About this document

This document explains how to use Life Forms Studio with LightWave 5.5 - 6.5. It also contains short examples of how to use LightWave and Life Forms together. This document has three parts:

• The Introduction section - gives background information about Life Forms.
• The Tutorial section - gives short examples of how to use Life Forms.
• The User Guide section - gives key procedures and reference information for using Life Forms with LightWave.

Introduction

Where does Life Forms fit?

Life Forms can be used with LightWave & Inspire 3D. Both models and motion can be brought from Life Forms into these programs and vice versa.

Depending on your project and your personal preferences you may use Life Forms in different phases of your production process. It could be used to:

• speed up keyframing
• edit motion captured data
• apply motion capture data to character's bones or geometry
• plan your mocap sessions
• prototype and previsualize during the early stages of the production cycle.

Life Forms is also used as a source of models and premade motion sequences.

Using Life Forms for fast keyframing.

Life Forms straight-forward graphical interface simplifies the task of keyframing. Because it has fast redraw Life Forms gives you instant feedback allowing you to work faster and more spontaneously.

Using Life Forms as a source of motion data

Aside from the 600 + keyframed variations and 140 + motion captured animations from the **PowerMoves CD**, you can use Life Forms for keyframing your own animations and for generating walk sequences with the **Walk Generator**. Life Forms is also supported by the PowerMoves - the On-line 3D Content series.

Using Life Forms to edit proprietary motion capture data

You may be working in a project that has its own captured data sets. Life Forms will import motion data output in the BioVision Hierarchical file format and the Acclaim file format. You can use Life Forms to create looping sequences, combine sequences, rotate paths, and blend the motion data.

How do I use Life Forms & LightWave 3D?

Life Forms imports and exports motion data to LightWave via the LWS file format. This allows you to:

1   Bring Life Forms animations into LightWave for rendering.

2   Create motion for LightWave bones.

3   Create motion for segmented characters built in LightWave.

4   Create motion for PuppetMaster sections. This is covered in a separate document available from www.CharacterMotion.com/support/tutorials.html.

What does Life Forms do?

Using Life Forms requires you to bring the LightWave scene into another package. You may be asking, "Is it worth it?". There are several reasons, but here are two that users have told us about:

• Life Forms is an easy and cost-effective way to edit and work with motion capture data

• Life Forms' streamlined and effective keyframing interface makes it possible to block out motion sequences quickly.

• Life Forms is a source of motion data.

Life Forms editing functions allow you to recombine, blend, and edit frame ranges. You can also thin motion data and apply premade sequences before exporting motion data into LightWave 3D. These features allow you to use motion capture more creatively. The following are some of Life Forms' features.

Fast Keyframing

Life Forms makes it easy to keyframe by keyframing the *whole body* rather than the objects that make up the body. By representing the whole body as a keyframe in the Timeline, Life Forms makes it easy to select keyframes for copying and pasting. Life Forms also has a Pin-to-floor command that puts the figure on the floor so you don't have to worry about aligning the figure to the floor at each keyframe.

Smart Paste Functions

Life Forms is an excellent tool for blending and combining animations. In Life Forms you combine animations by pasting keyframes from one animation to another. Life Forms adjusts the path for you.

In addition to the automatic adjustment in the path or location keyframes, Life Forms is able to copy and paste motion from selected joints only. For example, this allows you to combine the arm action from one animation with the leg action from another.

Editing a range of frames

Applying a relative offset or absolute rotation to a joint over a range of frames is very easy to do in Life Forms. You would use this feature when you want to apply a small change to all frames in the animation. For example, you can apply a relative rotation to the figure's upper back joints so that it bends over a little during the entire walk cycle.

Copy and paste to different skeletons

Motion data is never wasted in Life Forms. You can reuse the motion data by applying it to different models.

Source of animation content

There are 600 + keyframed variations and 140 + motion captured animations on the **PowerMoves Library CD** that comes with Life Forms Studio 3.x. In addition to premade motions, Life Forms can be used for keyframing your own animations and transitions, and for generating walk sequences using the procedural **Walk Generator**.

Thinning mocap data

In Life Forms, you can reduce the density of motion capture data by deleting or thinning keyframes. You may, for example, instruct Life Forms to remove one keyframe for every 5 keyframes.

Slow down mocap animation easily

To slow down an action simply select a range of frames in the graphical timeline, and then expand the selection. While you are expanding the selection, the status box in the Timeline window shows how much the animation has slowed down.

The motion editing features described here are explained more fully in the User Guide.

Tutorials

About the Tutorials

This section contains several tutorials for using Life Forms to create character motion for LightWave scenes.

Tutorial 1: Animating custom models.

Tutorial 2: Bringing Life Forms animations into LightWave 3D for rendering.

Tutorial 3: Using Bones motion data from Life Forms.

Note: This tutorial was tested with LightWave v6.5

For the tutorials you need:

- **LightWave 3D 5.5 or later**.
- **Life Forms Studio 3.0 or later. Version 3.9 is preferred**.

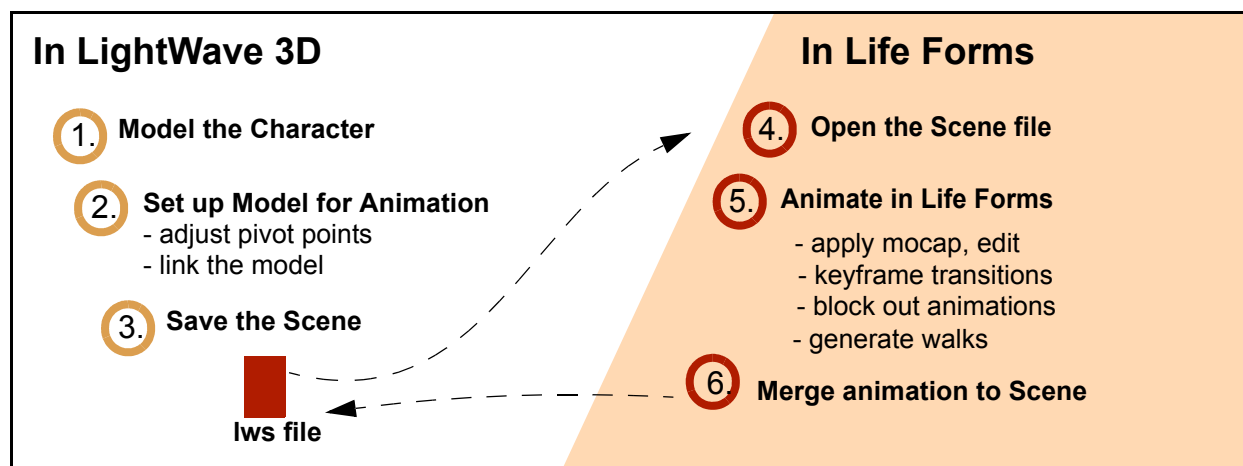**Note: You can order a free Trial CD of Life Forms Studio 3.9.**

