

MORPHING CLOTHES

Manual Version 1.3

Content

Important Information.....	1
Copyright.....	1
Disclaimer.....	1
Usage Rights.....	1
1. Overview.....	2
1.1. Quick Start.....	2
1.2. How Does It Work.....	2
2. User Interface.....	3
2.1. Figure Tab.....	3
2.2. Clothing Tab.....	5
2.3. Transfer Tab.....	6
2.4. Batch Tab.....	9
3. Options.....	9
3.1. Options.....	9
3.2. Runtimes.....	10
4. Transferring Morphs to Clothes.....	10

Ralf Sessler

Dimension 3D

E-Mail: d3d@sesseler.de

Internet: d3d.sesseler.de



Important Information

Copyright

Morphing Clothes is © Copyright 2008-11 by Ralf Sessler. All rights reserved.

Disclaimer

There is no warranty beyond the legal minimal warranty. In no case, the author shall be liable for any damage on hardware or software caused by using *Morphing Clothes*.

Usage Rights

There are no limitations in using the morphs and Poser files created by *Morphing Clothes*. However, when distributing any of these files, it's the responsibility of the user to ensure that this does not violate the rights of any third parties like the original creators of figures and clothes used to create the morphs.

1. Overview

Morphing Clothes transfers morphs from a Poser figure to conforming clothes that were made for this figure. While it is mainly intended to transfer morphs from human figures to clothes it is not restricted to this. It can also be used to adjust hair to different head shapes or for animal accessory like a saddle.

1.1. Quick Start

To transfer morphs from a figure to a clothing, do the following three steps:

- *Figure tab*: Load the figure and select the morphs to transfer.
- *Clothing tab*: Load the clothing.
- *Transfer tab*: Set up the transfer and start it.

When you start *Morphing Clothes*, the tab for the figure is initially selected. Press the *Load* button and load the figure with the morphs. Then, select the morphs to transfer in the list by clicking on the check mark to the left of each morph.

Press the *Clothing* button at the top to switch to the clothing tab. Press the *Load* button in the right bottom corner and select the clothing.

Press the *Transfer* button at the top to switch to the transfer tab. For now, simply use the default settings for most options. If the clothing has no separate legs, check *Clothing is Skirt etc.* Select an output type, most safe and easy to handle is the second one, which creates a new full working clothing figure with the additional morphs. Enter a file name for the new clothing and press *Transfer* to start the transfer.

Note: Don't start by transferring all morphs to all your clothing. Read this manual first and get some skill in using the application to get the best results without too much effort.

1.2. How Does It Work

To understand how to choose a settings for a morph transfer and why some generated morphs are not as good as others, you should have a general idea about how *Morphing Clothes* transfers morphs from a figure to clothes.

Morphing Clothes uses a statistical method to transfer morphs based on nearby points in the figure and how they are morphed. You can control the transfer mainly by the number of sample points in the figure used to calculate the morph for each point in the clothing and by the influence each sample has based on the distance between each sample point and the point to morph.

2. User Interface

The main window of Morphing Clothes consists of the menu buttons at the top, the status bar at the bottom, and the input area in the middle. The status bar reports the progress during the morph transfer, with the current processing step to the left and a progress bar for this step to the right.

The menu buttons are:

- *Figure*: Shows the figure tab.
- *Clothing*: Shows the clothing tab.
- *Transfer*: Shows the transfer tab.
- *Batch*: Shows the batch transfer tab.
- *Info*: Shows version information for the application.
- *Options*: Opens the options dialog.
- *Runtimes*: Opens the runtime selection dialog.
- *Exit*: Closes the application.

The input area is divided into four sections that are switched using the four leftmost menu buttons.

2.1. Figure Tab

In the figure tab, you load the figure (or prop) that contains the morphs to transfer and select which morphs to transfer. The field at the top shows the currently loaded figure file. Below is a list with all morphs in this figure. At the bottom are the menu buttons for the figure.

