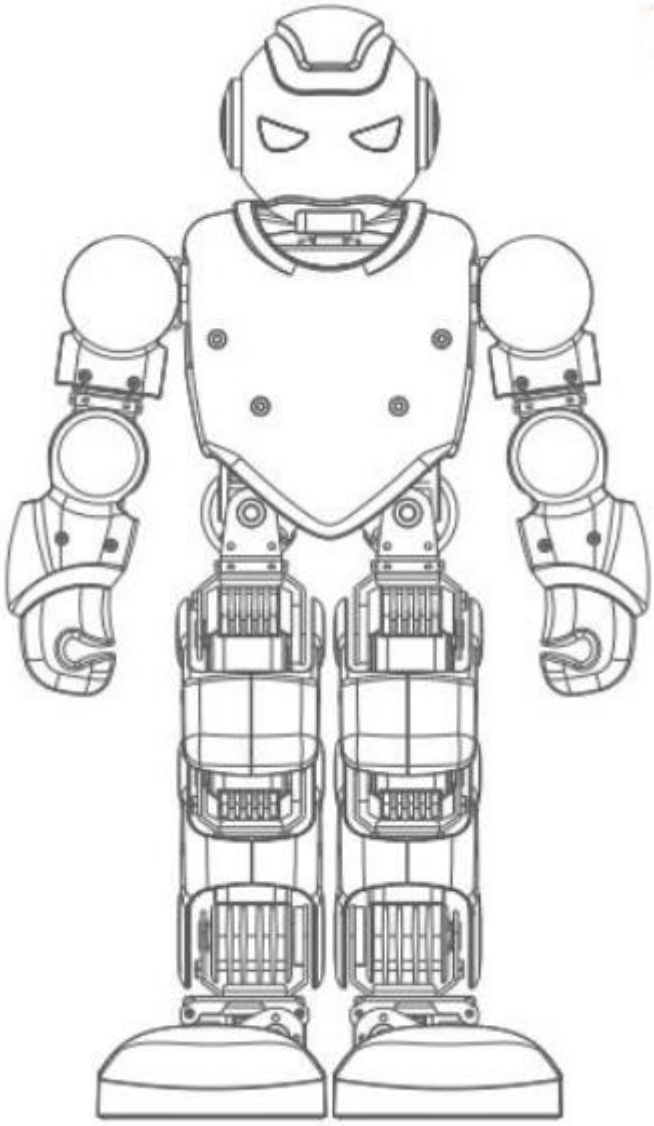


User Manual of Alpha 1s for Mac

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Version

Alpha 1s for Mac

Version 1.0.0

System Requirements

This software supports Mac OS X 10.6 and later.

Software Operation

Access

Open the following link:

http://www.ubtrobot.com/html/page/ServiceTechnology.html#point1

To download Alpha 1s for Mac programming software

Install

After downloading the version from the website, double-click 

to use it directly without having to install it.

Connect to/Disconnect from Robot

Connect:

1. After installing the software, open the software by double-clicking it.
2. Turn on the robot.
3. Insert the USB cable into the USB port of the robot. The computer will automatically identify the port and connect to it. Then,  will light up indicating it is turned on.

