

Life Forms Demo: an Introduction



To familiarize you with Life Forms and what is possible in Life Forms, we have included the demo software for Life Forms 3.0. We would love to show you every editing feature that makes character animation and movement composition more enjoyable and productive, but we can't do that here. Instead, you can get a good idea about what's possible in Life Forms by **playing the animations** in the Cool Demos folder in wire-frame and rendered mode.

If you want to learn more, there are more instructions for:

- **Using the Walk Generator**
- **Reusing the predefined animations** in the Cool Demos folders
- **Setting the 5 attributes** of each keyframe: Shape and Altitude, Location, Facing angle
- How to edit a range of frames by **Range editing**, **Pasting motion to selected joints**, and **Adjusting speed**.

Installation Alert! Life Forms requires QuickTime 3 to run. Please download it from www.apple.quicktime.com and install it before installing Life Forms demo software.

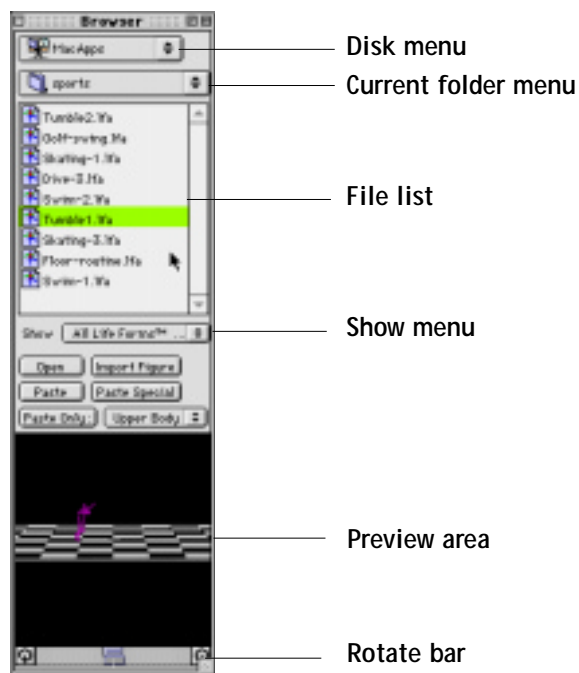
To open and play an animation

1 Find the Cool Demos folder

In the File Browser, use the Disk menu and Files list to find the Cool Demos folder, This folder is in the Life Forms 3.0 CD/LifeForms 3.0 folder.

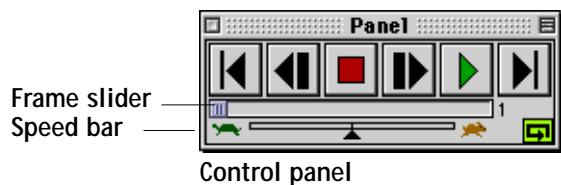
2 Open an animation in the Cool Demos folder

To open an animation, select the file you want to play by clicking in the File List. Then, click the Open button. This opens the animation.



File Browser

- 3 Click the Play button in the Control panel, or choose Control menu > Play, to play the animation. Other playback controls are explained below.




Playback controls



Control menu

	Button	Keystroke	Effect
Play		COMMAND+P (mac) F8 (win)	Begins the playback at the current frame. The current frame is indicated in the bottom right corner of the Control panel. The animation plays once or continuously depending on the setting chosen.
Continuous Play			Makes the animation loop from the beginning of the animation.
Rewind		COMMAND+R (mac) CTRL+R (win)	Rewinds the animation to the first frame.
Last			Forwards the animation to the last frame.
Back Step		COMMAND+B (mac) CTRL+B (win)	Displays the previous frame in the animation.
Forward Step		COMMAND+F (mac) CTRL+F (win)	Displays the next frame in the animation.

	Button	Keystroke	Effect
Stop		COMMAND+PERIOD (mac) ALT F8 (win)	Stops the playback.

To play animation in the Rendered window

Life Forms can also display animations in Rendered mode.

To play animation in the Rendered window

- 1 Open the Rendered window**
Do this by choosing Window menu > Rendered.
- 2 Play the animation in the Rendered window**
When the Rendered window is active, click Play in the Control Panel

Getting to Know Life Forms

One of the main uses of Life Forms is to animate human and other articulated models. In this tutorial, we will focus on how to create movement in Life Forms, and a few editing functions that make it easy to use and customize the animations provided in Life Forms 3.0.

