



CAE SimEquip

Getting Started Guide



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INTRODUCTION

The CAE SimEquip™ is a collection of tools that expertly simulates a variety of medical devices. These tools can be used for complex Simulated Clinical Experiences, improving training in both mobile and bedside applications. SimEquip is based on CAE’s Maestro™ software platform allowing users to practice subject-specific techniques and methods in ventilation, anesthesia, and cardiac resuscitation with patient simulators or standalone devices.

The simulated equipment is not intended to replace any courses or hands-on sessions with live subjects, but should be implemented as part of a blended learning solution.

IMPORTANT: The simulator is not intended to diagnose or identify life-threatening conditions in a live patient.

SimEquip provides simulated medical devices and accessories for:

CAE SimEquip Simulations	
Portable Devices and Bag	CAE SimEquip™ Defibrillator
	CAE SimEquip™ AED
	CAE SimEquip™ Transport Ventilator
Bedside Devices and Medical Cart	CAE SimEquip™ Ventilator
	CAE SimEquip™ Anesthesia



CAE SimEquip

The Sim Equip system is designed for compatibility with the following CAE patient simulators using Maestro:

- CAE Apollo™
- CAE Ares™
- CAE Athena™
- CAE Juno™
- CAE Maestro™ Evolve Embody (CAE's virtual simulator)

Note: Patient simulators are sold separately from the SimEquip system. Embody is included with the Maestro standalone package.

Virtual Equipment

CAE SimEquip offers virtual equipment that may be used during simulation, providing user interfaces that mirror authentic medical equipment. Running equipment, modifying settings, and applying treatments will impact the physiology of the patient status in the CAE Maestro software offering a deeper learning experience.

Virtual equipment options include:

- **SimEquip AED** - a virtual automated external defibrillator that is easy to use, providing audible prompts guiding the learner on appropriate actions to take.
- **SimEquip Defibrillator** - an electrotherapy device that simulates cardiac pacing, cardioversion and defibrillation to the virtual patient during the simulation, providing the learner with knowledge of how to use this life-saving device.
- **SimEquip Transport Ventilator** - has many of the same features as the SimEquip Ventilator, though providing an interface that more closely resembles equipment used for portable respiratory support.
- **SimEquip Ventilator** - offers both invasive and non-invasive options, various modes, and a display featuring waveforms and audible alarms. Much like bedside medical equipment, the virtual ventilator allows for monitoring and treating the virtual patient with respiratory needs.
- **SimEquip Anesthesia** - provides the learner with anesthesia technology, by delivering the ability to virtually administer medical gases, adjusting pressure and flow while monitoring and providing ventilatory support.
 - **CAEPatient Monitor** - included with the SimEquip Anesthesia, this provides the ability to dynamically capture a patient's status from the display. Some of the on-screen patient monitor features are: 12-Lead ECG reports and preconfigured layouts or the ability to modify settings for the user's preference.

SimEquip Software

The following identifies the software version associated with the release of this guide.

Document	Document Version	SimEquip Software Version	Maestro Compatibility Version
CAESimEquip Getting Started Guide	905K720652 v1.3	CAESimEquip v1.0	CAEMaestro v2.5

Contained In This Guide

This Getting Started Guide provides information regarding:

- Cautions and Warnings
- Setup
- Appendix A - Troubleshooting
- Appendix B - Software Upgrades

For further information on using the SimEquip software and Virtual Equipment applications, see the *SimEquip User Guide* which may be found on the CAE website at <https://caehealthcare.com/support/user-guides/>

CAUTIONS AND WARNINGS

Please read and understand these cautions and warnings before you begin using SimEquip.

General

- When unpacking equipment for the first time, use box cutters carefully to protect both the packaging and the product.
- Be careful when unpacking the Medical Cart. There may be sharp metal corners and edges.
- Do not use equipment in a manner that is not specified by the manufacturer.
- Keep all electronic equipment free from high humidity or liquids.
- Do not leave the hardware powered on when the simulator is not in use.

Operations

- When using the medical cart, always ensure the computer and monitor are plugged into a power source during simulator operation.
- Do not use or connect any USB device or cable to the devices other than the those provided.
- When installing equipment near an electric outlet, ensure cables do not represent a hazard.
- Allow for plenty of room when setting up the medical cart and accessories. There will be cords, cables and hoses used that may present tripping hazards. The power cord will be 6' or 7' long (depending upon the country). During assembly, keep the long power cord around the metal wrap attached to the power bar box.
- Avoid weighing down the equipment with any tools or accessories not relevant to the immediate exercise.
- Refrain from bending, kinking, or stepping on breathing tubes and medical hoses.
- Be aware and avoid people when maneuvering the equipment on the medical cart. Injuries may occur.
- Injuries may occur if the monitors and/or the cart falls or tips over.
- Always lock the caster wheels on the medical cart to ensure stability during setup and operations.
- NEVER attach medical gas hoses to real gas sources. These hoses are intended for simulation purposes only.
- Keep side flaps on the Transport Bag closed when not in use, to avoid debris from accumulating inside of bag and on equipment.

Ergonomics

- Viewing a monitor screen for extended periods of time may result in eye strain.
- Lock the caster wheels on the medical cart to ensure proper orientation of monitors, display, and buttons. Equipment misuse and ergonomic injuries may result from improper setup.

SETUP

Before Setting Up SimEquip

Proper operation requires correct configuration. Before setting up the system, keep in mind these basic guidelines:

- Read and understand the Cautions and Warnings in the beginning of this guide.
- Do not power on any components until instructed in the text.
- Do not install any Windows updates or anti-virus software when connecting to the network.
- Allow for plenty of room when setting up the medical cart and accessories. There will be cords, cables and hoses used that may present tripping hazards. The power cord will be 6' or 7' long (depending upon the country). During assembly, keep the long power cord around the metal wrap attached to the power bar box.
- Allow for plenty of room when setting up the medical cart and accessories. Bending and reaching may be involved.
- Using a table to set equipment and tools on during the setup process is beneficial. This will allow for easier access to what is needed during setup and may prevent damage to equipment.
- Be careful when unpacking the Medical Cart. There may be sharp metal corners and edges.
- Prior to attaching items to the Medical Cart, lock the caster wheels on the Medical Cart so that the cart is stable during the completion of setup.

Portable Simulation Setup Steps

Setup steps are required for simulations that may use:

- Defibrillator
- AED or
- Transport Ventilator

Steps should be performed in the sequence provided in the Portable Simulation Setup table. Accompanying details are in the following pages.

Portable Simulation Setup	
1	Remove equipment from boxes.
2	Connect breathing circuit or medical cables.
3	Power on equipment.
4	Connect to WiFi:
	<ul style="list-style-type: none">• Using a Patient Simulator or• Standalone - Setup the Router
5	Launch Maestro software.
6	Launch SimEquip software.

Step 1: Remove Equipment from Boxes

Tools required:

- Phillips head screwdriver (included) - needed for opening shipping crate and used for installation of equipment.
- Box Knife - suggested for opening cardboard boxes

WARNING: Be careful if using knives to open boxes, to prevent personal injury or damage to equipment.

It may be beneficial to place equipment on a table during unpacking so that it is visible and available during the setup process.

- a. Check the battery power prior to running a simulation. The battery may require charging.
- b. Place the router and router cable inside the Transport Bag.
- c. Place the tablet inside the front sleeve of the Transport Bag. Place the tablet cables inside the Transport Bag
- d. All additional limbs, cables, and equipment may be placed inside the Transport Bag until ready to use.

Step 2: Connect Breathing Circuit or Medical Cables

The connection of the breathing circuit or cables will be determined by the type of simulation that is running and the intended use of virtual equipment.

CAE SimEquip Defibrillator

The Defibrillator equipment:

- Transport Bag
- 3-Lead ECG therapy cable
- Therapy Cable with Pads
- SpO₂ Probe (Optional)
- IBP Transducer (Optional)
- NIBP Cuff (Optional)
- Temperature Sensor (Optional)
- EtCO₂ Sample Line (Optional)
- EtCO₂ Nasal Sample Line (Optional)

To assemble the Defibrillator:

- a. Unzip the front pocket on the Transport Bag and slide the SimEquip Surface Go 2 tablet out of the pocket.



Slide Out SimEquip Tablet

- b. Plug the power cord into the tablet. Slide the tablet back into the pocket and zip the pocket closed, leaving the power cord exposed.
- c. Place the opposite end of the power cord into the battery pack. Place the battery pack inside the middle section of the Transport bag. Zip the middle compartment closed.

- d. When facing the front of the Transport Bag, open the right compartment on the bag.
- e. Connect the therapy cable to the electrotherapy pads.
- f. Pass the therapy cables through the elastic port in the zippered compartment on the right side of the transport bag.
- g. Secure the therapy cable by passing the connector end of the cable through the elastic loop and inside the middle compartment of the Transport Bag.
- h. Repeat the steps c and d for the additional equipment as necessary.

Note: It may be required to pass the therapy cable through the elastic port from inside the Transport Bag and before connecting the therapy pads



Defibrillator Assembled

CAE SimEquip AED

To assemble the AED, follow the same steps for assembling the Defibrillator, eliminating the 3-Lead ECG cable.



AED Assembled

CAE SimEquip Transport Ventilator

The Transport Ventilator includes:

- Transport Bag
- Breathing Circuit with Non-invasive Mask or Endotracheal Tube
- Filter
- O₂ Hose
- SpO₂ Probe
- EtCO₂ Sample Line



Transport Ventilator Unassembled

The Transport Ventilator uses a breathing circuit. To assemble the breathing circuit:

- a. Connect plastic cuffs to the end of each breathing circuit limb.
- b. Connect one of the limbs to the wye connector (at the y).
- c. Connect the opposite limb to the wye connector (at the opposite side of the y).
- d. Connect the elbow to the wye connector (at the top of the y).
- e. Connect the T-connector to the elbow.
- f. Connect the EtCO₂ sample line to the T-connector.

- g. Connect the mask or the endotracheal tube to the T-connector (at the open end).



Breathing Circuit Assembled with Non-Invasive Mask

To assemble the Transport Ventilator:

- a. Unzip the front pocket on the Transport Bag and slide the SimEquip Surface Go 2 tablet out of the pocket.



Slide Out SimEquip Tablet

- b. Plug the power cord into the tablet. Slide the tablet back into the pocket and zip the pocket closed, leaving the power cord exposed.
- c. Place the opposite end of the power cord into the battery pack. Place the battery pack inside the middle section of the Transport Bag. Zip the middle compartment closed.
- d. When facing the front sleeve side of the Transport Bag, open the left compartment on the bag. Two ports will be visible, labeled: **EXP** and **INSP**.
- e. Using the metal snap, secure the open flap to the back of the transport bag.
- f. Attach a plastic adapter to each of the ports.
- g. Attach the filter to the port on the bag labeled **EXP**.

- h. Attach the plastic cuff to the port on the bag labeled **INSP**.
- i. Attach the breathing circuit limbs to the filter and cuff.



Transport Bag - Expiratory and Inspiratory Connections

- j. Open the side compartment on the opposite side of the transport bag and pull the O₂ hose through the elastic opening.
- k. Pull the SpO₂ probe through the same elastic opening on the right side of the bag.
- l. Attach the exposed end of the O₂ hose (outside of the bag) to a simulated oxygen source.

WARNING: Never attach the hose to a real O₂ source. The medical gas hoses included with SimEquip are intended for simulation purposes only.

- m. Proceed to *Step 3. Power On Equipment* to complete setup for Transport Ventilator.



Transport Ventilator Assembled

Step 3: Power On Equipment

Power on the tablet in the Transport Bag by pressing and holding the button at the top of the tablet.

Step 4: Connect to WiFi

Connection to WiFi may be done in two ways. The way to connect will be determined by whether the type of simulation running is:

- using a patient simulator or
- standalone (and requiring a router)

Using a Patient Simulator

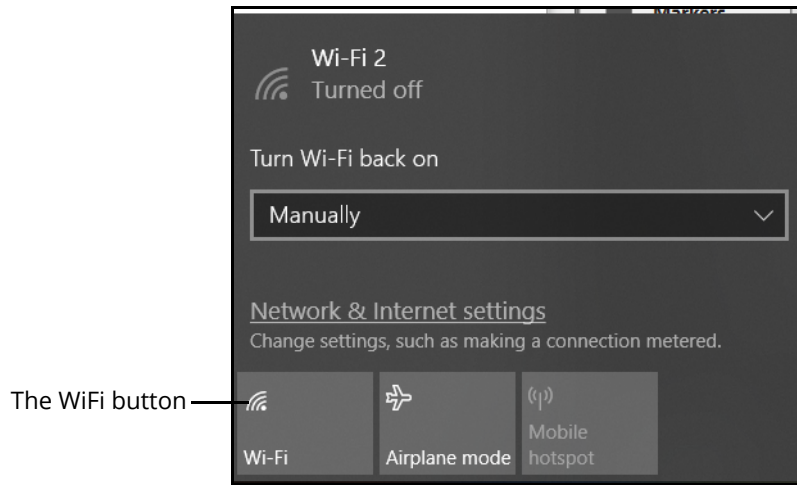
If the simulation will include a patient simulator, the system will use the manikin's WiFi.