Tutorial 1: Animating Segmented Models

This tutorial explains how to make a model ready for animation in Life Forms. Life Forms can only animate models with the following characteristics:

- Models must be segmented,
- Objects must be hierarchically linked,
- Objects have correct pivot points.

It is recommended that you make sure all object names are unique names and have no special characters or spaces.

The process of animating segmented models is summarized as follows:.

In LightWave 3D

1. **Model the Character**

2. **Set up Model for Animation**
- adjust pivot points
- link the model

3. **Save the Scene**

lws file

In Life Forms

4. **Open the Scene file**

5. **Animate in Life Forms**
- apply mocap, edit
- keyframe transitions
- block out animations
- generate walks

6. **Merge animation to Scene**

Part I: Preparing a Model

1 **Setting up the Segmented Model**
In LightWave, build or import a segmented model. The model can have any rest position.

2 **Setting the pivot points**
Before it can be animated, you must set its pivot points so that each object rotates correctly in relation to its parent.

3 **Link the objects**
Link the object, making the pelvis the root object. Information about linking and setting pivot points is found in the LightWave User Guide.

4 **Remove all but one Null root object**
Unlike LightWave, Life Forms requires that each model has **only one root object**. So you must make sure that the model has only one root or null object.

5 **Save the file as a LightWave scene file (LWS)**
Before saving the model in a scene file, we recommend that you turn off all IK settings and remove all frames of animation.

Life Forms provides several Life Forms-ready models in the Life Forms format (.lfa). These models can be found in the Model Gallery, PowerMoves CD, or purchased with the PowerModels CD.

Part 2: Importing the Model

For this tutorial, we demonstrate how you can apply motion captured animation to a generic human model.

1 **Open the LWS file in Life Forms**
Choose **File menu > Open**.

In the Open dialog box, select LightWave in the File type menu.

Select **3backman.lws** from the Tutorial 2 folder and click OK. The Import Dialog box appears.

2   Select the Content Directory
You must now point Life Forms to the directory which contains the **Object folder** that stores folders containing object files (.lwo) required by the scene file. To do this, click **Content directory...** button in the Import Dialog box. The Select Content directory dialog box appears. Do one of the following:

In Windows

- In the **Specify Content directory dialog box**, locate the folder that contains the **3backman.lws** folder.
- Select any file which is in the top level of the Content directory, for example 3backman.lws. This allows Life Forms to detect the folder.

  If you do not have a file in top level of the Content directory, please put one there and repeat this step.
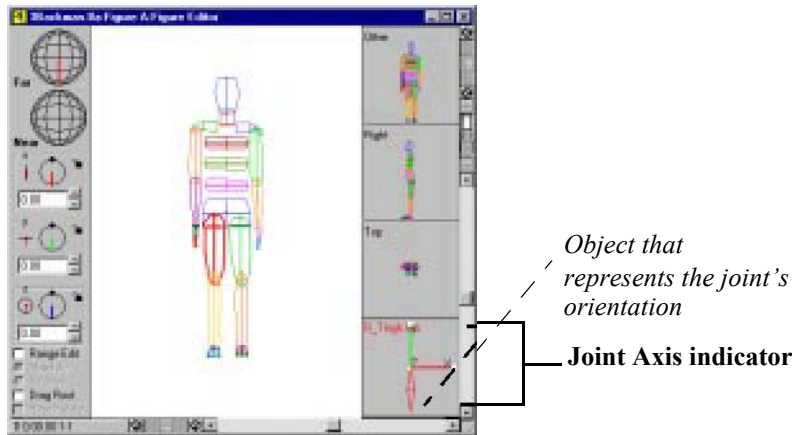- Click OK.

On the Macintosh

- In the Specify Content directory dialog box, select the folder that contains **3backman.lws**. Then, click **Select Content directory**.

The model will now appear in Life Forms. The next step is to set the orientation axis of each body part.

3   In the Figure Editor, click on a joint and look at the Joint Axis indicator.

In the Joint Axis indicator, the joint's orientation is represented by an object. The object should point in the direction of the limb's end point. The correct orientation of the left thigh is shown below.

Click on different joints and you will see that the orientation of the root object, pelvis, back objects, and fingers are incorrect.

Object that represents the joint's orientation

Joint Axis indicator

4   Set the orientation axis of the root, pelvis and back joints as follows:

- While the Figure editor is active, press F to ensure that the front view is displayed.

- In the Figure editor, double-click on the figure and choose Edit menu > Reset to Default shape. This ensures that the figure is in its default position. This is important because the orientation axis of a joint is relative to its default position.

- Click on the pelvis in the Figure Editor and then choose Edit menu > Set Axis. This submenu appears.

For the root, pelvis, and back joints select

Tip: These icons are correct only when viewing the figure from the front. The icons displayed in the Set Axis submenu are relative to the perspective of the figure in the Figure Editor window. If you are currently viewing the figure from the top view, you must select the axis icons that represents the correct orientation from this view point.

    5   Set the orientation axis of the finger joints as follows:

        •   In the Figure editor, click the right finger.Then choose Edit menu > Set Axis. This submenu appears.

        •   Select   .

        •   Click the left finger, and select   from the Set Axis menu.