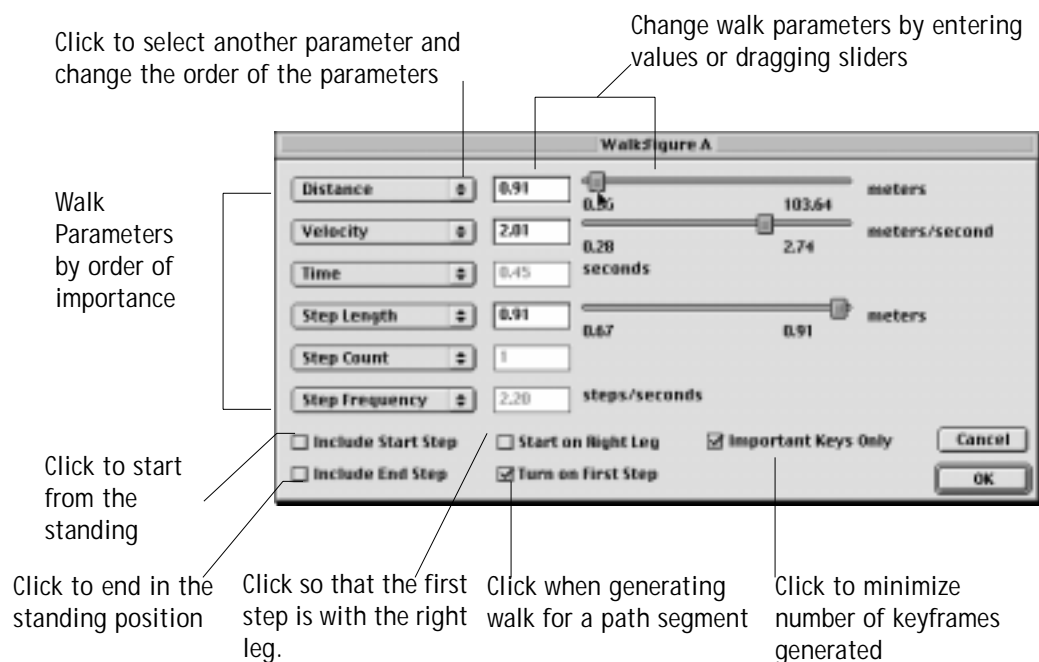
First, we'll start using the Walk Generator — the quickest way to create motion. The next fastest way to produce an animation is to reuse predefined animations that come with Life Forms. We'll then show you how to create custom keyframes. Lastly, we'll show how to modify your animation by editing a range of frames.

This tutorial is meant to be work through in the order it is presented.

Generating motion procedurally using the Walk Generator

- 1 Open a New Animation**
In Life Forms, open a new animation by choosing File menu > New Animation.
- 2 Add a Figure to the animation**
You can add one of default human models in Life Forms to the animation by choosing Figure menu > Add Figure > Female or Male.
- 3 Open the Walk Generator for the newly added figure**
Click on the model to select it, then choose Figure menu > Walk.
- 4 Enter values to generate a Walk Generator**
In the Walk Generator,
 - Drag the Distance slider to 5 m.

- Check the Insert Start Step and Insert End Step check box.
- Click OK.



Walk Generator Controls

Inserting Predefined animations

Life Forms Studio 3.0 comes with over 600 keyframed animations and 120 plus new mocap sequences. One way to quickly produce an animation is to recombine these animations, and then edit them in the Timeline. Here's how to quickly insert a motion captured animation to the end of the walk sequence you just generated.

1 Position the Current Frame marker at the end of the existing animation

Do this by clicking the  .