To load a figure, use the *Load* button or drag'n'drop a file to the figure tab. You can also load a recently used figure by selecting it from the menu opened by the > button. If a figure file contains more than one figure or prop, you are prompted to select the one to use for morph transfer.

With the *Inject* button, you can add morphs from morph injection poses to the figure.

Note: Inject is somewhat simplified and may differ from injecting morphs in Poser in some cases.

Binary morph injections are not supported. You may also inject the morphs you want to transfer in Poser and then save the figure with morphs as a new figure to the library.

Note: Instead of the regular morph injection pose, you can also use the pose with the deltas, which is in the folder !DAZ/./deltas and starts with InjDeltas for DAZ standard morphs.

Note: In version 1.3, there's no more special handling for ExP-morphs. You can use morph injections for Victoria 4 and Michael 4 now like any other morph injection.

Click on the *Details* button to open a dialog box with some information about the figure.

Morph List

The morph list shows all morphs in the figure grouped by dependencies. Usually, there is one controller that subsumes morphs in several body parts (actors) to a full morph. The first column shows the name of the controller as it is listed in Poser. The second column shows the actor where the controller is located. The third row contains the number of morphs that are controlled directly

(first number) or indirectly (second number in braces). You can double click on a morph to show details about it, in particular which morphs in which actors are controlled by it.

There are four types of morphs indicated by the letter in front of the morph:

- **C**: A controller that controls one or several morphs (value parameter).
- **M**: A morph (target geometry). A morph may also control morphs in other body parts.
- **D**: A dependent morph that is controlled by a parameter of an actor (joint control).
- **V**: A virtual controller. This is a controller located outside the figure itself (cross-talk).

Note: For dependent morphs, the list shows the name of the first morph with the name and actor of the controller in brackets. Thus, you know from the display name of the controller in Poser by which parameter the morph is controlled in the figure.

The check mark left to each morph is used to mark a morph for transfer. Only marked morphs are transferred to the clothing. You can mark morphs as follows:

- Click on a check mark to toggle it on/off.
- Select several morphs and right click on them to set/unset the check mark for all of them.
- Press *Preset* and select a figure preset from the preset menu.
- Press *Select* for a menu to select specific types of morphs.
- Press *Deselect* for a menu to deselect specific types of morphs.

The select and deselect menu contain the following entries:

- *Selection*: the selected morphs
- *All*: all morphs in the list
- *In Clothing* (deselect only): morphs that exist in the clothing (same name and actor)
- *Controls/Morphs/Dependent/Virtual*: morphs of the particular type (see above)
- *Body/Head/Other*: morphs in the body, head, or other actors

Note: You can change in the options the level of detail for morphs to include in the list.

Note: Not all dials in a figure are actually morphs, even if they change the figure shape. If something is not listed, it's most likely a magnet or scaling. E.g. the dials to move the breast up/down/in/out in V4 are magnets, ChestSize and LegsLength in V4 scale body parts.

Search Bar

With the search bar, you can search for morphs in the morph list. You can search for the name of the morph, the actor, or both. For the morph name, there are three search modes. You can search for any occurrence of the entered text (*any*), for morphs starting with that text (*prefix*), or for the exact name (*full*). Actors always use the prefix method. *O* searches for the first occurrence, *>* for the next (or first), and *<* for the previous (or last). The *?* button shows or hides the search bar.

Excluding Groups or Materials

The geometry of a figure might contain parts that are not relevant or even misleading when transferring morphs. You can exclude these parts either by group or by material.

Press the *Exclude* button to open a dialog with lists of all groups and materials of the figure geometry. Select those groups and/or materials that you want to exclude.

An example for parts to exclude are additional layers for overlays, e.g. the *PubicHair* material in the DAZ Unimesh figures. You can also exclude parts which are not covered by clothing to speed up processing, e.g. head, eyes, hands, and fingers for most clothes.

