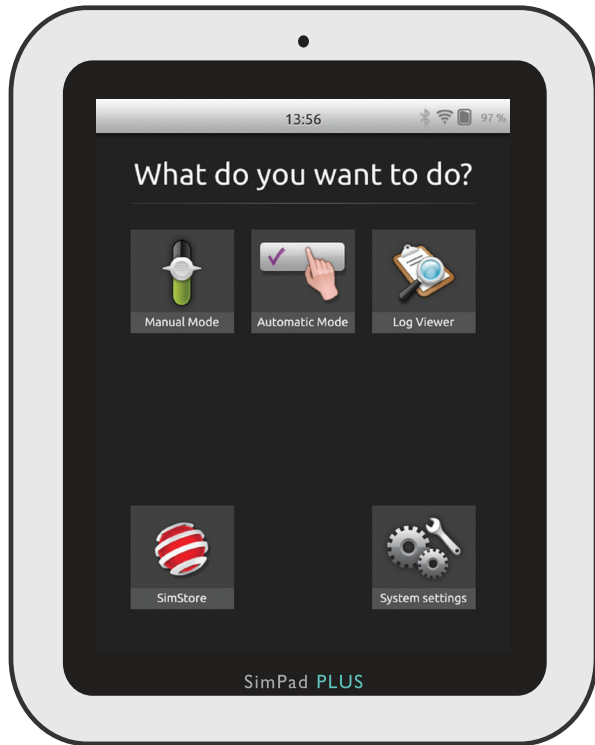


SimPad PLUS

User Guide

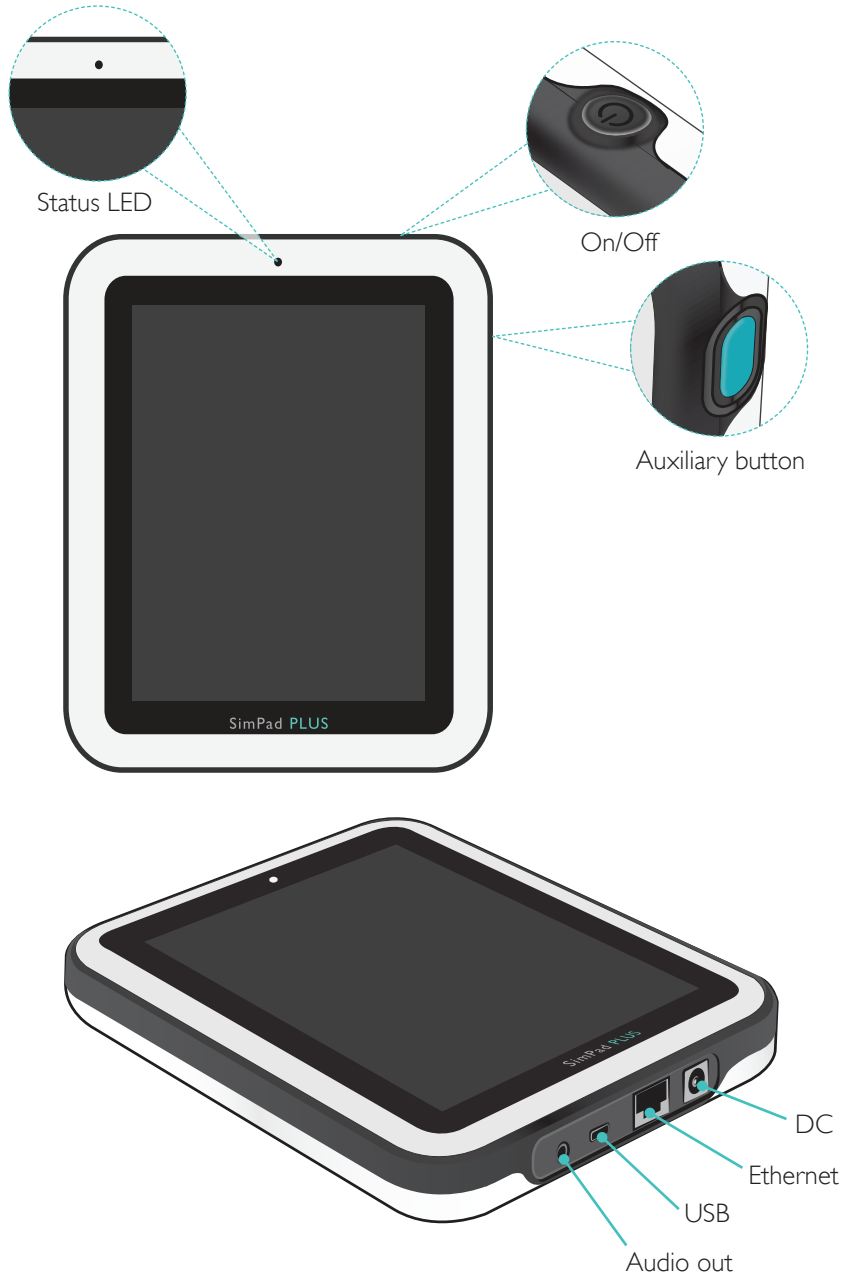


The SimPad PLUS System is an easy-to-use, wireless tool that performs relevant medical simulation training, including debriefing, in various user settings. With its large, intuitive touch screen design, SimPad PLUS is a “Pick up and Play” experience, delivering simulation-based education, easily and efficiently.

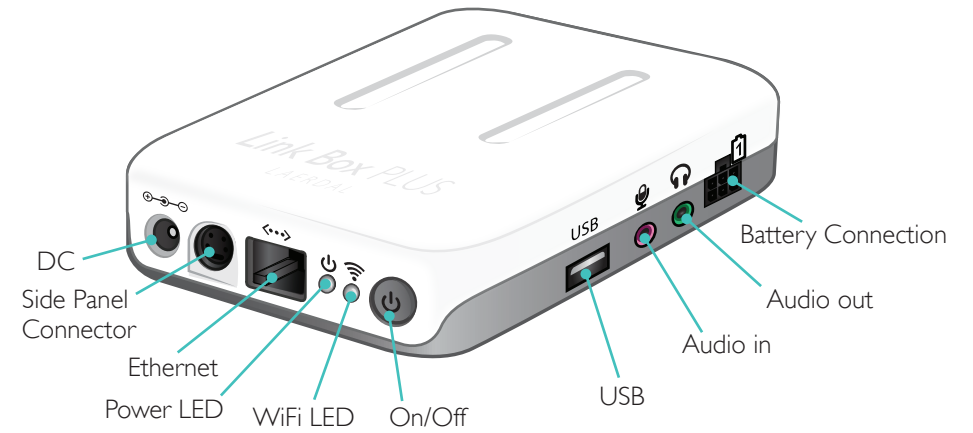
There are two ways to control simulations: Automatic Mode and Manual Mode. This allows customized simulations to meet your specific needs.

The SimPad PLUS System is compatible with a broad range of Laerdal products including manikins, patient simulators, and task trainers as well as standardized patients.

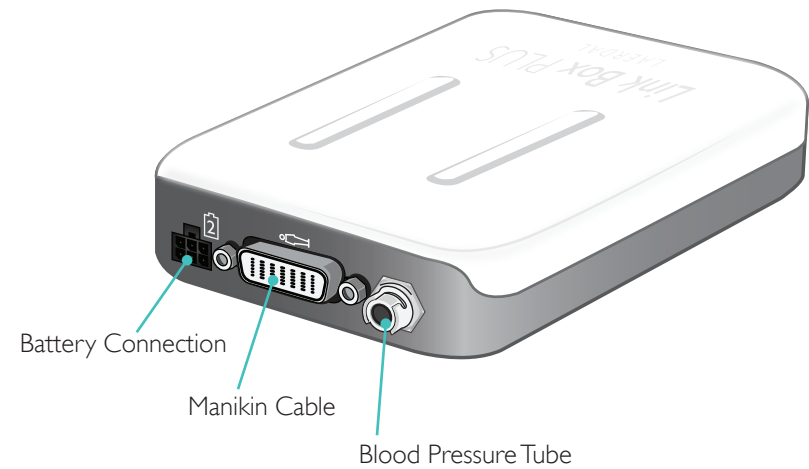
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Front View