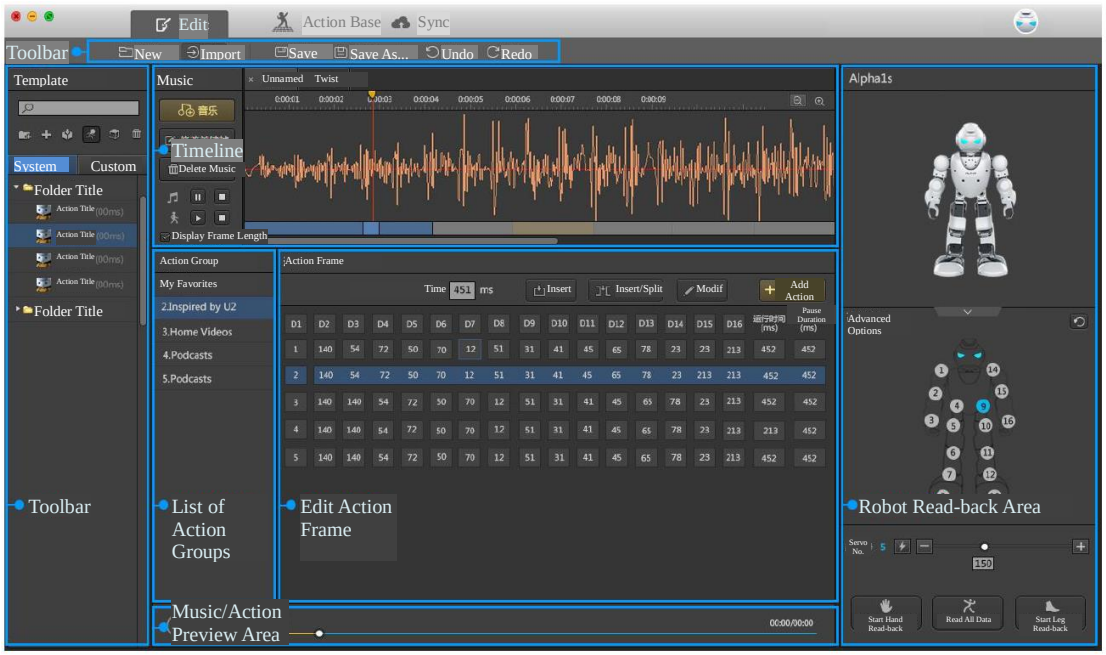
   (Note 1: If the robot is still connected to the computer via a USB cable, when the software is opened again, you need to manually click to establish a connection.)

Disconnect:

Click  or directly pull out the USB data line of the robot. The robot will then disconnect from the computer.

Edit Actions

Editing actions of your robot is the main function of this software. You can edit a variety of actions for the robot by adjusting its posture, reading back its actions into the software, or dragging the 3D models in the software with the mouse. Examples include dancing, telling a story, and performing Kung fu. Note: When editing actions to music, the actions must follow along to the beat of the music.



Toolbar

New: Newly create a blank project file (.aesx).

Open: Open an edited project file (.aesx, .aes, and .tab) and their corresponding music files.

Save: Save the current project file (.aesx).

Save As: Save the current project file (.aesx) as a new title or in a new location.

Undo: Undo the last operation with one step backwards.

Redo: Redo the last operation undone with one step forwards.

Template

A system template (system default) and a customized template (added by the user) are included. Left-click the mouse to select an action in the template, and drag it onto the timeline. The template makes editing actions more convenient.
The system template cannot be added or deleted. In the customized template, the user can newly create a folder that is categorized and newly create or delete a template from the action groups.

Edit Actions on Timeline

The timeline is an important module for editing actions. The user can add music and actions on the timeline, and ensure the beat of the music corresponds to the actions, achieving a better editing experience.

Music Layer

1. Add music

Click 

to add music to the timeline. When adding music, the software will automatically analyze the beat of the music and the length of each beat. The user can confirm the frame length of the added actions as per the length of each beat (one action is a key frame).

2. Delete music

Click 

to delete the added music.

3. Preview music

Click  to play, pause, and stop the added music.

Action Layer

1. Add a single action

Left-click the blank space of the timeline with the mouse (this can be customized as per the rhythmical points of the music or by the user alone). Move the cursor to the current time and click 

in the editing area of the action frame to add an action onto the timeline. Then, an action group will be generated in the action layer, which will contain the newly added action frames.

2. Add multiple actions

When you need to add multiple action frames in some action group, you can click any position of the action group on the timeline (As shown in the picture below,  is the selected state of the action group,  is the selected state of the action frames in the group. The action group and action frames corresponding to the list area are selected simultaneously). Click 

to add more action frames into the action group.

