EN

SimPad PLUS & Link Box PLUS

User Guide



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INTRODUCTION

The SimPad PLUS is an operating device used to control Laerdal manikins and simulators. It can also be used with task trainers and standardized simulators. It allows instructors to deliver highly effective simulation-based training.

There are two ways to control simulations:

- Automatic mode,
- Manual mode.

This User Guide describes operating instructions for:

- SimPad PLUS,
- Link Box PLUS.

NOTES

- *The products shown may vary in appearance and are subject to change.*
- *Visit laerdal.com for more information.*

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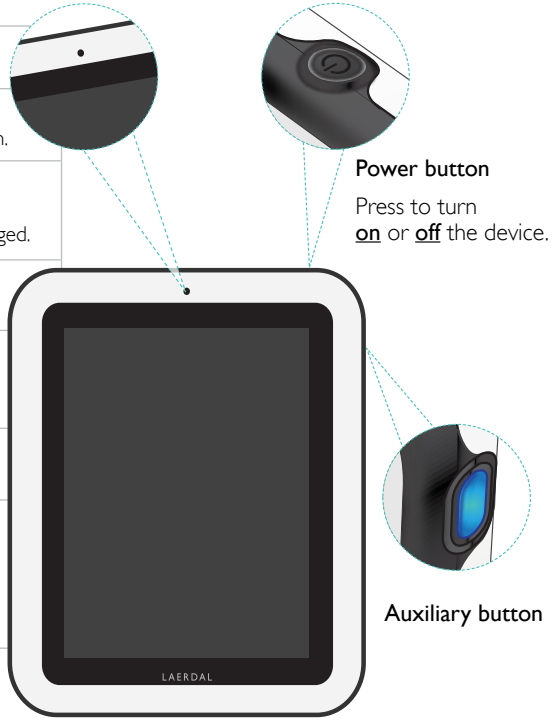
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SimPad PLUS

Overview

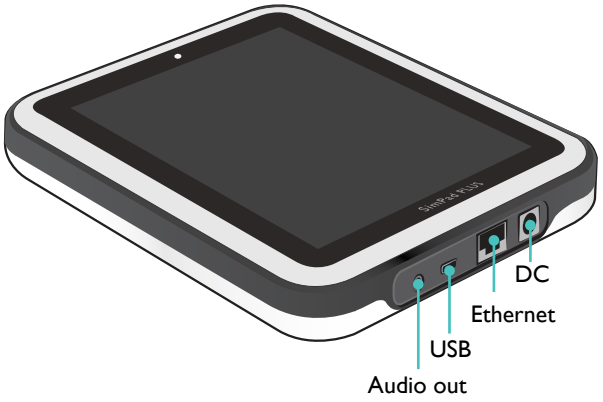
Status LED	
●	Flashing orange: Charging, but not powered on.
●	Steady black: SimPad is off, if charger is connected then it is fully charged.
●	Flashing green: Starting or shutting down.
	Rapid flashing green: Updating software or USB disk is connected.
	Steady green: On.
●	Steady red: Low battery or error, needs service. In case of error, contact your local Laerdal representative.



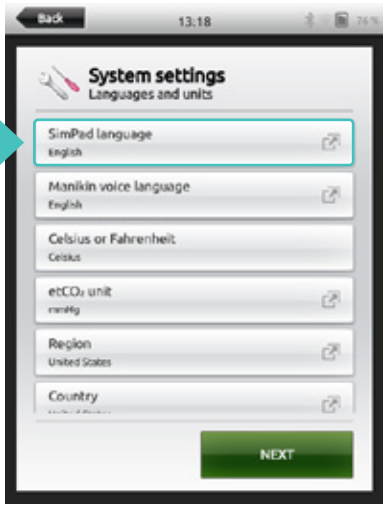
Power button

Press to turn
on or **off** the device.

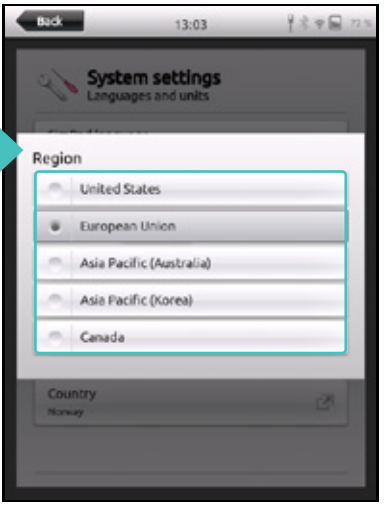
Auxiliary button



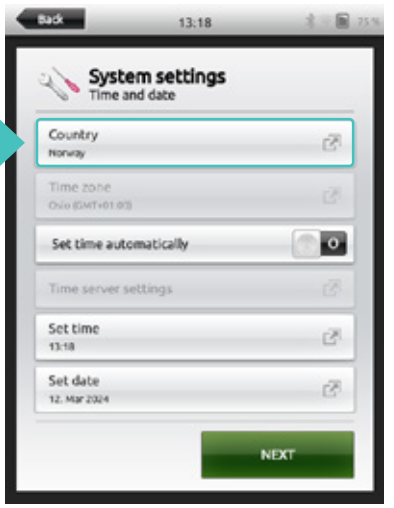
First time setup



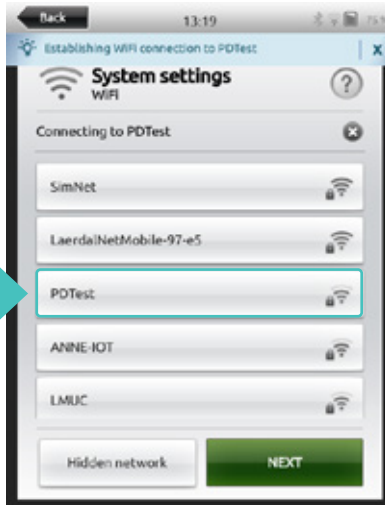
1. In System settings, select SimPad language.



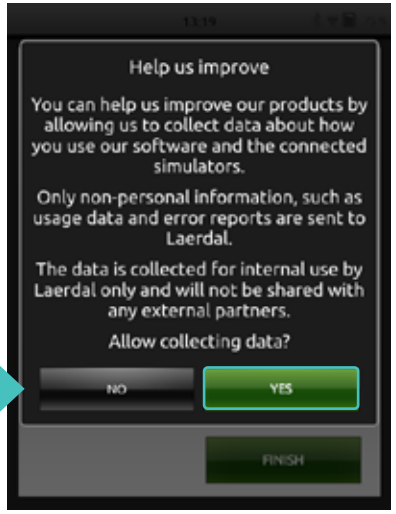
2. Select the region.



3. Select the country.



4. Select the WiFi network



5. Select usage data sharing preferences.

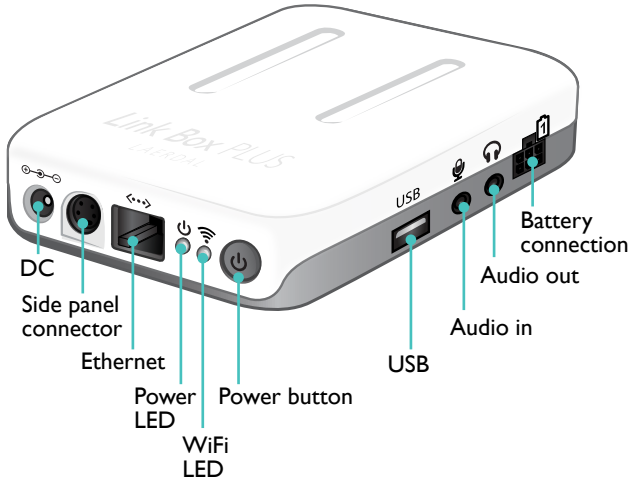


6. Enter a name for the SimPad.
7. Press FINISH to save the changes.

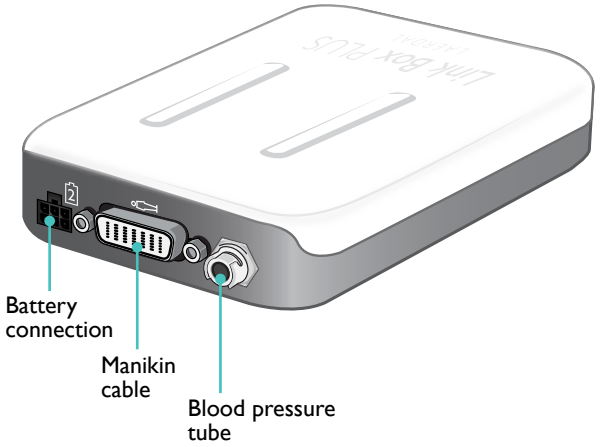
Link Box PLUS

Overview

Front view

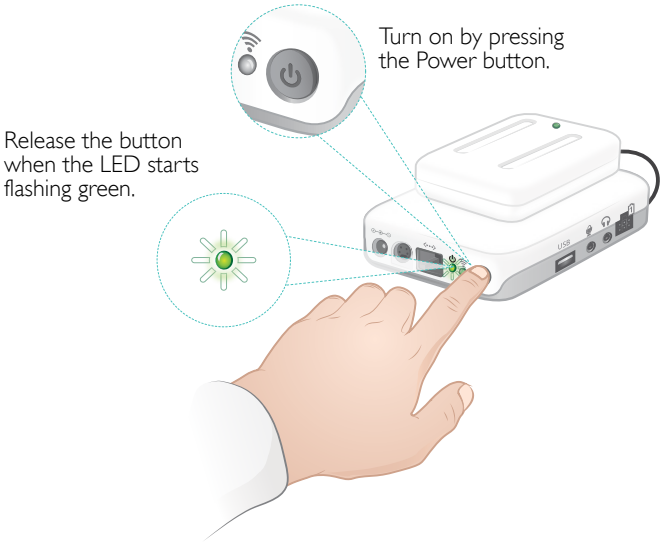


Back view



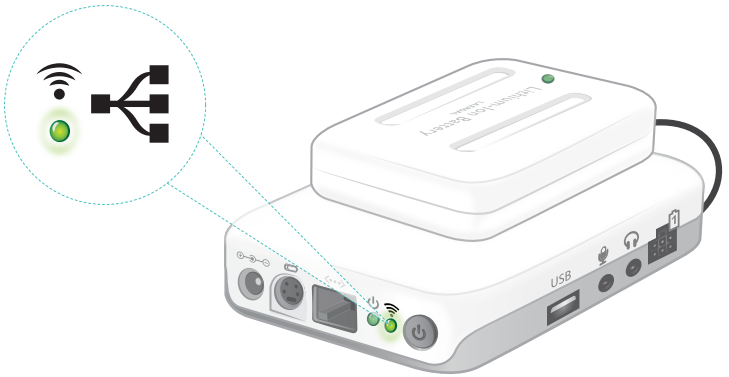
Setup

The Link Box PLUS can be located on the inside or the outside of the simulator.

