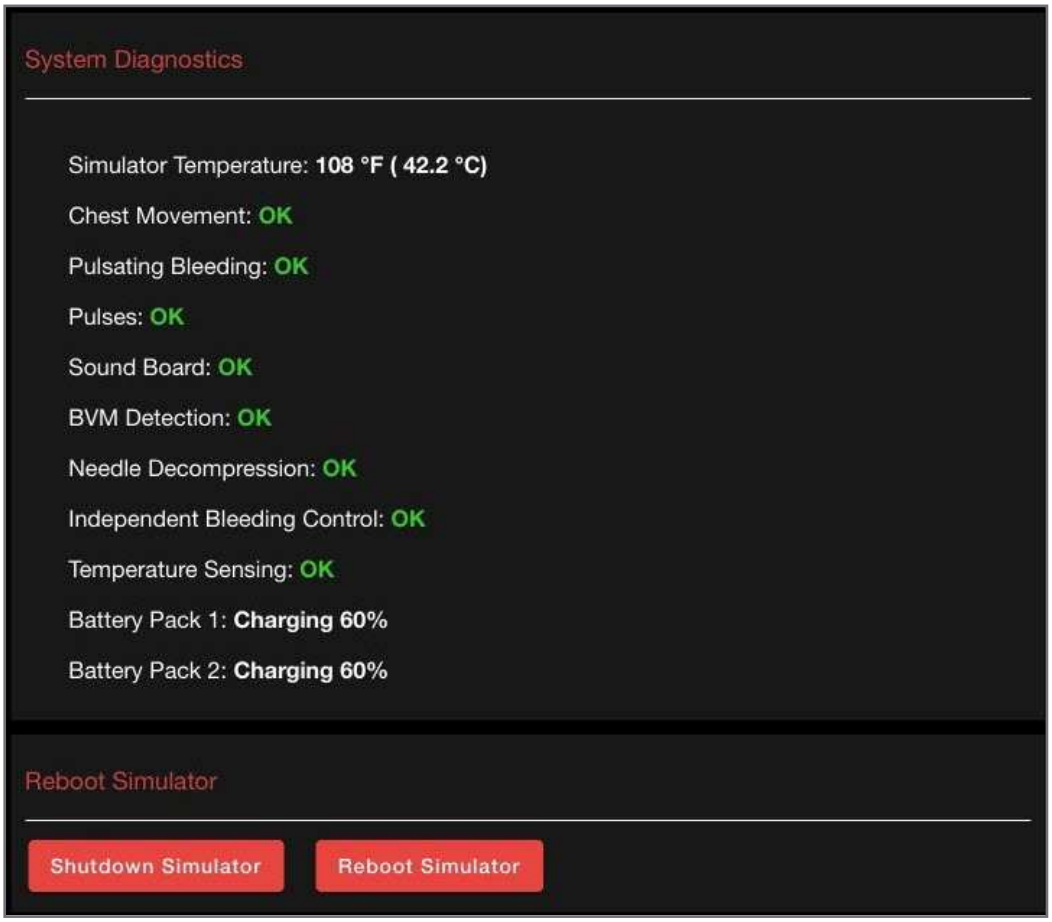


Figure 37: System Diagnostics

When a system is not functioning properly, a **Failed** status appears to its right.

Figure 38: System Diagnostics Showing System Failure

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When a system is failing, such as in the example above, you should use the buttons on the System Diagnostics page to shutdown the simulator, or, in some cases, reboot the simulator to reset the systems.

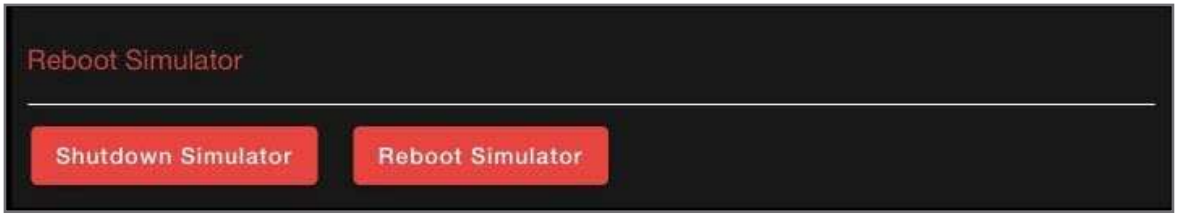


Figure 39: Shutdown Simulator and Reboot Simulator Buttons

Clicking the **Shutdown Simulator** or **Reboot Simulator** button opens a message box requesting your verification of the shutdown or reboot.

Figure 40: Reboot Simulator Verification Message

Click the **Reboot Simulator** or **Shutdown Simulator** button on the message to complete the action.

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# Viewing the About Page

Select **About** from the **Menu to** open the About page, which is comprised of two panels.

In addition to the OEI Mission Statement, this page identifies your product and provides you with basic information about the versions of the software and firmware you're running, as well as contact information for Operative Experience.

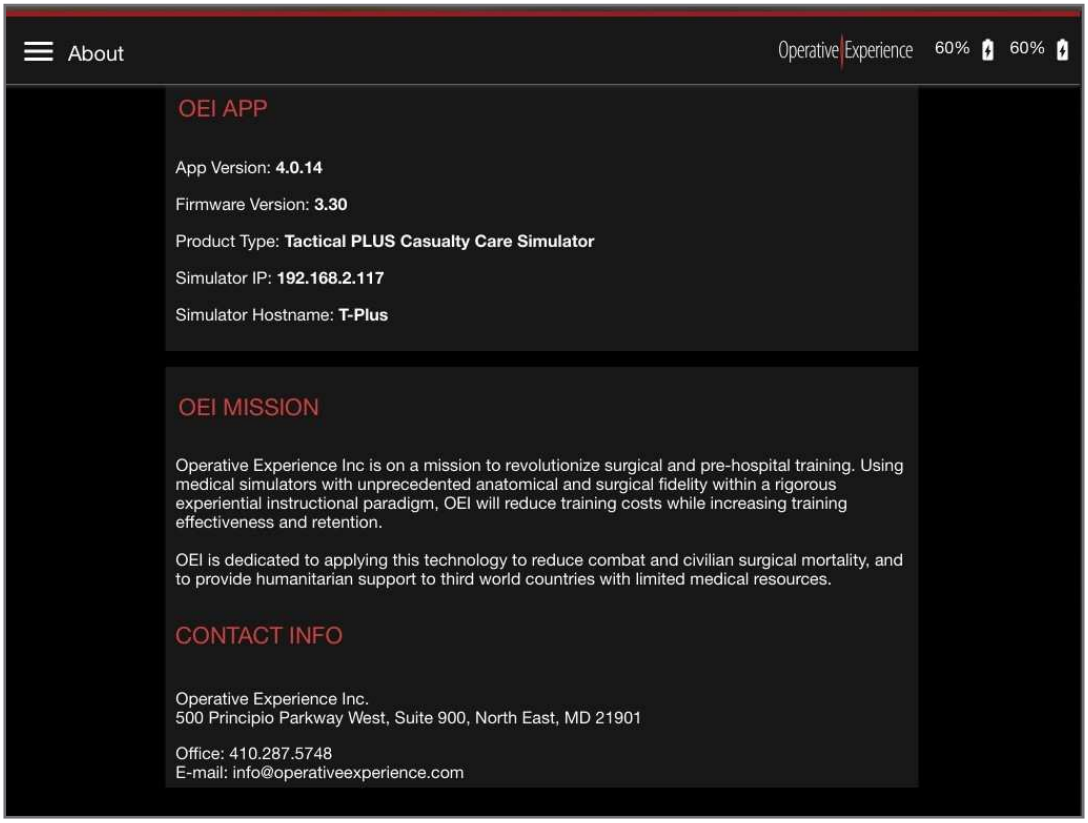


Figure 41: The About Page

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# Accessing Help

The **Help** page provides you with additional access to the available user guides. Selecting a user guide opens the guide in a PDF viewer.

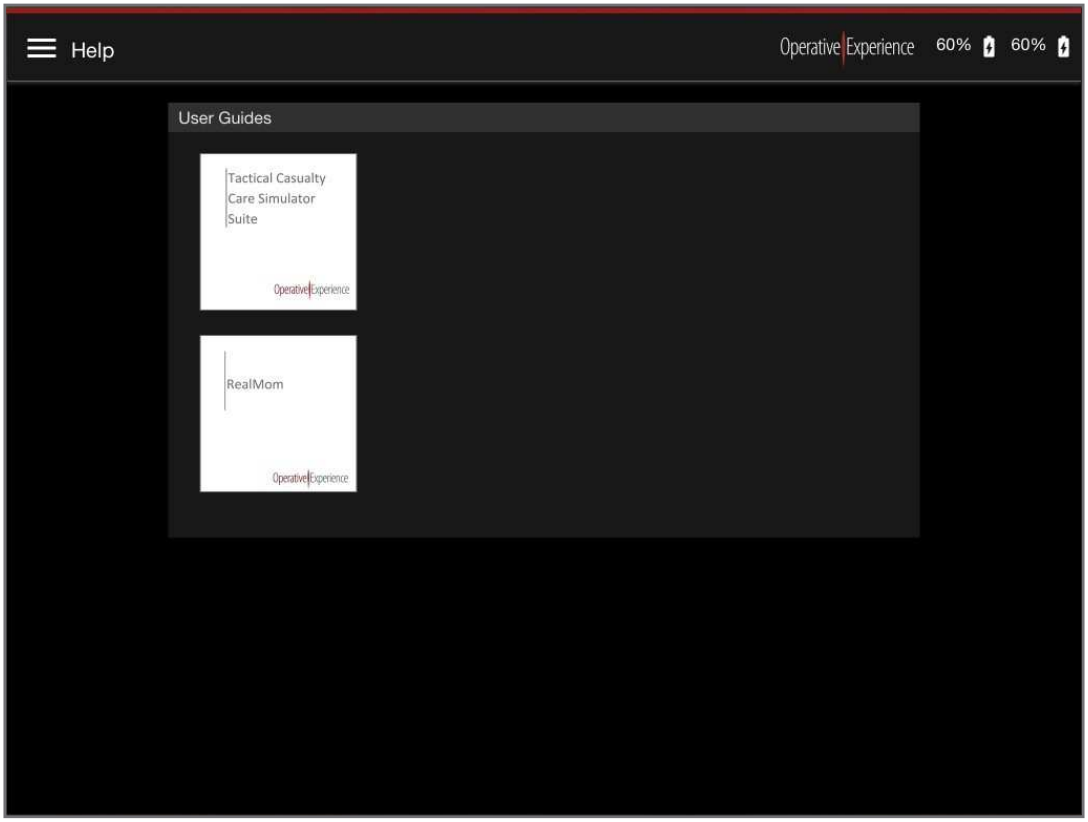


Figure 42: The Help Page

# The Physiological Controls

Beneath the Operational Panel are six panels to the left and center that provide the Physiological Controls.

