

Quick Guide Ambu® Manikin Management Module

Creation of own scenarios

In these instructions you will find out how to create a scenario for your manikin.

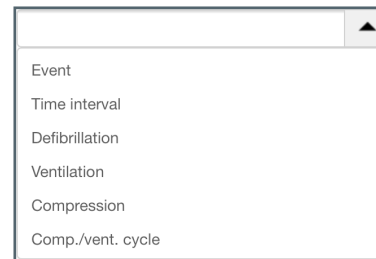
Structure of a scenario

Scenario → State → Action

Scenarios make it possible to simulate realistic emergency situations with the manikin. A scenario consists of a state which is currently active on the manikin, an action that must be performed, and a future state in which the manikin will switch to after the action has been performed.

The state which is active in the manikin, reflects the current state of the patient. For each state, an ECG signal is defined that describes this condition. Various ECG rhythms are available for selection (ie. ventricular fibrillation). Their physiological parameters can additionally be adapted for each state. Furthermore, you can select a sound to be played during the state, simulating a suitable breath sound.

An action describes the performance to be done on the manikin to end the current state and change to a new state. It consists of a trigger, a trigger value, and a new state. The trigger is the action that ends the current state. There are various triggers to choose from (ie. compression, ventilation, etc.). The trigger value specifies how often the action must be performed to complete the current state (ie. the number of compressions).

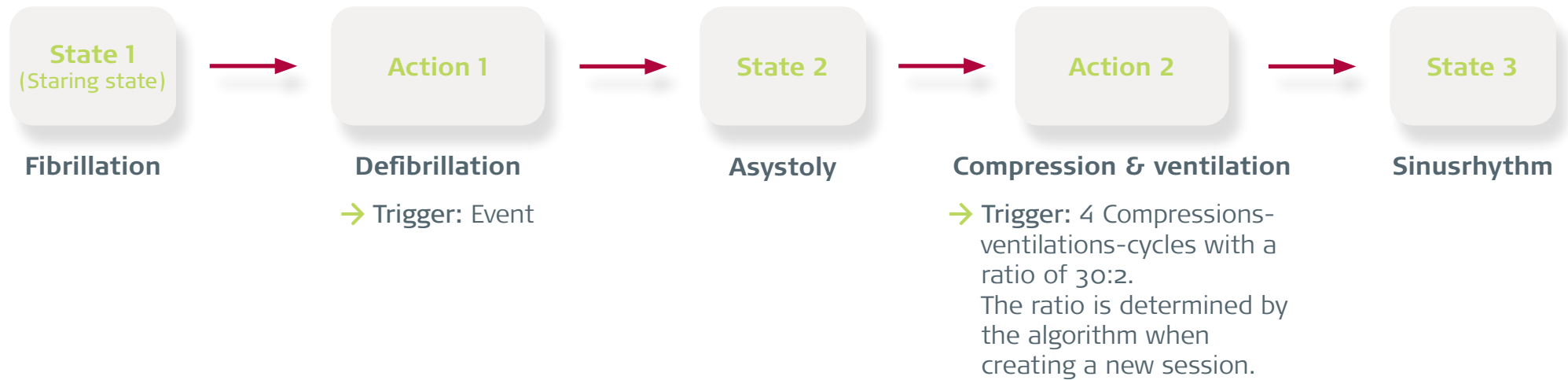


In the picture opposite you can see the selection list with the various triggers. The table below shows the associated trigger values.

Trigger	Trigger Value
Event	Events that can be selected during the active session can be selected as triggers. Those are stored in the database of the manikin (ie. defibrillation, IV access etc.).
Time interval	Time in seconds
Defibrillation	Amount of defibrillations
Ventilation	Amount of ventilations
Compression	Amount of compressions
Comp./vent. cycle	Amount of compression-ventilation cycle (one cycle contains 30 compressions und 2 ventilations)

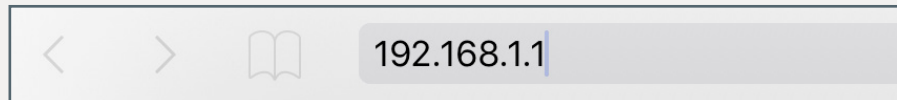
Before you create a scenario, it is helpful to note the states and actions in the correct order. This simplifies the creation of states and action later.

The following is an example scenario that explains the steps for creating a scenario. The names of the states in this example correspond to the selected ECG rhythms.



Explanation of the scenario: The patient is found with ventricular fibrillation. As an action, the defibrillation is initiated so that the heart can return to its normal rhythm (sinus rhythm). However, after defibrillation, the patient falls into an asystoly and the cardiopulmonary resuscitation (compression-ventilation cycles) is performed as an action to bring the heart back into its normal rhythm. After four cycles, the patient's heart returns to sinus rhythm.