- a. Turn on the patient simulator.

Note: The power switch may be in different locations on the manikin depending upon the patient simulator being used. Reference the patient simulator User Guide if there is difficulty locating the power switch.

- b. If this is the first time running SimEquip, it may be necessary to update Maestro on the patient simulator. See *Appendix B - Software Upgrades* for more information on upgrading.
- c. If there is an Instructor tablet, power this tablet on also.
- d. If the tablet(s) does not automatically connect to the simulator's network follow these instructions:
 - From the home screen, tap the Network icon located in the lower-right corner of the screen in the taskbar.

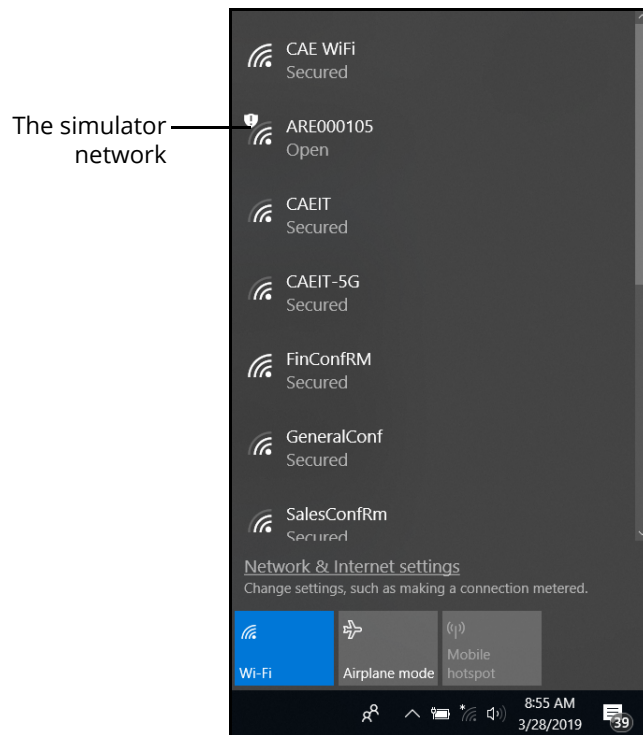
The Network window appears.



The Network Window

- Tap **WiFi** button to turn on WiFi (button turns blue).
- In the Network window, locate the simulator network from the list of available networks. The type of patient simulator that is being used, will determine the name of the network and where the name appears on the simulator.

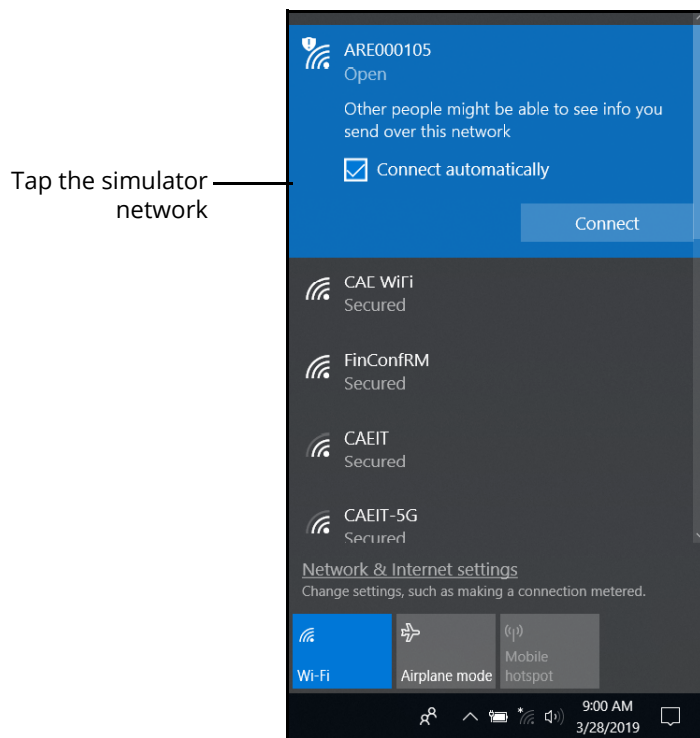
For example, the Ares network name is ARE00XXXX (where XXXX is the last 4 digits of Ares' serial number and is found on a label attached to Ares' side).



The Network Window

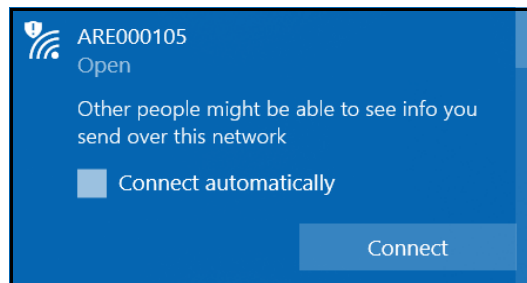
- Tap the simulator network.

The connection options appear in the Network window.



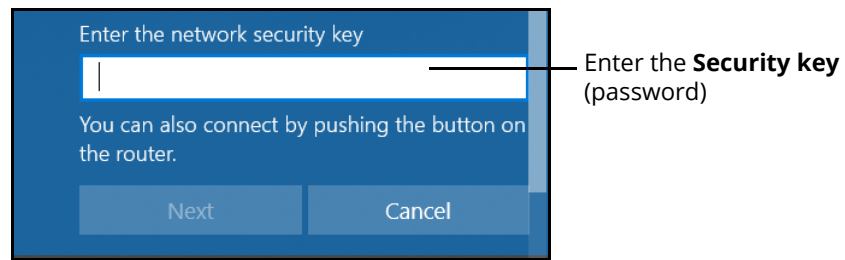
The Network Window

- Tap the **Connect automatically** box.
- Tap **Connect**.



The Simulator Network

The Enter a network security key window appears.



Entering the Security Key (Password)

- Tap in the **Enter the network security key** text field.
- Tap the **Keyboard** icon in the taskbar in the lower-right corner of the screen.

The on-screen keyboard appears.

- Enter *caadmin* in the text field.
- Tap the **X** in the upper-right corner of the keyboard to exit.
- From the Enter a network security key window, tap **Next**.

The Connecting message appears, then disappears when the tablet is finished connecting to the simulator network.

Standalone - Setup the Router

If running standalone, it will be necessary to install the router included in the standalone package.

The following instructions provide information for setting up the router using WiFi.

- a. Prior to beginning a simulation, check the power level on the battery, it may need to be recharged.
- b. Power on the router by plugging the Micro USB cable from the battery (or to the computer if using the Medical Cart) into the power port of the router.

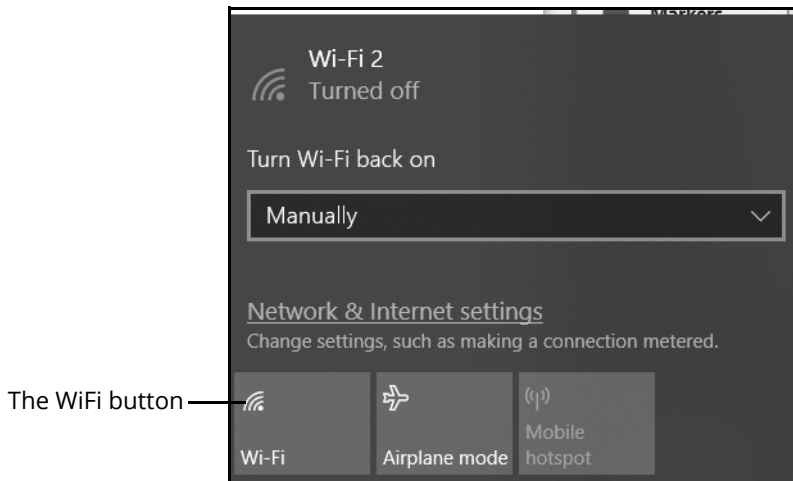
Note: The USB power cable for the router may be plugged into a standard 5V/2A power adapter instead of using the battery however, the battery allows for untethered mobility during the simulation.



Router Plugged Into Battery Pack

- c. From the home screen on the tablet, tap the Network icon located in the lower-right corner of the screen in the taskbar.

The Network window appears.



The Network Window

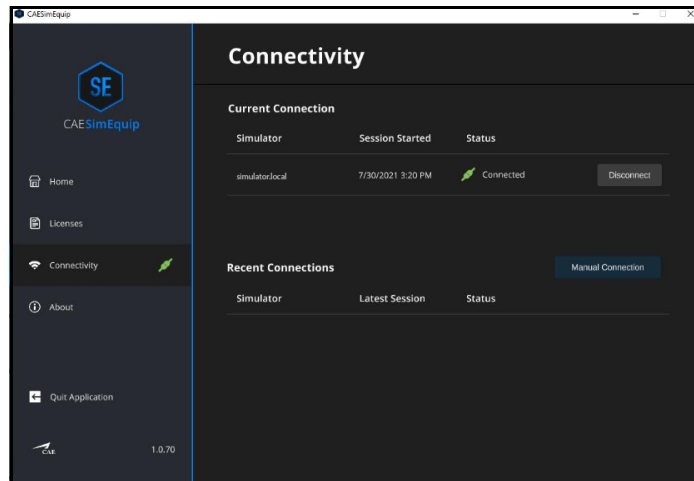
- d. Tap **WiFi** button to turn on WiFi (button turns blue).

Switching from Standalone to Patient Simulator Connections

In the event Maestro Standalone for SimEquip is running and there is a need to switch to a Maestro patient simulator, for successful connectivity follow these steps:

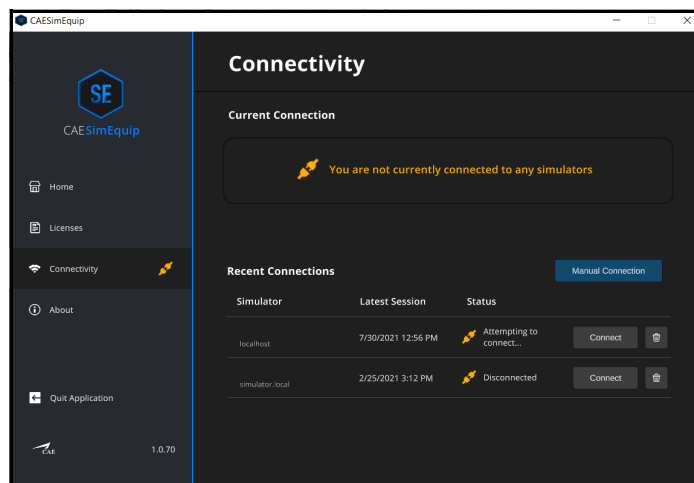
- a. Launch SimEquip.
- b. Disconnect SimEquip from the Maestro standalone simulation.

- c. From the SimEquip Home screen, select **Connectivity**.



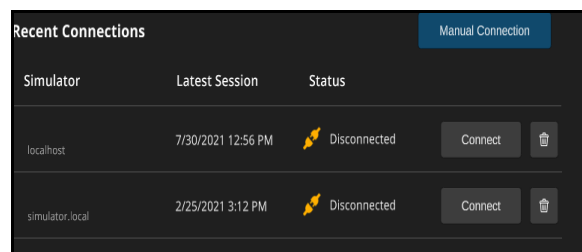
SimEquip Connectivity Window - Connected

- d. Select the **Disconnect** button associated with simulator.local.
- e. Confirm that **simulator.local** appears in the **Recent Connections** list in SimEquip.
- f. From the SimEquip Home screen, select **Connectivity**.



SimEquip Connectivity Window

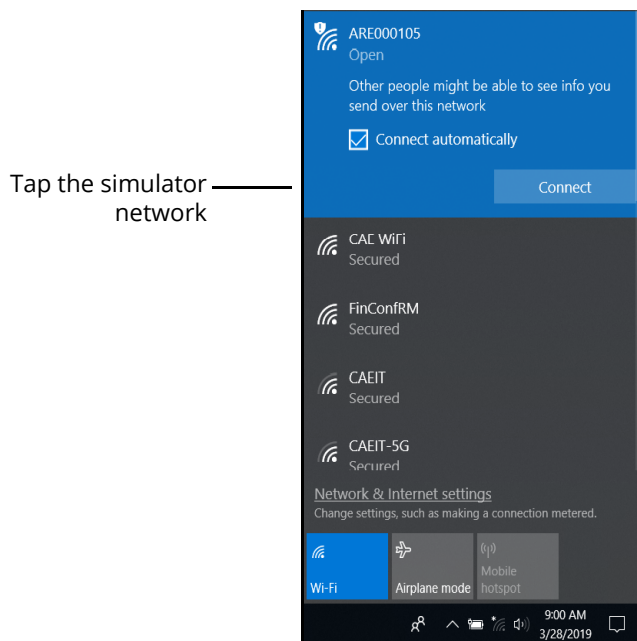
- g. In the **Recent Connections** list, confirm that **simulator.local** appears.



