

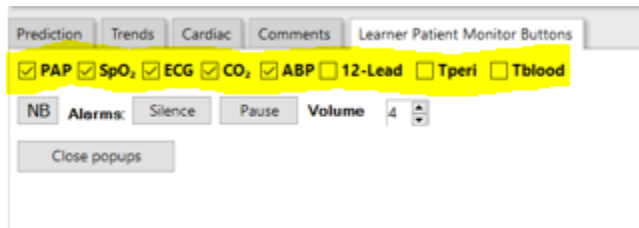


## STEP 5: USING THE VITALSBRIDGE WITH A PATIENT SIMULATOR

VITALSBRIDGE 300 200 AND 100

## Laerdal LLEAP Users

- **IMPORTANT:** for vital signs to show on the patient monitor when using LLEAP, ensure the appropriate boxes are checked in the “Learner Patient Monitor Buttons” section of LLEAP.



## Overview:

- While the VitalsBridge is compatible with a variety of patient simulators, the VitalsBridge Connector Software is used with Laerdal Patient Simulators. When other patient simulators are used, they should contact the manufacturer of the patient simulator and inquire which software they need to communicate between their patient simulator and the VitalsBridge.
- This guide provides instruction on how to use the VitalsBridge Connector Software with Laerdal LLEAP. Note that the VitalsBridge Connector is not currently compatible with SimPad. For a video tutorial, please see our YouTube channel: VitalsBridge.
- Before beginning this segment make sure the following have been completed:
  - The VitalsBridge instrumentation has been set up properly and is connected to any desired monitors.
  - The VitalsBridge has been connected properly to the computer that has the simulation software
  - Confirm that the appropriate version of Laerdal’s LLEAP Software is downloaded and installed on the desired PC that you wish to control your Laerdal simulator.
  - The VitalsBridge Connector Software has been downloaded and installed on the device that will be used to control the VitalsBridge
  - Verify that the version of the VitalsBridge Connector Application is compatible for the version of LLEAP software that controls your patient simulator.
  - Ensure that LLEAP application and VitalsBridge Connector software are run on computers that are on the same network. If LLEAP is used to control a patient simulator, then the simulator must also be on the same network.
- Basic steps to run the VitalsBridge with a patient simulator:
  1. Power on the patient simulator
  2. Power on the patient simulator’s computer
  3. Run the software that is used to control the patient simulator
  4. Power on the VitalsBridge
  5. Run the VitalsBridge Connector Software
  6. Connect the VitalsBridge to the connector software
  7. Connect the connector software to the patient simulator

## Using the VitalsBridge with a Patient Simulator

- Control the desired vitals signs via the patient simulator software
- Calibrate vitals signs signals

## Running the VitalsBridge™

### Power on the Patient Simulator

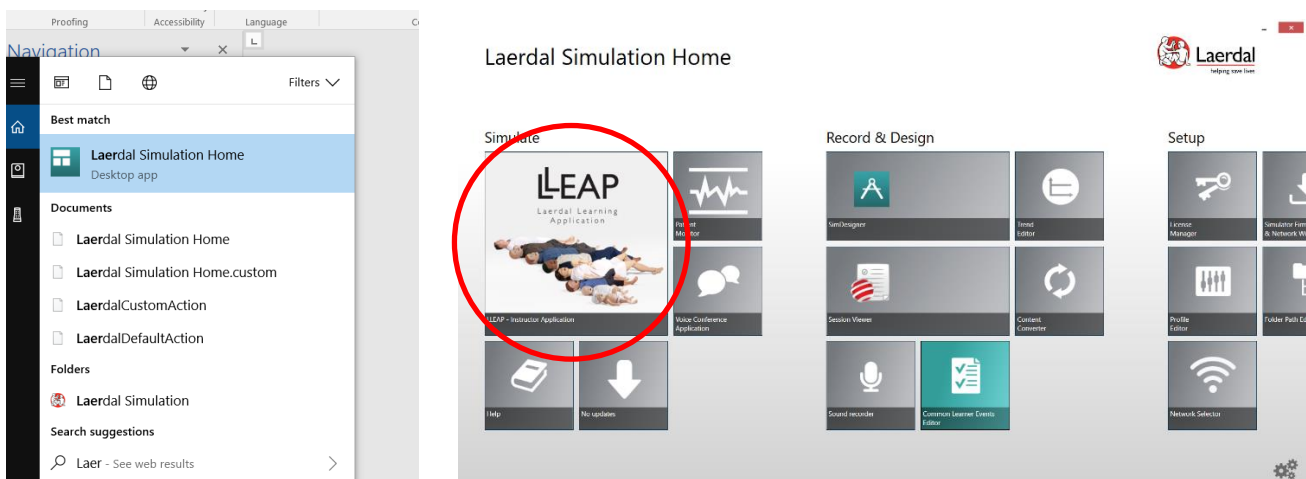
Power on the patient simulator and wait until it is fully initialized. Refer to the simulator's directions for use on how to power on the manikin.