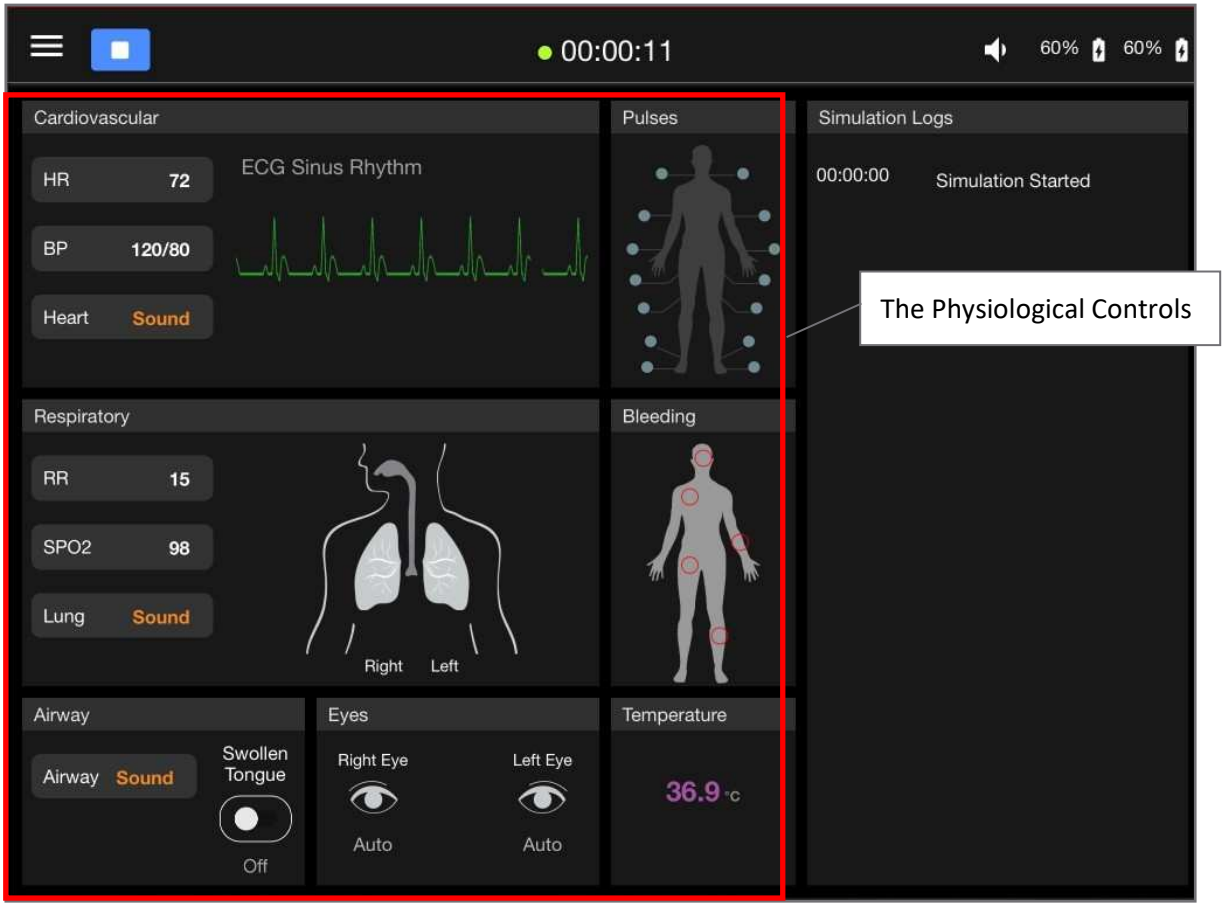


Figure 43: The Physiological Controls

These controls interact with the simulator to provide learners with the experience you establish for them by setting parameters for the different physiological systems.

When changes are made to the parameters, these appear in the Simulation Logs panel.

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## Cardiovascular Parameters

Heart Rate, Blood Pressure, the ECG rhythm and Heart Sounds can be controlled using the four settings on the **Cardiovascular** panel.

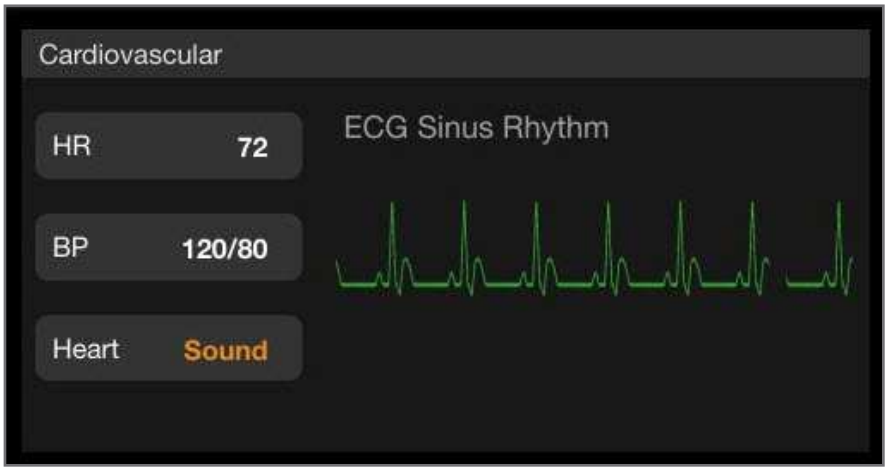


Figure 44: The Cardiovascular Parameters

### Heart Rate

Clicking the **HR** setting displays a slider bar enabling the heart rate to be adjusted from 0 to 220. The slider bar or the plus (+) and minus (-) buttons can be used to set the heart rate. The heart rate changes automatically as you adjust the setting.

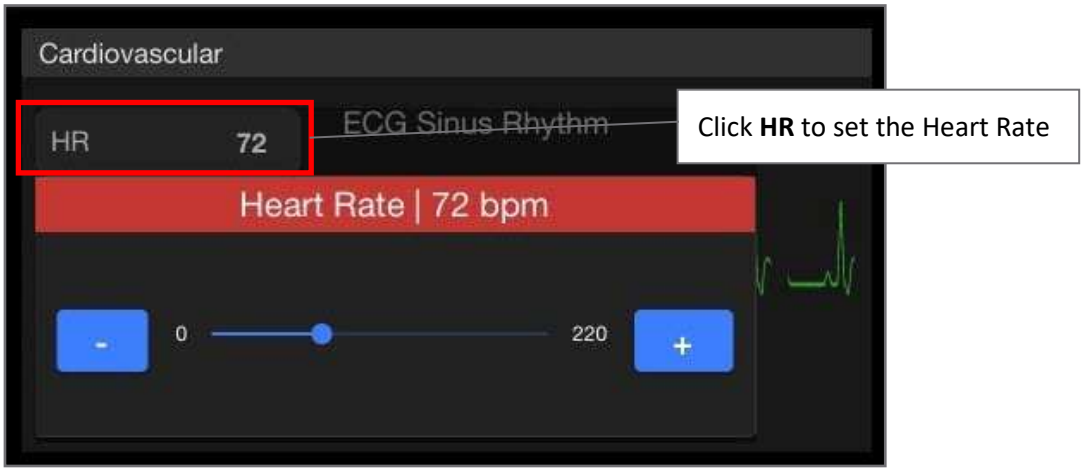


Figure 45: Setting Heart Rate

Once the HR Control is closed, the heart rate is changed during the simulation “on the fly.”

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## Blood Pressure

Clicking the **BP** setting displays two slider bars that can be used to set the **Systolic** and **Diastolic** pressures in the simulation. The **Systolic** can be adjusted from 0 to 220 and the **Diastolic** can be adjusted from 0 to 180 using the slider bars or the plus (+) and minus (-) buttons.

Click **Apply** to affirm the Blood Pressure settings.

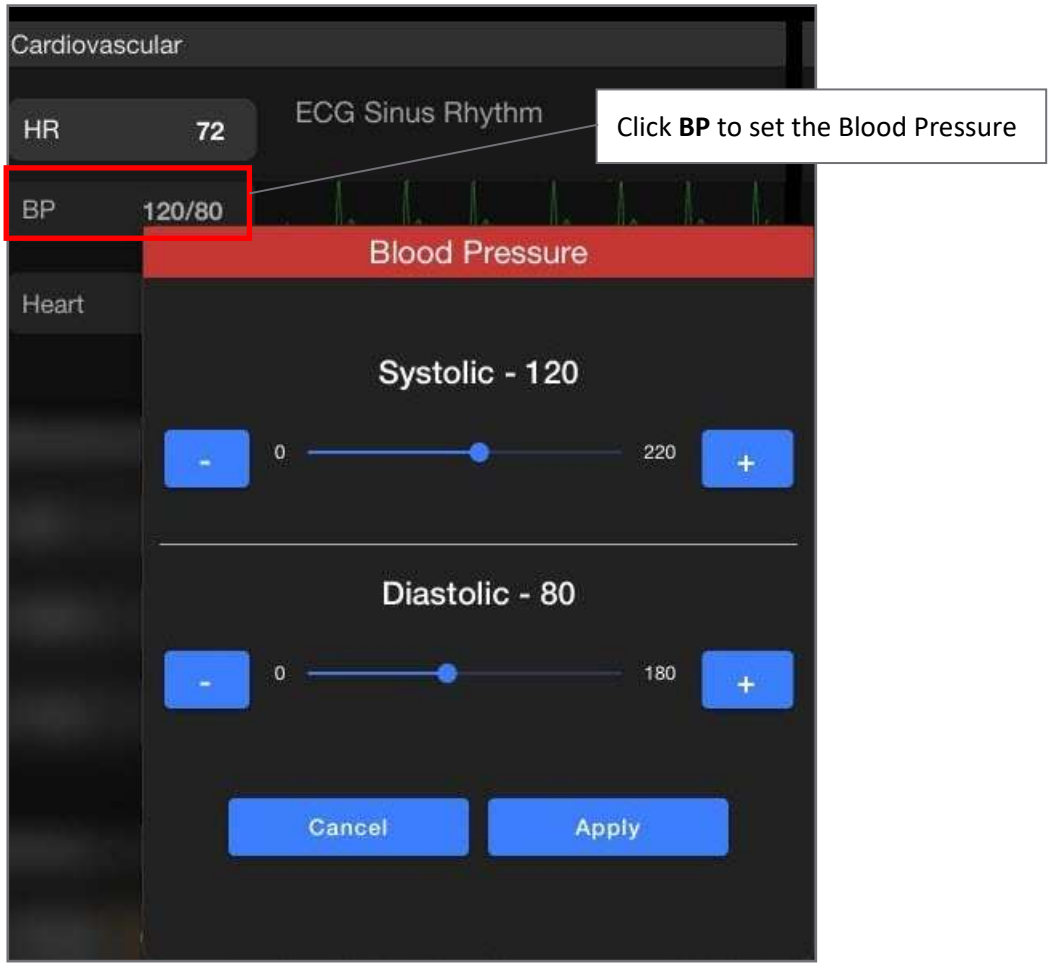


Figure 46: Setting Blood Pressure

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## ECG Rhythm

To set the ECG rhythm, click the **ECG Rhythm** panel to activate a menu displaying the available rhythms. From the list, click on the desired rhythm. The **Sinus Rhythm** is selected by default.