2 Browse the Tutorial folder

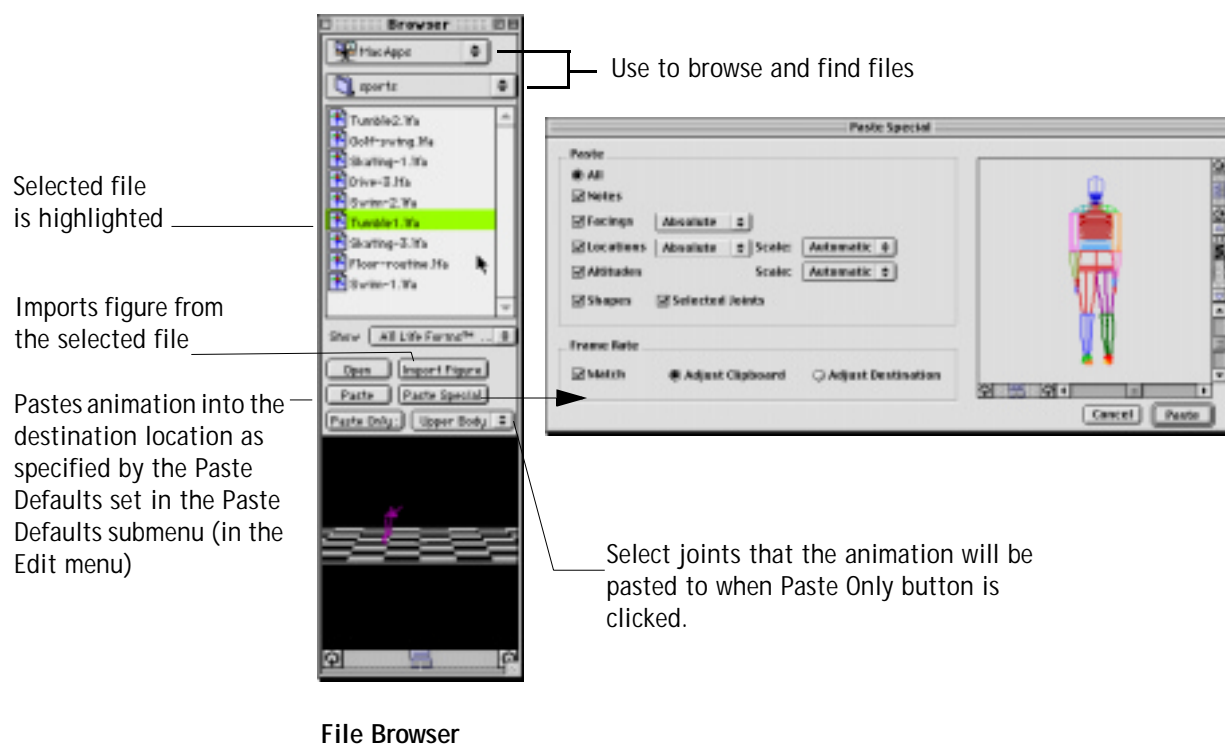
In the **File browser**, find on the Life Forms 3.0 Demo folder/ Tutorial folder/ **Hip Hop C.lfa**. Notice that when you select a file in the Files list, its contents is played in the Preview area of the File Browser.

3 Insert the selected animation

Click Paste. This pastes the Hip hop sequence at the insertion point which is currently at the end of the walk sequence.

Note if Life Forms does not paste the Hip Hop sequence so that it continues from the walk sequence, check that the paste Relative Location and Relative Facing options are selected in the Edit menu > Paste Defaults submenu.

Tip You can also paste the sequence before, or in the middle of the walk sequence. In the Timeline, simply click to position the insertion point at the desired frame.



Keyframing: Using Life Forms for Keyframe animation


A keyframe contains information about a figure in time and place. In Life Forms, each piece of information can be defined and modified independently of each other. The 5 components that define a keyframe are: Keyshape, Location, Altitude, Facing angle (or direction), and Notes. By interpolating the values between these keyframes, Life Forms generates smooth transitions that you see when the animation is played.

Keyframe attributes are set in the following windows:

Attribute	Windows	Controlled by
Keyshape	Figure Editor	Joint Controls, and direct manipulation by dragging one joint or a chain or joints
Location	Stage	Location fields, and direct manipulation by dragging
Altitude	Stage	Altitude field and arrows
Facing angle	Stage	Facing angle field and arrows
Notes	Timeline	Note area

To create a Keyshape by rotating a joint

1 Position the Current Frame Marker at the end of the current animation

In the Control panel, click Last button  to advance to the end of the animation. Then, in the Timeline window, click in the first empty frame.