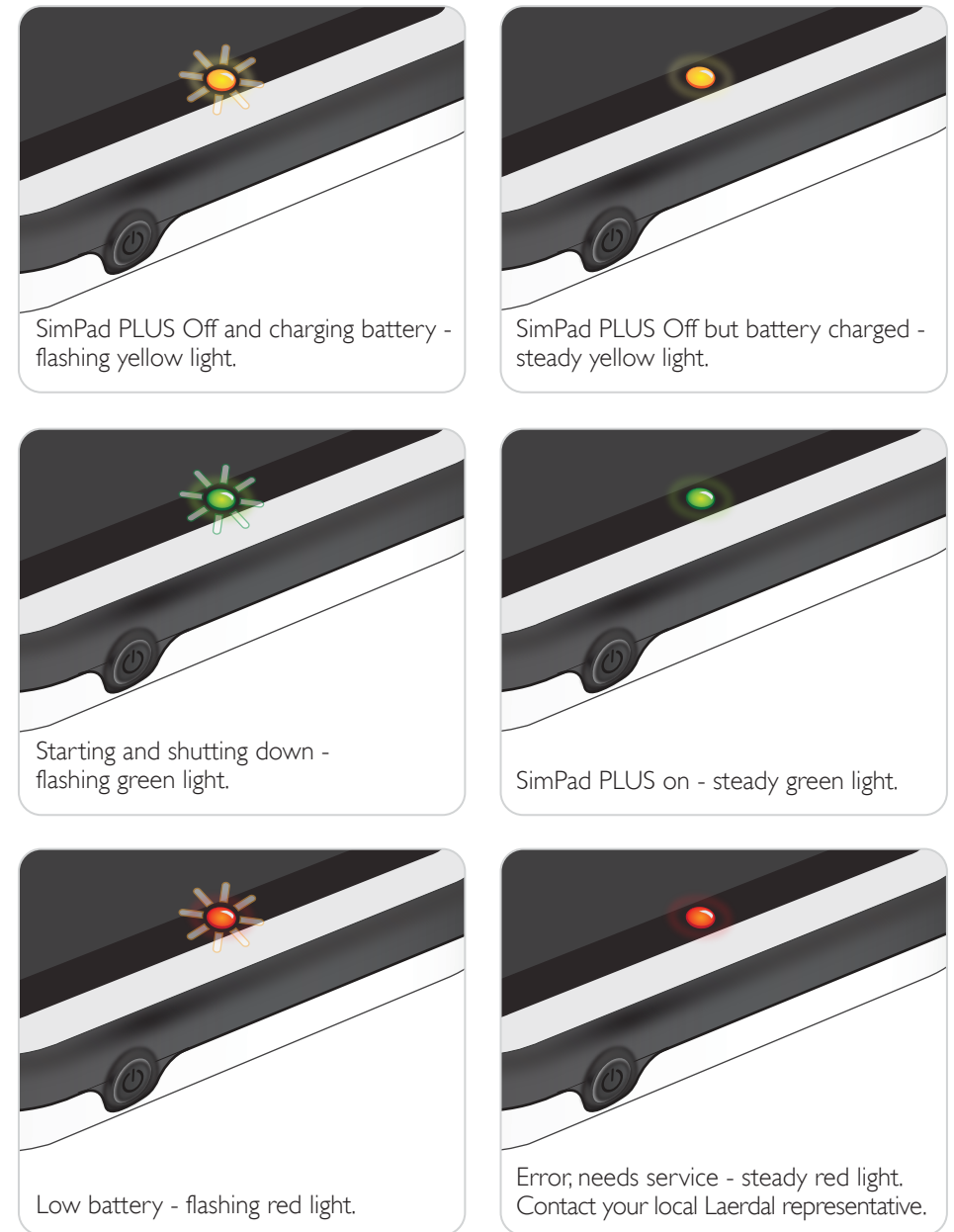
Back View



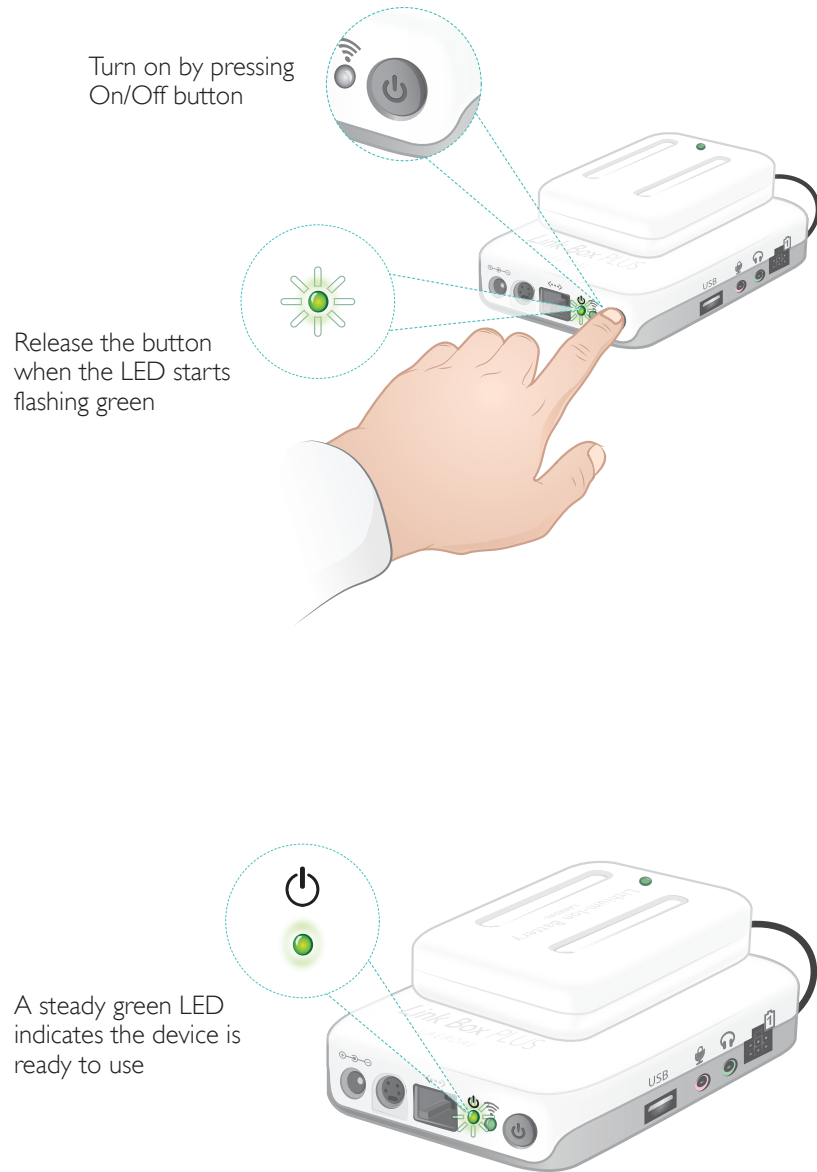
Turn On SimPad PLUS



Status LED

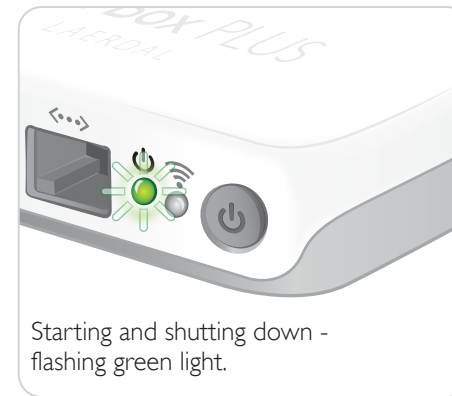
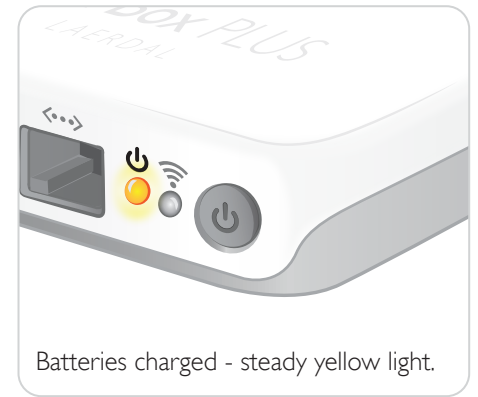
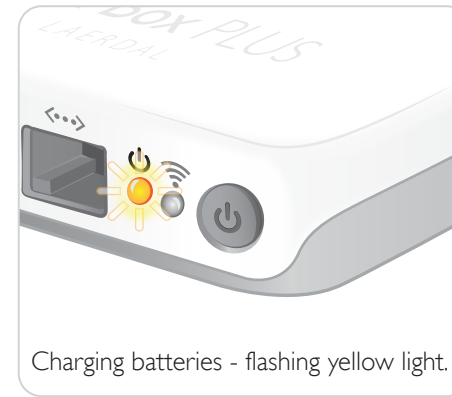


Turn On Link Box PLUS



Status LED

The Power LED also indicates status.



Starting SimPad PLUS for the first time

The first time SimPad PLUS is turned on, follow the prompts to configure the device.

System settings - Languages and units

- SimPad language: English
- Manikin voice language: English
- Celsius or Fahrenheit: Celsius
- etCO₂ unit: mmHg
- Country: United Kingdom

System settings - Time and date

- Country: United Kingdom
- Time zone: London (GMT+00:00)
- Set time automatically: [On]
- Time server settings
- Set time: 15:43
- Set date: 13. Dec 2015

System settings - About SimPad

- Name: SimPad
- Serial number: TSBF12001620
- ID: 204-30150
- Software version: 6.0.0-152
- Network Information: Host name: simpad-BF121620
- WiFi information: Network: SimLink, IP Address: 172.26.127.244/16
- LAN: IP Address: [redacted]

Annotations:

- Select language (points to SimPad language)
- SimPad language (circle around language options)
- Choose country pre-select time zone (points to Country)
- Enter SimPad name (Optional) (points to Name field)

SimPad PLUS Configuration

Configuration can only be done when the simulator, manikin or task trainer is connected to SimPad PLUS.

System settings - About Simulator

- Not connected to simulator
- Firmware version: Unknown
- Force-update simulator firmware: Newest firmware will be used
- Link Box Name: Link Box-bf087823
- Serial number: TBBF08027823
- Software version: 6.0.0-72
- ID: 204-30250
- Variants: None
- UUID: 0472f280-f15a-49f6-8e02-45213fb0e94b
- IO Software: 1.5.0.17

System settings - About SimPad

- Name: SimPad
- Serial number: TBBF07001852
- ID: 204-30150
- Software version: 6.0.0-72
- HW Version: A
- Variants: None
- UUID: eb562fc5-638b-4e1c-8a79-5a002293c114
- Network Information: Host name: simpad-BF071852
- WiFi information: Network: SimLink

System settings - About simulator

- WIFI: Connected to anne-guest, channel 36
- Flight Mode: Off
- Languages and units
- Display and Power
- Time and date
- About simulator
- About SimPad
- Debriefing server

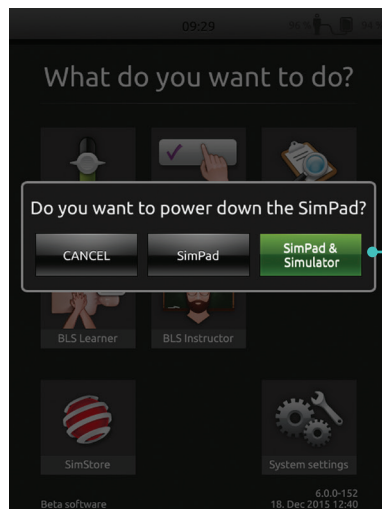
Annotations:

- Enter Link Box name (optional) (points to Link Box Name)
- About Simulator (points to About simulator)
- About SimPad (points to About SimPad)
- Enter SimPad name (optional) (points to Name field)

Note

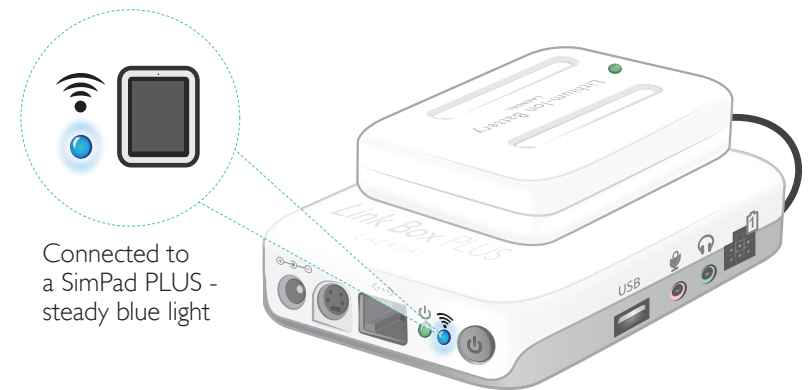
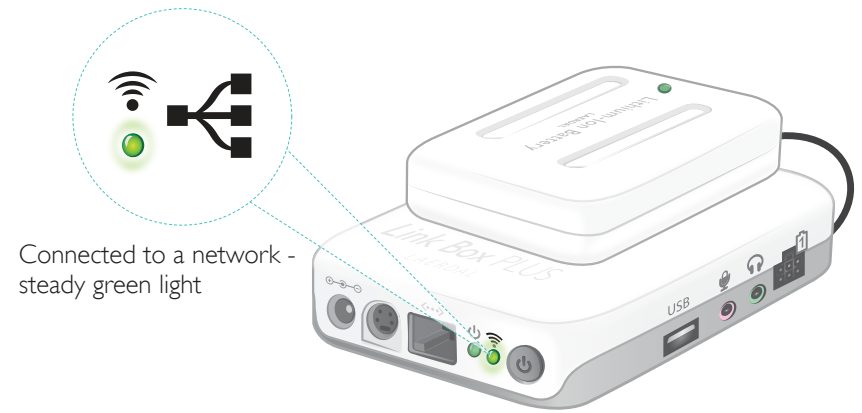
These configurations may be altered later.