1. open „Controlled session“

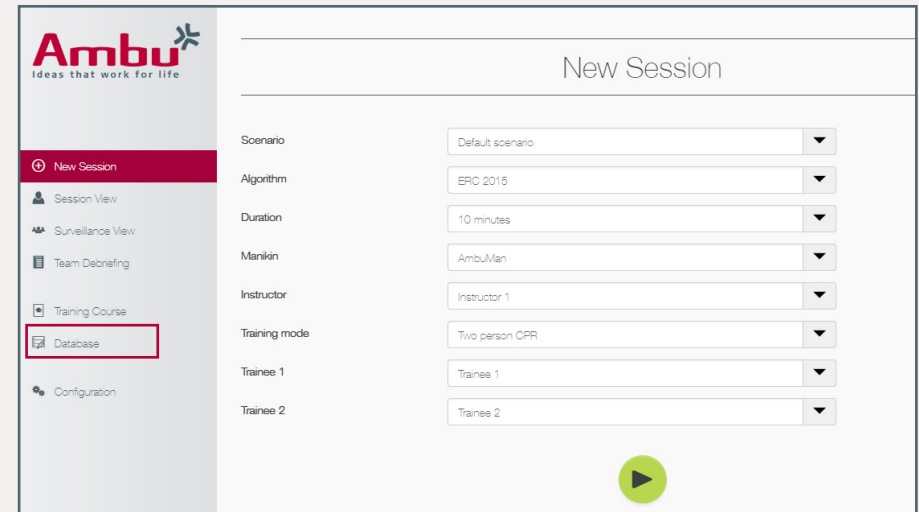


Start the manikin and connect your device to the manikin. Then open the browser and enter `http://Ambu.login` or `192.168.1.1` in the address bar to get to the start screen of the Ambu Manikin Management Module.

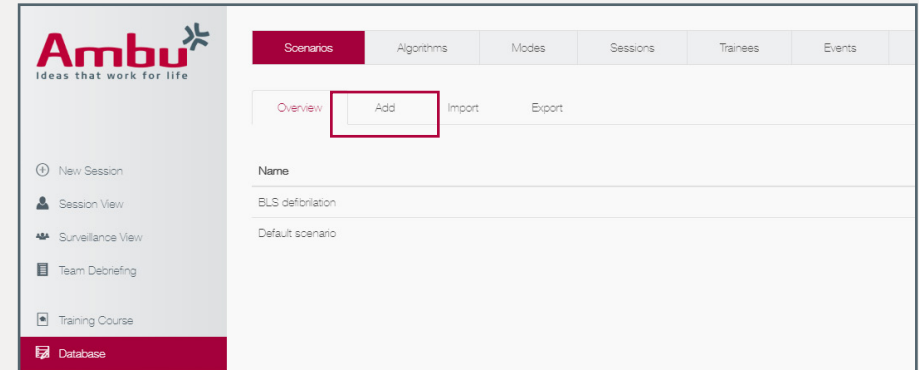


Select "Controlled session".

2. Create Scenario



Click in the menu "Database".




You are now in the "Scenarios" tab. Here is an overview of the scenarios stored on the manikin. You can change scenarios by clicking on the scenario in this view.

To create a new scenario, click on the "Add" tab.

continue: Create scenario




The screenshot shows the Ambu software interface. The top navigation bar includes 'Scenarios', 'Algorithms', 'Modes', 'Sessions', 'Trainees', and 'Events'. The left sidebar has 'New Session', 'Session View', 'Surveillance View', 'Team Debriefing', 'Training Course', 'Database', and 'Configuration'. The main area is divided into 'Scenario' and 'State' columns. In the 'Scenario' column, the 'Name' field contains 'Sample - scenario' and the 'Description' field is empty. In the 'State' column, there is a green '+' button. A red box highlights the 'Name' field and the '+' button.

In the "Scenario" column, first enter the name of the new scenario under "Name" and optionally enter a description. Then click on the button  in the "State" column to create a new state.

Note: First create all states so that they can be selected later when creating the measures for the new state.


2.1. Define states

The screenshot shows the Ambu software interface for defining states. The 'Database' menu is selected. The main area is divided into 'Scenario', 'State', and 'Action' columns. In the 'Scenario' column, the 'Name' field contains 'Sample - scenario' and the 'Description' field is empty. In the 'State' column, the 'Name' field contains 'Fibrillation', the 'ECG signal' dropdown is set to 'VF fine', the 'Sound' dropdown is set to 'None', and the physiological parameters (RR Systolic, RR Diastolic, etCO2, SpO2, Breathing) are all set to '0'. In the 'Action' column, there is a green '+' button. A red box highlights the 'Name' field, the 'ECG signal' dropdown, the 'Sound' dropdown, and the physiological parameters. Another red box highlights the '+' and '-' buttons at the bottom.