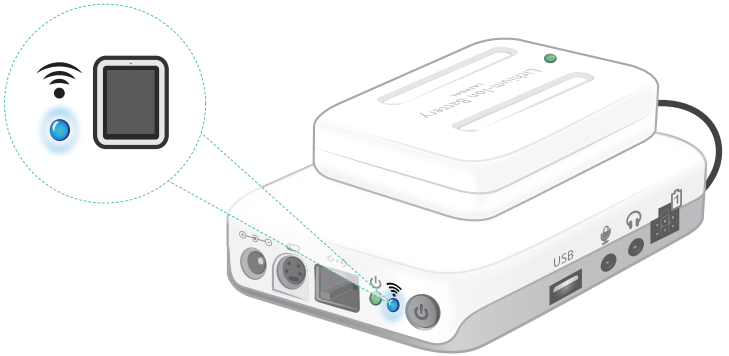




Status power LED	
Flashing orange:	Charging, but not powered on.
	Steady orange: Fully charged, but not powered on.
Flashing green:	Starting or shutting down.
	Steady green: On.
Steady red:	Error, needs service. In case of error, contact your local Laerdal representative.

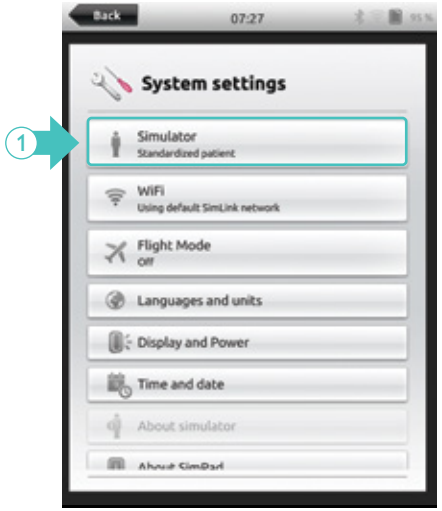


Connected to a network.



Connected to SimPad or LLEAP.

Connecting the Linkbox to the network via WiFi



1. In System settings, select Simulator.



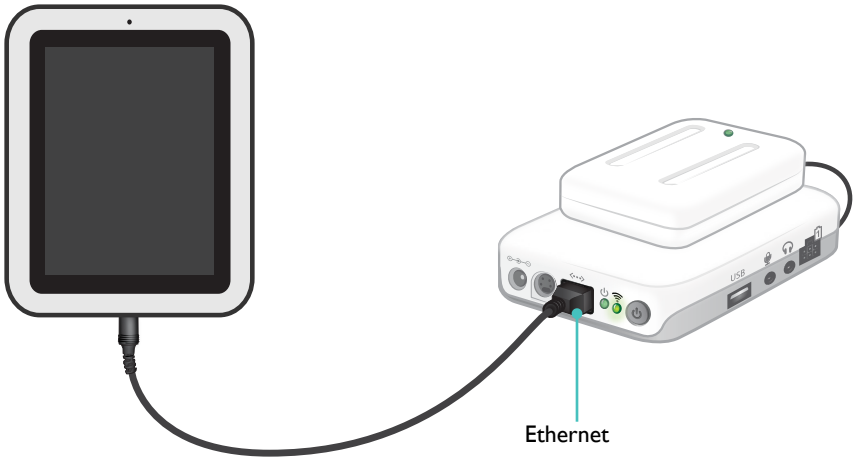
2. Select the preferred Simulator.

Connecting the SimPad PLUS to the simulator

There are two ways of connecting the SimPad to the simulator's Link box.

- Standard network cable / wired Ethernet network
- WiFi network

Connecting via standard network cable



> **NOTE**
> *It is possible to be on a wired network and a WiFi network simultaneously. The network needs to have DHCP service.*

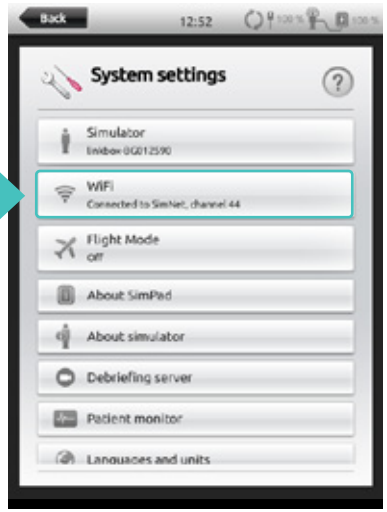
Fixed IP addresses can be assigned from the DHCP server. Connect the SimPad PLUS and Link Box PLUS to network outlets.

Connecting via WiFi

WiFi networks supported are:

- WPA2 Personel
- WPA2 Enterprise (MSCHAP v2 with username and password)

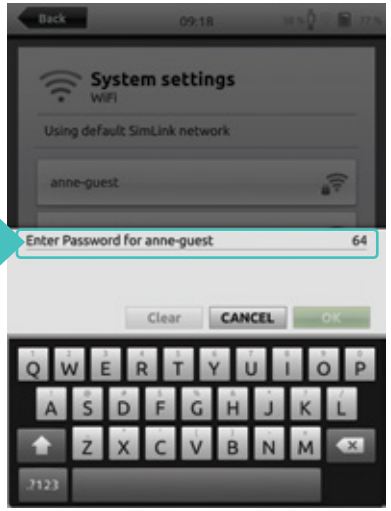
Network certifications are not supported.



1. In System settings, select WiFi.



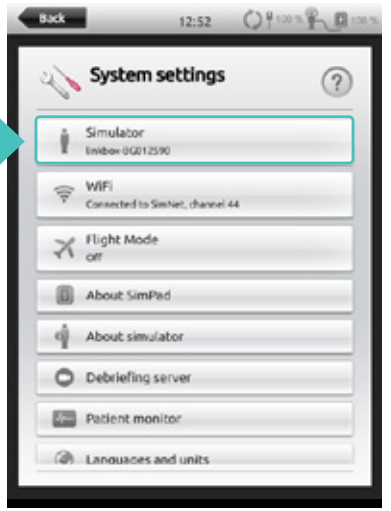
2. Select the preferred network.



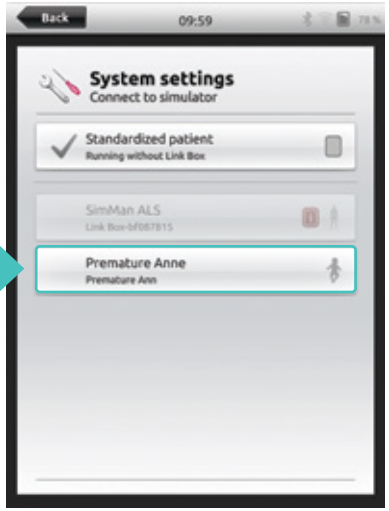
3. Enter the network password and press OK.

Connecting via Bluetooth

SimPad PLUS can connect to Premature Anne via Bluetooth. The SimPad PLUS can be coupled with a Patient Monitor, and simulations can then be run on a regular person.

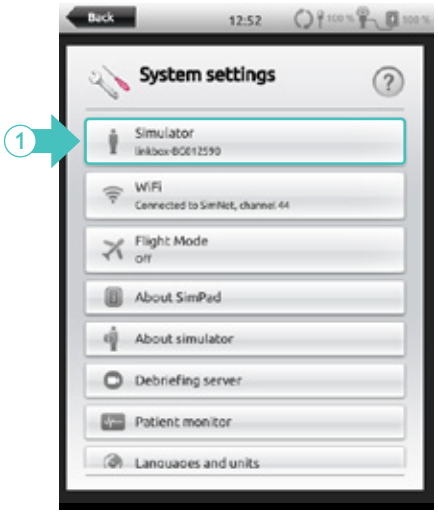


1. In System settings, select Simulator.

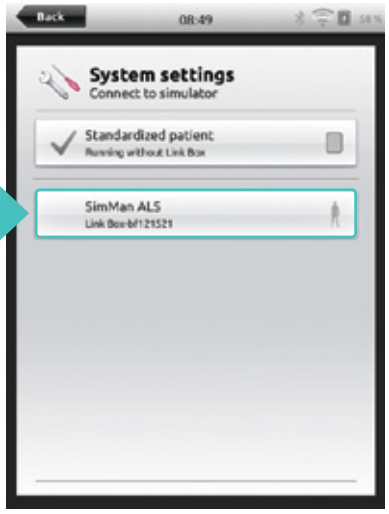


2. Select Premature Anne.

Primary option: Connecting the SimPad PLUS to another simulator



1. In System settings, select Simulator.



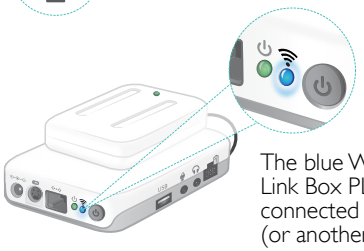
2. Choose from the list.

> **NOTE**
>
> *The last used simulator is remembered, and the SimPad and simulator will try to reconnect when both are turned on. When multiple simulators are available, choose the preferred option.*

This is what the system will look like when connection to simulator is established.