3. Action group operations

Once an action group is selected, right-click right the mouse to pop open the operation menu. You can choose the following operations on the selected action group:

Copy: Copy the currently selected action group.

Cut: Cut the currently selected action group.

Paste: Paste the copied/cut action group to a position behind the currently selected action group

Delete: Delete the currently selected action group.

Run simulation: Preview the actions of a selected action group on the robot.

Cancel simulation: Cancel the action being previewed.

Insert a group: Insert a new action group before the currently selected action group.

Save to the template: Save the currently selected action group into a template.

Modify the group information: Modify the title of the currently selected action group.

4. Preview actions

Click  to preview the actions on the current timeline. When the robot is connected to the computer, the actions will be previewed simultaneously on the 3D model of the software as well as the robot. When disconnected, the actions will only be previewed on the 3D model.

Read-back/Edit Actions of Robot

The read-back/editing area of the robot's action is also an important module of action editing. After confirming the location of the added actions on the timeline, synchronize the actions of the robot to the software through read-back or drag the 3D model to adjust the actions.



3D Model Area

1. Adjust actions

Left-click the mouse to select the part to be adjusted. Then, left-click and hold to drag the part to adjust. Finally, left-click and hold the blank space of the 3D model to rotate the model. After adjusting the actions, click 

in the editing area of the action frame to write the actions onto the timeline. For example, click 

and add the action frame to the end of the current list of action frames (for other operations, refer to "Edit Action Frame - Toolbar").

2. Preview actions

In operating the timeline  or joint simulation, preview the action on the 3D model. When clicking to select an action frame, preview the action frame on the 3D model.

Edit Servo by Fine Adjustment

1. Select a servo

By clicking to select a number button on the image of the robot (corresponding to servo number of 3D model and robot), you can precisely select the corresponding servo position on the 3D model.

2. Fine adjustment of a servo

Drag the round slider to adjust the angle of the currently selected servo. By clicking the  on both sides to finely adjust the angle (click  to reduce the angle by 1˚, and click  to increase the angle by 1˚). Click  to discharge the servo (After discharging, the joint of the robot will loosen. You can twist the loosened joint on the robot to adjust the angle).

Servo No.

3. Reset robot

By clicking , the actions of the robot will be restored to its original charged state.

Read-back Robot

Read-back can be used when the robot is connected to the computer. When each joint of the robot cannot be rotated (when charging), you need to first click  to discharge the servo to be adjusted (the joint will then loosen, enabling it to be rotated). After adjusting the actions, click “Read-back” again to synchronize the actions of the robot to the 3D model. After synchronizing,

click 

in the editing area of the action frame to write the actions onto the timeline.

1. All Read-back

   Read back all servo angles of the robot (If the robot is discharging, you need to click once to discharge the robot. Then, adjust the action and click once again to read the angles).

2. Hand Read-back

   Read back the servo angles of the hands of the robot (Servo No. 1, 2, 3, 14, 15, and 16) (If the robot is discharging, you need to first click to discharge the robot. Then, adjust the actions and click once again to read the angles).

3. Leg Read-back

   Read back the servo angles of the legs of the robot (Servo No. 4, 5, 6, 7, 8, 9, 10, 11, 12, and 13) (If the robot is discharging, you need to first click to discharge the robot. Then, adjust the actions and click once again to read the angles).