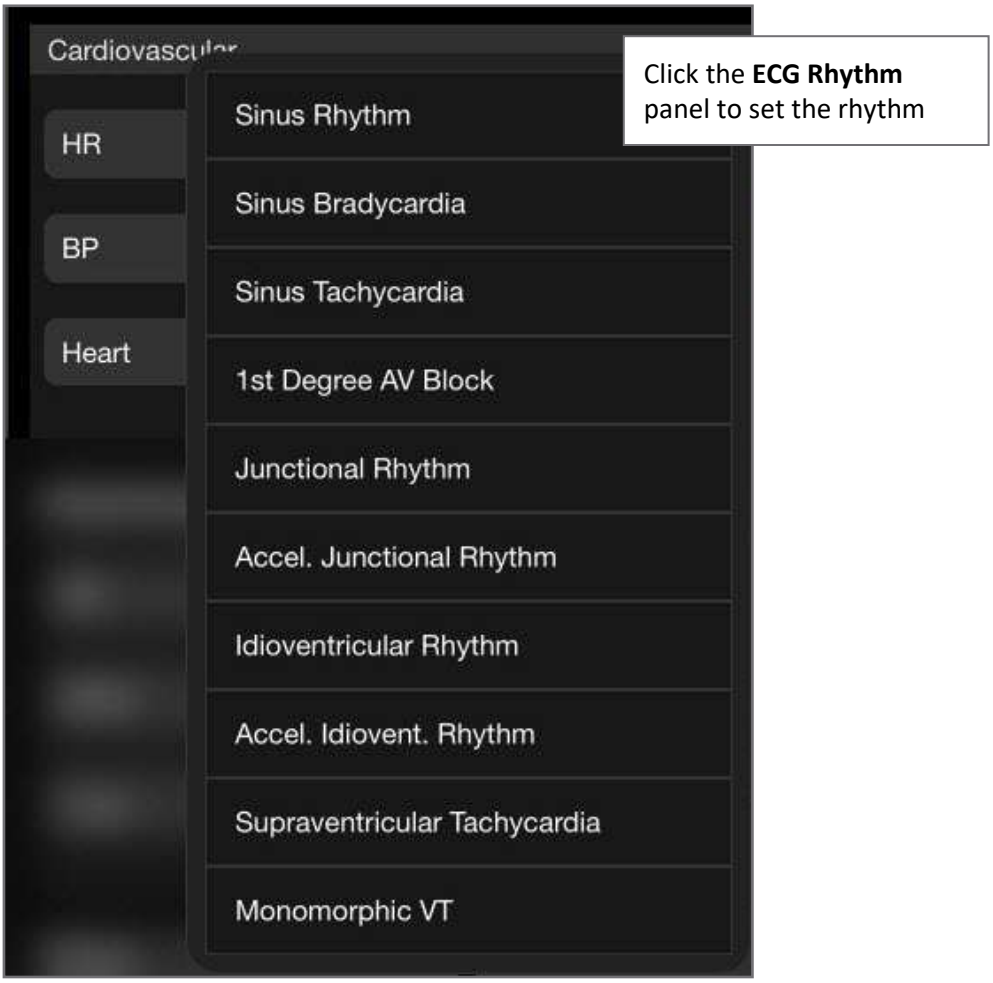


Figure 47: Setting the ECG Rhythm

Available ECG Rhythms:

- Sinus Rhythm
- Sinus Bradycardia
- Sinus Tachycardia
- 1st Degree AV Block
- Junctional Rhythm
- Acclelerated Junctional Rhythm
- Idioventricular Rhythm
- Accelerated Idioventricular Rhythm
- Supraventricular Tachycardia
- Monomorphic Ventricular Tachycardia

A check appears beside the chosen rhythm, and the rhythm changes in the simulation automatically when you make your selection.

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## Heart Sounds

To set Heart Sounds, click the **Sound** button on the **Heart** setting to activate a scrollable list displaying the available sounds. From the list, click on the desired sound. A check appears beside the chosen sound.

The **Healthy** heart sound is selected by default.

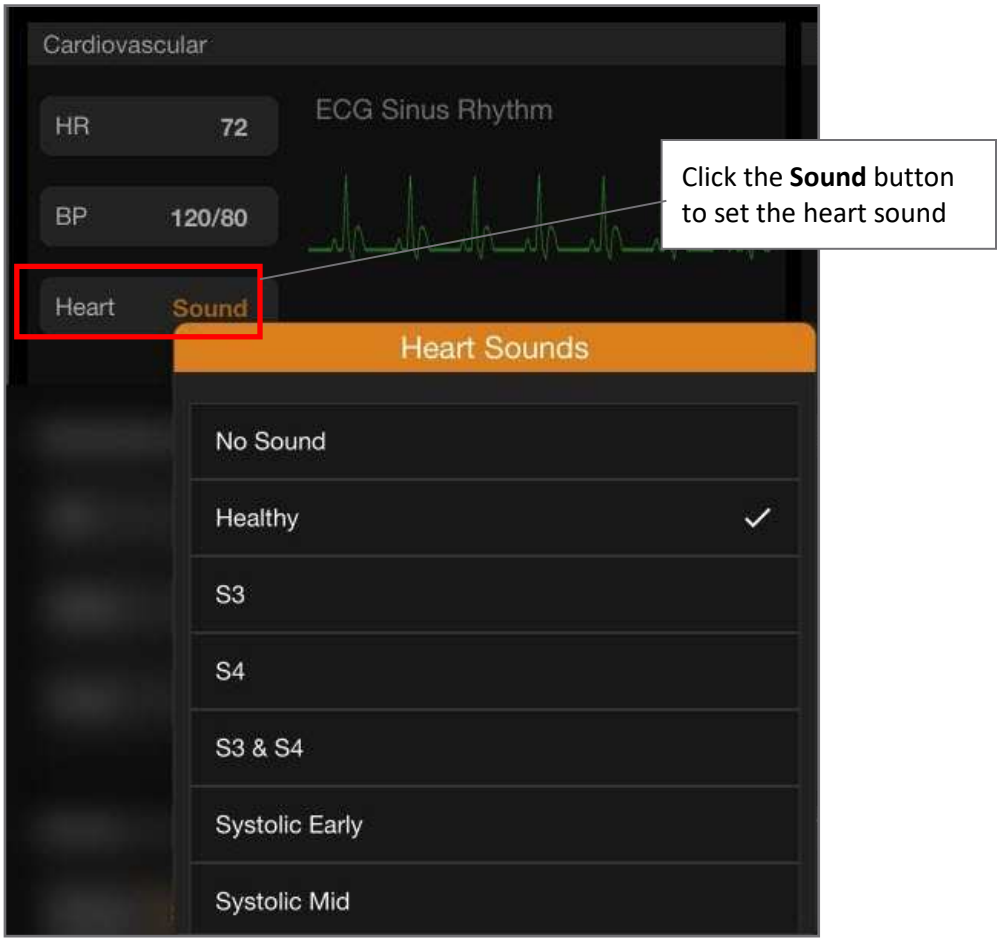


Figure 48: Setting the Heart Sound

Available Heart Sounds:

- Normal S3
- S4
- S3 & S4
- Early Systolic Murmur
- Mid Systolic Murmur
- Late Systolic Murmur
- Pan Systolic Murmur
- Late Diastolic Murmur

Once the Heart Sound Control is closed, the Heart Sound is changed during the simulation “on the fly.”

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## Respiratory Parameters

Respiratory Rate, SpO2, Lung Sounds and the presence of a Tension Pneumothorax can be controlled using the four settings on the Repiratory panel.

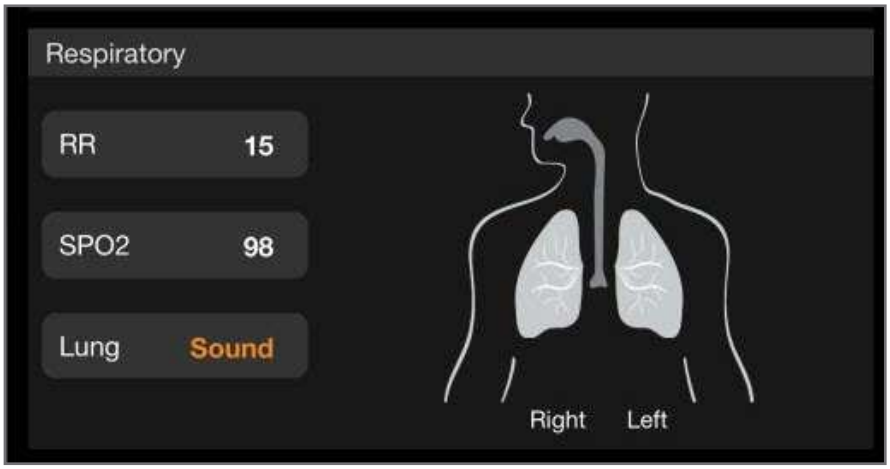


Figure 49: The Respiratory Parameters

### Respiratory Rate

Clicking the **RR** setting displays a slider bar enabling the Respiratory Rate to be adjusted from 0 to 60 breaths per minute. The slider bar or the plus (+) and minus (-) buttons can be used to set the rate. The respiratory rate changes automatically as you adjust the setting and close the popup.

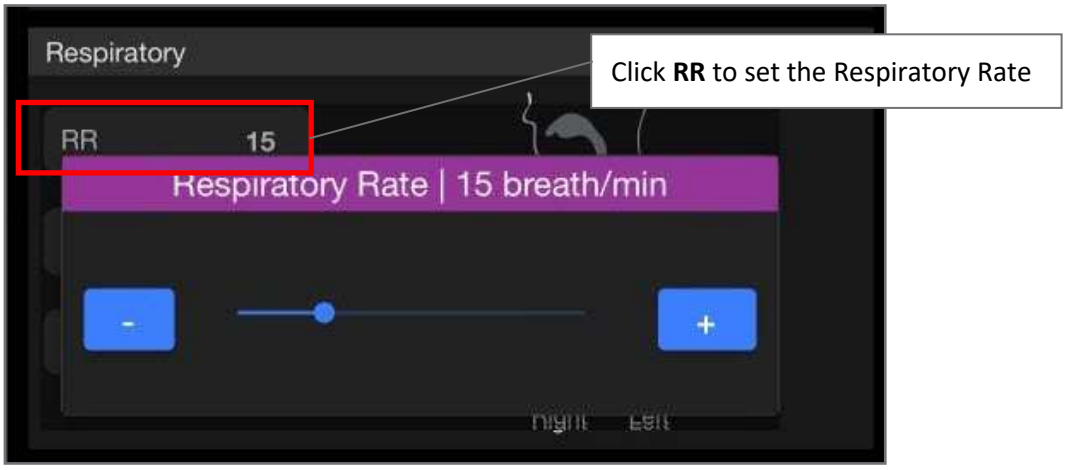


Figure 50: Setting Respiratory Rate

Once the Respiratory Rate Control is closed, the Respiratory Rate is changed during the simulation “on the fly.”