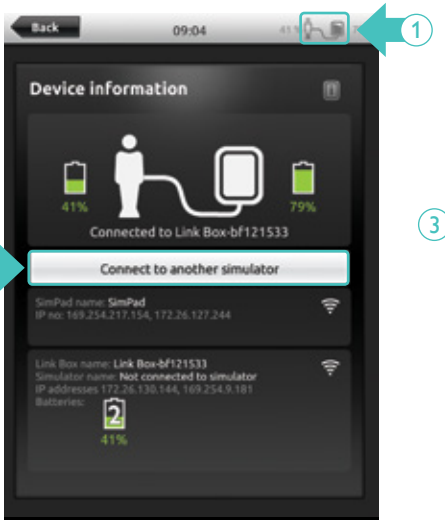


A manikin symbol is indicated on SimPad PLUS when connected to the Link Box PLUS



The blue WiFi LED on the Link Box PLUS lights up when connected to SimPad PLUS (or another instructor device)

Additional option: Connecting the SimPad PLUS to another simulator

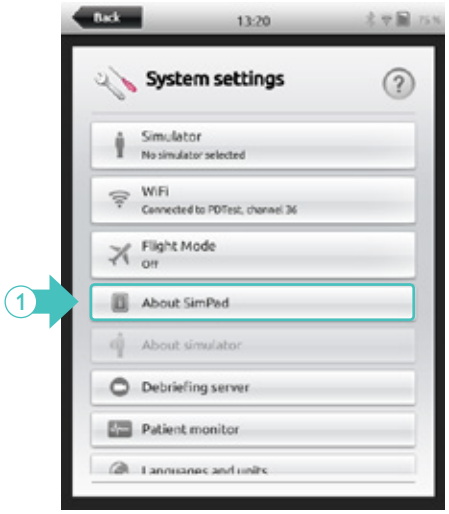


1. Press the simulator icon.
2. Select Connect to another simulator.

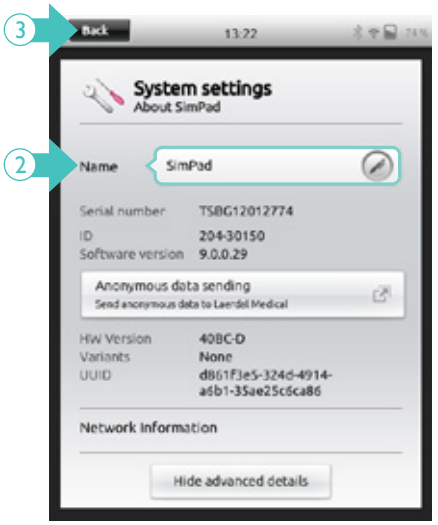


3. Choose from the list.

Renaming the SimPad

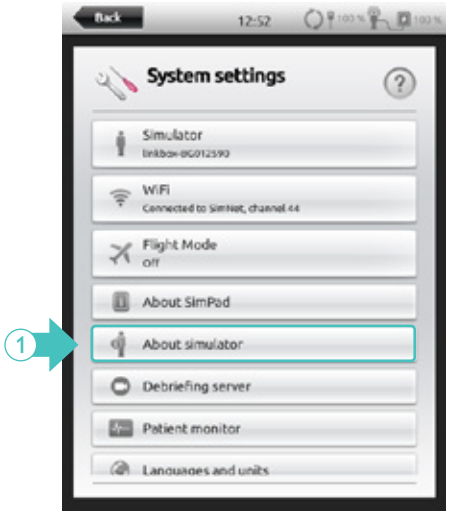


1. In System Settings, select About SimPad.

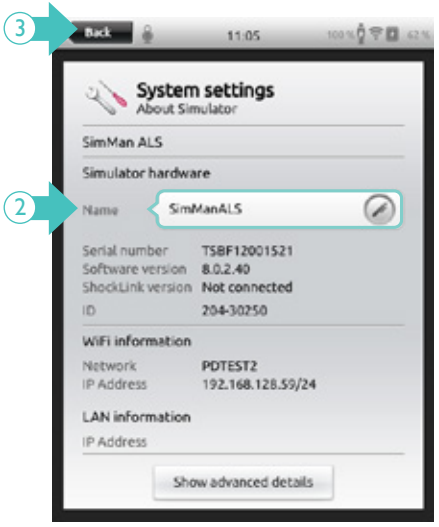


2. Enter a name for the SimPad.
3. Press Back to save the changes.

Renaming the Simulator



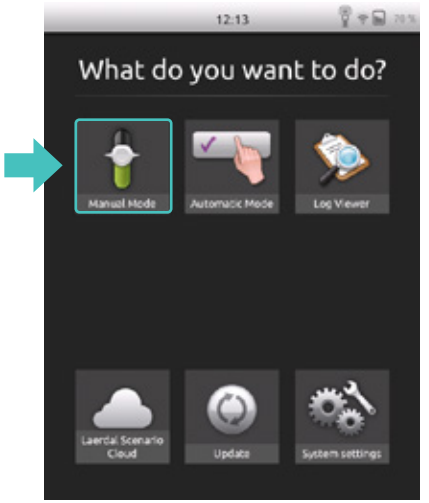
1. In System Settings, select About simulator.



2. Enter a name for the simulator.
3. Press Back to save the changes.

MANUAL MODE

This mode gives the Instructor total control of the session parameters and themes.



Session overview



Time since current state was activated

Patient vital signs

Abnormal values

Collapse mini-log

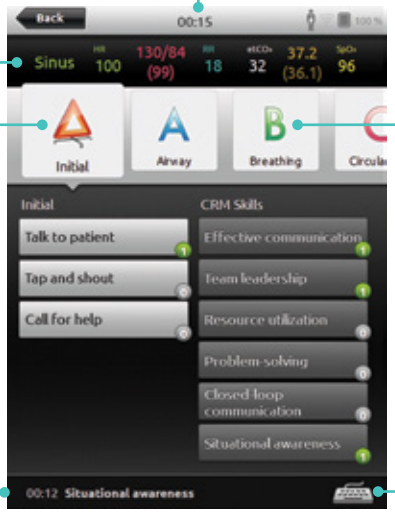
End Session

Register participant's interventions

Select other parameters to adjust

Pause Session

Registering interventions



Time since session was started

Patient status

Tap to log interventions and events

Categories of interventions

Last logged event

Tap to add comment

States

Themes are made of several states that can be adjusted in Manual Mode. The Instructor can change existing states or create new ones.

Overview



Theme name

White arrow indicates last activated state

Flag indicates start state

States



Toggle On/Off shock activation

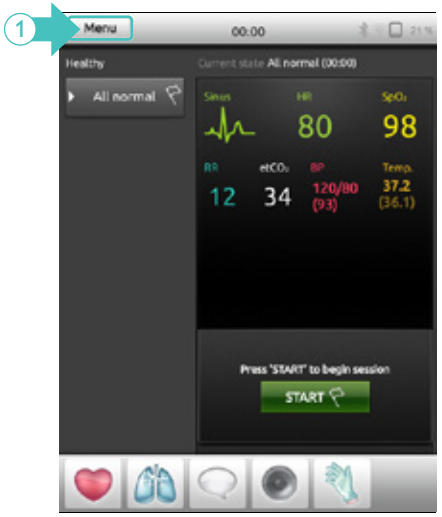
Set transition time

The expanded state shows all parameters in the queue, ready to be activated

Tap to open state

Tap to show detailed state information, before activating

Changing the age and gender in Manual mode



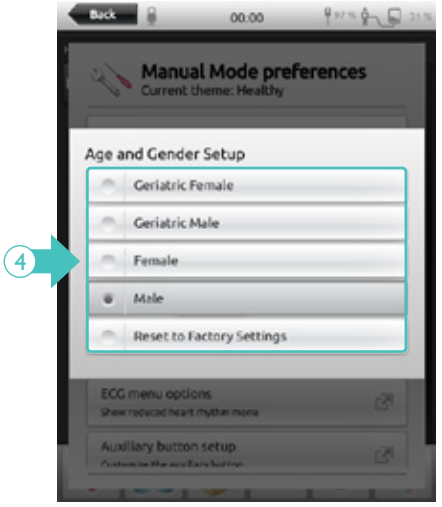
1. In Manual mode, select Menu.



2. Select Manual mode Preferences.



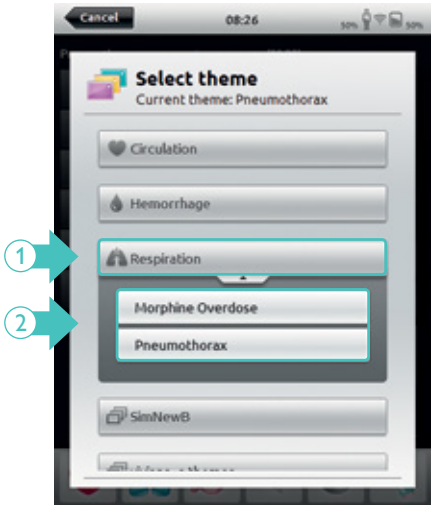
3. Select Age and Gender Setup.



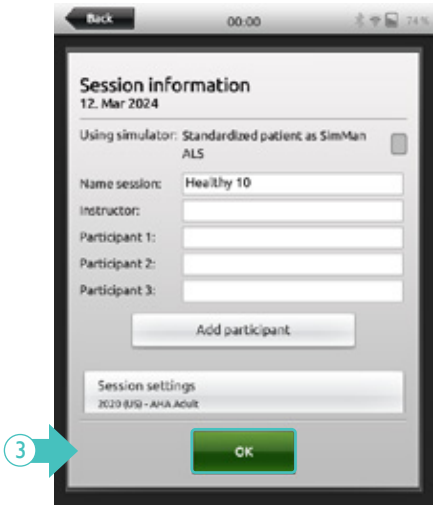
4. Select the preferred option..

Selecting a theme

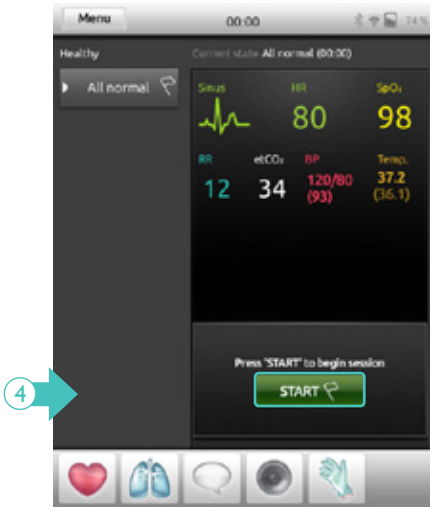
Select a theme before starting a scenario.