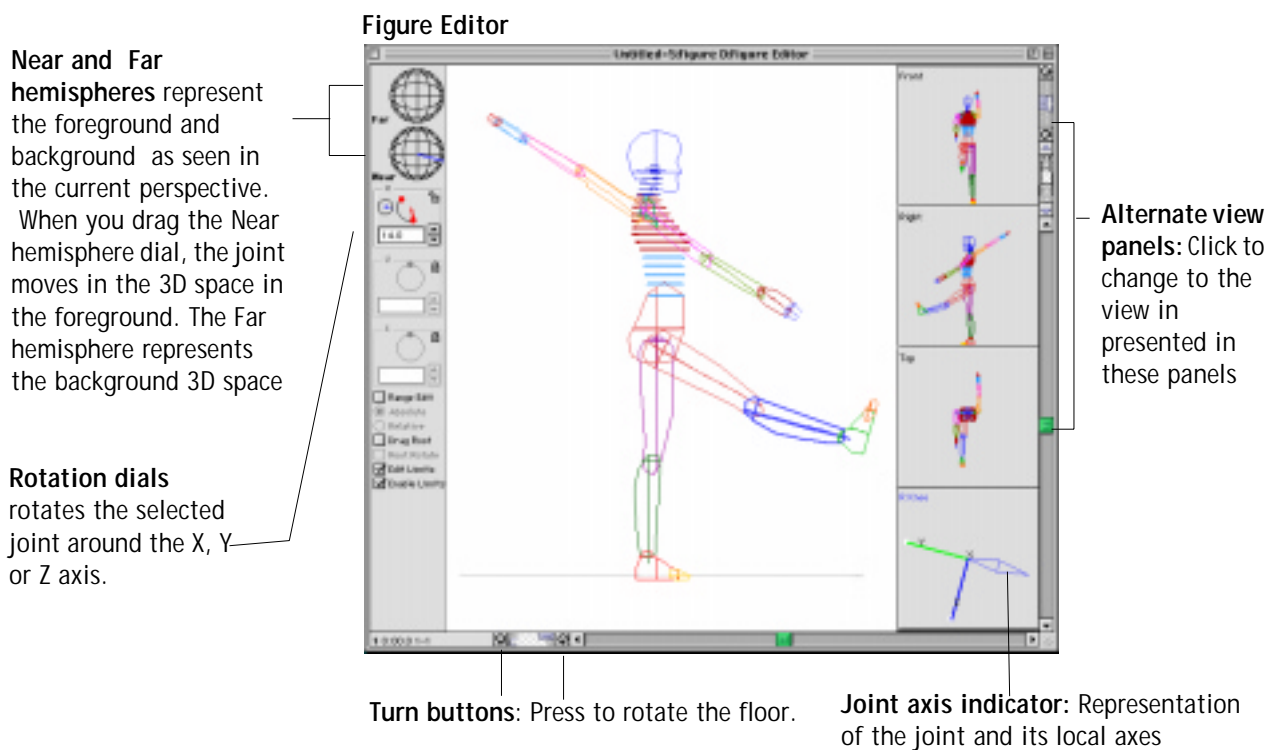
2 Select a joint

In the Figure Editor window, select one joint by clicking on it.

3 Rotate the joint to the desired position

Rotate the joint by dragging the joint, dragging Rotation dials, or Near/Far hemisphere dials. More information about using these joint controls are given in the illustration below.

Note You can undo an action by using the Undo command or the Reset to Default shape command in the Edit menu.