Turn Off SimPad PLUS



Tap to shutdown SimPad and/or Simulator

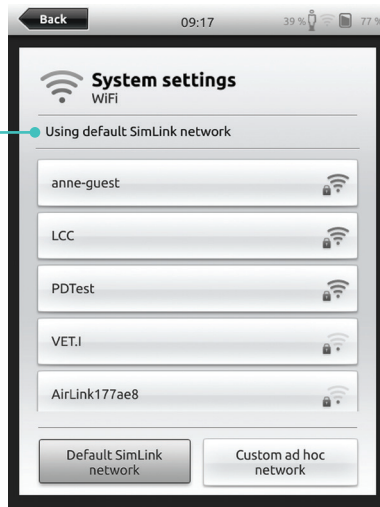
WiFi Connection



Connection between SimPad PLUS and Link Box PLUS

SimPad PLUS communicates with the Link Box PLUS using WiFi.

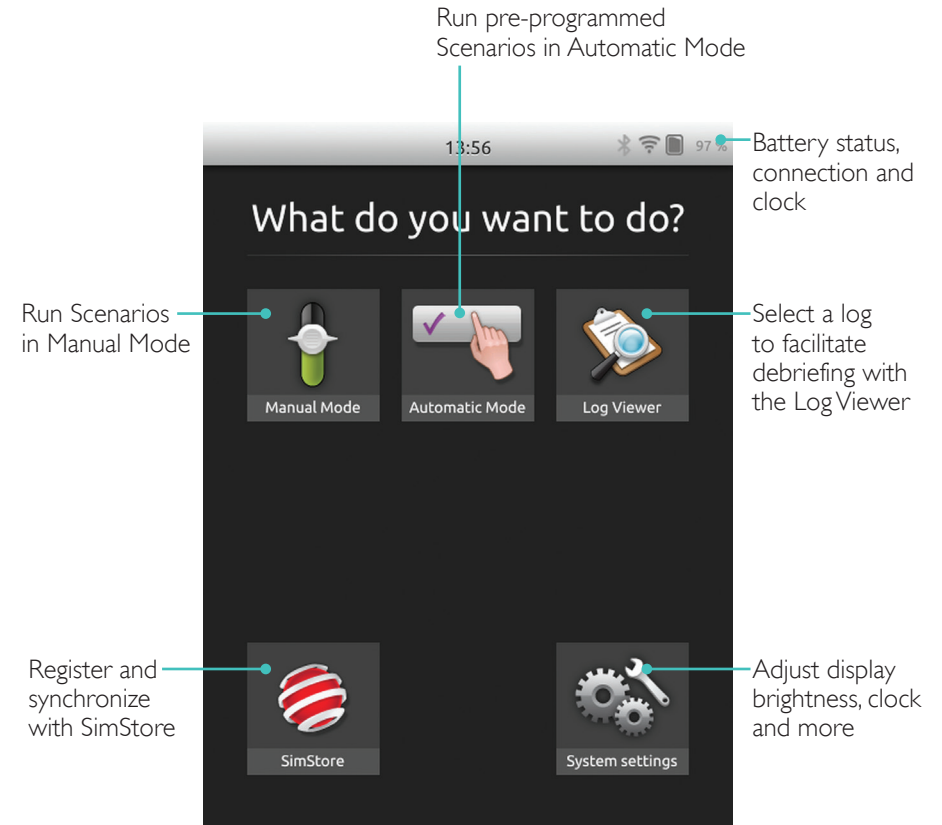
When the units are turned on for the first time they will set up an ad hoc network called SimLink



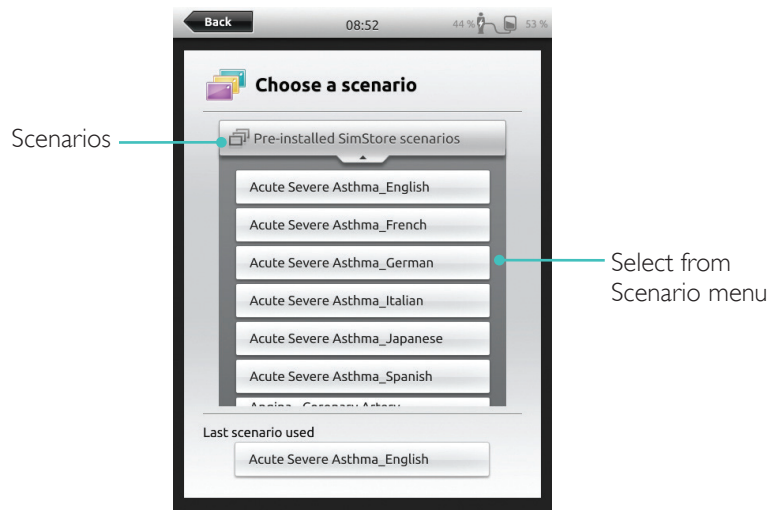
If no other Link Boxes are visible on the default SimLink network, the SimPad PLUS will automatically connect to the Link Box PLUS. SimPad PLUS will remember the pairing and reconnect when the units are turned on again. If multiple Link Boxes are available, choose preferred Link Box PLUS.



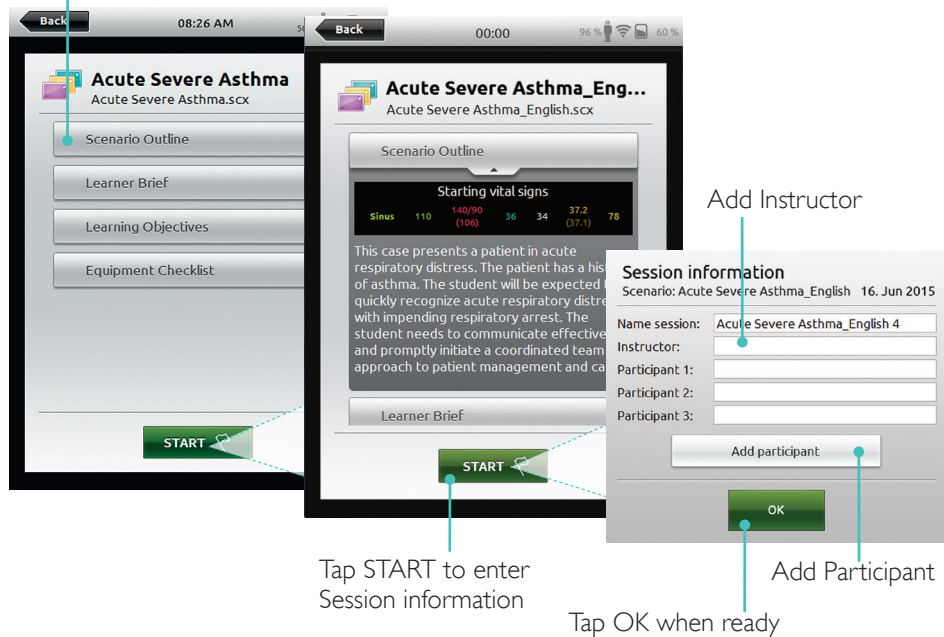
Overview of SimPad PLUS Home Screen



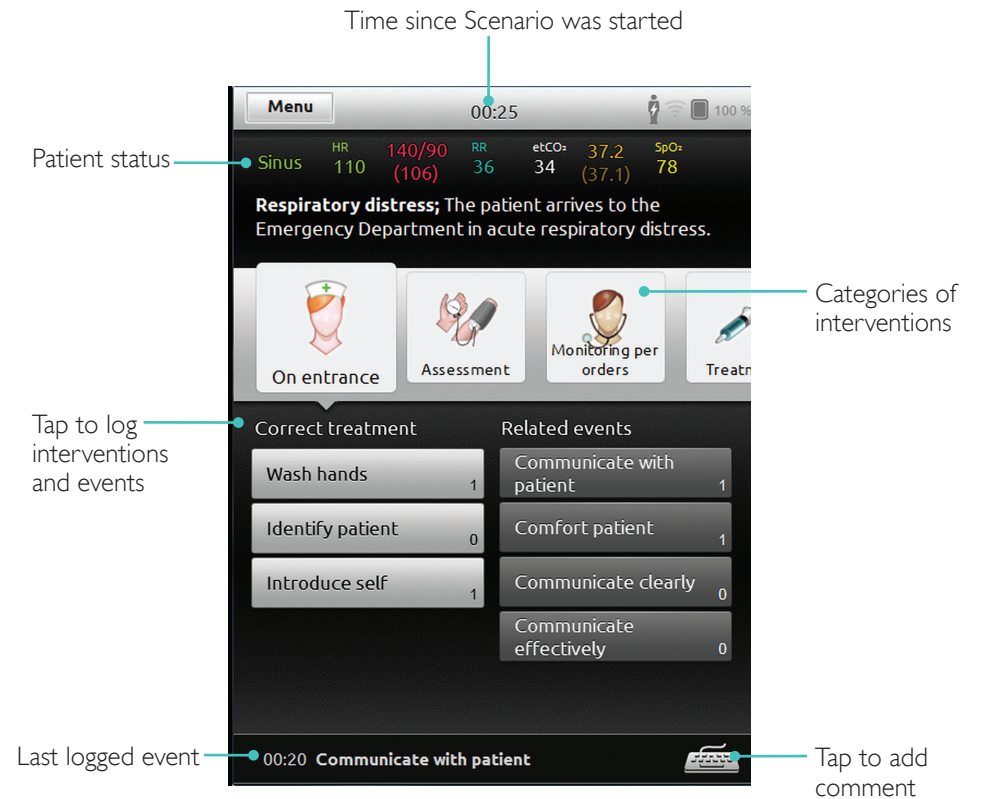
Select Scenario



Tap for detailed information on Scenario



Run Session



Change Parameters

Tap here to display more patient state information

Access to vital signs adjustments

Abnormal parameter values displayed here

Select other parameters to adjust

01:33 Communicate clearly PAUSE

The screenshot shows a mobile application interface for a simulation. At the top, there's a 'Menu' button and a timer at 00:25. Below that, vital signs are displayed: Sinus HR 110, RR 36, etCO₂ 34, SpO₂ 78. A text box indicates 'Respiratory distress; The patient arrives to the Emergency Department in acute respiratory distress.' Below this are icons for 'On entrance', 'Assessment', 'Monitoring per orders', and 'Treatment'. A 'Correct treatment' section lists 'Wash hands' and 'Identify patient'. A 'Related events' section lists 'Communicate with patient'. A 'Trends' section shows 'Asthma, oxygen administered (00:43)'. At the bottom, there are icons for a heart, lungs, speech bubble, and speaker, with a 'PAUSE' button.