1. Select to open folder of themes.
2. Select a theme for simulation.

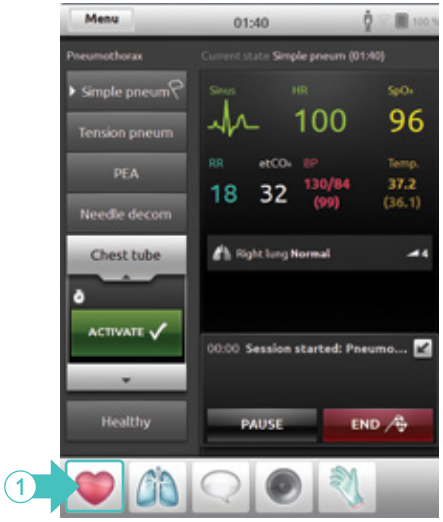


3. Select OK.

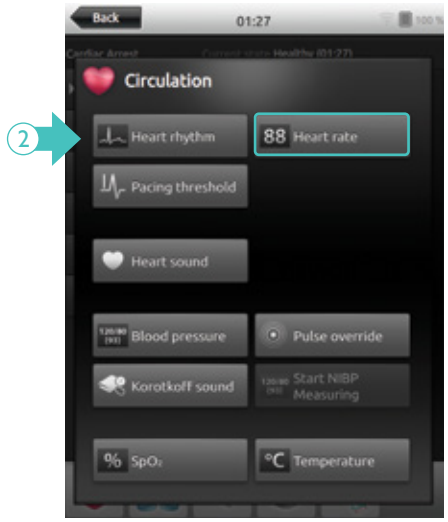


4. Select START to start session.

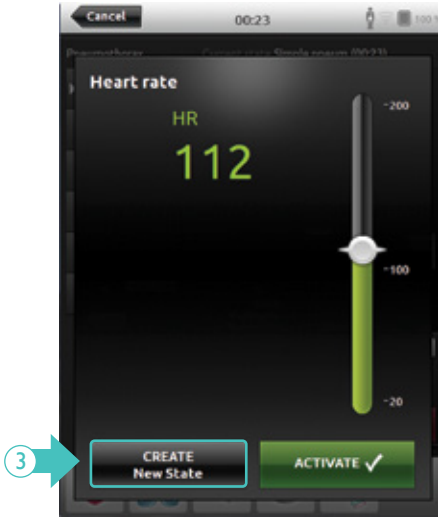
Creating new state inside a running session



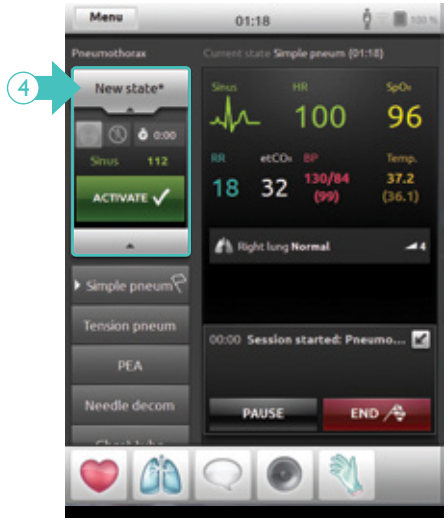
1. Select to access the Circulation Menu.



2. Select the desired parameter.

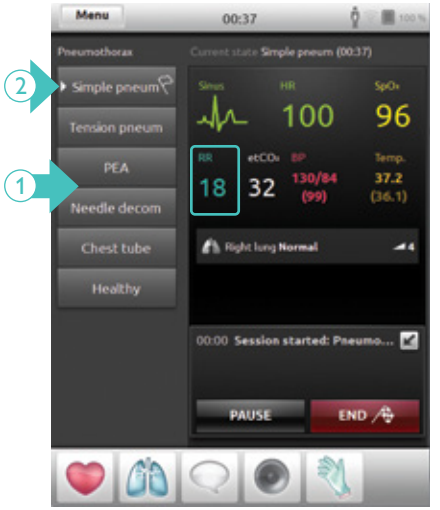


3. Tap to create a new state.



4. New state visible.

Changing a state inside a running session

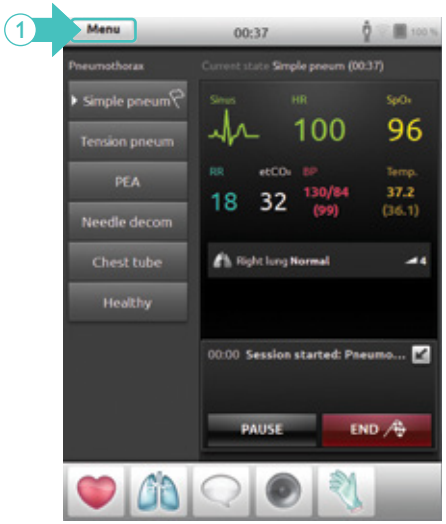


1. Select a state.
2. Press the white arrow to expand.



3. Drag to adjust parameters.
4. Press Activate to save the new value.

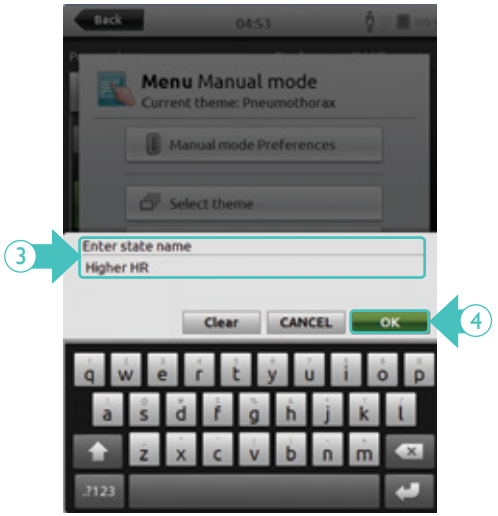
Adding the new state to an existing theme



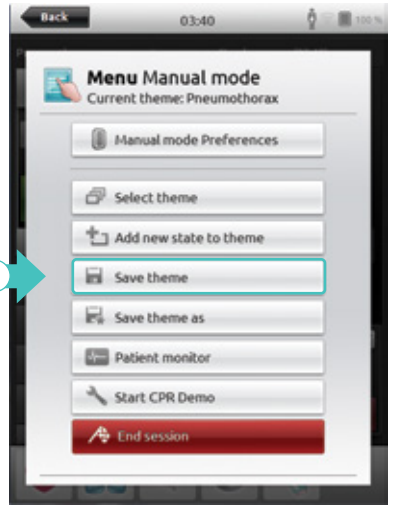
1. Select Menu.



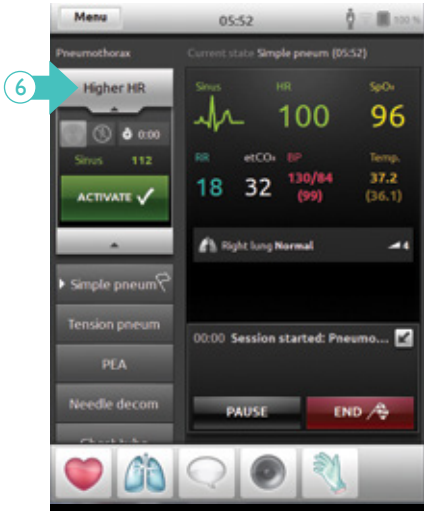
2. Select Add new state to theme.



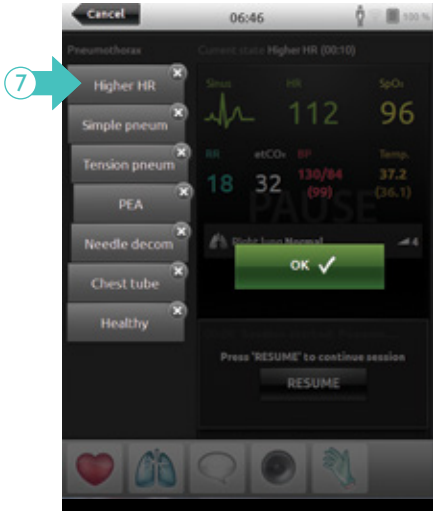
3. Enter a name for the new state.
4. Select OK.



5. Select Save theme.



6. The new state appears in the list.

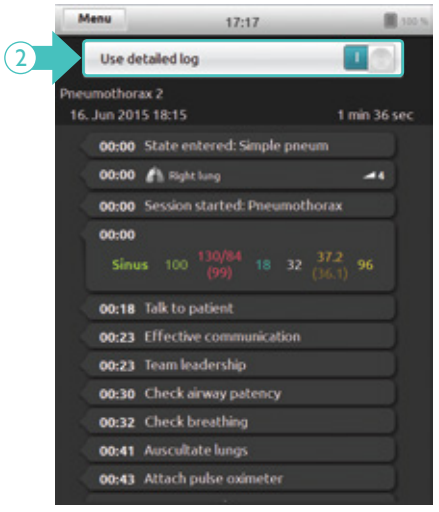


7. Select and hold to arrange states.

End of scenario



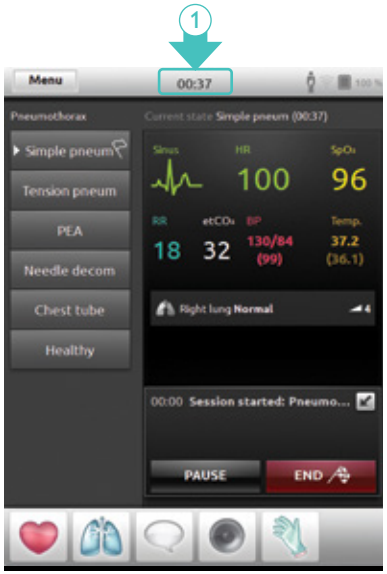
1. Select View log to open the scenario log.



2. Press the toggle icon to display a step-by-step scenario log.

Stopwatch

- Shows the time before a session is started.
- Shows the duration of a session, when a session is started.



1. Tap to display and activate the Stopwatch.



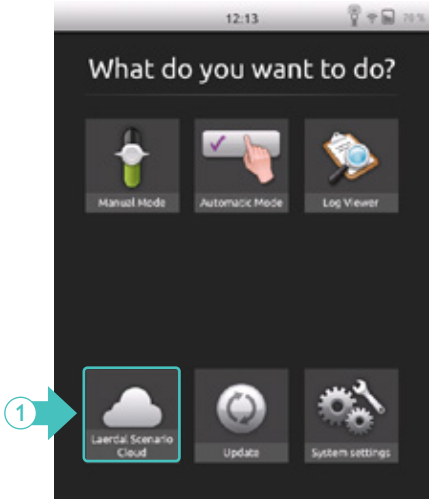
2. The session can be paused or ended.
3. The Stopwatch can be reset or restarted.

Laerdal Scenario Cloud

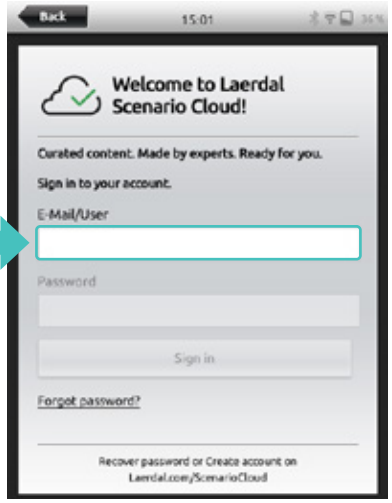
Signing in

Laerdal Scenario Cloud is an online repository for curated Laerdal simulation scenarios. Users must log in at *https://scenariocloud.laerdal.com/* before using the Automatic Mode.