Note: If a vertex belongs to several groups, it is excluded only if all of its groups are excluded.

Presets

A preset defines a set of morphs to transfer as well as the groups and materials to exclude. You can use them to save settings you often use with a particular figure.

To apply a preset, press the Preset button and select a preset. To add a new preset, press the + button and enter a name for the preset. (Existing presets with the same name are overwritten.) To delete a preset, press the - button and select the preset to delete.

Note: Presets are accumulative, i.e. when applying a presets the current setting is not reset. This allows to define partial presets that can be combined.

2.2. Clothing Tab

In the clothing tab, you load the clothing figure or prop to which to transfer the morphs. It is similar to the figure tab. It also has a field at the top with the currently loaded file and a list with the morphs in this file. The morph list is just a reminder so you know which morphs are already present in the clothing. You load a clothing figure or prop with the load button or by drag'n'drop.

A double click on a morph in the list will show you details about this morph. With the details button, you open a dialog with some detail information about the clothing figure. These details are the same as in the figure tab (see above).

Solid Materials

Some parts of clothing may be solid, e.g. buttons. To prevent distortions of these parts when transferring morphs, press the Solid button and select the materials that should be considered solid. For these materials, each interconnected part will be morphed with the same value.

Excluding Groups or Materials

With the Exclude button, you open a dialog with lists of all groups and materials of the clothing geometry. Select those groups and/or materials for which no morphs should be transferred.

Excluding parts of the clothing is useful for body handles and other parts that have a geometry, but are not part of the clothing itself or should not be morphed for whatever reason.

2.3. Transfer Tab

In the transfer tab, you set the options for the morph transfer. (See section 4 for more details about how to choose a good setting in less technical terms.)

Press the *Transfer* button to transfer the selected morphs from the loaded figure to the loaded clothing using the settings of this tab. If the transfer can't be started, you are informed by a message box about the reason. During the transfer, you can stop the process by pressing the Abort button which is displayed instead of the Transfer button.

Transfer Options

The transfer options control how to transfer the morphs. The most important setting is *Maximum Samples*. It determines how many morphs of the figure are used to calculate the morph for each point in the clothing. In general, a lower number of samples results in a more direct transfer, while a higher number of samples creates smoother morphs.

The *symmetry samples* are additional samples to prevent ignoring samples that have the same distance than some included samples because of the maximum samples limit. This is a rather rare case and usually does not cause visible asymmetries. To turn this option off, set it to 0. There's no safe value that applies to all cases, but 3 seems to be enough.

Note: Higher values for samples increase memory usage and calculation time.

The *distance weight* determines how much each morph sample affects the resulting morph depending on the distance between the point in the clothing and the samples in the figures. The value 0 will give the same weight to each sample, 0.5 uses a linear weight, 1 uses a quadratic weight. In general, higher values result in more detailed transfers, lower values in smoother morphs.

Note: The values 0 and 1 for distance weight are fastest.

Using *Separate Left and Right Actors* prevents that samples are created from the wrong side of a figure, e.g. that morphs from the left leg are transferred to the right leg because the points in the mesh of the legs are too close or even are overlapping. This is recommended for clothes that cover the legs, in particular for figures with few space between the legs like Michael 4.

Note: This may both, increase or decrease the transfer time depending on the figure and the clothing. It is required that the left and the right actor have the same name except that one starts with *l* or *L* and the other with *r* or *R*.

The *distance falloff* start and end set a range to fade out the influence of figure morphs to the clothing based on the distance (in Poser units). This is mainly used to limit the search for samples, but can also be used in some cases to deliberately fade out the morph for parts of the clothing that have some distance to the figure.

If you check *Ignore Actors not in Figure*, no morphs are transferred to those parts of the clothing that have no corresponding actor in the figure. This is useful to automatically exclude actors like body handles, which have a geometry but don't require morph transfer. If you check *Ignore Actors*

Hidden in Clothing, no morphs are transferred to body parts that are turned off in the clothing. To explicitly exclude actors, use the *Exclude* button in the clothing tab (see above).