### Power on the Patient Simulator's Computer

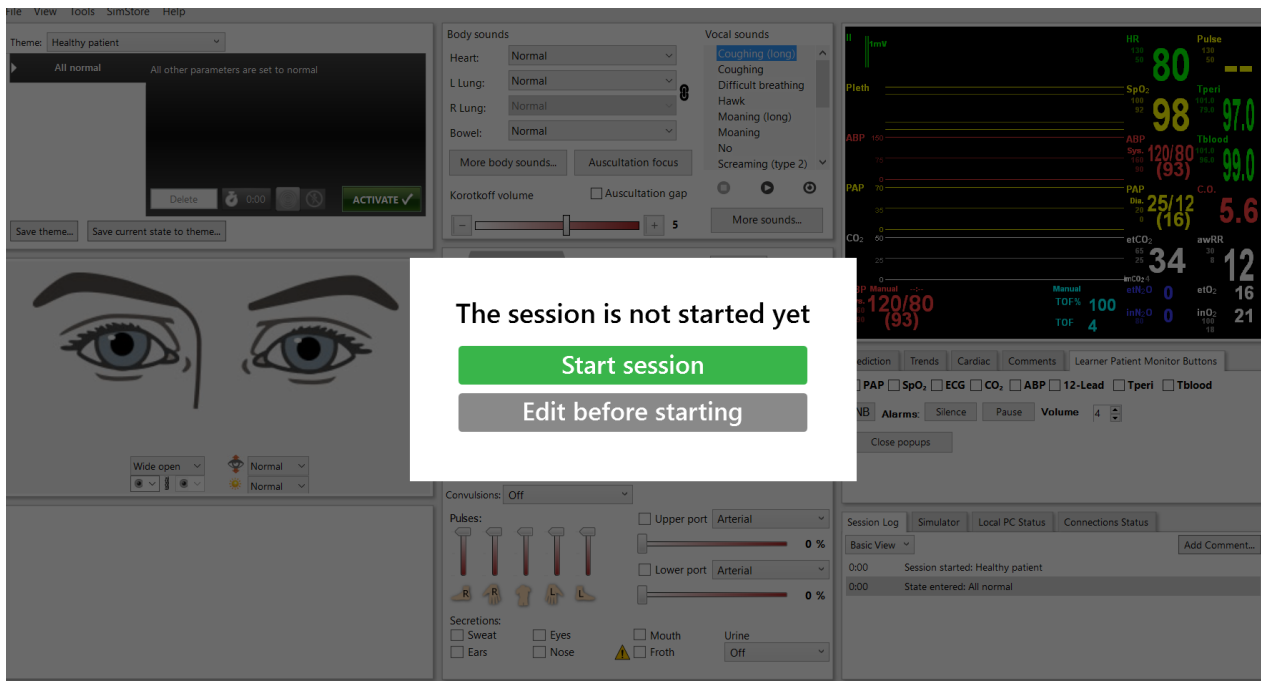
Power on the computer used to control the patient simulator. Refer to the simulator's directions for use on how to power on the computer that is used to control the patient simulator.

### Run the Software Used to Control the Patient Simulator

Open Laerdal's LLEAP software and begin a new session (refer to the simulator's directions for use on how to appropriately run the software used to control the patient simulator).



## Using the VitalsBridge with a Patient Simulator



## Power on the VitalsBridge

Press the on/off button to power VitalsBridge on. Once powered on, the VitalsBridge takes approximately 30 seconds to initialize and, if communicating over a network, attempt to connect to the manikin's internal router. The LED below the battery will flash as the VitalsBridge is initializing.



Check the status indicator lights on top of the VitalsBridge instrumentation to determine power and connectivity.

The VitalsBridge instrumentation, depending on the model, has up to 5 LEDs: Power, battery/charge, USB/Serial, Bluetooth and LAN/Wifi.