Results to this point are saved in **3Backman.lfa**. The next step is to apply motion to the model. Comprehensive information about the orientation of axes is found in the User Guide.
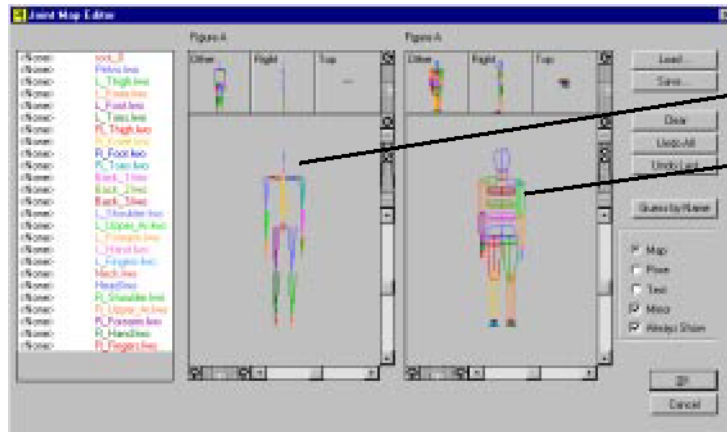

Part3: Applying Motion

Motion is applied by pasting keyframes to the model. To apply the motion correctly you must tell Life Forms how the source and destination models correspond.

    1   **Paste Motion Capture data**

        •   Open a motion captured animation, for example **Exercise.lfa**.

        •   Copy all frames from Exercise.lfa animation. Do this by clicking in the grey panel on the left the animation's Timeline. Then, choose **Edit menu > Copy**.

- Click on the first frame of the destination file. This positions the insertion point at the first frame.

- Choose **Edit menu > Paste Defaults** submenu. Check that paste **Relative Location** and **Absolute Facing** is checked.

- Then, choose **Edit menu > Paste**. The Joint Map editor appears.

2   Click on a joint in the destination figure and then click on the corresponding joint in the source model. This maps the destination model to the source model.

When joints have been mapped, they are paired in the joint list.The joint list below shows how the joint should be mapped:.

```
<None>          Pelvis.lwo
LeftHip         L_Thigh.lwo
LeftKnee        L_Knee.lwo
LeftAnkle       L_Foot.lwo
<None>          L_Toes.lwo
RightHip        R_Thigh.lwo
RightKnee       R_Knee.lwo
RightAnkle      R_Foot.lwo
<None>          R_Toes.lwo
Chest           Back_1.lwo
<None>          Back_2.lwo
<None>          Back_3.lwo
LeftCollar      L_Shoulder.lwo
LeftShoulder    L_Upper_Ar.lwo
LeftElbow       L_Forearm.lwo
LeftWrist       L_Hand.lwo
<None>          L_Fingers.lwo
Neck            Neck.lwo
Head            Head.lwo
RightCollar     R_Shoulder.lwo
RightShoulder   R_Upper_Ar.lwo
RightElbow      R_Forearm.lwo
RightWrist      R_Hand.lwo
<None>
```
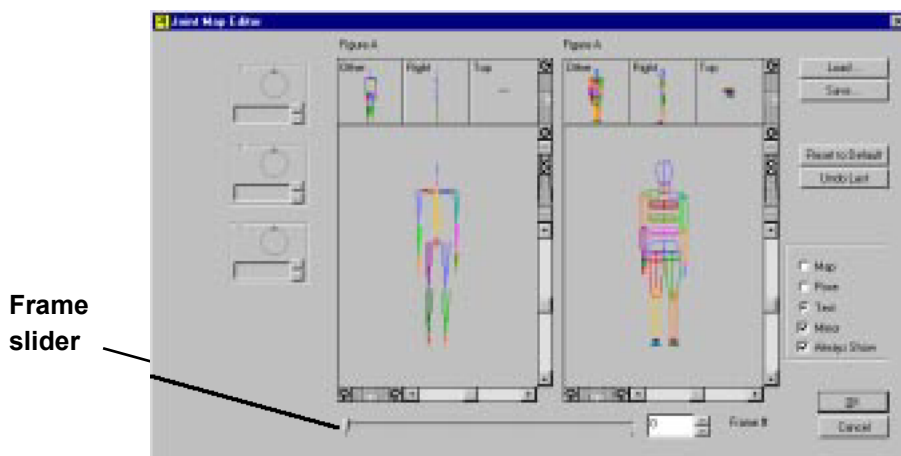
Note: If the source and destination figures have different rest positions, we will have to perform an additional step to adjust for this difference. If this is the case, see tutorial 3, below.
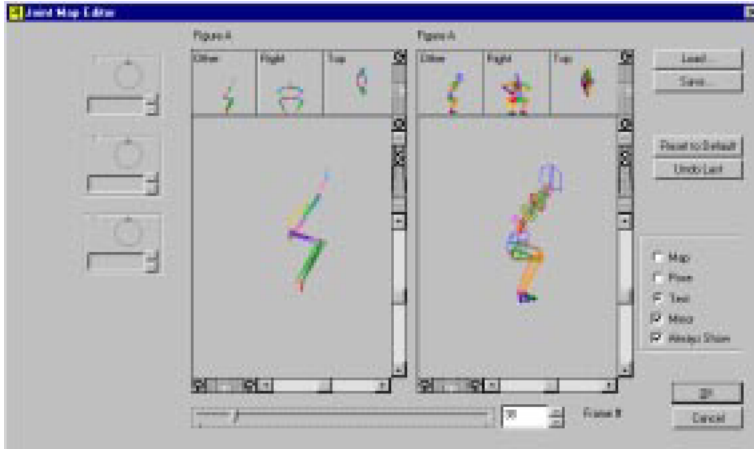
We are now ready to test the joint map.

3   Test the mapping

•   Click the Test option button. A slider appears in the Joint map editor.

Frame slider

- Drag the slider . This applies the keyframe data to the models.

Frame 38 is applied to both models

- When the joints have been mapped correctly, the destination and source models will be similar.

  If not, you must return to the Map mode by clicking the Map radio button, check that every joint has been correctly mapped, and that the joints have the correct axis orientations before continuing.

- Click OK to paste the motion.

Up to this point, we have successfully completed importing a segmented model and applied motion capture data to it. The results are saved in **Animated_3backman.lfa.**

For complete information about the Joint Map editor and the mapping process, please refer to the Life Forms User Guide.