Recent Connections

- h. Close the SimEquip application.
- i. Change from the standalone router to the patient simulator router. See instructions in the previous section of this guide:
 - *Portable Simulation Setup Steps - Step 4. Connect to WiFi - Using a Patient Simulator*
- j. Confirm the connection to the patient simulator network.
 - From the home screen on the SimEquip device, tap the Network icon located in the lower-right corner of the screen in the taskbar.

The Network window appears. The type of patient simulator that is used will determine the name of the network. For example, Ares is shown in the following image.



The Network Window - Connected to Ares Patient Simulator

- k. Restart the SimEquip application.

Step 5: Launch Maestro

The configuration of the equipment will determine how Maestro is launched.

- **Patient Simulator** - If using a patient simulator, Maestro is installed on the tablet that is used with the simulator.
- **Standalone** - When using the standalone with SimEquip, Maestro is installed on the Instructor tablet included with the standalone package.

To launch Maestro:

- a. Select the Maestro shortcut icon which appears on the desktop of the tablet.

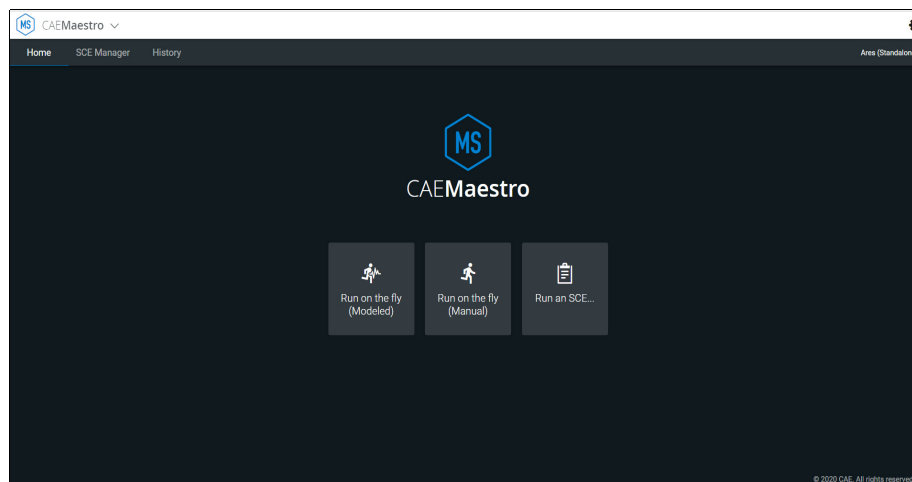


Maestro Icon

The Maestro Home Screen appears.

There are three options to choose from on the Home screen:

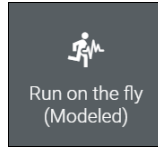
- Run on the fly (Modeled)
- Run on the fly (Manual)
- Run an SCE



Maestro Home Screen

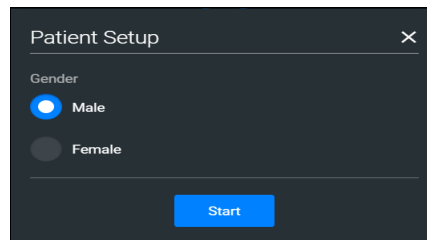
- a. Select **Run on the fly (Modeled)**.

Note: The Transport Ventilator, Ventilator, and Anesthesia Machine require Modeled mode.



Run on the fly (Modeled)

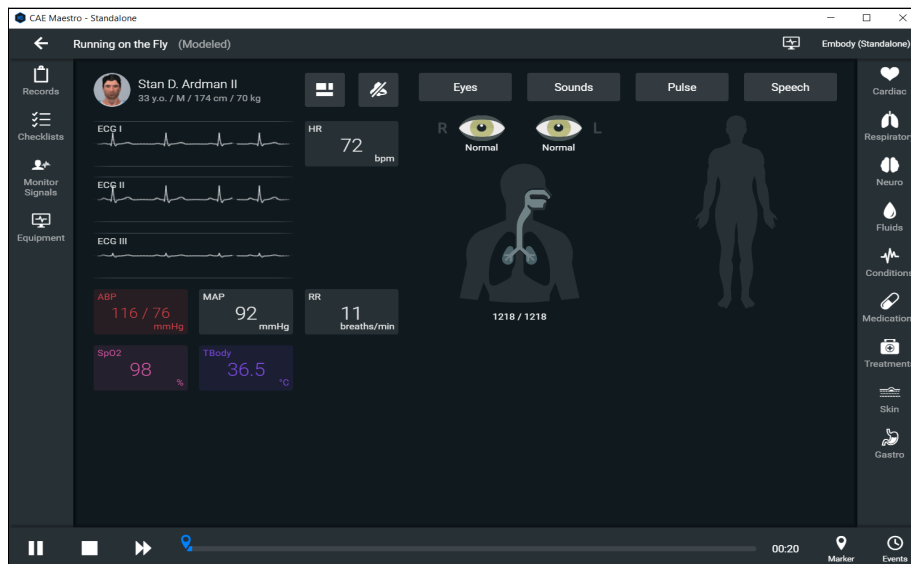
The **Patient Setup** prompt appears.



Select Gender

- b. Select **Male** or **Female**.
- c. Tap the **Start** button.

The Run Screen appears.



Maestro Run Screen

Step 6: Launch SimEquip Software

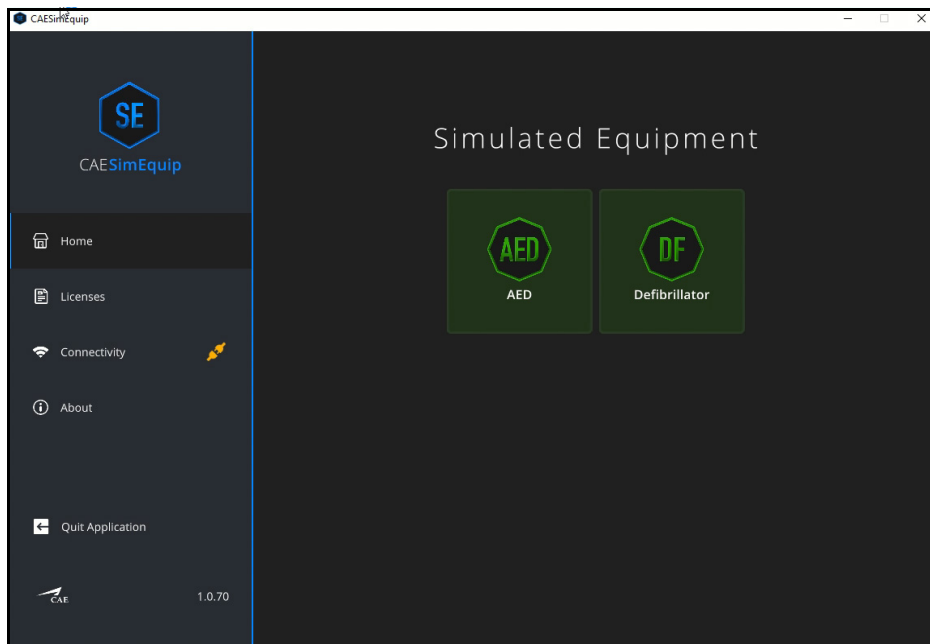
To launch SimEquip:

Using the tablet that is in the Transport Bag, tap the **CAE SimEquip** icon on the desktop screen.



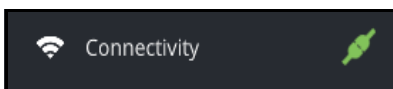
The SimEquip Icon

The SimEquip app opens and the SimEquip Home screen appears. Virtual equipment for which licenses are activated, will be displayed on the Home screen.



*SimEquip Home Screen
AED and Defibrillator*

On the left panel, the **Connectivity** status will appear green, indicating that SimEquip is connected to a WiFi.



Connectivity - Connected Status

Bedside Medical Cart Simulation Setup Steps

Setup steps are required for simulations that may use:

- Ventilator
- OR
- Anesthesia Machine

Steps should be performed in the sequence provided in the Bedside Simulation Setup table. Accompanying details are in the following pages.

Bedside Simulation Setup	
1	Remove equipment from cart and boxes.
2	Attach monitor(s) to cart.
3	Attach articulating arm.
4	Connect medical hoses and cables.
5	Power on equipment.
6	Connect to WiFi:
	• Connect to the Patient Simulator WiFi or
	• Standalone - Setup the Router
7	Launch CAE Maestro.
8	Launch CAE SimEquip software.
9	Launch CAE Patient Monitor (applicable for Anesthesia Machine only).

Step 1: Remove Equipment from Boxes

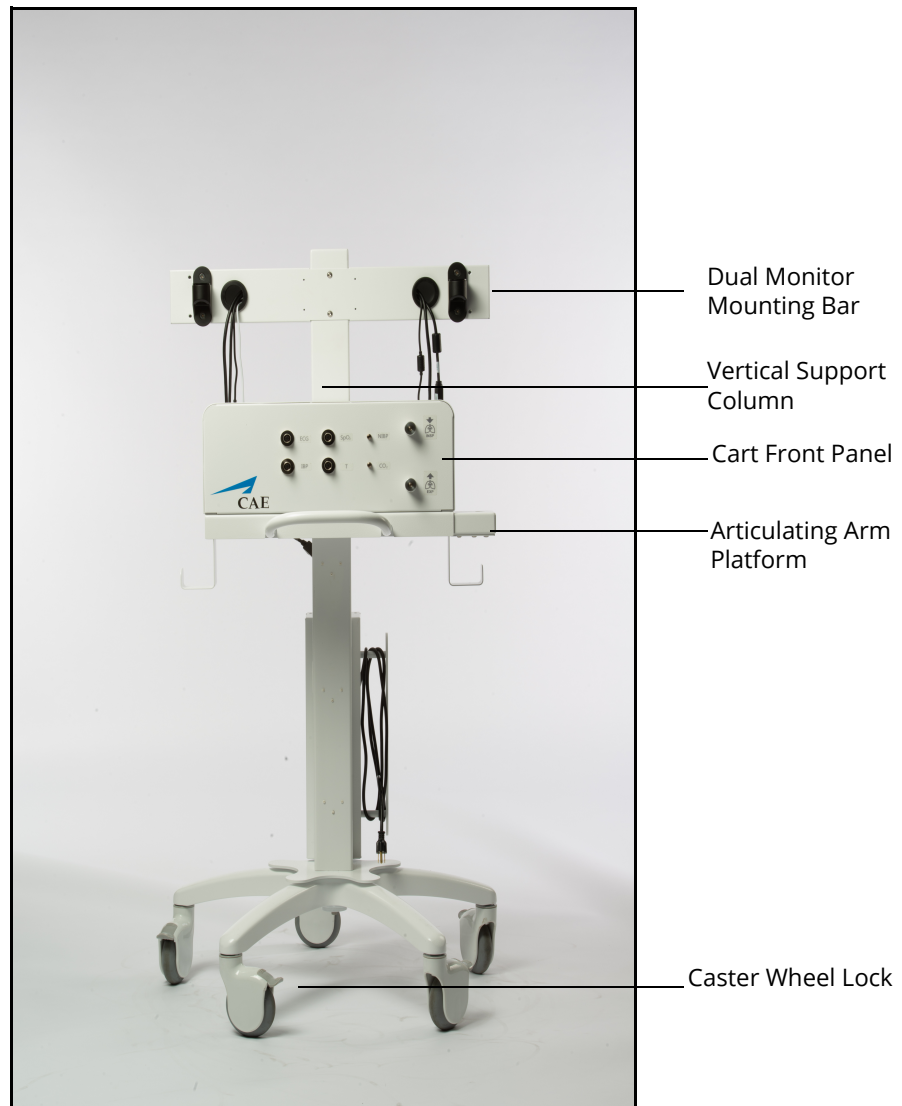
Tools required:

- Phillips Head screwdriver (included) -needed to open shipping crate and used for installation of equipment.
- Box Knife - suggested for opening cardboard boxes