Logging in



1. Select Laerdal Scenario Cloud.



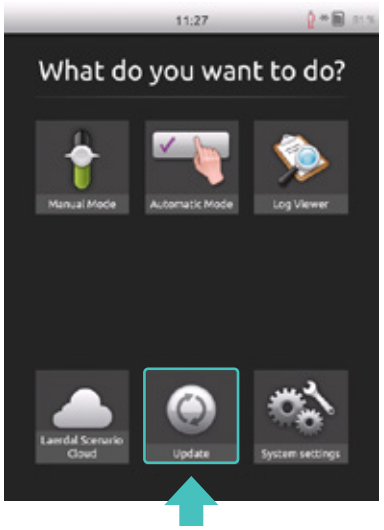
2. Enter the username.



3. Enter the password.
4. Select OK.

Updating the SimPad PLUS

Laerdal Scenario Cloud needs updates to make sure it has the latest scenarios. The update can be done by:

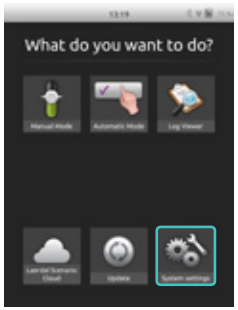


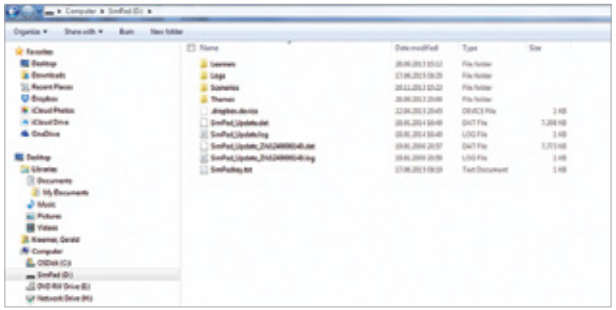
- Clicking the Update tile on the main page to check for updates. The SimPad PLUS must be connected to the Internet. If a simulator is connected to the SimPad PLUS at the same, it will also be updated.
- Downloading the software from a computer through the download page and using a USB cable to transfer the files to the SimPad PLUS.
- Simpad can update simulator.
- Connecting a USB drive to the LinkBox PLUS.
- SimDesigner: *https://laerdal.com/products/simulation-training/manage-assess-debrief/simdesigner/*

Transferring Logs, Themes and Scenarios to and from a PC

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

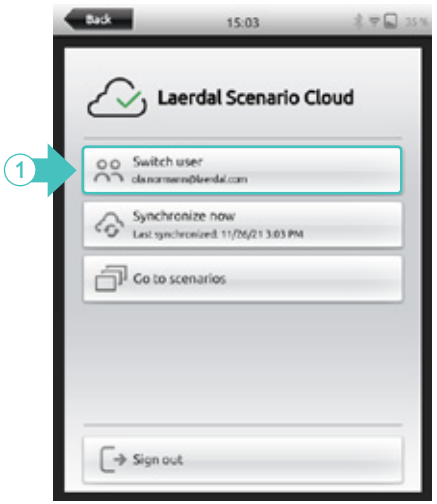
> **NOTE**
> *SimPad PLUS uses USB micro and SimPad PLUS 2 uses USB C.*



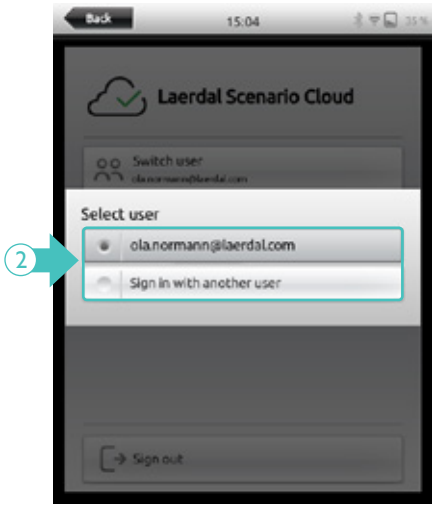


- Save new scenarios in the Scenarios folder.
- Save new themes in the Themes folder.
- Upload logs from the Logs folder.
- To safely disconnect SimPad PLUS, right click the SimPad PLUS drive and select Eject before removing the USB cable.

Switching user



1. Select Switch user.



2. Select a user or sign into a new account.

Resetting the password



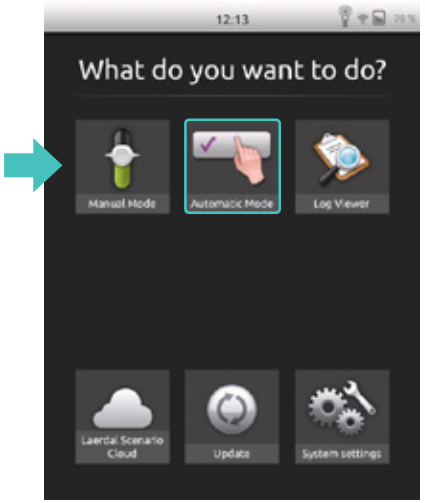
1. Enter email or a username.
2. Select Forgot password, and follow the onscreen instructions.

NOTE

An email is sent to complete the password reset process. Check the inbox for the reset e-mail.

AUTOMATIC MODE

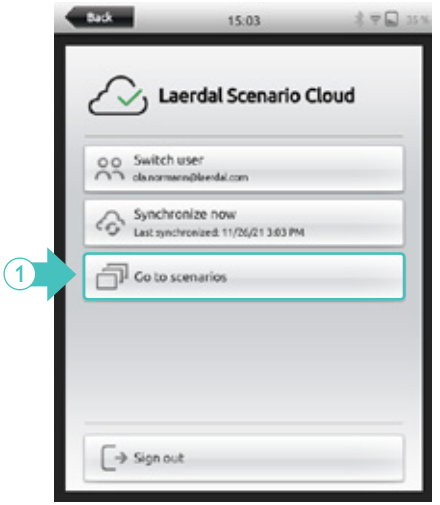
Automatic mode provides a list of pre-programmed scenarios the instructor can use during simulation. To display those ready-to-use scenarios, users must log into Laerdal Scenario Cloud and download them from there.



Selecting a scenario

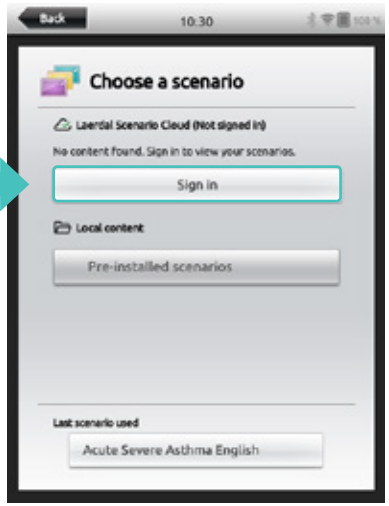
Laerdal Scenario Cloud has a collection of scenarios ready to use.

Option 1:
Pre-made scenarios are available for use in the local content. There is no need to log into Laerdal Scenario Cloud.

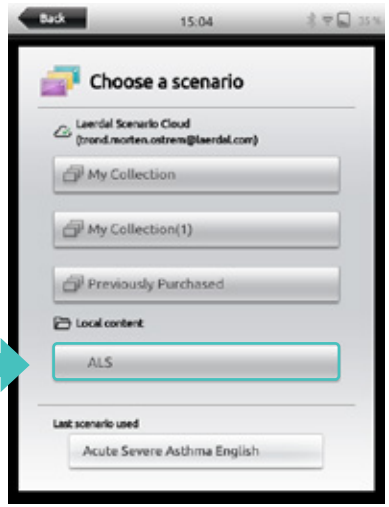


1. In Laerdal Scenario Cloud, select Go to scenarios.

Option 2:
Sign into Laerdal Scenario Cloud.



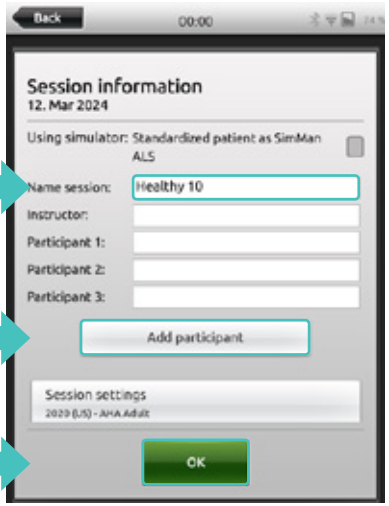
1. Sign into Laerdal Scenario Cloud.



2. Select a scenario from the Local content menu.



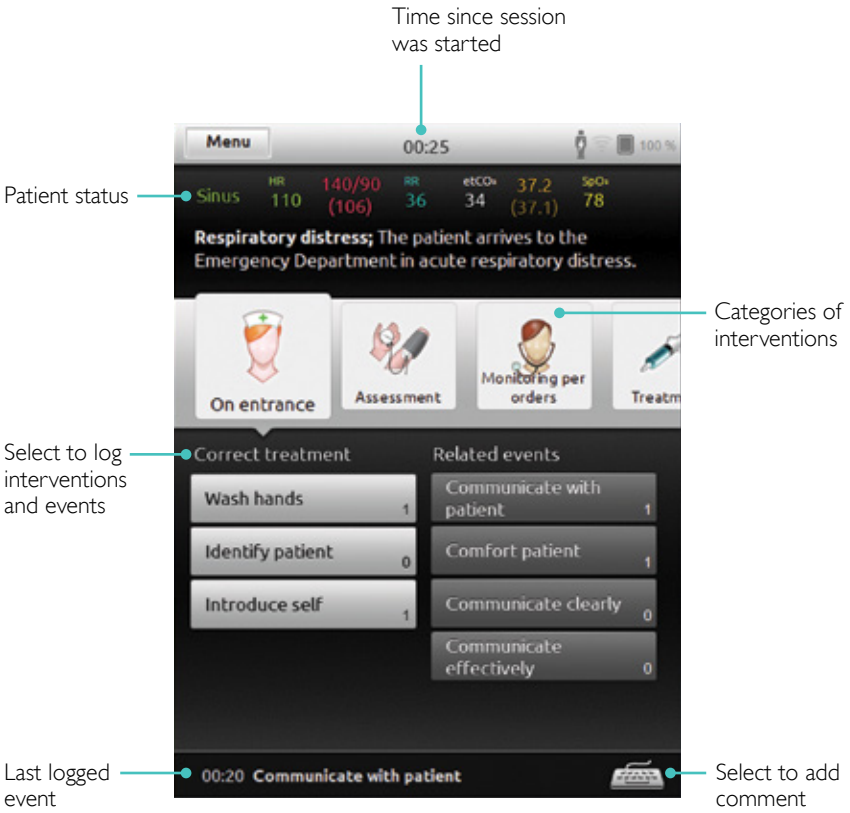
3. Select START to enter session information.