Part4: Exporting the Motion

Now that the model is animated, we are ready to export motion to LightWave. We have two choices. We can export the animation as a LightWave scene file, or we can merge it to the the original LightWave scene file. We will merge the motion instead of exporting a new file. The benefit of merging data is that the motion is *inserted* into the scene without affecting other scene elements such as material properties, lighting and camera.

1. **Open the LightWave Export dialog box**
   In Life Forms, choose **File menu > Export**. In Export Format, click the LightWave icon

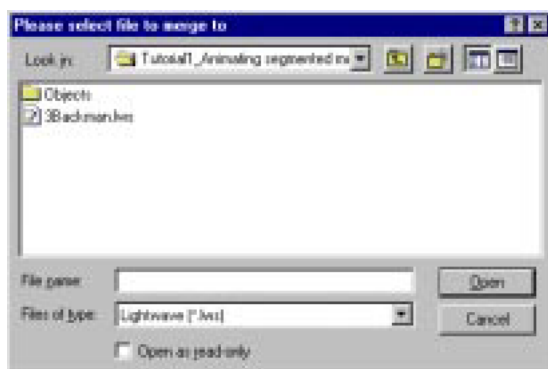2. **Select the Export option**
   The recommended options are:
   - Select Linear Interpolation.

- Clear the Keyframes Only checkbox.
- Select Position Frames.
- Click the **Merge** checkbox. .

3   Click **Merge File ...** This dialog box opens.

4   Select the Merge file

Select **3Backman.lws**. Click **OK**.

Note: The file you select must contain the same model and scene elements as the animation you are now exporting. If not, Life Forms will return the error messsage **"Merge file does not match current animation."** during the export**.**
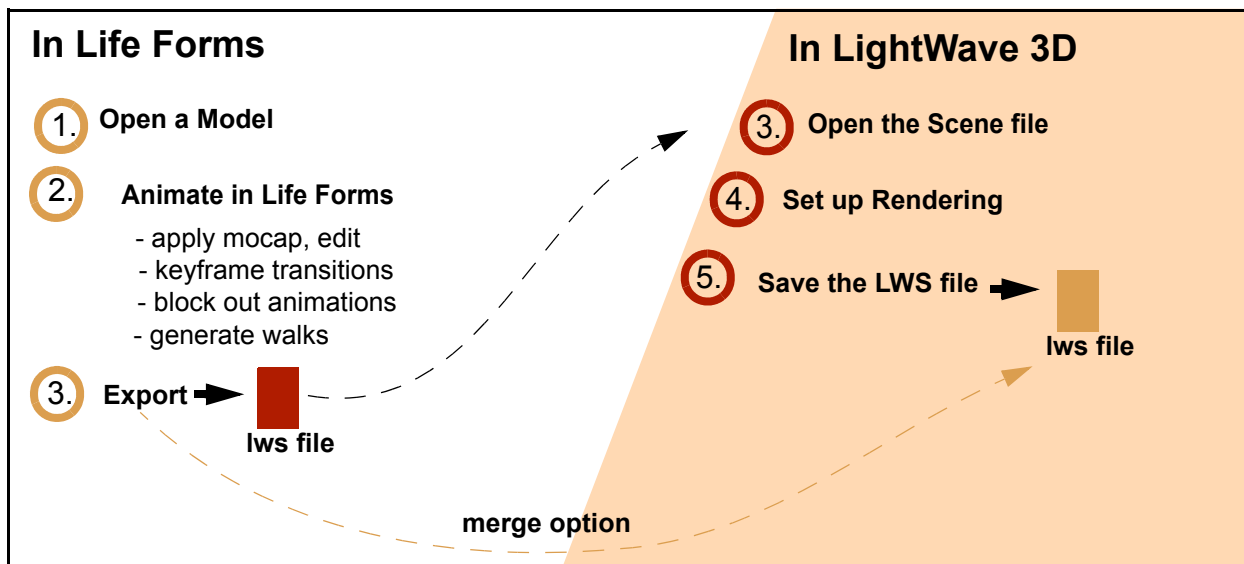
5   Export

In the Export dialog box click OK. Name and save the file.

The final result is seen in **Animated_3Backman.lws**. This brings us to the end of this tutorial. We have gone through the whole process of animating segmented models from LightWave.

Tutorial 2: Bringing animations into LW

This example explains how to export a Life Forms animation as a LWS file for rendering in LightWave 3D.

The process is as follows:

In Life Forms

1. Open a Model

2. Animate in Life Forms

   - apply mocap, edit
   - keyframe transitions
   - block out animations
   - generate walks

3. Export → **lws file**

merge option

In LightWave 3D

3. Open the Scene file

4. Set up Rendering

5. Save the LWS file → **lws file**

1   Open a Life Forms file (LFA)
Choose File menu > Open. In the Open dialog box, browse and select **Sundancer.lfa** from the Tutorial 1 folder.

2   Animate the model
Animate the model by generating a walk, keyframing or pasting premade motions to it. See **Sundancer_move.lfa**.

3   Open the LightWave export dialog box
Choose File menu > Export. In the Export dialog box, select the LightWave icon in the Export Format list.

4   Select the Export options
   • Select Linear Interpolation.
   • Clear the Keyframes Only checkbox.
   • Select Postion Frames.
   • Click Geometry.

5   Select the Content Directory
You must now point Life Forms to the directory you want to export to the object files to. Click the **Content Directory** button. This opens the Specify Content directory dialog box.
In Windows

- In the **Specify Content directory dialog box**, locate the folder you want to export the object files to.
- Select any file which is in the top level of this folder. This allows Life Forms to detect the folder.

  If you do not have a file in the top level of the folder, put one there and repeat the previous step.
- Click OK.

On the Macintosh

- In the Specify Content directory dialog box, select the folder that you want to export the object files to. Then, click **Select Content directory**.