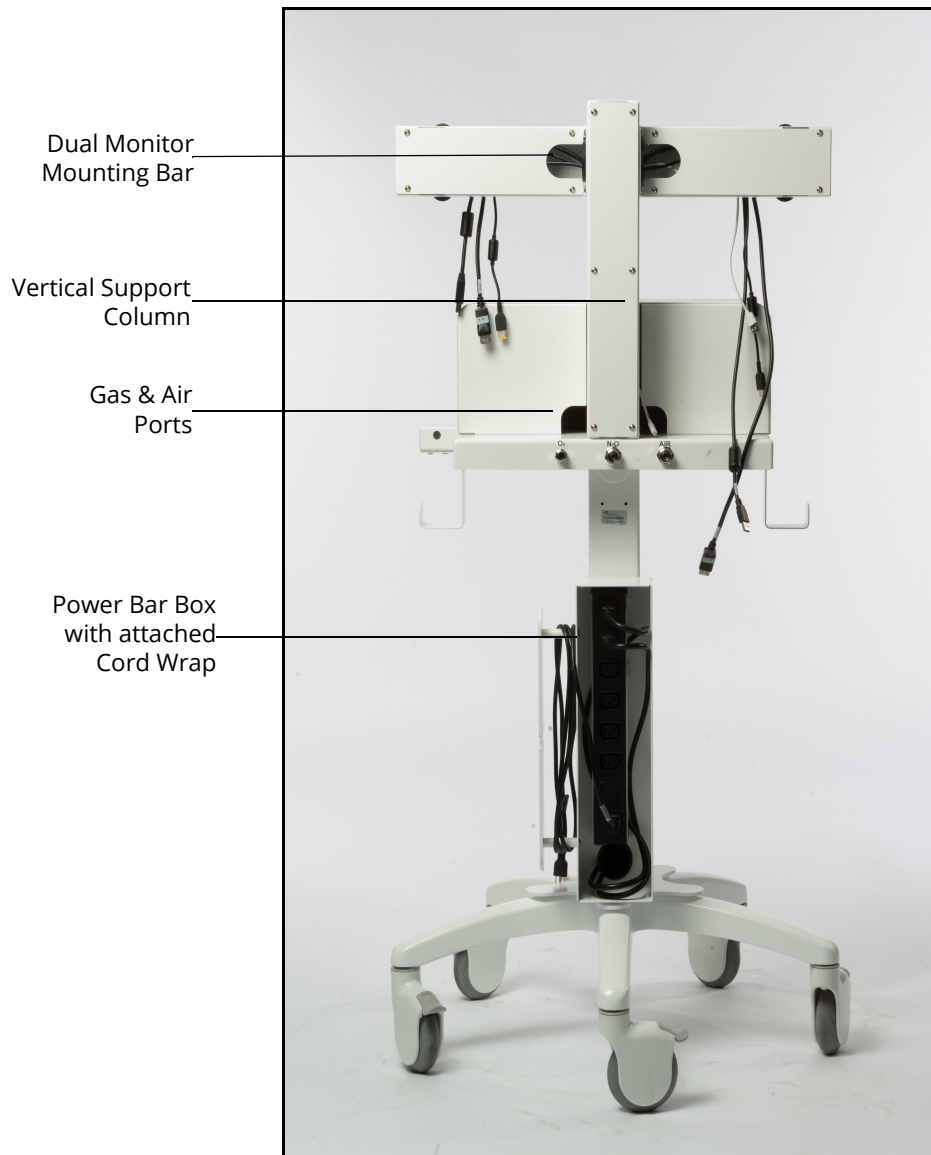
WARNING: Be careful if using knives to open boxes, to prevent personal injury or damage to equipment.

- a. The Medical cart will arrive in a shipping crate. When the crate is opened, there is a side panel on hinges. The hinged panel will function as a ramp which may be used to wheel the medical cart out of the crate.
- b. Additional equipment is shipped in cardboard boxes. Open the boxes. Do not remove the monitors from the boxes until after attaching the VESA monitor mounts to the monitors (see *Step 2 Attach Monitors to Cart*).

- c. All other items (with the exception of the monitors) from the smaller boxes may be placed on a table in the assembly area.



**Medical Cart Unassembled
Anesthesia Machine - Front**



***Medical Cart Unassembled
Anesthesia Machine - Back***

IMPORTANT: Lock the caster wheels on the cart so that the cart remains stable for the duration of the setup process.

Note: Do NOT plug the power cord into the outlet until the setup steps are complete.

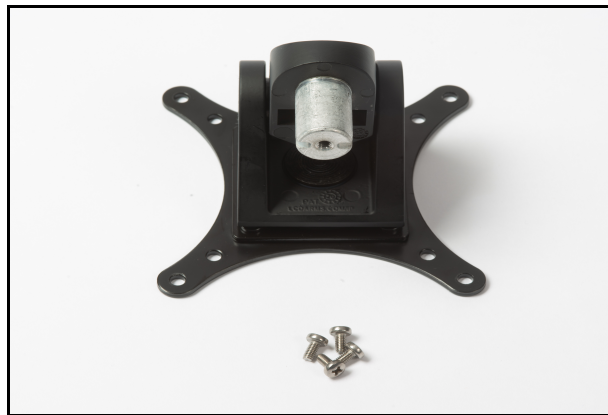
Step 2: Attach Monitors to Cart

Do not remove the monitors from the box until instructed to do so in the following text. More than one person may be needed to lift and attach monitor(s) to the Medical Cart. When working with the monitor(s), be careful not to damage or drop the computer that is attached to the back of the monitor. Attaching monitors to the cart will require the following pieces of equipment:

- Monitor(s) with screws
- VESA Mount Hardware
- Phillip’s Head Screwdriver
- Additional Screws and Washers

Note: The Ventilator configuration will have one monitor with an attached computer. The Anesthesia Machine configuration will have two monitors. For the Dual Monitor configuration, “Monitor A” will have an attached computer and “Monitor B” will not.

- a. Ventilator Configuration - One Monitor: Open the box labeled “Monitor,” leaving the monitor in the box.
Anesthesia Machine - Two Monitors: Open the box labeled “Monitor B.”?
- b. Remove the plastic bag with the VESA mount and hardware from the foam packing.



VESA Mount and Screws

- c. Remove the top molded Styrofoam piece from the box, exposing the back of the monitor.



Monitor in Box

- d. Leave the monitor in the bottom layer of molded Styrofoam.
Note: Failure to leave the monitor in the foam while attaching the VESA mount (Steps 5-6) could result in damage to the monitor.
- e. Place the VESA mount hardware on the monitor. Verify that the silver knob on the VESA mount is pointing down (towards the bottom of the monitor). If not, rotate the VESA mount until it is appropriately positioned on the monitor.
Note: This step insures that the monitor will be attached to the cart right side up.
- f. Insert the screws through the back of the VESA mount hardware. Using the Phillip's Head screwdriver, connect the VESA mount to the monitor by tightening the screws.
- g. If there are two monitors, repeat steps a-f for "Monitor A."
- h. Remove the monitor(s) from the box.
- i. Install the monitor(s) on the cart as follows:

Ventilator Configuration - One Monitor:

- Install the monitor on the cart by inserting the VESA mount hardware into the bracket attachment on the vertical support column.



Back of Monitor - Attached to Ventilator Machine

Anesthesia Machine Configuration - Two Monitors:

- The Dual Monitor Mounting Bar is horizontal and will be labeled “Monitor A” and “Monitor B”. When facing the Medical Cart, Monitor “A” will be installed on the left side of the Dual Monitor Mounting Bar. Install each monitor at the appropriate locations as per the labeling, by inserting the VESA mount hardware into the VESA bracket attachment on the horizontal Dual Monitor Mounting Bar.

Note: It is important to place the monitors on the appropriate side of the medical cart, to allow access to the computer ports on Monitor “A”.

- Place the additional washer and screw under the VESA mount bracket and attach to the support column (or bar).

Plugging in the Cords

Ventilator

All of the required cords are routed through the vertical support column on the Medical Cart.

- a. Plug the monitor power cord from the Medical Cart into the Monitor power port.



Monitor
Power
port

Monitor Ports

- b. Plug the Router USB cord (white) from the Medical Cart into the USB port on the computer.



Router USB to Computer Connection

Anesthesia Machine

Equipment cords and cables are routed through the vertical support column on the Medical Cart. There will be two of each cord, one on each side of the horizontal mounting bar.

Locate the following:

- Monitor Power cords
- USB cables
- Display cables

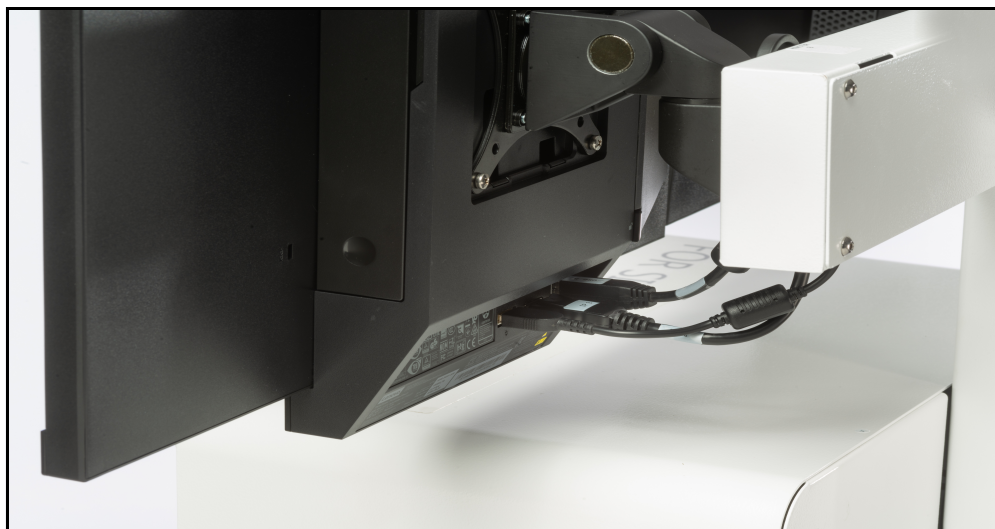
Monitor B

- a. Plug the display cord from the Medical Cart into Monitor B display port.



Monitor Ports

- b. Plug the USB cable from the Medical Cart into the USB port.
- c. Plug in the power cord from the Medical Cart to the power port.



Connections - Monitor B

Monitor A

- a. Open the cover on the back of the monitor panel by pressing on the red tab. The cover is hinged at the top, flip the cover up. This will expose the computer ports.



Open Computer Cover

- b. Locate the Display Port Adapter cable attached to the port on the computer.
- c. Plug the Display cable from the Medical Cart into the Display Port Adapter cable (identified in the previous step).
- d. Plug in the USB cable from the Medical Cart into the USB port on the monitor.



Monitor Ports

- e. Plug in the router USB cable (white) into the front of the computer.

Note: Router cables are included with the Medical Cart, regardless if running standalone and using a router, or if using a patient simulator where there is no external router.

- f. Plug the power cord from the Medical Cart into the appropriate port on the monitor.



Connections - Monitor A

Step 3: Attach Articulating Arm

There are two platforms for attaching the articulating arm, one on each side of the Medical Cart. Attach the Articulating Arm to the platform on the preferred side of the Medical Cart. This may be determined by the placement of the patient during the simulation.

To attach the arm:

- a. Disassemble the nut and eyebolt included in the package.



Threaded End of Articulating Arm and Eyebolt with Nut

- b. Align the articulating arm with the hole on top of the platform.
- c. From the underside of the platform, insert the eyebolt into the hole in the platform and further into the hole in the articulating arm.
- d. Secure the arm by threading and tightening the nut on the end of the eyebolt.



Articulating Arm Installation - Eyebolt Under Platform

Step 4: Connect Medical Attachments and Hoses

The connection of limbs and / or cables will be determined by the type of simulation that is running and the intended use of virtual equipment. This section will describe how to connect the breathing circuits, medical attachments, and hoses for medical gases.

CAE SimEquip Ventilator

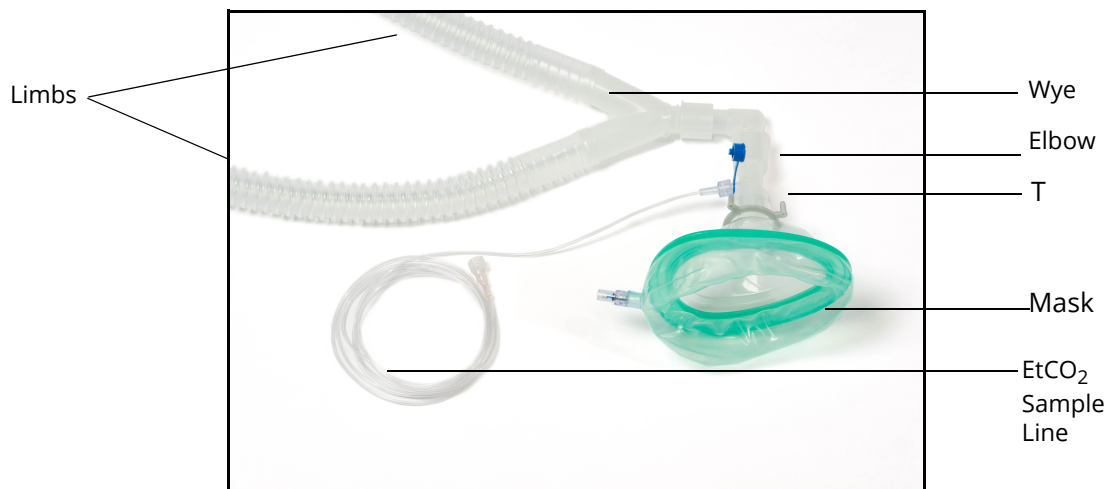
Ventilator Medical Attachments	
Type	Location
Ventilator Breathing Circuit	Front
Filter	Front
SpO ₂ Probe	Front
EtCO ₂ Sample Line	Front
O ₂ Hose	Back



Ventilator - Front Panel with Filter

- e. Connect the filter to the front panel of the cart where port is labeled **EXP**. Ensure the filter ports are closed when the filters are installed.