4. Add Instructor.
5. Select Add participant.
6. Select OK when ready.

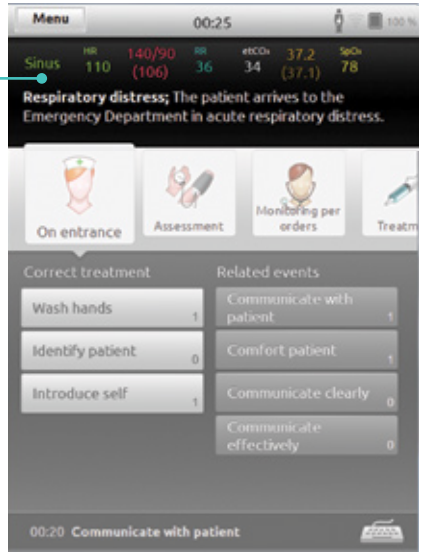
Content will be synchronized with your online collections found in
https://scenariocloud.laerdal.com/myscenarios/

Session overview

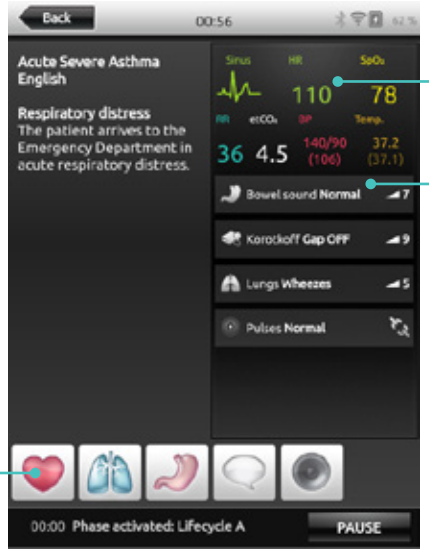


Overriding pre-programmed behaviour

Tap here to display more patient state information.



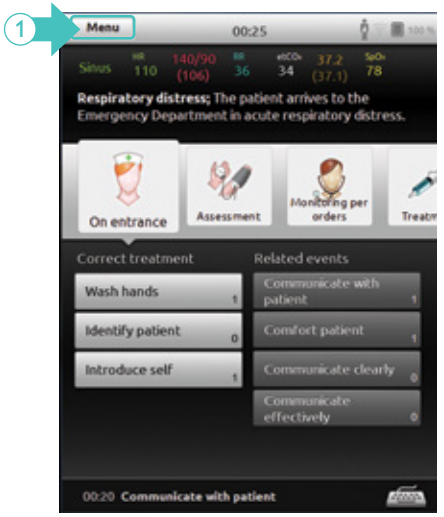
Select other parameters to adjust



Access to vital signs adjustments

Abnormal parameter values displayed here

Ending a session



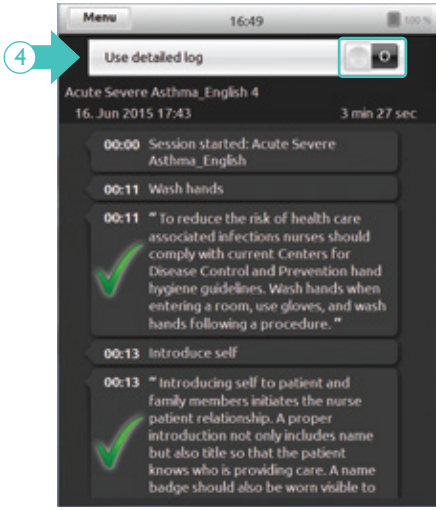
1. Select Menu to end the session.



2. Select End scenario.



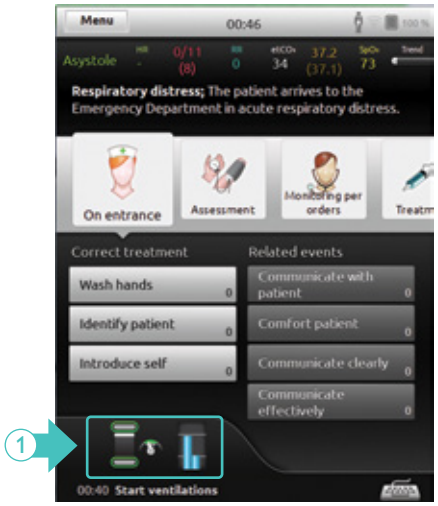
3. Select View log to open the scenario log.



4. Press the toggle icon to display more or less information.

QCPR feedback

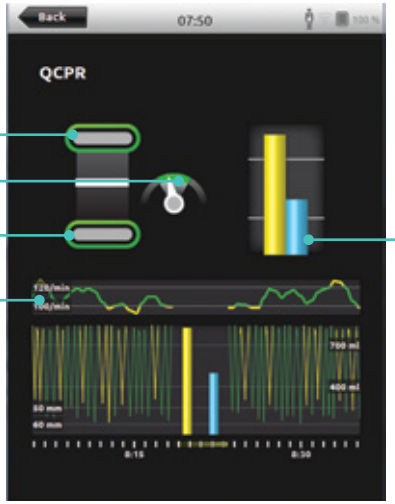
When CPR is performed on a CPR capable simulator, SimPad PLUS displays real time CPR feedback.



1. Automatic Mode - select to enlarge



2. Manual Mode - select to enlarge



Chest release

Compression rate

Compression depth

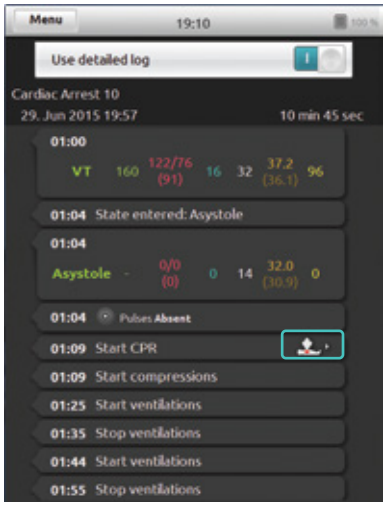
Full session, with compressions and ventilations over time.

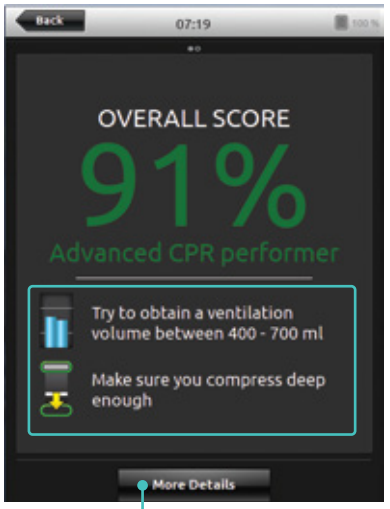
Ventilation volume

NOTE

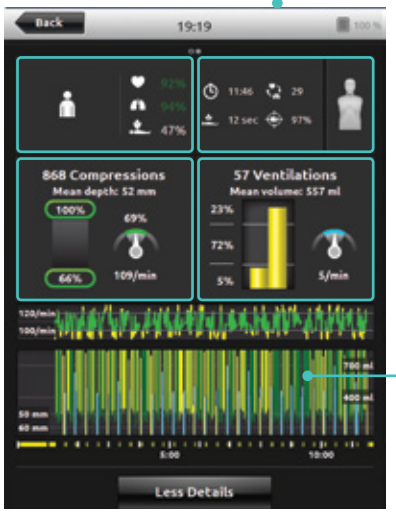
CPR settings can be adjusted to individual needs. Laerdal recommends using settings compliant with ILCOR guidelines.

At the end of each session, the CPR score along with some improvement tips can be accessed via the detailed log.





Select More Details to open a more detailed scoring of the user's performance.

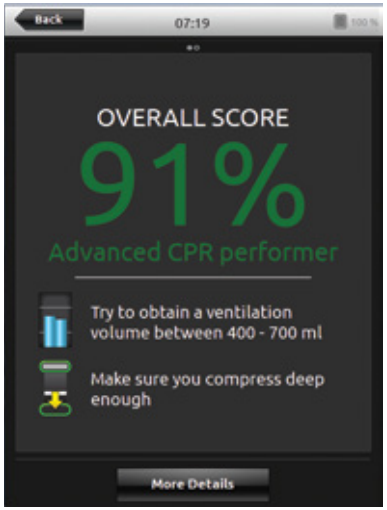


Touch to interact with the data.

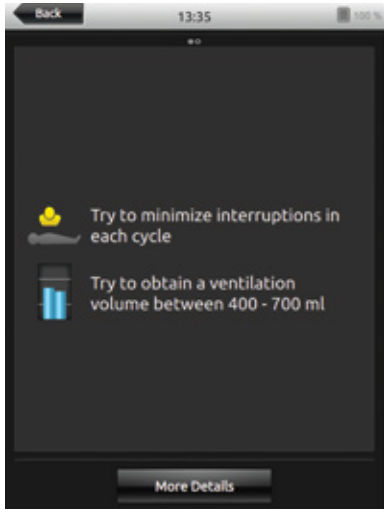
Display choices



1. Toggle between displays (only available on CPR score sessions)



<u>With</u> overall score



<u>Without</u> overall score

PATIENT MONITOR

The Patient Monitor is used by the users during a simulation to display the simulator's vitals.

> **NOTE**
> *Connect the Patient Monitor to the WiFi network used by both the simulator and SimPad PLUS.*

Once the Patient Monitor is connected to the SimPad PLUS, the Instructor can customize the display of vitals by turning them on and off.

Setting up the Patient Monitor during a session



1. In the theme's menu, select Patient Monitor.



2. Toggle On/Off vital signs.

The Patient Monitor settings can also be accessed directly from the System settings. Changes made there will affect all sessions.

Setting up the Patient Monitor in System Settings



1. In System Settings, select Patient Monitor.

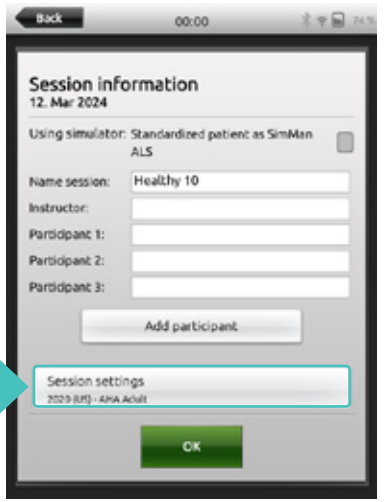


2. Toggle On/Off vital signs.

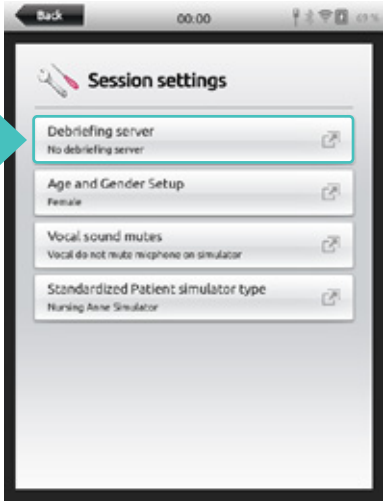
SimCapture SETUP

First time registration and use

Check that both SimPad PLUS and Simulator are connected to the same steady network.