6   Export the file
In the Export dialog box click OK. The Save dialog box will appear. Name and save the file.
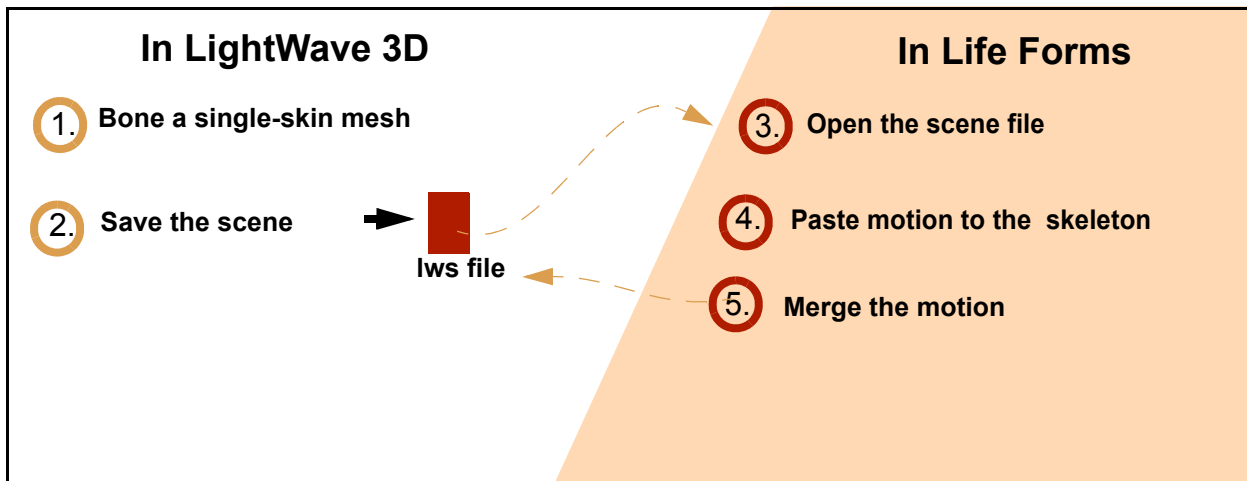
See **Sundancer_move.lws**. You can open this file in LightWave for rendering.

Tutorial 3: Using Bones motion data

Life Forms can be used to animate or apply motion to LightWave bones. This tutorial shows you how.

We start with a single-skin mesh that has already been boned. This tutorial won't explain the details of boning a mesh.

This tutorial can be summarized as follows:

In LightWave 3D	In Life Forms
1. Bone a single-skin mesh	3. Open the scene file
2. Save the scene → lws file	4. Paste motion to the skeleton
	5. Merge the motion

Part 1: Importing LightWave bones

1 First, let's open the Lightwave scene file that contains the boned single-skin mesh. In LightWave, choose File menu > Open. Select **tutorial_setup.lws** from the Tutorial 3 folder.

Notice that in addition to the bones that form the skeletal structure of the body, we added extra bones in the head, torso, and lower leg. These extra bones stabilize the mesh near them.

2 Open up Lifeforms and import the **tutorial_setup.lws** file. Follow the same procedures as laid out in Tutorial 1, Parts 2 to 4. The only difference will be that you will see a representation of your skeleton in your figure editor as opposed to a segmented model. You might find that your imported mesh may not exactly line up with your skeleton and but that is normal. For this part of the tutorial, you will be mapping motion from the file **jump.lfa** and exporting it as an lws file called **jump.lws** using the merge function. These sample files can be located in the Tutorial 3 folder.

Part 2: Importing LightWave bones with optional setup

1   Rotate the skeleton to fit the mesh

The motion captured animations that come with Life Forms are imported from BioVision mocap files. Thus the bones in these files have the same default position of the BioVision skeletons — that is they have arms down and to the side. This position may not be the same as the default position of your mesh.

In order to fit the Mesh to the skeleton it helps to rotate the arms and thigh bones of the skeleton to the approximate position of the Mesh.

Do this by:

*   Open up Lifeforms and import the **tutorial_setup.lws** file.
*   In the Timeline window, double-click on Frame one.
*   Open the Figure editor choosing **Window > Figure Editor**. You will see the skeleton in the Figure Editor window.
*   Select the right upper arm and click the **Z Rotation dial** to rotate it to the desired position. Repeat this for the left upper arm, left and right thigh.
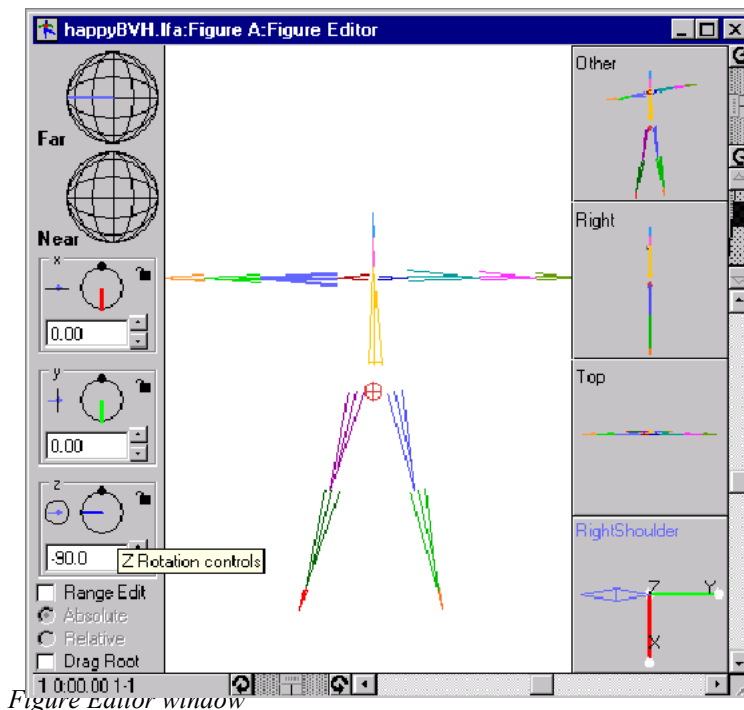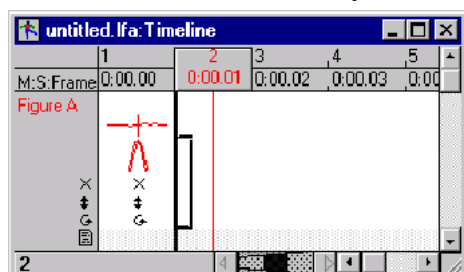

Figure Editor window

Notice that an icon of the figure's shape appears in the first frame of the Timeline. This means that you have keyframed the figure's shape.