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## SpO2

Clicking the **SpO2** setting displays a slider bar enabling the Sp02 to be adjusted from 0 to 100. The slider bar or the plus (+) and minus (-) buttons can be used to set Sp02. Sp02 changes automatically as you adjust the setting.

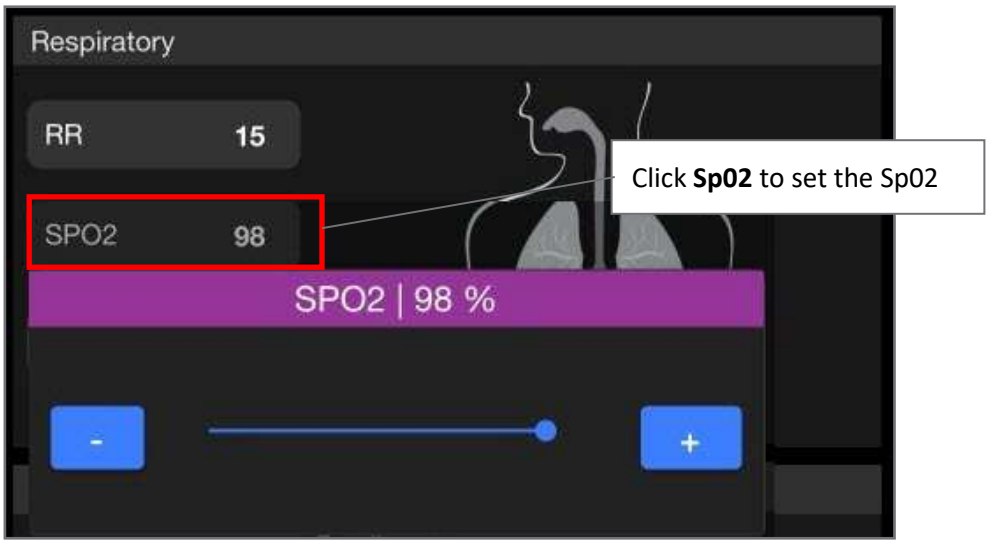


Figure 51: Setting SpO2

Once the SpO2 Control is closed, SpO2 is changed during the simulation “on the fly.”

## Tension Pneumothorax

To set a Tension Pneumothorax, click the lung or lungs you want to affect. The selected lung(s) are displayed in Red on the control.

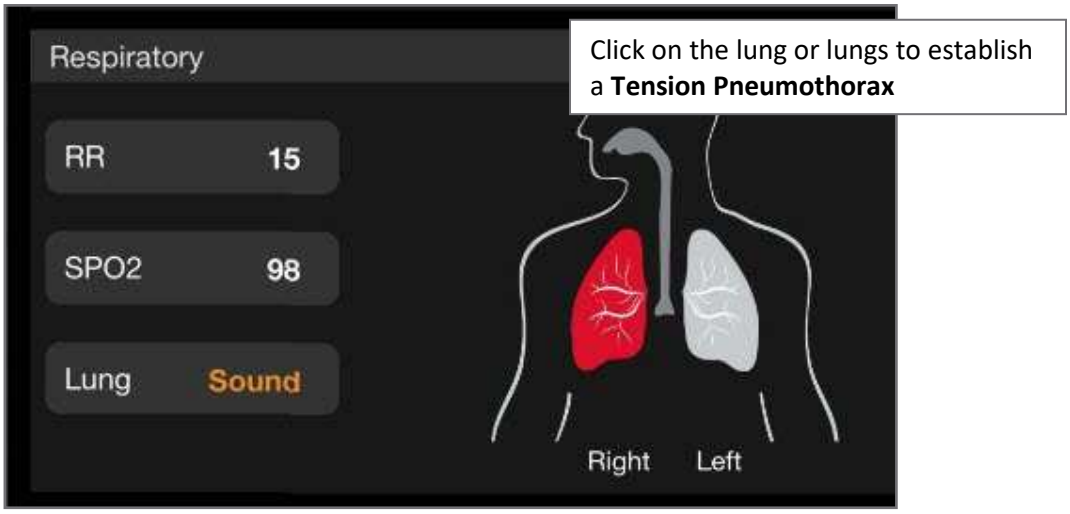


Figure 52: Setting a Tension Pneumothorax

Once the Tension Pneumothorax Control is closed, Tension Pneumothorax is changed during the simulation “on the fly.”

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## Respiratory Sounds

To set Respiratory Sounds, click the **Sound** button on the **Lung** setting to activate a list displaying the available sounds. Each lung is controlled independently. From the list, click on the desired sound. A check appears beside the chosen sound.

Both lungs are set to a **Healthy** sound by default.

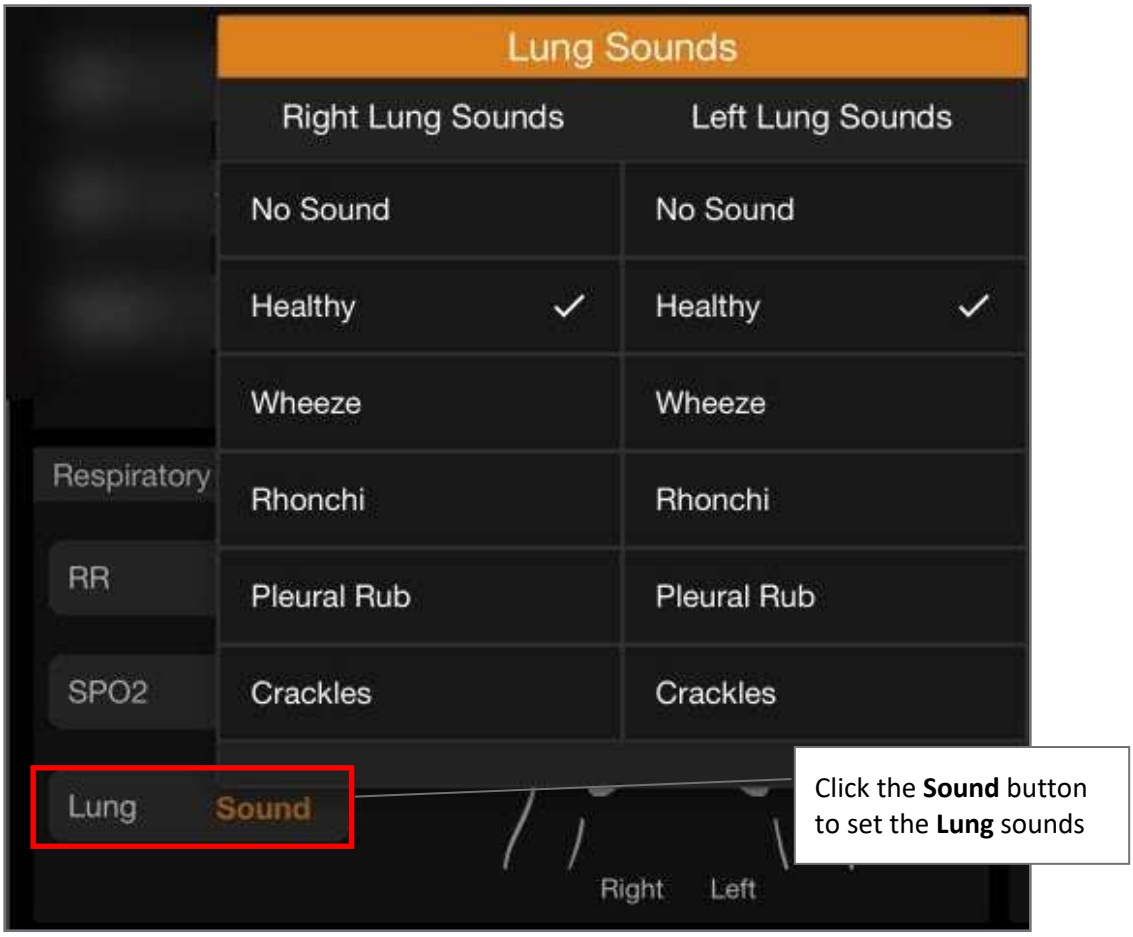


Figure 53: Setting Respiratory Sounds

Available Respiratory Sounds (selected independently for each lung):

- No Sound
- Healthy (Normal)
- Wheeze
- Rhonchi
- Pleural Rub
- Crackles

Once the Respiratory Sounds Control is closed, Respiratory Sounds are changed during the simulation "on the fly."

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## Airway Parameters

Airway sounds and the presence of a Swollen Tongue can be controlled using the Airway panel's settings.

Figure 54: The Airway Parameters

### Swollen Tongue

A **Swollen Tongue** can be toggled off and on using the setting under **Airway**. When toggled On, the switch displays as green.

Figure 55: Swollen Tongue Toggled to On

Once the Swollen Tongue is toggled on, the tongue hardens to inhibit intubation during the simulation "on the fly."

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## Airway Sounds

To set Airway Sounds, click the **Sound** button on the **Airway** setting to activate a list displaying the available sounds. From the list, click on the desired sound. A check appears beside the chosen sound, and the sound changes in the simulation automatically when you make your selection.

The **Healthy** or normal sound is chosen for the Airway by default.

Figure 56: Setting Airway Sounds

Available Airway Sounds:

- No Sound
- Healthy (Normal)
- Stridor

Once the Airway Sound Control is closed, the Airway Sound is changed during the simulation “on the fly.”

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## The Eyes Panel

The **Eyes** setting defaults to **Auto**, which sets the eyes to blink randomly. However, the Eyes can be set to be **Open** or **Closed** using the control at the bottom of the Main Screen.