## Using the VitalsBridge with a Patient Simulator

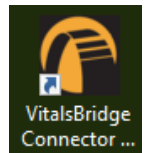
- Power indicator:
  - No light: switched off, or switched on and the VitalsBridge is not plugged into an outlet
  - Solid: switched on and power available to the VitalsBridge
- Battery/charge indicator:
  - No light: VitalsBridge is not running
  - Solid: VitalsBridge is on, battery charge > 15%
  - Flashing every 1 second: unit is running on low battery charge < 15%
- USB/Serial
  - No light: USB is not ready
  - Solid: USB is ready
- Bluetooth
  - No light: Bluetooth is not ready
  - Solid: Bluetooth is ready
- WLAN or LAN:
  - No light: not connected to router
  - Solid: VitalsBridge connected to the manikin's internal router or to an external router

**Note:** If you have just reconfigured your VitalsBridge to connect to Wifi, the light will *not* turn on until you have first exited out of the VitalsBridge connection software.

## Run the VitalsBridge Connector Software

If using a PC, double click on the VitalsBridge Connector icon, labeled VitalsBridge, located on the computer's desktop.

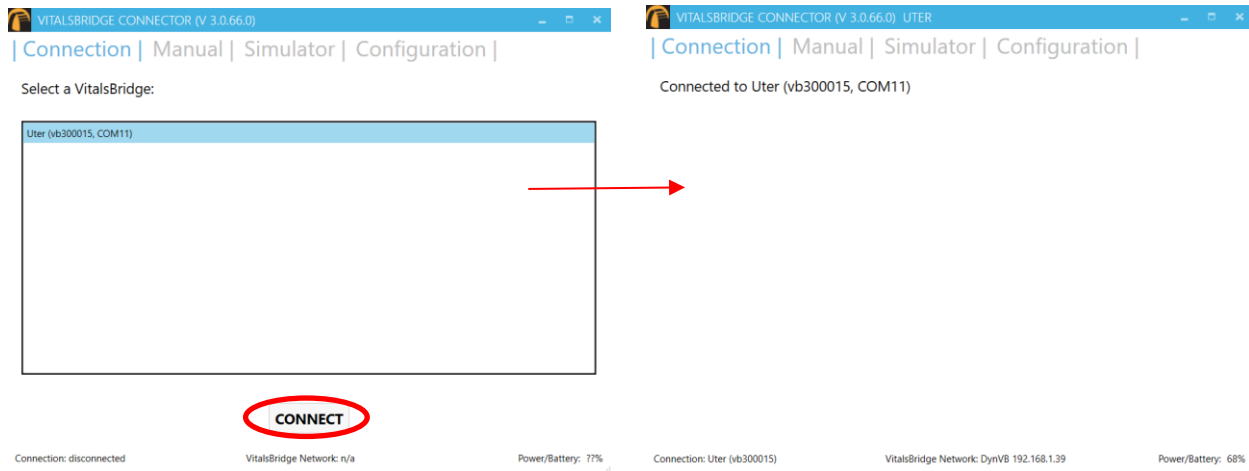
Alternatively, the software may be located by searching for “VitalsBridge” using the Windows search function (i.e., by pressing the  button in Windows 7 and typing in the search dialog or by pressing +S in Windows 8/10).



## Connect the VitalsBridge to the Connector Software

Once the Connector Application is running, any available VitalsBridge units will appear in the Connection tab (any units connected via Bluetooth, Serial, or Ethernet/Wifi for 200/300 units only). Select the correct VitalsBridge unit and press the CONNECT button.

## Using the VitalsBridge with a Patient Simulator

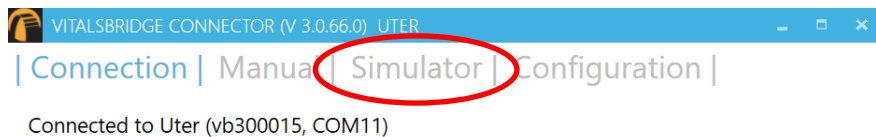


**Note:** If your VitalsBridge does not appear in the list, close out of the program and reopen the software. Make sure the VitalsBridge unit is turned on *before* opening the software.

**Note:** If your VitalsBridge does not appear in the list and the VitalsBridge/PC connection has only just been made, it is possible that the automatic install of the appropriate drivers that run the VitalsBridge have not been completed. Close out of the connector software, wait a minute or two and then reopen the software.