Timeline window

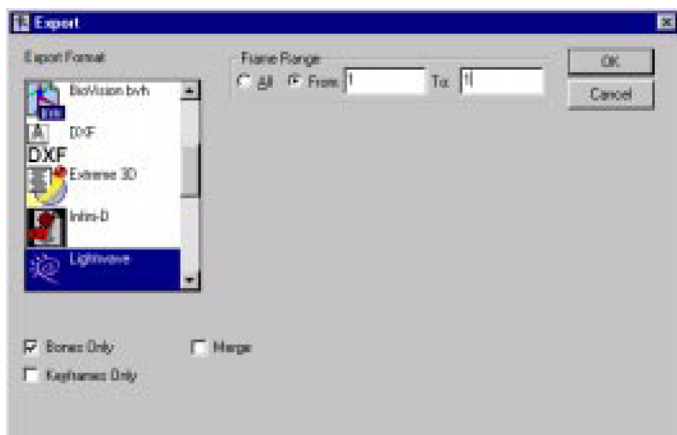**2   Open the Export dialog box**
Choose **File menu > Export**.

3   Select the Export options
- In the Export Format list, select LightWave LWS.
- Check Bones Only.
- Export Frame One only.

4   Click OK

5   Name and save the LWS file

Export dialog box

6   Open the LWS file
In LightWave, open the LWS file.

7   Replace the Null object with a Mesh
Replace the null root object of the skeleton with the Mesh object. To do this:
- Select the null object
- Open the Object dialog box by clicking the **Replace Object** button.

The mesh is now bound to the bones. The Mesh may be distorted by the bones. This will be fixed when you set the rest position of the upper arms. Set bones to inactive by selecting the bones and typing 'r' on your keyboard or within the Bone item properties menu.

8   Overlay the Mesh and bones
Open Modeler and select the Mesh. Move the mesh so that it is centered on the skeleton.

9   Resize the Mesh
In Modeler, select the mesh and scale it to fit the skeleton. Check each change using the **Put** button and switch to Layout mode.

Keep resizing and positioning the mesh in Modeler, checking the effect in layout mode until the mesh and bones fit properly.

10   Save the Adjusted Mesh.

Part 2: Determining the Bone rest position

Adjusting the Bone rest position makes it possible to attach bones from this skeleton to the mesh.

1 **Determining the rest position**
In LightWave, rotate the bones until they fit properly within the mesh. Write down the **H, P and B values** of the upper arms.

2 **Export Motion data from Life Forms**
In Life Forms, open **Jump.lfa**. Choose **File menu > Export**. In the Export dialog box, select the following options:

   •   Frame range - **All**

   •   **Bones only** checkbox

   •   Click **OK**

3 **Open the LWS file**
In LightWave, open the LWS file exported in the previous step.

4 **Replace the Null object with a Mesh**
Replace the null root object of the skeleton with the Adjusted mesh object you saved in Part 1.

5 **Set the correct Rest position**
In LightWave, open the Object panel. Click **Object Skeleton**, select the joint and click **Rest Position**. Enter the **H, P, B values** you recorded in step 1.

6 **Adjust the Bones strength**
Refine the interaction between the bones and mesh by adjusting bones strength and rest lengths. Pinching can be controlled using Joint compensation.

User Guide

Installing the LWS plug-ins

Credo may make improvements to its plug-ins from time to time. Please check our website for the latest versions of the plug-ins you are using. The LightWave plug-in consists of 4 files. These files must be added to the correct folders to enable Life Forms to read and write LightWave scene files. The following lists the correct file folders for the LightWave plug-in files.

For Windows computers

File	Move to
LWS.in.dll	Life Forms folder /Plug-ins folder
LWS.out.dll	Life Forms folder /Plug-ins folder
ScnMan.dll	Life Forms folder
ObjMan.dll	Life Forms folder

For Macintosh computers:

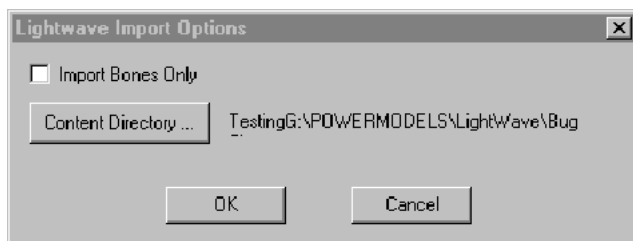| File	Move to
LWS.in	Life Forms folder /Plug-ins folder
LWS.out	Life Forms folder /Plug-ins folder
ScnMan.lib	Life Forms folder
ObjMan.lib	Life Forms folder

Import Options

When importing a LWS scene file you may choose to import just bones from the scene.

Please note that Life Forms 3.9 can paste motion data to LightWave bones in the same way described above in the segmented model tutorial. You can also animate the bones by keyframing. If you are using Life Forms Studio 3.0 or less, mapping to LightWave bones is not available. With Life Forms 3.5, please download the latest plugins from our support webpage.

Importing or Opening an LWS file

1   Choose **File menu > Open**.

2   In the File types drop-down menu, select LightWave.LWS.

3   Browse and select the LWS file.

4   The following dialog box appears:.

•   Select the **Import Bones Only** checkbox when you have set up bones for animating a single-mesh model. The geometry of a single-mesh model (i.e. not segmented) is usually quite large and takes a long time to import. Since Life Forms does not deform meshes we do not need to import it. Hence, click **Import Bones Only**.

•   **Do not select Import Bones Only** checkbox when you want Life Forms to read-in scene objects, segmented models or Puppet sections from the LWS file.

5   In the Import Options dialog box, click **Content Directory**.

6   Do one of the following:

•   **WINDOWS:** In the **Specify Content directory dialog box**, browse and locate the folder that contains the object files for the scene. Click on one of the object (.lwo) files to select it. Click Open.

•   **MACINTOSH:** In the Specify Content directory dialog box, browse and locate the folder that contains all the object folders for the scene. Click Open.