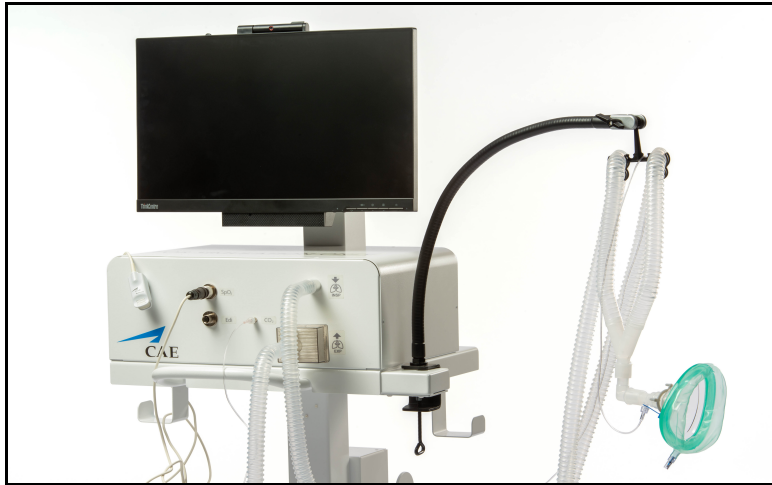
- f. The Ventilator will require a breathing circuit. To assemble the breathing circuit:
- Connect one of the limbs to the wye connector (at the y).
 - Connect the opposite limb to the wye connector (at the opposite side of the y).
 - Connect the elbow to the wye connector (at the top of the y).
 - Connect the T-connector to the elbow.
 - Connect the EtCO₂ sample line to the T-connector.
 - Connect the mask or the endotracheal tube to the T-connector (at the open end).



Breathing Circuit Assembled with Non-Invasive Mask

- g. Connect the Ventilator Breathing Circuit to the Medical Cart:
- Connect one of the tubes to the filter on the front of the medical cart.
 - Connect the second tube to the front panel of the Medical Cart port labeled **INSP**.
 - Attach the EtCO₂ sample line to the front of the Medical Cart by gently twisting the fitting to secure.
 - Place the breathing circuit limbs inside the articulating arm support.
 - Place the EtCO₂ sample line in the articulating arm support.

- h. Attach the SpO₂ probe by aligning the notch and pushing in on the fitting.



Front Panel of Medical Cart - Ventilator Configuration

- i. Attach the O₂ hose to the **O₂** port in the back of the Medical Cart by twisting the fitting. Attach the opposite end of the O₂ hose to a simulated Oxygen source.

WARNING: Never attach the hose to a real O₂ source. The medical hoses included with SimEquip are intended for simulation purposes only.



**Back of Medical Cart - Ventilator Configuration
O₂ Connected - USA Green Shown**

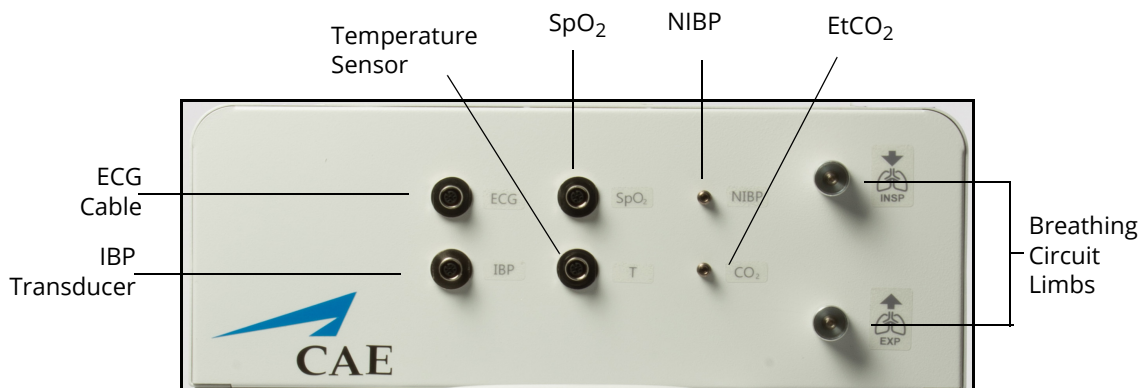
- j. Proceed to *Step 5: Power On Equipment*.

CAE SimEquip Anesthesia

Medical hoses for the Anesthesia Machine may connect in the front or back of the Medical Cart, depending upon the type of hose. Connect the hoses as desired for the intended simulation.

WARNING: Never attach the hoses to a real gas source. The medical hoses included with SimEquip are intended for simulation purposes only.

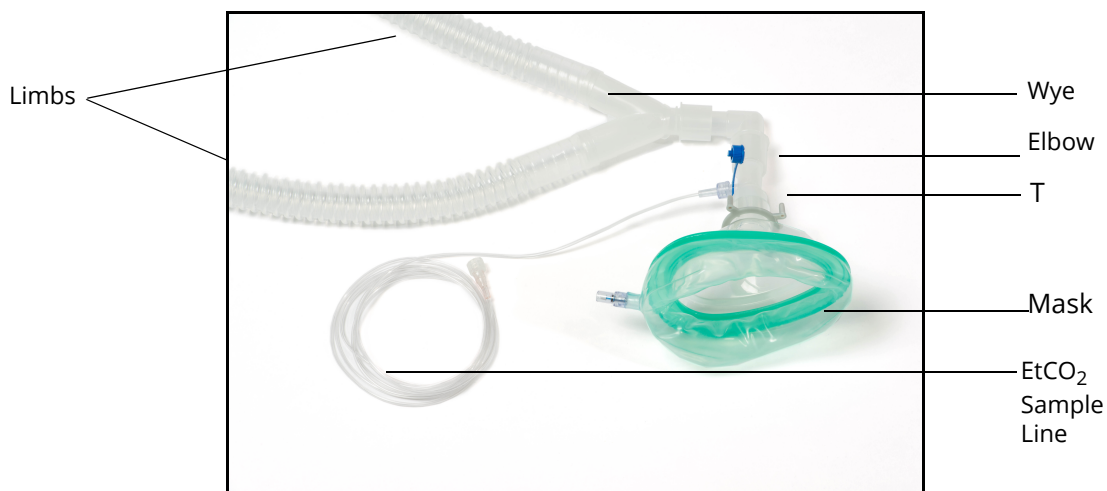
Anesthesia Medical Attachments	
Type	Location
Ventilator Breathing Circuit	Front
Filter	Front
NIBP Cuff Hose	Front
EtCO ₂ Sample Line	Front
SpO ₂ Probe	Front
Temperature Sensor	Front
ECG Cable (3 Lead)	Front
IBP Transducer	Front
O ₂ Hose	Back
Medical Air Hose	Back
Nitrous Oxide Hose	Back



Anesthesia Machine - Front Panel

- Connect the filter to the front panel of the cart where port is labeled **EXP**. Ensure the filter ports are closed when the filters are installed.

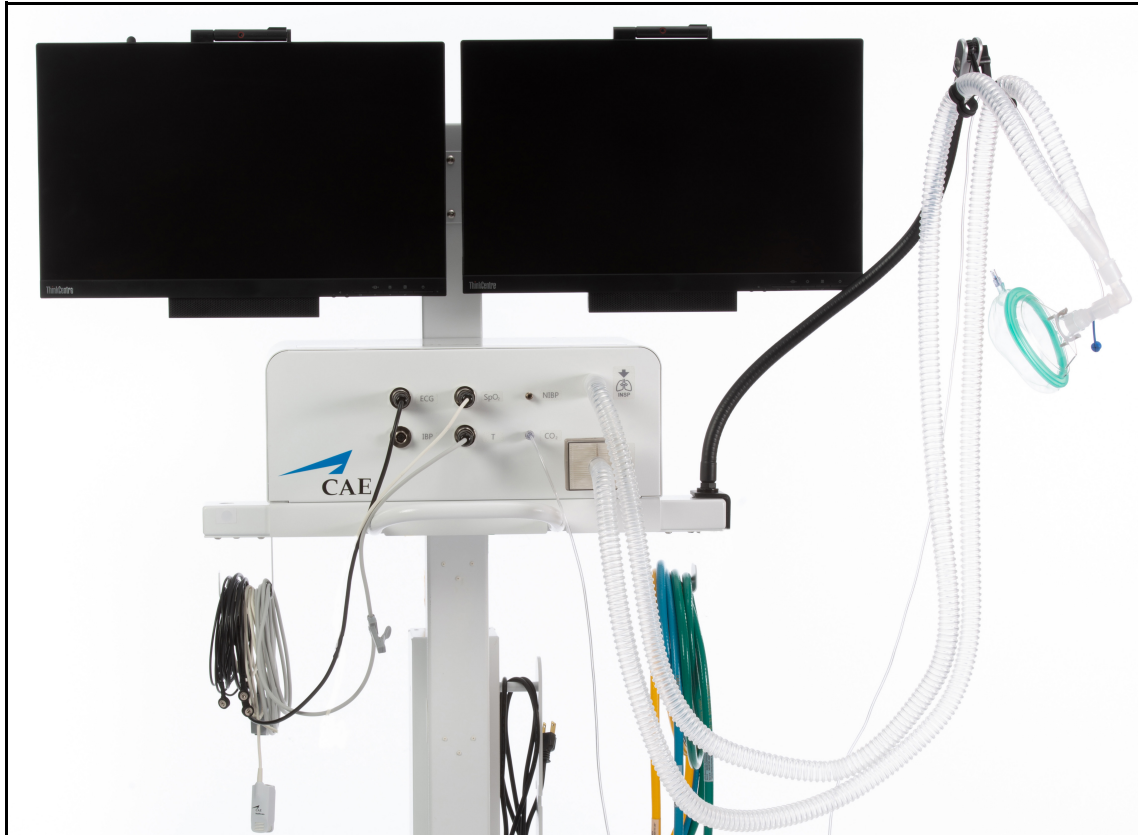
- b. The Anesthesia Machine will require a breathing circuit. To assemble the breathing circuit:
- Connect one of the limbs to the wye connector (at the y).
 - Connect the opposite limb to the wye connector (at the opposite side of the y).
 - Connect the elbow to the wye connector (at the top of the y).
 - Connect the T-connector to the elbow.
 - Connect the EtCO₂ sample line to the T-connector.
 - Connect the mask or the endotracheal tube to the T-connector (at the open end).



Breathing Circuit Assembled with Non-Invasive Mask

- c. Connect the Anesthesia Machine Breathing Circuit to the Medical Cart:
- Connect one of the tubes to the filter on the front of the Medical Cart.
 - Connect the second tube to the front panel of the Medical Cart port labeled **INSP**.
 - Attach the EtCO₂ sample line to the front of the Medical Cart by gently twisting the fitting to secure.
 - Place the breathing circuit limbs inside the articulating arm support.
 - Place the EtCO₂ sample line in the articulating arm support.
- d. Attach the SpO₂ probe by aligning the notch and pushing in on the fitting. Wrap the excess cord around the cord hook on the Medical Cart.
- e. Attach the ECG cable by aligning the notch and pushing in on the fitting. Attach the cable to electrotherapy pads (not shown in photo) and wrap the excess cord around the cord hook on the Medical Cart.
- f. Attach the Temperature sensor to the front of the Medical Cart. Wrap the excess cord around the cord hook on the Medical Cart.

- g. If using the NIBP cuff (not shown in the following picture), attach to the hose and then attach the hose to the front of the Medical Cart. Wrap the excess cord around the cord hook on the Medical Cart.
- h. If using the IBP Transducer (not shown in the following picture), attach to the hose and then attach the hose to the front of the Medical Cart. Wrap the excess cord around the cord hook on the Medical Cart.



**Front Panel of Medical Cart
Anesthesia Machine Configuration**

- i. Attach the O₂ hose to the **O₂** port in the back of the Medical Cart by twisting the fitting. Attach the opposite end of the O₂ hose to a simulated Oxygen source.
- j. Attach the Nitrous Oxide hose to the **N₂O** port in the back of the Medical Cart by twisting the fitting. Attach the opposite end of the Nitrous Oxide hose to a simulated Nitrous Oxide source.

- k. Attach the Medical Air hose to the **AIR** port in the back of the Medical Cart by twisting the fitting. Attach the opposite end of the Medical Air hose to a simulated Medical Air source.



Back of Medical Cart - Anesthesia Machine Configuration
USA Colors Shown

Step 5: Power on Equipment

- a. Locate the power cord from the back of the Medical Cart, on the power bar and plug into an outlet.
- b. Power on Monitor(s).
- c. Power on the Tiny Computer on the back of the monitor.

Step 6: Connect to WiFi

Using a Patient Simulator

If the simulation will include a patient simulator, the system will use the manikin's WiFi.

- a. Turn on the patient simulator.