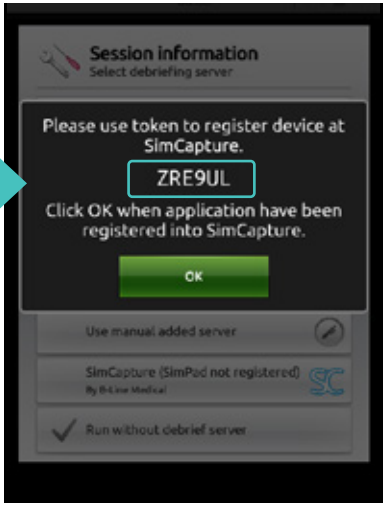
1. Select Session settings.



2. Select Debriefing server.

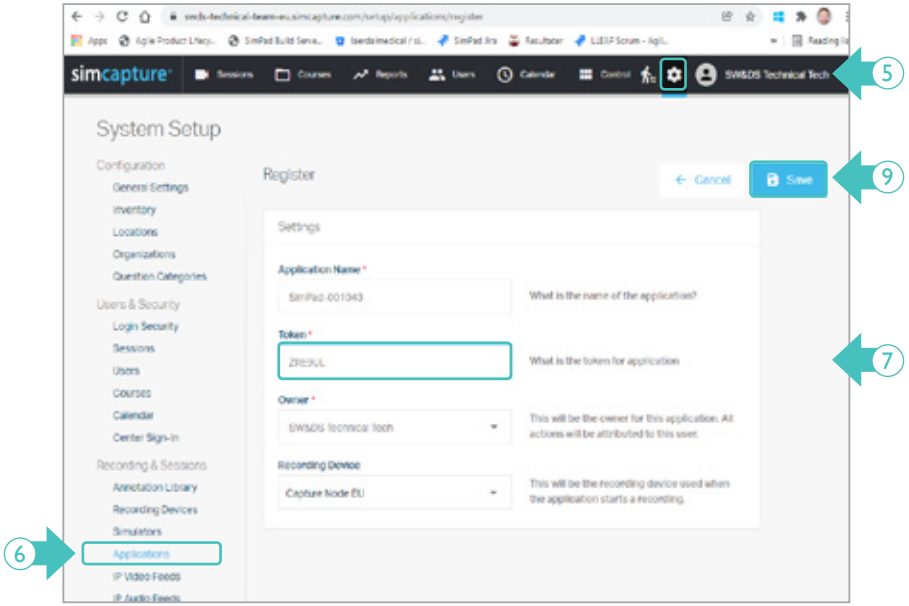


3. Select SimCapture.



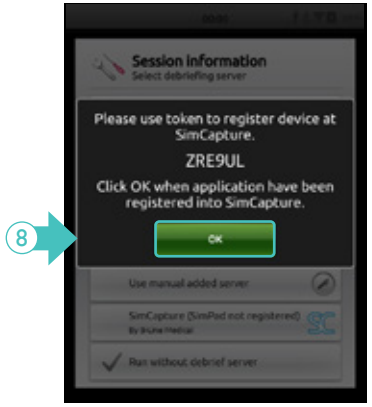
4. Note the code and log into Simcapture on a PC.

Before registering to SimCapture, check that the SimPad PLUS is set up to the correct region.



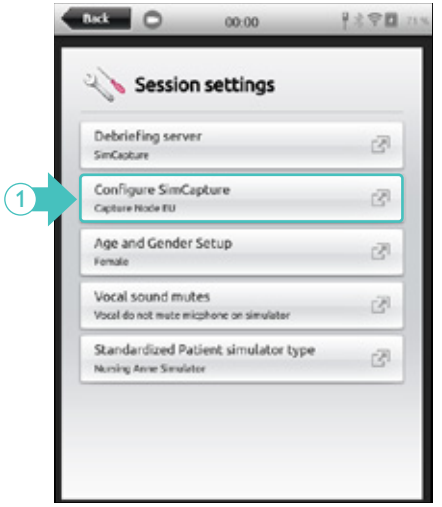
Open SimCapture on a computer.

5. Log in and click on the cog wheel.
6. Select Applications in the left menu.
7. Type in the code displayed on the SimPad PLUS.

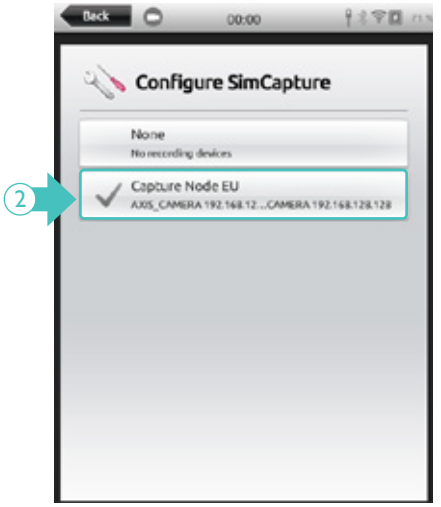


8. Select OK on the SimPad PLUS.
9. Save.

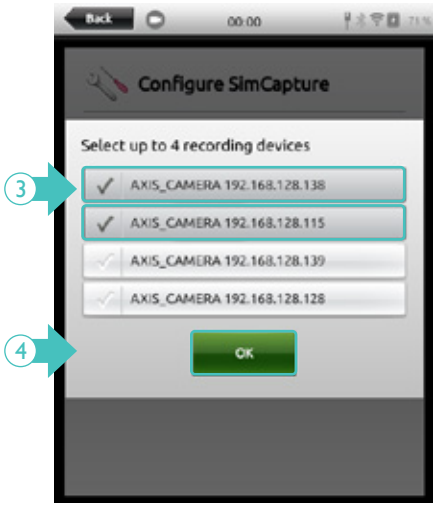
A new item is displayed in the Session settings menu.



1. Select Configure SimCapture.



2. Select your recording location.



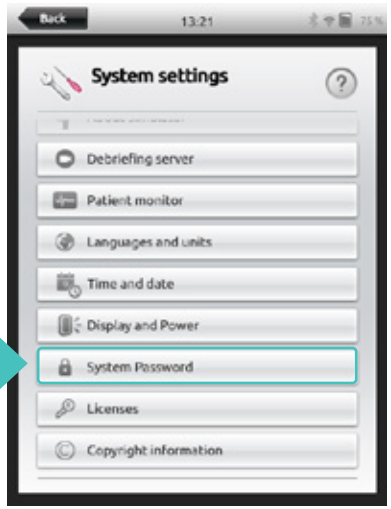
3. Select your recording cameras.
4. Press OK to save.

SYSTEM SETTINGS

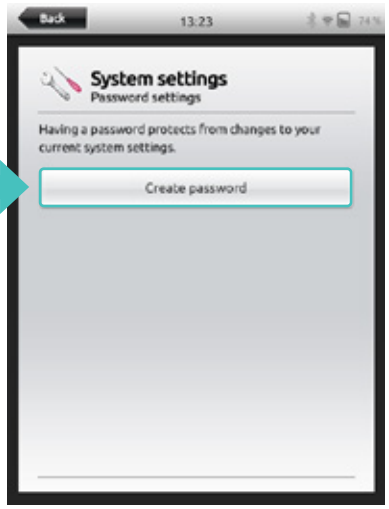
Setting up a password protection for the System settings

The System settings menu can be password protected to limit changes made in this section.

> NOTE
>
> *If the password is forgotten and needs to be reset, the SimPad must be sent to a Laerdal Technical Center.*



1. In System settings, select System Password.



2. Select Create password.

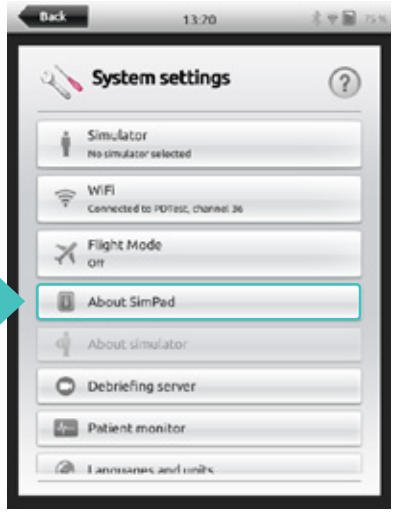


3. Enter the new password.
4. Confirm password.
5. Select Submit.

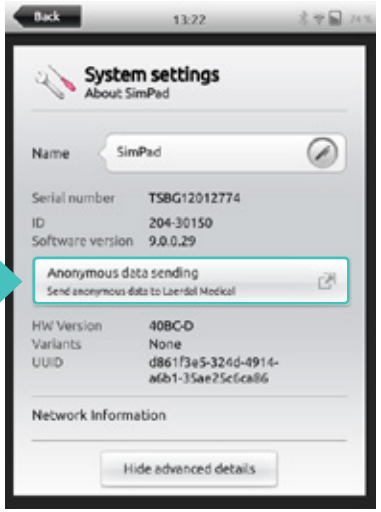
Changing usage data preferences

Non-personal usage data can automatically be sent to Laerdal. When first turned on, the SimPad PLUS asks permission to share those data.

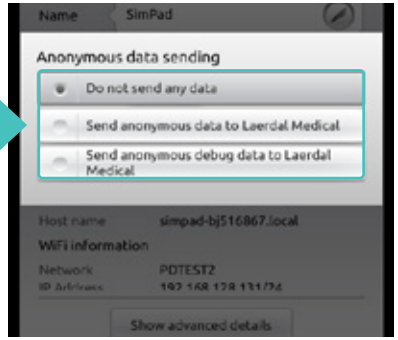
The setting can later be changed in the system settings.