7   In the Import Options dialog box, click OK.

Note: The zero angle position of bones imported from LightWave 3D is such that the skeleton lies on the floor facing upwards. You can't change the zero angle position, but you can give the skeleton a default shape or position that will make it easier to work with. See "Setting the Default Shape" on page 28.

Export Options

Life Forms gives you the following options when exporting motion as an LWS file:

- Export with Bones Only.
- Export with Geometry Only.
- Export Keyframes Only.
- Merge to existing LWS file.

Merging motion data

You can import an LWS file into Life Forms, animate the scene objects and models and insert the keyframe data into the original LWS file by using the Merge Option. The merge process preserves all the material, lighting and camera set up in the LWS file. It is highly recommended.

When you do a Merge, you are inserting the keyframe data from the Life Forms animation to corresponding hierarchies in the LightWave scene file and saving it as a new LightWave scene file. If Life Forms cannot find the identical bone or object hierarchy in the LightWave scene file you are merging to, the export will fail.

Merge scenarios

There are two types of Merge scenarios:

- **Type I**: Merging to a LWS file originally created in LightWave 3D
- **Type II**: Merging to a LWS file previously exported from Life Forms.

What's the difference between these scenarios? How do I choose which Merge process to use?

Scenario for using Type II

After exporting a LightWave LWS file from Life Forms which contains both motion and geometry, you can merge motion data to this file without re-exporting the geometry. If this is what you want to do, then you should choose the second merge scenario: Merging to an LWS file exported from Life Forms.
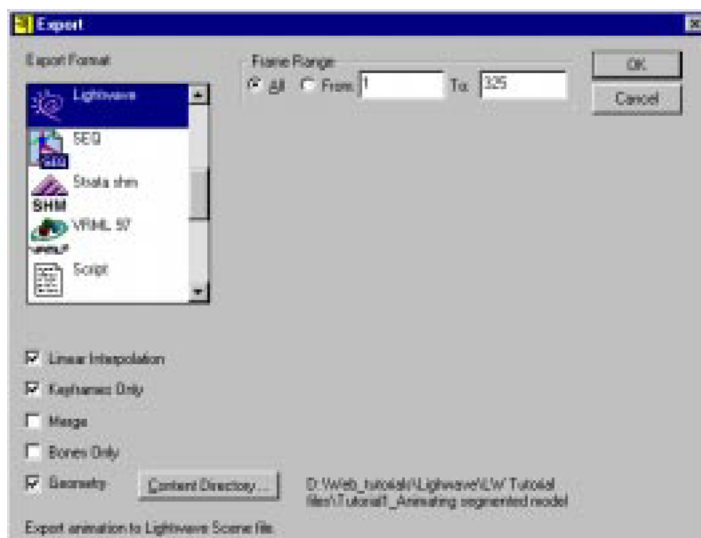
Scenario for using Type I

If you have a model in a LightWave scene file, and you imported it into Life Forms for animation, you must merge the motion data to the original scene using Merge Type I. This process is outlined in Tutorial 1: Animating Custom Models.

If you are unsure which Merge type to use, check the joint names of the model or skeleton in the Life Forms animation you are exporting. Do this by selecting a joint
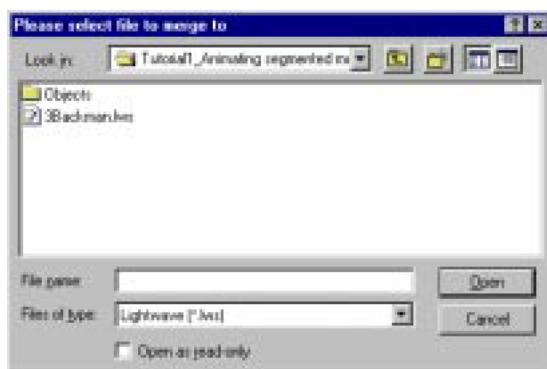
Model Prep

in the Figure editor window. The joint's name is displayed in the Joint Axis Indicator panel in the Figure editor. If the joint name has ".lwo" in it, you should use Merge type I. If not choose Merge type II.

Type I: Merging to a LWS file created in LightWave

1   Click on any window of the animation you want to export. Then, choose **File menu > Export**.

2   In the Export dialog box, select **LightWave** from the **Export Format** list as shown.

3   Click the **Merge File... button**.

4   Select the LWS file that you want to merge the motion data to.

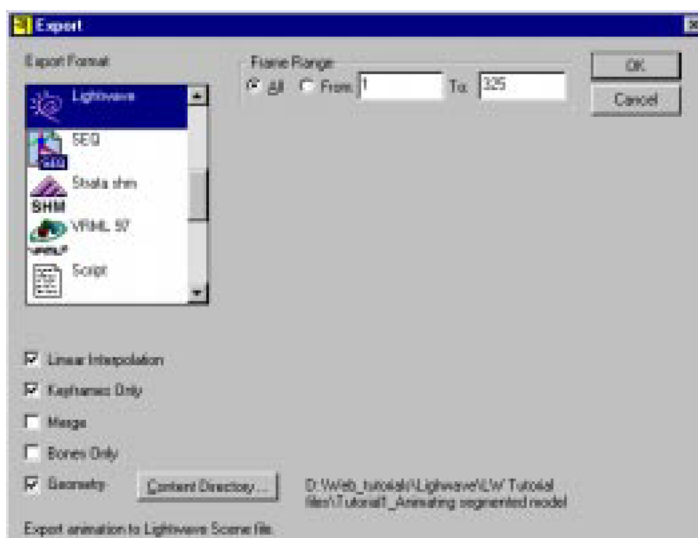**5**   Choose whether or not to export **Keyframes Only** as follows:

- Select Keyframes Only to export only the Keyframe data.
- Do not select Keyframes Only if you want to export all frames as keyframes.