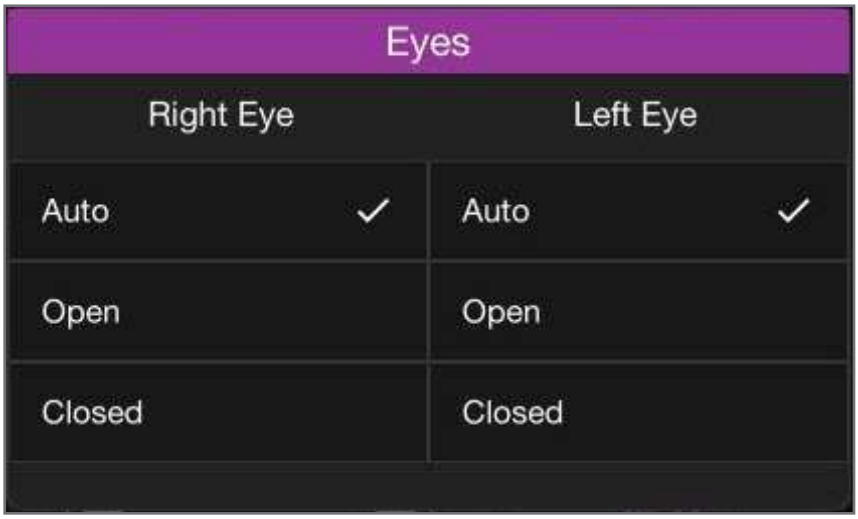


Figure 57: The Eyes Panel

## The Pulses Panel

Fourteen Pulse locations can be turned on (or off) using the location sites found in the Pulses panel. By default, the sites are set to "off." Clicking a site turns it on and off.

Pulses are activated and deactivated independently, or all fourteen pulse sites can be activated or deacatived using the **All On** or **All Off** buttons.

There are seven pulses whose sites appear bilaterally:

- Carotid
- Radial
- Brachial
- Femoral
- Popliteal
- Dosalis Pedis
- Tibialis Pedis

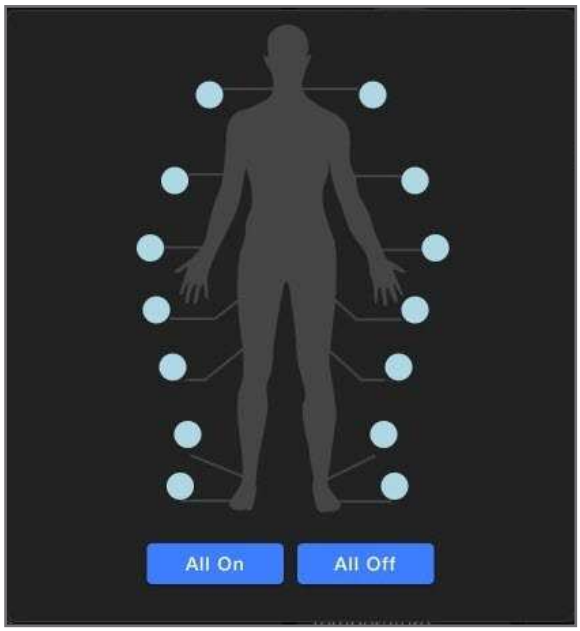


Figure 58: The Pulses Panel

When deactivated, the pulse locations are displayed as empty circles. The image to the right shows all the pulses turned on.

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## The Bleeding Panel

Five bleeding locations can be turned on (or off) using the location sites found in the Bleeding panel. By default, the sites are set to "off." Clicking a site turns it on.

Sites are activated and deactivated independently. When a site is activated, the Bleeding panel displays the site in a solid **red**.

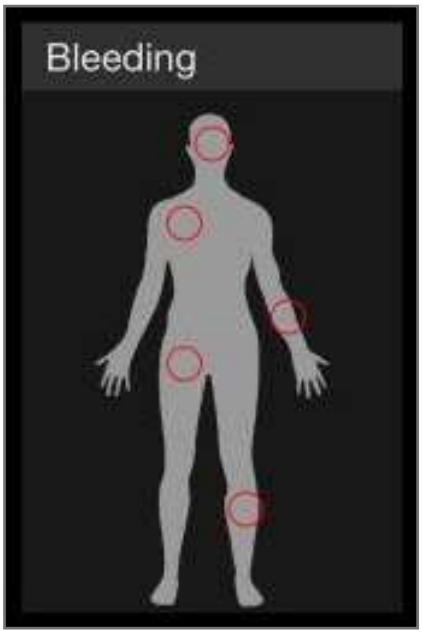


Figure 59: The Bleeding Panel

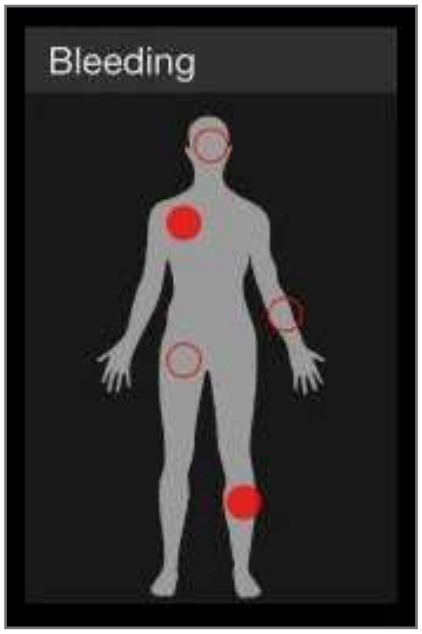


Figure 60: Bleeding Sites Selected

The availability of a bleeding site depends on the simulator, so not all simulators have all sites.

| Bleeding Site | Type of Bleeding | Simulator(s) | Wound |
|---|---|---|---|
| **Face** / Neck | Venous | TCCS1 / TCCS3 | Right Side (GSW) |
| Face / **Neck** | Venous | TCCS3 | Right Side (Shrapnel) |
| Chest | Venous | TCCS1 / TCCS3 | Right Side (GSW) |
| Chest | Venous | TCCS2 | Left Side (GSW) |
| Chest | Arterial | TCCS5 | Open Tibial/Fibular Fracture |
| **Arm** / Axillary | Arterial | TCCS2 / TCCS3 | Lower Left Arm Amputation |
| Arm / **Axillary** | Arterial | TCCS3 | Right Side (GSW) |
| Inguinal | Arterial | TCCS3 | Left Side |
| Leg | Arterial | TCCS2 / TCCS3 | Below the Knee Amputation |

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## The Temperature Control

Clicking the **Temperature** panel displays a slider bar enabling the patient's Temperature to be adjusted from 35.6  to 41.1 Celsius. The slider bar or the plus (+) and minus (-) buttons can be used to set the Temperature, which changes automatically as you adjust the setting.

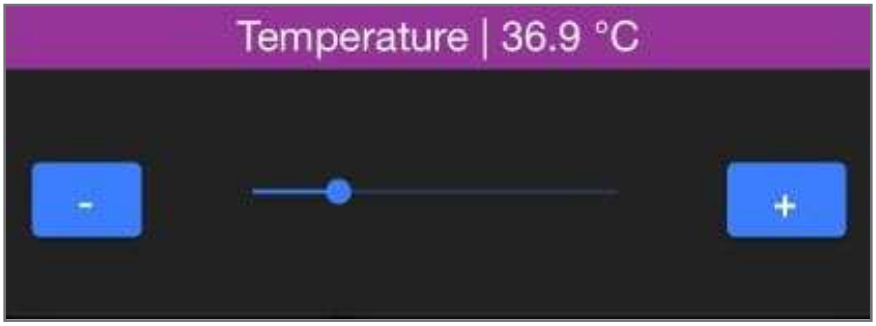


Figure 61: The Temperature Control

The temperature can be changed during the simulation "on the fly."

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# Operating Your Simulator

If your simulator has a bleeding feature, and you wish to incorporate this in your simulator, prepare your simulator by filling the hand held pump reservoir with blood, and then use the tablet to prime and operate the simulator.

## Adding Blood to Your Simulator

Before operation, infuse the simulator with blood using the hand pump. A gallon of  concentrated blood is included with the simulator with instructions on its use. Contact Operative Experience Customer Support (support@operativeexperience.com) for additional blood supplies.

Figure 62: Blood Infusion Port (Male)

Figure 63: Male Blood Port with Pump

To infuse the simulator with blood:

1. Fill the reservoir on the hand pump with simulated blood.
2. If the simulator has been in use, stop all blood flow prior to infusing, or a pressure lock may occur and the blood hose coupling will not engage.
3. Attach the blood fill hose by snapping onto the blood fill port on the simulator located on the left side of the chest (for the Male) or on the right shoulder (for the Female). (Be sure the hose nozzle is free of debris.)
4. Lock the handle on the hose.
5. Retract the handle and pump approximately 15 to 20 times in intervals of three to five times. This process takes approximately four minutes.

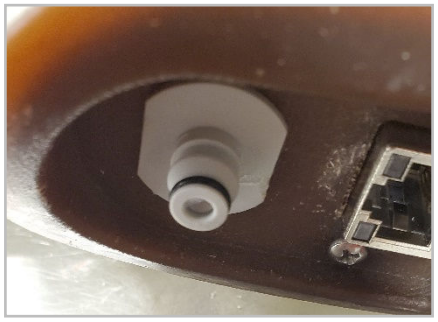

Figure 64: Blood Infusion Port (Female)

NOTE: The simulator's reservoir holds the contents from one tank. Be careful not to overfill and always remove the simulated blood before storing the simulator for its next use.

Figure 65: The Hand Pump

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# Powering Your Simulator

The TCCS Plus can be battery operated or operated using a power cord.

When one or two batteries are installed, the power cord can be used to charge the battery (or batteries) during operation. During this process, the power button blinks to indicate the average charge available from the battery or batteries: one (1) blink indicates that the batteries hold an average charge of 25%, two (2) blinks indicates 50%, and three (3) blinks indicate 75%.

Figure 66: Power Cord

When securing the power cord to the simulator's power outlet, push the plug into the receptacle and turn the threaded cylinder to hold the power cord in place.

Figure 67: Power Cord Receptacle (Female)

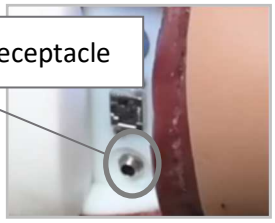

Figure 68: Power Cord Receptable (Male)

Figure 69: Power Cord Plug

Note that the power connection on the Female simulator is located on the right shoulder, and on the male simulator, the connection is located beside the battery compartment in the right thigh.

The simulator must be powered by either a battery or the power cord to operate. During a simulation, if a battery is running low on power, a second (charged) battery can be attached to maintain the simulator's operation in a process known as "hot swapping." Once the charged battery is attached, the battery with low power can be removed. In a similar way, the power cord can also be connected while batteries are removed and recharged without loss of operation.

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## Operating the Headset

Figure 70: The Headset

The wireless two-way headset operates at a maximum distance of 100 meters (328 feet), providing the means to speak and listen through the simulator. The wireless remote communication system automatically links with the simulator upon startup, indicated by a solid blue light above the headset's volume control.