With *Ignore Morphs already in Clothing*, morphs are not transferred if a morph with the same (internal or display) name already exists in the clothing. This is mainly useful for the batch mode. However, this is not too reliable because the name of the morph in the clothing may be different from the one in the figure or even different morphs may use the same name.

Skirt Options

For skirts and other clothing which have no separate legs, it makes not much sense to transfer morphs to the region below the hip because the cloth has a too different shape than the figure in this region. Instead, the morphs should fade out at the hip.

Note: For the skirt options to work, it is required that the figure has an actor with the name hip and that the hip is oriented vertically. For most human Poser figures, this is the case.

This is done by checking *Clothing Is Skirt etc.* Then, you can define a range relative the top and bottom of the hip where the influence of each morph gradually decreases using the *hip falloff range* start and end. These values are relative values, where 0 is the topmost point of the hip in the figure and 1 is the lowest point. You can also use values outside of 0 to 1.

Note: Using relative values for the hip range makes it more independent from a particular figure. Nonetheless, the best values may depend on the figure as well as on the clothing. Select the hip actor of a figure in Poser to see where it starts and ends in the vertical direction.

To be able to adjust the skirt to the body shape below the hip, you can include a special morph by checking Add Morph to Widen. This morph will widen or tighten the skirt relative to the center axis of the hip. It is blended in by the same range which is used to fade out the other morphs. If you check Split X/Z, separate morphs are created for the X and the Z axis.

Morph Options

Check Enable Cross Talk to link the morphs of the clothing to those of the figure. If you check Dependent Morphs Only, cross talk is used only for those morphs, that are not controlled directly, but by other figure parameters.

Note: In the options, you can chose to use standard or controllable cross talk. With controllable cross talk, you can still control all morphs in the figure by the dials in the body actor of the clothing for fine adjustments.

Note: Cross talk sometimes causes problems and seems to be not working the same way in all versions of Poser. Controllable cross talk can even crash Poser 5 if the clothes have morphs with controllable cross talk, but the figure misses some of these morphs. Also, problems for Poser 6 have been reported, if the cross talk refers to a morph in a different actor than body.

Check Hide Controlled Morphs to hide all morphs that are controlled by any other parameters. If you check Independent Morphs Only, dependent morphs are not hidden.

Output

There are five output formats for the transferred morphs:

1. *Insert into clothing file*: This changes the existing clothing file (and PMD file for binary morphs) directly by adding the transferred morphs.
2. *Insert into new copy of clothing file*: This creates a new copy of the clothing file (and of the PMD file if binary morphs are used) and adds the transferred morphs into it.
3. *Create loader file with morphs*: This creates a file with the morphs only, which first loads the original clothing file and then adds the transferred morphs.
4. *Create binary morph injection*: This creates a PMD file with the transferred morphs and a pose to inject them.
5. *Create binary morph injection and remove*: This creates a PMD file with the transferred morphs and poses to inject and remove them. The remove pose has the name as the inject pose with `_REM` appended.

Notes:

- Format 1, 2, and 3 create a figure file. It has to be located in the *character* library with the extension CR2 or CRZ. Format 4 and 5 create pose files with the extension PZ2 or P2Z that have to be located in the *pose* library.
- Because format 1 overwrites the original clothing file, you should use it carefully.
- By default, a single backup is created when overwriting existing files. Existing backups are overwritten.
- Formats 1 and 2 use embedded or binary morphs depending on the morph type already used. If there are no morphs, it depends on the options. Format 3 always uses embedded morphs, format 4 and 5 always binary morphs.
- Format 3 is somewhat uncommon. Cross talk might not work, and relative path might work only if the clothing file is in the same runtime as the loader file.
- Format 4 and 5 create the PMD file in the same directory as the pose file. Format 2 creates new PMD files at the same place as the existing PMD or at the location of the geometry. For format 1 and 2, you can set in the options to create the PMD file in the same folder as the clothing file.