### Connecting to a Patient Simulator

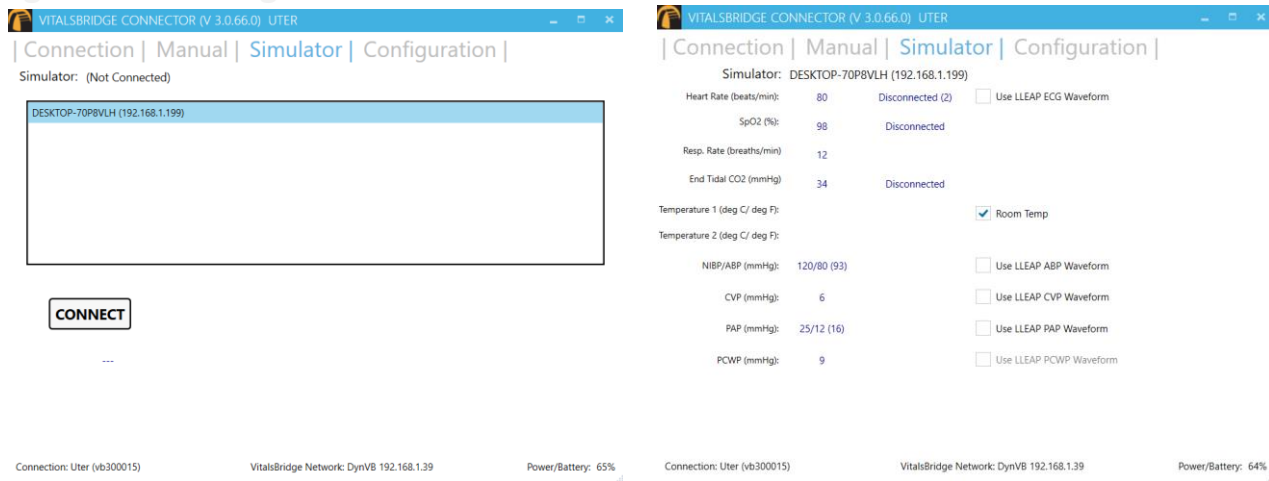
If the computer is able to connect to a patient simulator over a network, select the “Simulator” tab.



Select the appropriate patient simulator that is reported in the dialog box and select CONNECT (if Laerdal’s LLEAP software is running, it should automatically appear in the menu).



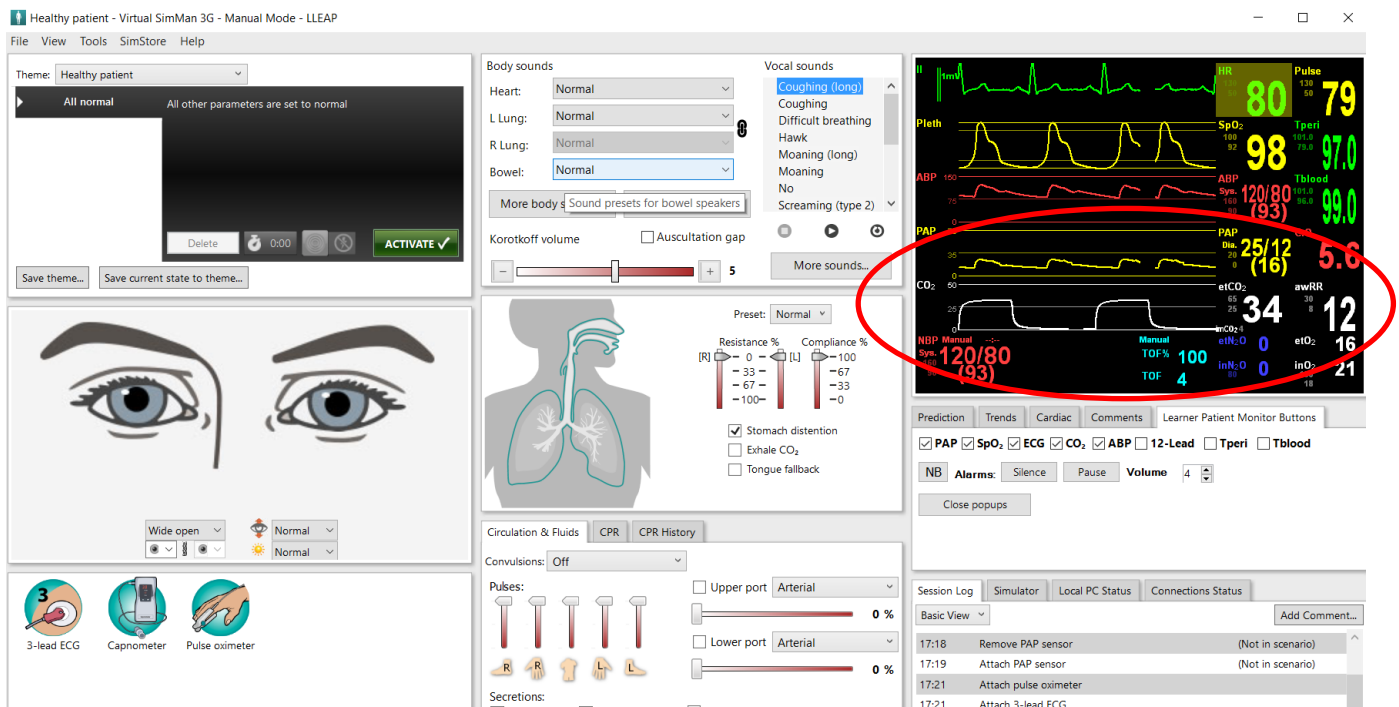
## Using the VitalsBridge with a Patient Simulator