Note: The power switch may be in different locations on the manikin depending upon the patient simulator being used. Reference the patient simulator User Guide if there is difficulty locating the power switch.
- b. If this is the first time running SimEquip, it may be necessary to update Maestro on the patient simulator. See *Appendix B - Software Upgrades* for more information on upgrading.

Running Standalone

If running standalone, it will be necessary to install the router included in the standalone package.

The following equipment is required:

- Router
- USB for Router

To install the router for standalone:

- a. Locate the USB cable that is routed at the top of the vertical support column and attach the cable to the appropriate port on the computer.



Router USB to Computer Connection

- b. At the back of the Medical Cart casing, gently pull the opposite end of the USB cable through the access hole and plug into the USB port on the router.

- c. Leaving all Velcro strips attached to the back of the router, remove the transparent film from the top Velcro strip. Affix the Velcro to the back of the cart, by gently applying pressure to the router in the desired position.

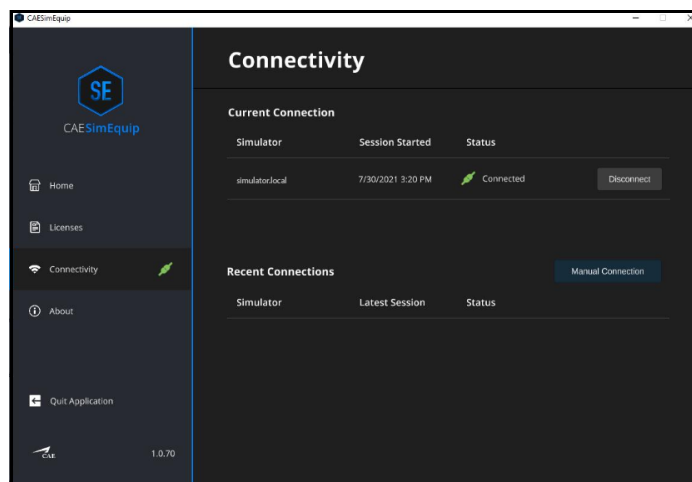


USB to Router Connection

Switching from Standalone to Patient Simulator Connections

In the event Maestro Standalone for SimEquip is running and there is a need to switch to a Maestro patient simulator, for successful connectivity follow these steps:

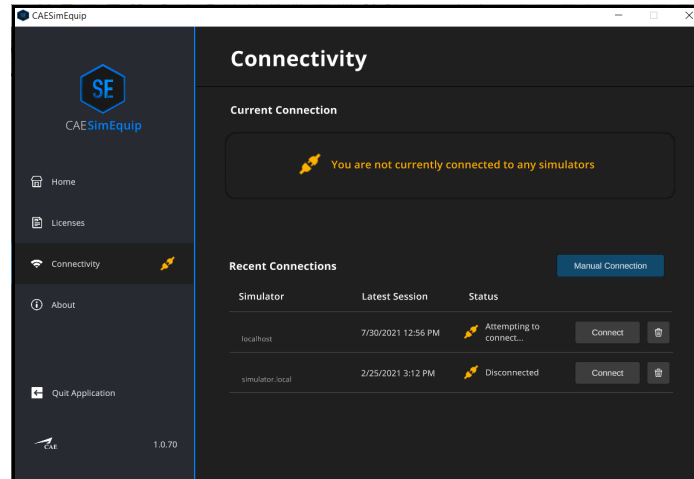
- a. Launch SimEquip.
- b. Disconnect SimEquip from the Maestro standalone simulation.
 - From the SimEquip Home screen, select **Connectivity**.



SimEquip Connectivity Window - Connected

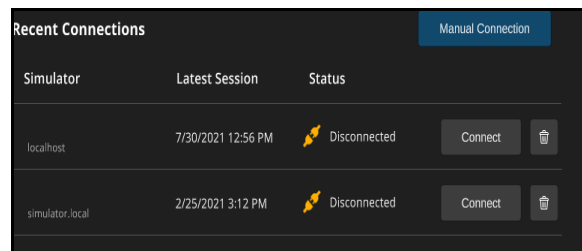
- Select the **Disconnect** button associated with simulator.local.

- c. Confirm that **simulator.local** appears in the **Recent Connections** list in SimEquip.
 - From the SimEquip Home screen, select **Connectivity**.



SimEquip Connectivity Window

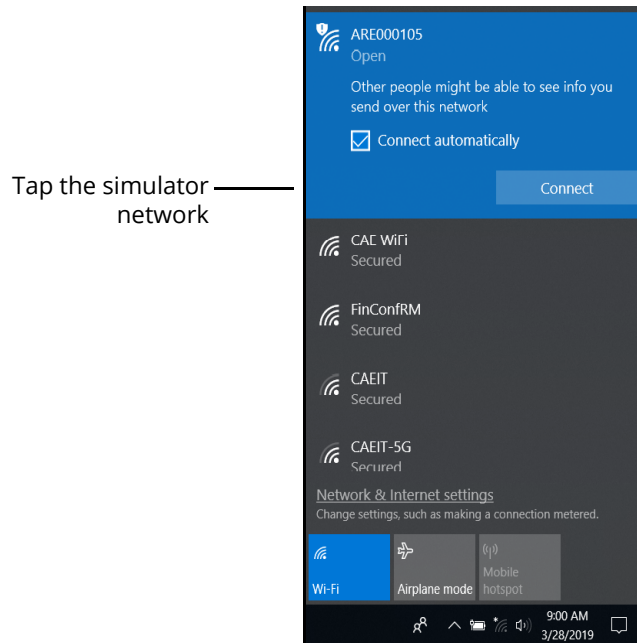
- In the **Recent Connections** list, confirm that **simulator.local** appears.



Recent Connections

- d. Close the SimEquip application.
- e. Change from the standalone router to the patient simulator router. See instructions in the previous section of this guide:
 - *Bedside Medical Cart Simulation Setup Steps - Step 6: Connect to WiFi - Using a Patient Simulator.*
- f. Confirm the connection to the patient simulator network.
 - From the home screen on the SimEquip device, tap the Network icon located in the lower-right corner of the screen in the taskbar.

The Network window appears. The type of patient simulator that is used will determine the name of the network. For example, Ares is shown in the following image.



The Network Window - Connected to Ares Patient Simulator

- Restart the SimEquip application.

Step 7: Launch Maestro

The configuration of the equipment will determine how Maestro is launched.

- **Patient Simulator** - If using a patient simulator, Maestro is installed on the tablet that is used with the simulator.
- **Standalone** - When using the standalone with SimEquip, Maestro is installed on the Instructor tablet included with the standalone package.

To launch Maestro:

- a. Select the Maestro shortcut icon which appears on the desktop of the tablet.

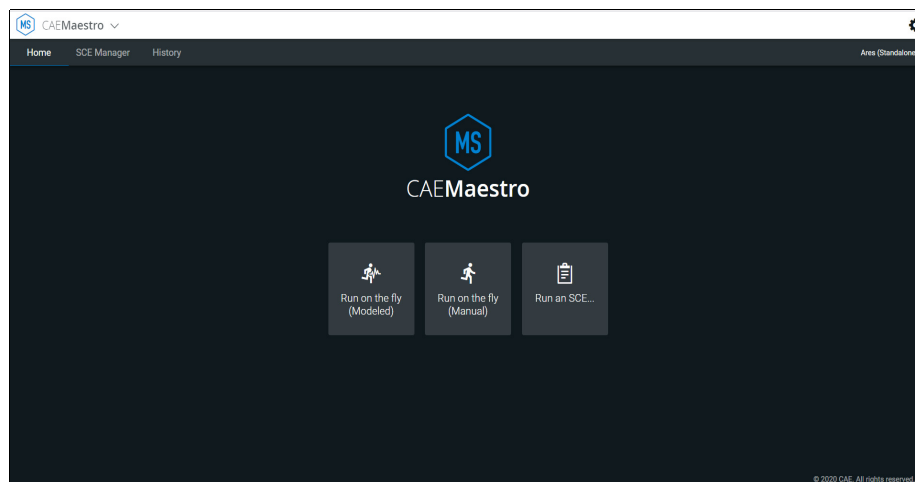


Maestro Icon

The Maestro Home Screen appears.

There are three options to choose from on the Home screen:

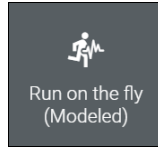
- Run on the fly (Modeled)
- Run on the fly (Manual)
- Run an SCE



Maestro Home Screen

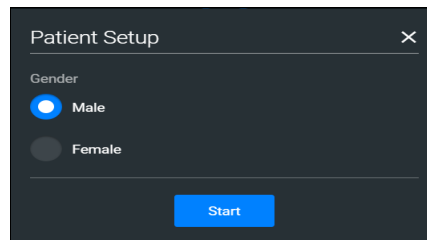
- b. Select **Run on the fly (Modeled)**.

Note: The Transport Ventilator, Ventilator, and Anesthesia Machine require Modeled mode.



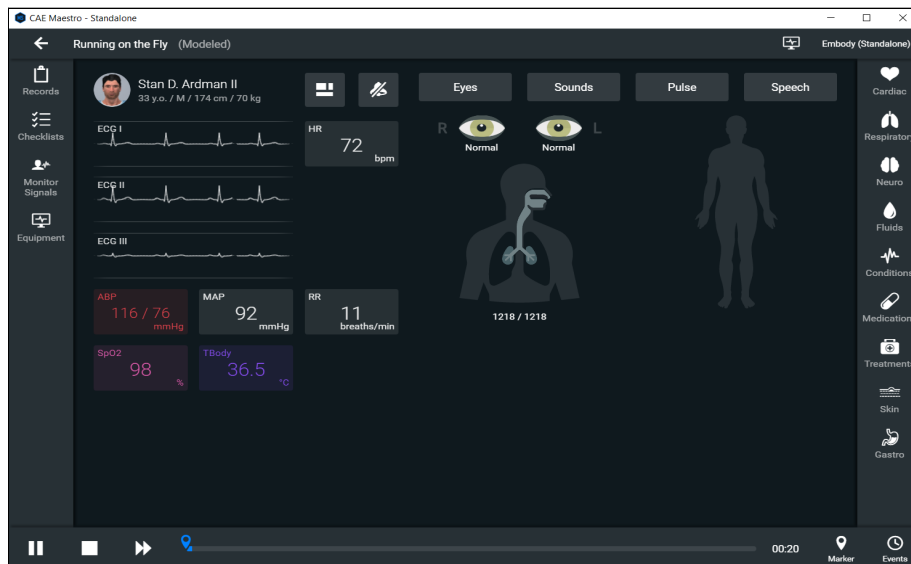
Run on the fly (Modeled)

A prompt to select gender appears.



Patient Setup Window

- c. Select **Male** or **Female**.
 - d. Tap the **Start** button.
- The Run Screen appears.



Maestro Run Screen

Step 8: Launch SimEquip Software

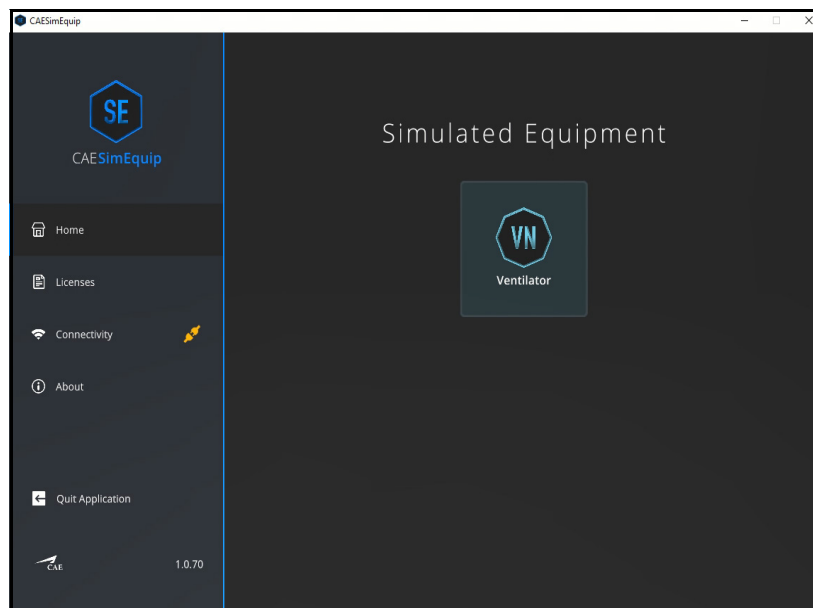
To launch SimEquip:

Using the Touchscreen monitor on the Medical Cart, select the SimEquip shortcut icon which appears on the desktop.



SimEquip Icon

The SimEquip Home screen appears. Virtual equipment for which licenses are activated, will be displayed on the Home screen.



SimEquip Home Screen

Equipment applications for each software license purchased will appear on the center of the Home screen.

On the left panel, the **Connectivity** status will appear green, indicating that SimEquip is connected to a WiFi.



Connectivity - Connected Status

Step 9: Launch Patient Monitor

This step only applies when performing a simulation using the Anesthesia Machine. The Patient Monitor icon appears on the monitor on the left side of the Medical Cart (Monitor “B”).