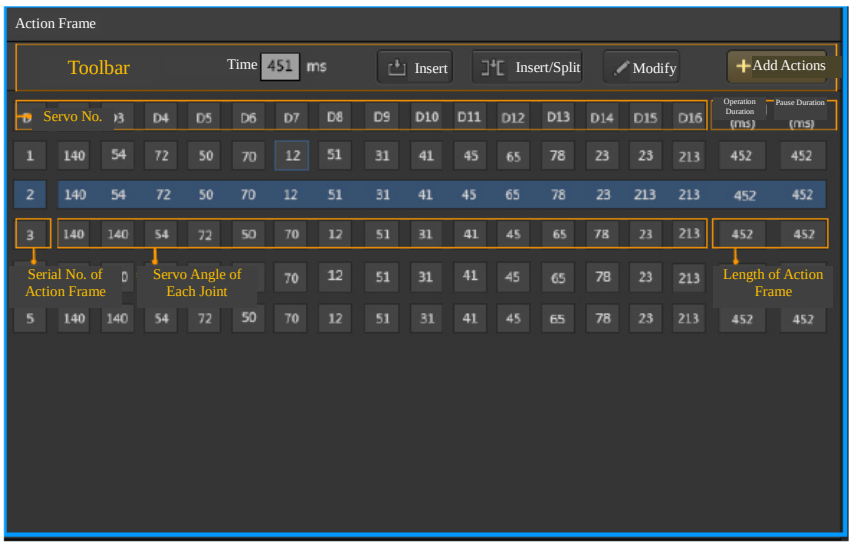
Action Group List

Display all action groups on the timeline in the form of a list in the time sequence. Left-click the mouse to select any action group on the list. The list of action frames on the right will display all action frames of the action group (see below). Right-click the mouse to pop open the menu. You can then copy, paste, delete, or rename the group.



Action Editing Area

The Action Editing Area displays the servo operation angles and the time of the action frames in the currently selected action group. You can also edit each numerical value separately in the action frame. Moreover, after reading back the actions of the robot or generating actions by dragging the 3D model, click the buttons on the toolbar at the top to add, modify, or insert actions of the robot in the read-back area within the editing area (see below).



Toolbar

Add Actions: Add the actions in the read-back area of the robot into the editing area

Modify: Modify the currently selected action frame into the actions at the read-back area of the robot.

Insert/Split: Insert the action at the read-back area of the robot above the selected action frame. While the length of the whole action group remains unchanged, split the time of all action frames in the group equally.

Insert: Insert the action at the read-back area of the robot above the currently selected action frame.

Time Value (ms): Before adding/modifying/inserting an action frame, you can modify its time value.

Servo No.

ID1: ID16 are the servo numbers of the robot's joints, which correspond to the servo numbers of the 3D model in the software and on the actual robot.

Serial No. of Action Frames/Servo Angle of Each Joint

This displays the current serial number of an action frame and the corresponding angles of Servo No. 1-16 of the robot.
Left-click the mouse on the serial number of an action frame to select it. When clicking it, preview the action on the 3D model. When double-clicking it, preview the action on the robot. After selecting it, right-click the mouse to copy, paste, insert, or delete it.

After left-clicking the mouse to select the serial number of an action frame, the servo angle value of each joint can be adjusted by manually entering the data (0-180˚).