When linkup does not occur, the light above the volume control blinks on and off. Should this happen, press and hold the blinking light for about five (5) seconds to connect the headset with the simulator. (Headset may be different than pictured.)

## Running a Simulation Scenario

Once you're familiar with the materials in Understanding the Tablet presented above, you'll be able to use the tablet to control the simulation.

To control the simulator with the tablet:

1. Power on the simulator, allowing the simulator approximately two minutes to complete the diagnostics used to prepare the simulator.
2. Connect the hand-held pump filled with blood to the port on the right side of the simulator and infuse the blood using the steps described in *Adding Blood to Your Simulator* above.
3. Power on the tablet.
4. Connect the tablet to the simulator's Wi-Fi (see *Connecting to the Simulator* above).
5. Start the OEI App on the Instructor's Tablet.
6. Press **Play** to begin the simulation.
7. Start the Medical (Patient) Monitor.
8. During the simulation adjust those Physiological Controls appropriate to the scenario (for example):
    a. Add a **Tension Pneumothorax**.
    b. Turn **Bleeding** sites on or off.
    c. Adjust the **Heart Rate**.
    d. Adjust the **Respiratory Rate**.
9. Press **Stop** to end the simulation.
10. Click **Yes** on the dialog box that appears requesting verification that you wish to end the simulation.
11. Power down the simulator by holding down the power button for approximately four seconds. The blue light flashes on and off momentarily before turning off.

All the settings and adjustments you make during the simulation are displayed in the **Simulation Log** and remain in the history stored on the Simulation Logs page.

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# Troubleshooting During Operation

When errors occur, warning boxes appear providing you with information regarding the problem.

When encountering a simulation hardware error, first attempt to correct the problem by rebooting the simulator. Click the **Reboot Simulator** button on the dialog box to reboot. You can also go the Diagnostics page where more information is available and reboot from there as well. Click **Yes** on the verification message to complete the process.

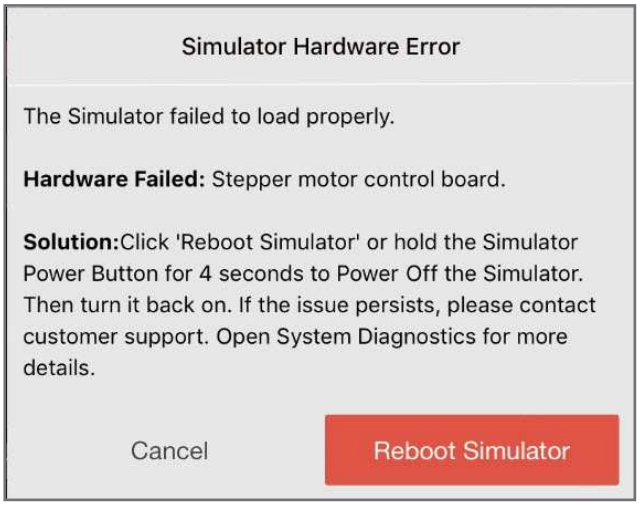


Figure 71: The Simulator Hardware Error Message

You can also power off the simulator by holding the Simulator Power Button for four (4) seconds before turning the simulator back on.

If you receive a **Simulator High Temperature Warning**, shut down the simulator immediately by clicking the Shutdown Simulator button or by holding the Simulator Power Button for four (4) seconds. Click **Yes** on the verification message to complete the process. Let the simulator cool before turning it back on.

Figure 72: The Simulator High Temperature Warning

Contact Customer Support (support@operativeexperience.com) should these issues persist.

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# Shutting Down the Simulator

1. Press the **Stop** button to discontinue the simulation.
2. Confirm the simulator is not breathing or pulsing.
3. Close the OEI Sim application.
4. Turn off the simulator by holding down the power button for approximately four seconds. The blue light flashes on and off momentarily before turning off.

## Removing the Simulated Blood

Blood can be left in the body for short periods of time (up to one week) but should be removed if a longer period of storage is expected.

To remove the blood prior to long-term storage:

1. Turn the simulator on by holding down the power button for approximately two seconds or until the blue light comes on.
2. Activate the tablet and connect to the simulator.
3. Using the tablet, turn all bleeding sites to **On** to activate the blood flow until the bleeding stops.

## Flushing the System

Should you wish to flush the system:

1. In the hand pump, mix one (1) capful of an antibacterial additive such as Germaben® II-E for every gallon of water.
2. Run this mixture through the simulator until the tank is empty and the water is no longer discharged from the simulator.

## Storing the Simulator

When not in active use, prevent accidental damage by keeping the simulator in the Storage Case. (See *Storing the Simulators* below.) Always completely remove all fluids before storing the simulator.

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# Maintaining Your Simulator

## Emptying/Cleaning the Bleeding System

Periodically flush the bleeding system by activating the blood flow until the bleeding stops and then infusing the body with a mixture of water and Germaben® II-E (one capful for every gallon of water) to prevent algal/fungal growth.

## Replacing the Emergency Airway Neckband

A replaceable, multi-use neck band enables practice in providing an emergency airway. Each band should enable six to eight applications. After each use, rotate the band to move the incision site away from the trachea.

To replace the band:

1. Stretch and pull the used band over the head. This band can be discarded or repaired (see *Repairing the Skin* below).
2. Apply glycerin or lubricant to the trachea.
3. Stretch and pull the new band over the head.
4. Position the band over the trachea in the track provided.

Figure 73: The Emergency Airway Neck Band

Figure 74: Exposed Trachea without Neck Band

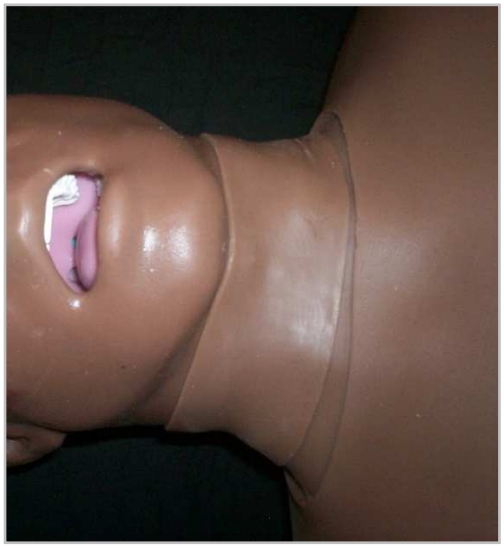

Figure 75: New Neck Band in Position

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# Replacing the Sternal Insert

The sternal insert used for non-infusing practice in sternal intraosseous can be replaced at the user's discretion when the needle does not stick firmly due to multiple holes in close proximity.

Figure 76: The Sternal I/O Insert

The sternal insert is accessed by unzipping and pulling the torso jacket down to reveal the sternum. Remove the used sternal insert and replace it with a new insert. Pull the torso jacket back up and secure it using the zipper.

# Replacing the Humeral Cap

The humeral cap insert used for non-infusing practice in humeral intraosseous is replaced at the user's discretion when the needle does not stick firmly due to multiple holes in close proximity.

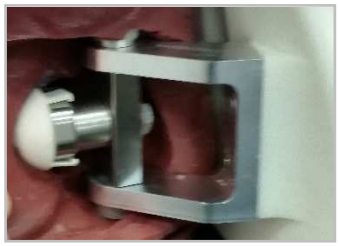

Figure 77: Locating the Humeral Cap Insert

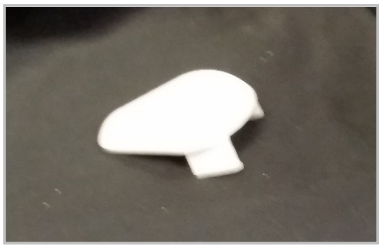

Figure 78: Humeral Cap Insert with Tabs

The humeral cap insert is accessed by unzipping and pulling the torso jacket down to reveal the shoulder (upper part of the humerus). Remove the used humeral cap insert and replace it with a new insert. Pull the torso jacket back up and secure it using the zipper.

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# Repairing the Skin

Over time, the sites for needle decompression and sternal and humeral I/O needle insertion will become dimpled.

Figure 79: Skin Repair Supplies

To repair:

1. Gather all materials necessary:
    a. Manufacturer-Supplied Silicone Repair Kit
    b. Acetone
    c. Disposal Cup or Piece of Cardboard
    d. Two (2) Small Hobby Sticks for Mixing and Application
    e. Paper Towels
2. Clean the area to be repaired using acetone and paper towels by spreading the holes open and wiping. Scrubbing is not necessary. (91% Isopropyl Alcohol can be used if acetone is not available; however, acetone promotes better adhesion of silicone.)

Figure 80: Cleaning for Skin Repair

3. Mix together a small amount of the silicone repair material.
    a. Remove the small plastic tip from the two-part dispensing syringe.
    b. Add a small amount of both components in equal parts to your cup or cardboard and stir together well.
    c. Using the replacement provided, replace the cap on the silicone repair material dispenser once the necessary amount of material has been dispensed.

Figure 81: Remove Plastic Tip

Figure 82: Add Repair Materials

Figure 83: Mix

Figure 84: Replacement Cap

Figure 85: Cap Replaced

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4. Apply the repair material to the punctured area using one of the hobby sticks. Spread the area in need of repair and apply the mixture. After spreading the repair material, close the repaired area, forcing out any excess mixture.

Figure 86: Spread the Area

Figure 87: Apply the Mixture

Figure 88: Close the Area

5. Apply a small amount of acetone to a paper towel (so that the towel is nearly dry and acetone is not dripping from the towel) and ***very gently*** wipe down the repaired area to remove any excess material. Pushing hard could force out the material that was just applied.

Figure 89: Wipe with a Small Amount of Acetone

Figure 90: Let Dry for Two Hours

6. Let the repair dry for approximately two (2) hours before using the simulator.

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# Charging/Replacing the Battery Pack

In addition to having a power cord, simulators are powered by one or two replaceable, rechargeable 18.5V 6400mAh (118Wh) Li-ion polymer battery pack(s). The batterie packs include thermal protection that monitors and guarantees the thermal stability of the battery.

A fully charged pack enables continuous breathing for up to 10 hours.

The battery pack is located in a concealed compartment in the inner, upper left thigh. For access, unzip the skin cover to reveal the compartment. Remove the cover to access the battery.

## Removing and Installing the Battery Pack

The battery pack should be removed from the simulator during storage and recharging.

To maintain continuous operation, the batteries can also be "hot swapped," a process where a battery can be replaced as long as either another charged battery or the power cord is available to provide the necessary power.

## Charging the Battery Pack

Batteries can be charged while connected in the battery compartment during operation if the power cord is also attached and operational. During this process, the power button blinks to indicate the average charge available from the battery or batteries: one (1) blink indicates that the batteries hold an average charge of 25%, two (2) blinks indicates 50%, and three (3) blinks indicate 75%.