Patient Monitor Icon

Double-tap the Patient Monitor icon and the Patient Monitor screen appears.



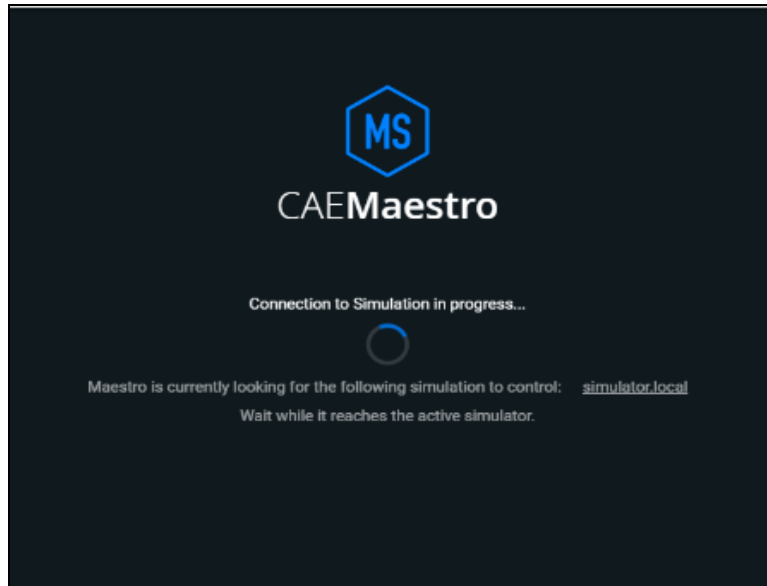
CAE Patient Monitor

In the event the Patient Monitor launches and the window is overlapping the SimEquip application window, drag the Patient Monitor window to the opposite monitor display.

If using the Anesthesia Machine running standalone, the Instructor tablet will require connecting before the Patient Monitor will function. An initial entry of the Instructor device IP address is necessary to setup this feature.

To setup Patient Monitor on the Instructor Device:

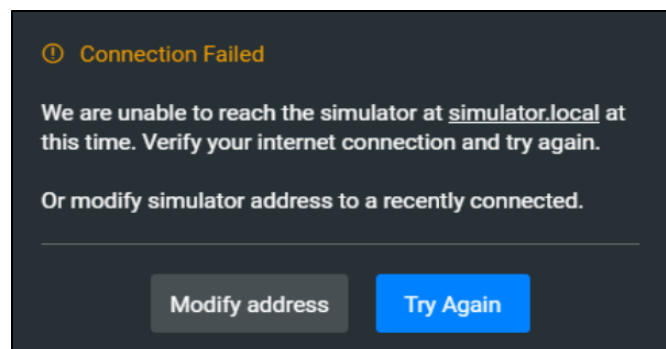
After attempting to launch the Patient Monitor, the Connection screen will appear.



Connection Screen - Attempting to Connect

The Connection Failed message will appear.

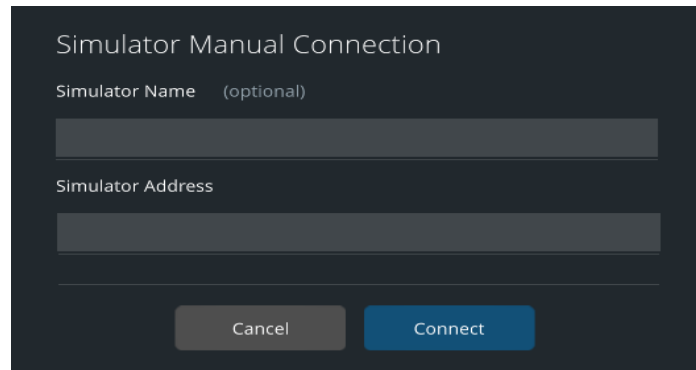
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Connection Failed Message

- a. Tap the **Modify address** button.

The Simulator Manual Connection Window will appear.

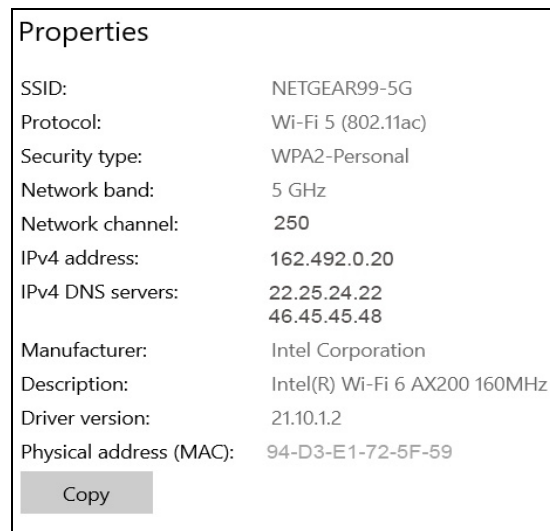


Simulation Manual Connection Window

b. In **Simulator Address**, enter the **IP address** for the Instructor tablet.

To identify the IP address:

- Tap the **Network** icon located in the lower-right corner of the screen in the taskbar.
- Tap **Properties**. The IP Address will be represented by the IPv4 address.



Properties

c. After entering the **IP address**, click on the **Connect** button.

d. Reattempt to launch the Patient Monitor.

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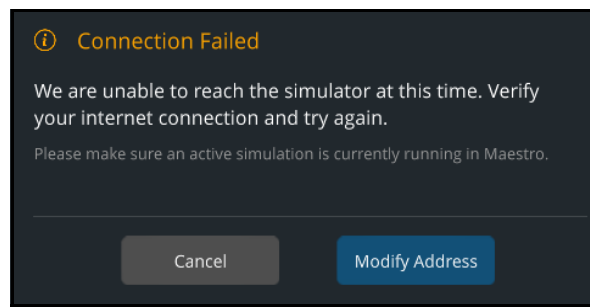
APPENDIX A - TROUBLESHOOTING

This Troubleshooting section addresses some common concerns and inquiries. For any questions not addressed here, please contact CAE Healthcare Customer Service. Contact information is provided on the last page of this guide.

Connection Issues

Connection Failed

Connection issues may be caused by poor or non-existent WiFi connections, or settings and configurations related to the patient simulator.

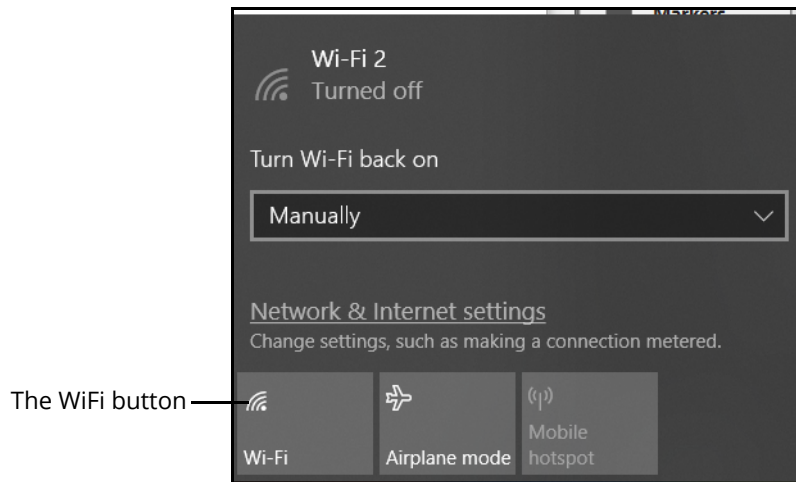


Connection Failed Message

If the Connection Failed message is displayed:

1. Verify there is a WiFi connection.
 - a. From the home screen, tap the Network icon located in the lower-right corner of the screen in the taskbar.

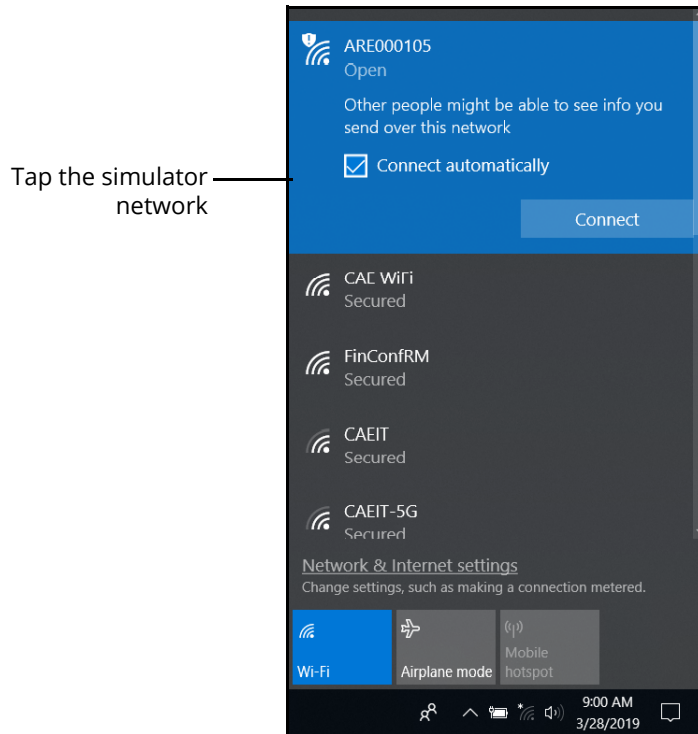
The Network window appears.



The Network Window - Connection Off

- b. If the network connection indicates the connection is off, reconnect to the patient simulator's router network before opening the SimEquip application. See the following sections in this User Guide for more information:
 - *Portable Simulation Setup Steps - Step 4. Connect to WiFi, page 32*
 - *Bedside Simulation Setup Steps - Step 6. Connect to WiFi*
2. Verify the SimEquip device (e.g. Anesthesia Machine) is connected to the patient simulator's router network before opening the SimEquip application.
 - a. From the home screen on the SimEquip device, tap the Network icon located in the lower-right corner of the screen in the taskbar.

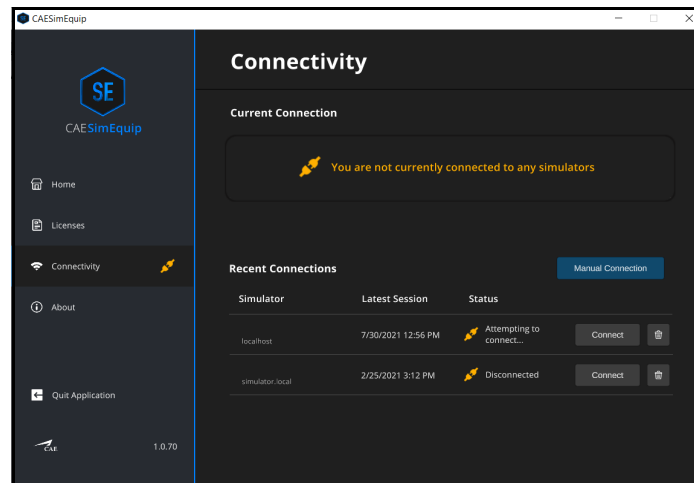
The Network window appears. The type of patient simulator that is used will determine the name of the network. For example, Ares is shown in the following image.



The Network Window - Connected to Ares Patient Simulator

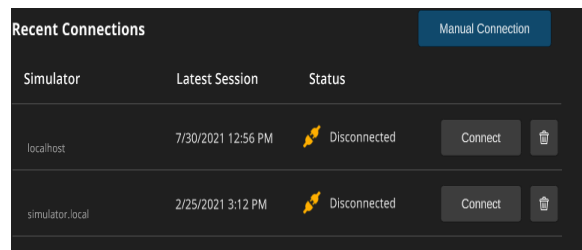
- b. If the Patient Simulator is not connected, see the following sections in this User Guide for more information on how to connect:
 - *Portable Simulation Setup Steps - Step 4. Connect to WiFi - Using a Patient Simulator, page 32*
 - *Bedside Simulation Setup Steps - Step 6. Connect to WiFi- Using a Patient Simulator*
3. Confirm that **simulator.local** appears in the **Recent Connections** list in SimEquip.
 - a. Launch SimEquip.

- b. From the SimEquip Home screen, select **Connectivity**.



SimEquip Connectivity Window

- c. On the Connectivity window, confirm that **simulator.local** appears in the **Recent Connections** list.



Recent Connections

If simulator.local does not appear on the Recent Connections list, a facilitator device running Maestro Standalone for the SimEquip application can be utilized to establish a successful connection (for simulator.local). If the Maestro Standalone for SimEquip application is not part of the setup being used, please contact CAE Customer service.