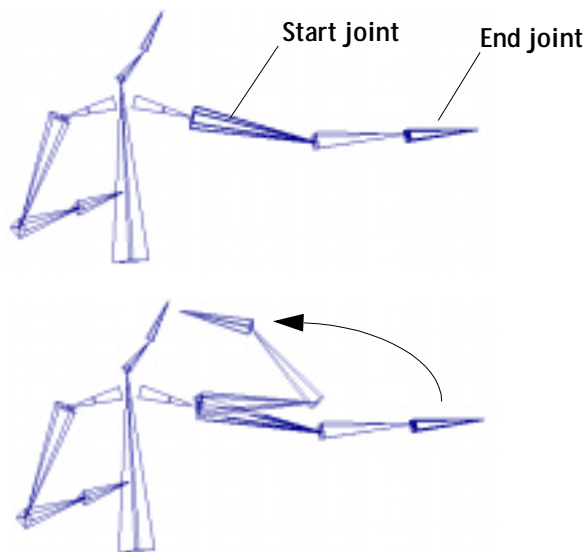
4 Rotate the view

Press the Turn buttons to rotate the floor horizontally so that you can examine the shape in 3D.

To create a shape by dragging a chain of joints (Inverse Kinematics)

1 Select a chain of joints

In the Figure Editor window, hold down the SHIFT KEY and select two joints along the same chain e.g. upper arm and fingers.



Dragging the end joint (hand) with Inverse Kinematics

2 Drag the end joint

Release the SHIFT KEY and drag the end joint to a new position. All the joints in the chain are repositioned to accommodate the position of the new joint.

Note Inverse Kinematics produces a better result when joints are properly constrained. The default models and additional models provided with Life Forms have preset constraints.

Undoing all shape changes by returning the figure to it's previous shape

1 Select a joint or several joints

Select the joint you want to reposition, or double-click to select the entire figure.

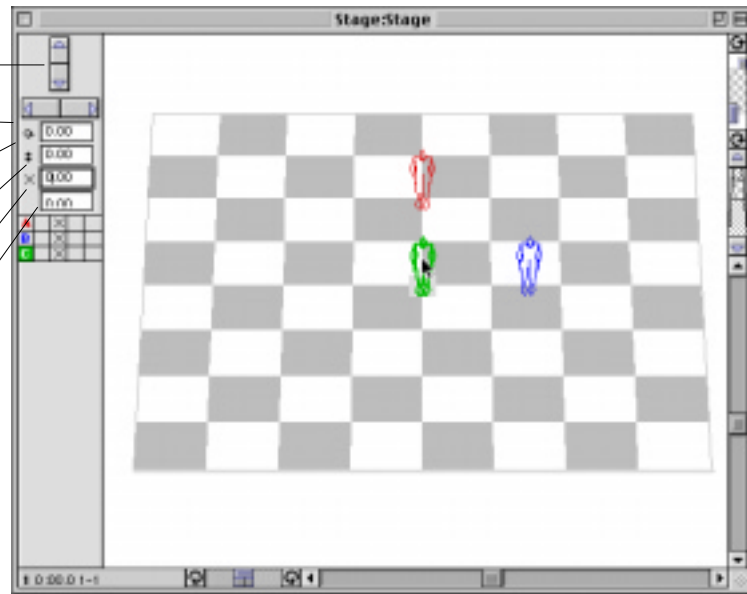
2 Revert the figure to the shape it was in

Choose Edit menu > Revert.

To set the altitude, location and facing angle

These keyframe attributes are set in the **Stage window**. The illustration below describes how to use buttons and fields to set the altitude, location and facing angle (direction the figure is facing). You can also reposition a figure by dragging the figure across the stage.

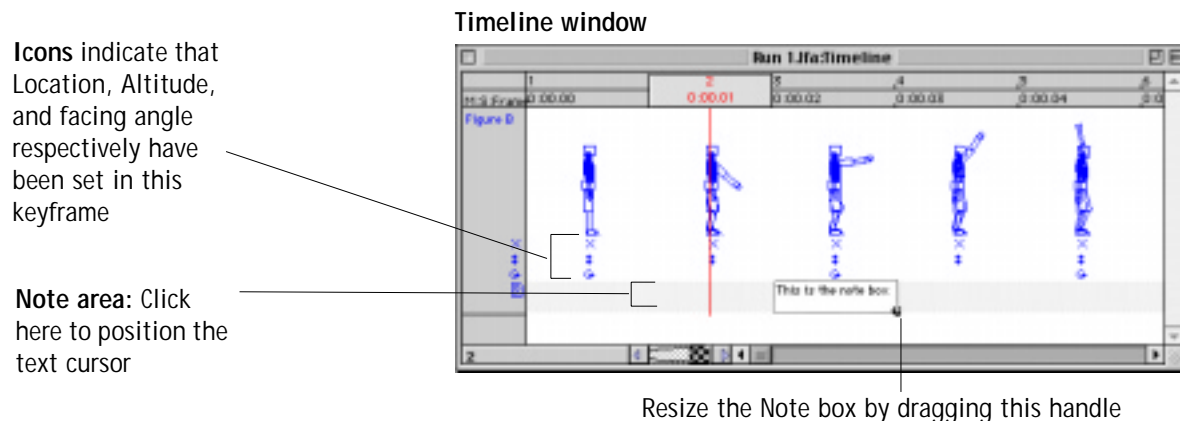
- Altitude arrows:** Press to adjust the altitude of the
- Facing angle arrows:** Press to adjust the direction the figure is
- Facing angle field**
Enter a value to rotate the figure by
- Altitude field:** Enter a value for the figure's height
- X location value**
- Y Location value**
- Current Frame box** tells you which keyframe is being displayed