End Session

Tap menu to End session

Open current session log

End scenario

00:20 Communicate with patient

02:43

03:26

Scenario ended
Last scenario: Acute Severe Asthma_English

View log
Resume session
New session
Quit

Acute Severe Asthma_English
Acute Severe Asthma_English.scx

Preferences
Start CPR Demo
Patient monitor
Pause scenario
End scenario

Correct treatment
Wash hands 1
Identify patient 0
Introduce self 1

Related events
Communicate with patient
Comfort
Communicate effectively

The screenshot shows a mobile application interface for a simulation. At the top, there's a 'Menu' button and a timer at 00:25. Below that, vital signs are displayed: Sinus HR 110, RR 36, etCO₂ 34, SpO₂ 78. A text box indicates 'Respiratory distress; The patient arrives to the Emergency Department in acute respiratory distress.' Below this are icons for 'On entrance', 'Assessment', 'Monitoring per orders', and 'Treatment'. A 'Correct treatment' section lists 'Wash hands', 'Identify patient', and 'Introduce self'. A 'Related events' section lists 'Communicate with patient', 'Comfort', and 'Communicate effectively'. A 'Trends' section shows 'Asthma, oxygen administered (00:43)'. At the bottom, there are icons for a heart, lungs, speech bubble, and speaker, with a 'PAUSE' button.

End scenario

Use detailed log

Acute Severe Asthma_English 4
16. Jun 2015 17:43 3 min 27 sec

00:00 Session started: Acute Severe Asthma_English

00:11 Wash hands

00:11 "To reduce the risk of health care associated infections nurses should comply with current Centers for Disease Control and Prevention hand hygiene guidelines. Wash hands when entering a room, use gloves, and wash hands following a procedure."

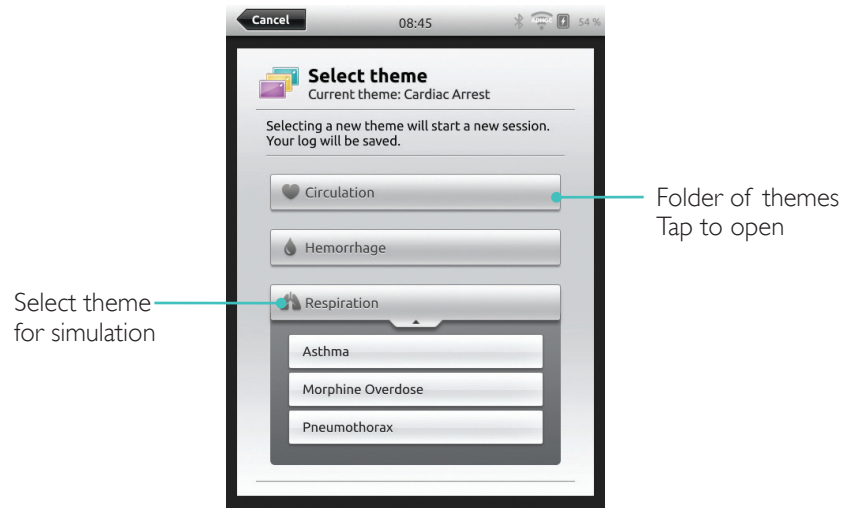
00:13 Introduce self

00:13 "Introducing self to patient and family members initiates the nurse patient relationship. A proper introduction not only includes name but also title so that the patient knows who is providing care. A name badge should also be worn visible to"

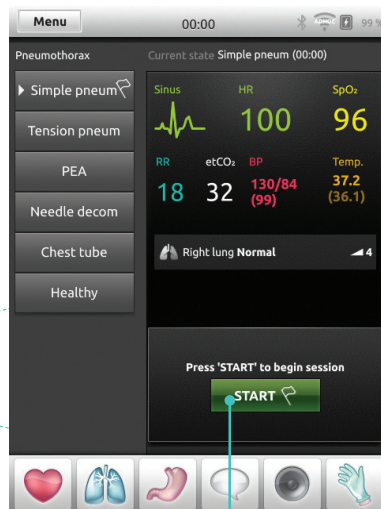
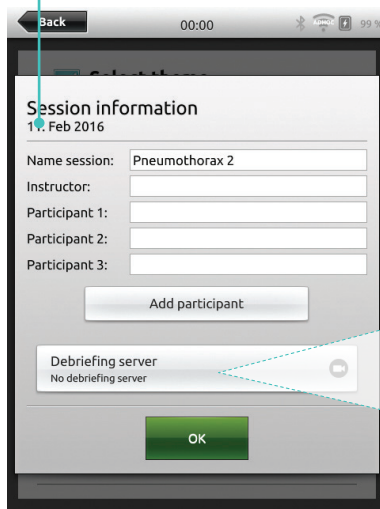
Display more or less information

The screenshot shows a mobile application interface for a simulation. At the top, there's a 'Menu' button and a timer at 16:49. Below that, there's a 'Use detailed log' button. The log shows a session titled 'Acute Severe Asthma_English 4' starting on 16. Jun 2015 at 17:43, lasting 3 min 27 sec. The log entries are: 00:00 Session started: Acute Severe Asthma_English; 00:11 Wash hands; 00:11 "To reduce the risk of health care associated infections nurses should comply with current Centers for Disease Control and Prevention hand hygiene guidelines. Wash hands when entering a room, use gloves, and wash hands following a procedure."; 00:13 Introduce self; 00:13 "Introducing self to patient and family members initiates the nurse patient relationship. A proper introduction not only includes name but also title so that the patient knows who is providing care. A name badge should also be worn visible to".

Select Theme

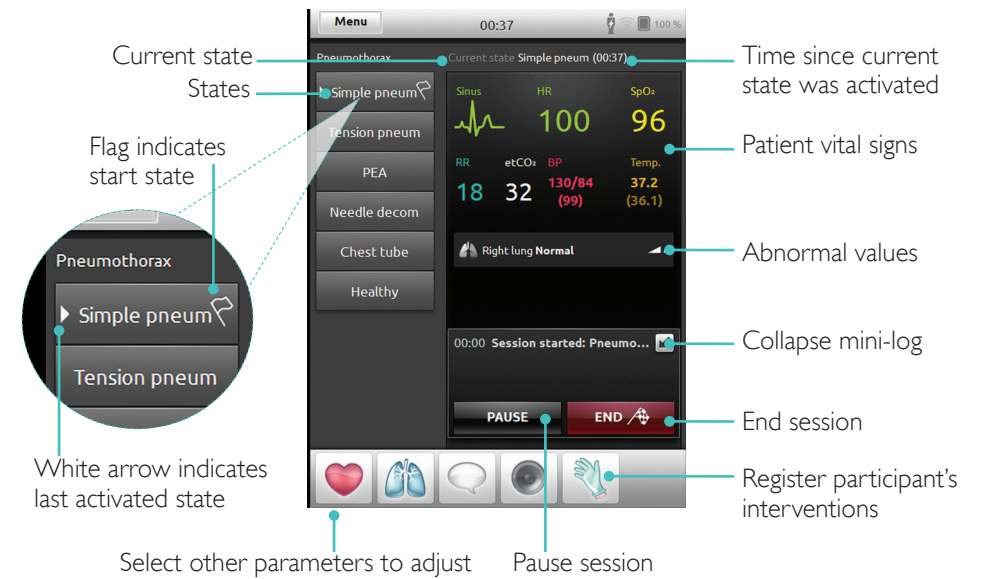


Information about session entered here will be added to log

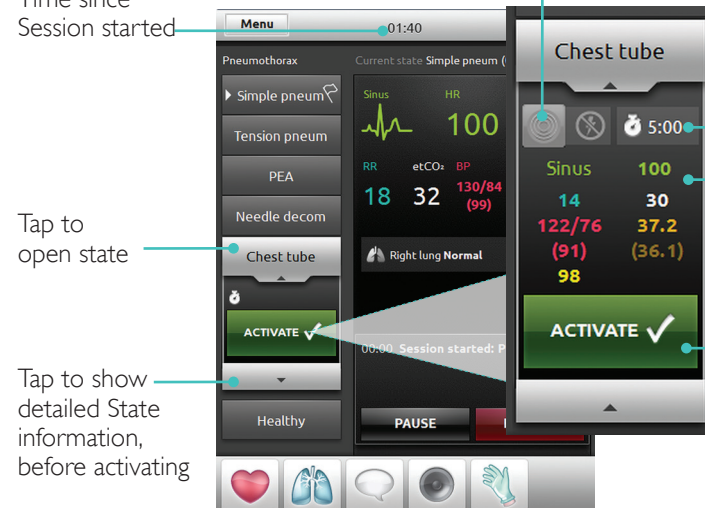


Tap to start session

Parameters Overview

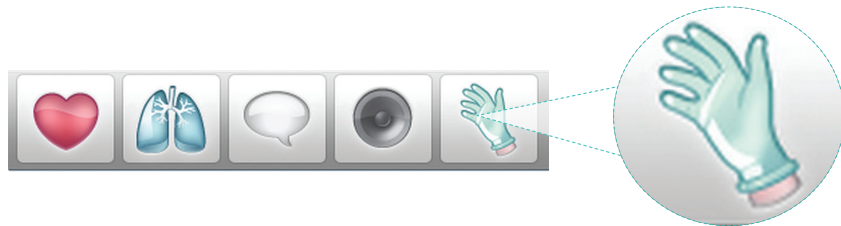


Time since Session started



Toggle On/Off shock activation

Registering Interventions



Tap to register participant's interventions

Time since scenario was started: 00:15

Patient status: Sinus HR 100, RR 18, etCO₂ 32, SpO₂ 96

Categories of interventions: Initial, Airway, Breathing, Circulation

Initial actions: Talk to patient (1), Tap and shout (0), Call for help (0)

CRM Skills: Effective communication (1), Team leadership (1), Resource utilization (0), Problem-solving (0), Closed-loop communication (0), Situational awareness (1)

Last logged event: 00:12 Situational awareness

Tap to add comment

Adjust Parameters Manually

Tap to adjust values (e.g. respiration rate)

Respiration rate RR: 18

For fine adjustments, hold finger over slider

Drag to adjust parameters

Activate the new value

Advanced Adjustments

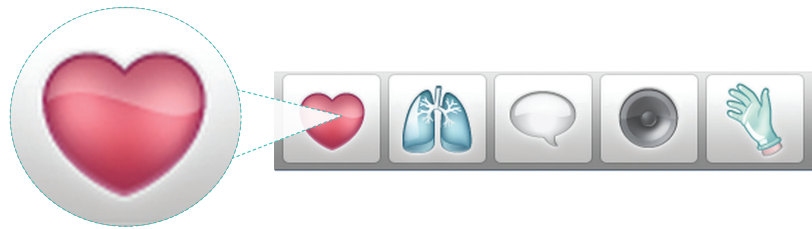
Respiration: 12 Respiration rate, Airway obstruction