For output, you can either set an explicit output file, or just an output path and the original file name is used. With the button *Clothing*, you can copy the original file name of the clothing to the input field for the output file. With the buttons *File* and *Path*, you can select a file or path.

Presets

You can define presets for transfer, skirt, and morph options. Press the + button to add a preset by entering a name and selecting which type of options to include in the preset. Press the *Preset* button and select a preset to load it. To delete a preset, press the - button and select the preset to delete.

2.4. Batch Tab

In the batch tab, you can convert several clothes with the same settings at once. Add files to the batch list by pressing *Add* or by drag'n'drop. *Remove* removes the selected files and *Reset* removes all files from the batch list.

In batch mode, the clothing from the clothing tab and the output file from the transfer tab are not used. Instead, the files from the batch list are processed and the output settings from the batch tab are used. You can either save the output with the same file name to a different path or in the same path by appending a string to the file name. Use the *O* button to select a path.

Press *Transfer* to start the transfer. During the transfer, a log window reports the start and end of processing for each clothing file. Press *Abort* to stop the processing.

3. Options

3.1. Options

Write File

Line end: Poser files are text files and different operating systems use different characters to mark line ends in text files. Select your preferred style here, Poser accepts any style.

Compression: Poser uses the GZIP file format for compressed files. You may use the default compression level or select a level from 1 - fastest (de)compression - to 9 - smallest file size.

General

Check *Create backups* to keep a backup before overwriting an existing file. Existing backup files are overwritten.

With *Auto-select single figure* checked, you are not prompted for selection if a content file contains a single figure together with one or several props, but the figure is used.

Check *Use relative path* to use relative paths when creating new references to files.

Uncheck *Use controllable cross-talk* to use standard cross-talk, which links the single morphs in the figure directly to the controller in the selected figure.

Check *Use binary morphs by default* to use binary instead of embedded morphs if the morphs are inserted into a clothing file which contains no morphs.

Check *Store New PMDs in Libraries* to store new PMD files in the same folder as the clothing file.

The *Rounding Precision* is the floating point precision used for embedded morphs. It also defines the limit below which morphs are considered to be zero and ignored.

Include in Morph List

You can select which controlled morphs to show in the morph list:

- *No controlled morphs*: This hides any morphs that are controlled by other parameters.
- *Multi-controlled morphs only*: This hides morphs controlled by a single parameter.
- *All controlled morphs*: This shows all morphs.

When *Hidden morphs/controllers* is checked, the list also shows morphs and controllers that are not shown in Poser.

Note: Changes of this option do not affect the currently loaded figures.

3.2. Runtimes

The Runtime list contains the runtime folders to be used when resolving the path of references to external files like geometries or textures. There are two ways to locate Runtimes, either by naming an explicit folder, or by referring to a LibraryPrefs.xml file that contains all Runtime folders used by a particular Poser version. In the list, you can mark which Runtimes to use. This may be useful when using several Poser versions.

With the *Add* button, you open a menu to add a particular folder, to add a LibraryPrefs.xml file, or to import the folders from a LibraryPrefs.xml file. This can be done by locating the file or folder or by auto-locating it for a particular Poser version that is installed on your computer. To add LibraryPref.xml has the advantage, that changes in the Runtime list of Poser are recognized automatically. To add explicit folders has the advantage, that you can enable/disable them directly. The *Remove* button removes all selected entries from the list.

Note: For Poser versions older than Poser 8, the main Runtime is listed in the LibraryPrefs.xml with a relative path. Therefore, you have to add the main Runtime additionally as a folder in that case.