Stage window

Adding notes to a keyframe

This is done by adding typing in the Note area in the **Timeline window**



Editing a range of frames

Editing or modifying existing animation can be difficult in many applications. Life Forms has many high-level editing features that make it easy to customize and reuse animations by editing them. Life Forms allows you to edit a range of frames in several ways:

- Copy and Paste
- **Range editing** - relative or absolute
- Mirror
- **Paste Selected joints**
- **Adjusting the timing**

Here we'll show you how you can make the model hunch forward in the animation we have created so far by applying a relative rotation to its upper back.

Range editing

Range editing is very useful for correcting the position of a particular joint over a range of frames. For example, when motion capture data is applied to a jointed model, it may not produce the effect that you expected because of the particularities of the model's geometry - for example the foot may be too large or too small. To modify the motion data to fit the model better, you can apply a relative offset to the position of those joints that need correction.

Here we'll show you a simple technique for altering motion data.

To make the figure hunch forward

This exercise uses the animation that you created by performing the previous steps. Please open this animation now.

1 Select the entire animation


Click on the grey area to the left of the model's timeline in the Timeline window. This is a shortcut for selecting all the frames of the figure's animation. You can also select a smaller range by dragging the mouse across the desired frames.

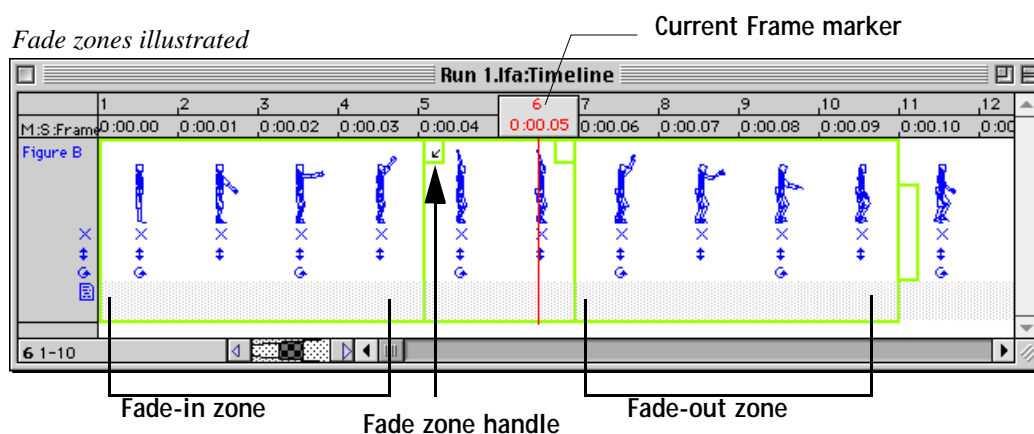
2 Enter Range Editing mode

In the Figure editor window, click the Range Edit check box, and the Relative checkbox

3 Set a Fade-in zone

In the Timeline, Fade zones lets the figure ease in to the desired shape and ease out of it. To decrease the fade-in zone position the cursor in the Fade zone handle as shown. When the cursor changes to a diagonal cursor, drag to the left until there are no frames enclosed in the Fade-in zone because we want the figure to

start with a hunched back. Advance to the end of the animation by clicking the Last button  in the Control panel. You can adjust the Fade-out zone by dragging the fade zone handle.