Note: When you export keyframes only, the animation is easier to work with in LightWave 3D. However, the motion may not be exactly the same as in Life Forms.
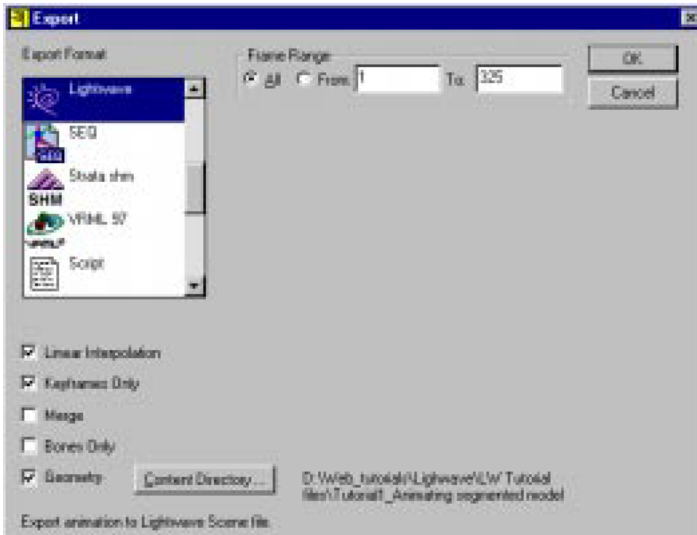
6   Click **OK**.

7   Name and Save the LWS file.

Type II: Merging to an LWS file created in LightWave

1   Click on any window of the animation you want to export. Then, choose **File menu > Export**.

2   In the Export dialog box, select **LightWave** from the **Export Format** list as shown.

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3   Clear all the Export option checkboxes.

4   Then, click the **Merge File... button**.

5   Select the LWS file that you want to merge the motion data to.

6   Choose whether or not to export **Keyframes Only** as follows:

   •   Select Keyframes Only to export only the Keyframe data.

   •   Do not select Keyframes Only if you want to export all frames as keyframes.

   Note: When you export keyframes only, the animation is easier to work with in LightWave. However, the motion may not be exactly the same as in Life Forms.

7   Click **OK**.

8   Name and Save the LWS file.

Exporting Bones to an LWS file

You can export the motion as a set of bones. This is useful for exporting motion capture skeletons as LightWave bones. In LightWave, you can then load a mesh and attach bones to it.

1   In Life Forms, click on the animation's stage window to make it active.

2   Choose **File menu > Export**.

3   In the Export dialog box, select **LightWave** from the **Export Format** list.

4   Click the **Bones Only** checkbox.

5   Choose whether or not to export **Keyframes Only** — By default Life Forms exports all frames as keyframes. Exporting only Keyframes instead of all

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frames makes the animation easier to manipulate in LightWave 3D. Again, the animation may not be the exactly the same as in Life Forms.

6   Click **OK**. Name and save the LWS file.

Exporting Geometry to an LWS file

You can export the model geometry and the motion data as a LightWave scene file. Each object in the Life Forms animation will be exported as an LWO object file.

1   In Life Forms, click on the animation's stage window to make it active.

2   Choose **File menu > Export**.

3   In the Export dialog box, select **LightWave** from the **Export Format** list.

4   Click the Geometry checkbox.

5   **Set the Content Directory.**
     Click the Content Directory button. In the Select Content Directory dialog box, do one of the following:

   • **WINDOWS:** In the **Specify Content directory dialog box**, browse and locate the folder that contains the Object folder and other resource folders for your LightWave projects. In order for Life Forms to recognize this folder as the Content directory, you must click on any file in the Content directory and click Open. Any file will do. Life Forms will not alter this file in any way. If you do not have a file in the Content directory, please put one there and try again.

   Note: Life Forms cannot recognize a folder when it is empty. Allow Life Forms to "see" the folder by moving any file into it. It doesn't matter what the file is.

   • **MACINTOSH:** In the Specify Content directory dialog box, browse and locate the folder that contains all the object folders for the scene. For example, if object files for the scene are stored in the **subdirectory of Humans folder**. In the Specify Content directory dialog box, select the folder and click "Select Content directory". Click Open.

6   Choose whether or not to export **Keyframes Only** — Exporting only Keyframes instead of all frames makes the animation easier to manipulate in LightWave.

7   Click **OK**. Name and Save the file.

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Life Forms exports an LWS file to the Content directory and creates an Objects folder there. It exports all LWO files for this scene file to a sub-folder of the Objects folder.

Reducing the number of keyframes

Keyframe-dense data can be difficult to manipulate. By reducing the number of keyframes you will make the scene file smaller. You also make the animation easier to modify in LightWave. To reduce the number of keyframes exported, you should:

• Use the **Thin Keyframes** command.
• Choose export **Keyframes Only** when exporting LWS files from Life Forms. If you do not check Keyframes Only, Life Forms creates a keyframe for every frame of the animation when it writes the LWS file.

To thin a motion captured animation

1 **Select the range of frames you want to thin.**
   In the Timeline window in Life Forms, hold down the SHIFT key and click on the first frame in the range. Scroll to the last frame in the range and click on it. The range of frames you selected should now be enclosed.

2 **Open the Thin Keyframes dialog box**
   Choose **Edit menu > Thin Keyframes**. You can thin some motions more than others. For a simple motion sequence you may choose to keep as few as 1 keyframe every **5** frames.

3 **Experiment to determine the ideal ratio**
   Click **Play** in the Control Panel and examine the quality of the thinned an-imation. Click **Edit menu > Undo** if you are not satisfied with the result.

Setting the Default Shape

It is helpful to be able to reset the figure to a predefined neutral shape. In Life Forms this shape is referred to as the figure's default position. The default position is an arbitrary pose or shape that you determine. When you set the figure's default position you are not modifying the model's geometry or zero angle position.

To set the model's default shape

1 In Life Forms, double-click on the figure in the Stage window to open the Figure editor window.

2 Position the joints to the desired default position in the Figure editor win-dow.

3 Select the entire figure by double-clicking it.

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    4   Choose **Edit menu > Set Default Shape**.

Considerations

    1   Models must be polygonal meshes

    2   Models must have only one null root object when imported into Life Forms.

    3   Only the root of a hierarchy may contain translations, when importing LWS files with animation.

    4   Importing Scene files with Motion data into Life Forms is generally NOT recommended.

    5   Merging animation to Scene files that contain motion data is NOT recommended.

    6   Life Forms does not read LightWave's IK settings from the Scene file.

Feedback

If you have suggestions or corrections to make email them to
info@CharacterMotion.com.