Pulmonary resistance: Right, Left

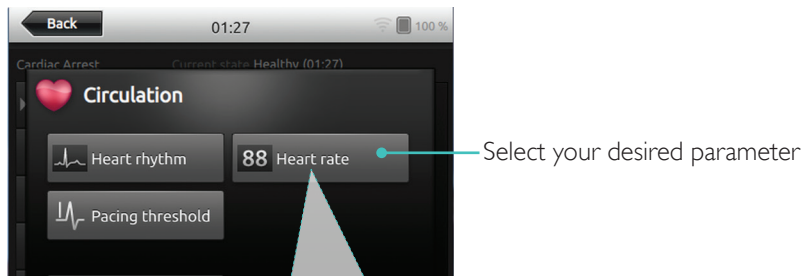
Tap to set desired condition

Update the currently open state

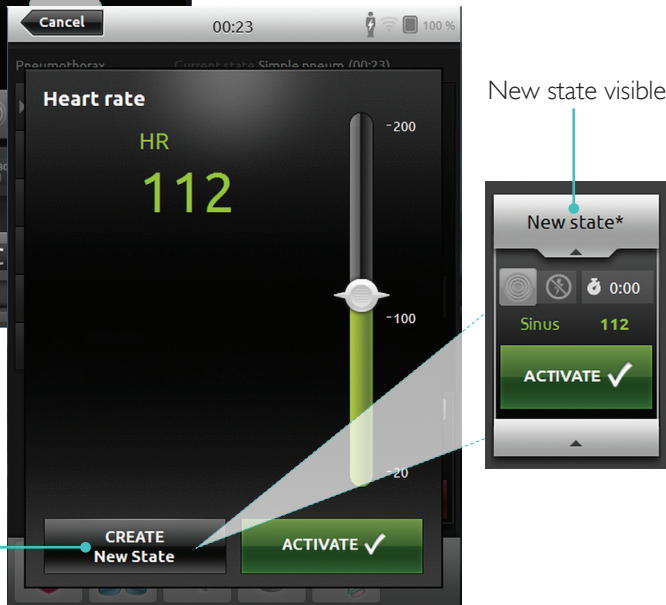
Create New State for an Existing Theme



Tap to access Circulation Menu



Select your desired parameter

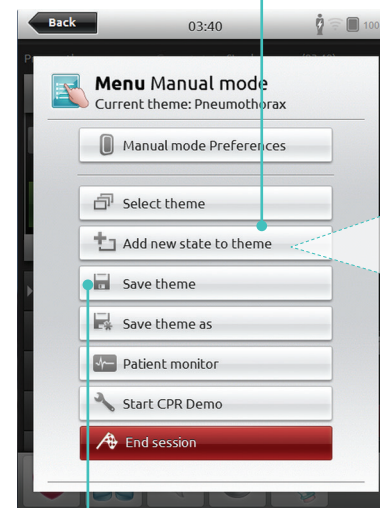


New state visible

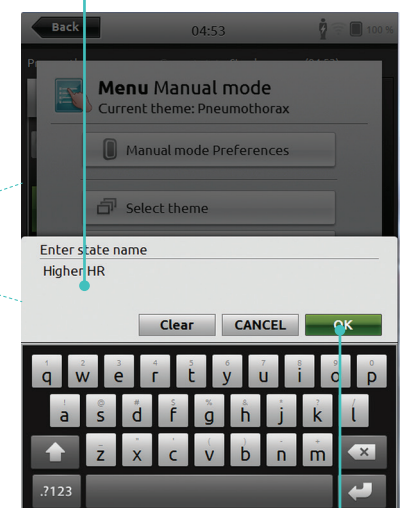
Tap to create a new state

Add New State to an Existing Theme

1. Tap to add new state to theme



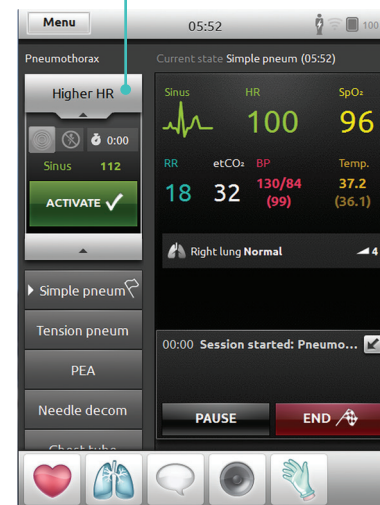
2. Enter new state name



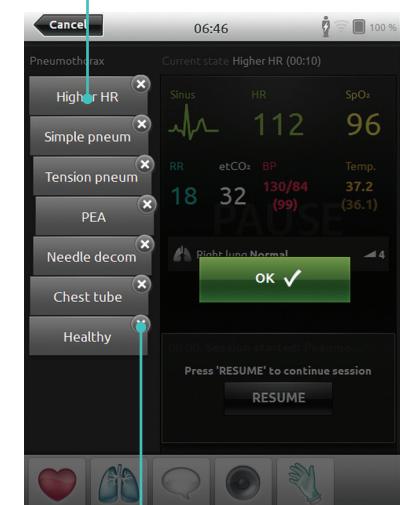
4. Tap to save state to theme

3. Confirm

New state is now ready



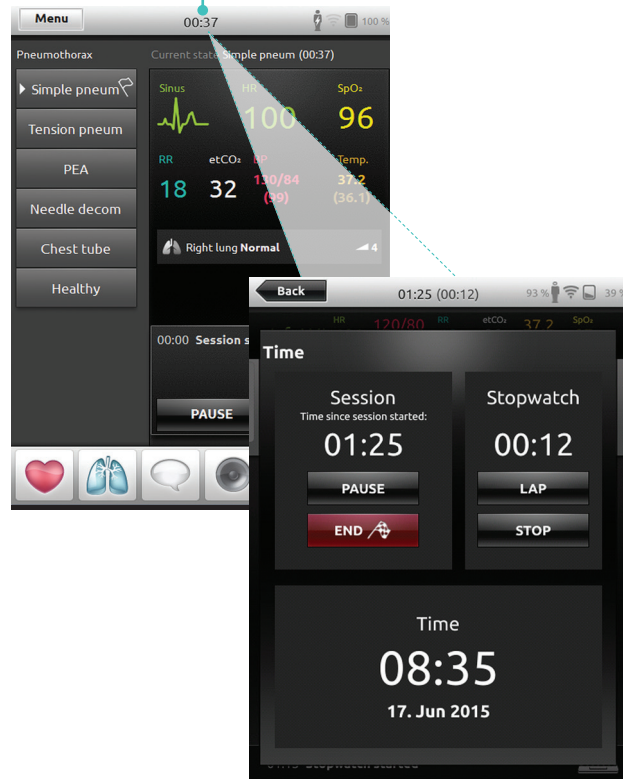
Tap and hold to arrange states



Tap x to delete

Stopwatch

Tap time display to activate the Stopwatch



View log

Go to Log Viewer

Resume session

Tap to select new session

Toggle On/Off to view detailed log



Back to home screen

Note

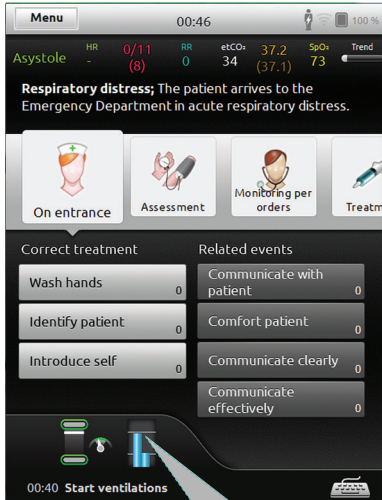
Technical logs can be retrieved from Link Box PLUS for troubleshooting purposes.

QCPR Feedback

When CPR is performed on a CPR capable manikin, SimPad PLUS displays real time CPR feedback.

Automatic Mode -

Tap to enlarge QCPR feedback



Manual Mode -

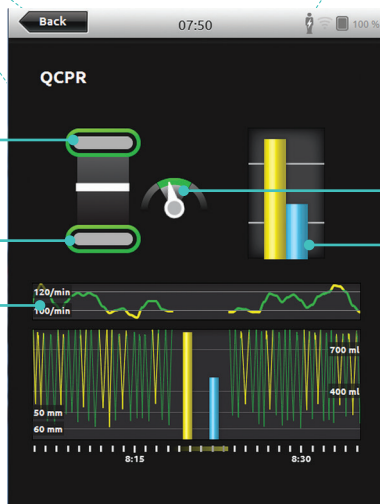
Tap to enlarge QCPR feedback



Chest release

Compression depth

Full Session, with compressions and ventilations over time.

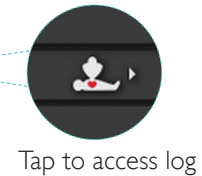
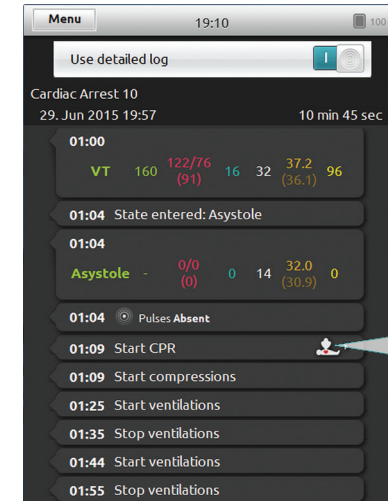


Compression rate

Ventilation volume

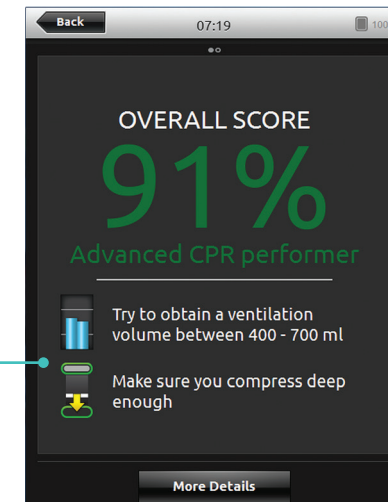
QCPR Log File

Debriefing mode provides an additional log file with data from CPR training.