Outside the simulator, battery packs should only be charged with the charger included with the simulator or otherwise provided by OEI. It takes eight (8) hours to fully charge the trickle charge batteries. The batteries should not remain connected to the charger longer than 14 hours.

To charge a battery pack:

1. Place the charger on a flat service.
2. Remove the battery pack from the simulator.
3. Connect the battery pack to the charger.
4. Plug into a standard electrical outlet. The red light indicates charging.
5. Charge the batteries for 6 to 8 hours (or overnight). The indicator light turns green when the batteries are fully charged.
6. Disconnect the batteries from the charger when fully charged.

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# Upgrading the Simulator's Firmware

## Requirements

- A laptop or a desktop computer with Wi-Fi capability
- Administrator access to the laptop or desktop computer
- Access to the Internet
- An internet browser supported by the application:
  - Chrome: 63.x.x or higher
  - Firefox: 54.x or higher
  - Safari: 11.x.x or higher
  - Edge: 41.x or Greater

**WARNING: Make sure all devices, such as the tablet, are disconnected from the simulator before beginning. Once the computer is connected to the simulator, any additional device could corrupt the system and make the simulator unusable.**

## Procedure

1. Connect the computer to the Internet.
2. Open your browser and go to www.operativeexperience.com/support to download the latest firmware software OEI file (e.g., OEI_Update_3.0.1.oei) for your simulator.

a. Select the Software Downloads and Updates tab

b. Under the name of the update (e.g., Simulator Firmware 3.0.1), click **Download**.

c. Follow your computer's prompts to complete the download process.

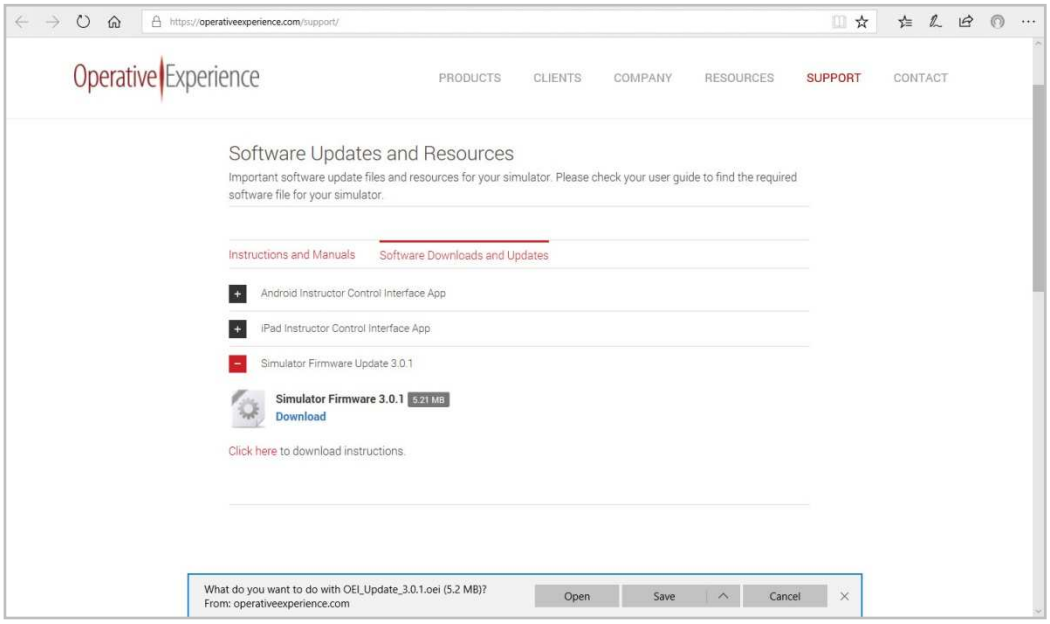


Figure 91: Downloading the Update File

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3. Power up the simulator.
4. After verifying that no device is connected to the Simulator Network, use your computer's network settings to select the Simulator Network. (Your computer is no longer connected to the Internet.)
5. In the browser's URL field, type: http://10.42.0.1.

The main screen of the OEI Sim application appears.

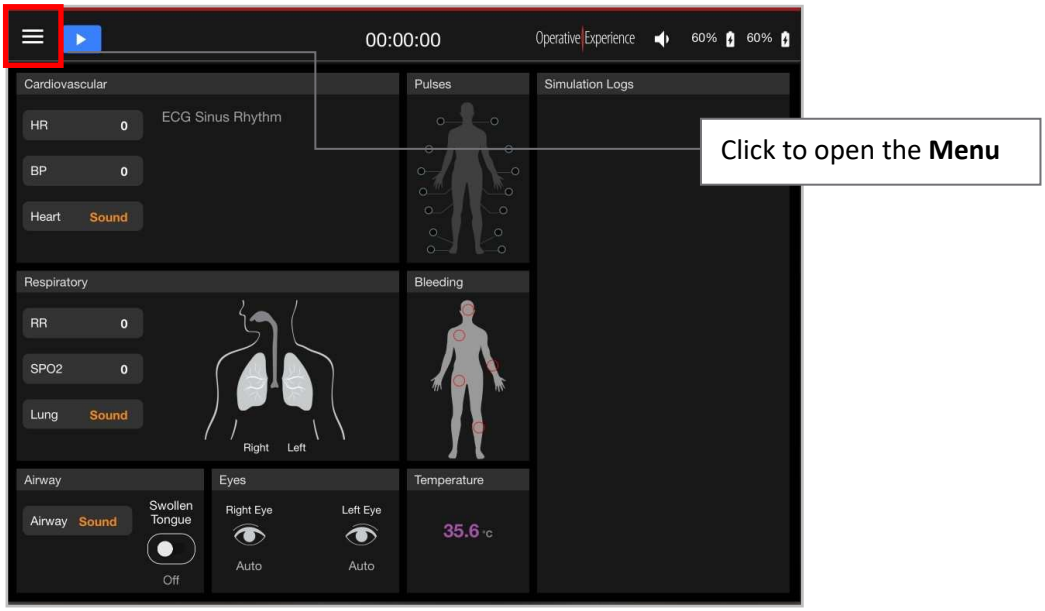


Figure 92: Open the Menu on the OEI SIM APP

6. Open the **Menu**, and select **Settings**.

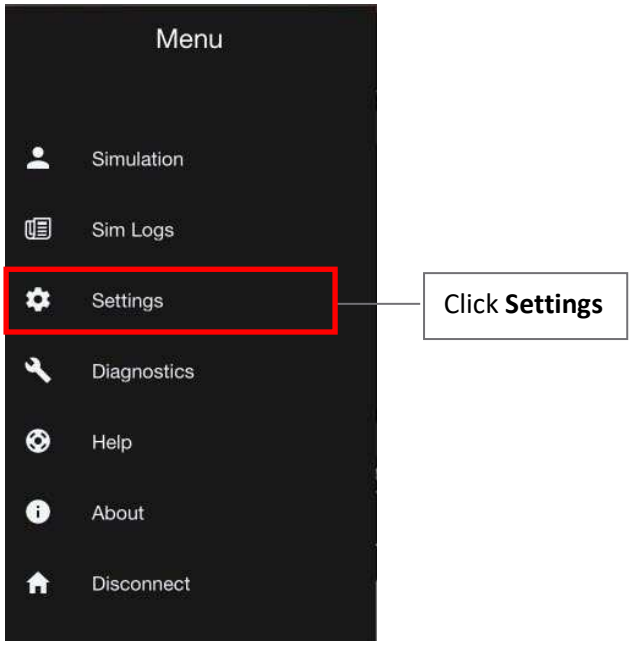


Figure 93: Click Settings

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The Settings screen appears.

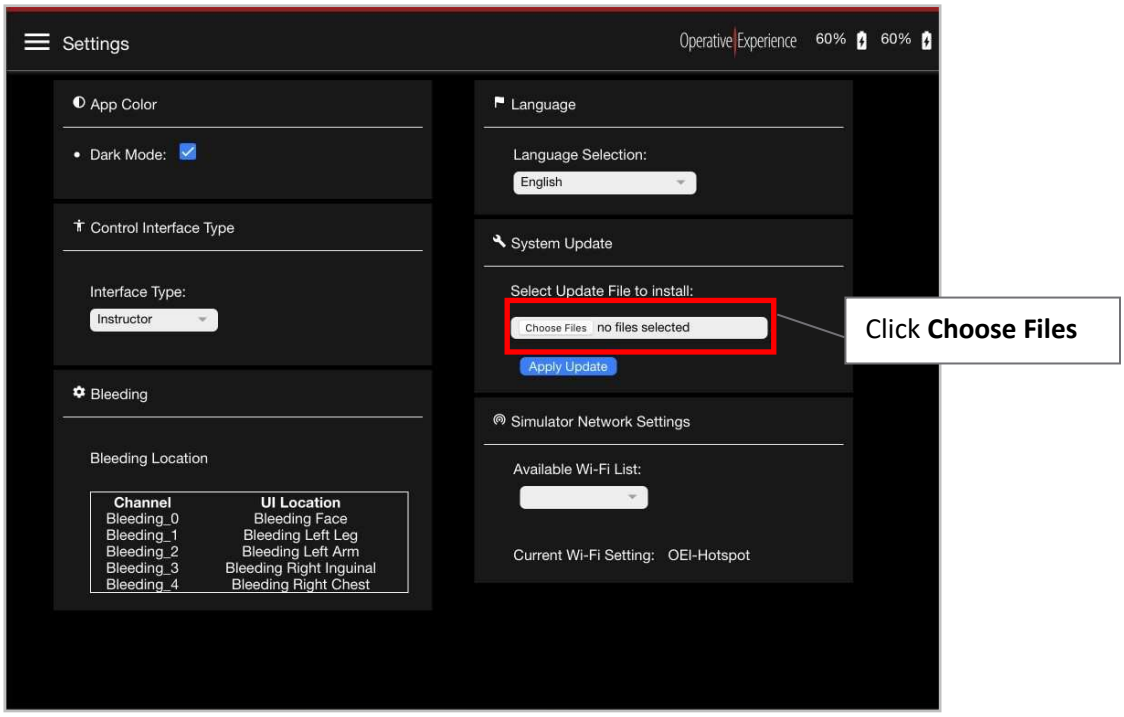


Figure 94: Click the Choose Files Button

7. In the System Update panel, click the **Choose Files** button beneath **Select Update File to install**.

The File Picker (for Macs) or File Explorer (for PCs) appears.