1. Select About SimPad.

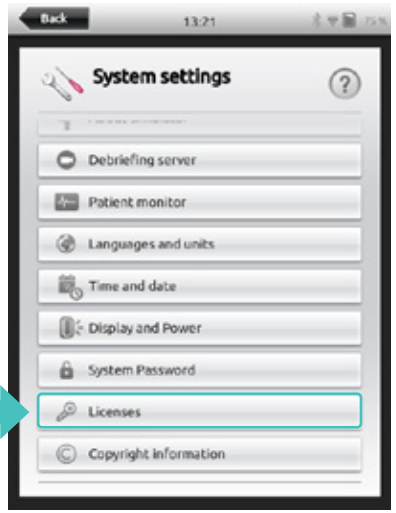


2. Select Anonymous data sending.

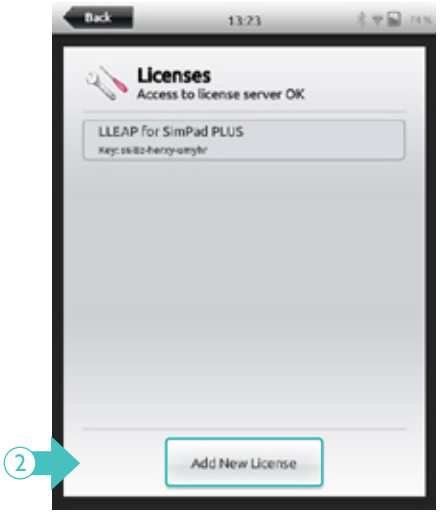


3. Select the desired option.

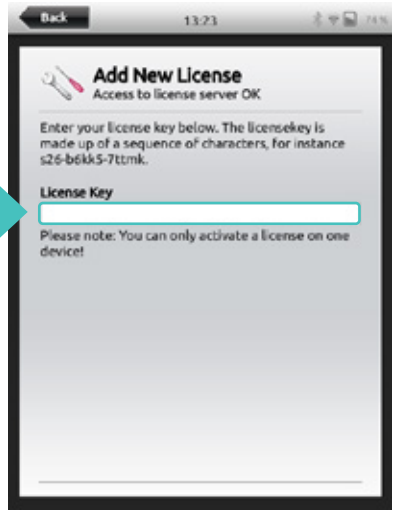
Adding a new license



1. Select Licenses.



2. Select Add New License.



3. Enter the license key.

Patient simulator firmware update

When the Link Box PLUS is connected to a Patient Simulator with internal firmware, it will be automatically updated.

If an automatic update is interrupted, a forced update is necessary.

From Home Screen, go to:
System Settings>About simulator>Force-update simulator firmware.

CAUTIONS

- *During a forced update, ensure that the correct Simulator is selected. Selecting the wrong simulator may cause malfunction and require service.*
- *Do not interrupt an automatic update. Wait until the status LED turns steady green.*

NOTE

Updating Nursing Anne Simulator, SimNewB and SimBaby can take up to 60 minutes. Resusci manikins update can take up to 5 minutes.

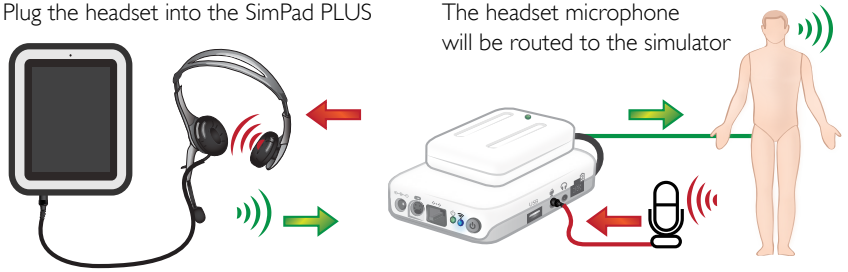
SOUNDS

Headset

The Instructor can use the headset to speak through the Patient Simulator during a session. The microphone located in the Patient Simulator can communicate sounds to the Instructor.

Plug the headset into the SimPad PLUS

The headset microphone will be routed to the simulator



= From instructor to simulator

= From simulator (separate microphone) to instructor.

NOTES

- *The headset output on the Link Box PLUS duplicates the sound to the simulator. It can be used to improve the sound by adding additional speakers around the simulator.*
- *Some simulators have an internal microphone, and don't require a Link Box setup.*

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.

Setting up the Auxiliary button

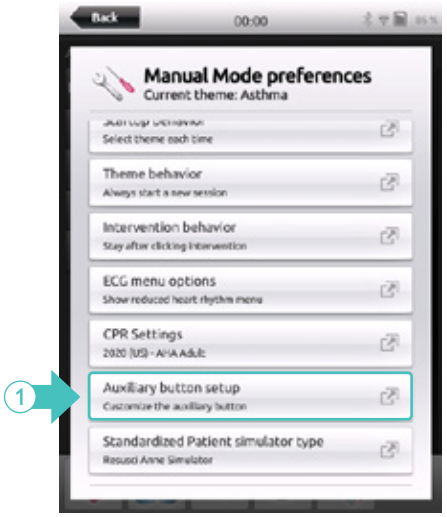
The Auxiliary Button can be configured in Manual Mode or Automatic Mode preferences to enable and disable input from the headset.

Press and hold to speak (In default activate microphone mode)

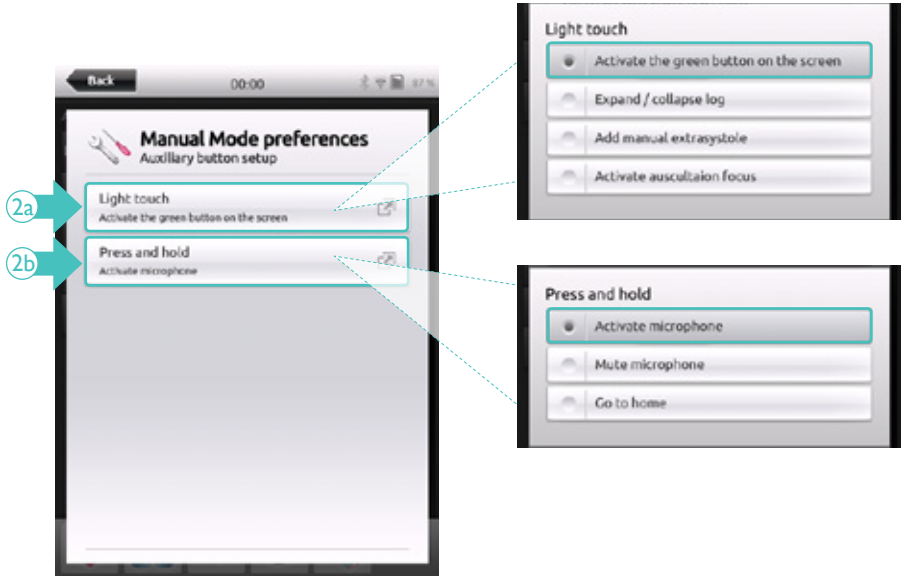


NOTE

When the device is used wirelessly there will be a short voice delay.



1. Select Auxiliary button setup in the theme menu.

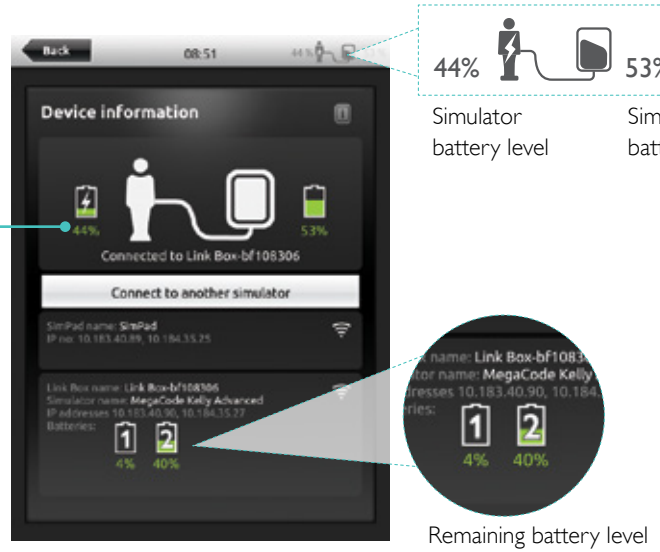


2a)/2b) Select the preferred option..

LAERDAL LI-ION BATTERY

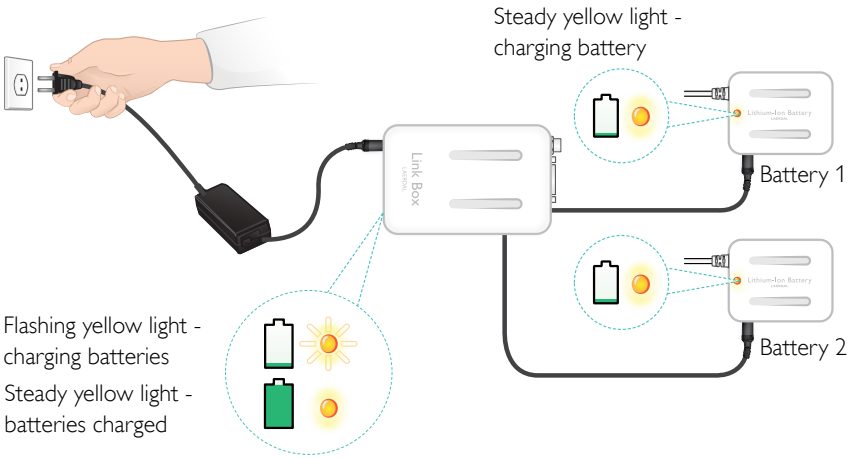
Connecting two Laerdal Li-Ion batteries





Charging the 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.



NOTES

- *The AC Adapter can only be used with the SimPad PLUS and Link Box.*
- *The USB cable cannot be used to charge the Link Box.*

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.*
- *Do not to leave the device in its sleeve when charging.*
- *Do not leave the battery drained. Recharge before storage.*

FEATURES

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	
Rigth Bundle Branch Block (RBBB)	20 – 200	20 – 240	
Atrial Tachycardia (Atach.)	140 – 260	90 – 320	
Supra Vent. Tachycardia (SVT)	140 – 260	90 – 320	
Atrial Flutter	75, 100, 150	75, 100, 150	
Atrial Fibrillation (AFib.)	50 – 240	50 – 240	
Junctional	40 – 220	40 – 220	
1° AV-Block	20 – 135	20 – 135	PVC PVC RonT Couplet PVC PAC/PJC
2° AV Block type #1	3:2,4:3, 5:4	3:2,4:3, 5:4	
2° AV Block type #2	4:3, 3:2, 2:1	4:3, 3:2, 2:1	
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.		
Default	**Adult manikin**	**Child manikin**	**Infant manikin**
Default Blood Pressures (mmHg)	120/80	100/70	60/40 (SimPad PLUS)

Adult and child 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 adjusted to BP as follows:

SYSTOLIC BP	CAROTID PULSE	RADIAL/BRACHIAL PULSE
>= 80	Normal	Normal
< 80	Weak	Weak
< 76	Weak	Absent
< 40	Absent	Absent

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

Heart sounds

Heart sounds are synchronized to ECG.

HEART SOUNDS	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	•	•	•

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