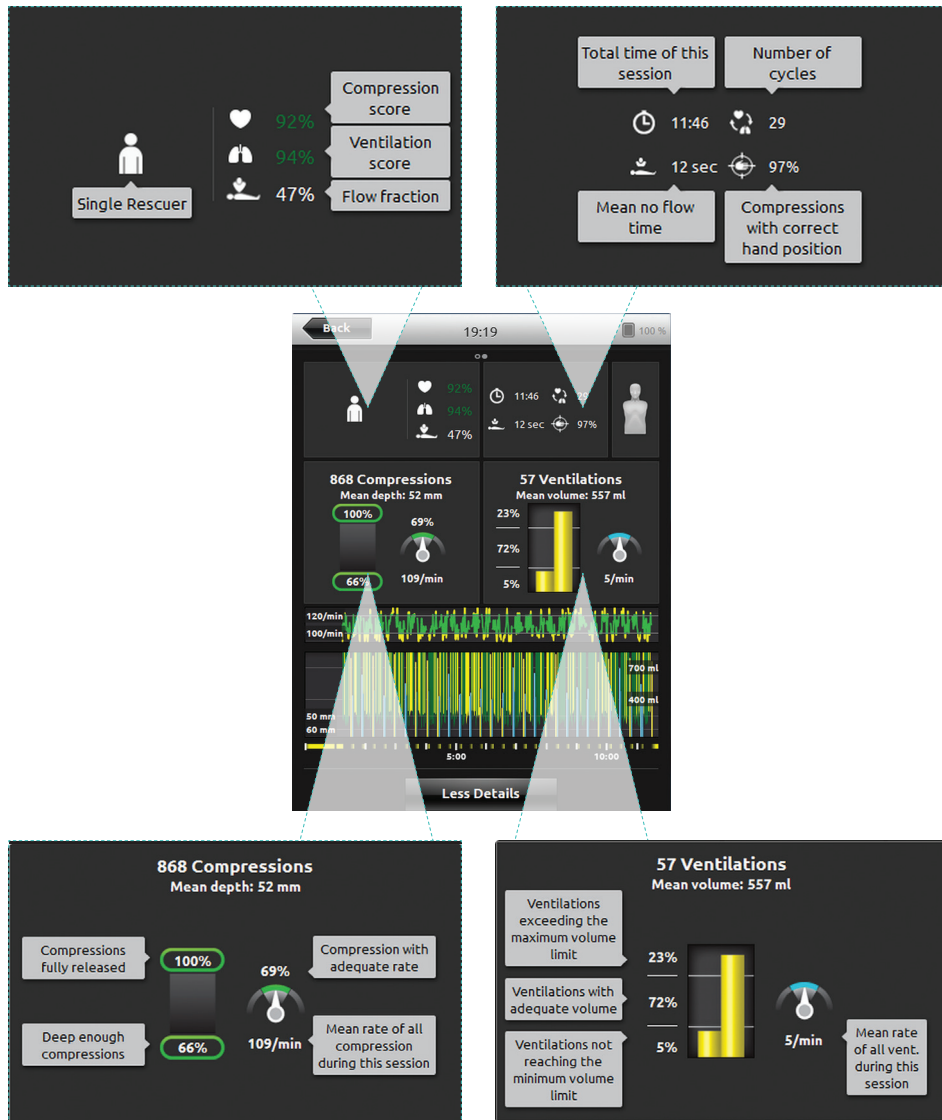


Tap to access log

Indicates two main findings from the CPR performance



QCPR Summary

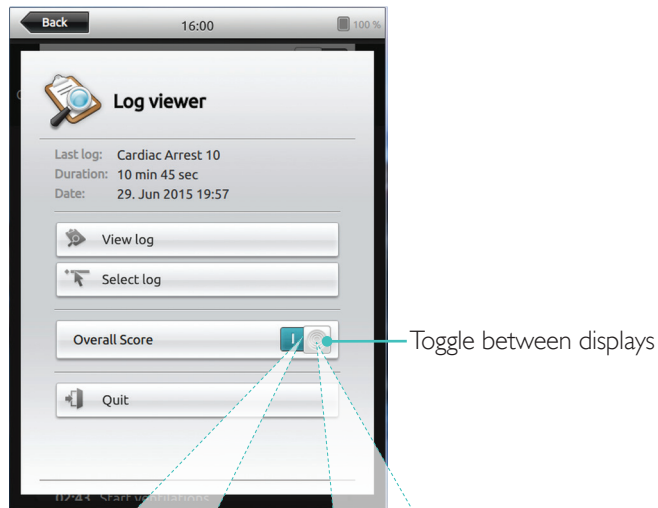


Compression Analysis Over Time

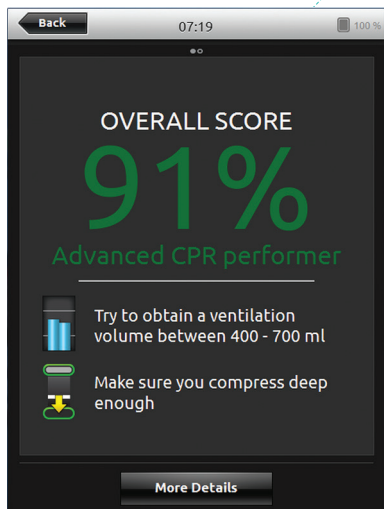


CPR settings can be adjusted to individual needs. Laerdal recommends using settings compliant with ILCOR guidelines.

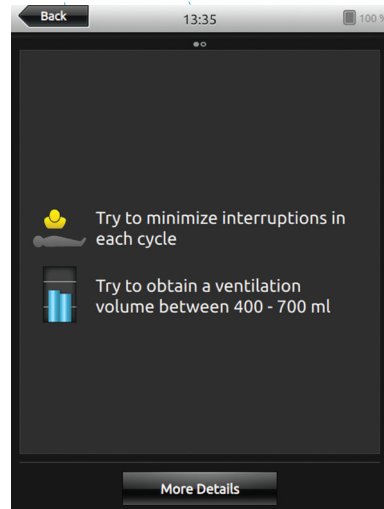
Display Choices



With overall score

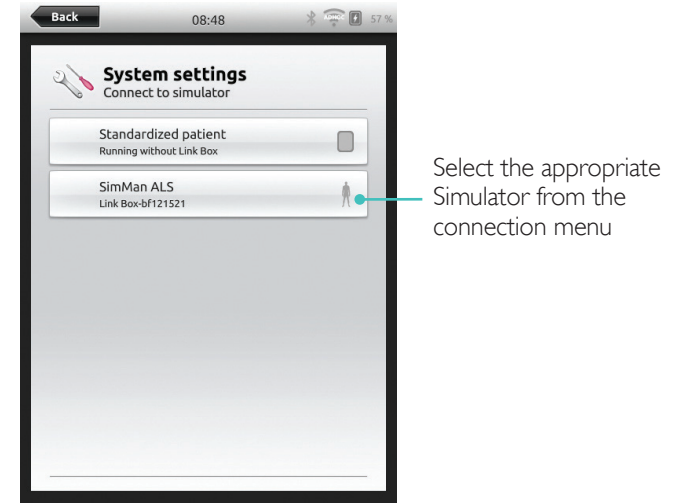


Without overall score

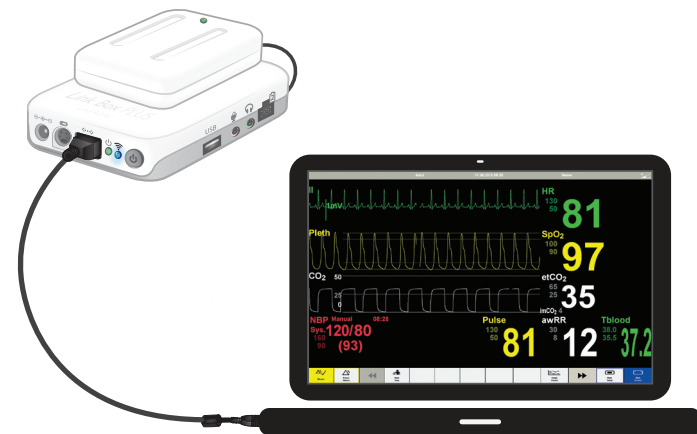


Connect a Simulated Patient Monitor

Ensure the simulated Patient Monitor PC and the SimPad PLUS System are connected to the same network.



For more information on network connections, see *Quick Setup Guide: Connecting the SimPad PLUS Patient Monitor to the SimPad PLUS System* available at www.laerdal.com/downloads.

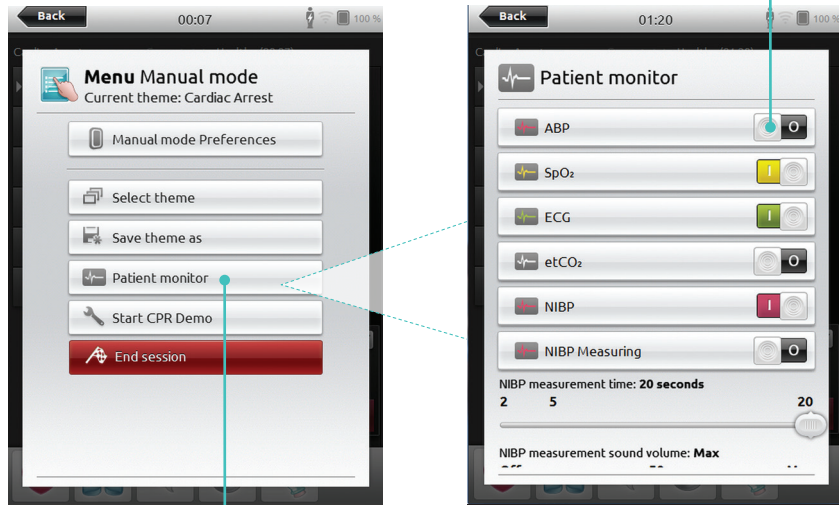


Using a direct network cable to connect the Link Box to the simulated Patient Monitor is recommended to minimize WiFi traffic.

Instructor Control of Simulated Patient Monitor

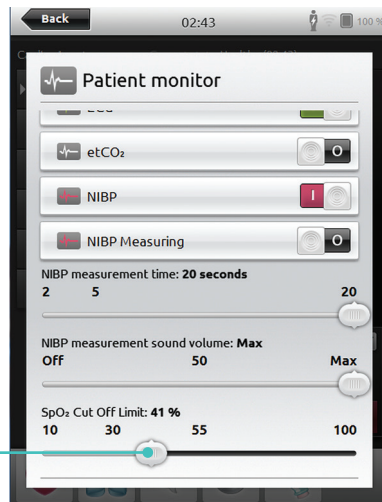
When the simulated Patient Monitor (optional item) is connected to SimPad PLUS, the instructor can toggle the display of vital signs.

Toggle On/Off vital signs



Navigate to menu and select Patient Monitor

Select Cut Off limits



Patient Simulator Firmware Update

When Link Box PLUS is connected to a Patient Simulator with internal firmware (SimNewB, ALS Simulator, or SimJunior) the internal firmware will be automatically updated, if necessary.

From SimPad PLUS Home Screen, go to:

System Settings > About simulator > Force-update simulator firmware.

Session Viewer

Session Viewer is a free software solution that enables instructors or students to view debriefing from the SimPad PLUS System. Use Session Viewer to annotate, print and save the SimPad PLUS data log. Session Viewer also enables capture of audio and video from 1 HD USB web camera synchronized with the SimPad PLUS data log.

To download, visit www.laerdal.com/downloads

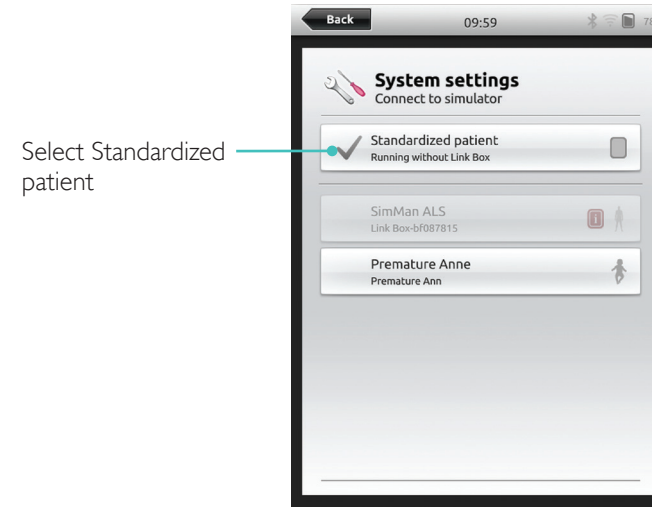
Connect SimPad PLUS to a different Link Box PLUS

SimPad PLUS can only be connected to one simulator at a time. SimPad PLUS will try to re-establish a connection to the previous Link Box PLUS that it was connected to.