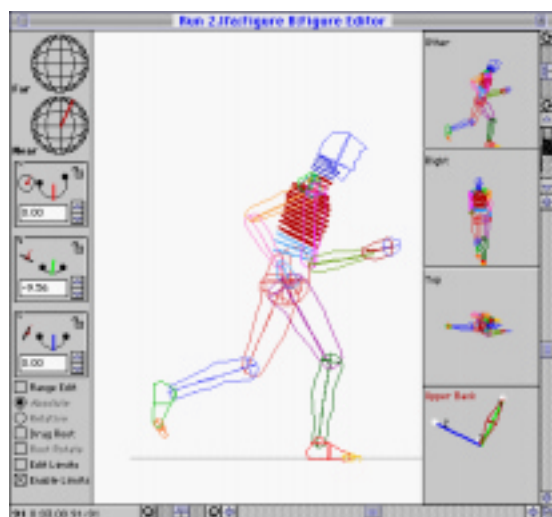
4 Position the Current Frame marker

In the Timeline window, drag the Current Frame marker to any frame that you want to edit in the Figure Editor. Be careful not to click in the timeline. Any change you make by manipulating the shape in this frame will be applied to the entire range.

Warning Be careful not to click in the timeline as this will collapse the selection.

5 Rotate the upper back to give the figure a slight forward hunch

In the Figure Editor, click on the Alternate View panel that shows the figure's side profile.



Side view of the figure in the Figure editor

6 Select the Upper back

In the Figure editor window, click the upper back to select it.

7 Rotate the back forward

Drag the upper back so that the figure bends forward slightly. You can also rotate a joint by dragging the X rotation dial. Notice that the change is immediately applied to the frames selected in the Timeline.

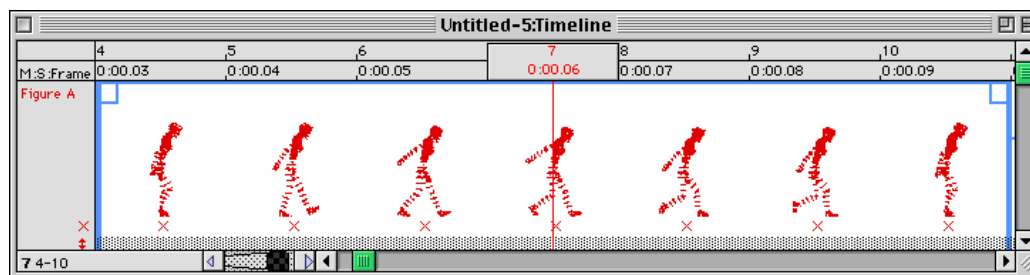


Figure with forward hunch created by applying a relative offset to the upper back

8 Exit Range editing

In the Figure editor window, click the Range edit check box to deselect it.

Note Other operations that work on a range of frames are: Mirror, Copy, Paste, and Reverse. The Mirror command mirrors the shape of each keyframe across the Sagittal plane. The Sagittal plane is the plane that cuts the figure in to the Left and Right sides. The Reverse command reverses the order of the animation's keyframes.

Paste Selected Joints

Another clever way to recombine animations, besides copying and pasting them in the timeline, is to combine the animation of selected joints. For example, copy the arm action from one dance sequence to another dance sequence, or copy a punch from a fighting figure to one that is sitting down. The possibilities are limited only by your imagination.

By now, the figure in your animation walks and then dances. It does all this with bent posture. Here we will show you how to paste the arm actions of an exercise sequence to your animation.

1 Position the insertion point before the first keyframe

Do this by clicking on the first frame.