Action Frame Length

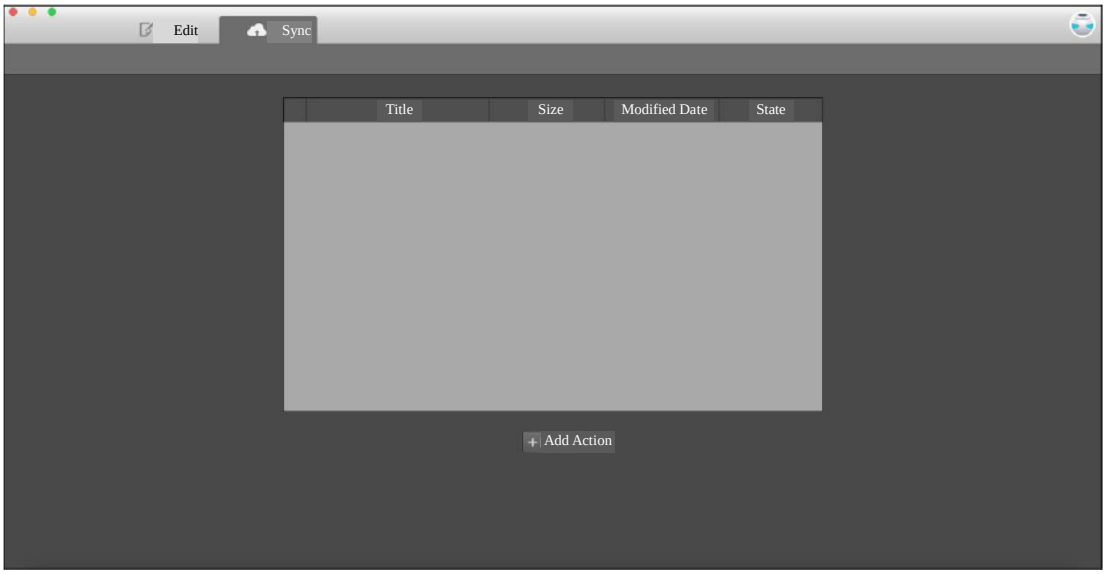
The length of an action frame is made up of the operation duration and pause duration of the action frame (The former refers to the duration from the end of the previous action frame to the end of the current action frame, while the latter refers to the interval from the end of the current action frame to the start of the next action frame). Left-click the mouse to modify it.

Music/Action Preview Area

Preview the music and action together, and check whether the edited action and music correspond to one another.
Music/Action Preview

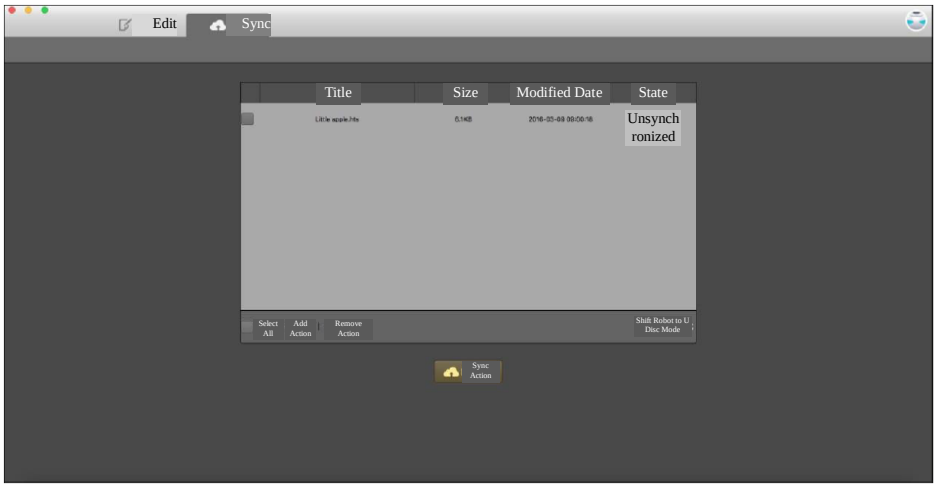
Left-click the mouse to preview. The play progress bar is only used for displaying the progress but cannot be dragged.

The user can synchronize the page to transmit the local actions saved on the computer into the memory card of the robot.