Use SimPad PLUS without a Link Box PLUS

SimPad PLUS can be used with a standardized patient without connecting to the Link Box PLUS.



Bluetooth

SimPad PLUS can also connect to bluetooth enabled simulators.



Connect to a Network

SimPad PLUS and Link Box PLUS are connected via SimLink (ad hoc network) by default.

SimPad PLUS and Link Box PLUS can also be connected in the following ways:

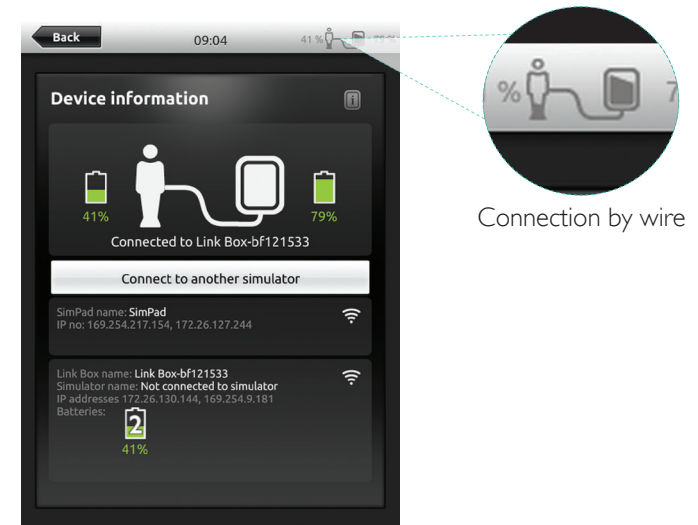
- Using a standard network cable
- On a wired Ethernet network
- On a WiFi network

Using a Standard Network Cable



Connect to Wired Ethernet Network

Connect SimPad PLUS and Link Box PLUS to network outlets. The network needs to have DHCP service.



Connection by wire

Note

It is possible to be on a wired network and a WiFi network simultaneously.

Connect to a WiFi Network



Note
 Before moving Link Box PLUS to another WiFi network, ensure it is connected to SimPad PLUS with a network cable.

Connect to Another Network





SimStore is the place to find peer validated content to standardize simulation education. Unlock the full potential of SimPad PLUS manikins, education staff and students.

SimStore offers pre-programmed content mapped to clinical guidelines and developed by industry-leading experts. Reducing on-the-fly operation and using pre-programmed scenarios can help present a more realistic clinical encounter and increase a simulation investment.

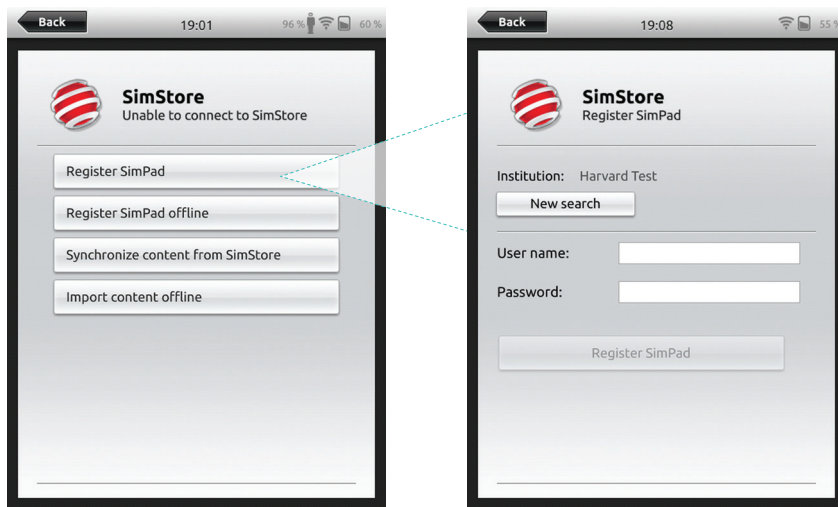
To access, visit www.mysimcenter.com

Visit SimStore to find:

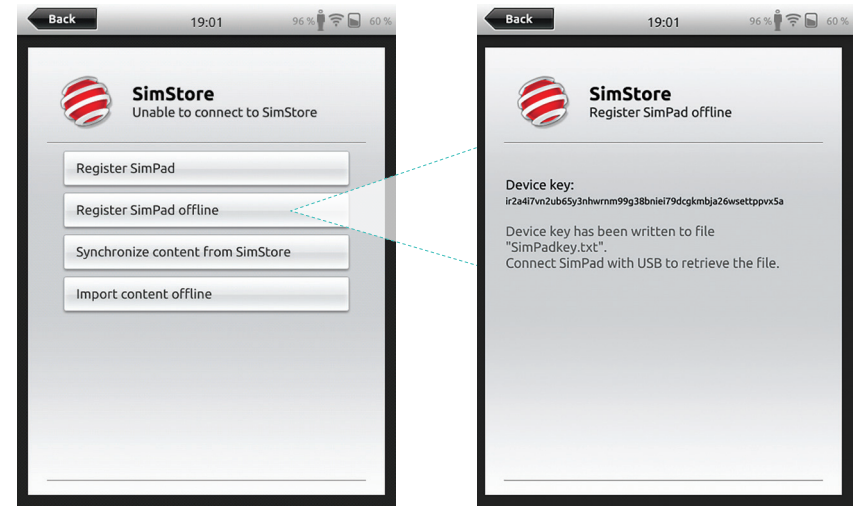
- Immediate online access to world wide, validated content
- Standardized and repeatable training measures
- Easy search, find, and pay navigation
- Flexibility to purchase based on requirements

Register SimPad PLUS on SimStore

SimPad PLUS needs to be connected to a network in order to register with SimStore online. See *Connect to a Network* section.

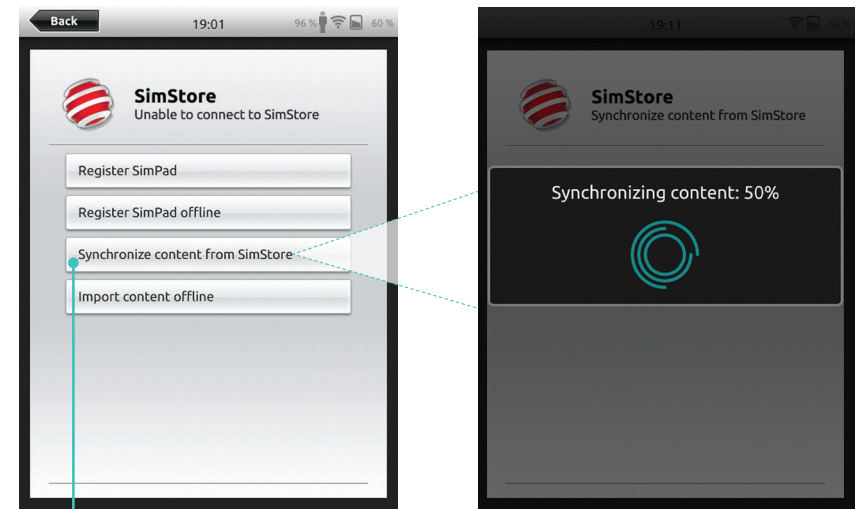


SimPad PLUS can also be registered offline. SimPad PLUS will generate a device key. Register the device from a PC.



Synchronize SimPad PLUS with SimStore

After SimPad PLUS has been registered on SimStore, administration of the SimPad PLUS and purchasing Scenarios on SimStore must be done from a PC.



Synchronize content from SimStore

For more information visit www.mysimcenter.com

Theme Editor

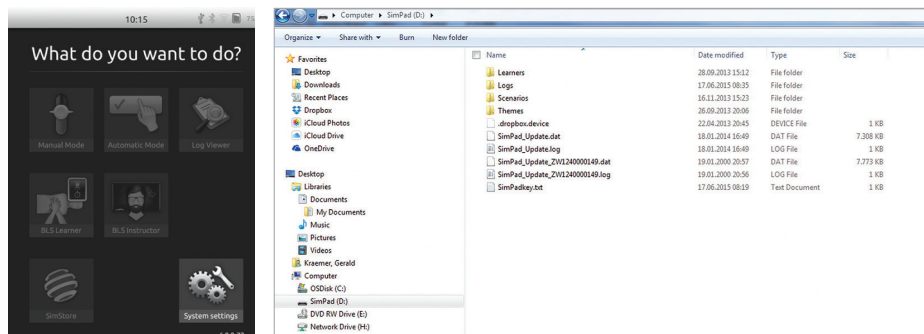
Theme Editor is a PC software tool for creating themes for the SimPad PLUS system. It allows you to make new themes with states and interventions. Theme Editor can be downloaded from www.laerdal.com/themeditor/ and be used offline.

SimDesigner

SimDesigner is a PC software tool for creating Scenarios for the SimPad PLUS System. It allows you to make new scenarios with states and Interventions. SimDesigner can be downloaded from www.laerdal.com/SimPad.

Transferring Logs, Themes and Scenarios to and from a PC

Connect SimPad PLUS to the PC using the included USB cable.



- Save new Scenarios in the Scenarios folder.
- Save new Themes in the Themes folder.
- Upload logs from the Logs folder.
- Disconnect the USB cable from the SimPad PLUS when transfers are finished.

Note

If SimPad PLUS is turned off, the battery can be charged from the USB connection.

Headset

Create two-way communication between the operator and simulator by connecting a headset.

Plug headset into SimPad



Green = From instructor to manikin

Red = From manikin (separate microphone) to instructor.

Note

The headset output on the Link Box duplicates the sound to the manikin. It can be used to improve the sound by adding additional speakers around the manikin.

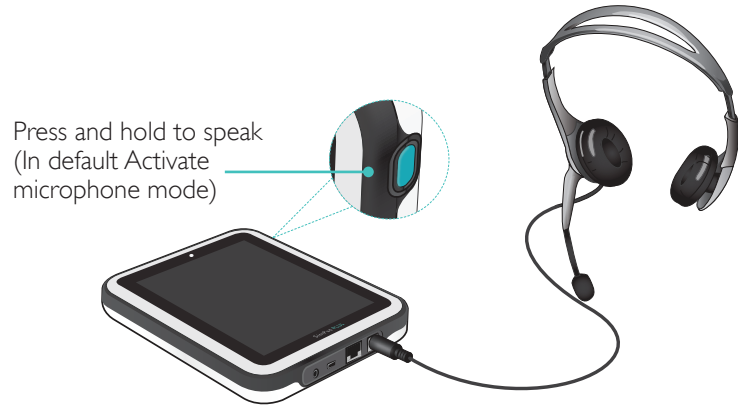
Vocal Sounds

Vocal sounds from the Patient Simulator such as crying, moaning etc. can be activated from the SimPad PLUS directly or via Themes and Scenarios.