**Note:** A simulation must be running in order for it to be reported in the dialogue box.

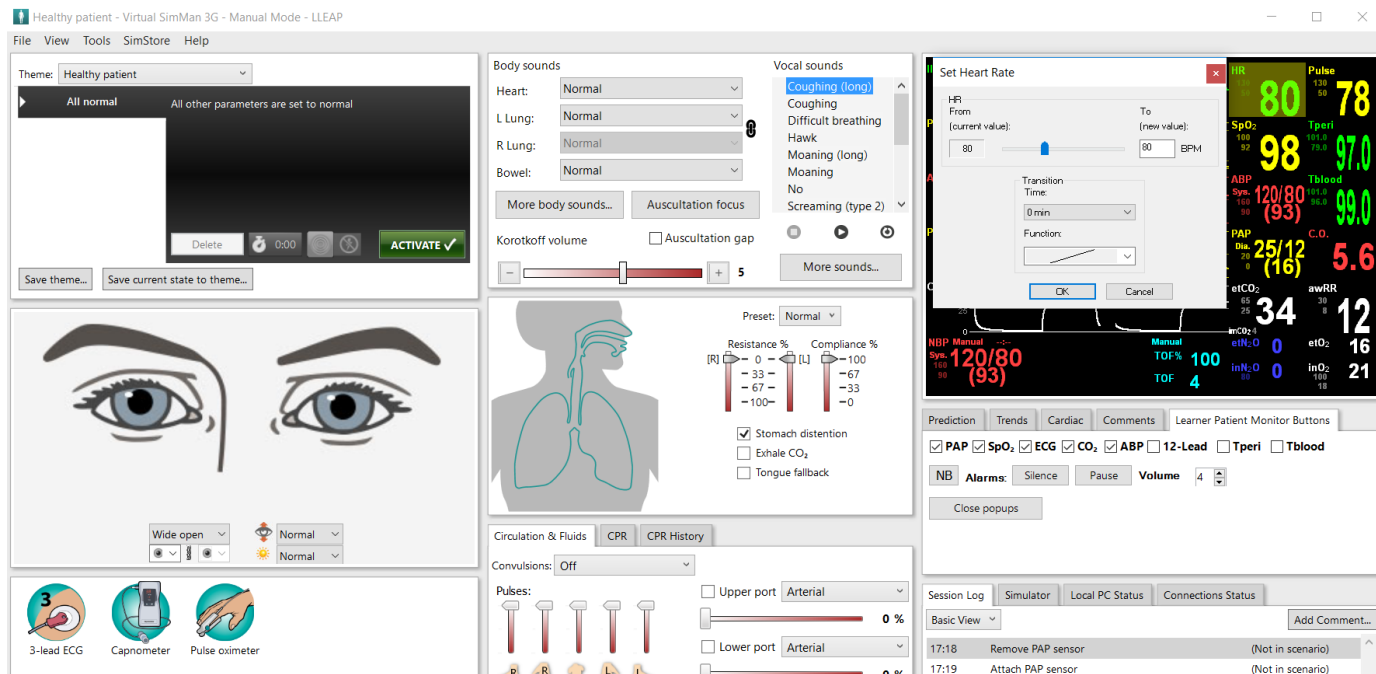
### Control the Desired Vital Signs with LLEAP

Use the patient simulator's application to control whether ECG leads are placed, Capnography is enabled, and whether the SpO2 probe is in place by checking the "Learner Patient Monitor Buttons" on the Laerdal control panel for the vital signs you would like to control.