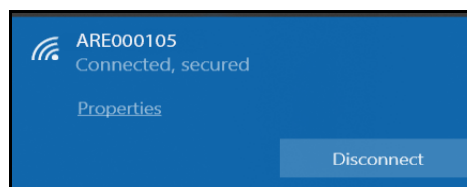
4. Make certain that the Maestro software launched and a compatible simulation for SimEquip is running.
5. If the automatic connection to a patient simulator fails when launching the SimEquip application:
 - a. At the Connection Failed window, select **Cancel**.
 - b. At the Connectivity window, in the Recent Connections list, select the **Connect** button associated with the **simulator.local** simulator.
6. If a simulation in Maestro Standalone was running, the SimEquip application must be closed or restarted after the network on the SimEquip device is changed from the

standalone router to the patient simulator router. See the following sections in this User Guide for more information:

- *Portable Simulation Setup Steps - Step 4. Connect to WiFi - Switching from Standalone to Patient Simulator Connections, page 38.*
- *Bedside Simulation Setup Steps - Step 6. Connect to WiFi- Switching from Standalone to Patient Simulator Connections*

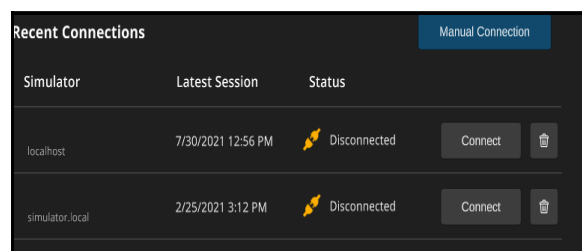
If the connection to a Patient Simulator repeatedly fails:

1. Close the SimEquip application.
2. Disconnect the SimEquip device from the patient simulator's router.
 - a. From the home screen on the SimEquip device, tap the Network icon located in the lower-right corner of the screen in the taskbar.
 - b. The Network window appears. Tap **Disconnect**.



Network - Disconnect

3. Reconnect the SimEquip device to the patient simulator's router. See the following sections of this User Guide for more information:
 - *Portable Simulation Setup Steps - Step 4. Connect to WiFi - Using a Patient Simulator, page 32.*
 - *Bedside Simulation Setup Steps - Step 6. Connect to WiFi- Using a Patient Simulator*
4. Open the SimEquip application.
5. At the Connectivity window, in the Recent Connections list, select the **Connect** button associated with the **simulator.local** simulator.



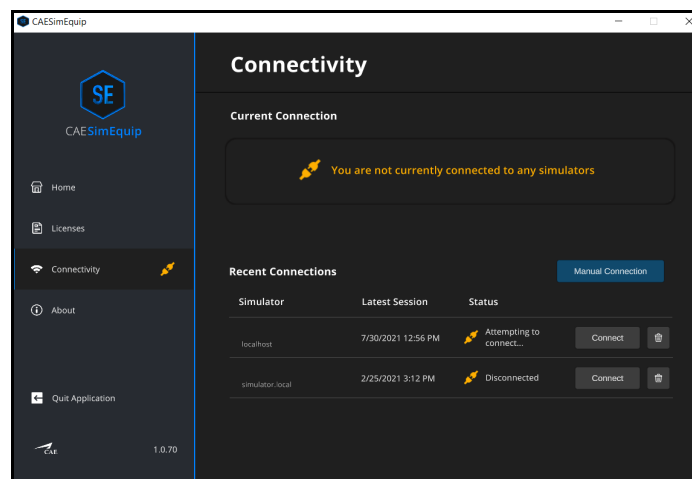
Recent Connections

Simulator Manual Connection

In the event there are connectivity problems when using simulator.local, enter the IP address in manually.

To enter the IP address manually:

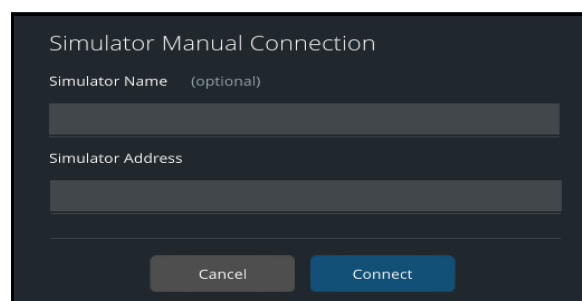
1. Launch the SimEquip.
2. From the SimEquip Home screen, select **Connectivity**.



SimEquip Connectivity Window

3. On the Connectivity window, tap the **Manual Connection** button.

The Simulator Manual Connection window appears.



Simulator Manual Connection

4. Enter the Simulator Name (optional).
5. Enter the Simulator Address.
 - If using a patient simulator, enter the IP address of the patient simulator (typically found on the manikin or in the printed materials shipped with the manikin).
 - If using the Anesthesia Machine and running standalone, enter the IP address of the Instructor's tablet.

6. Tap the **Connect** button.

PC/Tablet Connections

Screen Turns Off or Freezes

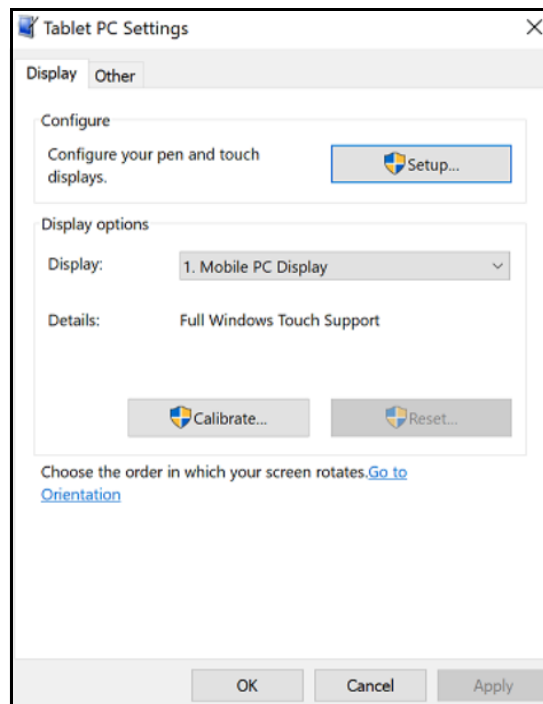
If the the screen turns off or freezes during an active simulation:

1. Confirm that the Power & sleep settings are set to never turn off for all options.
2. Connect the PC to the internet and confirm that the Windows OS is updated.

Second Monitor Screen

Note: This instruction only applies to the Anesthesia Machine Medical Cart configuration.

If cables and connections are setup correctly and the second monitor touch input is non-functional, an external mouse will be required to access the Tablet PC Settings in the Control Panel of the PC.



Tablet/PC Settings Window

From the Tablet PC Settings window, select Setup and follow the on-screen prompts.

Maestro Patient Parameters

Insufficient Gas Flow Alarm

When pressure-control ventilation (PCV) mode is started with an On-the-Fly patient with the default settings, the inspiratory pressure that is given to the patient is more than required, and the resulting tidal volume is large. Additionally, when the tidal volume is large, a larger amount of gas flow is needed to provide the supply enough air in the circuit, resulting in a continuously active insufficient flow alarm.

Therefore, it is suggested to lower the inspiratory pressure to lower the tidal volume resulting in a much lower gas flow being required.

Hypercapnia Condition

When the patient is not spontaneously breathing, the hypercapnia condition in Maestro may not work as expected. With SimEquip (transport ventilator/ventilator/anesthesia machine), the most effective way to raise the patient's EtCO₂ is to lower the VT or RR settings of the equipment.

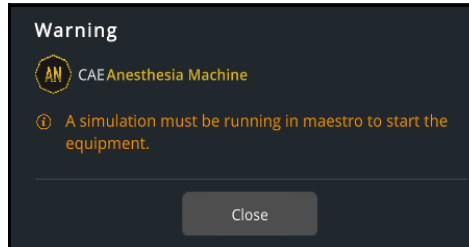
Airway Resistance

When utilizing ventilation SimEquip (transport ventilator/ventilator/anesthesia machine) in volume-control ventilation (VCV) mode, the patient response to very high airway resistance may not be as expected. Therefore, it is suggested to not use the severe airway resistance condition or very high airway resistances in Maestro at this time.

Warning Messages

Maestro Warning

A warning message will appear when there is an attempt to launch the virtual equipment independent of a simulation.



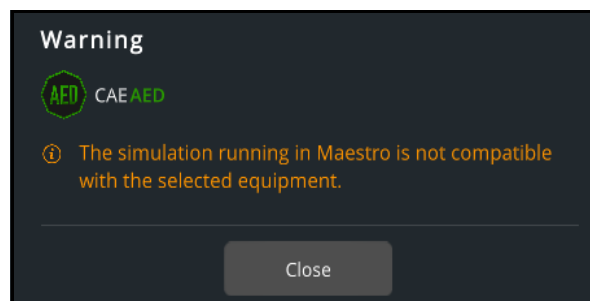
Warning Message - Maestro Simulation

If the Maestro Warning message is displayed:

- Make certain that the Maestro software launched and a compatible simulation for SimEquip is running.

Simulation Not Compatible

SimEquip is designed to be compatible with Maestro 2.5 and will show a warning message if the active simulation is not compatible.



Warning Message - Simulation Not Compatible

If the Simulation Not Compatible message is displayed:

1. Verify that Maestro 2.5 is running.
 - a. From the Maestro Home screen, select the **Gear** icon in the upper right of the window.

- b. From the drop-down menu, select **About**.

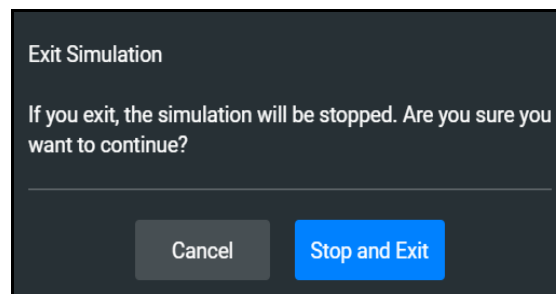


CAE Maestro - About

- c. If the version number displayed is an earlier release than 2.5, update Maestro. See *Appendix B - Software Upgrades* of this User Guide for more information on how to upgrade.
2. Is the patient simulator supported? SimEquip is compatible with CAE Simulators: Apollo, Ares, Athena, Juno, or Embody.
3. Is the equipment compatible with the mode of the active SCE (e.g. modeled or manual)? The following equipment requires modeled mode:
- Transport Ventilator
 - Ventilator
 - Anesthesia Machine

To run an SCE in a different mode:

- a. From the SCE window, select the back arrow. The Maestro Exit Simulation prompt will appear.



Maestro - Exit Simulation Prompt

- b. From the Maestro Exit Simulation prompt, tap **Stop and Exit**.

- c. From the Maestro Home screen, select the appropriate SCE:
 - Run on the fly (Modeled)
 - Run on the fly (Manual)
 - Run an SCE (where the modeled or manual SCE may be selected)

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APPENDIX B - SOFTWARE UPGRADES

Upgrading Maestro

On occasion, it may be necessary to upgrade the version of Maestro on the patient simulator or on a computing device. An error message may be displayed indicating an incompatibility issue which would prompt the upgrade.

For information on downloading the software for updates to the simulator or computing device visit:

<https://caehealthcare.com/support/software-updates/maestro/>

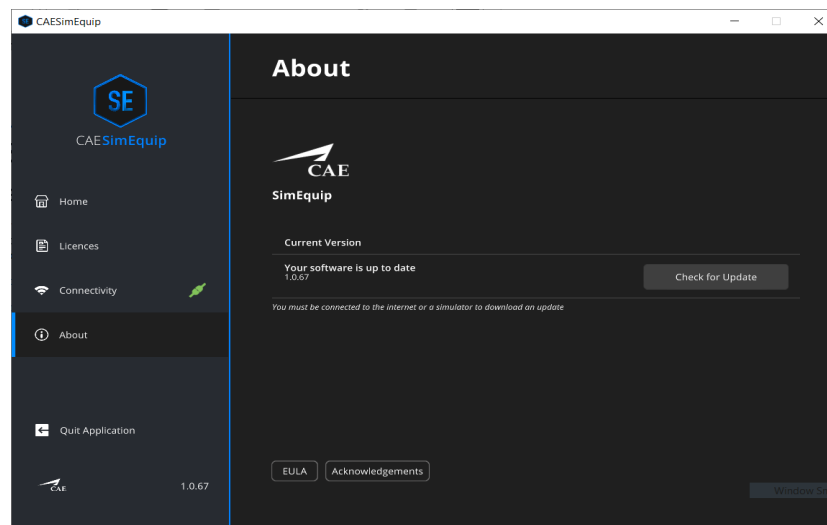
Upgrading SimEquip

When updates are provided for the SimEquip application and the SimEquip computer is connected to the Internet, the software will automatically detect an update. If the SimEquip computer has been disconnected from the Internet for a period of time, it is suggested to check for updates. The status of the software will be reflected on the SimEquip About window.

To check the version status and updates of the SimEquip software:

1. Verify that the computer is connected to WiFi.
2. From the SimEquip Home screen, tap the **About** option on the left panel.

The About window will appear. The version number and status, indicating that the software is up to date, will be displayed.



SimEquip About Window

3. In the event the software is not up to date or the computer has been disconnected from the WiFi for a period of time, tap the **Check for Updates** button.

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For more information about CAE products, contact your regional sales manager or the CAE distributor in your country, or visit caehealthcare.com.

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