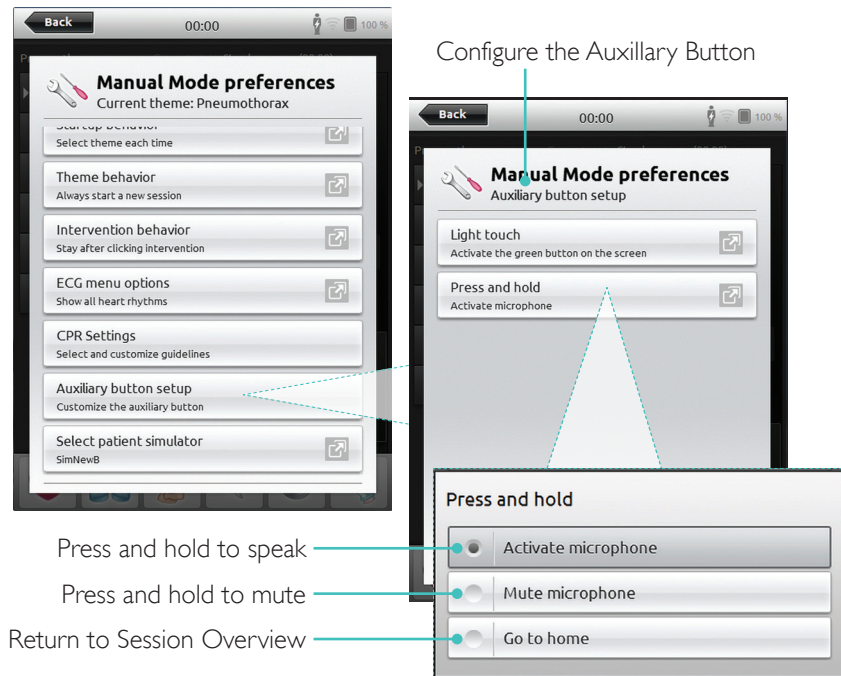
For more information about vocal sounds and to create user defined vocal sounds see *Feature* section.

Auxillary Button

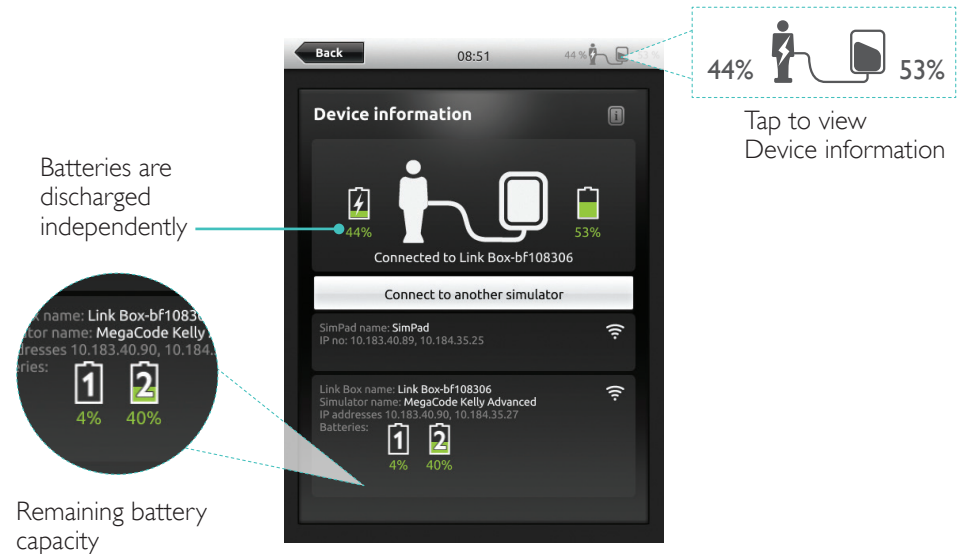
The Auxillary Button on SimPad PLUS can be configured in Manual Mode or Automatic Mode preferences to enable and disable input from the headset.



Note
When SimPad PLUS is used wirelessly there is a short voice delay.

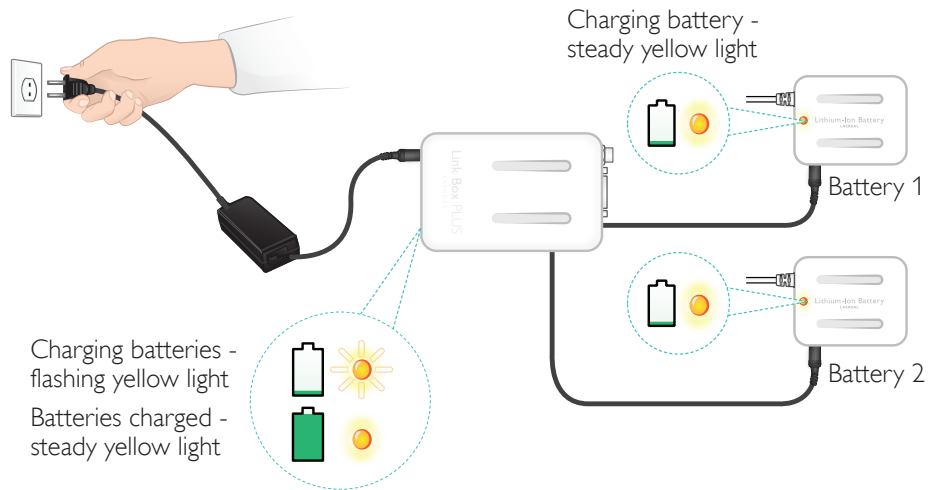


Connect Two Laerdal Li-Ion Batteries



Charge Batteries

The batteries can be charged through the Link Box PLUS when the power is turned off and the Link Box PLUS is connected to the AC adapter.
See *Quick Setup Guide - Charging Batteries*.



⚠ Warnings

- Do not use the Laerdal Li-Ion Battery for other purposes than specified.
- Use only the AC charger adapter supplied with the product.
- Do not use the battery in temperatures above what is specified in this User Guide or Important Product Information.
- Do not heat or incinerate.
- Do not crush the battery.
- Do not short circuit the battery contact.
- Do not immerse in water.
- The battery must be recycled and disposed of in accordance with local rules.
- Do not handle damaged or leaking Li-Ion batteries.

SimPad PLUS System has the same ECG library as SimMan 3G and other Laerdal simulators. The available rhythms and rhythm parameters may vary from simulator to simulator.

Available ECG in SimPad PLUS System

Basic Rhythms	Rates Adult and Child	Rates Infant	Extra-systoles
Sinus	20 – 200	20 – 240	PVC PVC RonT Couplet PVC PAC/PJC
WPW	20 – 200	20 – 240	
Hyperkalemia	20 – 200	20 – 240	
Long QT	20 – 200	20 – 240	
Ischemia	20 – 200	20 – 240	
Inferior AMI, ST elevation	20 – 200	20 – 240	
Left Bundle Branch Block (LBBB)	20 – 200	20 – 240	
Right Bundle Branch Block (RBBB)	20 – 200	20 – 240	
Atrial Tachycardia (Atrach.)	140 – 260	90 – 320	
Supra Vent. Tachycardia (SVT)	140 – 260	90 – 320	
Atrial Flutter	75, 100, 150	75, 100, 150	PVC PVC R/T Couplet PVC PAC/PJC
Atrial Fibrillation (AFib.)	50 – 240	50 – 240	
Junctional	40 – 220	40 – 220	
1° AV-Block	20 – 135	20 – 135	
2° AV Block type #1	3:2,4:3, 5:4	3:2,4:3, 5:4	
2° AV Block type #2	2:1, 3:2, 4:3	2:1, 3:2, 4:3	
3° AV Block	10 – 50	20 – 100	
Ventricular Tachycardia (VT)	120 – 240	120 – 320	
Torsade de pointes	180	180	
Idioventricular	10 – 100	14 – 100	
Ventricular Fibrillation (VF)	0.1 – 1 mV	0.1 – 1 mV	
Asystole			
Ventricular Standstill			
Ventricular Pacemaker	50 – 150	50 – 150	

Blood Pressure

Blood Pressure	
Pressure range	Systolic: 0-300 mmHg / Diastolic 0-200 mmHg
Accuracy	+/- 4 mmHg
Calibration	Pressure sensor must be calibrated to sphygmomanometer. See Preferences menu.
Pulse	
Available pulses	Carotid, Brachial, Radial and Umbilical (SimNewB) Only 3 pulses can be palpated simultaneously. (Power considerations).
Palpated BP	Radial pulse turns off at systolic BP. Brachial pulse turns off at 20 mmHg, to prevent noise generation in auscultation area.

	Adult Manikin	Child Manikin	Infant Manikin
Default Blood Pressures (mmHg)	120/80	100/70	60/40

Adult pulses are automatically adjusted to BP as follows:

Systolic BP	Carotid Pulse	Radial/Brachial Pulse
>= 88	Normal	Normal
< 88	Normal	Weak
< 80	Normal	Absent
< 70	Weak	Absent
< 60	Absent	Absent

Infant pulses are automatically set to absent when Systolic BP is below 10 mm Hg. Otherwise infant pulses are normal.

Adult pulses are automatically adjusted to BP as follows:

Systolic BP	Carotid Pulse	Radial/Brachial Pulse
>= 88	Normal	Normal
< 88	Normal	Weak
< 80	Normal	Absent
< 70	Weak	Absent
< 60	Absent	Absent

Heart Sounds

Heart sounds are synchronized to ECG.

Heartsounds	Adult Manikin	Child Manikin	Infant Manikin
Normal	•	•	•
Aortic Stenosis	•	•	•
Austin Flint Murmur	•	•	•
Mitral Valve Prolapse		•	
Systolic Murmur	•	•	•
Diastolic Murmur	•		
Friction Rub	•		
Opening Snap @70 msec	•		
Stills Murmur		•	•
Atrial Septal Defect (ASD)		•	•
Ventricular Septal Defect (VSD)		•	•
Pulmonary Stenosis			•

Lung Sounds

Lung sounds are synchronized to breathing rates, adjustable from 0 – 60 breaths per minute.

Lung Sounds	Adult Manikin	Child Manikin	Infant Manikin
Normal Breath Sounds	•	•	•
Fine Crackles	•	•	•
Coarse Crackles	•	•	•
Pneumonia	•	•	•
Wheeze	•	•	•
Stridor	•	•	•
Pleural Rub	•		
Rhonchi	•	•	•

Features

Bowel Sounds

Bowel Sounds	Adult Male	Adult Female	Child Manikin	Infant Manikin
Normal	•	•	•	•
Borborygmus	•	•	•	•
Hyperactive	•	•	•	•
Hypoactive	•	•	•	•
Fetal Normal 140 BPM		•		
Fetal Brady 100 BPM		•		
Fetal Tachy 200 BPM		•		
No sound	•	•	•	•

Vocal Sounds

Vocal sounds are adjusted for age and gender of manikin.

Male Manikin	Female Manikin	Child Manikin	Infant Manikin
Vomit	Vomit	Vomit	Cry
Cough	Cough	Cough	Cough
Moan	Moan	Moan	Content
SOB Breathing	SOB Breathing	SOB Breathing	Hiccups
Scream	Scream	Scream	Scream
Yes	Yes	Yes	
No	No	No	

Sound format for user defined sound files must be raw format 16KHz, 16 bits signed, little endian.

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