Vital signs set in LLEAP will be communicated to the VitalsBridge Connector software. If the VitalsBridge is connected and configured with a real patient monitor, the vital signs will be updated.

## Using the VitalsBridge with a Patient Simulator



Refer to the simulator's directions for use for more detailed instructions on how to control the vitals signs.

### Calibration

It may be necessary to calibrate the SpO2 and CO2 for your specific monitor. For instructions on how to complete the calibrations from the VitalsBridge Connector Software see below.

Once calibrated, return to the "Simulation" tab on the Connector Software user interface.

#### SpO<sub>2</sub> Calibration

The VitalsBridge is pre-calibrated. However, if the set SpO<sub>2</sub> value significantly deviates from the value on the vitals sign monitor, then it is necessary to calibrate. To perform a new calibration, first ensure the adapter is configured correctly. Next, under the Configuration Tab, Choose SpO2 under "Selected Calibration" and press the NEW button. SpO2 Calibrations are stored on the VitalsBridge.

**Note:** When performing a calibration, disconnect the mock probe from the SpO<sub>2</sub> adapter box. If the mock SpO<sub>2</sub> probe is connected, it needs to be placed *on* a manikin's finger or on something opaque that blocks the mock probe's light. When the mock probe is disconnected, a SpO2 signal will be simulated.



## Using the VitalsBridge with a Patient Simulator

VITALSBRIDGE CONNECTOR (V 3.0.25.0) BART

| Connection | Manual | Simulator | Configuration |

VitalsBridge Name: Bart ☐ Update

Wifi: ssid: UnknownSSID pass: \*\*\*\*\* ☐ Update

Selected Calibration: Default SpO2

☒ SpO2 ☐ CO2 ☐ Temperature

Default SpO2
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Choose a name for the calibration:

VITALSBRIDGE CONNECTOR (V 3.0.25.0) BART

| Connection | Manual | Simulator | Configuration |

VitalsBridge Name: Bart ☐ Update

Wifi: ssid: UnknownSSID pass: \*\*\*\*\* ☐ Update

Selected Calibration: Default SpO2

☒ SpO2 ☐ CO2 ☐ Temperature

Enter Calibration Name:

The user interface will instruct you to wait for a period of time and then to enter the SpO<sub>2</sub> reading shown on the patient monitor.

**Note:** Wait until the SpO<sub>2</sub> reading has stabilized on the monitor before entering the value. Some vital signs monitors will filter and average the SpO<sub>2</sub> value, and there may be a several second delay before the reading changes and stabilizes.

VITALSBRIDGE CONNECTOR (V 3.0.25.0) BART

| Connection | Manual | Simulator | Configuration |

VitalsBridge Name: Bart ☐ Update

Wifi: ssid: UnknownSSID pass: \*\*\*\*\* ☐ Update

Selected Calibration: Default SpO2

☒ SpO2 ☐ CO2 ☐ Temperature

Enter SpO2 value shown on Patient Monitor:  %

## Using the VitalsBridge with a Patient Simulator

Additional calibration entries are shown and the process of entering in a SpO2 value is repeated until enough points are found for an accurate calibration reading. Once enough points are found, the calibration is automatically saved and selected.

VITALSBRIDGE CONNECTOR (V 3.0.25.0) BART

| Connection | Manual | Simulator | Configuration |

VitalsBridge Name: **Bart** ☐ Update

Wifi: **ssid: UnknownSSID** **pass: \*\*\*\*\*** ☐ Update

Selected Calibration: **My Patient Monitor**

☒ SpO2 ☐ CO2 ☐ Temperature

Default SpO2  
My Patient Monitor

**SELECT** **REMOVE** **NEW**

Unused custom calibrations may be removed by highlighting the desired calibration to remove and pressing the REMOVE button.

### CO<sub>2</sub> Calibration (VB300 only)

Calibration may be needed if the end-tidal CO<sub>2</sub> reading on the patient vital signs monitor does not properly match the CO<sub>2</sub> waveform on the Instructor Application. CO<sub>2</sub> calibration is performed in a similar manner as SpO<sub>2</sub>.