2 Browse to the Tutorial folder

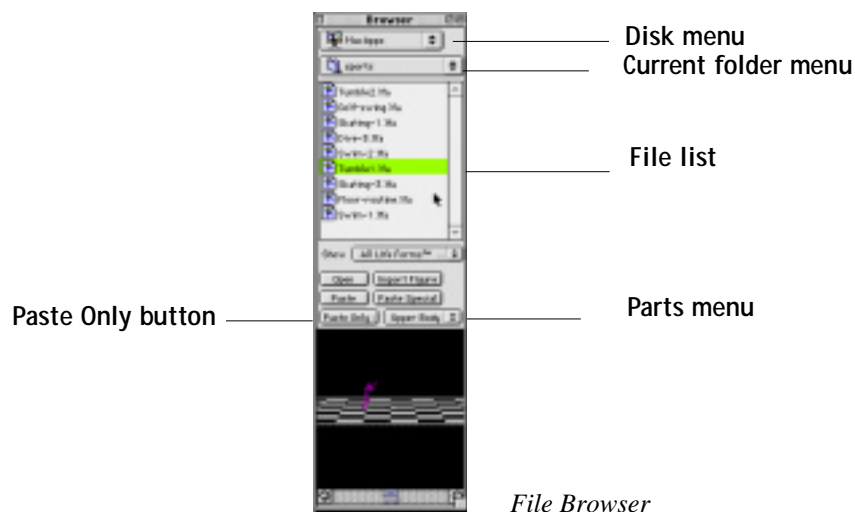
In the File browser, use the Disk menu to locate Life Forms 3.0 Demo folder/ Tutorial/ Exercise.lfa

3 Select Exercise.lfa

This animation is a motion captured sequence that is saved in Life Forms animation file format. Select this file by clicking once on it's file name in the Files List of the File Browser.

4 Paste the arm action

Do this by checking that Upper Body is selected in the Parts menu in the File Browser. Then, click Paste Only. Notice that your animation now has the arm action from Exercise.lfa.



Adjusting timing in the Timeline

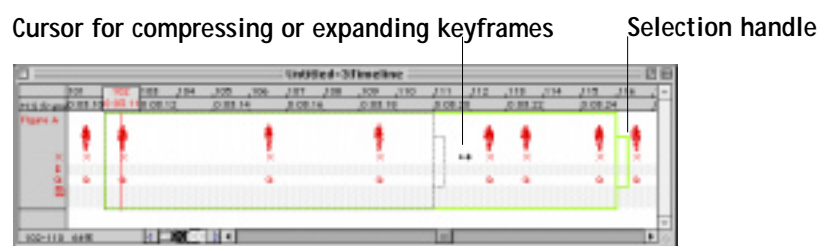
You may now be asking, "How can I adjust the speed of just a section of an animation?." You can do this by expanding or compressing a range of frames in the Timeline window. The following describes how to do this quickly and easily.

Speeding Up a Selection

A sequence can be speeded up by compressing it. When Life Forms compresses a frame range it does so by removing empty frames. As far as possible, Life Forms will try to preserve the timing of the movement when it is compressing a range of frames.

To compress a range of frames

- Select a range of frames**
Click and drag over the range of frames.
- Drag the Selection handle to the left**
Position the cursor over the Selection handle. When the cursor has changed to a double-headed arrow as shown below, click and drag it to the left.



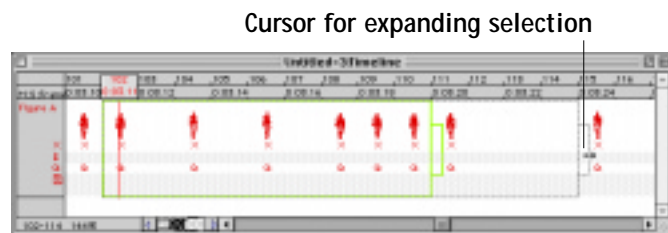
Compressing a selection

This speeds up the selected sequence by removing empty frames. The duration relative to the current duration is shown as a percentage in the Current Frame box. You can speed up a range of frames until there are no empty frames between the keyframes.

Slowing Down a Selection

To expand a range of frames

- Select a range of frames**
Click and drag over the range of frames
- Drag the Selection handle to the left**
Position the cursor over the Selection handle. When the cursor has changed to a double headed arrow, click and drag it to the right.



Expanding a selection

This slows down a selected sequence by inserting empty frames. The duration relative to the current duration is shown as a percentage in the Current Frame box

We hope you've enjoyed learning about animating with Life Forms. If you any questions regarding Life Forms please contact us at info@credo-interactive.com, 1-604-291-6717.