Figure 95: Searching for a File (Mac OS)

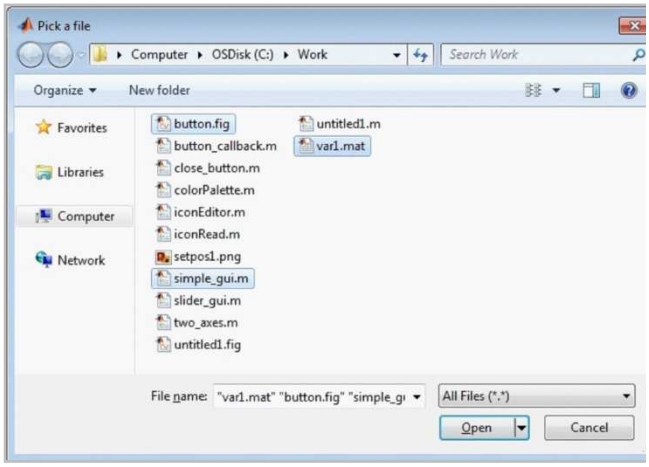


Figure 96: Searching for a File (Windows)

8. Locate and select the downloaded file.

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Once you've selected the file, the file name appears on the Settings screen.

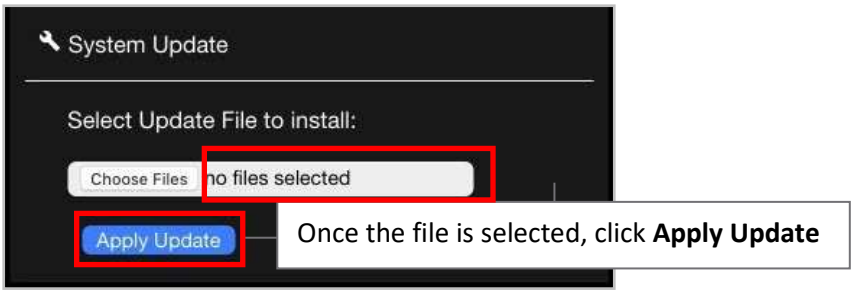


Figure 97: Click Apply Update

9. Click **Apply Update**.

After the Update process begins, the Connection Error message appears.

Figure 98: Click OK on the Connection Error Message

10. Click **OK**.

When the update has completed, the simulator restarts, and a screen appears reminding you to reconnect to the simulator.

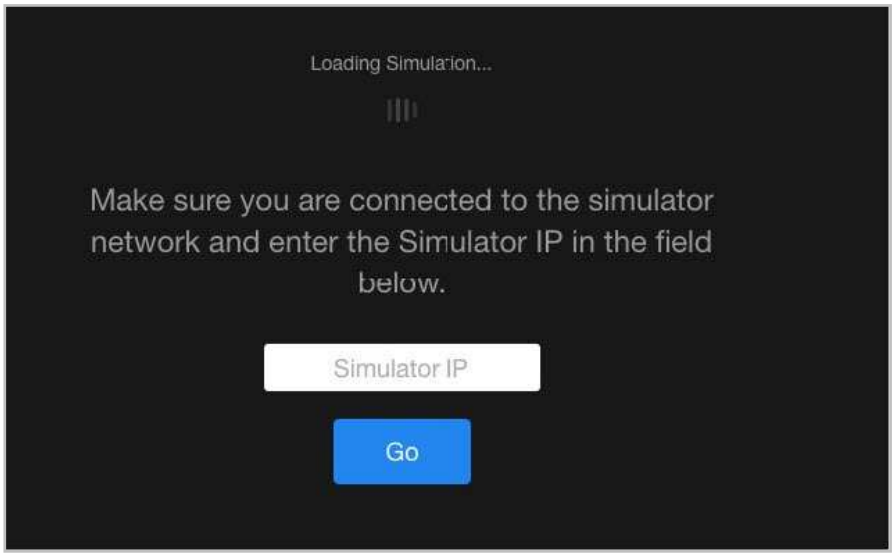


Figure 99: Reconnection Screen

11. In your computer's settings, verify that you're still connected to the Simulator Network.

12. Enter the **Simulator IP** (10.42.0.1) and click **Go** to reconnect to the simulator.

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The OEI SIM APP appears.

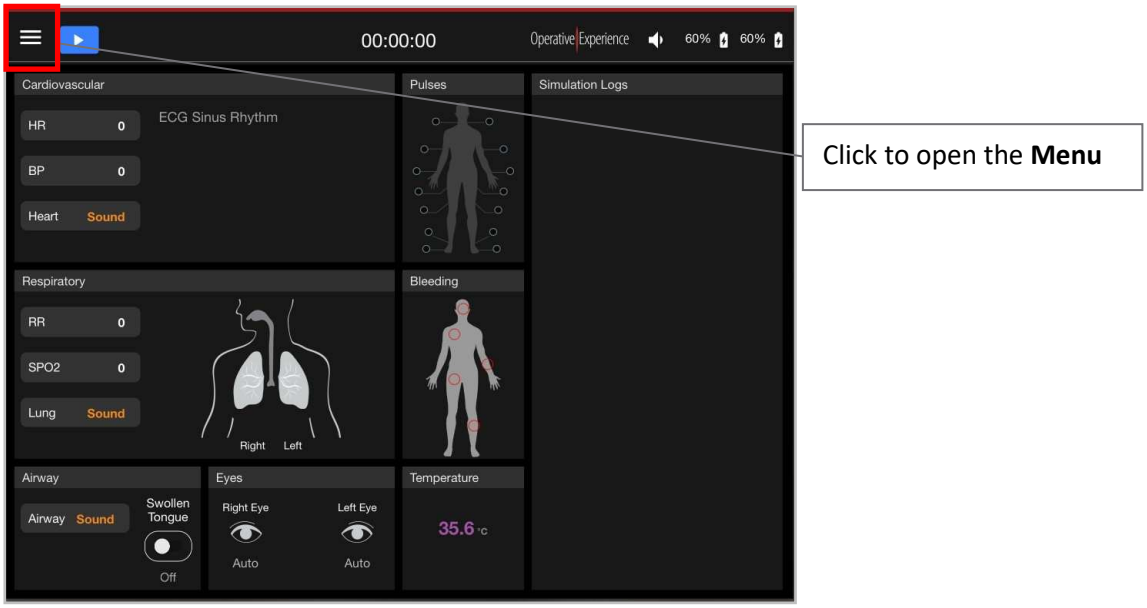


Figure 100: Open the Menu on the OEI SIM APP

13. Open the **Menu** and click **About**.

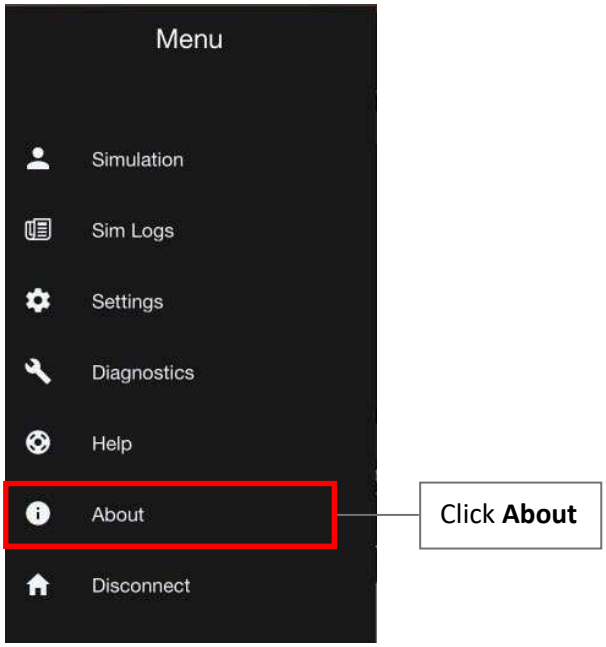


Figure 101: Select About

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The About screen appears, displaying the current version of the application under **OEI APP**.

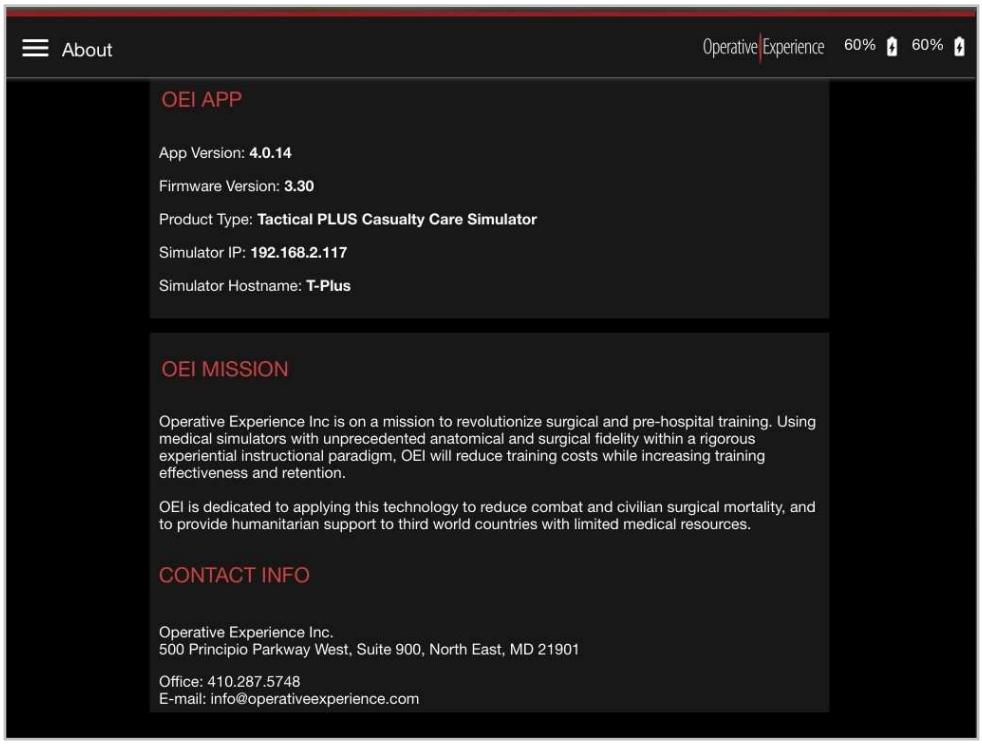


**Figure 102: Verify Versions on the About Page**

14. Verify that the configuration is current and the product type is correct by reviewing the following:

**a. App Version**

**b. Firmware Version**

**c. Product Type**

15. Once you've verified that you're running the updated version, close the Internet Browser and disconnect the computer from the Simulator Network.

16. Start your tablet for operation of the simulator.

17. Join the Simulator Network and start the OEI Sim application.

18. Using the About screen on your tablet's OEI SIM App, verify that the application is running the correct version.

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# Storing the Simulators

Simulators are ruggedized and can be stored and transported in a variety of ways as long as as their environment falls within the following conditions:

- Storage Temperature -14 to 140°F (-25 to 60°C)
- Ambient Pressure 10 to 15 Psi, which is the equivalent of -10 Mts below sea level to 2000 Mts above sea level @25°C
- Humidity 0 to 80%

Always completely remove all fluids and disconnect the batteries before storing the simulator.

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