1. Select the CO<sub>2</sub> radio button and press NEW.
2. Enter the name of the custom calibration
3. As per the instructions on the user interface, wait several seconds and enter the end-tidal CO<sub>2</sub> value (mmHg) shown on the patient monitor.
4. Repeat step 3 for a number of calibration points.

### Temperature Calibration Selection

The default temperature calibration selection is appropriate for most critical care patient monitors. Select the Default Temperature setting in the Configuration tab of the VitalsBridge Connector.

VITALSBRIDGE CONNECTOR (V 3.0.25.0) BART

| Connection | Manual | Simulator | Configuration |

VitalsBridge Name: **Bart** ☐ Update

Wifi: **ssid: UnknownSSID** **pass: \*\*\*\*\*** ☐ Update

Selected Calibration: **Default Temperature**

☐ SpO2 ☐ CO2 ☒ Temperature

Default Temperature  
Welch Allyn  
Philips SureSigns  
GE ProCare

**SELECT**

## Using the VitalsBridge with a Patient Simulator

There are a few other non-custom calibrations provided for “Spot Check” monitors.

### Obtaining a Temperature Reading on a “Spot-Check” Monitor

1. Choose the appropriate spot-check monitor from the list of temperature calibrations from the Calibration tab in the VitalsBridge Connector.
2. Ensure the temperature probe on the spot-check monitor is placed in the cradle.
3. Ensure the “Room Temperature” checkbox on the VitalsBridge connector app is selected.
4. Take the temperature probe on the spot-check monitor from its cradle, followed by unchecking the “Room Temperature” checkbox.
5. Wait for the monitor to take a reading.

### Zeroing the Invasive Blood Pressure(s) (VB300 only)

IBPs may be zeroed by setting the blood pressure waveform to “Flat Line” in the software used to control your patient simulator. Refer to your patient monitor's documentation for procedures of zeroing the pressures within the monitor's user interface. Once the pressures are zeroed on the monitor, deselect and apply the “Flat Line” setting in the Instructor Application to allow the waveforms to reappear. If the blood pressure readings differ significantly from the values set in the Instructor Application, then attempt to re-zero.

*Step 1 (Simulator):* In the simulator's instructor application, locate where the waveform may be “zeroed” or “flatlined”.

-or-

*Step 1 (Manual):* In the Manual tab of the VitalsBridge connector, select the checkbox of the invasive blood pressure you wish to zero.

VITALSBRIDGE CONNECTOR (V 3.0.25.0) BART

| Connection | Manual | Simulator | Configuration |

Heart Rate (BPM):	70 + -	SpO2 (%):	95 + -	Probe Off
Temp. 1 (deg. C):		Temp. 2 (deg. C):		<input checked="" type="checkbox"/> Room Temp
Sys. BP (mmHg):	120 + -	Dia. BP (mmHg):	80 + -	<input checked="" type="checkbox"/> Zero ABP
Sys. PAP (mmHg):	25 + -	Dia. PAP (mmHg):	10 + -	<input type="checkbox"/> Zero PAP
CVP (mmHg):	6 + -	<input type="checkbox"/> Zero CVP		
RR (BrPM):	12 + -	etCO2 (mmHg):	35 + -	

*Step 2:* Use the patient monitor's user interface and activate the zero function for the corresponding invasive pressure. Consult your patient monitor's user manual on instructions for how to zero an invasive blood pressure. Verify that the zero has succeeded and is showing a value of 0 on the patient monitor.

*Step 3:* Uncheck the checkbox in the Manual tab from Step 1, or disable the zero on the patient simulator's instructor software.

## Using the VitalsBridge with a Patient Simulator

### Pulmonary Capillary Wedge Pressure Simulation (VB300 only)

Simulation of wedging a small pulmonary artery by inflating a balloon to measure the pulmonary capillary wedge pressure (PCWP) is accomplished by checking the PCWP checkbox in the Simulator tab of the VitalsBridge connector. First check “Use LLEAP PAP Waveforms” checkbox, then check “Use LLEAP PCWP Waveform” checkbox. This will send a PCWP waveform from the VitalsBridge to the vital signs monitor using the PAP connection.

## Support

For technical assistance, contact VitalsBridge customer support:

- [support@vitalsbridge.com](mailto:support@vitalsbridge.com)
- 1-435-200-3402
- 1-801-484-3820