Enter under "State - Name" the name of the first state ("**Fibrillation**"), which will later be the initial state of the scenario. Then select the appropriate ECG signal from the selection list ("VF fine" for ventricular fibrillation). In this column, you can also specify a sound (ie. breath sounds) to be played during the state. The physiological parameters of the selected ECG signal can also be changed. Under "State", you can use the buttons  and  to add other states or delete existing states. Click on  to create the next state ("**Asystoly**") of the example scenario.

continue: Define states

The screenshot shows the 'Define states' interface. The 'State' section has 'Name' set to 'Asystoly' and 'ECG signal' set to 'Asystoly'. A green plus button is visible to the right of the 'State' section. At the bottom, there are plus and minus buttons.

Enter the name of the next state "Asystoly" under "State - Name" and select the corresponding ECG signal ("Asystoly") from the selection list. Then click on the button  under "State" to create the third and last state "Sinus" of the example scenario.


The screenshot shows the 'Define states' interface. The 'States' list includes 'Fibrillation', 'Asystoly', and 'Sinus'. The 'Sinus' state is selected. The 'ECG signal' is set to 'Sinus' and the 'Sound' is set to 'Breathing'.


Enter the name of the state and select the ECG signal "**Sinus**". As a sound, you can select "Breathing", for example, to simulate the spontaneous breathing of the resuscitated patient during this condition.

The close-up screenshot shows the 'States' list. The 'States' list includes 'Fibrillation', 'Asystoly', and 'Sinus'. The 'Sinus' state is selected.


Under "Scenario - States" all applied states are now listed. Click one of the states to change it or create an action for that state. Actions are always created per state and are assigned to it directly.


2.2. Create actions

To create the first action ("defibrillation"), click on the "**Fibrillation**" state in the "Scenario" column and then on  in the "Action" column. Enter the name of the measure and specify the desired parameters. In the example these are:

Trigger: Event
Trigger-Value: Defibrillation (Icon:  Defibrillation)
New state: Asystoly

The created action per state appears in the column "State" under "action" and can be subsequently adjusted there.

Note: If the event icon  Defibrillation in the session is selected during the scenario, the exerciser switches to the next Asystole state.

For the next step, select the "**Asystoly**" state in the "Scenario" column to create the "**Compression & Ventilation**" action. To do this, click on the button  under "Action" and enter the name of the action.


Then define the desired parameters. For the example scenario, the following are set:

Trigger: Comp./vent. cycle
 (Kompressions-Ventilations-Zyklus)
Trigger-Value: 4
New state: Sinus

Note: For the "AHA 2015" and "ERC 2015" algorithms, one compression-ventilation cycle consists of 30 compressions and 2 ventilations. Once the 4 cycles have been completed, the manikin switches to the next state "**Sinus**".

2.3. Define Starting state

The screenshot shows a web interface for defining a scenario's starting state. The 'Starting state' dropdown menu is highlighted with a red box and set to 'Fibrillation'. Below it, a green circular button with a white document icon is also highlighted with a red box. The interface includes several input fields and dropdown menus for configuring the scenario, such as Name, Description, Actions, ECG signal, Sound, RR Systolic, RR Diastolic, etCO₂, SpO₂, and Breathing. A sidebar on the left contains navigation options like 'New Session', 'Session View', 'Surveillance View', 'Team Debriefing', 'Training Course', 'Database', and 'Configuration'.

When all states and actions have been created, you must finally define the starting state of the scenario. In this state, the scenario is started. In the "Scenario" column, click on the "Starting State" drop-down list and select the "**Fibrillation**" state for the example scenario. Then save the scenario by clicking on the button .

A message appears indicating whether saving was successful. After saving, the manikin must be restarted so that the new database entry is correctly loaded.

3. Select new scenario for new session

The screenshot shows the 'New Session' configuration screen. The 'Scenario' dropdown menu is highlighted with a red box and set to 'Sample - scenario'. The interface includes several input fields and dropdown menus for configuring the session, such as Algorithm, Duration, Manikin, Instructor, Training mode, Trainee 1, and Trainee 2. A sidebar on the left contains navigation options like 'New Session', 'Session View', 'Surveillance View', 'Team Debriefing', 'Training Course', 'Database', and 'Configuration'. A green circular play button is located at the bottom right of the main content area.

After saving successfully, the newly created scenario ("Sample Scenario") under the "New Session" tab is available for a new session.