Synchronize Local Actions

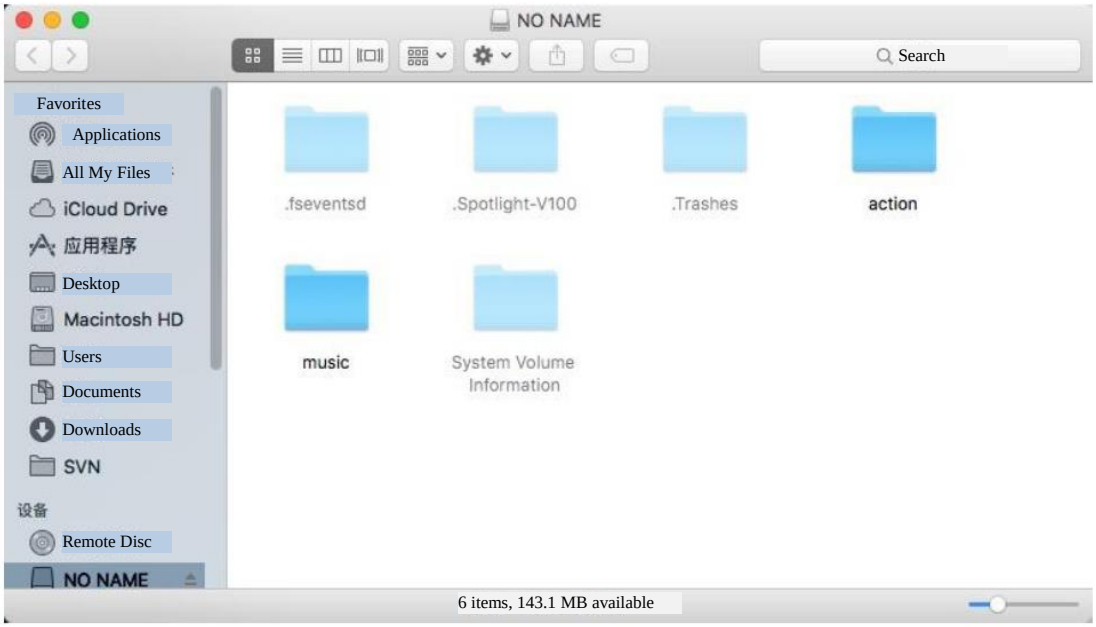
Click  to add local project files onto the sync list (.aesx, .aes, .tab). The added files will be displayed on the list. Before synchronizing, the user can continue to add or delete files from the list. By clicking , it will begin synchronizing. Note: Synchronization will fail if you switch to another page or close the software in the process of synchronizing.



U Disc Mode

The user needs to click  to shift the transmission mode into U Disc Mode. Under this mode, the user can manually copy audio files into the music folder of the U Disc (consistent with the titles of corresponding project file/action file). The action file (.hts) can also be copied manually into the action folder of the U Disc directly without synchronization. The user can also delete action files (.hts) and audio files saved in the memory card of the robot under this mode.

The user needs to disconnect the robot to exit the U Disc mode.



Tutorial: How to edit a dance for Alpha 1s?

1. Click 

of Alpha 1s to open the software.

2. Connect the robot and start up the robot (refer to the connection process of the robot).

3. Click 

on the timeline to add a piece of music.

4. Following the beat of the music, left-click the mouse on the timeline to select the location where to insert the action frame.

5. Click the robot's read-back buttons  to loosen the joint of the corresponding part of the robot. After adjusting the action, click the read-back buttons again to synchronize the actions of the robot to the 3D model or left-click the mouse to drag the 3D model to adjust the actions.

6. Click 

to write the actions onto the timeline (the action frame area where the action group belongs to).

7. In the process of editing, you can edit and adjust action frames by operations such as "Add", "Insert", and "Delete". Moreover, you can also finely adjust each action by using the fine-adjustment area of the servo to obtain the perfect angle.

8. Divide the music into segments following the beat of the music, and save all action frames of a music segment into an action group. This will be convenient for modifying and saving into the template for future use. No action groups are required to complete a dance. When the actions in the template can be used directly, left-click the mouse to drag them onto the timeline.

9. Click  in the "Music/Action Preview Area" to preview the music and the action together in order to check whether the action corresponds to the music.

10. After editing, click "Save" to save it locally (it will generate a project file (.aesx) and a folder with the same title, which contains the audio files).

11. Refer to the previous notes on synchronization, and transmit the actions and music into the memory card of the robot.

12. Open the app on your mobile phone and connect it to the robot. The actions in the memory card of the robot will be displayed on the Action List. Click an action for the robot to perform.