4. Transferring Morphs to Clothes

With Morphing Clothes, you can make any clothes fit any morphs of a figure. Unfortunately, the results vary depending on all involved parameters: the figure, the clothing, the morphs, and the transfer options. That's why it makes not much sense to batch convert all morphs of a figure to all clothes with one setting.

Selecting the Morphs

The first decision is which morphs to transfer. Only transfer those morphs you actually need and which are not yet in the clothing. Also, some kind of morphs are not required in the clothing because they change details that are not reflected by the clothing. If you transfer several morphs at once, it may improve the quality if you make more than one transfer, including only morphs that transfer well with the same setting in each transfer.

While you can transfer any number of morphs at once, this is usually not the best approach. Often, you just need morphs to fit a particular clothing to a particular character (morphed figure), simply because you want this character to wear that clothes. Again, instead of transferring all the morphs used to build this character, it's better to transfer just a single morph.

If your character is a combination of several morphs, you can convert them to a single morph in Poser using my free Python script *Spawn FBM*, available at:

http://d3d.sesseler.de/index.php?software=poserpython&product=spawn_fbm

This script creates a single morph from the current morph setting and optionally removes all other morphs. Just save the result as a new figure and use it in Morphing Clothes.

A similar solution for DAZ Studio can be found here:

<http://forum.daz3d.com/viewtopic.php?p=2832240>

Note: Before you create the single morph, you should turn off detail morphs like navel shape or nipples, except if you want them to be visible in the clothing. If the clothing already contains some of the morphs used for the character, you can turn them off as well and then mix the original morphs with your transferred morph.

Selecting the Transfer Options

There's no reliable rule about how to set the transfer parameters, but there are some rules of thumb. First of all, there's one parameter that has the most influence on the result: the number of samples. Lower numbers will preserve more details, but there's also some risk to get unwanted bumps in the clothing. Higher numbers will result in smoother morphs, but there's more risk of poke-throughs. Hence, for tight fitting clothes and for detailed morphs, lower numbers will usually be the better choice. For clothes with some space to the body and for smoother morphs, higher numbers may yield better results. Also, if the mesh resolution of the clothing differs much from that of the figure, higher sample numbers are better. While the application accepts values from 1 to 300 for samples, according to my experience values between 4 and 10 are the best in most cases.

For the distance weight, lower values result in smoother morphs while higher values preserve more details. Again, smoother also means a higher risk of poke-throughs and more details imply a higher risk of bumps. According to my experience, the value 1 does well in most cases.

The distance falloff range makes not much difference in most cases, if it is high enough to not exclude relevant samples. (The average diameter of an adult Poser figure is about 0.2 to 0.25 Poser units, so the default start of 0.05 should be safe for most clothes.)

Transferred Morphs

For each morph selected in the morph list of the figure, one morph will be created in the clothing, except if the morph does not change the clothing, i.e. all deltas are zero. If the transferred morph spans several body actors or has a separate controller, a controller for the full morph is created in the body actor of the clothing. Morphs that affect only a single actor of the figure may nonetheless

span several actors in the clothing because there may be differences in how the mesh is assigned to actors.

Note: To fit the figure morphs, the controller in the body actor of the clothing must have the same value as in the figure. For dependent morphs, this is the value of the controlling parameter, not the value of the morphs.

Limitations

Because the morph transfer is based on purely mathematical methods, there are inevitable limits in quality, in particular compared to hand-made morphs which take aesthetical aspects into account. Clothing details like buttons may lose their shape and there may be distortions in the shape of the clothing. In general, morphs that mainly change the figure shape along the normals (i.e. in an orthogonal direction to the surface) transfer best. Except for skirts and the like, the clothing should follow the body shape, because the sample points are selected by minimal distance between clothing and figure.

Even if the morphs are not perfect, they are usually still better than no morph at all. Smaller poke-throughs often can be fixed by using somewhat different morph values in the clothing than in the figure. Otherwise, poke-throughs may be handled by turning off the actor in the figure or by postwork using one render with the actor on and one with the actor off.